method characterized by the step of storing protected video function control information designed to be securely processed by said incorporated secure processing unit(s).

163. An electronic appliance arrangement containing one or more video controllers where at least one of the video controllers incorporates at least one secure processing unit, said arrangement storing protected video function control information designed to be securely processed by said incorporated secure processing unit(s), wherein at least a portion of said video function control information is stored within a secure database operatively connected to at least one of said at least one secure processing units.

164. In an electronic appliance arrangement containing one or more video controllers where at least one of the video controllers incorporates at least one secure processing unit, a method including the steps of storing protected video function control information designed to be securely processed by said incorporated secure processing unit(s), within a database operatively connected to at least one of said at least one secure processing units.

165. An electronic appliance arrangement containing one or more video controllers and at least one secure processing unit,



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said arrangement storing component, modular protected video function control information designed to be securely processed by said secure processing unit(s), wherein at least a portion of said video function control information is stored within a secure database operatively connected to at least one of said at least one secure processing unit(s).

166. An electronic appliance arrangement containing one or more video controllers and at least one secure processing unit, a method including the step of storing component, modular protected video function control information designed to be securely processed by said secure processing unit(s), within a secure database operatively connected to at least one of said at least one secure processing unit(s).

167. An electronic appliance arrangement containing at least one secure processing unit and one or more network communications means where at least one of the network communications means incorporates at least one further secure processing unit, said arrangement storing protected networking control information designed to be processed by said incorporated secure processing unit(s).

168. In an electronic appliance arrangement containing at least one secure processing unit and one or more network



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communications means, a method characterized by the steps of incorporating, within at least one of the network communications means, at least one further secure processing unit, storing networking control information at least in part within said incorporated secure processing unit(s), and securely processing said protected networking control information with said secure processing unit(s).

169. An electronic appliance arrangement containing one or more modems where at least one of the modems incorporates at least one secure processing unit, said arrangement storing modular, component protected modem control information designed to be securely processed by said incorporated secure processing unit(s).

170. In an electronic appliance arrangement containing one or more modems where at least one of the modems incorporates at least one secure processing unit, a method characterized by the step of storing and securely processing modular, component protected modem control information with said incorporated secure processing unit(s).

171. An electronic appliance arrangement containing at least one secure processing unit and one or more modems where at least one of the modems includes at least one further secure



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processing unit, said arrangement storing protected modem control information designed to be securely processed by said included secure processing unit(s).

172. In an electronic appliance arrangement containing at least one secure processing unit and one or more modems where at least one of the modems includes at least one further secure processing unit, a method including the step of storing and securely processing protected modem control information within said included secure processing unit(s).

173. An electronic appliance arrangement containing at least one secure processing unit and one or more CD-ROM devices where at least one of the CD-ROM devices incorporates at least one further secure processing unit, said arrangement storing protected CD-ROM control information designed to be securely processed by said incorporated secure processing unit(s).

174. In an electronic appliance arrangement containing at least one secure processing unit and one or more CD-ROM devices where at least one of the CD-ROM devices incorporates at least one further secure processing unit, a method characterized by the step of storing and securely processing protected CD-ROM



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control information within said incorporated secure processing unit(s).

175. An electronic appliance arrangement containing one or more network communications means where at least one of the network communications means incorporates at least one secure processing unit, said arrangement storing modular, component, protected networking control information designed to be securely processed by said incorporated secure processing unit(s).

176. In an electronic appliance arrangement containing one or more network communications means where at least one of the network communications means incorporates at least one secure processing unit, a method characterized by the step of storing and securely processing protected networking control information with said incorporated secure processing unit(s).

177. A set-top controller arrangement containing a protected processing environment and a database operatively connected to said protected processing environment, said arrangement further containing control information for controlling usage of said controller based upon processing of at least a portion of said control information within said protected processing environment, wherein at least a portion of said control information is stored within said database.



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178. In a set-top controller arrangement containing a protected processing environment and a database operatively connected to said protected processing environment, a method characterized by the step of: (a) using control information within the set-top controller arrangement for controlling usage of said controller based upon processing of at least a portion of said control information within said protected processing environment, and storing at least a portion of said control information within said database.

179. An electronic game arrangement containing a protected processing environment for controlling the use of electronic games, said arrangement including game usage control information, database means operatively connected to said protected processing environment for, at least in part, storing usage control information for regulating at least some aspect of use of at least a portion of at least one of said games, and traveling objects containing protected electronic game content.

180. In an electronic game arrangement containing a protected processing environment for controlling the use of electronic games, a method including the steps of:

(a) including game usage control information within a database means operatively connected to said protected processing environment; and



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(b) regulating, at least in part with the stored usage control information, at least some aspect of use of at least a portion of at least one of said games.

181. A method as in claim 178 further including the step of regulating the use of traveling objects containing protected electronic game content.

182. An electronic game arrangement containing interoperable protected processing environments for controlling the use of interactive games, said arrangement including protected game usage control information, and database means operatively connected to said protected processing environments for, at least in part, storing game usage control information.

183. In an electronic game arrangement containing protected processing environments, a method comprising:

(a) storing, within a secure database means operatively connected to said protected processing environments protected game usage control information; and

(b) controlling the use of interactive games based at least in part on the storing game usage control information.

184. An electronic game arrangement containing interoperable protected processing environments for controlling



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the use of games, said arrangement including component, modular, protected game usage control information, wherein at least a portion of said protected control information was provided independently by plural parties securing their respective rights in at least one electronic value chain.

185. In an electronic game arrangement containing interoperable protected processing environments for controlling the use of games, a method including the steps of:

(a) providing at least a portion of component, modular, protected game usage control information independently by plural parties; and

(b) using the control information at least in part to securing respective rights of said plural parties in at least one electronic value chain.

186. An electronic multimedia arrangement containing protected processing environments for controlling the use of multimedia, said arrangement including component, modular multimedia usage control information and database means operatively connected to said protected processing environments for, at least in part, storing multimedia usage control information.



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187. In an electronic multimedia arrangement containing protected processing environments for controlling the use of multimedia, a method including the steps of storing multimedia usage control information within a database means operatively connected to said protected processing environments, and using the stored control information to control multimedia.

188. An electronic multimedia arrangement containing a protected processing environment for controlling the use of multimedia, said arrangement including multimedia usage control information, database means operatively connected to said protected processing environment for, at least in part, storing multimedia usage control information, and protected traveling objects containing distributed multimedia electronic content.

189. In an electronic multimedia arrangement containing a protected processing environment, a method characterized by the steps of storing multimedia usage control information within a database means operatively connected to said protected processing environment, and controlling, based at least in part on the stored information, protected traveling objects containing distributed multimedia electronic content.



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190. An electronic multimedia arrangement containing interoperable protected processing environments for controlling the use of multimedia, said arrangement including component, modular, protected multimedia usage control information, wherein at least a portion of said protected control information was provided independently by plural parties securing their respective rights in at least one electronic value chain.

191. A system as in claim 188 further including a secure processing unit.

192. In an electronic multimedia arrangement containing protected processing environments, a method comprising providing at least a portion of component, modular, protected multimedia usage control information independently by plural parties securing their respective rights in at least one electronic value chain, and using the usage control information to control the use of multimedia.

193. A method as in claim 190 wherein the using step is performed at least in part within a secure processing unit.

194. An integrated circuit supporting multiple encryption algorithms comprising at least one microprocessor, memory, input/output means, at least one circuit for encrypting and/or



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decrypting information and one or more software programs for use with at least one of the microprocessors to perform encryption and/or decryption functions.

195. In a secure integrated circuit supporting multiple encryption algorithms comprising at least one microprocessor, memory, input/output means, and providing a protected processing environment, a method characterized by executing at least a portion of one or more software programs with the microprocessor to perform encryption and/or decryption functions within the integrated circuit.

196. An integrated circuit comprising at least one microprocessor, memory, at least one real time clock, at least one random number generator, at least one circuit for encrypting and/or decrypting information and independently delivered and/or independently deliverable certified software.

197. An integrated circuit comprising at least one microprocessor, memory, input/output means, a tamper resistant barrier and at least a portion of a Rights Operating System.

198. An integrated circuit comprising at least one microprocessor, memory, input/output means, at least one real



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time clock, a tamper resistant barrier and means for recording interruption of power to at least one of the real time clocks.

199. A method of distributing information characterized by the steps of compressing information, encrypting the compressed information at the first location, distributing the encrypted information to one or more second locations, using a tamper resistant integrated circuit to first decrypt and then decompress the information.

200. A system for distributing information characterized by:

means for compressing information,

means for encrypting the compressed information at the first location,

means for distributing the encrypted information to one or more second locations, and

means for using a tamper resistant integrated circuit to first decrypt and then decompress the information.

201. A method of securely managing distributed events characterized by the steps of providing secure event processing environments to one or more users, enabling a first user to specify control information for event management through the use of a first secure event processing environment, and managing



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the processing of such an event through the use of a second secure event processing environment.

202. A system for securely managing distributed events characterized by:

a first secure event processing environment for enabling a first user to specify control information for event management, and

a second secure event processing environment interoperable with the first event processing environment for managing the processing of such an event.

203. A method for enabling electronic commerce chain of handling and control characterized by the step of a first and a second party independently specifying protected, modular component control information describing requirements related to the operation of an electronic commerce value chain.

204. A system for enabling electronic commerce chain of handling and control characterized by means for permitting a first and a second party to independently specify protected, modular component control information describing requirements related to the operation of an electronic commerce value chain of handling and control, and means for securely enforcing the requirements described by the control information.



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205. A method for enabling electronic commerce characterized by the step of a first and a second party independently stipulating control information managing the use of digital information, wherein said first and said second party independently maintain persistent rights enforced by said control information as said digital information moves through a chain of handling and control.

206. A system for enabling electronic commerce including:

means for allowing a first party to stipulate control information managing the use of digital information,

means for allowing a second party to stipulate control information managing the use of the digital information, and

chain of handling and control means for maintaining persistent rights enforced by said control information as said digital information moves from one location and/or process to another.

207. A method for secure maintenance of electronic rights comprising a first step of plural parties in a value chain independently and securely stipulating control information regarding their electronic rights, wherein said control information is used to enforce conditions related to the use of electronic information distributed in software containers.



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208. A system for secure maintenance of electronic rights comprising:

means permitting plural parties in a value chain to independently and securely stipulates control information regarding their electronic rights, and

means for using said control information to enforce conditions related to the use of electronic information distributed in software containers.

209. A method for securely controlling the use of protected electronic content including the step of supporting modular separate control information arrangements for managing at least one event related to use of said content such that a user may select between separate control information arrangements for managing such at least one event.

210. A system for securely controlling the use of protected electronic content including modular separate control information arrangements for managing at least one event related to use of said content such that a user may select between separate control information arrangements for managing such at least one event.

211. A method employing separate, modular control structures for managing the use of encrypted digital information



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characterized by the step of enabling commercial value chain participants to support plural relationships between two or more of: (1) content event triggering, (2) auditing, and (3) budgeting, control variables.

212. A system for employing separate, modular control structures for managing the use of encrypted digital information characterized by means for enabling commercial value chain participants to support plural relationships between two or more of: (1) content event triggering, (2) auditing, and (3) budgeting, control variables.

213. A method of chain of handling and control enabling a party not directly participating in an electronic value chain to contribute secure control information to enforce at least one control requirement, said method characterized by a first step of a first value chain participant stipulating control information associated with digital information and a second step wherein said not directly participating party independently and securely contributes secure control information for inclusion in an aggregate control information set including said associated control information, said aggregate control information at least in part managing conditions related to the use of at least a portion of said digital information by a second value chain participant.



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214. A chain of handling and control system for enabling a party not directly participating in an electronic value chain to contribute secure control information to enforce at least one control requirement, said system characterized by:

means for allowing a first value chain participant to stipulate control information associated with digital information,

means for allowing the not directly participating party to independently and securely contribute secure control information for inclusion in an aggregate control information set including said associated control information,

and means responsive to said aggregate control information for at least in part managing conditions related to the use of at least a portion of said digital information by a second value chain participant.

215. A method of electronic commerce control information management for delegating the administration of certain rights held by a value chain party to a second value chain party characterized by the step of said first party stipulating secure control information describing at least a portion of their rights related to one or more chain of handling and control electronic events wherein said first party provides further control information authorizing said second party to administer some or all of said rights as an agent for said first party.



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216. A system for electronic commerce control information management for delegating the administration of certain rights held by a value chain party to a second value chain party characterized by:

means for allowing said first party to stipulate secure control information describing at least a portion of their rights related to one or more chain of handling and control electronic events; and

means for allowing said first party to provide further control information authorizing said second party to administer some or all of said rights as an agent for said first party.

217. A method of governing taxation of commercial events resulting from electronic chain of handling and control characterized by a first step of distributing secure digital information to a user and specifying secure control information controlling at least one condition for use of said digital information and a second step of a government agency securely, independently contributing secure control information for automatically governing tax payments for said commercial events.

218. A system for governing taxation of commercial events resulting from electronic chain of handling and control characterized by:



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means for distributing secure digital information to a user;

means for specifying secure control information controlling at least one condition for use of said digital information; and

means for allowing a government agency to securely, independently contribute secure control information for automatically governing tax payments for said commercial events.

219. A method of governing privacy rights related to electronic events characterized by a first step of a first party protecting digital information containing information descriptive of preventing a second party from at least one unauthorized use and a second step of specifying certain control information related to use of at least a portion of said protected digital information, wherein said control information enforces at least one right of said second party related to privacy and/or permitted use(s) of personal and/or proprietary information included in said protected digital information.

220. A system for governing privacy rights related to electronic events characterized by:

means for permitting a first party to protect digital information containing information descriptive of preventing a second party from at least one unauthorized use;



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means for specifying certain control information related to use of at least a portion of said protected digital information; and

means for using the control information to enforce at least one right of said second party related to privacy and/or permitted use(s) of personal and/or proprietary information included in said protected digital information.

221. A method of governing privacy rights related to electronic events characterized by a first step of a first party protecting digital information from at least one unauthorized use and stipulating certain control information for establishing conditions for use of said protected information and a second step of a user of said digital information stipulating further control information regulating the reporting of information regarding said user's use of at least a portion of said digital information.

222. A system for governing privacy rights related to electronic events characterized by:

means for allowing a first party to protect digital information from at least one unauthorized use and for stipulating certain control information for establishing conditions for use of said protected information; and

means for allowing a user of said digital information to stipulate further control information regulating the reporting of



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information regarding said user's use of at least a portion of said digital information.

223. A secure method for regulating electronic conduct and commerce characterized by a step of distributing interoperable protected processing environments and circulating amongst plural recipients of said protected processing environments software containers containing digital content and related content control information prepared for use by at least a portion of said protected processing environments, wherein said method includes the further step of regulating the use at least some of said digital content based, at least in part, on the secure processing of at least a portion of said control information through the use of at least one protected processing environment.

224. A secure system for regulating electronic conduct and commerce characterized by:

distributed interoperable protected processing environments,

means for circulating, amongst said protected processing environments, software containers containing digital content and related content control information prepared for use by at least a portion of said protected processing environments, and

means within at least some of the protected processing environments for regulating the use at least some of said digital



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content based, at least in part, on the secure processing of at least a portion of said control information.

225. A method of electronic commerce networking for enabling a secure electronic retail environment characterized by the step of supplying user certified control information, smart cards, secure processing units, and retailing terminal arrangements networked together using VDE communication techniques and secure software containers.

226. An electronic commerce networking system for enabling a secure electronic retail environment characterized by:

means for networking together smart cards, secure processing units, and retailing terminal arrangements; and

means for making the smart cards, secure processing units, and retailing terminal arrangements interoperable with one another and with VDE communication techniques and secure software containers.

227. A method of enabling electronic commerce appliances for securely administering user rights in commerce activities characterized by the step of providing to users at least a portion of a VDE node contained within a physical device, said device being configured to be compatible with mating connectors in host



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systems for supporting secure, interoperable transaction activity between plural parties.

228. A system for securely administering user rights in commerce activities comprising a physical device including at least a portion of a portable VDE node, said device being configured to be compatible with mating connectors in host systems for supporting secure, interoperable transaction activity between plural parties.

229. A method for enabling a programmable, electronic commerce environment characterized by the step of providing to multiple parties secure commerce nodes that securely process separate, modular component billing management methods, budgeting management methods, metering management methods, and related auditing management methods and further characterized by the step of supporting triggering of metering, auditing, billing, and budgeting methods in response to electronic commerce event activities.

230. A programmable, electronic commerce environment characterized by secure commerce nodes each including:

means for securely processing separate, modular component billing management methods, budgeting management



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methods, metering management methods, and related auditing management methods, and

means for supporting triggering of metering, auditing, billing, and budgeting methods in response to electronic commerce event activities.

231. An electronic commerce system including modular, standardized control components comprising electronic commerce event control instructions stipulated by commerce participants, and plural electronic appliances containing one or more secure processing units which process at least a portion of such commerce event control instructions, said system further containing one or more databases, operatively connected to at least one of the secure processing units, for at least in part securely storing at least a portion of such control instructions for use by said at least one secure processing unit.

232. In an electronic commerce system including modular, standardized control components comprising electronic commerce event control instructions stipulated by commerce participants, and plural electronic appliances containing one or more secure processing units which process at least a portion of such commerce event control instructions, a method characterized by the step of providing one or more secure databases, operatively connected to at least one of the secure processing units, and at



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least in part securely storing, within the secure databases, at least a portion of such control instructions for use by said at least one secure processing unit.

233. A content distribution system comprising plural electronic appliances containing one or more interoperable secure processing units operatively connected to one or more databases for use with at least one of said secure processing units, said one or more databases containing (a) one or more decryption keys for use in decrypting distributed, encrypted digital information, and (b) encrypted audit information, said audit information reflecting at least one aspect of use of said distributed digital information

234. A content distribution method comprising:

distributing plural electronic appliances containing one or more interoperable secure processing units

operatively connecting the appliances to one or more databases,

storing within said one or more databases one or more decryption keys,

using the decryption keys for decrypting distributed, encrypted digital information, and

storing within the one or more databases encrypted audit information, said audit information reflecting at least one aspect of use of said distributed digital information.



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235. An electronic currency system comprising plural, electronic appliances containing (a) protected processing environments, (b) encrypted electronic currency and related secure control information configured so as to be useable by at least one of said protected processing environments, and (c) usage reporting means for securely communicating electronic currency usage related information from a first interoperable protected processing environment to a second interoperable protected processing environment.

236. An electronic currency method comprising:

distributing plural, electronic appliances containing (a) protected processing environments, (b) encrypted electronic currency and related secure control information configured so as to be useable by at least one of said protected processing environments, and

securely communicating electronic currency usage related information from a first interoperable protected processing environment to a second interoperable protected processing environment.

237. A method for electronic financial activities characterized by the steps of:



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communicating digital containers containing financial information from a first interoperable secure node to a second interoperable secure node,

communicating modular, standard control information to said second secure node to, at least in part, set the conditions for use of at least a portion of said financial information,

reporting information related to said use to said first interoperable secure node.

238. A system for electronic financial activities characterized by:

means for communicating digital containers containing financial information from a first interoperable secure node to a second interoperable secure node,

means for communicating modular, standard control information to said second secure node,

means at the second node for, at least in part, setting the conditions for use of at least a portion of said financial information, and

means for reporting information related to said use from the second secure node to said first interoperable secure node.

239. A method for electronic currency management including:



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communicating encrypted electronic currency from a first, interoperable secure user node to a second interoperable user node using at least one secure container, and

providing secure control information for use with said at least one secure container, said secure control information, at least in part, maintaining conditionally anonymous currency usage information.

240. A system for electronic currency management including:

means for communicating encrypted electronic currency from a first, interoperable secure user node to a second interoperable user node using at least one secure container, and

means for providing secure control information for use with said at least one secure container, said secure control information, at least in part, maintaining conditionally anonymous currency usage information.

241. A method for electronic financial activities management characterized by the steps of:

securely communicating from a first secure node to a second secure node financial information standardized control information for controlling the use of financial information used in a financial value chain,



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securely communicating from said first secure node to a third secure node said financial information standardized control information for controlling the use of financial information used in a financial value chain,

securely communicating encrypted financial information from said second secure node to said third secure node, including communicating secure control information,

processing said financial information at said third node at least in part through the use of secure control information supplied by said first and said second secure nodes, wherein said standardized control information is at least in part stored in a secure database contained within said third secure node.

242. A system for electronic financial activities management characterized by the steps of:

means coupled to a first and a second secure node for securely communicating from said first secure node to said second secure node financial information standardized control information for controlling the use of financial information used in a financial value chain,

means coupled between the first secure node and a third secure node for securely communicating from said first secure node to said third secure node said financial information standardized control information for controlling the use of financial information used in a financial value chain,



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means coupled between the second and third nodes for securely communicating encrypted financial information from said second secure node to said third secure node, including communicating secure control information, and

means at the third node for processing said financial information at said third node at least in part through the use of secure control information supplied by said first and said second secure nodes, and

a secure database at the third node for at least in part storing said standardized control information.

243. A method of information management characterized by the steps of creating at least one smart object at a first location, protecting at least a portion of said smart object including protecting at least one rule and/or control assigned to said smart object, distributing said at least one smart object to at least one second location, securely processing at least a portion of the contents of said at least one smart object at said at least one second location in accordance with at least a portion of at least one said rule and/or control assigned to said smart object.

244. An information management system characterized by:

means for creating at least one smart object at a first location,



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means for protecting at least a portion of said smart object including means for protecting at least one rule and/or control assigned to said smart object,

means for distributing said at least one smart object to at least one second location, and

means for securely processing at least a portion of the contents of said at least one smart object at said at least one second location in accordance with at least a portion of at least one said rule and/or control assigned to said smart object.

245. An object processing system comprising at least one secure object containing at least in part protected executable content and at least one at least in part protected rule and/or control associated with operations related to the execution of such content, and at least one secure execution environment for processing the executable content in accordance with at least a portion of at least one of said at least one associated rule and/or control.

246. An object processing method comprising:

providing at least one secure object containing at least in part protected executable content and at least one at least in part protected rule and/or control associated with operations related to the execution of such content,



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processing, within at least one secure execution environment, the executable content in accordance with at least a portion of at least one of said at least one associated rule and/or control.

247. A rights distributed database environment including (a) means allowing one or more central authorities to establish control information for use of encrypted digital information, (b) interoperable database management systems at plural user sites for securely storing control information and audit information, (c) secure communication means for securely communicating control information and audit information between user sites, and (d) centralized database means for compiling and analyzing usage information from plural user sites.

248. Within a rights distributed database environment, a method characterized by the following steps:

establishing control information for use of encrypted digital information,

securely storing, within interoperable database management systems at plural user sites, control information and audit information,

securely communicating control information and audit information between user sites, and



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compiling and analyzing usage information from plural user sites.

249. A method of distributed database searching characterized by the steps of creating at least one secure object containing search criteria, transmitting at least one such secure object to one or more second locations to perform database searches in accordance with at least one rule and/or control, processing at least one database search based at least in part on the search criteria within a secure object in accordance with at least a portion of at least one of the said at least one associated rule and/or control, storing database search results in the same and/or one or more new secure objects, and transmitting the secure object containing search results to the first location.

250. A method as in claim 247 further characterized by the additional step of associating at least one additional rule and/or control with the search results for establishing at least one condition related to the use of at least one portion of said search results.

251. A system for distributed database searching characterized by:

means for creating at least one secure object containing search criteria,



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means for transmitting at least one such secure object to one or more second locations to perform database searches in accordance with at least one rule and/or control,

means for processing at least one database search based at least in part on the search criteria within a secure object in accordance with at least a portion of at least one of the said at least one associated rule and/or control,

means for storing database search results in the same and/or one or more new secure objects, and

means for transmitting the secure object containing search results to the first location.

252. A system as in claim 249 further characterized by means for associating at least one additional rule and/or control with the search results for establishing at least one condition related to the use of at least one portion of said search results.

253. A rights management system comprising protected information, at least two protected processing arrangements, and a rights management language that allows the expression of permitted operations and the consequences of performing such operations on at least a portion of the information processed at least in part by at least one of the protected processing arrangements.



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254. A rights management method comprising:

providing protected information for processing by at least two protected processing arrangements, and

expressing, in a rights management language, permitted operations and the consequences of performing such operations on at least a portion of the information processed at least in part by at least one of the protected processing arrangements.

255. A method of protecting digital information characterized by the steps of encrypting at least a portion of the information, using a rights management language to describe the conditions related to use of the information, distributing at least a portion of such information and at least a portion of such rights language expressed conditions to one or more recipients, using an electronic appliance arrangement including at least one protected processing arrangement to securely govern at least a portion of the use of such information.

256. A system for protecting digital information characterized by:

means for encrypting at least a portion of the information,

means for using a rights management language to describe the conditions related to use of the information,



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means for distributing at least a portion of such information and at least a portion of such rights language expressed conditions to one or more recipients, and

an electronic appliance arrangement including at least one protected processing arrangement for securely governing at least a portion of the use of such information.

257. A distributed digital information management system comprising software components, a rights management language for expressing processing relationships between two or more of the software components, protected processing means for at least a portion of the software components and at least a portion of the rights management expressions, means for protecting content, means for creating software objects that relate protected content to rights management expressions, and means for delivering protected content, rights management expressions, and such software objects from a providing location to a user's location.

258. A distributed digital information management method comprising:

expressing, in a rights management language, processing relationships between two or more of the software components,

processing, within at least one protected environment, at least a portion of the software components and at least a portion of the rights management expressions,



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protecting content,

creating software objects that relate protected content to rights management expressions, and

delivering protected content, rights management expressions, and such software objects from a providing location to a user's location.

259. An authentication system comprising at least two electronic appliances, at least two digital certificates reflecting identity information encrypted using different certifying private keys where such certificates are stored in a first electronic appliance, communications means for transmitting and receiving signals between electronic appliances, means for determining compromised and/or expired certifying private keys operatively connected to a second electronic appliance, means for the second electronic appliance to request transmission of one of the digital certificates from the first electronic appliance based at least in part on such determination, and means operatively connected to such second electronic appliance for decrypting such certificate and determining such certificate's validity and/or the validity of identity information.

260. In a system comprising at least two electronic appliances, an authenticating method comprising:



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issuing at least two digital certificates reflecting identification information, including the step of encrypting the two certificates using different certifying private keys,

storing the certificates in a first electronic appliance,

transmitting and receiving signals between electronic appliances,

determining compromised and/or expired certifying private keys operatively connected to a second electronic appliance,

requesting, with the second electronic appliance, transmission of one of the digital certificates from the first electronic appliance based at least in part on such determination,

decrypting such certificate with the second electronic appliance, and

determining such certificate's validity and/or the validity of identity information.

261. An authentication system comprising at least two electronic appliances, at least two digital certificates reflecting identify information encrypted using different certifying private keys where such certificates are stored in a first electronic appliance, communications means for transmitting and receiving signals between electronic appliances, means for a second electronic appliance to request transmission of one of the digital certificates from the first electronic appliance wherein the selection of which certificate is requested is based at least in part



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on a random or pseudo-random number, means operatively connected to such second electronic appliance for decrypting such certificate and determining such certificate's validity and/or the validity of identity information.

262. In a system comprising at least two electronic appliances, an authenticating method comprising:

issuing at least two digital certificates reflecting identify information, including the step of encrypting the two digital certificates using different certifying private keys,

storing such certificates in a first electronic appliance,

transmitting and receiving signals between electronic appliances,

requesting, with a second electronic appliance, transmission of one of the digital certificates from the first electronic appliance, including the step of selecting a certificate based at least in part on a random or pseudo-random number,

decrypting such certificate with the second electronic appliance; and

determining such certificate's validity and/or the validity of identity information.

263. A method of secure electronic mail characterized by the steps of creating at least one electronic message using an interoperable protected processing environment, encrypting at



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least a portion of said at least one message, securely associating one or more sets of control information with one or more messages to set at least one condition for the use of said at least one message, communicating the protected electronic messages to one or more recipients having protected processing environments, securely communicating at least one set of the same or differing control information to each recipient, enabling recipients of both control information and protected messages to use message information at least in part in accordance with the conditions specified by the control information.

264. A system for secure electronic mail including multiple protected processing environments, the system characterized by:

a first protected processing environment for creating at least one electronic message, the first environment including means for encrypting at least a portion of said at least one message, means for securely associating one or more sets of control information with one or more messages to set at least one condition for the use of said at least one message, and means for communicating the protected electronic messages to one or more recipients having interoperable protected processing environments,

means for securely communicating at least one set of the same or differing control information to each recipient, and



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means for enabling recipients of both control information and protected messages to use message information at least in part in accordance with the conditions specified by the control information.

265. A method of information management characterized by the steps of protecting content from unauthorized use, securely associating enabling control information with at least a portion of such protected content wherein such enabling control information incorporates information describing how the enabling control information may be redistributed, delivering at least a portion of the protected content to a first user, delivering such enabling control information to such first user, receiving a request to redistribute such enabling control information from such first user, using the description of how enabling control information may be redistributed to create new enabling control information where such new enabling control information may be the same or different than the enabling control information received by such first user, delivering the new enabling control information and/or protected information to a second user.

266. An information management system characterized by:

means for protecting content from unauthorized use,



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means for securely associating enabling control information with at least a portion of such protected content, including means for incorporating enabling control information describing how the enabling control information may be redistributed,

means for delivering at least a portion of the protected content to a first user,

means for delivering such enabling control information to such first user,

means for receiving a request to redistribute such enabling control information from such first user,

means for using the description of how enabling control information may be redistributed to create new enabling control information where such new enabling control information may be the same or different than the enabling control information received by such first user, and

means for delivering the new enabling control information and/or protected information to a second user.

267. A method of controlling redistribution of distributed digital information including the steps of encrypting digital information, distributing said encrypted digital information from a first party to a second party, establishing control information regarding the redistribution of at least a portion of said encrypted digital information from said second party to at least one third



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party, regulating the redistribution of said at least a portion of said encrypted digital information through the use of a protected processing environment processing said control information.

268. A system for controlling redistribution of distributed digital information including:

means for encrypting digital information,

means for distributing said encrypted digital information from a first party to at least one second party,

means for establishing control information regarding the redistribution of at least a portion of said encrypted digital information from said second party to at least one third party, and

a protected processing environment for processing said control information and for regulating the redistribution of said at least a portion of said encrypted digital information.

269. A method of controlling a robot characterized by the steps of creating instructions for one or more robots, creating a secure container incorporating such instructions, associating control information with such secure container, incorporating at least one secure processing unit into such one or more robots, and performing at least a portion of such instructions in accordance with at least a portion of such control information.



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270. A method as in claim 267 further characterized in that such control information includes information describing the conditions under which such instructions may be used and the nature of audit reports required when such instructions are performed.

271. A robot control system characterized by:

means for creating instructions for one or more robots,

means for creating a secure container incorporating such instructions,

means for associating control information with such secure container,

means for incorporating at least one secure processing unit into such one or more robots, and

means for performing at least a portion of such instructions in accordance with at least a portion of such control information.

272. A system as in claim 269 further characterized by means for creating such control information, including means for describing the conditions under which such instructions may be used and the nature of audit reports required when such instructions are performed.

273. A method of detecting fraud in electronic commerce characterized by the steps of creating at least one secure



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container, associating control information with such one or more containers including control information requiring that audit information be collected and transmitted to an auditing party, delivering such one or more containers and such control information to at least one user, recording information identifying each container and each such user, receiving audit information, creating a profile of usage based at least in part on such received audit information and/or such control information, detecting cases where certain audit information differs at least in part from such profile of usage.

274. A system for detecting fraud in electronic commerce characterized by

means for creating at least one secure container,

means for associating control information with such one or more containers including control information requiring that audit information be collected and transmitted to an auditing party,

means for delivering such one or more containers and such control information to at least one user,

means for recording information identifying each container and each such user,

means for receiving audit information,



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means for creating a profile of usage based at least in part on such received audit information and/or such control information, and

means for detecting cases where certain audit information differs at least in part from such profile of usage.

275. A method of detecting fraud in electronic commerce characterized by the steps of distributing at least in part protected digital information to customers, distributing one or more rights to use at least a portion of such digital information across an electronic network, allowing a customer to use at least a part of said at least in part protected digital information through the use of a protected processing environment and at least one of said one or more distributed rights, detecting unusual usage activity related to use of said digital information.

276. A system for detecting fraud in electronic commerce characterized by

means for distributing at least in part protected digital information to customers,

means for distributing one or more rights to use at least a portion of such digital information across an electronic network,

a protected processing environment for allowing a customer to use at least a part of said at least in part protected



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digital information through at least one of said one or more distributed rights, and

means for detecting unusual usage activity related to use of said digital information.

277. A programmable component arrangement comprising a tamper resistant processing environment including a microprocessor, memory, a task manager, memory manager and external interface controller, means for loading arbitrary components at least in part into the memory, means for initiating one or more tasks associated with processing such components, means for certifying the validity, integrity and/or trustedness of such components, means for creating arbitrary components, means for associating arbitrary events with such created components, means for certifying the validity, integrity and/or trustedness of such created components, and means for securely delivering such created components.

278. In a programmable component arrangement comprising a tamper resistant processing environment including a microprocessor, memory, a task manager, memory manager and an external interface controller, a processing method characterized by the following steps:

creating arbitrary components,

associating arbitrary events with such created components,



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loading the arbitrary components at least in part into the memory,

initiating one or more tasks associated with processing such loaded components,

certifying the validity, integrity and/or trustedness of such created components, and

securely delivering such created components.

279. A distributed, protected, programmable component arrangement comprising at least two tamper resistant processing environments including a microprocessor, memory, a task manager, memory manager and external interface controller, means for loading arbitrary components at least in part into the memory, means for initiating one or more tasks associated with processing such components, and means for certifying the validity, integrity and/or trustedness of such components, said arrangement further comprising means for creating arbitrary components, means for associating arbitrary events with such created components, means for certifying the validity, integrity and/or trustedness of such created components, means for securely delivering such created components between at least two of said at least two tamper resistant processing environments.

280. In a distributed, protected, programmable component arrangement comprising at least two tamper resistant processing



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environments including a microprocessor, memory, a task manager, memory manager and external interface controller, a method comprising

creating arbitrary components,

certifying the validity, integrity and/or trustedness of such components,

loading arbitrary components at least in part into the memory,

initiating one or more tasks associated with processing such components,

associating arbitrary events with such created components, and

securely delivering such created components between at least two of said at least two tamper resistant processing environments.

281. An electronic appliance comprising at least one CPU, memory, at least one system bus, at least one protected processing environment, and at least one of a Rights Operating System or Rights Operating System layer associated with a host operating system.

282. An operating system comprising at least one task manager, at least one memory manager, at least one input/output manager, at least one protected processing environment, means



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for detecting events, means for associating events with rights control functions, means for performing rights control functions at least in part within such one or more protected processing environments.

283. In an operating system comprising at least one task manager, at least one memory manager, at least one input/output manager, at least one protected processing environment, an operating method comprising:

detecting events,

associating events with rights control functions, and

performing rights control functions at least in part within such one or more protected processing environments.

284. A method of business automation characterized by the steps of creating one or more secure containers including accounting and/or other administrative information, associating control information with such one or more secure containers including a description of (a) the one or more parties to whom the container may and/or must be delivered and/or (b) the operations that one or more parties may and/or must perform with respect to such accounting and/or other administrative information, delivering one or more of such containers to one or more parties, and enabling the description and/or enforcement of at least a portion of such control information prior, during and/or



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subsequent to use of such accounting and/or other administrative information by one or more parties.

285. A method as in claim 282 where such control information further includes at least one requirement that audit information be collected and delivered to one or more auditing parties, and further includes the step of delivering at least a portion of such audit information to one or more parties.

286. A method as in claim 283 where at least a portion of such audit information is automatically processed by at least one of such auditing parties, and further includes the step of transmitting further accounting, administrative and/or audit information to one or more parties that may be the same and/or differ from the one or more parties from whom audit information was received based at least in part on the receipt and/or content of such received audit information.

287. A method as in claim 282 where at least two of such parties are associated with different businesses and/or other organizations and such control information includes information that at least in part describes an accounting, administrative, reporting and/or other audit relationship between such businesses and/or other organizations.



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288. A method as in claim 282, 283, 284, or 285 where some or all of such accounting and/or other administrative information is included in such control information.

289. A business automation system characterized by:

means for creating one or more secure containers including accounting and/or other administrative information,

means for associating, with such one or more secure containers, control information including a description of (a) the one or more parties to whom the container may and/or must be delivered and/or (b) the operations that one or more parties may and/or must perform with respect to such accounting and/or other administrative information,

means for delivering one or more of such containers to one or more parties, and

means for enabling the description and/or enforcement of at least a portion of such control information prior, during and/or subsequent to use of such accounting and/or other administrative information by one or more parties.

290. A system as in claim 287 where the associating means further includes means for associating at least one requirement that audit information be collected and delivered to one or more auditing parties, and the delivering means includes



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means for delivering at least a portion of such audit information to one or more parties.

291. A system as in claim 288 further including means for automatically processing at least a portion of such audit information, and the system further includes means for transmitting further accounting, administrative and/or audit information to one or more parties that may be the same and/or differ from the one or more parties from whom audit information was received based at least in part on the receipt and/or content of such received audit information.

292. A system as in claim 287 where at least two of such parties are associated with different businesses and/or other organizations and the associating means includes means for generating control information including information that at least in part describes an accounting, administrative, reporting and/or other audit relationship between such businesses and/or other organizations.

293. A system as in claim 286, 287, 288, or 290 where some or all of such accounting and/or other administrative information is included in such control information.



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294. A method of distributing content characterized by the steps of creating one or more first secure containers, associating control information with such first containers including information describing the conditions under which some or all of the content of such first containers may be extracted, delivering at least a portion of such first containers and such control information to one or more parties, detecting a request by one or more of such parties to extract some or all of the content of such first containers, determining if such request is permitted in whole or in part by such control information, to the extent permitted by such control information creating one or more second secure containers in accordance with such request and such control information, associating control information with such one or more second secure containers based at least in part on control information associated with such first containers.

295. A system for distributing content characterized by:

means for creating one or more first secure containers,

means for associating control information with such first containers including information describing the conditions under which some or all of the content of such first containers may be extracted,

means for delivering at least a portion of such first containers and such control information to one or more parties,



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means for detecting a request by one or more of such parties to extract some or all of the content of such first containers,

means for determining if such request is permitted in whole or in part by such control information, to the extent permitted by such control information creating one or more second secure containers in accordance with such request and such control information, and

means for associating control information with such one or more second secure containers based at least in part on control information associated with such first containers.

296. A method of distributing content characterized by the steps of creating one or more first secure containers, associating control information with such first secure containers including information describing the conditions under which such first secure containers (a) may in whole or in part be embedded into and/or securely associated with one or more second secure containers and/or (b) may allow one or more secure containers to be in whole or in part embedded into and/or securely associated with such first secure containers, delivering at least a portion of such first secure containers and such control information to one or more parties, detecting a request by one or more of such parties or by additional parties to (a) in whole or in part embed into and/or securely associate with such first containers one or



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more second containers and/or (b) in whole or in part embed into and/or securely associate with a secure container such first secure containers, determining if such request is permitted by control information, to the extent permitted by control information performing one or more embedding and/or secure association operations, to the extent required by control information and/or requested by one or more of such parties, modifying and/or creating new control information at least in part as a consequence of such one or more embedding and/or secure association operations.

297. A system for distributing content characterized by

means for creating one or more first secure containers,

means for associating control information with such first secure containers including information describing the conditions under which such first secure containers (a) may in whole or in part be embedded into and/or securely associated with one or more second secure containers and/or (b) may allow one or more secure containers to be in whole or in part embedded into and/or securely associated with such first secure containers,

means for delivering at least a portion of such first secure containers and such control information to one or more parties,

means for detecting a request by one or more of such parties to (a) in whole or in part embed into and/or securely associate with such first containers one or more second



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containers and/or (b) in whole or in part embed into and/or securely associate with a secure container such first secure containers, and

means for determining if such request is permitted by control information, to the extent permitted by control information performing one or more embedding and/or secure association operations, to the extent required by control information and/or requested by one or more of such parties, modifying and/or creating new control information at least in part as a consequence of such one or more embedding and/or secure association operations.

298. A method of distributing information characterized by the steps of protecting information from unauthorized use, associating control information with such protected information, delivering at least a portion of such protected information to one or more parties using plural pathways, delivering at least a portion of such control information to one or more parties using the same or different plural pathways, enabling at least one of such parties to make at least some use of such protected information delivered using a first pathway in accordance with control information at least a portion of which is delivered using a second pathway.



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299. A method as in claim 296 in which at least one of such pathways of delivering protected information and/or control information is described by such control information.

300. A system for distributing information characterized by:

means for protecting information from unauthorized use,

means for associating control information with such protected information,

means for delivering at least a portion of such protected information to one or more parties using plural pathways,

means for delivering at least a portion of such control information to one or more parties using the same or different plural pathways,

means for enabling at least one of such parties to make at least some use of such protected information delivered using a first pathway in accordance with control information at least a portion of which is delivered using a second pathway.

301. A system as in claim 298 wherein the delivering means includes means for delivering, over at least one of such pathways, protected information and/or control information described by such control information.



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302. A method of distributing information characterized by the steps of protecting information from unauthorized use, associating control information with such protected information including information requiring the collection of audit information, enabling one or more parties to receive and/or process audit information, delivering at least a portion of such protected information and such control information to one or more parties, enabling at least some use of such protected information in accordance with at least a portion of such control information that requires the collection of audit information, delivering such audit information to one or more of such enabled auditing parties different from such delivering party or parties.

303. A method as in claim 300 in which at least one of such auditing parties is specified in such control information.

304. A system for distributing information characterized by

means for protecting information from unauthorized use,

means for associating control information with such protected information including information requiring the collection of audit information,

means for enabling one or more parties to receive and/or process audit information,



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means for delivering at least a portion of such protected information and such control information to one or more parties,

means for enabling at least some use of such protected information in accordance with at least a portion of such control information that requires the collection of audit information, and

means for delivering such audit information to one or more of such enabled auditing parties different from such delivering party or parties.

305. A system as in claim 302 in which at least one of such auditing parties is specified in such control information.

306. A secure component-based operating process including:

(a) retrieving at least one component;

(b) retrieving a record that specifies a component assembly;

(c) checking said component and/or said record for validity;

(d) using said component to form said component assembly in accordance with said record; and

(e) performing a process based at least in part on said component assembly.

307. A process as in claim 304 wherein said step (c) further comprises executing said component assembly.



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308. A process as in claim 304 wherein said component comprises executable code.

309. A process as in claim 304 wherein said component comprises a load module.

310. A process as in claim 304 wherein:

said record comprises:

(i) directions for assembling said component assembly; and

(ii) information that at least in part specifies a control; and

said process further comprises controlling said step (d) and/or said step (e) based at least in part on said control.

311. A process as in claim 304 wherein said component has a security wrapper, and said controlling step comprises selectively opening said security wrapper based at least in part on said control.

312. A process as in claim 304 wherein:

said permissions record includes at least one decryption key; and

said controlling step includes controlling use of said decryption key.



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313. A process as in claim 304 including performing at least two of said steps (a) and (e) within a protected processing environment.

314. A process as in claim 304 including performing at least two of said steps (a) and (e) at least in part within tamper-resistant hardware.

315. A method as in claim 304 wherein said performing step (e) includes metering usage.

316. A method as in claim 304 wherein said performing step (e) includes auditing usage.

317. A method as in claim 304 wherein said performing step (e) includes budgeting usage.

318. A secure component operating system process including:

receiving a component;

receiving directions specifying use of said component to form a component assembly;

authenticating said received component and/or said directions;



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forming, using said component, said component assembly based at least in part on said received directions; and

using said component assembly to perform at least one operation.

319. A method comprising performing the following steps within a secure operating system environment:

providing code;

providing directions specifying assembly of said code into an executable program;

checking said received code and/or said assembly directors for validity; and

in response to occurrence of an event, assembling said code in accordance with said received assembly directions to form an assembly for execution.

320. A method for managing at least one resource with a secure operating environment, said method comprising:

securely receiving a first control from a first entity external to said operating environment;

securely receiving a second control from a second entity external to said operating environment, said second entity being different from said first entity;

securely processing, using at least one resource, a data item associated with said first and second controls; and



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securely applying said first and second controls to manage said resource for use with said data item.

321. A method for securely managing at least one operation on a data item performed at least in part by an electronic arrangement, said method comprising:

(a) securely delivering a first procedure to said electronic arrangement;

(b) securely delivering, to said electronic arrangement, a second procedure separable or separate from said first procedure;

(c) performing at least one operation on said data item, including using said first and second procedures in combination to at least in part securely manage said operation; and

(d) securely conditioning at least one aspect of use of said data item based on said delivering steps (a) and (b) having occurred.

322. A method as in claim 319 including performing said delivering step (b) at a time different from the time said delivering step (a) is performed.

323. A method as in claim 319 wherein said step (a) includes delivering said first procedure from a first source, and said step (b) includes delivering said second procedure from a second source different from said first source.



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324. A method as in claim 319 further including ensuring the integrity of said first and second procedures.

325. A method as in claim 319 further including validating each of said first and second procedures.

326. A method as in claim 319 further including authenticating each of said first and second procedures.

327. A method as in claim 319 wherein said using step (c) includes executing at least one of said first and second procedures within a tamper-resistant environment.

328. A method as in claim 319 wherein said step (c) includes the step of controlling said data item with at least one of said first and second procedures.

329. A method as in claim 319 further including establishing a relationship between at least one of said first and second procedures and said data item.

330. A method as in claim 319 further including establishing correspondence between said data item and at least one of said first and second procedures.



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331. A method as in claim 319 wherein said delivering step (b) comprises delivering at least one load module encrypted at least in part.

332. A method as in claim 329 wherein said delivering step (a) comprises delivering at least one further load module encrypted at least in part.

333. A method as in claim 319 wherein said delivering step (b) comprises delivering at least one content container carrying at least in part secure control information.

334. A method as in claim 319 wherein said delivering step (b) comprises delivering a control method and at least one further method.

335. A method as in claim 319 wherein said delivering step (a) includes:

encrypting at least a portion of said first procedure,

communicating said at least in part encrypted first procedure to said electronic arrangement,

decrypting at least a portion of said first procedure at least in part using said electronic arrangement, and

validating said first procedure with said electronic arrangement.



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336. A method as in claim 319 wherein said delivering step (b) includes delivering at least one of said first and second procedures within an administrative object.

337. A method as in claim 319 wherein said delivering step (b) includes codelivering said second procedure in at least in part encrypted form with said data item.

338. A method as in claim 319 wherein said performing step includes metering usage.

339. A method as in claim 319 wherein said performing step includes auditing usage.

340. A method as in claim 319 wherein said performing step includes budgeting usage.

341. A method for securely managing at least one operation performed at least in part by a secure electronic appliance, comprising:

(a) selecting an item that is protected with respect to at least one operation;

(b) securely independently delivering plural separate procedures to said electronic appliance;



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(c) using said plural separate procedures in combination to at least in part securely manage said operation with respect to said selected item; and

(d) conditioning successful completion of said operation on said delivering step (b) having occurred.

342. A method for processing based on deliverables comprising:

securely delivering a first piece of code defining a first part of a process;

separately, securely delivering a second piece of code defining a second part of said process;

ensuring the integrity of the first and second delivered pieces of code; and

performing said process based at least in part on said first and second delivered code pieces.

343. A method as in claim 340 wherein a first piece of code for said process at least in part controls decrypting content.

344. A method as in claim 340 wherein said ensuring step includes validating said first and second pieces of code.



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345. A method as in claim 340 wherein said ensuring step includes validating said first and second pieces of code relative to one another.

346. A method as in claim 340 wherein said performing step includes metering usage.

347. A method as in claim 340 wherein said performing step includes auditing activities.

348. A method as in claim 340 wherein said performing step includes budgeting usage.

349. A method as in claim 340 wherein said performing step includes electronically processing content based on electronic controls.

350. A method of securely controlling at least one protected operation with respect to a data item comprising:

(a) supplying at least a first control from a first party;

(b) supplying at least a second control from a second party different from said first party;

(c) securely combining said first and second controls to form a set of controls;



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(d) securely associating said control set with said data item; and

(e) securely controlling at least one protected operation with respect to said data item based on said control set.

351. A method as in claim 348 wherein said data item is protected.

352. A method as in claim 348 wherein at least one of said plural controls includes a control relating to metering at least one aspect of use of said protected data item.

353. A method as in claim 348 wherein at least one of said plural controls include a control relating to budgeting at least one aspect of use of said protected data item.

354. A secure method for combining data items into a composite data item comprising:

(a) securely providing a first data item having at least a first control associated therewith;

(b) securely providing a second data item having at least a second control associated therewith;

(c) forming a composite of said first and second data items;



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(d) securely combining said first and second controls into a composite control set; and

(e) performing at least one operation on said composite of said first and second data items based at least in part on said composite control set.

355. A method as in claim 352 wherein said combining step includes preserving each of said first and second controls in said composite set.

356. A method as in claim 352 wherein said performing step comprises governing the operation on said composite of said first and second data items in accordance with said first control and said second control .

357. A method as in claim 352 wherein said providing step includes ensuring the integrity of said association between said first controls and said first data item is maintained during at least one of transmission, storage and processing of said first data item.

358. A method as in claim 352 wherein said providing step comprises delivering said first data item separately from said first control .



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359. A method as in claim 352 wherein said providing step comprises codelivering said first data item and said first control .

360. A secure method for controlling a protected operation comprising:

(a) delivering at least a first control and a second control; and

(b) controlling at least one protected operation based at least in part on a combination of said first and second controls, including at least one of the following steps:

resolving at least one conflict between said first and second controls based on a predefined order;

providing an interaction with a user to form said combination; and

dynamically negotiating between said first and second controls.

361. A method as in claim 358 wherein said controlling step (b) includes controlling decryption of electronic content.

362. A method as in claim 358 further including:

receiving protected electronic content from a party; and

authenticating the identity of said party prior to using said received protected electronic content.



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363. A secure method comprising:

selecting protected data;

extracting said protected data from an object;

identifying at least one control to manage at least one aspect of use of said extracted data;

placing said extracted data into a further object; and

associating said at least one control with said further object.

364. A method as in claim 361 further including limiting at least one aspect of use of said further object based on said at least one control.

365. A secure method of modifying a protected object comprising:

(a) providing a protected object; and

(b) embedding at least one additional element into said protected object without unprotecting said object.

366. A method as in claim 60 further including:

associating at least one control with said object; and

limiting usage of said element in accordance with said control.



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367. A method as in claim 363 further including a permissions record within said object.

368. A method as in claim 364 further including at least in part encrypting said object.

369. A method for managing at least one resource with a secure operating environment, said method comprising:

securely receiving a first load module from a first entity external to said operating environment;

securely receiving a second load module from a second entity external to said operating environment, said second entity being different from said first entity;

securely processing, using at least one resource, a data item associated with said first and second load modules; and

securely applying said first and second load modules to manage said resource for use with said data item.

370. A method for negotiating electronic contracts, comprising:

receiving a first control set from a remote site;

providing a second control set;

performing, within a protected processing environment, an electronic negotiation between said first control set and said



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second control set, including providing interaction between said first and second control sets; and

producing a negotiated control set resulting from said interaction between said first and second control sets.

371. A system for supporting electronic commerce including:

means for creating a first secure control set at a first location;

means for creating a second secure control set at a second location;

means for securely communicating said first secure control set from said first location to said second location; and

means at said second location for securely integrating said first and second control sets to produce at least a third control set comprising plural elements together comprising an electronic value chain extended agreement.

372. A system for supporting electronic commerce including:

means for creating a first secure control set at a first location;

means for creating a second secure control set at a second location;



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means for securely communicating said first secure control set from said first location to said second location; and

negotiation means at said second location for negotiating an electronic contract through secure execution of at least a portion of said first and second secure control sets.

373. A system as in claim 370 further including means for controlling use by a user of protected information content based on at least a portion of said first and/or second control sets.

374. A system as in claim 370 further including means for charging for at least a part of said content use.

375. A secure component-based operating system including:

component retrieving means for retrieving at least one component;

record retrieving means for retrieving a record that specifies a component assembly;

checking means, operatively coupled to said component retrieving means and said record retrieving means, for checking said component and/or said record for validity;

using means, coupled to said checking means, for using said component to form said component assembly in accordance with said record; and



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performing means, coupled to said using means, for performing a process based at least in part on said component assembly.

376. A secure component-based operating system including:

a database manager that retrieves, from a secure database, at least one component and at least one record that specifies a component assembly;

an authenticating manager that checks said component and/or said record for validity;

a channel manager that uses said component to form said component assembly in accordance with said record; and

an execution manager that performs a process based at least in part on said component assembly.

377. A secure component operating system including:

means for receiving a component;

means for receiving directions specifying use of said component to form a component assembly;

means, coupled to said receiving means, for authenticating said received component and/or said directions;

means, coupled to said authenticating means, for forming, using said component, said component assembly based at least in part on said received directions; and



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means, coupled to said forming means, for using said component assembly to perform at least one operation.

378. A secure component operating environment including:

a storage device that stores a component and directions specifying use of said component to form a component assembly;

an authenticating manager that authenticates said component and/or said directions;

a channel manager that forms, using said component, said component assembly based at least in part on said directions; and

a channel that executes said component assembly to perform at least one operation.

379. A secure operating system environment comprising:

a storage device that stores code and directions specifying assembly of said code into an executable program;

a validating device that checks said received code and/or said assembly directors for validity; and

an event-driven channel that, in response to occurrence of an event, assembles said code in accordance with said assembly directions to form an assembly for execution.

380. A secure operating environment system for managing at least one resource comprising:



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a communications arrangement that securely receives a first control from a first entity external to said operating environment, and securely receives a second control from a second entity external to said operating environment, said second entity being different from said first entity; and

a protected processing environment, coupled to said communications arrangement, that:

(a) securely processes, using at least one resource, a data item associated with said first and second controls, and

(b) securely applies said first and second controls to manage said resource for use of said data item.

381. A system for negotiating electronic contracts, comprising:

a storage arrangement that stores a first control set received from a remote site, and stores a second control set;

a protected processing environment, coupled to said storage arrangement, that:

(a) performs an electronic negotiation between said first control set and said second control set,

(b) provides interaction between said first and second control sets, and

(c) produces a negotiated control set resulting from said interaction between said first and second control sets.



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382. A system as in claim 379 further including means for electronically enforcing said negotiated control set.

383. A system as in claim 379 further including means for generating an electronic contract based on said negotiated control set.

384. A method for supporting electronic commerce including:

creating a first secure control set at a first location;

creating a second secure control set;

electronically negotiating, at said location different from said first location, an electronic contract, including the step of securely executing at least a portion of said first and second control sets.

385. An electronic appliance comprising:

a processor; and

at least one memory device connected to said processor;

wherein said processor includes:

retrieving means for retrieving at least one component, and at least one record that specifies a component assembly, from said memory device,

checking means coupled to said retrieving means for checking said component and/or said record for validity, and



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using means coupled to said retrieving means for using said component to form said component assembly in accordance with said record.

386. An electronic appliance comprising:

at least one processor;

at least one memory device connected to said processor; and

at least one input/output connection operatively coupled to said processor,

wherein said processor at least in part executes a rights operating system to provide a secure operating environment within said electronic appliance.

387. An electronic appliance as in claim 384 wherein said processor includes means for providing a channel, said channel assembling independently deliverable components into a component assembly and executing said component assembly.

388. An electronic appliance as in claim 384 further including a secondary storage device coupled to said processor, said secondary storage device storing a secure database, said processor including means for decrypting information obtained from said secure database and for encrypting information to be written to said secure database.



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389. An electronic appliance as in claim 384 wherein said processor and said memory device are disposed in a secure, tamper-resistance encapsulation.

390. An electronic appliance as in claim 384 wherein said processor includes a hardware encryptor/decryptor.

391. An electronic appliance as in claim 384 wherein said processor includes a real time clock.

392. An electronic appliance as in claim 384 wherein said processor includes a random number generator.

393. An electronic appliance as in claim 384 wherein said memory device stores audit information.

394. A method for auditing the use of at least one resource with a secure operating environment, said method comprising:

securely receiving a first control from a first entity external to said operating environment;

securely receiving a second control from a second entity external to said operating environment, said second entity being different from said first entity;

using at least one resource;



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securely sending to said first entity in accordance with said first control, first audit information concerning use of said resource; and

securely sending to said second entity in accordance with said second control, second audit information concerning use of said resource, said second audit information being at least in part different from said first audit information.

395. A method for auditing the use of at least one resource with a secure operating environment, said method comprising:

securely receiving first and second control alternatives from an entity external to said operating environment;

selecting one of said first and second control alternatives;

using at least one resource;

if said first control alternative is selected by said selecting step, securely sending to said entity in accordance with said first control alternative, first audit information concerning use of said resource; and

if said second control alternative is selected by said selecting step, securely sending to said second entity in accordance with said second control alternative, second audit information concerning use of said resource, said second audit information being at least in part different from said first audit information.



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396. A method and/or system for enabling a sale of protected digital information that has been previously distributed to users, the method or system being characterized by a secure element that selectively controls access to the protected digital information based on electronic controls associated with the information.

397. A distributed, secure electronic point of sale system or method characterized by a secure processing element for selectively releasing goods and/or services in exchange for compensation.

398. In a distributed digital network, an advertising method characterized by the steps of tracking usage of digital information that has associated with it one or more controls with respect to access to and/or usage of said information; and targeting advertising messages based at least in part on said tracking.

399. A distributed electronic advertising system characterized in that the system uses a distributed network of interoperable protected processing environments to at least in part deliver advertising to users.



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400. A distributed, secure, virtual black box comprised of nodes located at VDE content container creators, other content providers, client users, and recipients of secure VDE content usage information) site, the nodes of said virtual black box including a secure subsystem having at least one secure hardware element such as a semiconductor element or other hardware module for securely executing VDE control processes, said secure subsystems being distributed at nodes along a pathway of information storage, distribution, payment, usage, and/or auditing.

401. A protected processing system or method providing multiple currencies and/or payment arrangements for the secure processing and releasing of protected digital information.

402. A distributed secure method or system characterized in that a user's age is used as a criteria for electronically, securely releasing information and/or resources to the user.

403. A method of renting an electronic appliance defining a secure processing environment.

404. A virtual distribution environment providing any one or more of the following features and/or elements and/or combinations thereof:



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a configurable protected, distributed event management system; and/or

a trusted, distributed transaction and storage management arrangement; and/or

plural pathways for providing information, for control information, and/or for reporting; and/or

multiple payment methods; and/or

multiple currencies; and/or

EDI; and/or

Electronic banking; and/or

electronic document management; and/or

electronic secure communication; and/or

e-mail; and/or

distributed asynchronous reporting; and/or

combination asynchronous and online management; and/or

privacy control by users; and/or

testing; and/or

using age as a class; and/or

appliance control (renting, etc.); and/or

telecommunications infrastructure; and/or

games management; and/or

extraction of content from an electronic container; and/or

embedding of content into an electronic container; and/or

multiple certificate to allow for breach of a key; and/or

virtual black box; and/or



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independence of control information from content; and/or

multiple, separate, simultaneous control sets for one digital information property; and/or

updating control information for already distributed digital information; and/or

organization information management; and/or

coupled external and organization internal chain of handling and control; and/or

a content usage consequence management system (reporting, payment, etc., multiple directions); and/or

a content usage reporting system providing differing audit information and/or reduction going to multiple parties holding rights in content; and/or

an automated remote secure object creation system; and/or

infrastructure background analysis to identify improper use; and/or

seniority of control information system; and/or

secure distribution and enforcement of rules and controls separately from the content they apply to; and/or

redistribution management by controlling the rights and/or number of copies and or pieces etc. that may be redistributed; and/or

an electronic commerce taxation system; and/or

an electronic shopping system; and/or

an electronic catalog system; and/or



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a system handling electronic banking, electronic shopping, and electronic content usage management; and/or

an electronic commerce multimedia system; and/or

a distributed, secure, electronic point of sale system; and/or

advertising; and/or

electronics rights management; and/or

a distributed electronic commerce system; and/or

a distributed transaction system or environment; and/or

a distributed event management system; and/or

a distributed right systems.

405. A Virtual Distribution Environment substantially as shown in Figure 1.

406. An "Information Utility" substantially as shown in Figure 1A.

407. A chain of handling and control substantially as shown in Figure 1.

408. Persistent rules and control information substantially as shown in Figure 2A.

409. A method of providing different control information substantially as shown in Figure 1.



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410. Rules and/or control information substantially as shown in Figure 4.

411. An object substantially as shown in Figures 5A and 5B.

412. A Secure Processing Unit substantially as shown in Figure 6.

413. An electronic appliance substantially as shown in Figure 7.

414. An electronic appliance substantially as shown in Figure 8.

415. A Secure Processing Unit substantially as shown in Figure 9.

416. A "Rights Operating System" ("ROS") architecture substantially as shown in Figure 10.

417. Functional relationship(s) between applications and the Rights Operating System substantially as shown in Figures 11A-11C.



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418. Components and component assemblies substantially as shown in Figures 11D-11J.

419. A Rights Operating System substantially as shown in FIGURE 12.

420. A method of objection creation substantially as shown in Figure 12A.

421. A "protected processing environment" software architecture substantially as shown in Figure 13.

422. A method of supporting a channel substantially as shown in Figure 15.

423. A channel header and channel detail record substantially as shown in Figure 15 A.

424. A method of creating a channel substantially as shown in Figure 15B.

425. A secure data base substantially as shown in Figure 16.

426. A logical object substantially as shown in Figure 17.



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427. A stationary object substantially as shown in FIGURE 18.

428. A travelling object substantially as shown in FIGURE 19.

429. A content object substantially as shown in FIGURE 20.

430. An administrative object substantially as shown in Figure 21.

431. A method core substantially as shown in Figure 22.

432. A load module substantially as shown in FIGURE 23.

433. A User Data Element (UDE) and/or Method Data Element (MDE) substantially as shown in FIGURE 24.

434. Map meters substantially as shown in FIGURES 25A-25C.

435. A permissions record (PERC) substantially as shown in FIGURE 26.



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436. A permissions record (PERC) substantially as shown in FIGURES 26A and 26B.

437. A shipping table substantially as shown in FIGURE 27.

438. A receiving table substantially as shown in FIGURE 28.

439. An administrative event log substantially as shown in FIGURE 29.

440. A method of interrelating and using an object registration table, a subject table and a user rights table substantially as shown in Figure 30.

441. A method of using a site record table and a group record table to track portions of a secure database substantially as shown in FIGURE 34.

442. A process for updating a secure database substantially as shown in FIGURE 35.

443. A process of inserting new elements into a secure database substantially as shown in FIGURE 36.



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444. A process of accessing elements in a secure database substantially as shown in FIGURE 37.

445. A process of protecting a secure database element substantially as shown in FIGURE 38.

446. A process of backing up a secure database substantially as shown in FIGURE 39.

447. A process of recovering a secure database substantially as shown in FIGURE 40.

448. A process of enabling performing reciprocal methods to provide a chain of handling and control substantially as shown in FIGURES 41A-41D.

449. A "reciprocal" BUDGET method substantially as shown in FIGURES 42A-42D.

450. A reciprocol audit method substantially as shown in FIGURES 44A-44C.

451. A method for controlling release of content or other method substantially as shown in any of FIGURES 45-48.



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452. An event method substantially as shown in FIGURES 53A-53B.

453. A billing method substantially as shown in FIGURE 53C.

454. An extract method substantially as shown in FIGURE 57A.

455. An embed method substantially as shown in FIGURE 57A.

456. An obscure method substantially as shown in FIGURE 58A.

457. A fingerprint method substantially as shown in FIGURE 58B.

458. A fingerprint method substantially as shown in FIGURE 58C.

459. A meter method substantially as shown in FIGURE 6.



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460. A key "convolution" process substantially as shown in FIGURE 62.

461. A process of generating different keys using a key convolution process to determine a "true" key substantially as shown in FIGURE 63.

462. A process of initializing protected processing environment keys substantially as shown in FIGURES 64 and/or 65.

463. A process for decrypting information contained within stationary objects substantially as shown in FIGURE 66.

464. A process for decrypting information contained within traveling objects substantially as shown in FIGURE 67.

465. A process for initializing a protected processing environment substantially as shown in FIGURE 68.

466. A process of downloading firmware into a protected processing environment substantially as shown in FIGURE 69.



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467. Multiple VDE electronic appliances connected together with a network or other communications means substantially as shown in FIGURE 70.

468.A portable VDE electronic appliance substantially as shown in FIGURE 71.

469. "Pop-up" displays that may be generated by the user notification and exception interface substantially as shown in Figures 72A-72D.

470. A smart object substantially as shown in FIGURE 73.

471. A method of processing smart objects substantially as shown in FIGURE 74.

472. Electronic negotiation substantially as shown in any of FIGURES 75A-75D.

473. An electronic agreement substantially as shown in FIGURES 75E-75F.

474. Electronic negotiation processes substantially as shown in any of FIGURES 76A-76B.



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475. A chain of handling and control substantially as shown in FIGURE 77.

476. A VDE "repository" substantially as shown in FIGURE 78.

477. A process of using a chain of handling and control to evolve and transform VDE managed content and control information substantially as shown in any or all of FIGURES 79-83.

478. A chain of handling and control involving several categories of VDE participants substantially as shown in FIGURE 84.

479. A chain of distribution and handling within an organization substantially as shown in FIGURE 85.

480. A chain of handling and control substantially as shown in Figures 86 and/or 86A.

481. A virtual silicon container model substantially as shown in Figure 87.



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482. A method of business automation characterized by the steps of (a) creatings one or more secure containers including encrypted accounting and/or other administrative information content, (b) associating control information with one or more of such one or more secure containers including a description of (i) the one or more parties whom may use one or more of the one or more containers, and (ii) the operations that will be performed for one or more parties with respect to such accounting and/or other administrative information, (c) electronically delivering one or more of such one or more containers such to one or more parties, and (d) enabling through the use of a protected processing environment the enforcement of at least a portion of such control information.

483. A business automation system characterized by:

means for providing at least one secure container including administrative information content having control information associated therewith, and

a protected processing environment for enforcing, at least in part, the control information.

484. A business automation system comprising (a) distributed, interoperable protected processing environment installations, (b) secure containers for distribution of digital



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information, (c) control information supporting the automation of chain of handling and control functions.

485. A method of business automation characterized by the steps of providing interoperable protected processing environment nodes to plural parties, communicating first encrypted digital information from a first party to a second party, communicating second encrypted digital information including at least a portion of said first communicated digital information and/or information related to the use of said first digital information, to a third party different from said first or second parties, wherein use of said second encrypted digital information is regulated, at least in part, by an interoperable protected processing environment available to said third party.

486. A business automation system characterized by:

plural protected processing environment nodes,

means for communicating digital information between the nodes, and

wherein at least one of the nodes includes means for regulating the use of said communicated digital information.

487. A method for chain of handling and control characterized by the steps of (a) a first party placing protected digital information into a first software container and stipulating



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rules and controls governing use of at least a portion of said digital information, (b) providing said software container to a second party, wherein said second party places said software container into a further software container and stipulates rules and controls for at least in part managing use of at least a portion of said digital information and/or said first software container by a third party.

488. A chain of handling and control system characterized by:

means for placing digital information into a first software container and for stipulating rules and/or controls governing use of at least a portion of said digital information, and

means for placing said software container into a further software container and for stipulating further rules and/or controls for at least in part managing use of at least a portion of said digital information and/or said first software container.

489. A system for chain of handling and control including (a) a first container containing at least in part protected digital information, (b) at least in part protected control information stipulated by a first party establishing conditions for use of at least a portion of said digital content, (c) a second container different from said first container, said second container containing said first container, (d) control information stipulated



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independently by a second party for at least in part setting conditions for managing use of the contents of said second container.

490. A system for electronic advertising including: (a) means to provide digital information to users for their use, (b) means to provide advertising content to said users in combination with said digital information, (c) means to audit use of said digital information, (d) means to securely acquire usage information regarding use of advertising content, (e) means to securely report information based upon said advertising content usage information, (f) compensating at least one content provider at least in part based upon use of said advertising content.

491. A method for electronic advertising characterized by the steps of (a) placing digital information into a container, (b) associating advertising information with at least a portion of said digital information, (c) securely providing said container to a container user, (d) monitoring user viewing of advertising information, and (d) receiving payment from an advertiser, wherein said payment is related to user viewing of said advertising information.

492. A system for electronic advertising involving (a) means to containerize digital information including both content



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and advertising information, (b) means to monitor viewing of at least a portion of said advertising information, (c) means to charge for user viewing of at least a portion of said advertising information, (d) means to securely communicate information based upon said viewing in a secure container, and (e) control information related to said containerized digital information for managing the communication of said information based upon said viewing.

493. A method for electronic advertising characterized by the steps of (a) containerizing digital information including both content and advertising information, (b) monitoring user viewing of at least a portion of said advertising information, (c) charging for user viewing of at least a portion of said advertising information, (d) securely communicating information based upon said viewing in a secure container, and (e) at least in part managing, through the use of control information related to said advertising information, the communication of information based upon said viewing.

494. A method of clearing transaction information characterized by the steps of (a) securely distributing digital information to a first user of an interoperable protected processing environment, (b) securely distributing further digital information to a user of an interoperable protected processing



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environment different from said at first user (c) receiving information related to usage of said digital information, (d) receiving information related to usage of said further digital information, and (e) processing information received according to steps (c) and (d) to perform at least one of (I) an administrative, or (II) an analysis, function.

495. A system for clearing transaction information including (a) a first container containing at least in part protected digital information and associated control information, (b) a second secure container containing further at least in part protected digital information and associated control information, (c) means to distribute said first and second containers to users, (d) communication means for communicating information at least in part derived from user usage of said first container digital information, (e) communication means for communicating information at least in part derived from user usage of said second container digital information, (f) processing means at a clearinghouse site for receiving the information communicated through steps (d) and (e), wherein said processing means perform administrative and/or analysis processing of at least a portion of said communicated information.

496. A method for clearinghouse analysis characterized by the steps of: (a) enabling plural independent clearinghouses for



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administrating and/or analyzing usage of distributed, at least in part protected, digital information, (b) providing interoperable protected processing environments to plural, independent users, and (c) enabling a user to select a clearinghouse for use with an interoperable protected processing environment

497. A system for clearinghouse analysis including (a) plural independent clearinghouses for administrating and/or analyzing usage of distributed, at least in part protected, digital information, (b) at least one interoperable protected processing environments at each of plural user locations, (c) selecting means for enabling a user to select one of said plural independent clearinghouse to perform payment and/or analysis functions related to the use of at least a portion of said at least in part protected, digital information.

498. A method of electronic advertising characterized by the steps of

creating one or more electronic advertisements, creating one or more secure containers including at least a portion of such advertisements,

associating control information with such advertisements including control information describing at least one of: (a) reporting at least some advertisement usage information to one or more content providers, advertisers and/or agents, (b)



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providing one or more credits to a user based on such user's viewing and/or other usage of such advertisements, (c ) reporting advertisement usage information to one or more market analysts, (d) providing a user with ordering information for and/or means for ordering one or more products and/or services, and/or (e) providing one or more credits to a content provider based on one or more users' viewing and/or other usage of such advertisements,

providing such containers and such control information to one or more users,

enabling such users to use such containers at least in part in accordance with such control information.

499. A system for electronic advertising including (a) means to provide digital information to users for their use, (b) means to provide advertising content to said users in combination with said digital information, (c ) means to audit use of said digital information, (d) means to acquire usage information regarding use of advertising content, (e) means to securely report information based upon said advertising content usage information, and (f) compensating at least one content provider at least in part based upon use of such advertising content.



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500. A system for chain of handling and control including (a) a first container containing at least in part protected digital information, (b) at least in part protected control information stipulated by a first party establishing condition for use of at least a portion of said digital content, (c ) a second container different from said first container, said second container containing said first container, and (d) control information stipulated independently by a second party for at least in part setting conditions for managing use of the contents of said second container.

501. A method of operating a clearinghouse characterized by the steps of receiving usage information related at least in part to use of secure containers from plural parties, determining payments due to one or more parties based at least in part on such usage information, performing and/or causing to be performed transactions resulting in payments to such parties based at least in part on such determinations.

502. An electronic clearinghouse comprising:

means for receiving usage information related at least in part to use of secure containers from plural parties,

means for determining payments due to one or more parties based at least in part on such usage information,



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means for performing and/or causing to be performed transactions resulting in payments to such parties based at least in part on such determinations.

503. A method of operating a clearinghouse characterized by the steps of receiving usage information related at least in part to use of secure containers from plural parties, determining reports of usage for one or more parties based at least in part on such usage information, creating and/or causing to be created reports of usage based at least in part on such determination, delivering at least one of such reports to at least one of such parties.

504. A method of operating a clearinghouse characterized by the steps of receiving permissions and/or other control information from one or more content providers including information that enables delivery of at least one right in at least one secure container to other parties, receiving requests from plural parties for one or more rights in one or more secure containers, delivering permissions and/or other control information to such parties based at least in part on such requests.

505. A method of operating a clearinghouse characterized by the steps of receiving information from one or more parties



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establishing a party's identity information, creating one or more electronic representations of at least a portion of such identity information for use in enabling and/or withholding at least one right in at least one secure container, performing an operation to certify such electronic representations, delivering such electronic representations to such party.

506. A method of operating a clearinghouse characterized by the steps of receiving a request for credit from a party for use with secure containers, determining an amount of credit based at least in part on such request, creating control information related to such an amount, delivering such control information to such user, receiving usage information related to use of such credit, performing and/or causing to be performed at least one transaction associated with collecting payment from such user.

507. A method for contributing secure control information with respect to an electronic value chain wherein control information is contributed by a party not directly participating in said value chain, comprising steps of: aggregating said contributed control information with control information associated with digital information stipulated by one or more parties in an electronic value chain, said aggregate control information at least in part managing conditions related to the use of at least a portion of said digital information.



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508. A method for entering the payment of taxes associated with commercial events wherein secure control information for automatically governing tax payments for said commercial events is contributed by a party comprising steps of: aggregating said secure control information with control information that has been contributed by a separate party and controlling at least one condition for use of digital information.

509. A method for general purpose reusable electronic commerce arrangement characterized by the steps of:

(a) providing component structures, modular methods that can be configured together to comprise event controlled

(b) providing integrateable protected processing environments to plural independent users;

(c) employing secure communications means for communicating digital control information between integrateable protected processing environments; and

(d) enabling database managers operably connected to said processing environments for storing at least a portion of said provided component modular methods.

510. A system for general purpose, reusable electronic commerce including:

(a) component modular methods configured together to comprise event control structures;



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(b) at least one interoperable processing environment at each of plural independent user locations;

(c) secure communications means for communicating digital control information between interoperable protected processing environments; and

(d) secured database managers operably connected to said protected processing environments for storing at least a portion of said component modular methods.

511. A general purpose electronic commerce credit system including:

(a) a secure interoperable protected processing environment;

(b) general purpose credit control information for providing credit for user usage of at least in part protected digital information; and

(c) at least in part protected digital information related control information for providing necessary information for employing credit through the use, at least in part, of said general purpose credit control information.

512. A method for enabling a general purpose electronic commerce credit system including:

(a) providing secure interoperable protected processing environments;



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(b) supplying general purpose credit control information for providing credit for user usage of at least in part protected digital information; and

(c) providing, at least in part, protected digital information related control information for providing necessary information for employing credit through the use, at least in part, of said general purpose credit control information.

513. A document management system comprising one or more electronic appliances containing one or more SPUs and one or more secure databases operatively connected to at least one of the SPUs.

514. An electronic contract system comprising one or more electronic appliances containing one or more SPUs and one or more secure databases operatively connected to at least one of the SPUs.

515. An electronic appliance containing at least one SPU and at least one secure database operatively connected to at least one of the SPU(s).

516. An electronic appliance containing one or more CPUs where at least one of the CPUs is integrated with at least one SPU.



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517. An electronic appliance containing one or more video controllers where at least one of the video controllers is integrated with at least one SPU.

518. An electronic appliance containing one or more network communications means where at least one of the network communications means is integrated with at least one SPU.

519. An electronic appliance containing one or more modems where at least one of the modems is integrated with at least one SPU.

520. An electronic appliance containing one or more CD-ROM devices where at least one of the CD-ROM devices is integrated with at least one SPU.

521. An electronic appliance containing one or more set-top controllers where at least one of the set-top controllers is integrated with at least one SPU.

522. An electronic appliance containing one or more game systems where at least one of the game systems is integrated with at least one SPU.



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523. An integrated circuit supporting multiple encryption algorithms comprising at least one microprocessor, memory, input/output means, at least one circuit for encrypting and/or decrypting information and one or more software programs for use with at least one of the microprocessors to perform encryption and/or decryption functions.

524. An integrated circuit comprising at least one microprocessor, memory, at least one real time clock, at least one random number generator, at least one circuit for encrypting and/or decrypting information and independently delivered and/or independently deliverable certified software.

525. An integrated circuit comprising at least one microprocessor, memory, input/output means, a tamper resistant barrier and at least a portion of a Rights Operating System.

526. An integrated circuit comprising at least one microprocessor, memory, input/output means, at least one real time clock, a tamper resistant barrier and means for recording interruption of power to at least one of the real time clocks.



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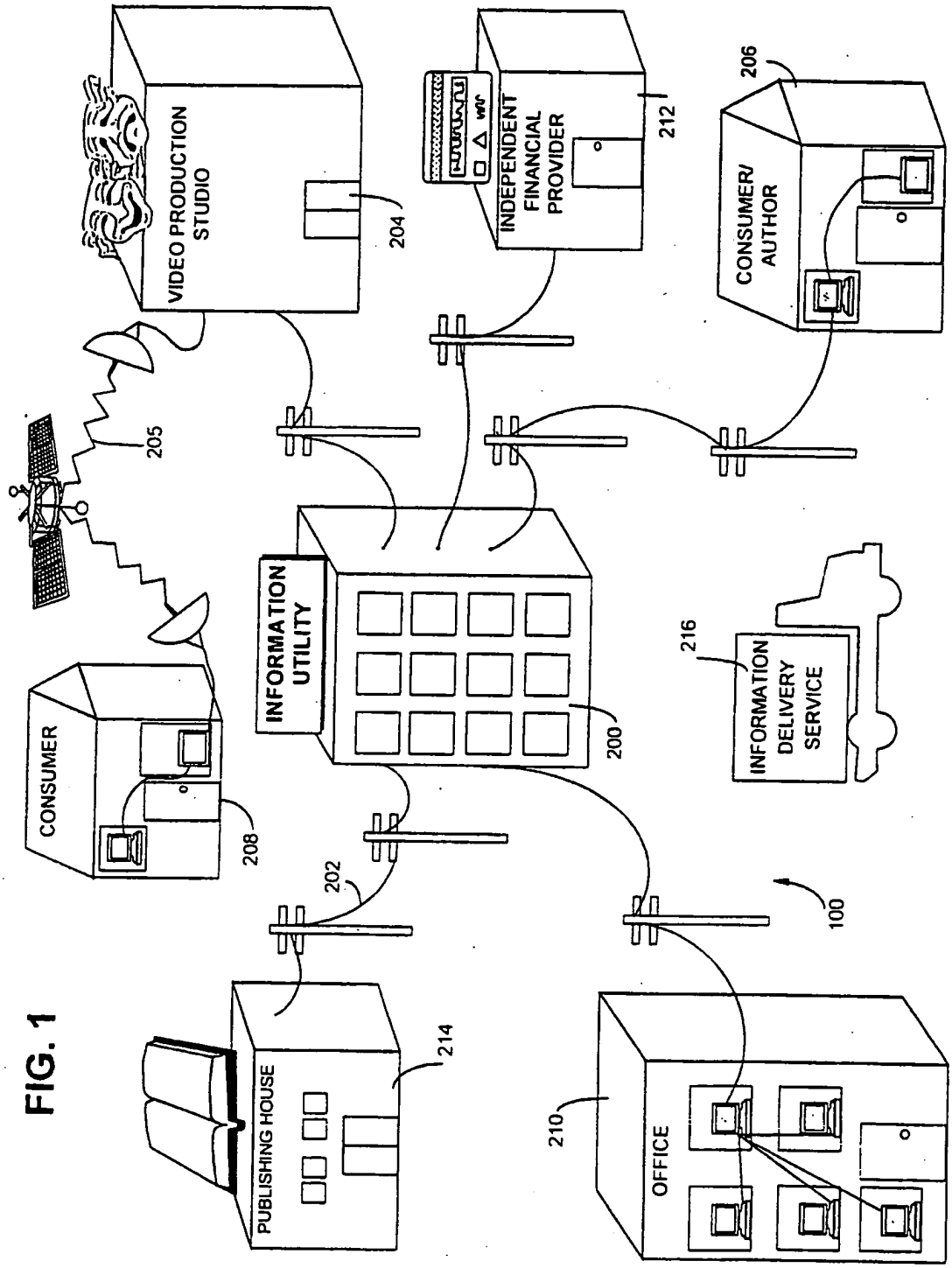

VIDEO PRODUCTION STUDIO
204
INDEPENDENT FINANCIAL PROVIDER
212
206
CONSUMER/ AUTHOR
205
INFORMATION UTILITY
200
216
INFORMATION DELIVERY SERVICE
CONSUMER
208
202
100
PUBLISHING HOUSE
214
210
OFFICE

FIG. 1

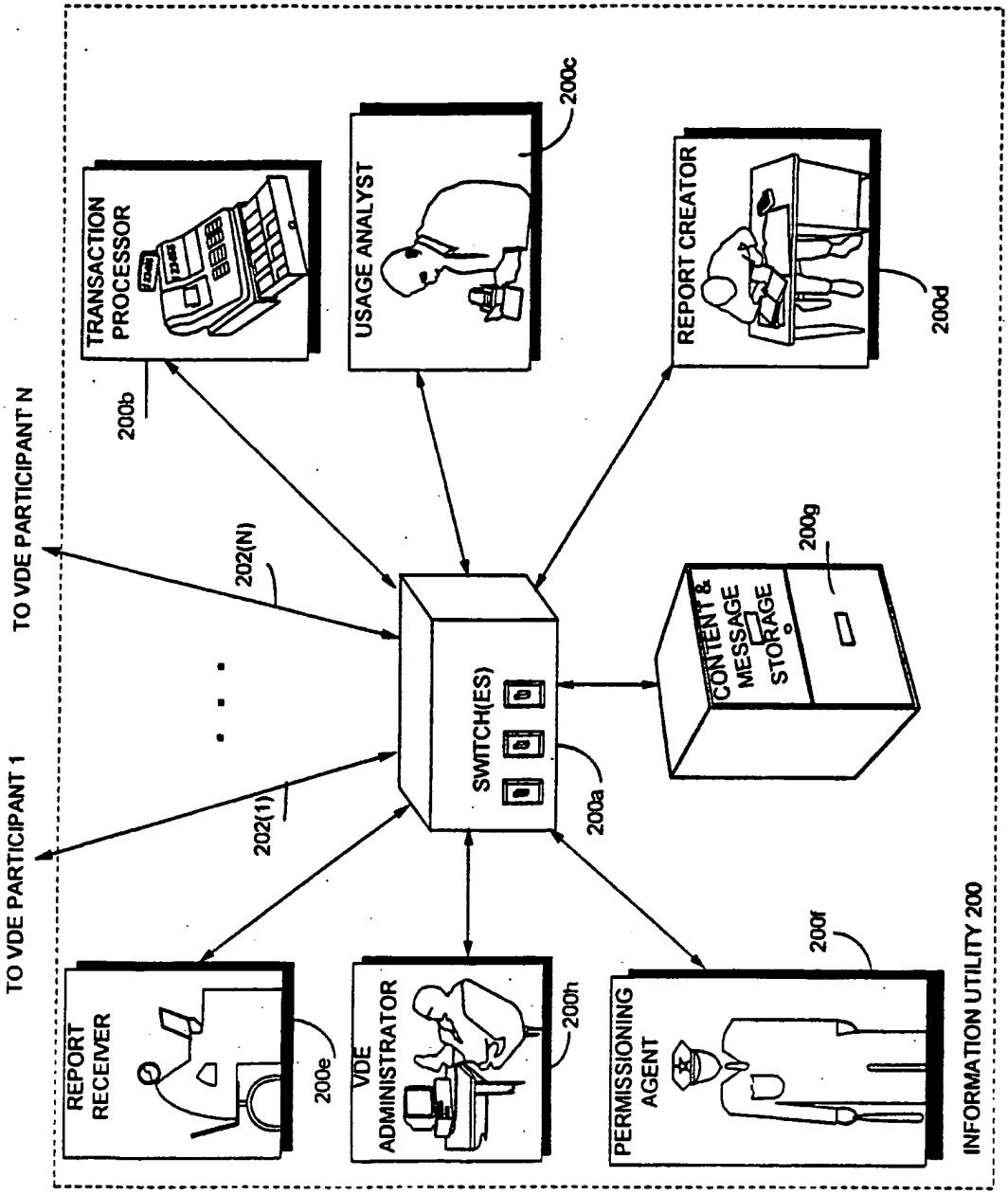
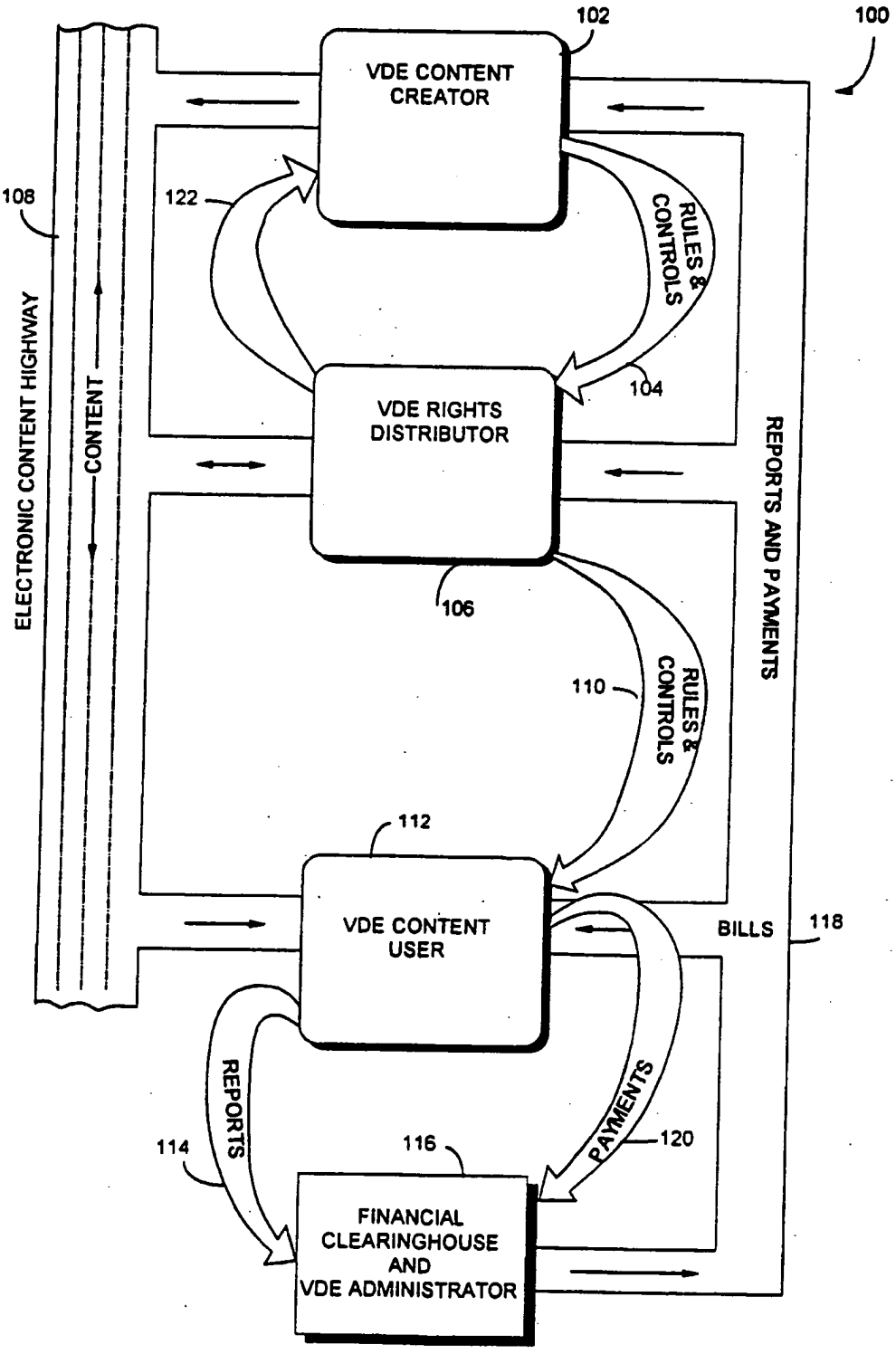



FIG. 1A



Petitioner Apple Inc. - Exhibit 1006, p. 6115

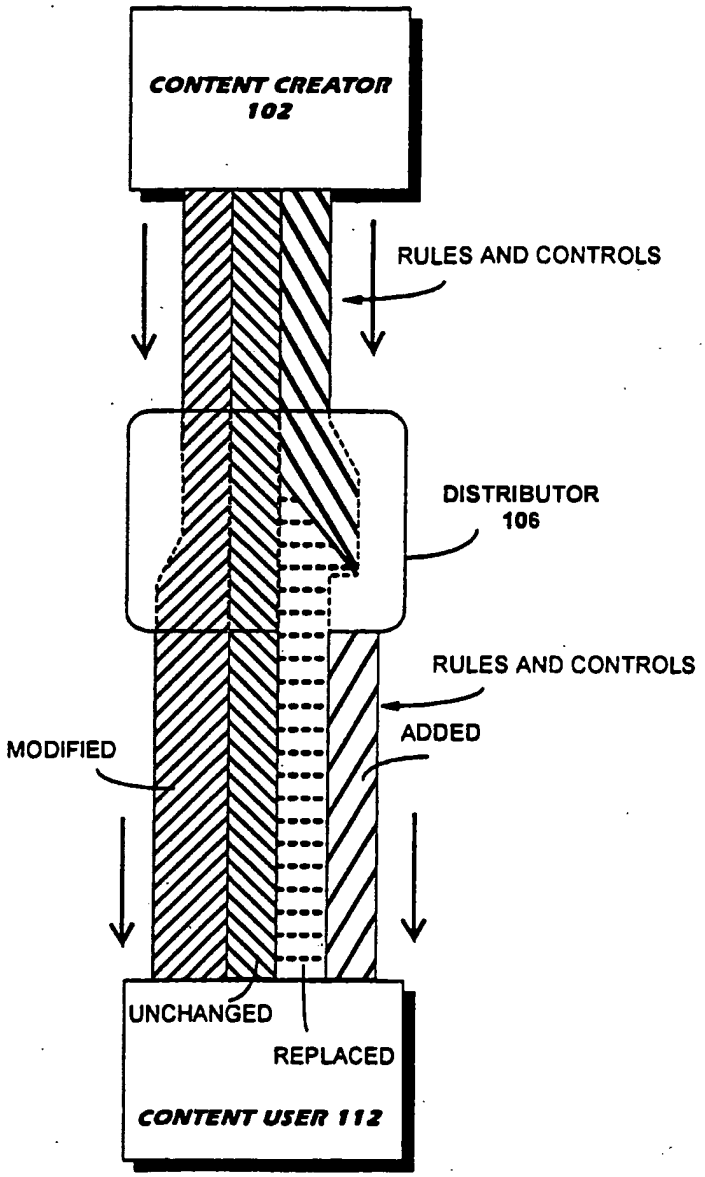
FIG. 2






Petitioner Apple Inc. - Exhibit 1006, p. 6116

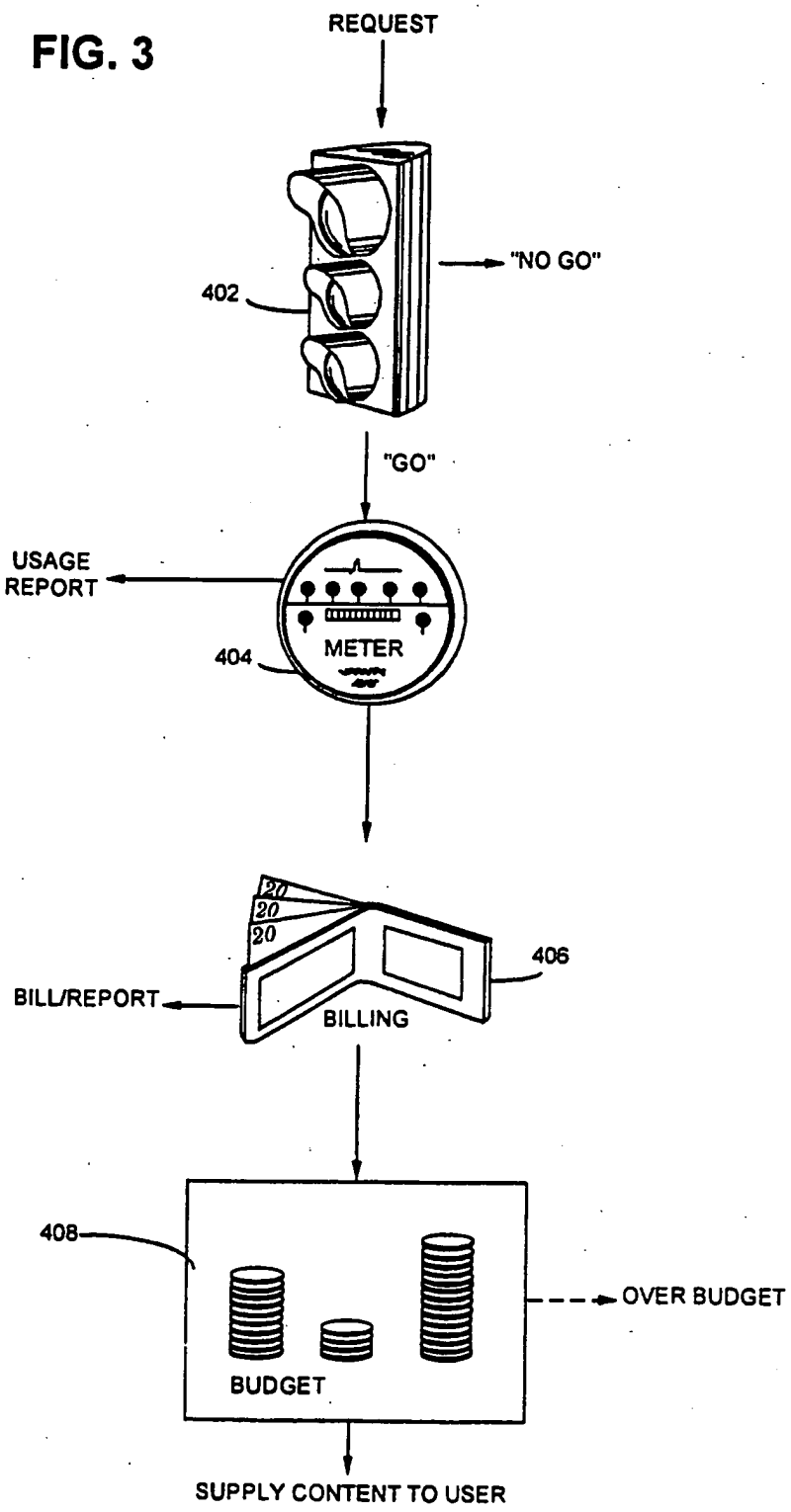
FIG. 2A






Petitioner Apple Inc. - Exhibit 1006, p. 6117

FIG. 3


REQUEST
"NO GO"
402
"GO"
USAGE REPORT
METER
404
20
20
20
406
BILL/REPORT
BILLING
408
OVER BUDGET
BUDGET
SUPPLY CONTENT TO USER

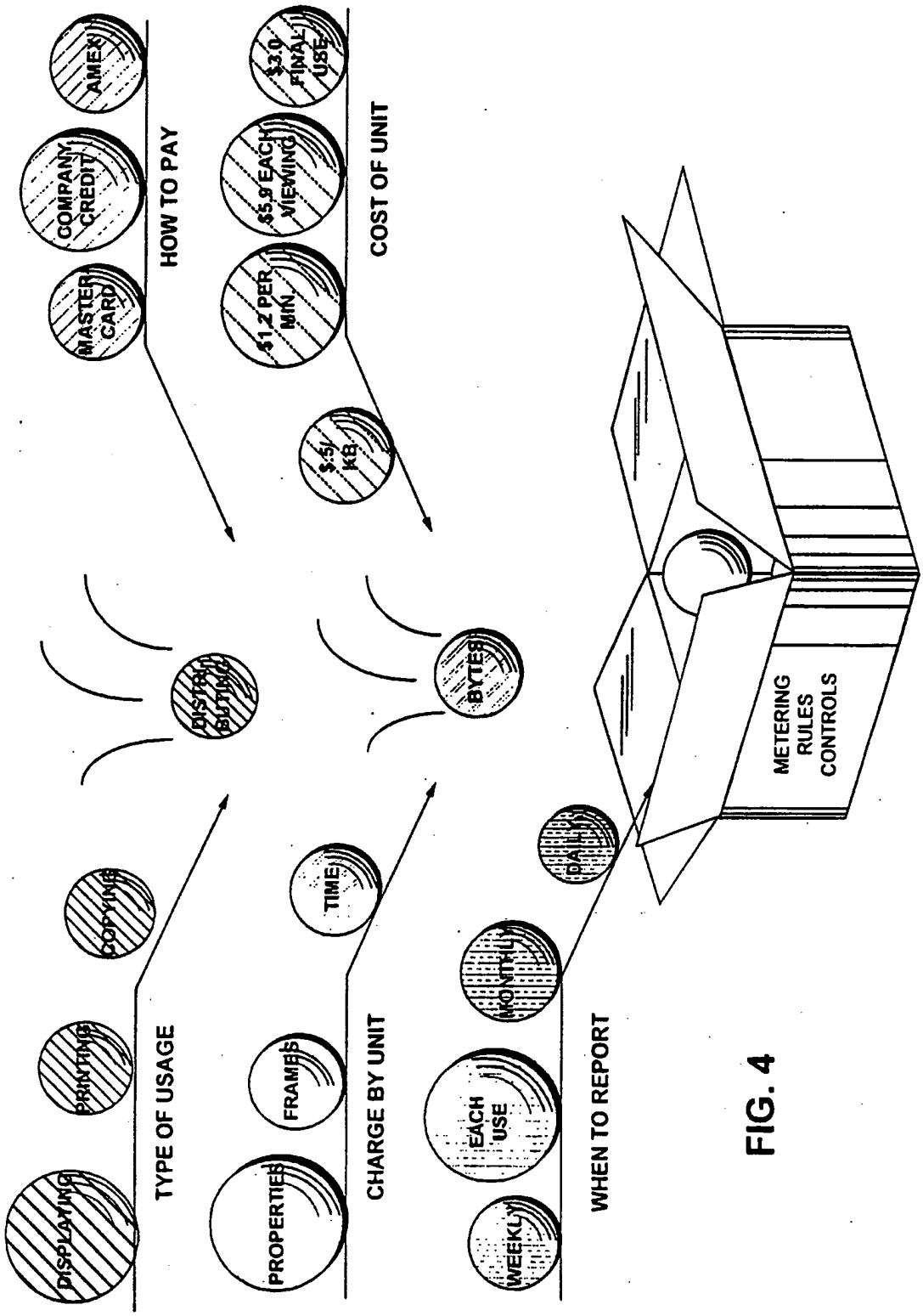
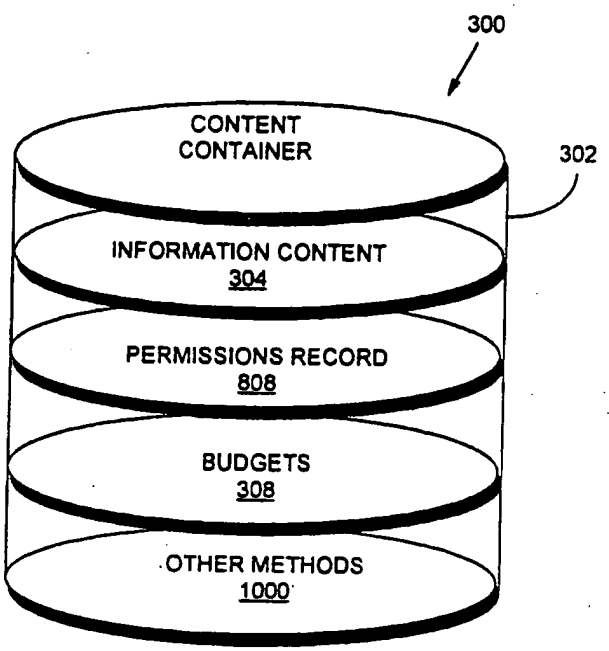



FIG. 4



Petitioner Apple Inc. - Exhibit 1006, p. 6119

FIG. 5A






Petitioner Apple Inc. - Exhibit 1006, p. 6120

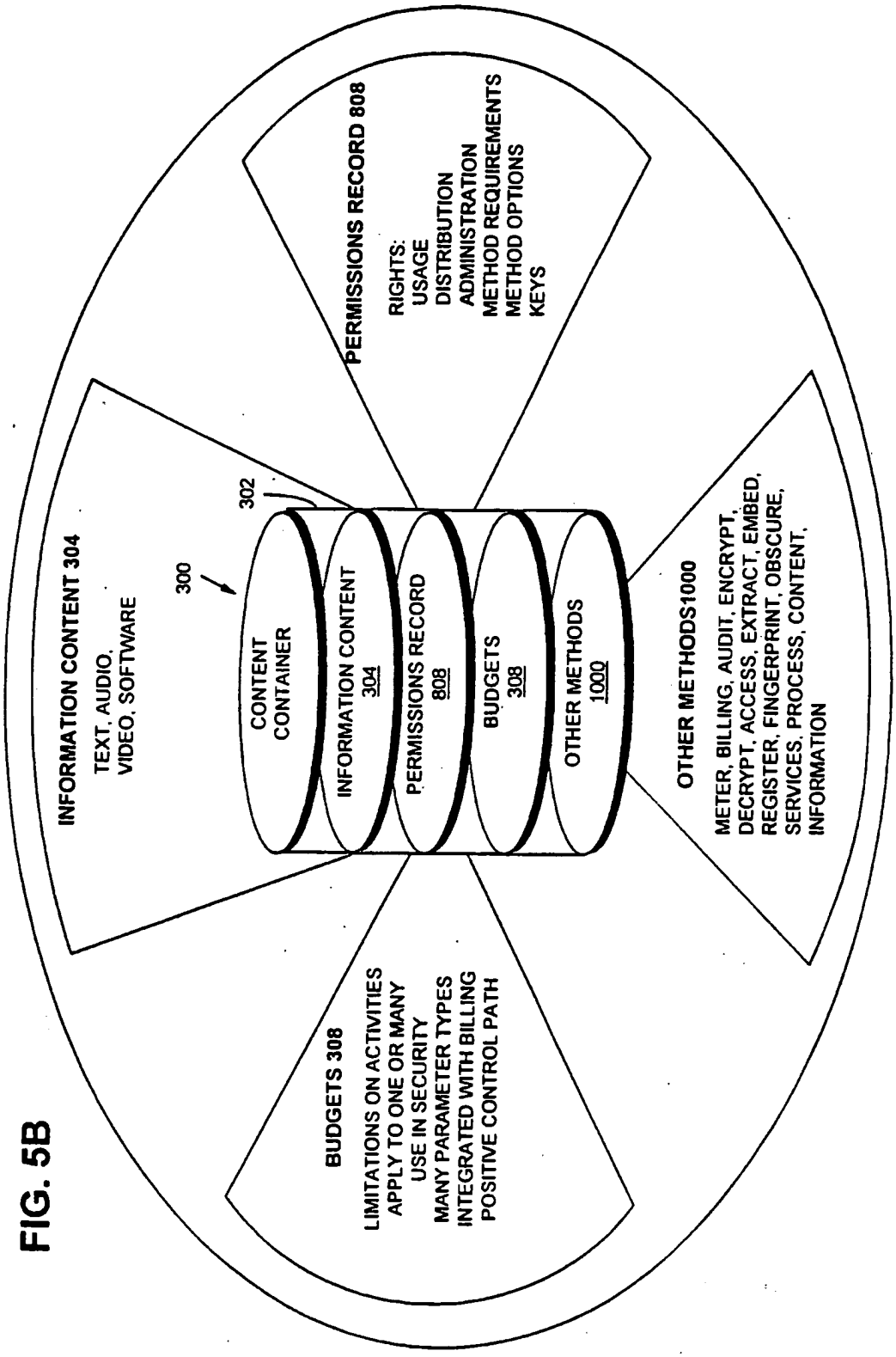
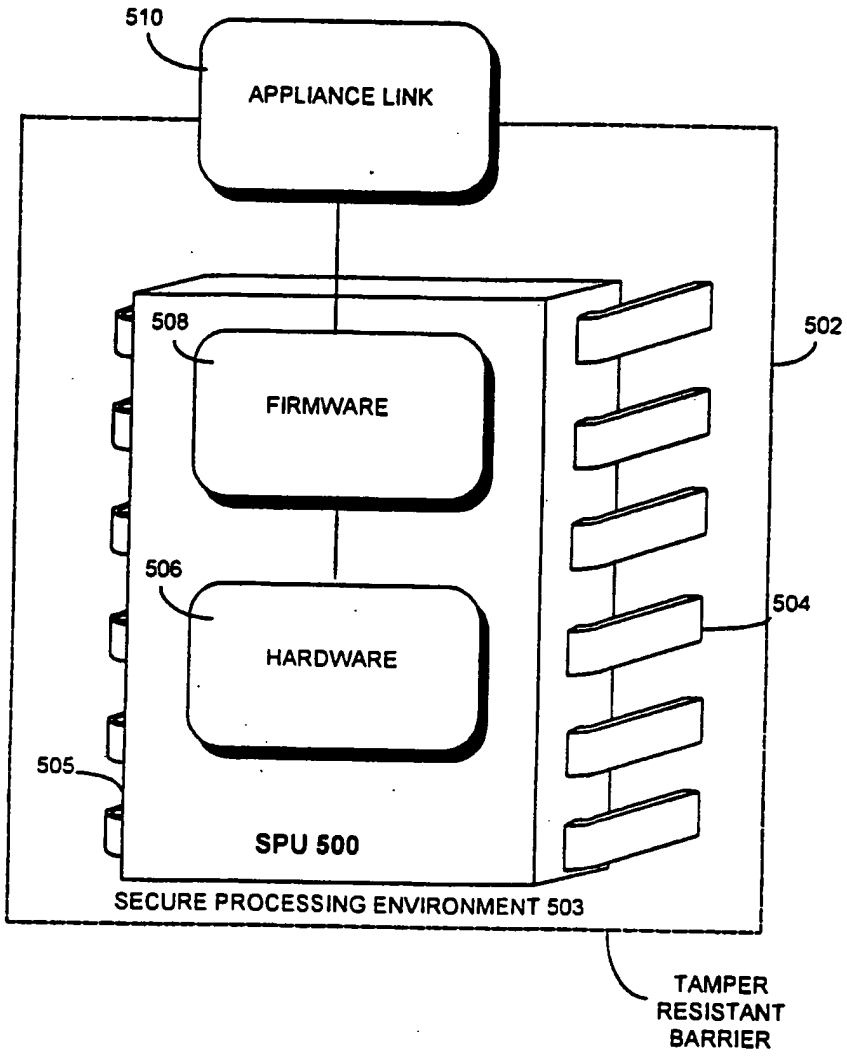



FIG. 5B



Petitioner Apple Inc. - Exhibit 1006, p. 6121

FIG. 6






Petitioner Apple Inc. - Exhibit 1006, p. 6122

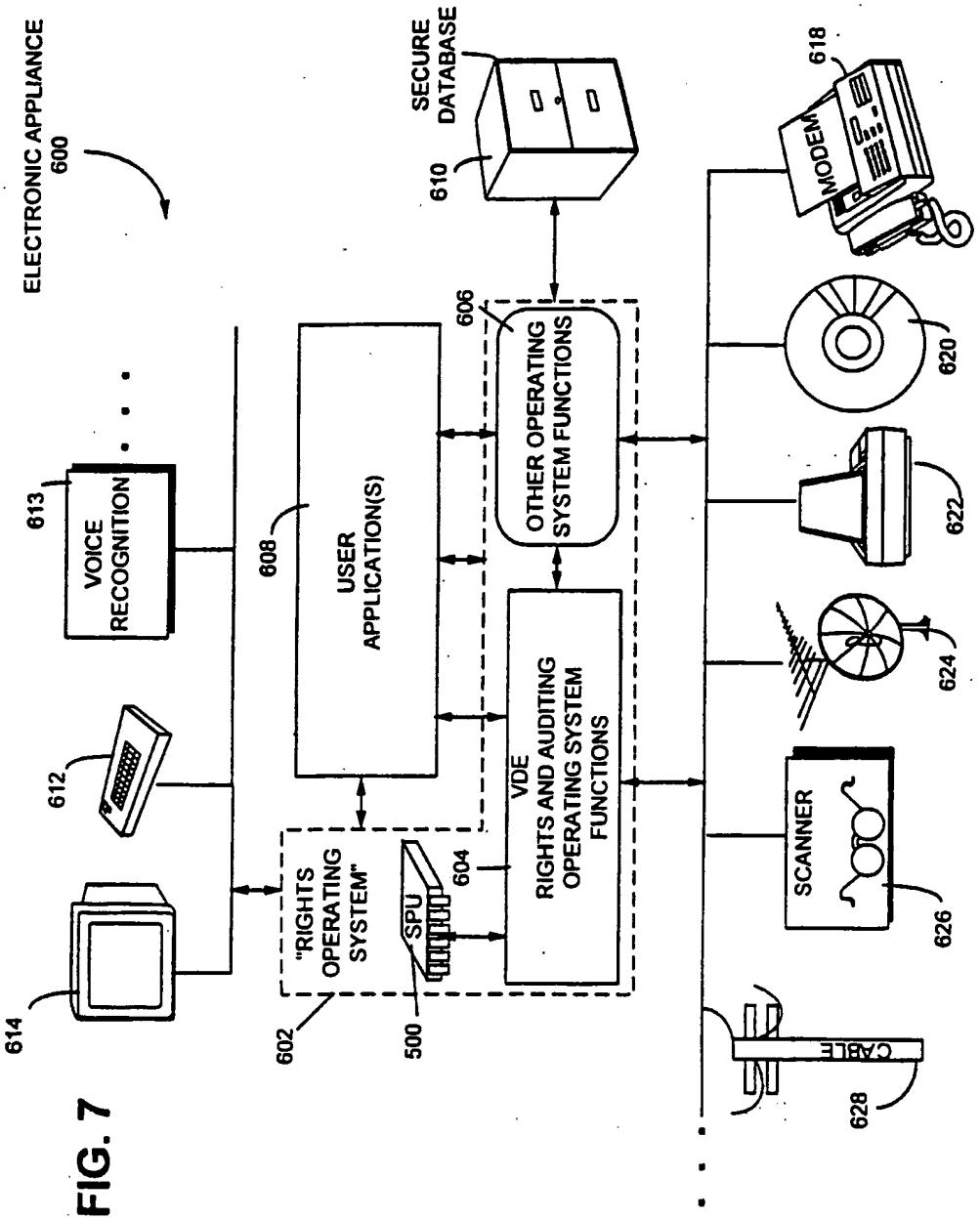
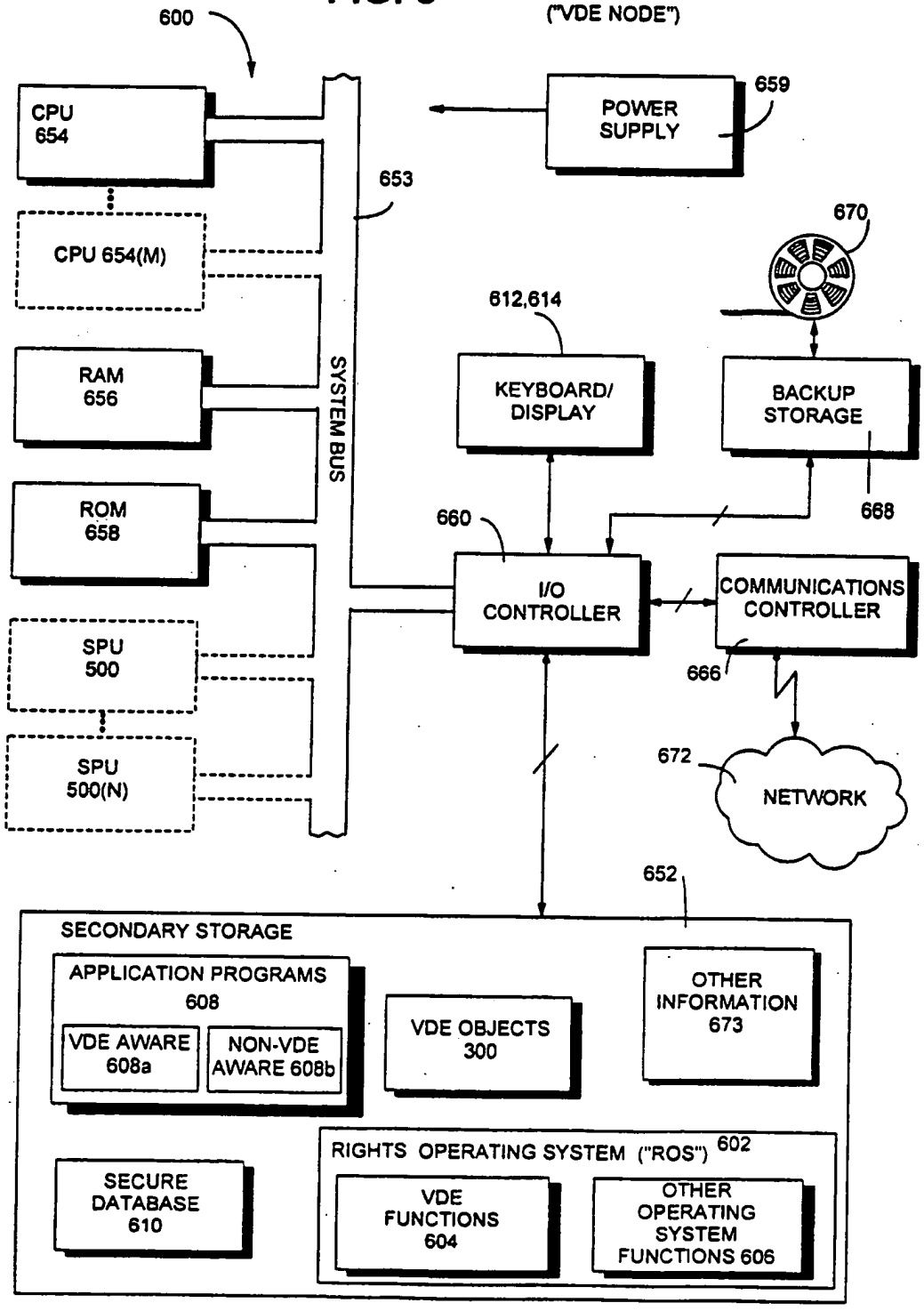



FIG. 7



Petitioner Apple Inc. - Exhibit 1006, p. 6123

FIG. 8 ELECTRONIC APPLIANCE 600 ("VDE NODE")






Petitioner Apple Inc. - Exhibit 1006, p. 6124

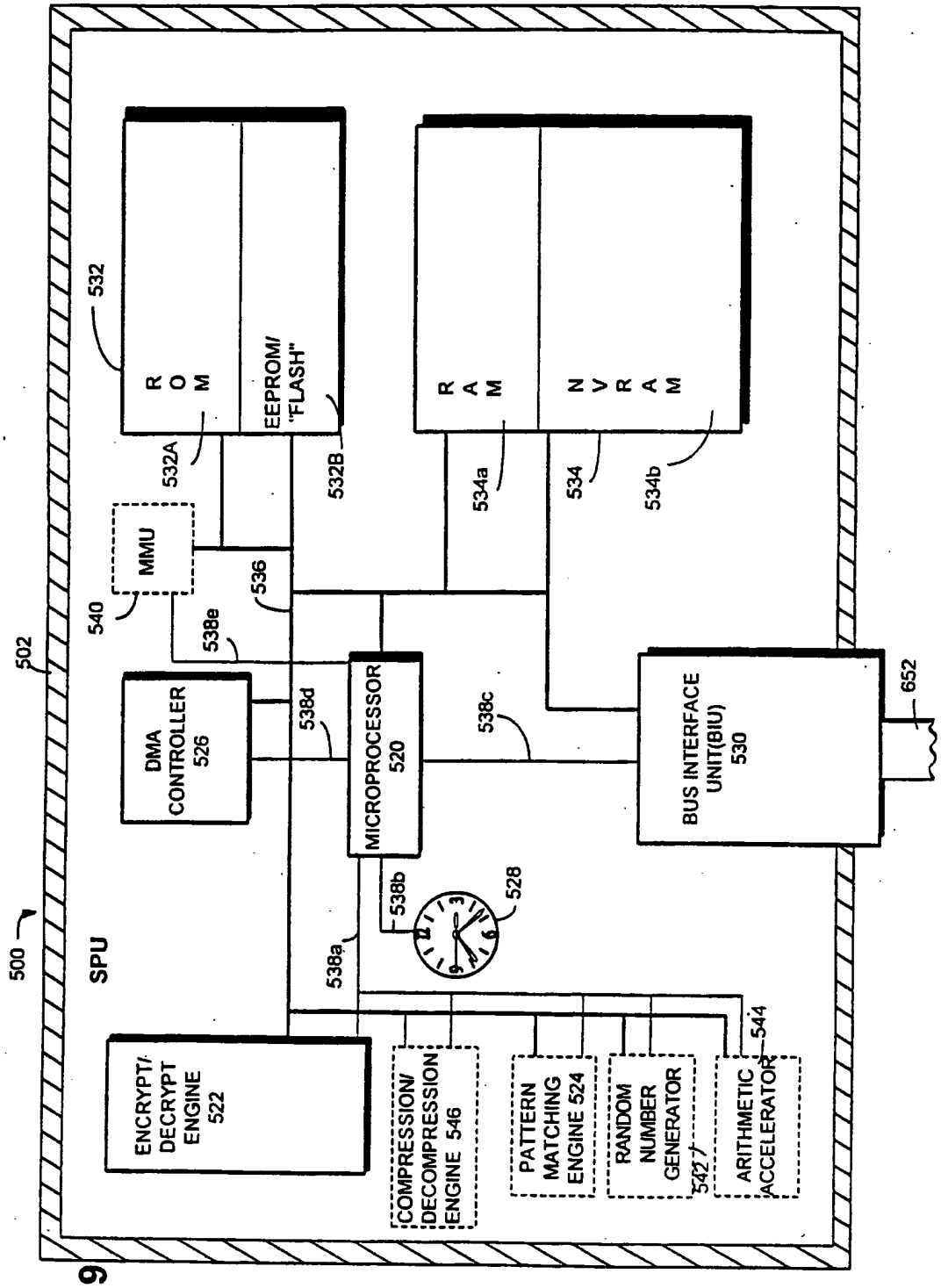



FIG. 9



Petitioner Apple Inc. - Exhibit 1006, p. 6125

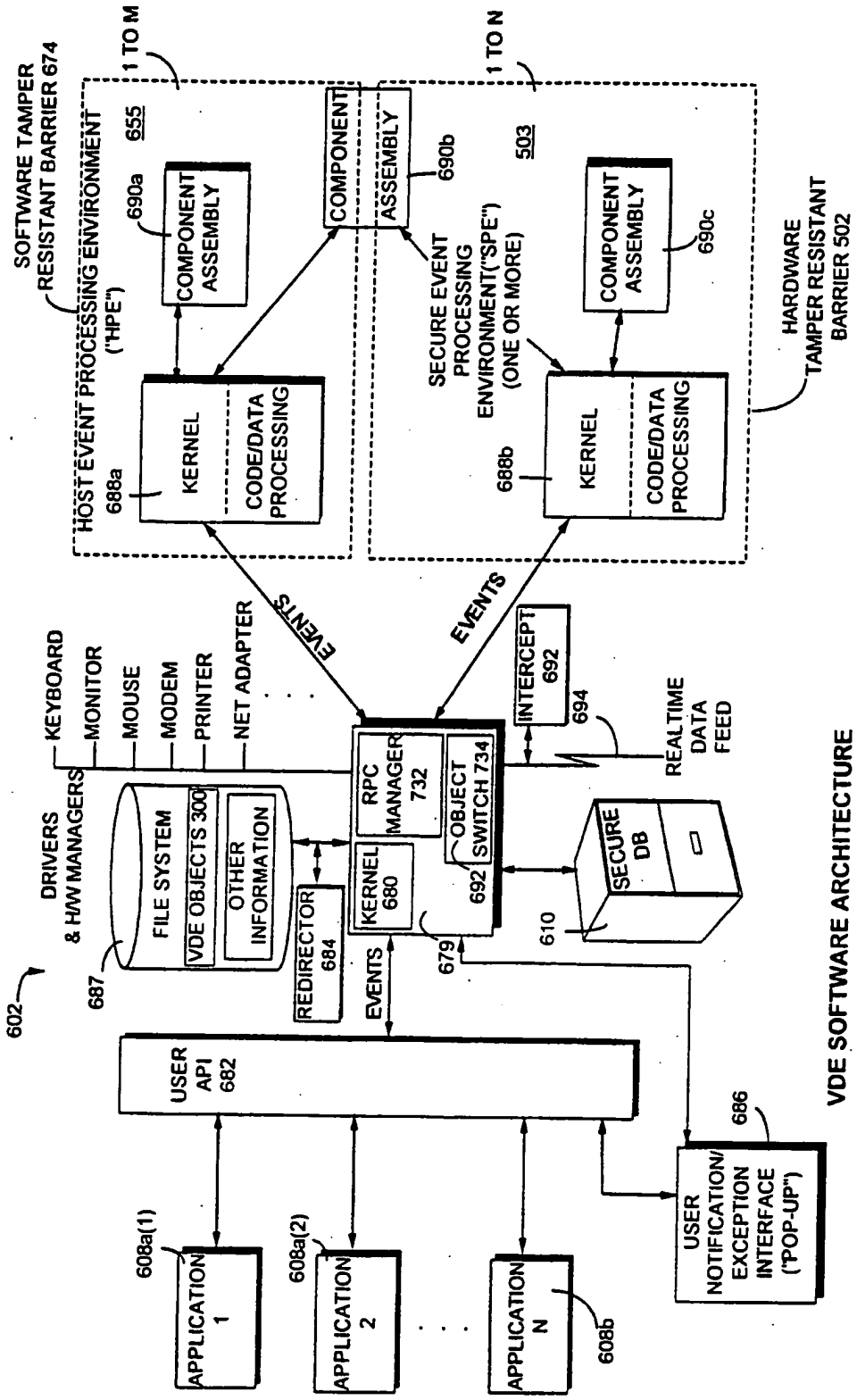



FIG. 10



Petitioner Apple Inc. - Exhibit 1006, p. 6126

FIG. 11C

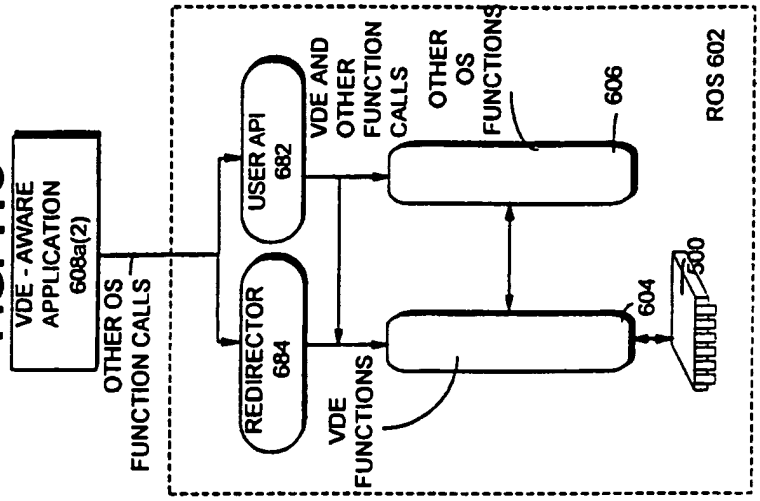



FIG. 11B

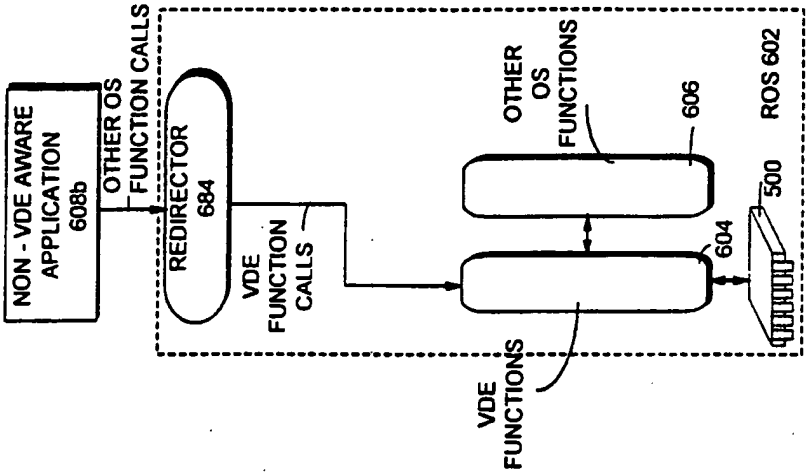
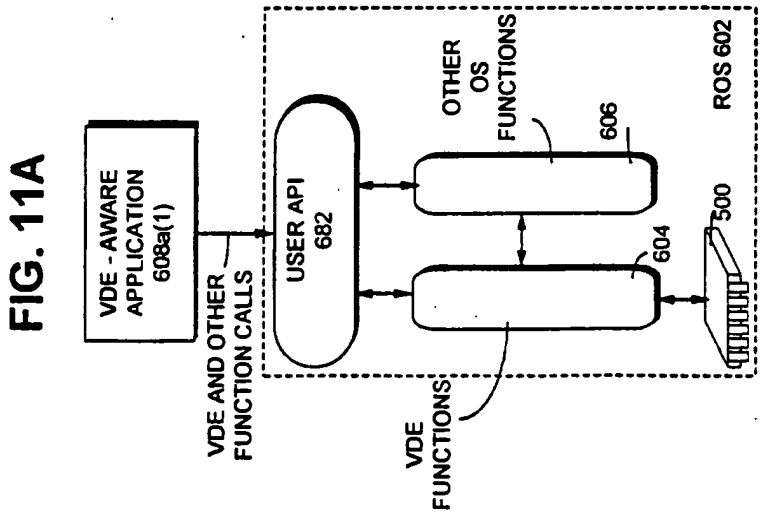



FIG. 11A






Petitioner Apple Inc. - Exhibit 1006, p. 6127

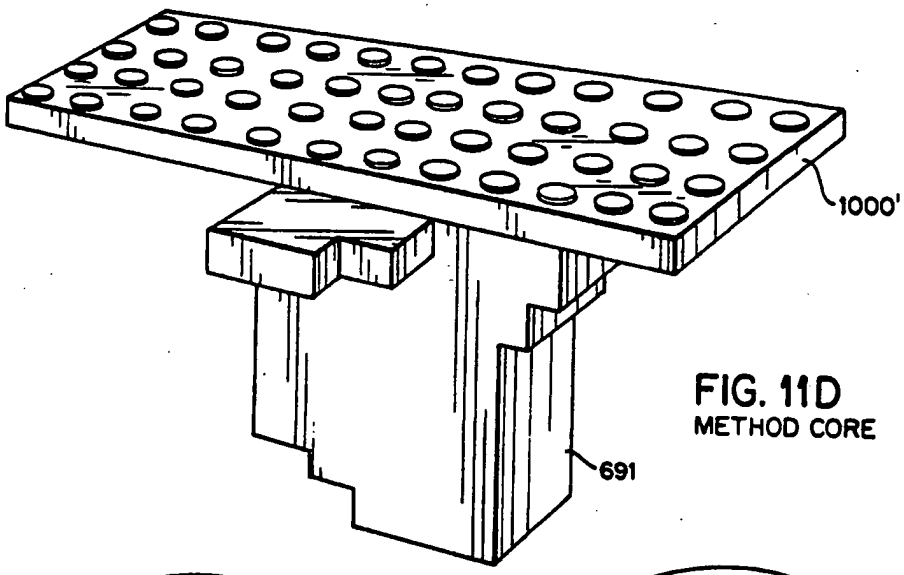



FIG. 11D
METHOD CORE

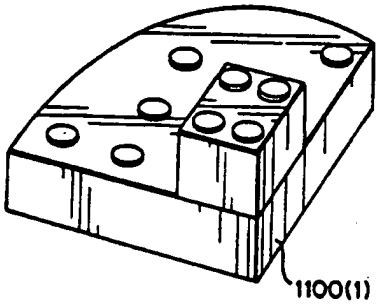



FIG. 11E
LOAD MODULE
WITH DTD

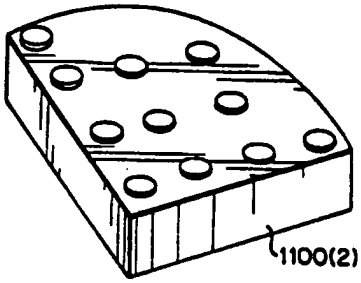



FIG. 11F
LOAD MODULE

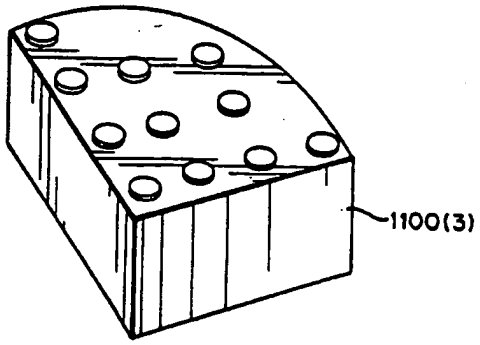



FIG. 11G
LOAD MODULE



Petitioner Apple Inc. - Exhibit 1006, p. 6128

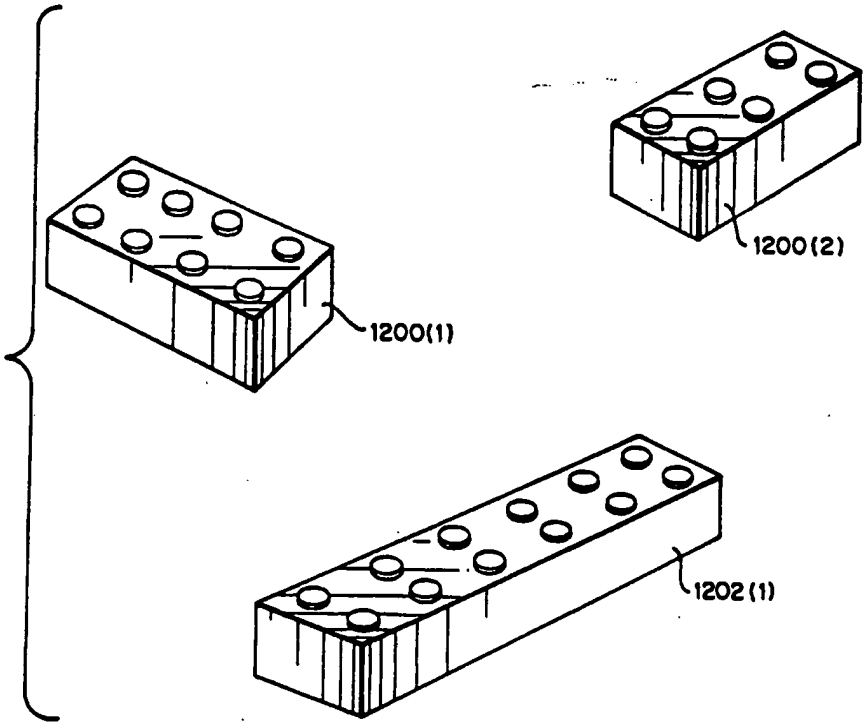
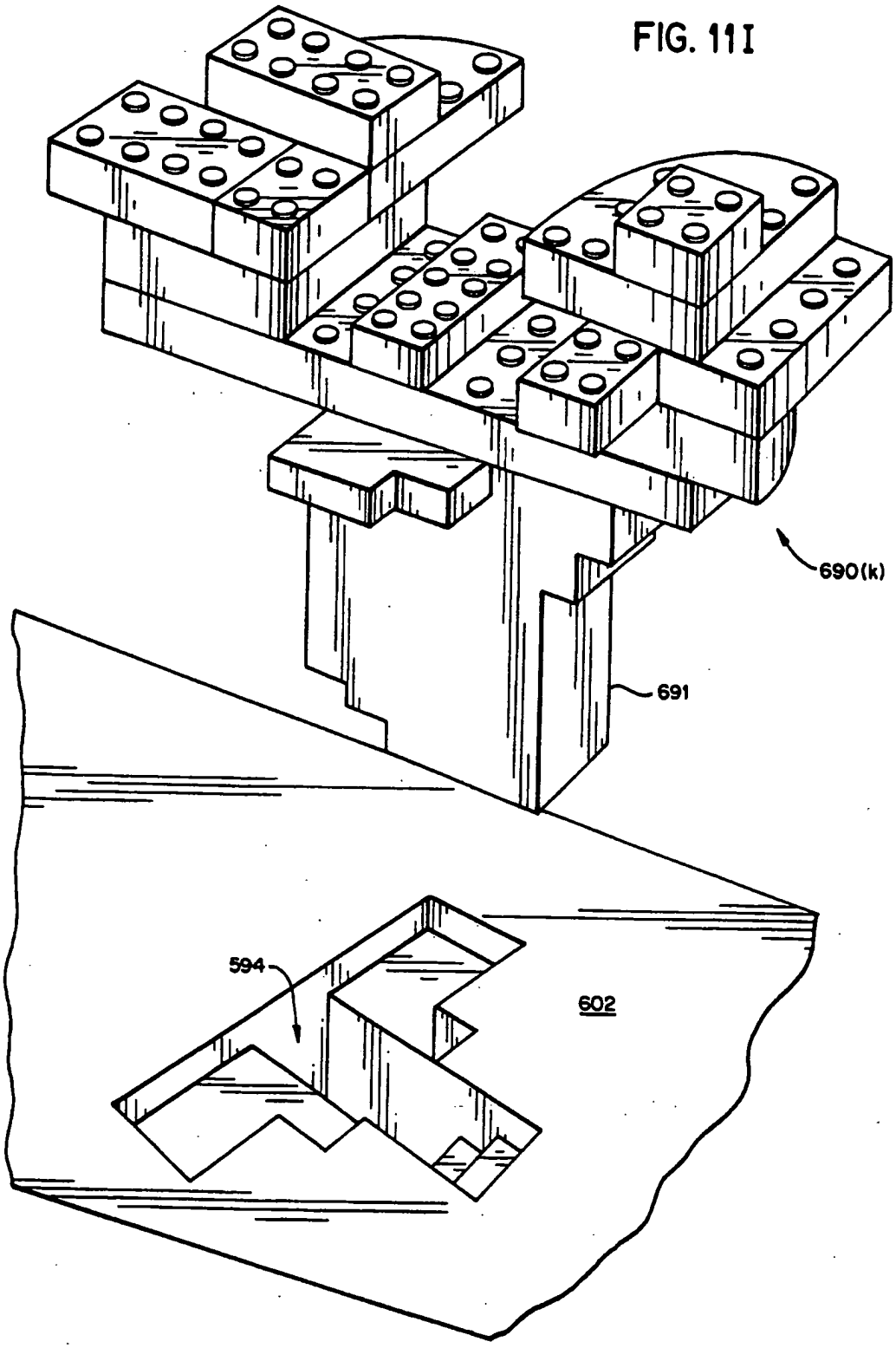



FIG. 11H
DATA STRUCTURES



Petitioner Apple Inc. - Exhibit 1006, p. 6129

FIG. 11I






Petitioner Apple Inc. - Exhibit 1006, p. 6130

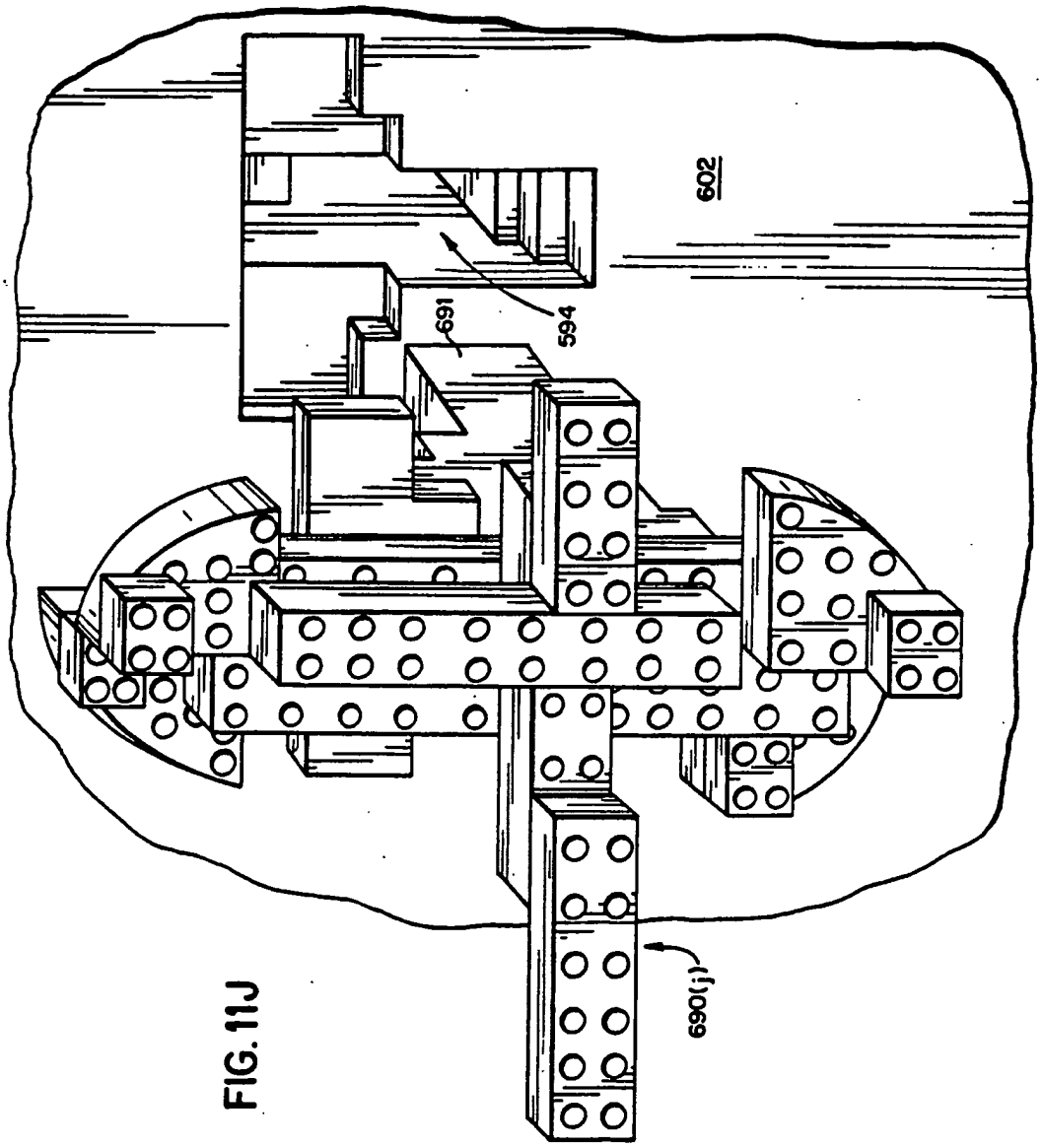



FIG. 11J



Petitioner Apple Inc. - Exhibit 1006, p. 6131

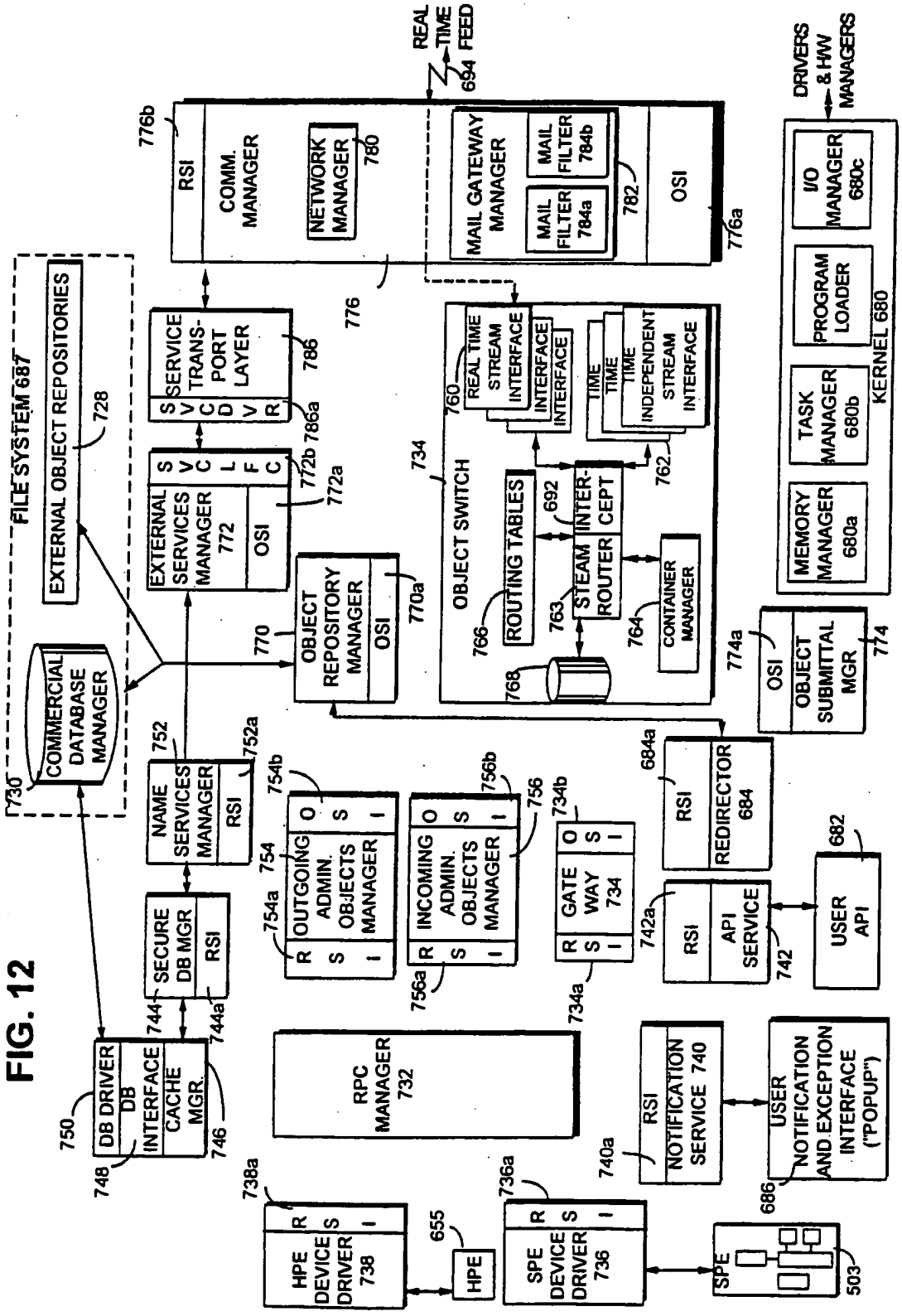



FIG. 12



Petitioner Apple Inc. - Exhibit 1006, p. 6132

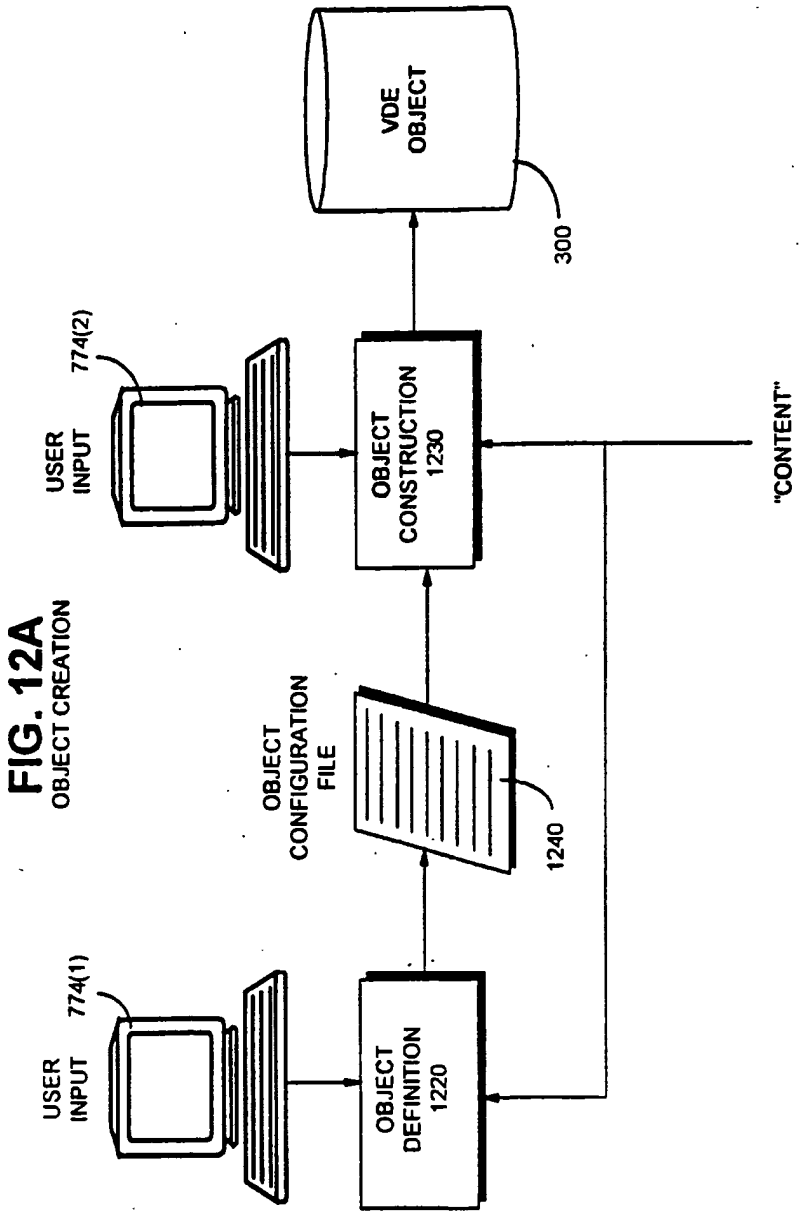



FIG. 12A
OBJECT CREATION



Petitioner Apple Inc. - Exhibit 1006, p. 6133

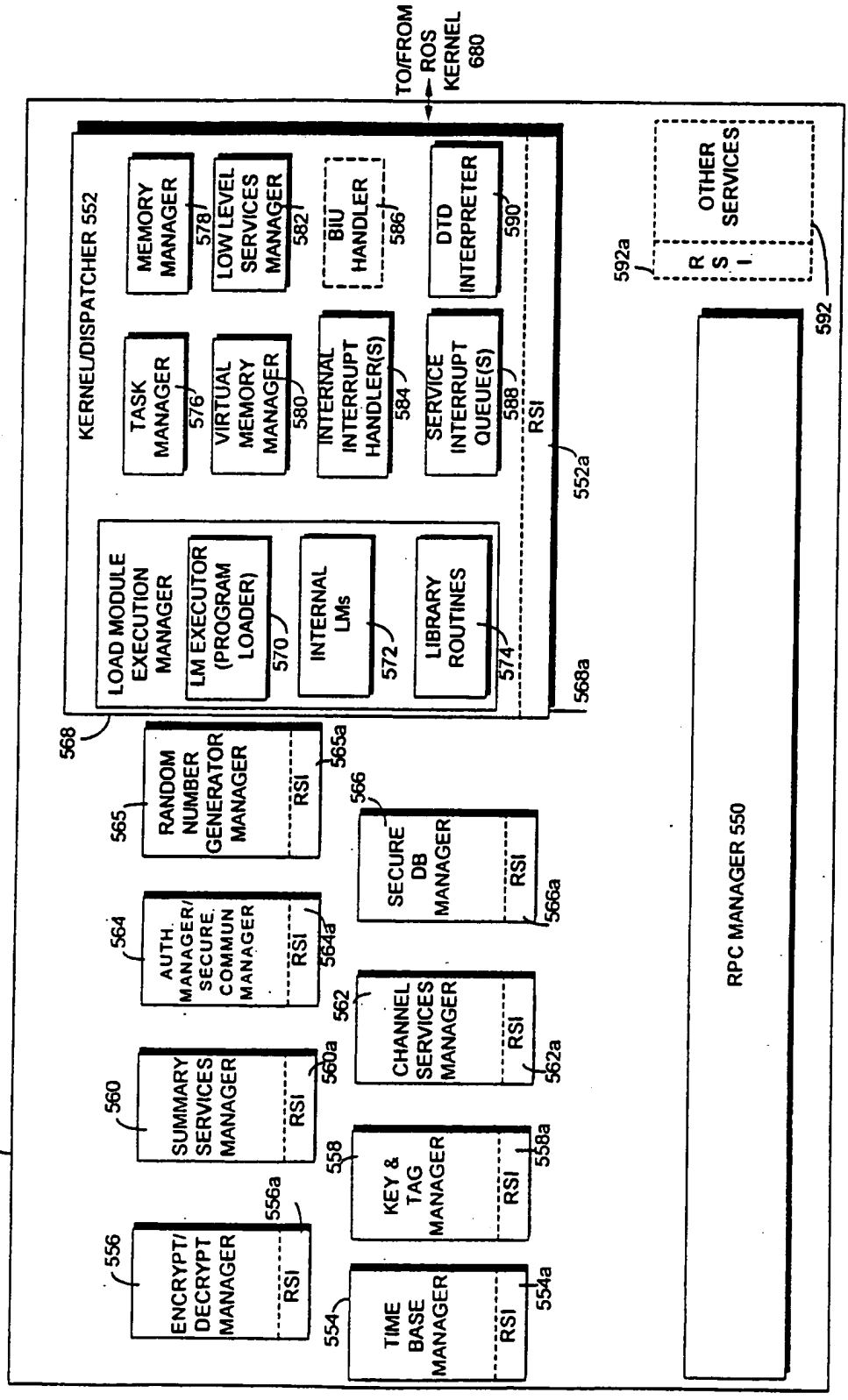



FIG. 13



Petitioner Apple Inc. - Exhibit 1006, p. 6134

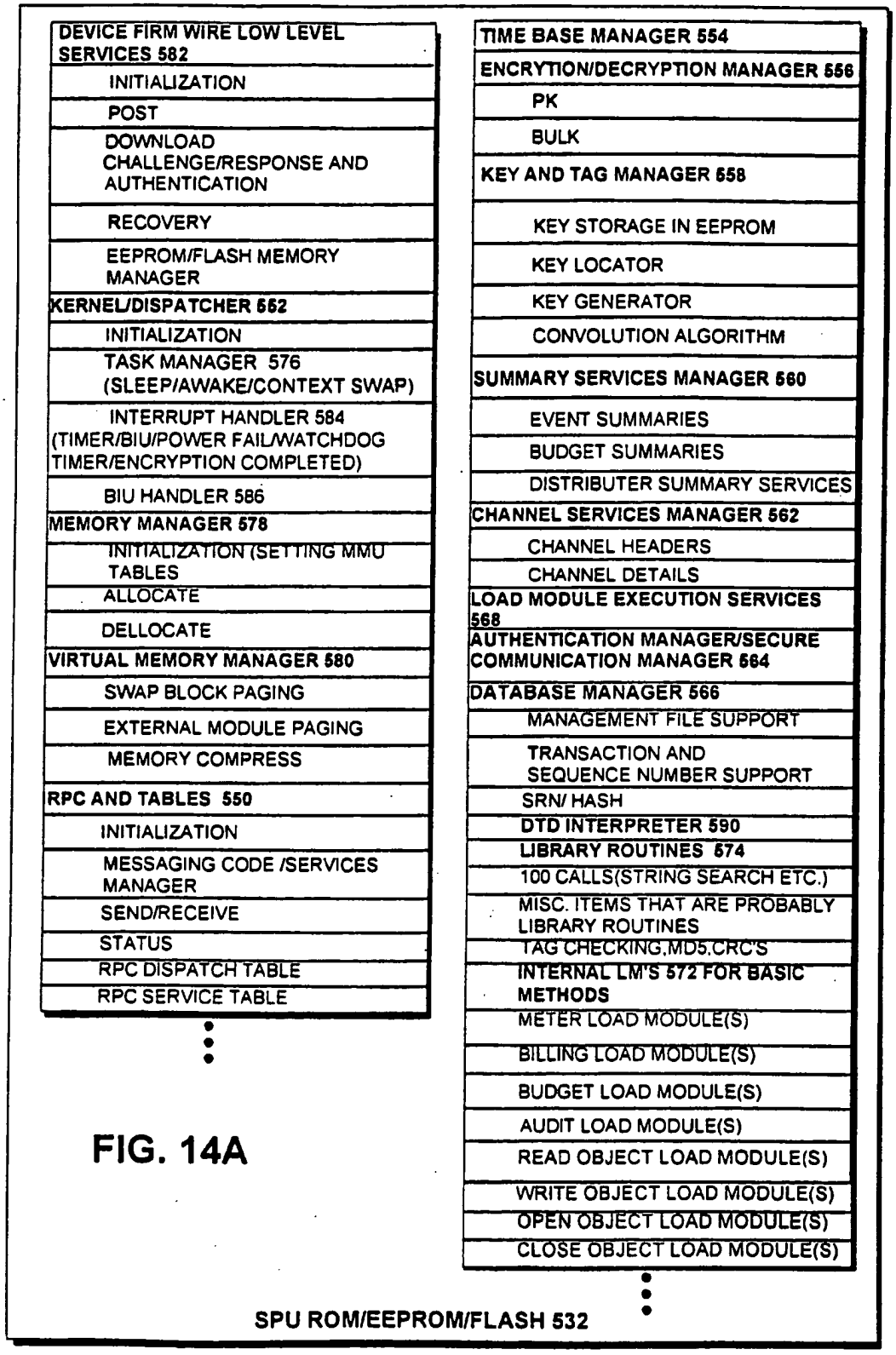
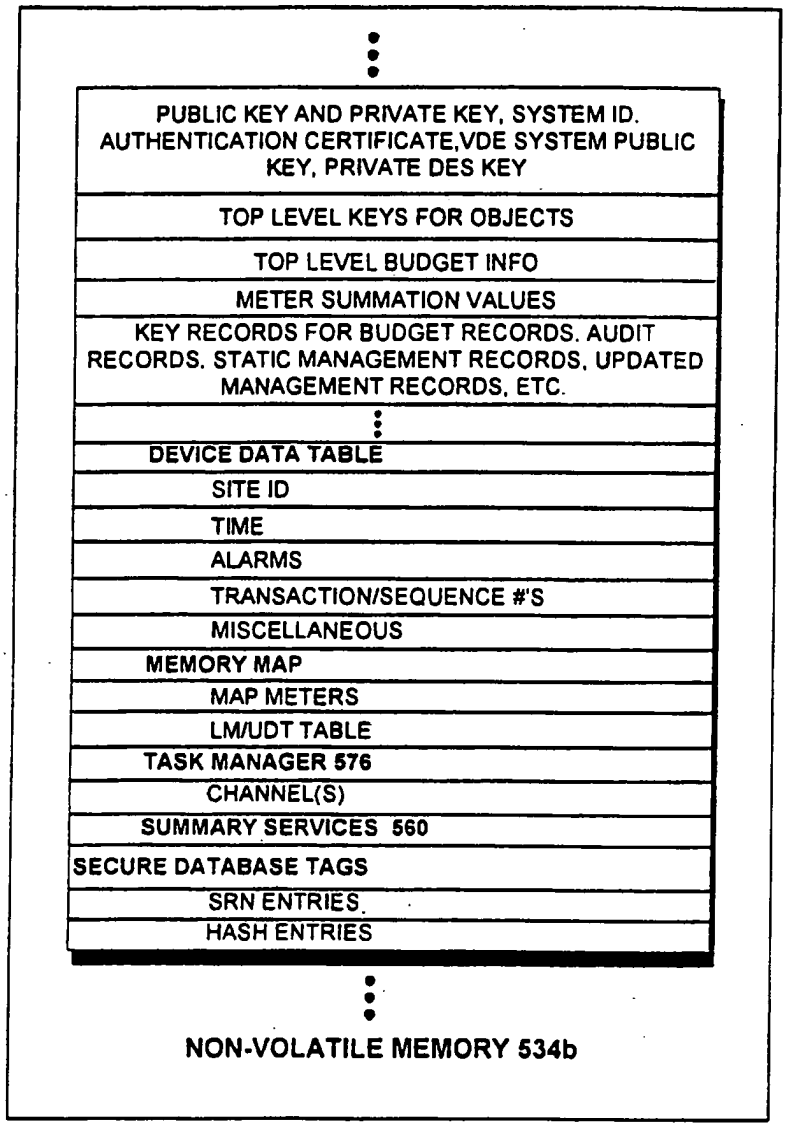



FIG. 14A



Petitioner Apple Inc. - Exhibit 1006, p. 6135

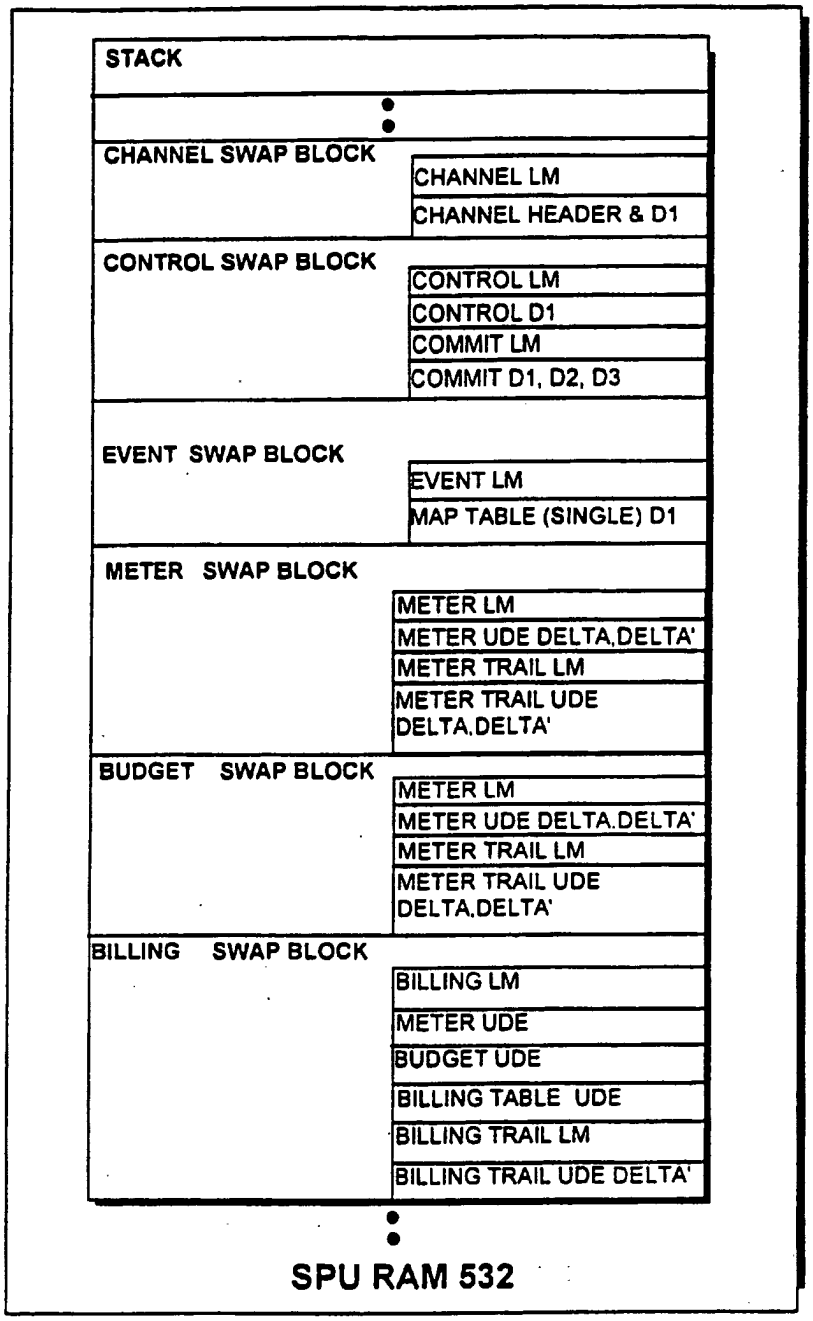
FIG. 14B






Petitioner Apple Inc. - Exhibit 1006, p. 6136

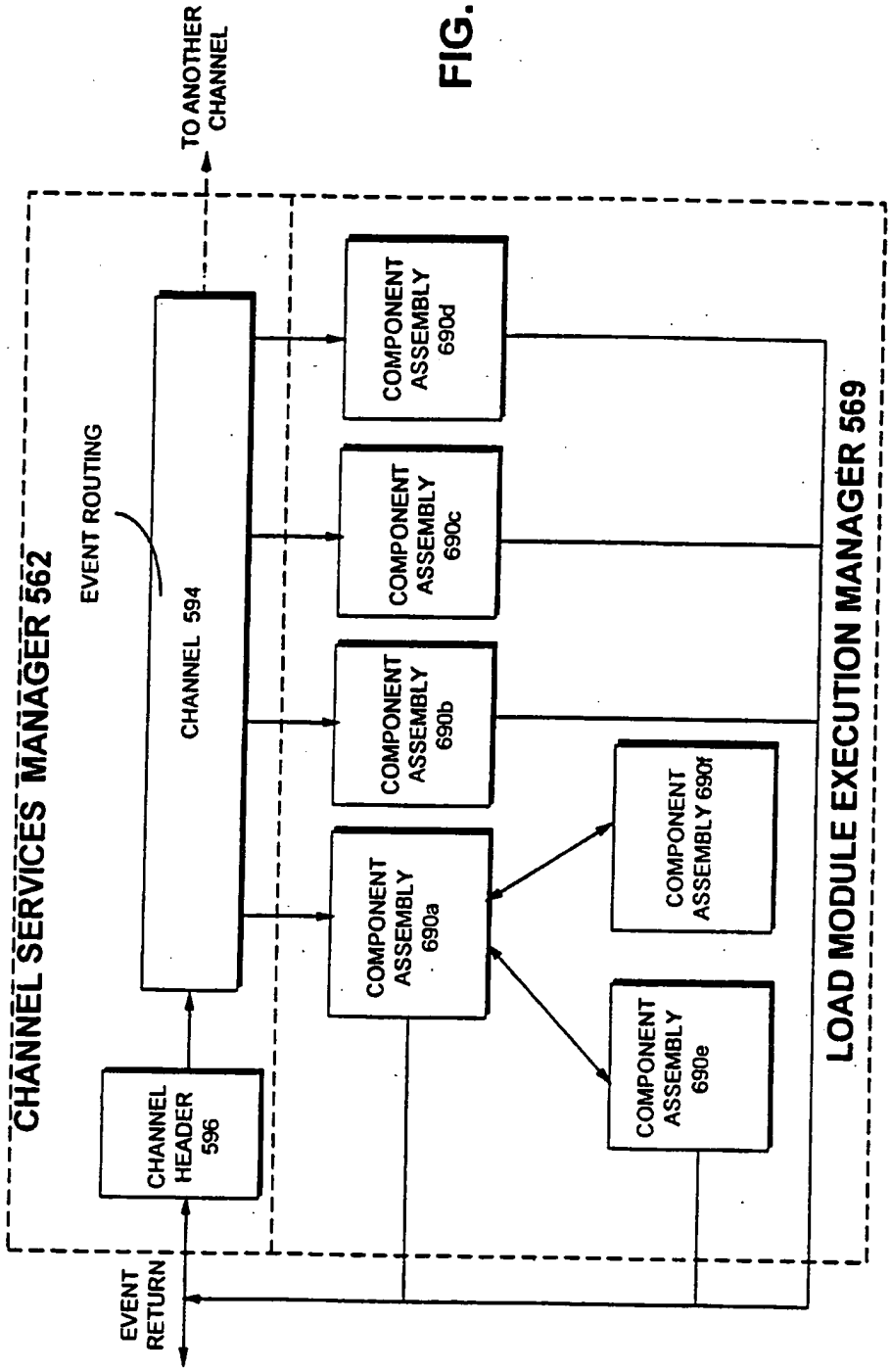
# FIG. 14C






Petitioner Apple Inc. - Exhibit 1006, p. 6137

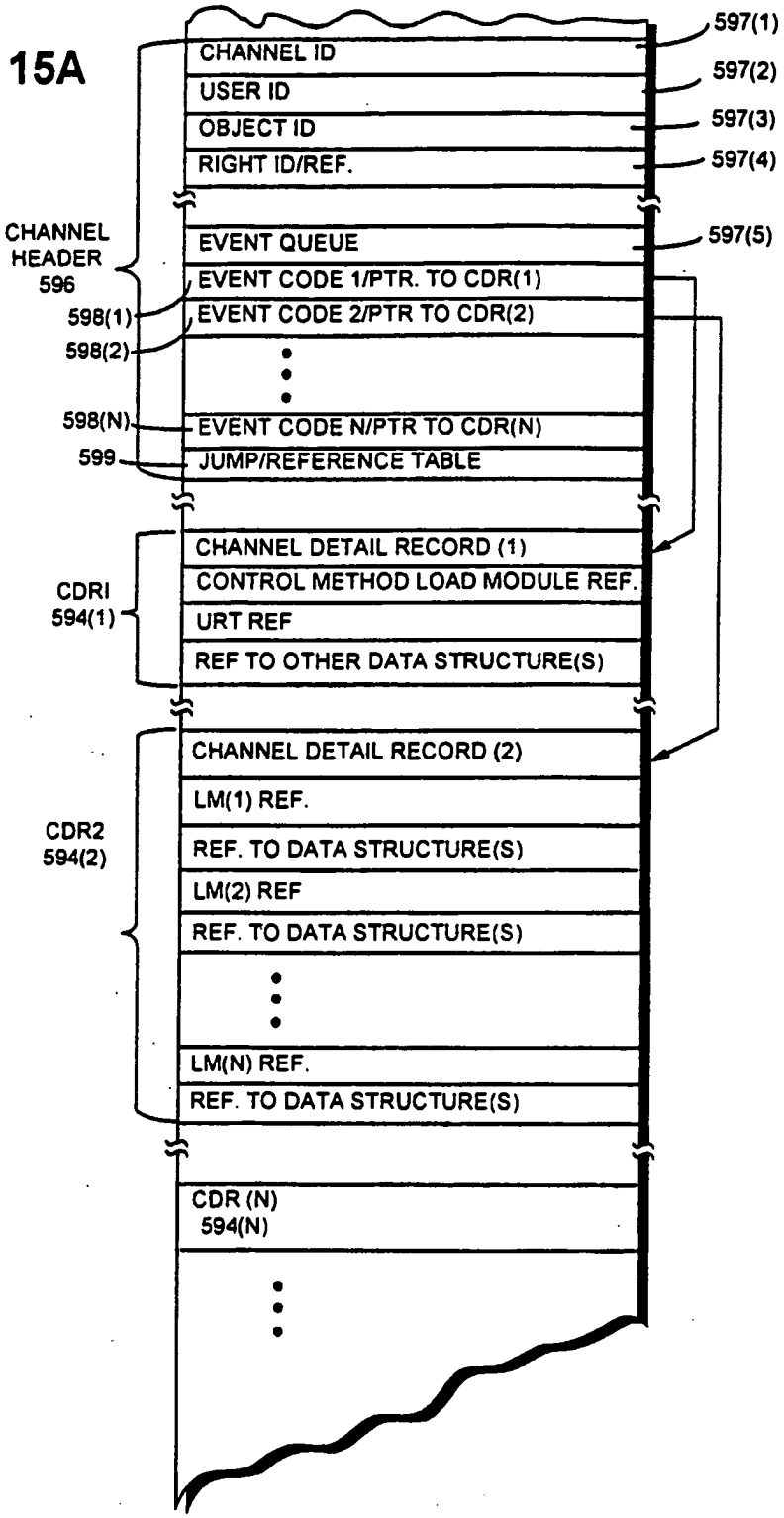
FIG. 15






Petitioner Apple Inc. - Exhibit 1006, p. 6138

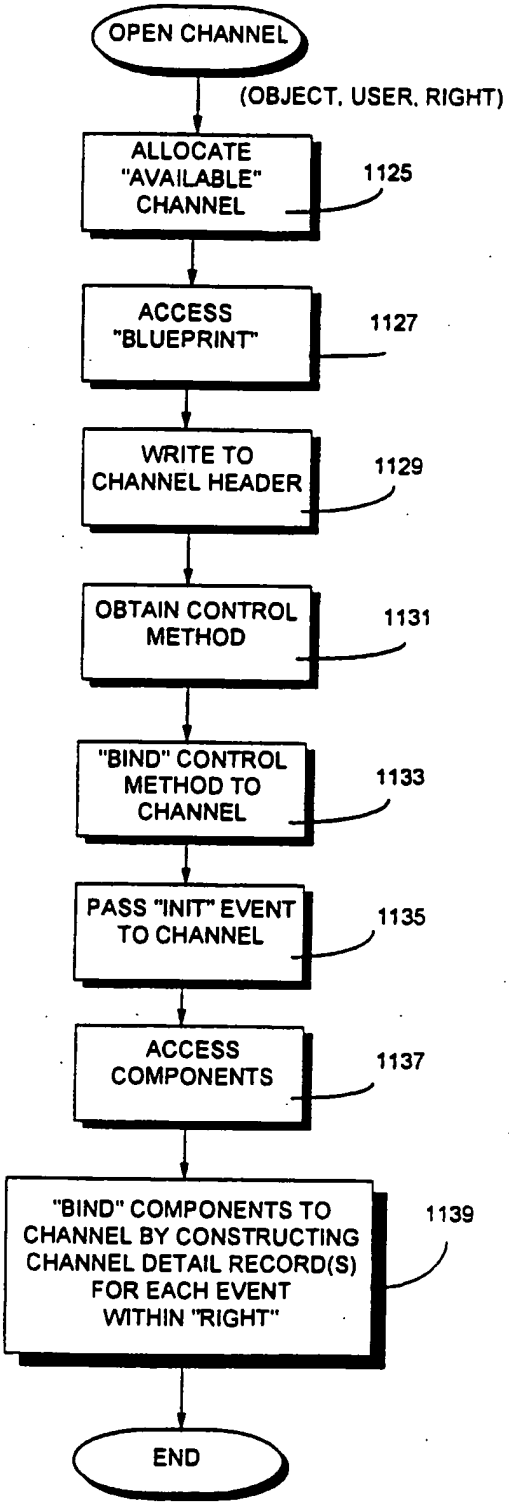
FIG. 15A






Petitioner Apple Inc. - Exhibit 1006, p. 6139

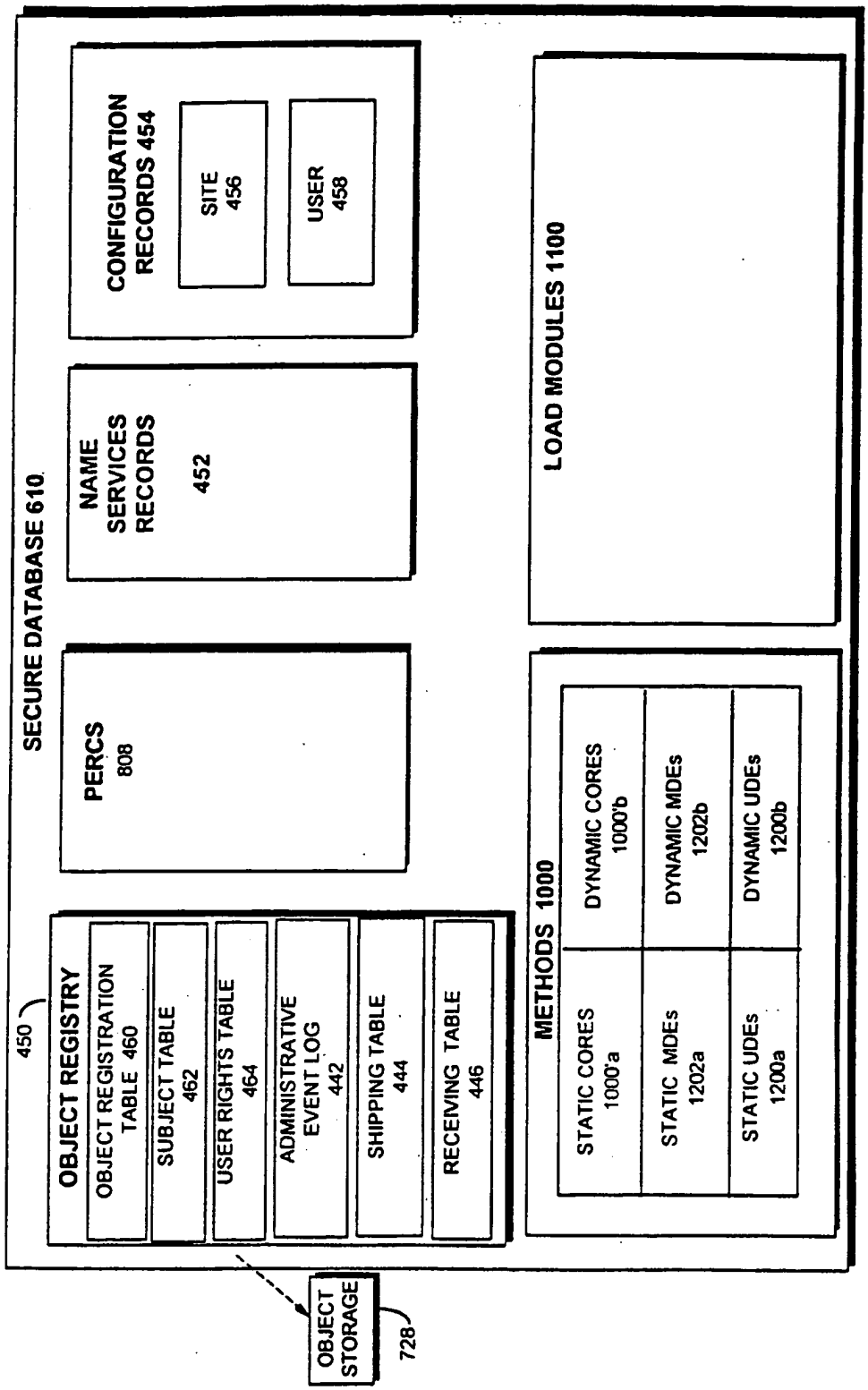
FIG. 15B






Petitioner Apple Inc. - Exhibit 1006, p. 6140

FIG. 16






Petitioner Apple Inc. - Exhibit 1006, p. 6141

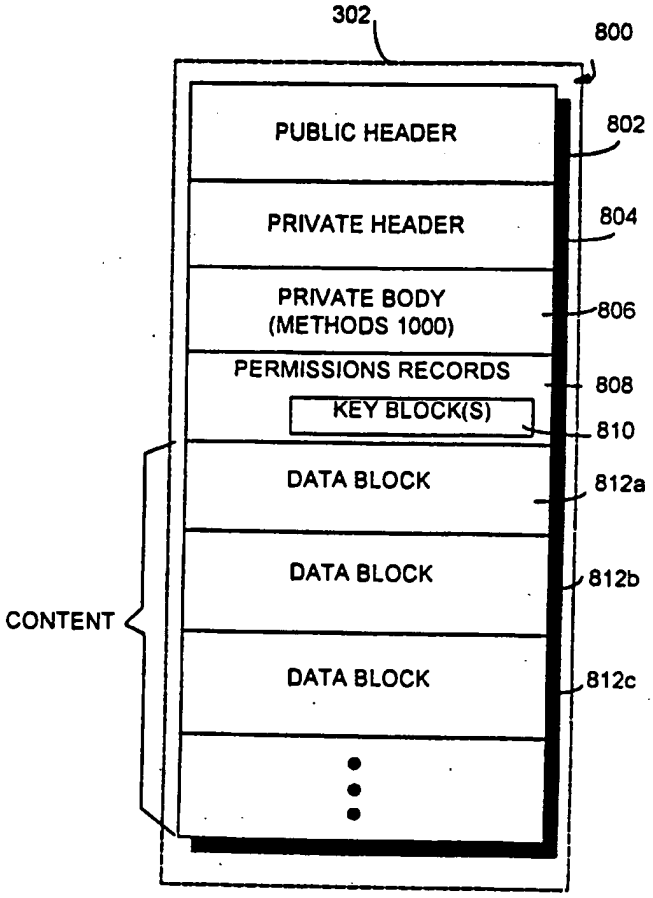



FIG. 17



Petitioner Apple Inc. - Exhibit 1006, p. 6142

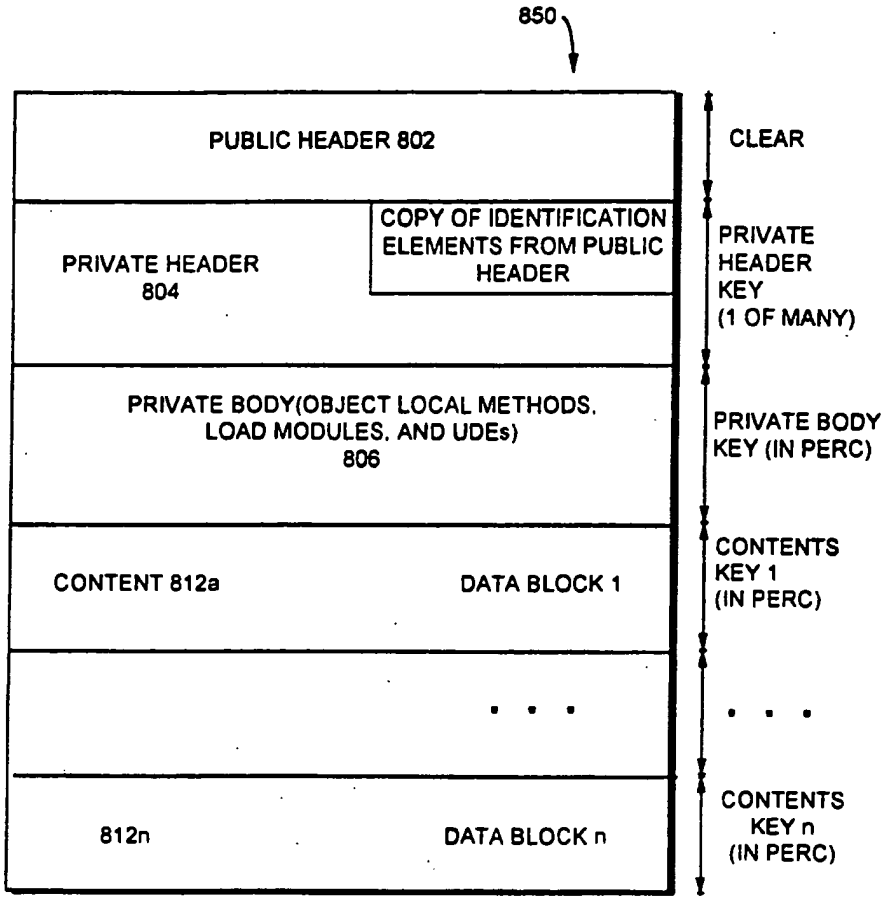
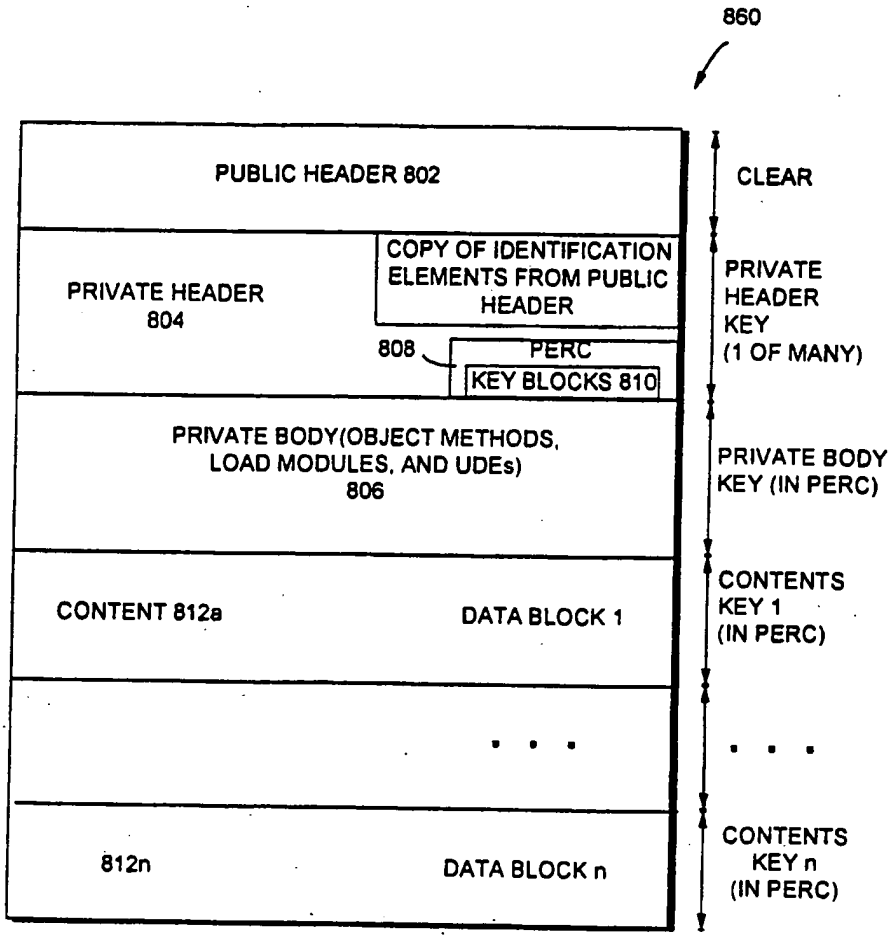



FIG. 18



Petitioner Apple Inc. - Exhibit 1006, p. 6143

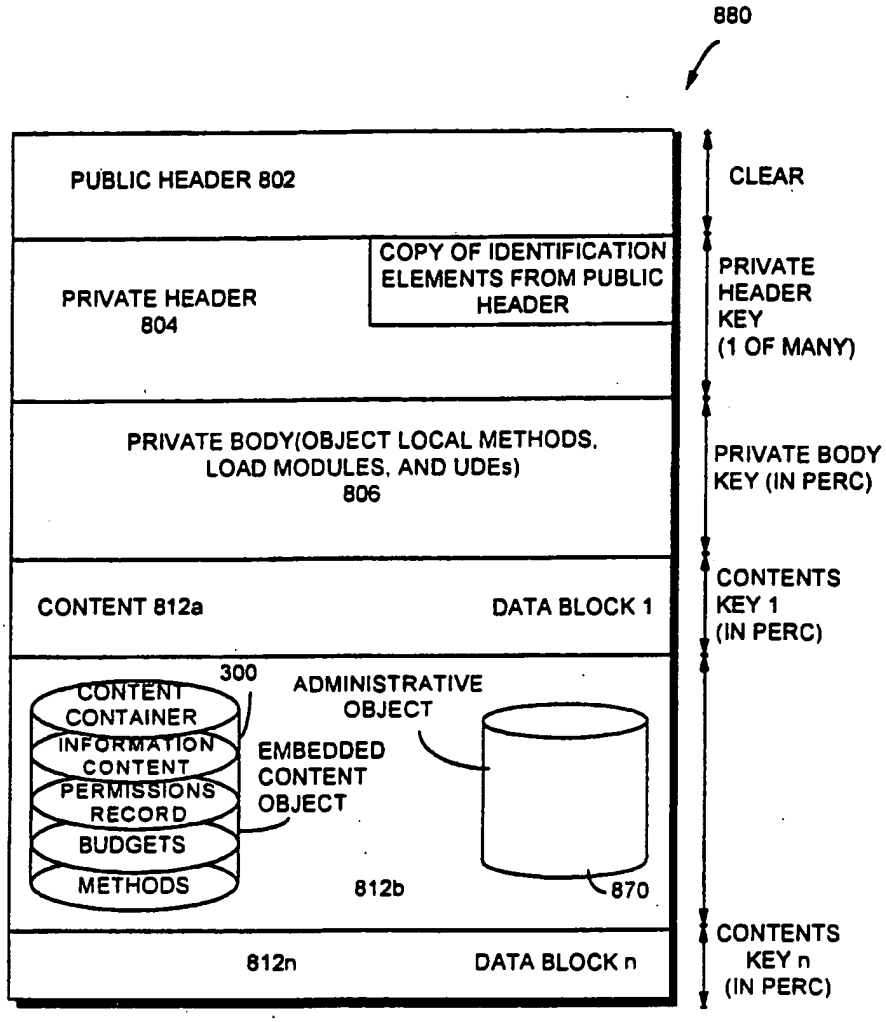



TRAVELING OBJECT

FIG. 19



Petitioner Apple Inc. - Exhibit 1006, p. 6144

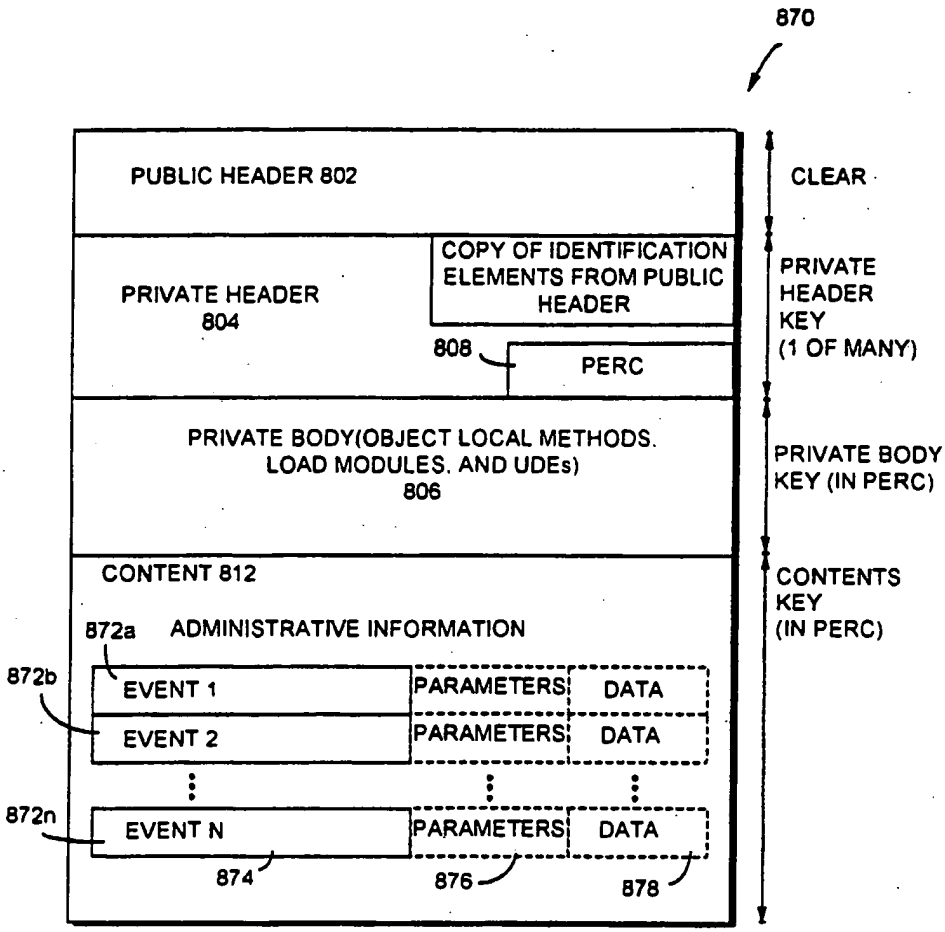



CONTENT OBJECT

FIG. 20



Petitioner Apple Inc. - Exhibit 1006, p. 6145



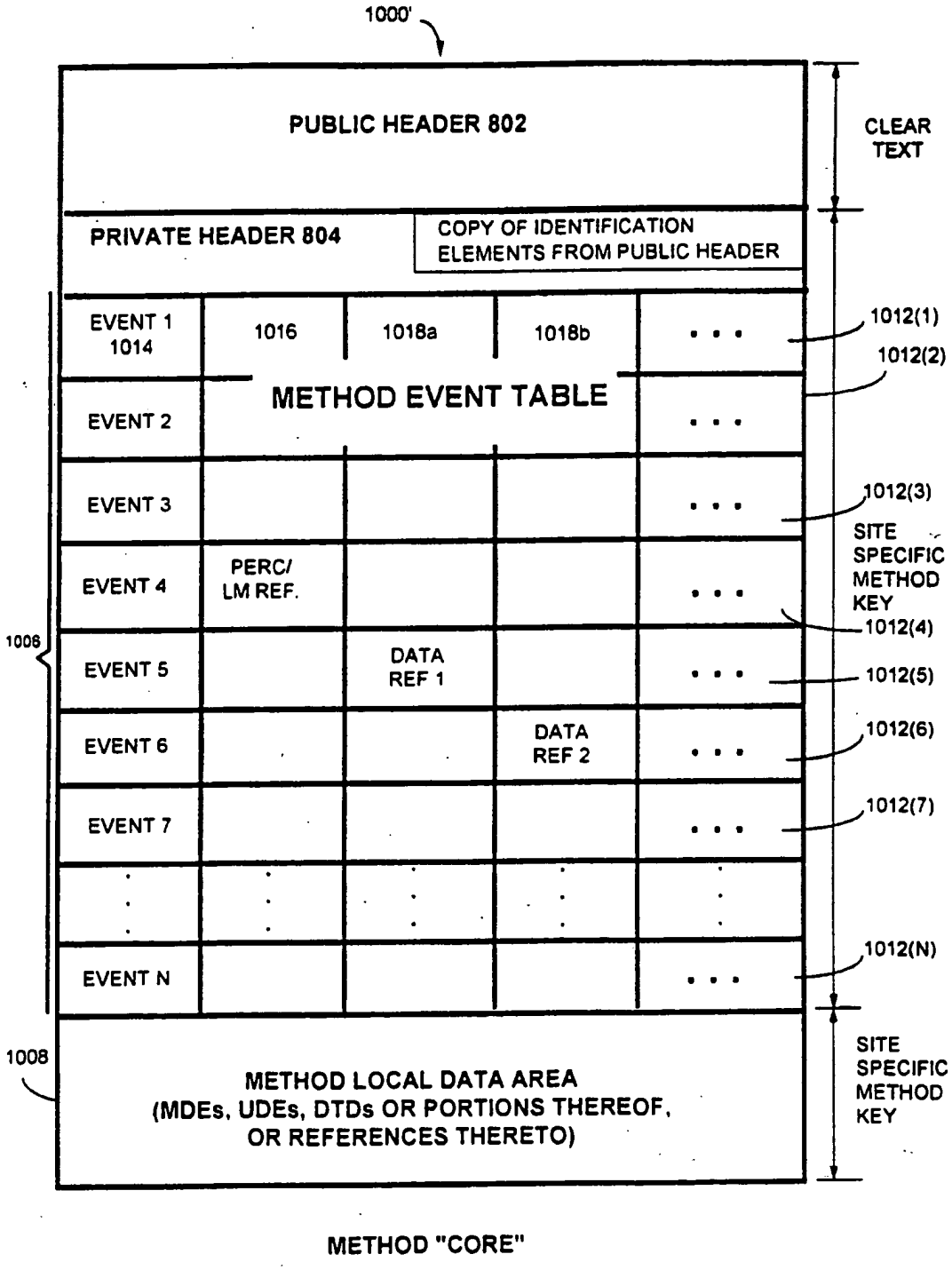

ADMINISTRATIVE OBJECT

FIG. 21



Petitioner Apple Inc. - Exhibit 1006, p. 6146

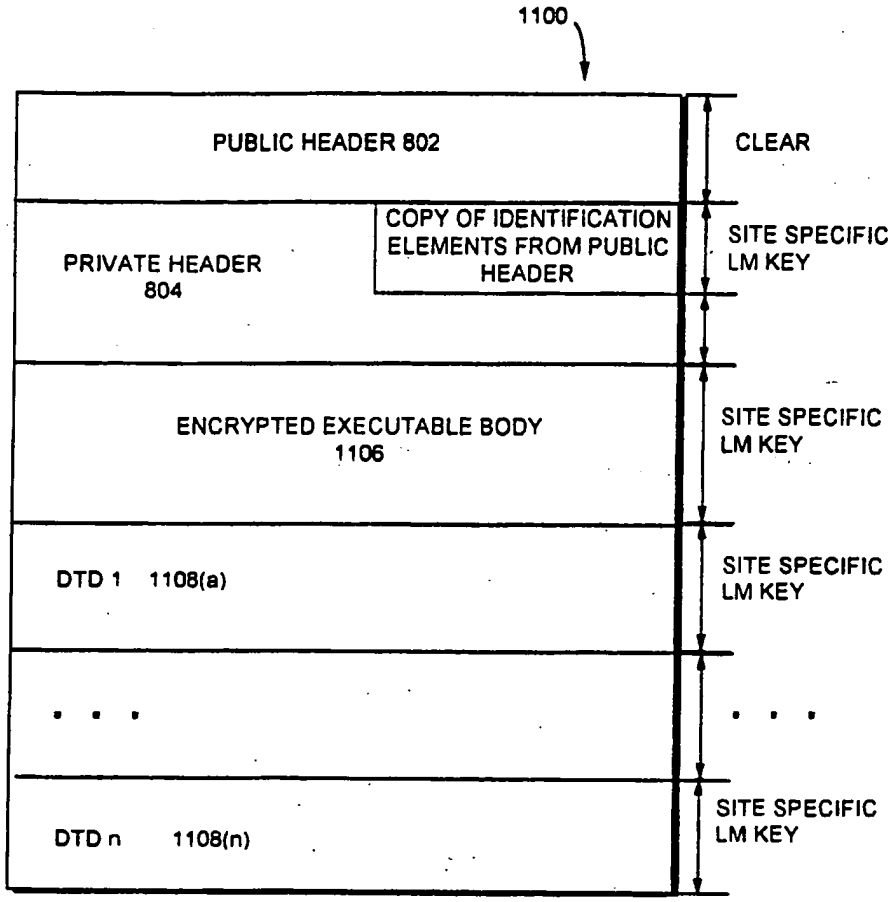
FIG. 22






Petitioner Apple Inc. - Exhibit 1006, p. 6147

FIG. 23

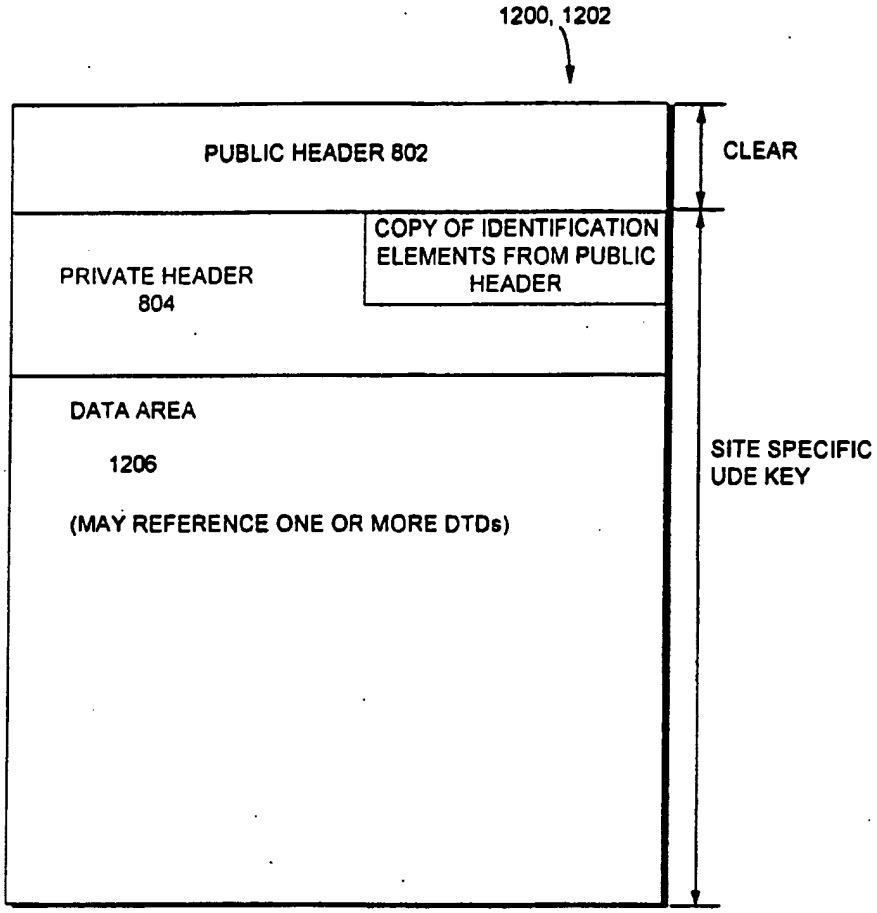



LOAD MODULE



Petitioner Apple Inc. - Exhibit 1006, p. 6148

FIG. 24






Petitioner Apple Inc. - Exhibit 1006, p. 6149

FIG. 25A

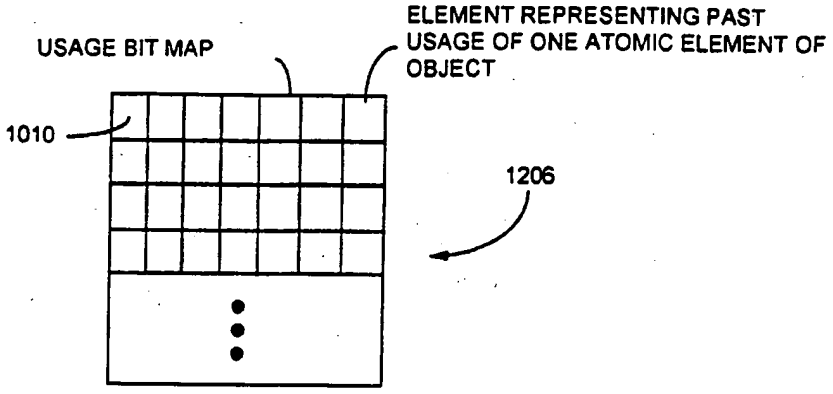
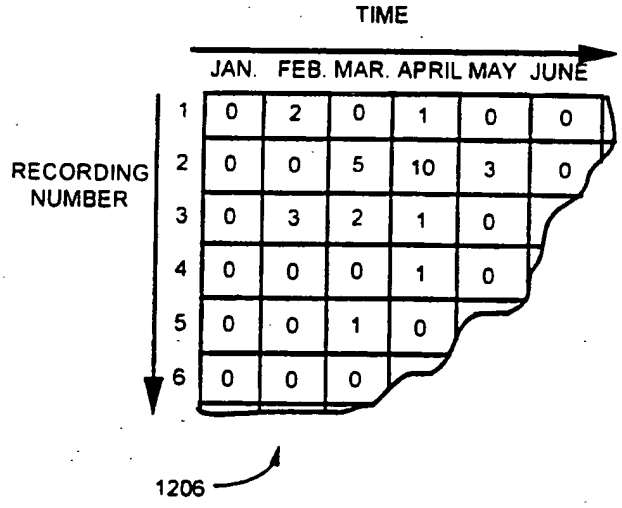


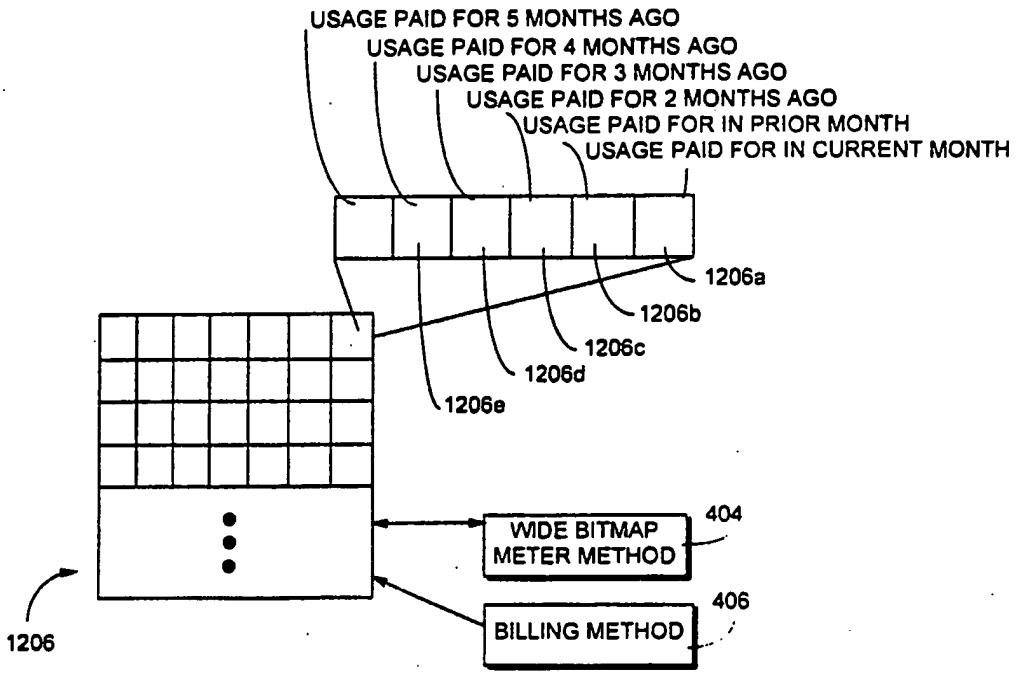

FIG. 25B






Petitioner Apple Inc. - Exhibit 1006, p. 6150

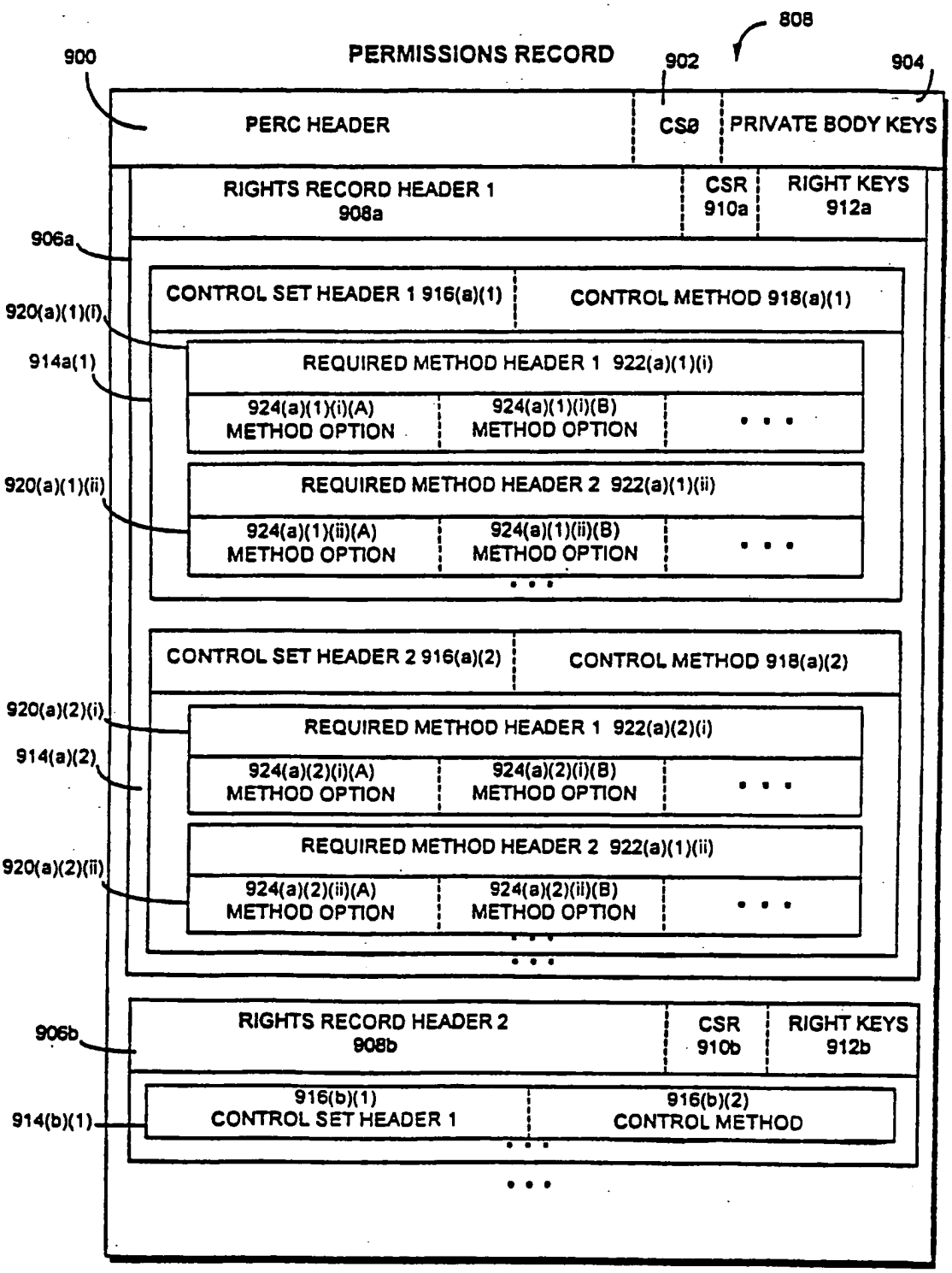
FIG. 25C






Petitioner Apple Inc. - Exhibit 1006, p. 6151

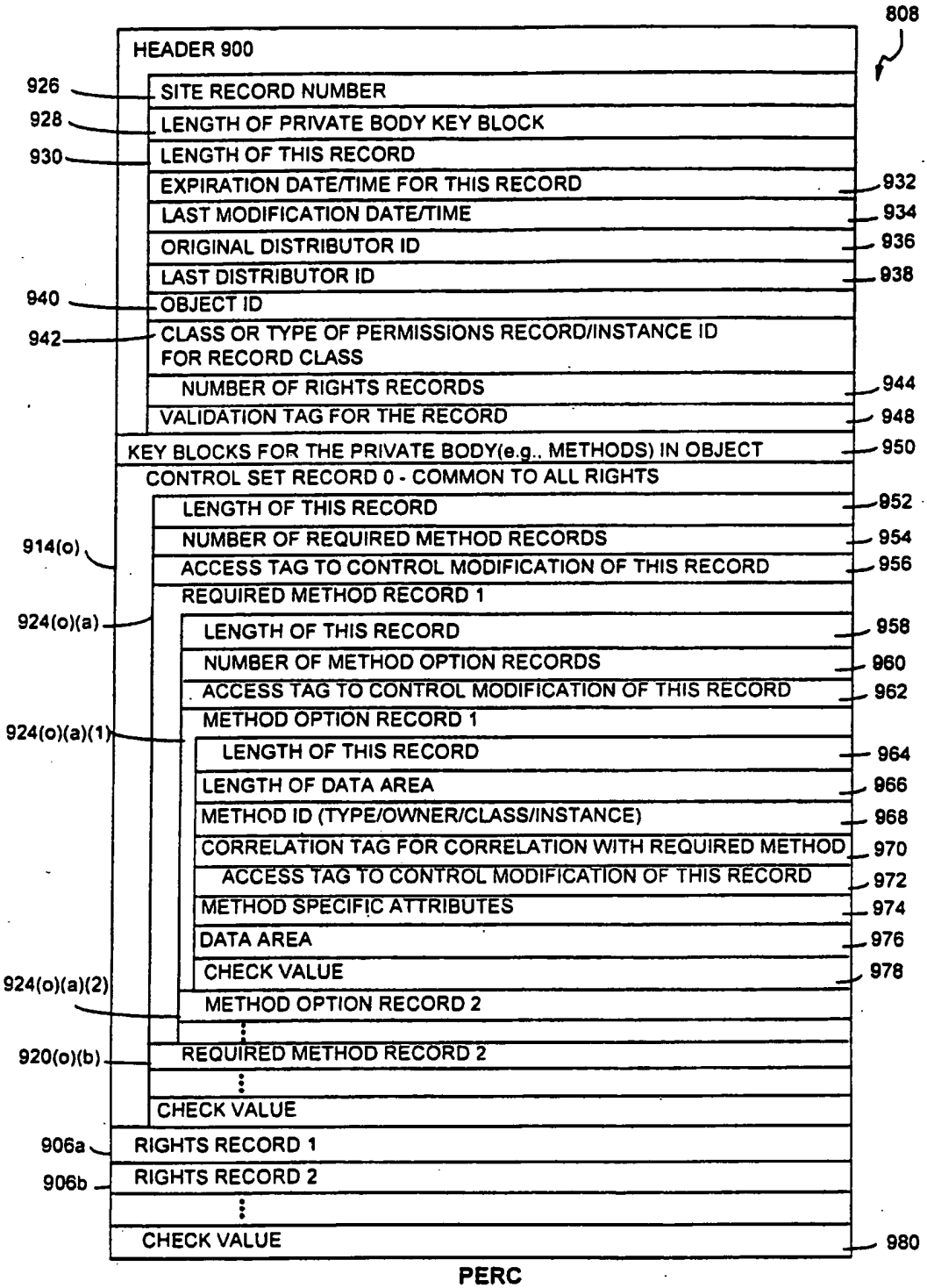
FIG. 26






Petitioner Apple Inc. - Exhibit 1006, p. 6152

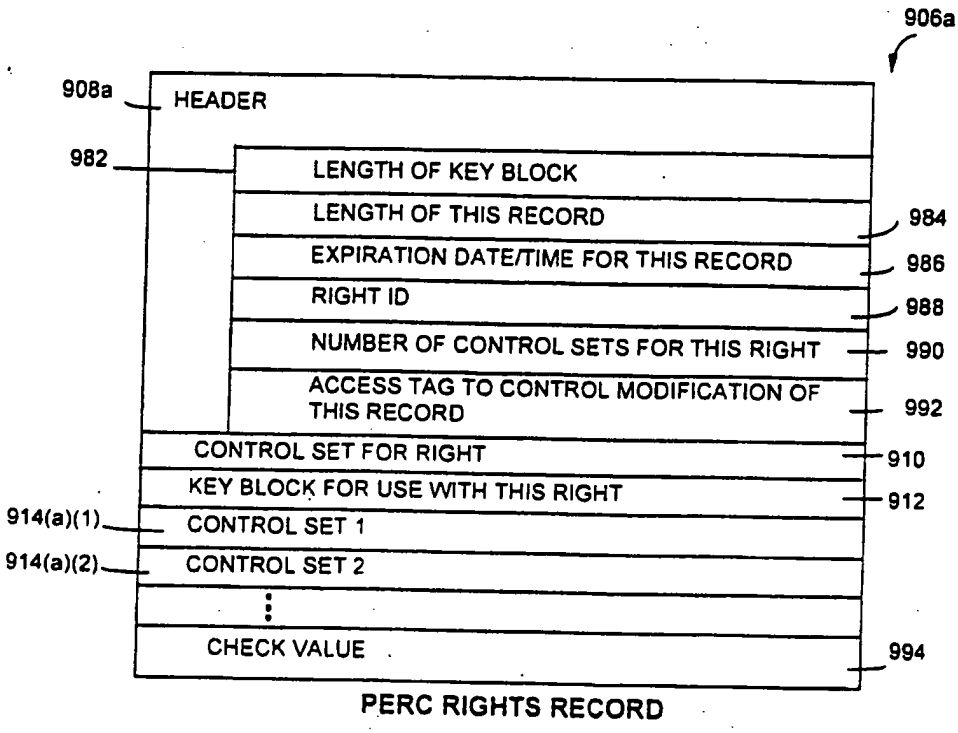
FIG. 26A






Petitioner Apple Inc. - Exhibit 1006, p. 6153

FIG. 26B

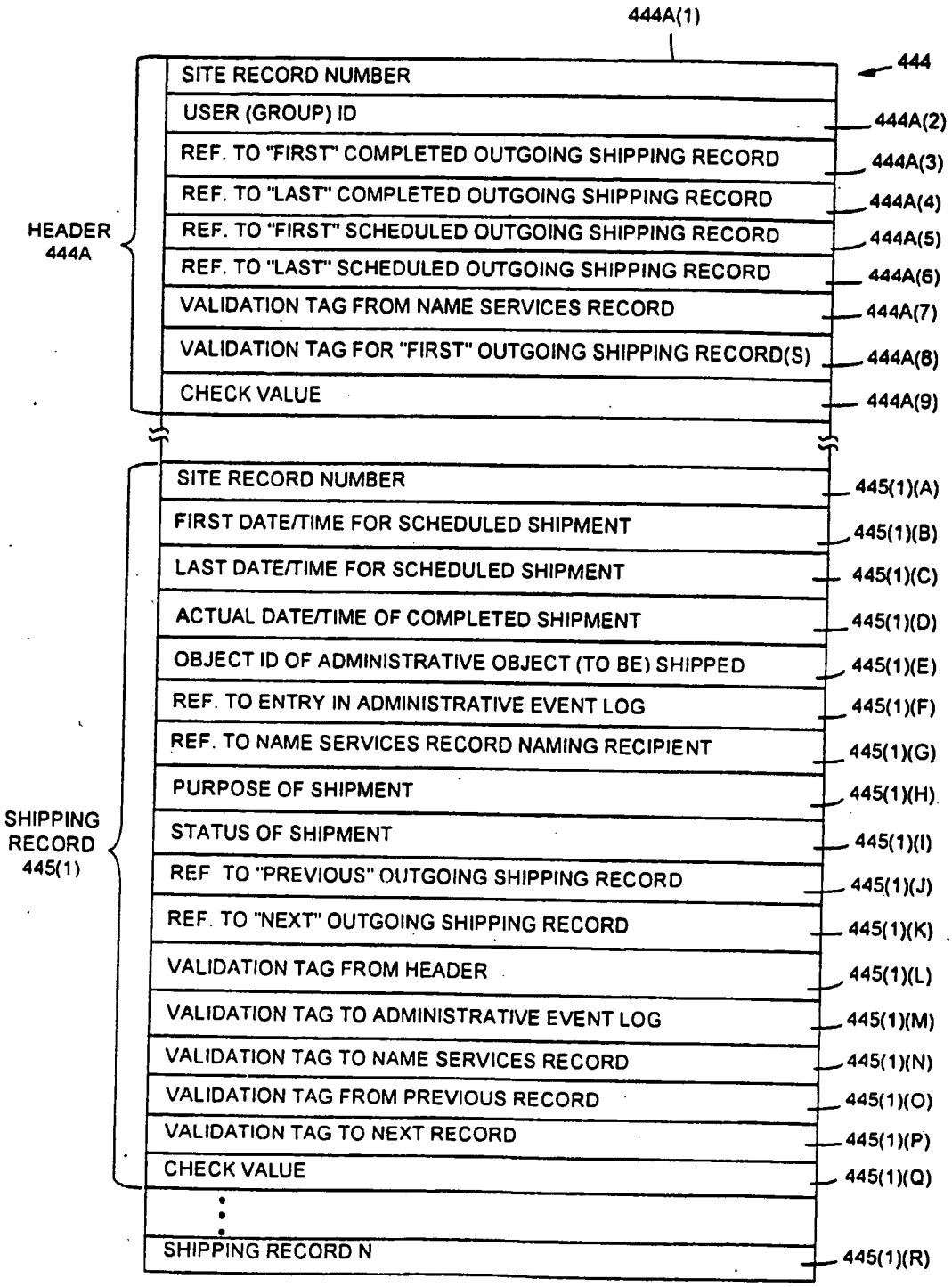



PERC RIGHTS RECORD



Petitioner Apple Inc. - Exhibit 1006, p. 6154

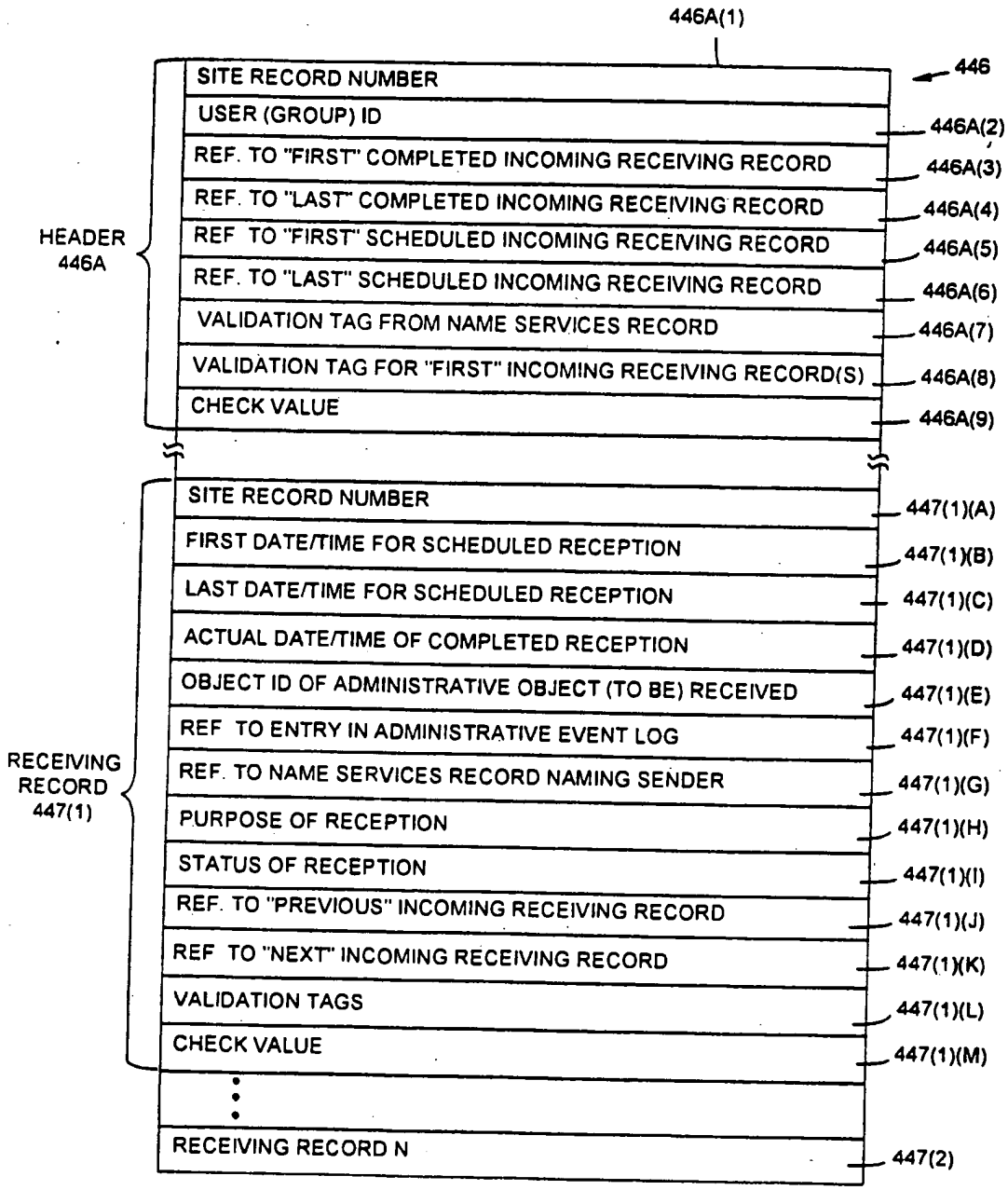
# FIG. 27
SHIPPING TABLE






Petitioner Apple Inc. - Exhibit 1006, p. 6155

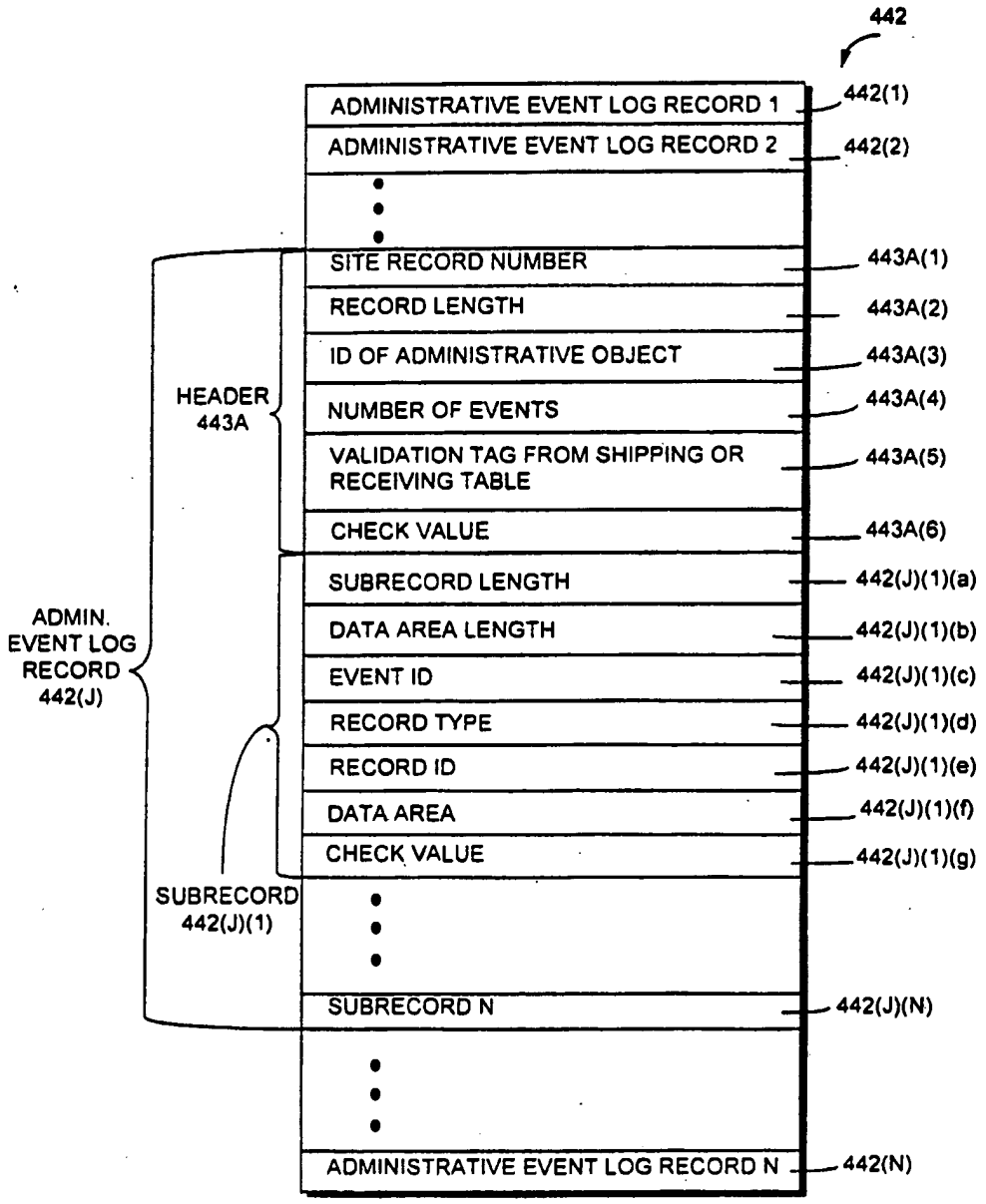
# FIG. 28
RECEIVING TABLE






Petitioner Apple Inc. - Exhibit 1006, p. 6156

FIG. 29
ADMINISTRATIVE EVENT LOG






Petitioner Apple Inc. - Exhibit 1006, p. 6157

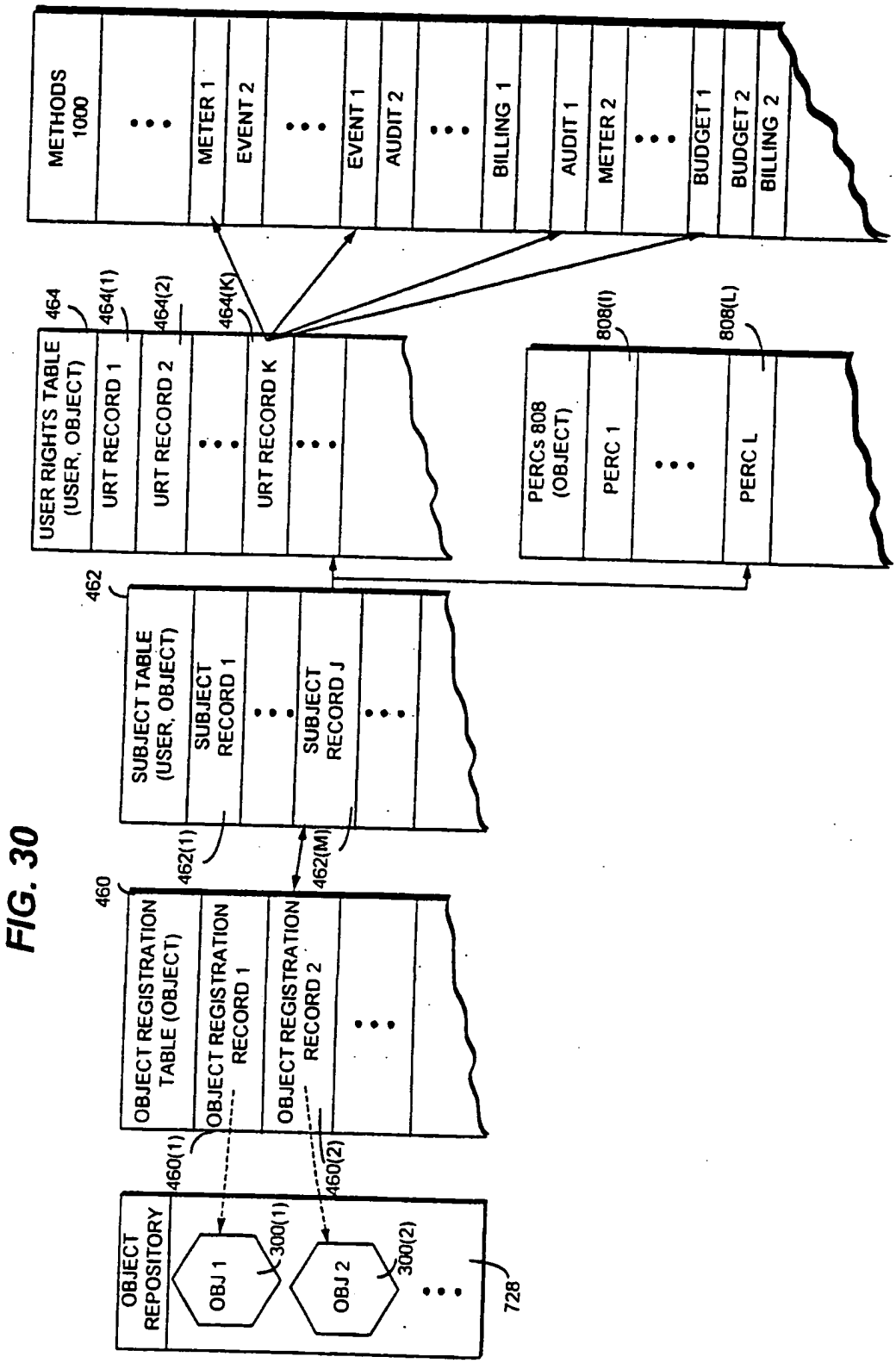



FIG. 30



Petitioner Apple Inc. - Exhibit 1006, p. 6158

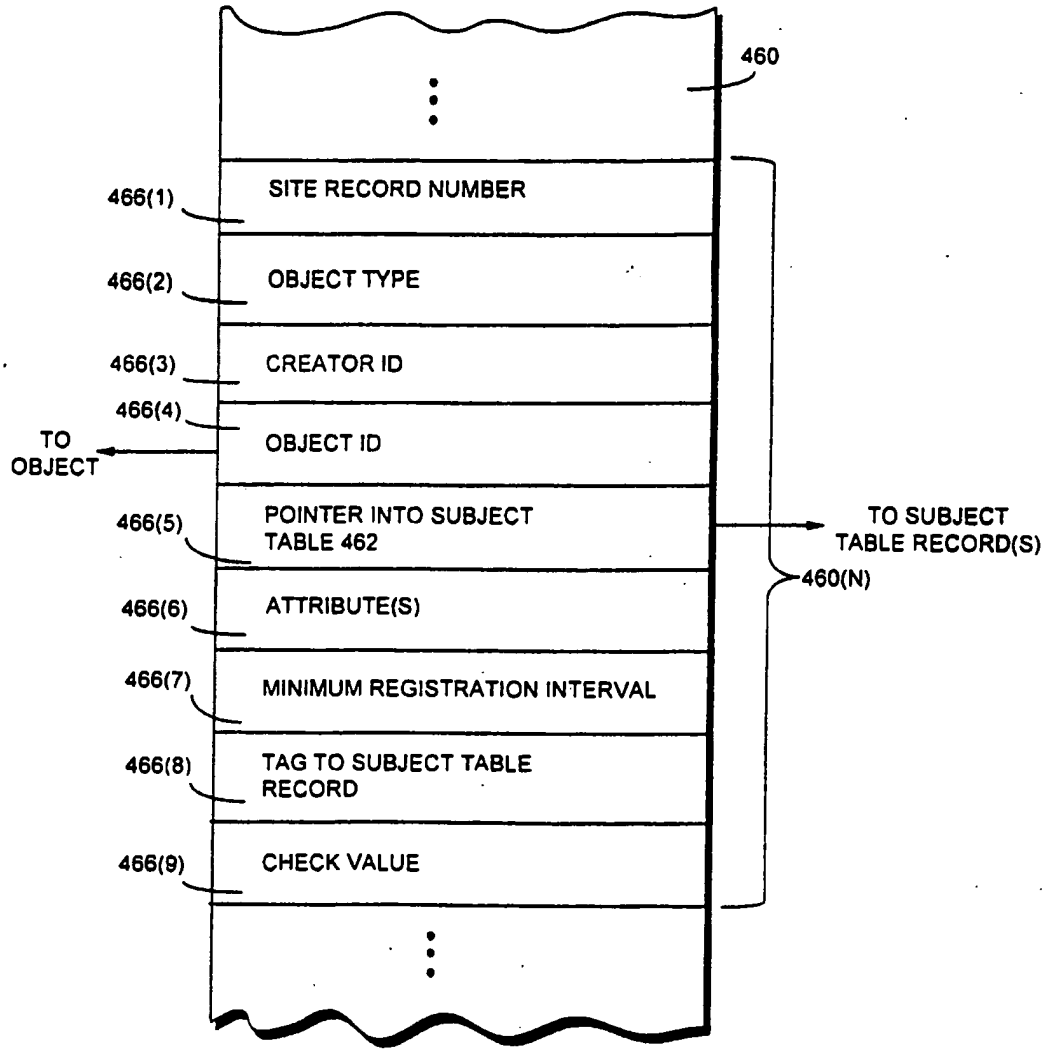
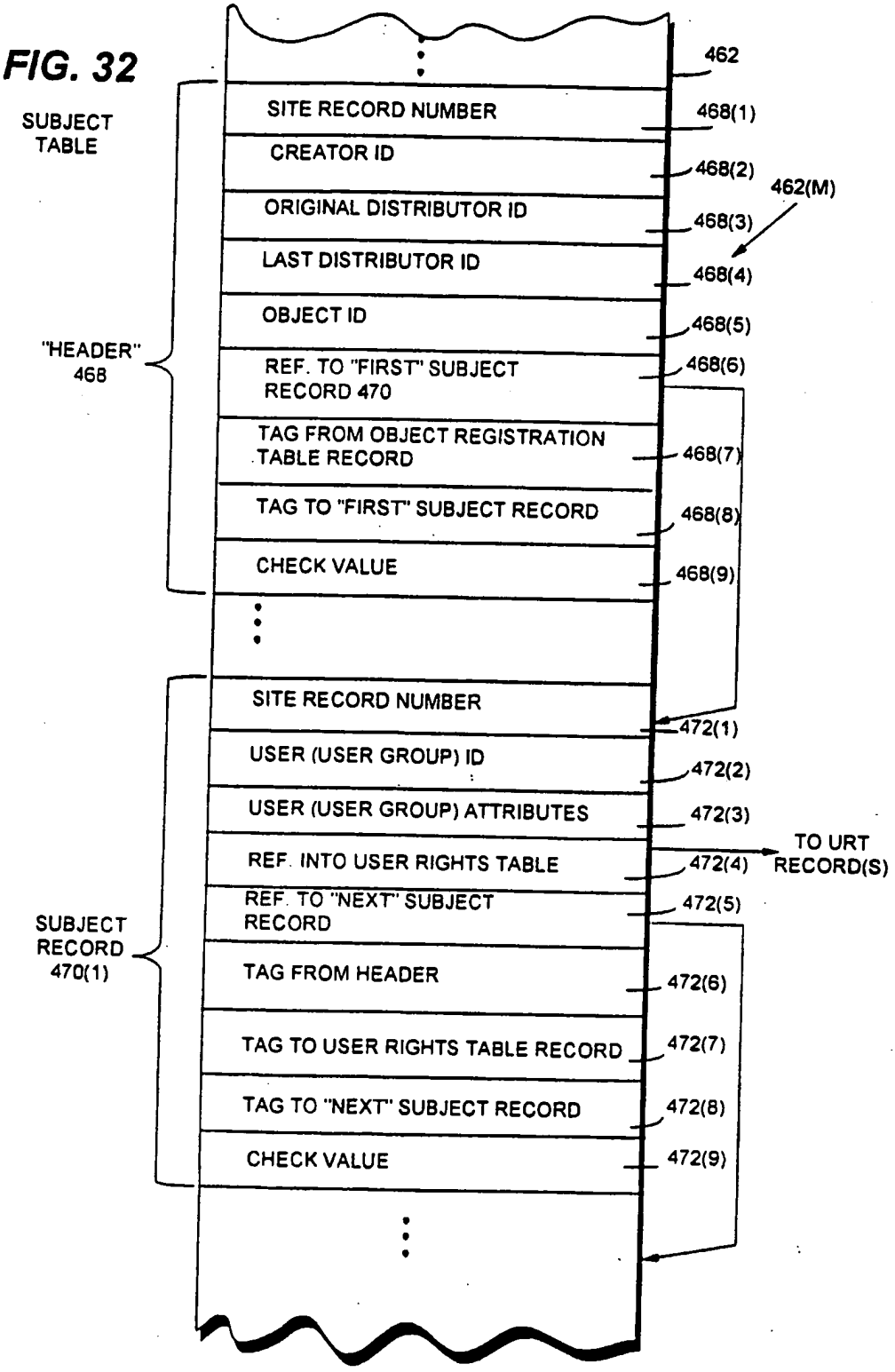



*FIG. 31*
OBJECT REGISTRATION TABLE

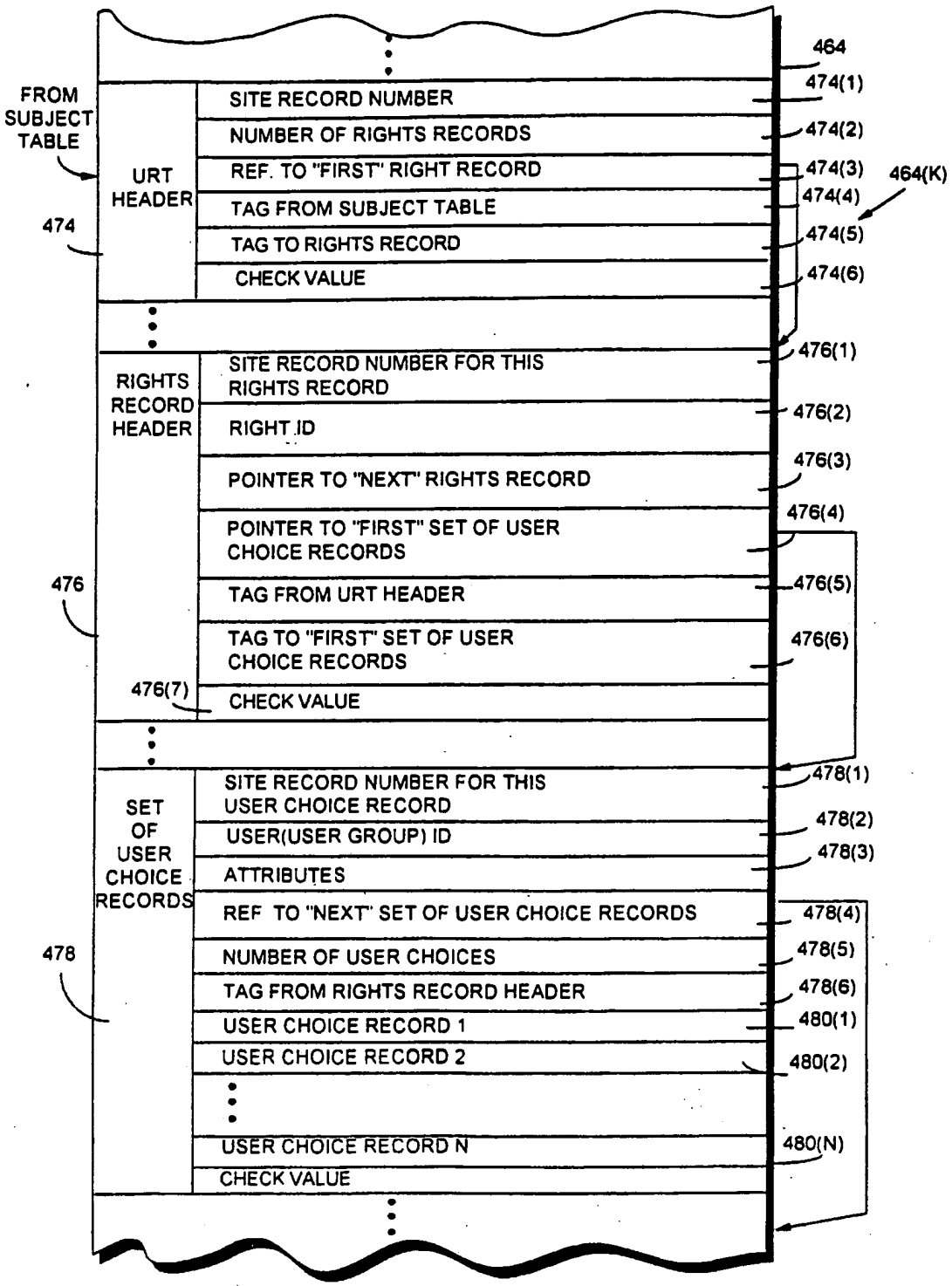
FIG. 32






Petitioner Apple Inc. - Exhibit 1006, p. 6160

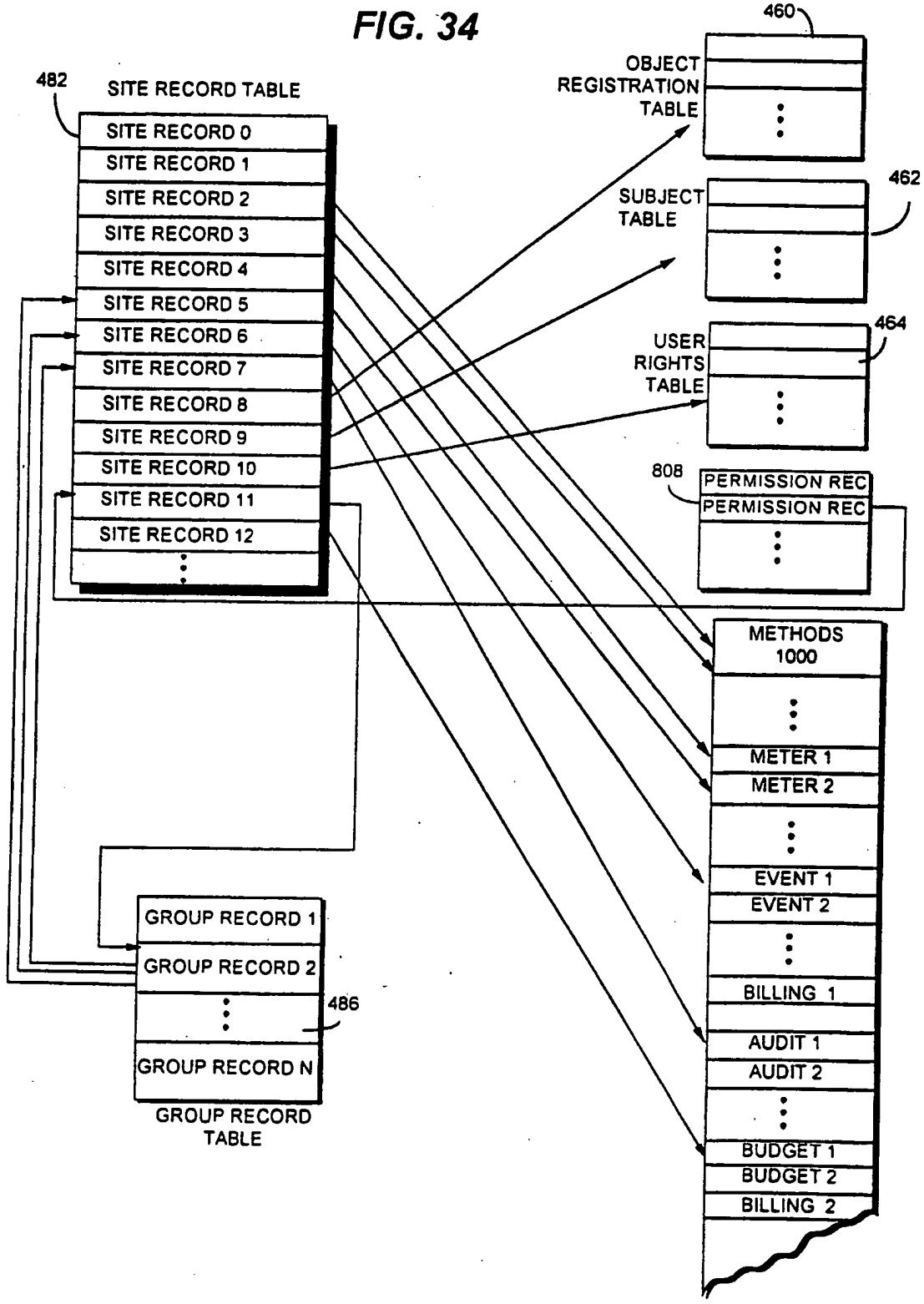
FIG. 33 USER RIGHTS TABLE






Petitioner Apple Inc. - Exhibit 1006, p. 6161

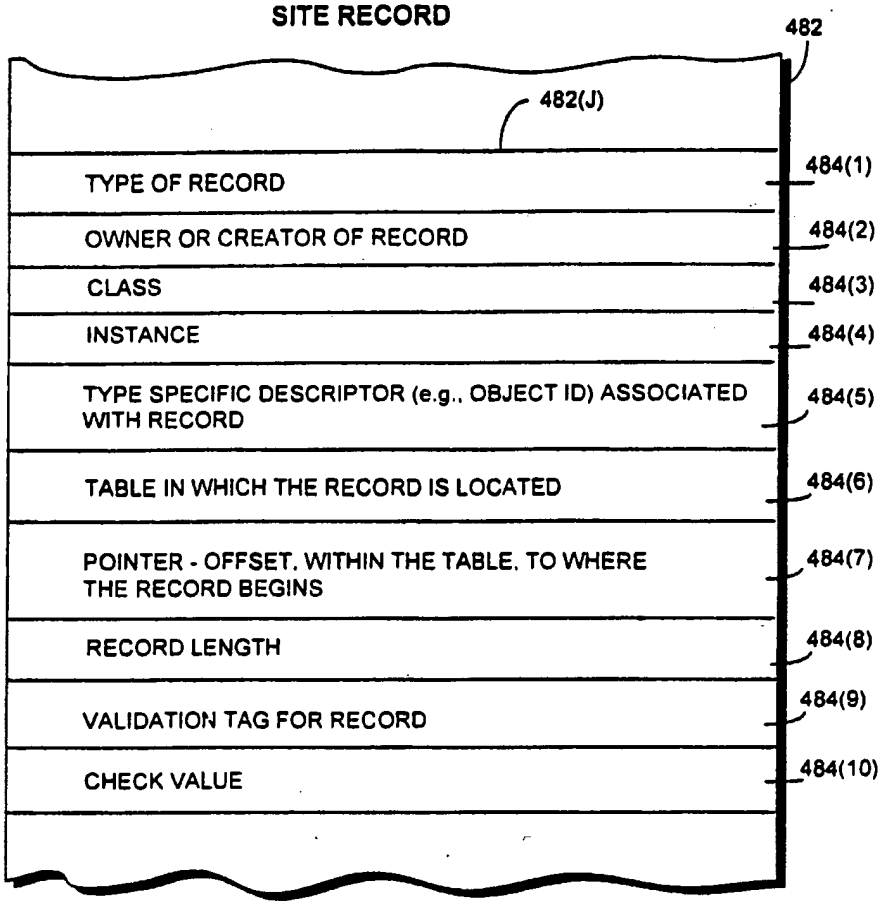
FIG. 34






Petitioner Apple Inc. - Exhibit 1006, p. 6162

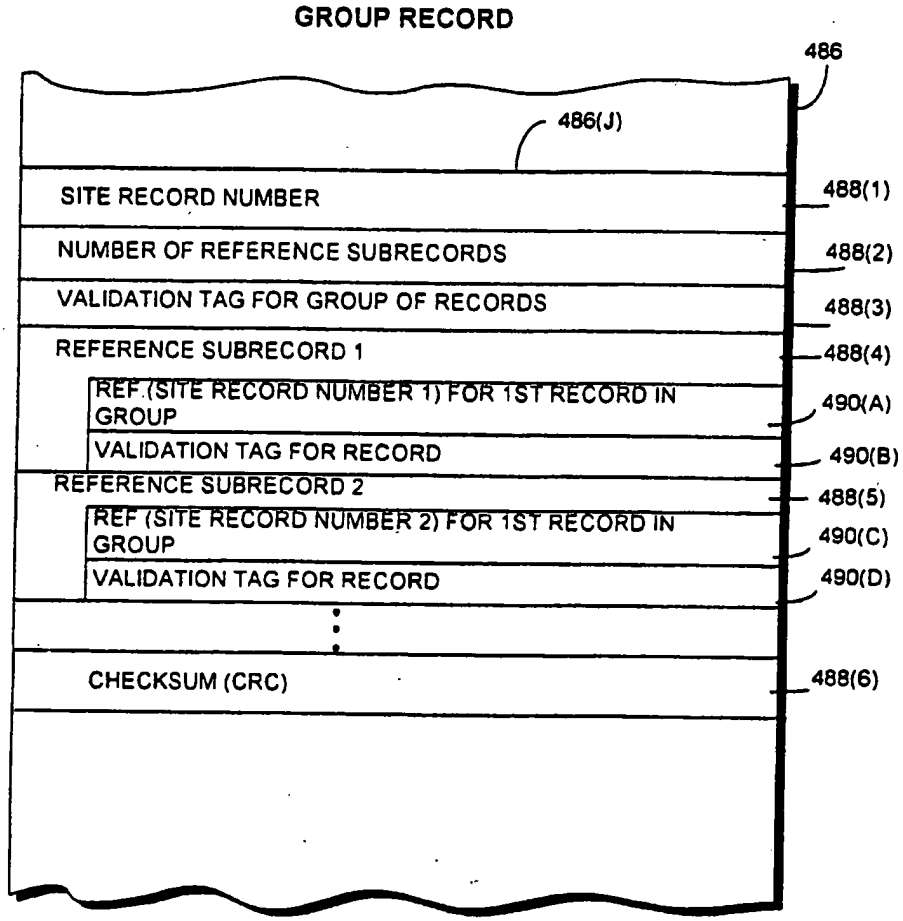
FIG. 34A






Petitioner Apple Inc. - Exhibit 1006, p. 6163

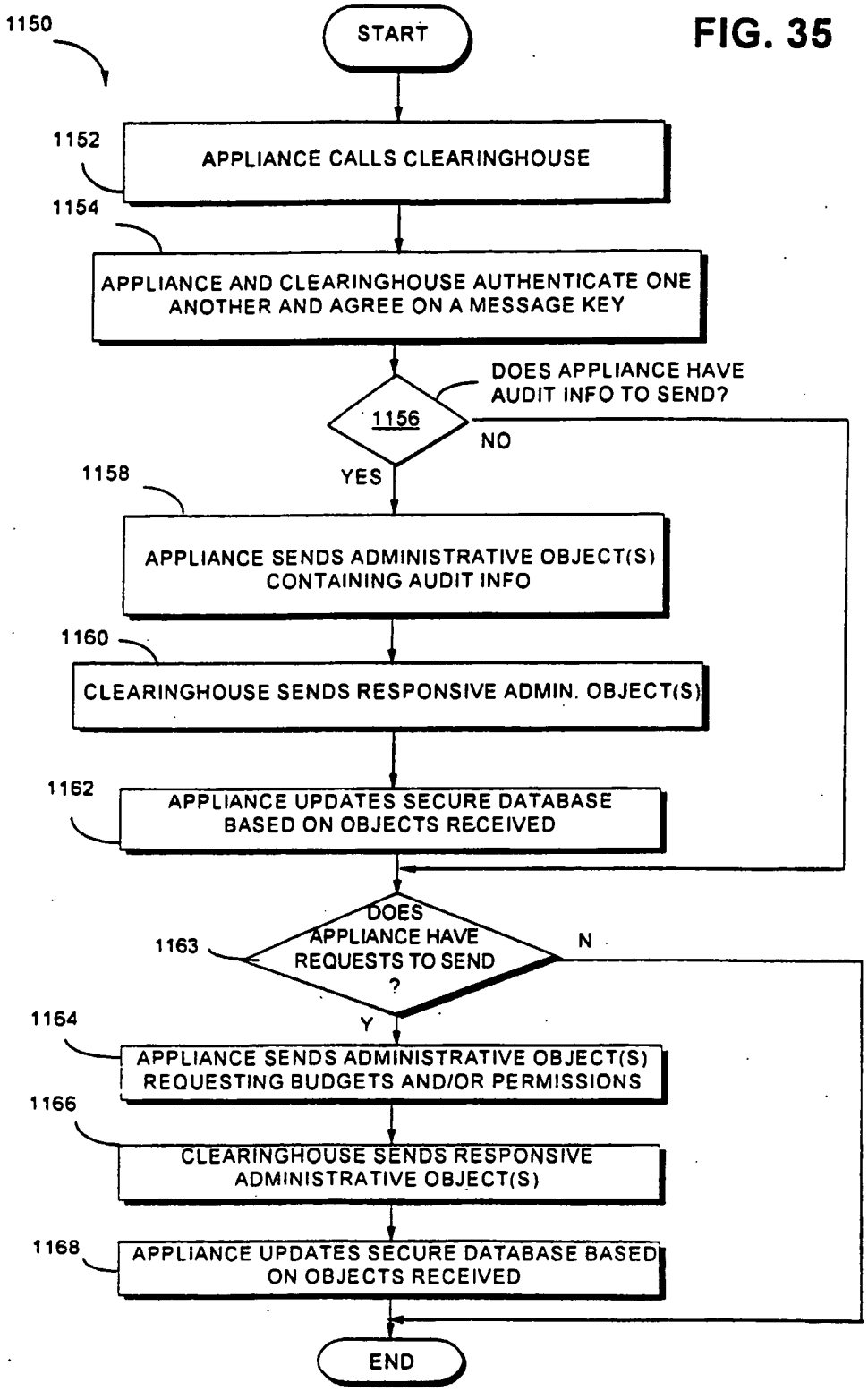
FIG. 34B






Petitioner Apple Inc. - Exhibit 1006, p. 6164

FIG. 35






Petitioner Apple Inc. - Exhibit 1006, p. 6165

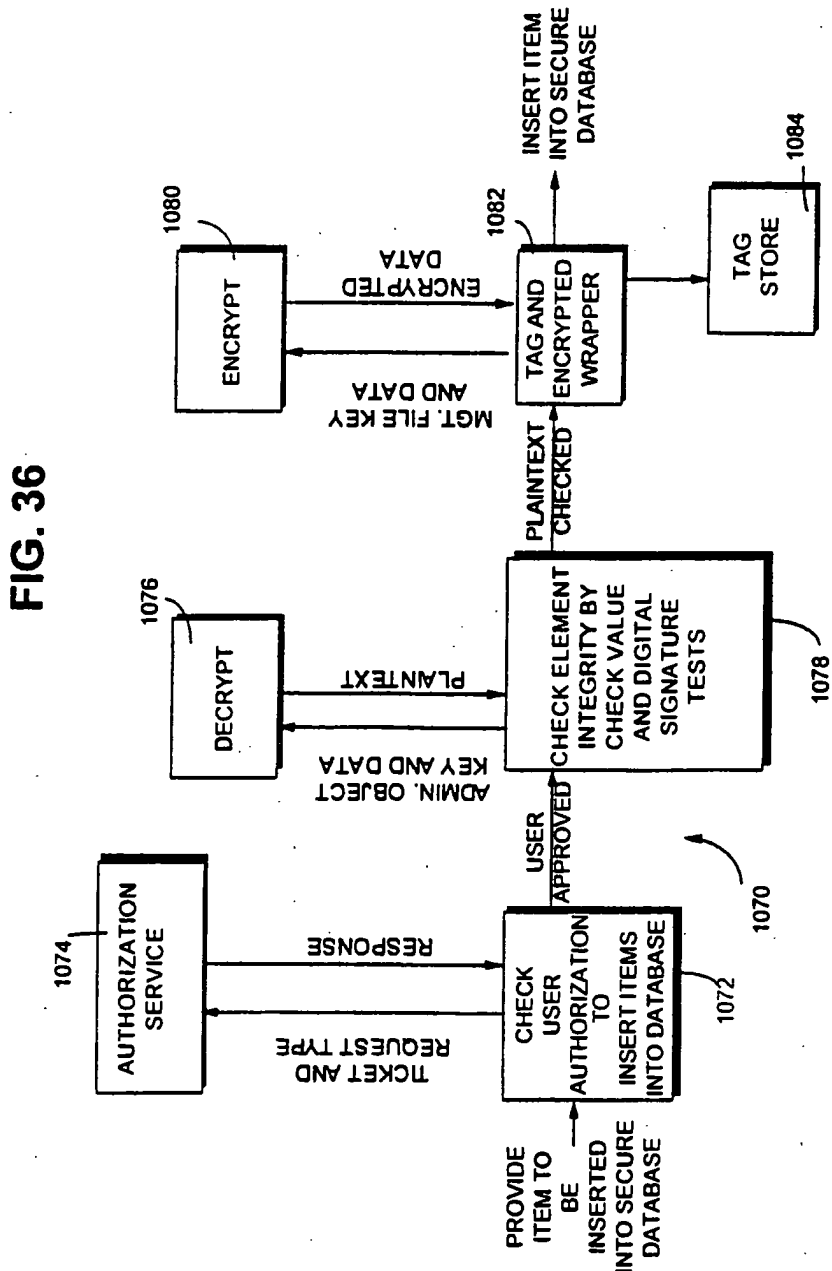



FIG. 36



Petitioner Apple Inc. - Exhibit 1006, p. 6166

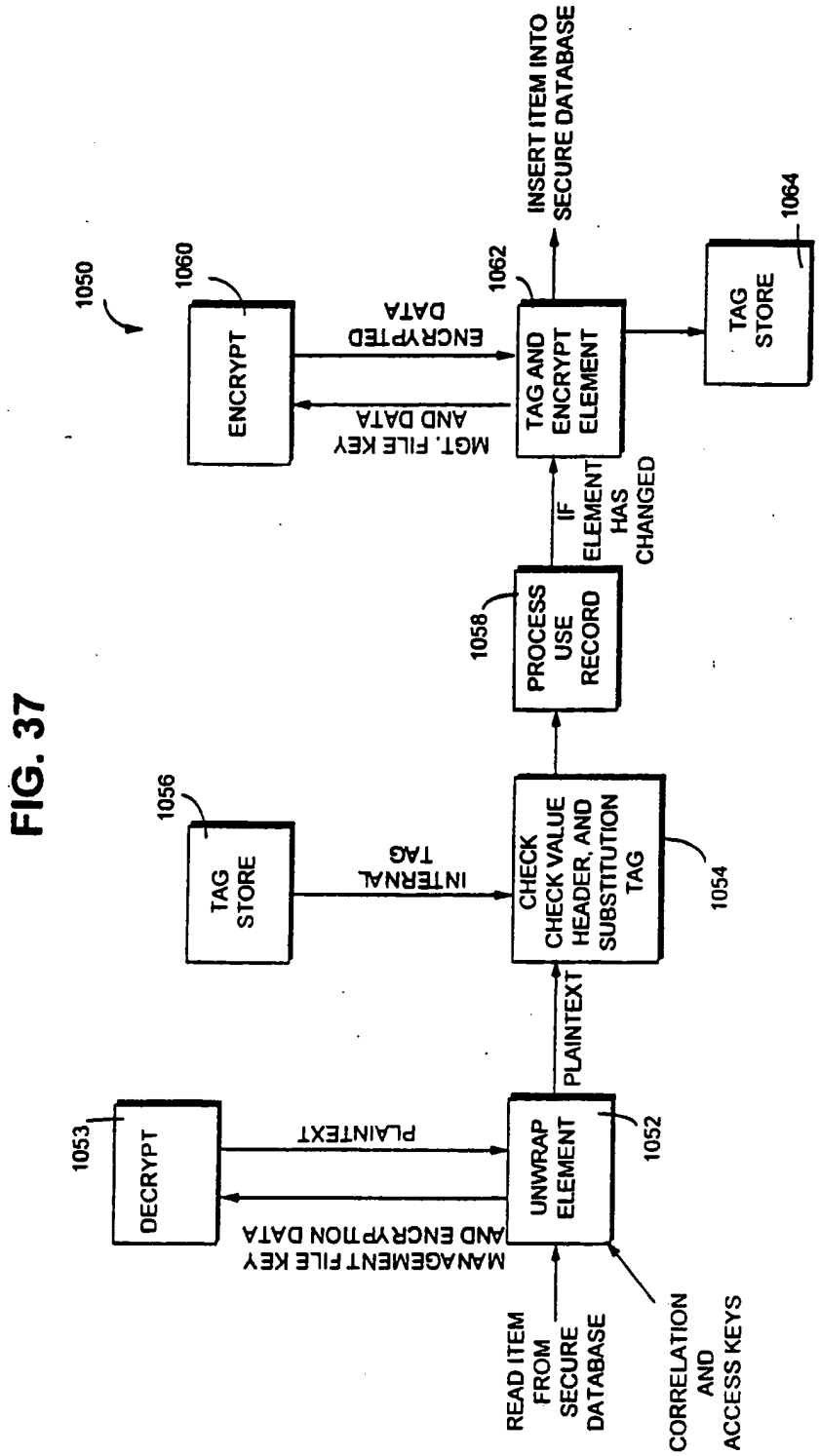
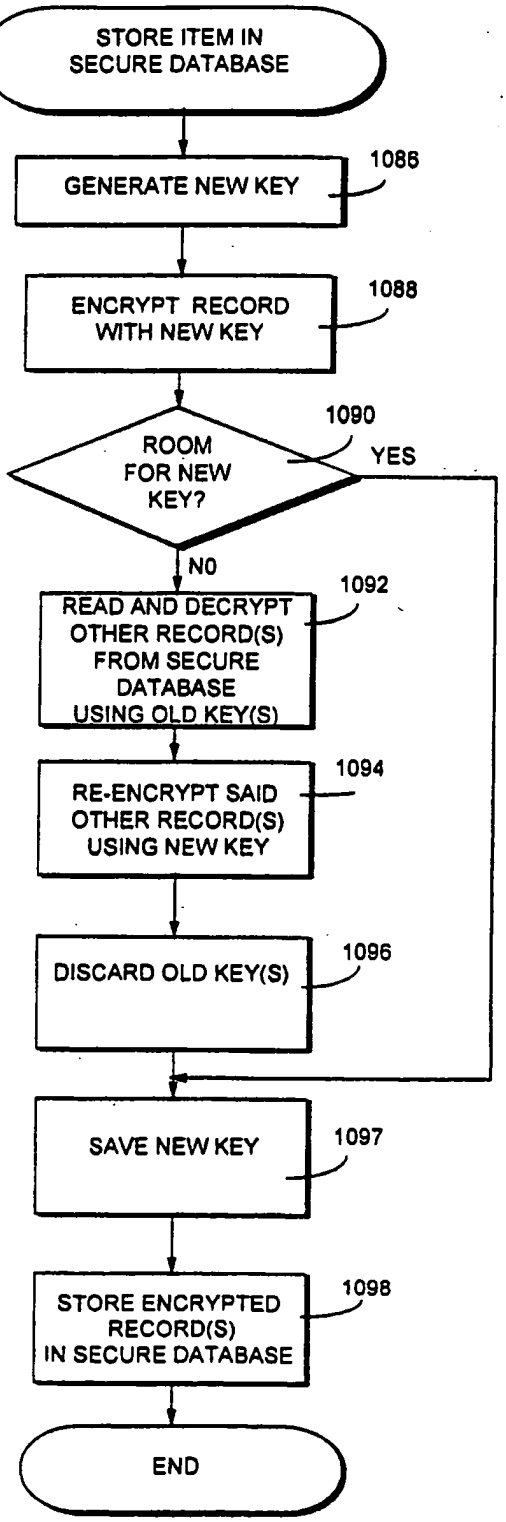



FIG. 37



Petitioner Apple Inc. - Exhibit 1006, p. 6167

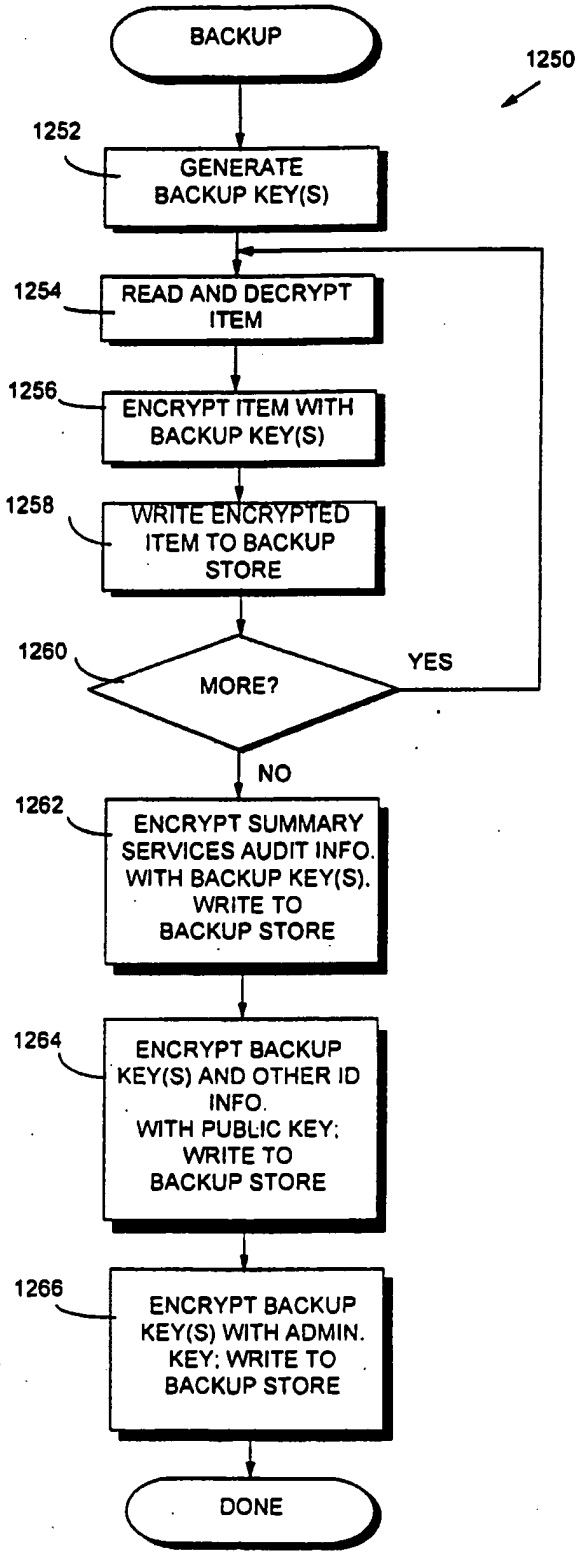
FIG. 38






Petitioner Apple Inc. - Exhibit 1006, p. 6168

FIG. 39
BACKUP

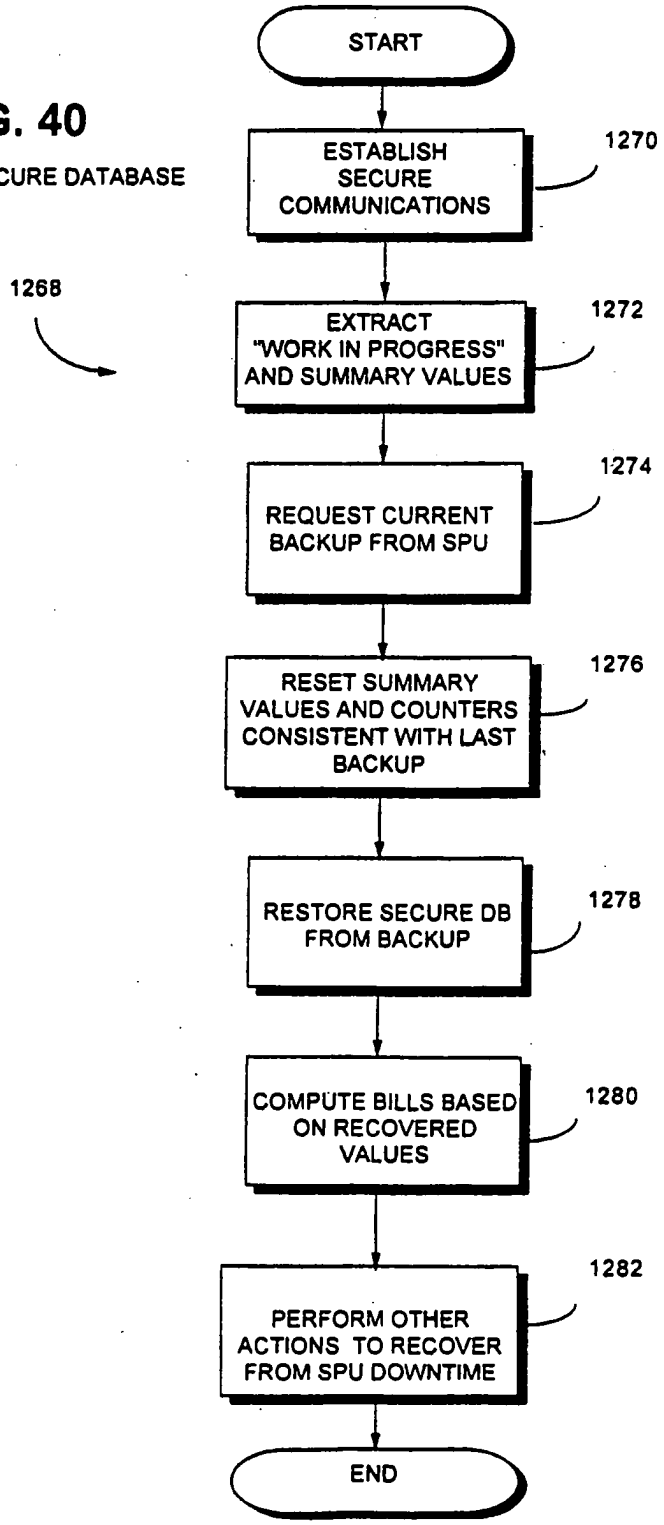





Petitioner Apple Inc. - Exhibit 1006, p. 6169

FIG. 40

RECOVER SECURE DATABASE






Petitioner Apple Inc. - Exhibit 1006, p. 6170

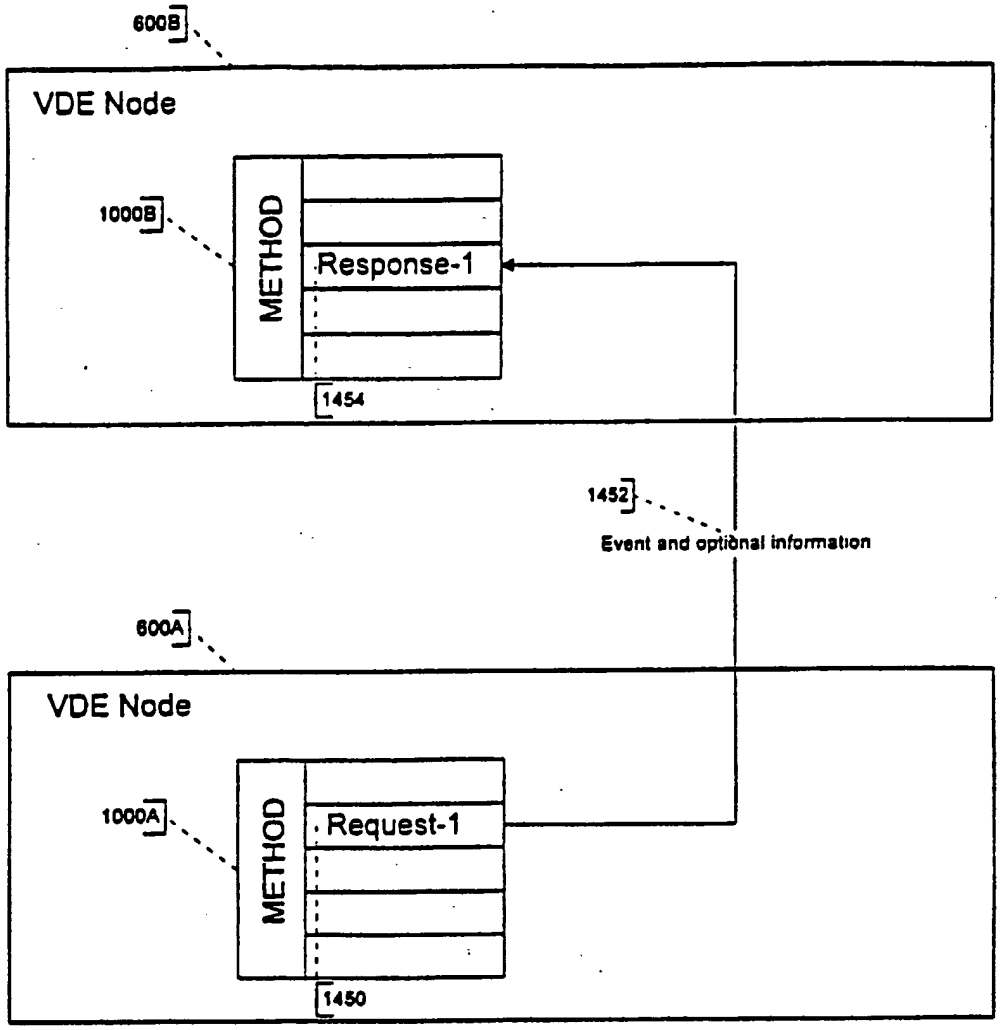

600B
VDE Node
1000B
METHOD
Response-1
1454
1452
Event and optional information
600A
VDE Node
1000A
METHOD
Request-1
1450

Figure 41a

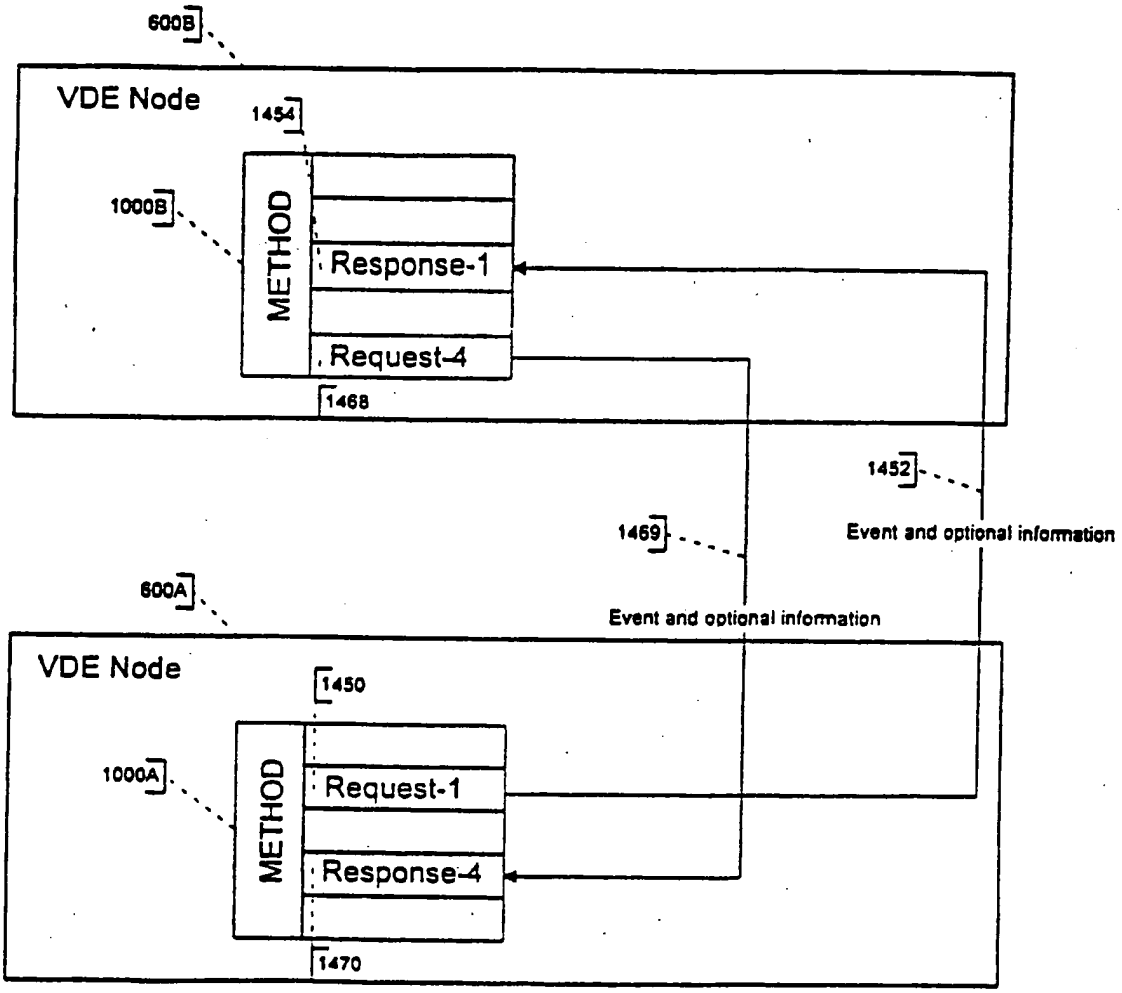



Figure 41b



Petitioner Apple Inc. - Exhibit 1006, p. 6172

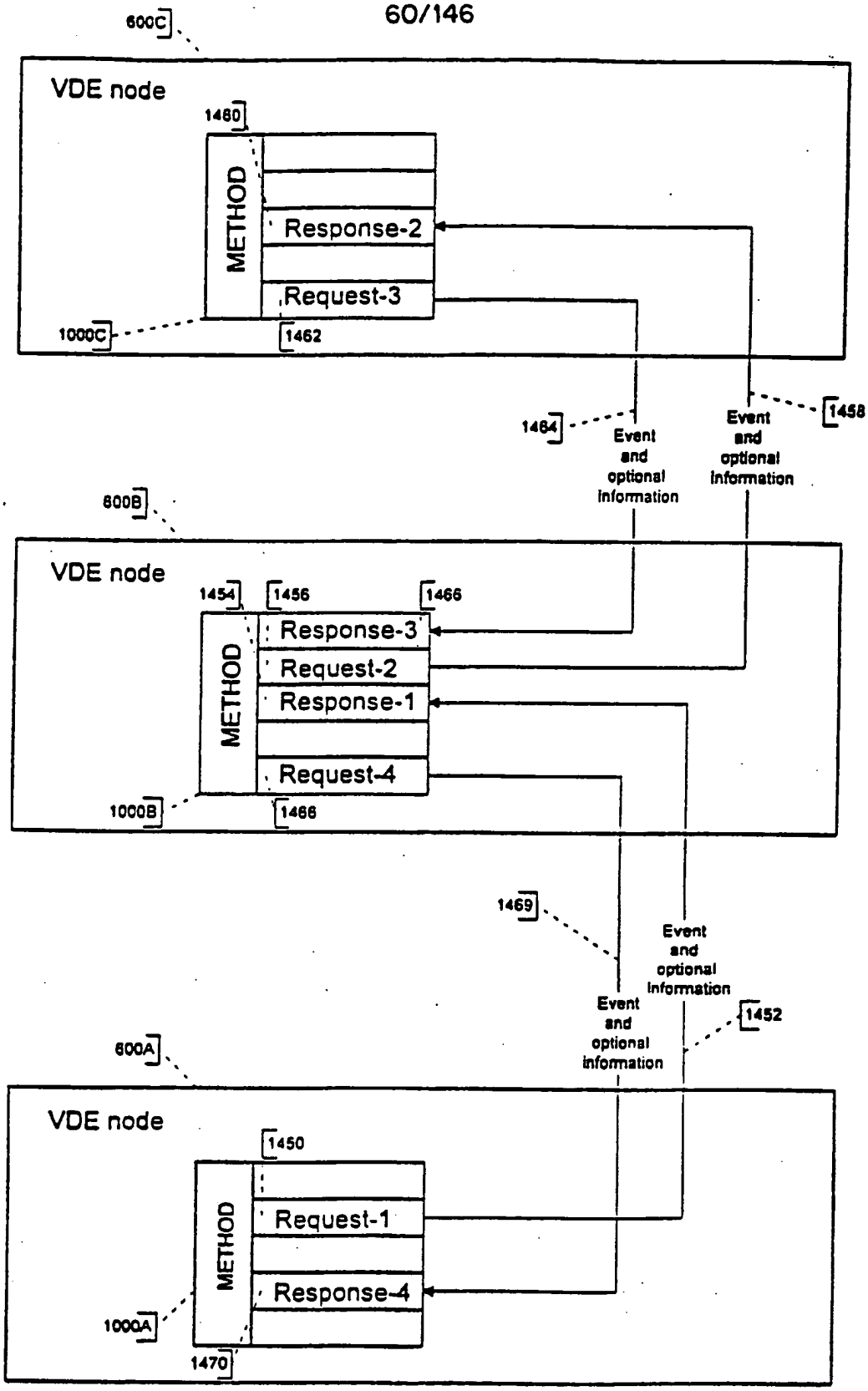



Figure 41c



Petitioner Apple Inc. - Exhibit 1006, p. 6173

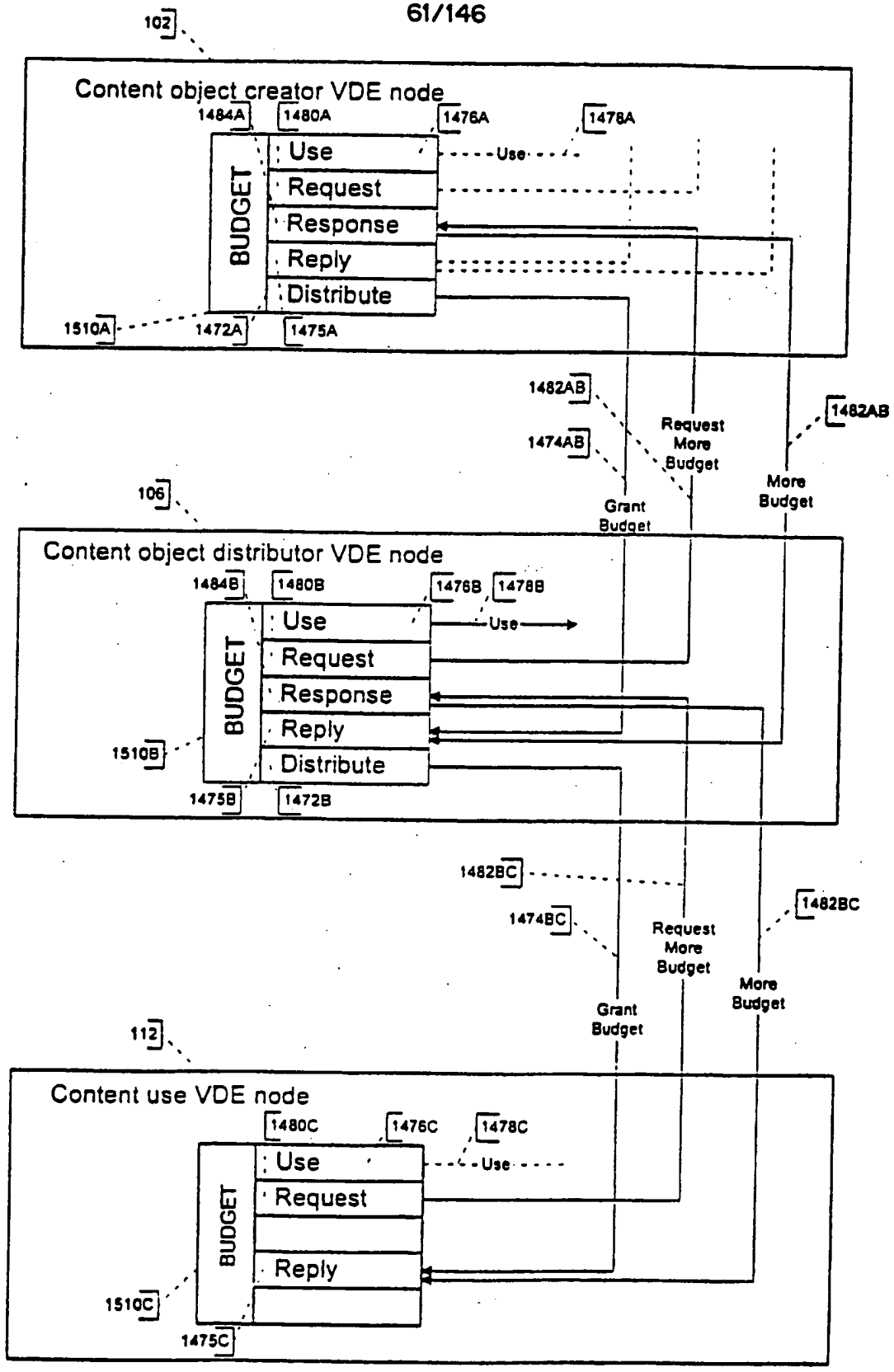



Figure 41d



Petitioner Apple Inc. - Exhibit 1006, p. 6174

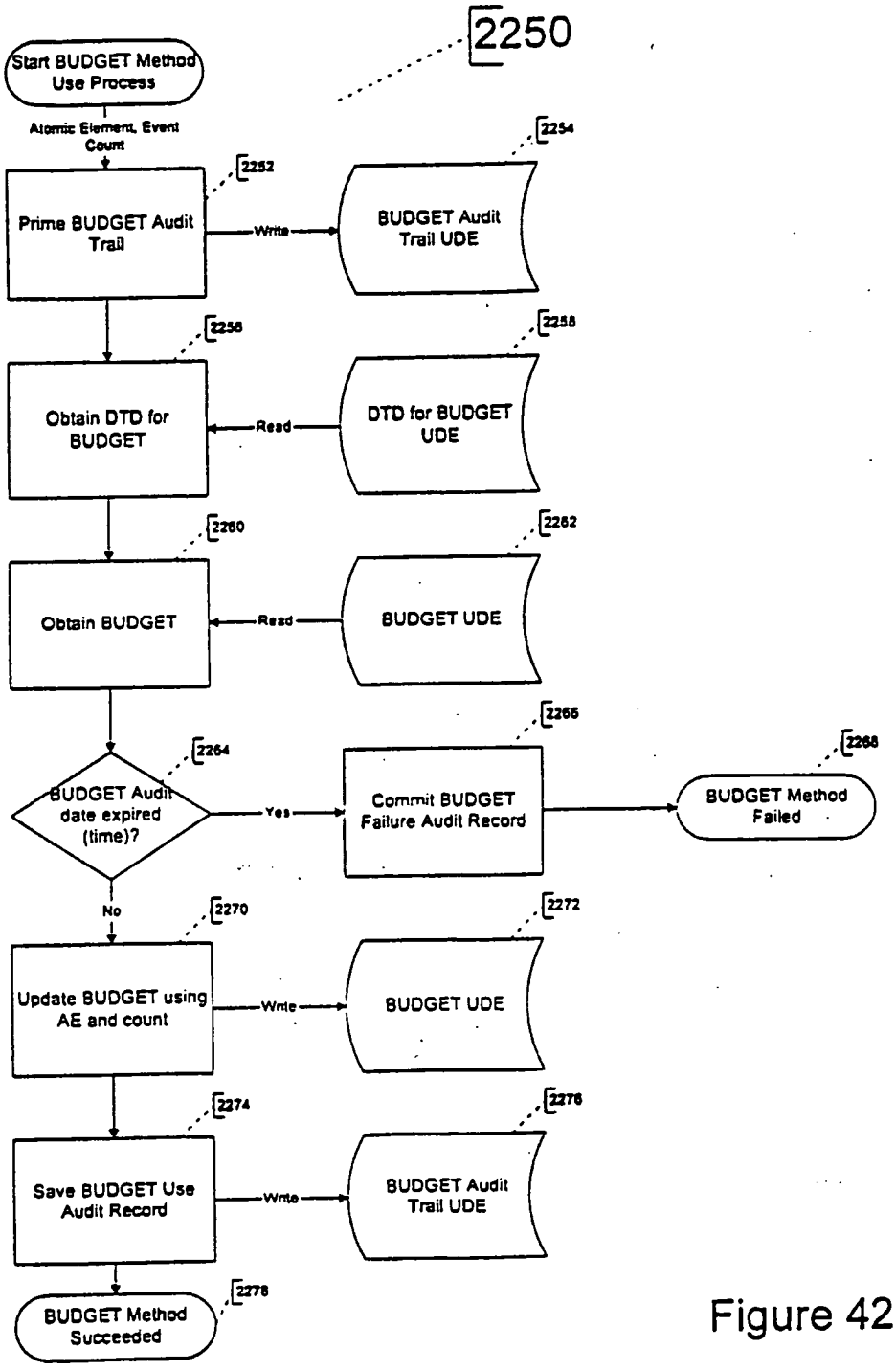



Figure 42a



Petitioner Apple Inc. - Exhibit 1006, p. 6175

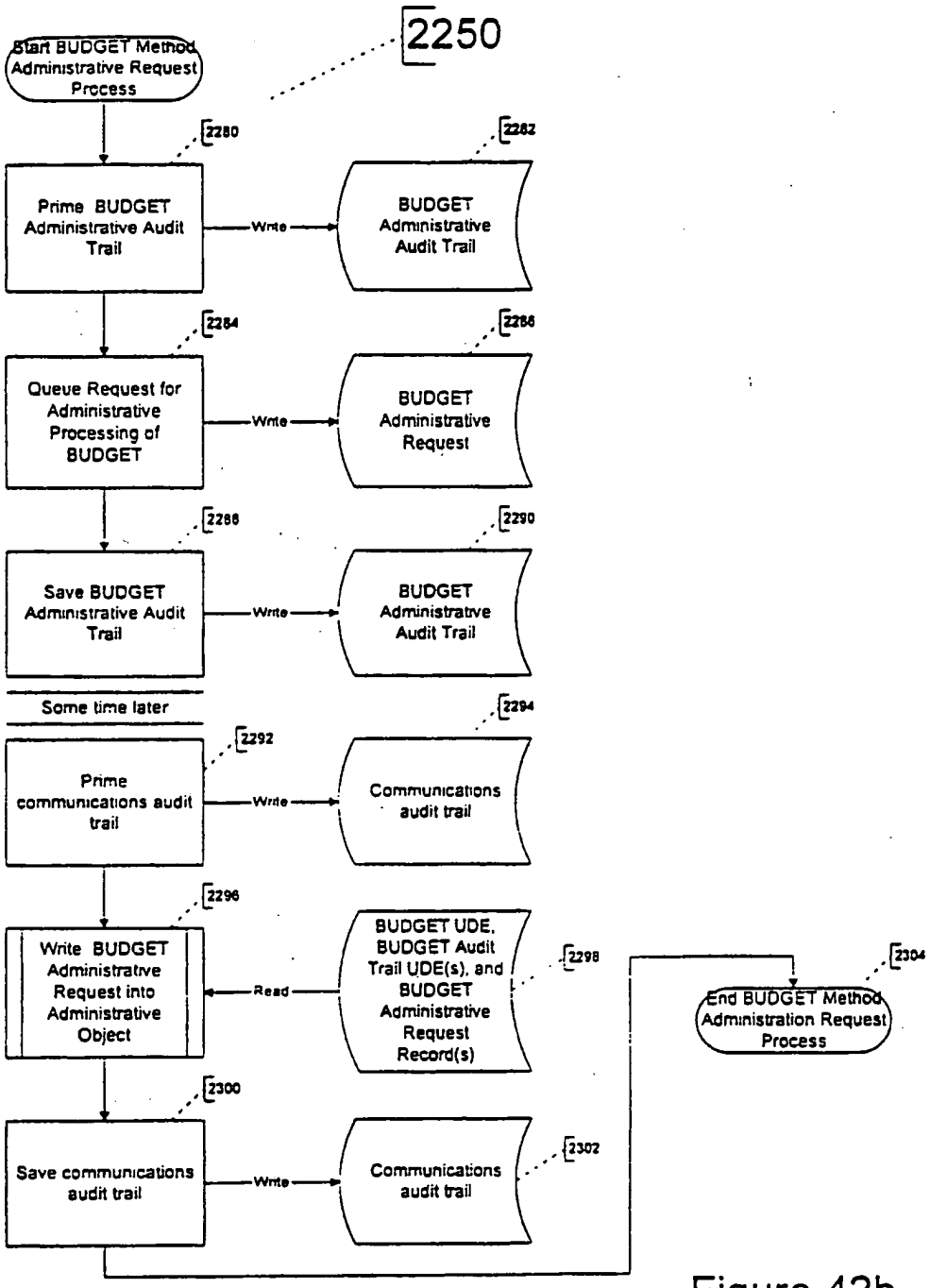

2250
Start BUDGET Method Administrative Request Process
2280
Prime BUDGET Administrative Audit Trail
Write
2282
BUDGET Administrative Audit Trail
2284
Queue Request for Administrative Processing of BUDGET
Write
2286
BUDGET Administrative Request
2288
Save BUDGET Administrative Audit Trail
Write
2290
BUDGET Administrative Audit Trail
Some time later
2292
Prime communications audit trail
Write
2294
Communications audit trail
2296
Write BUDGET Administrative Request into Administrative Object
Read
BUDGET UDE, BUDGET Audit Trail UDE(s), and BUDGET Administrative Request Record(s)
2298
2300
Save communications audit trail
Write
Communications audit trail
2302
2304
End BUDGET Method Administration Request Process

Figure 42b

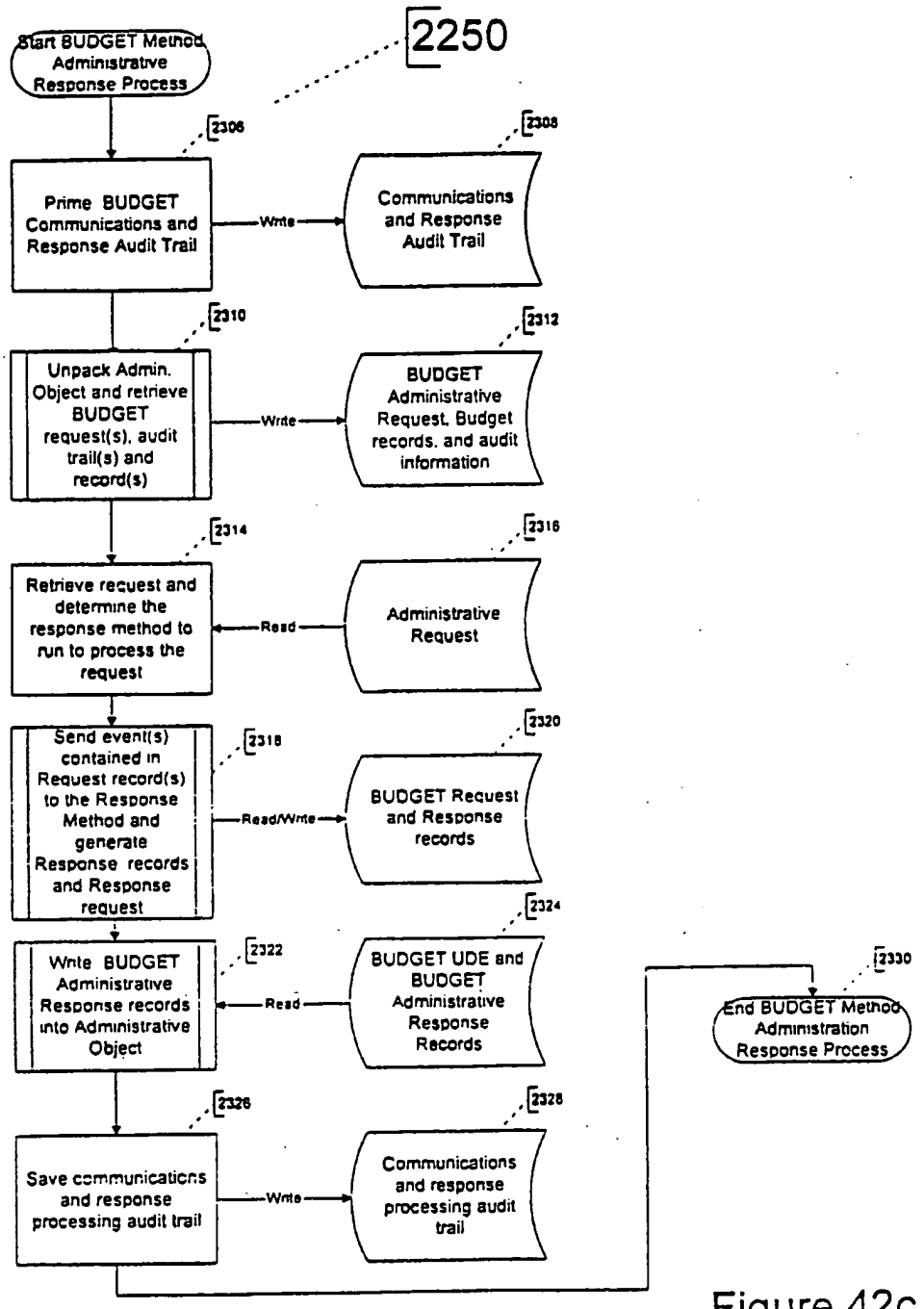



Figure 42c



Petitioner Apple Inc. - Exhibit 1006, p. 6177

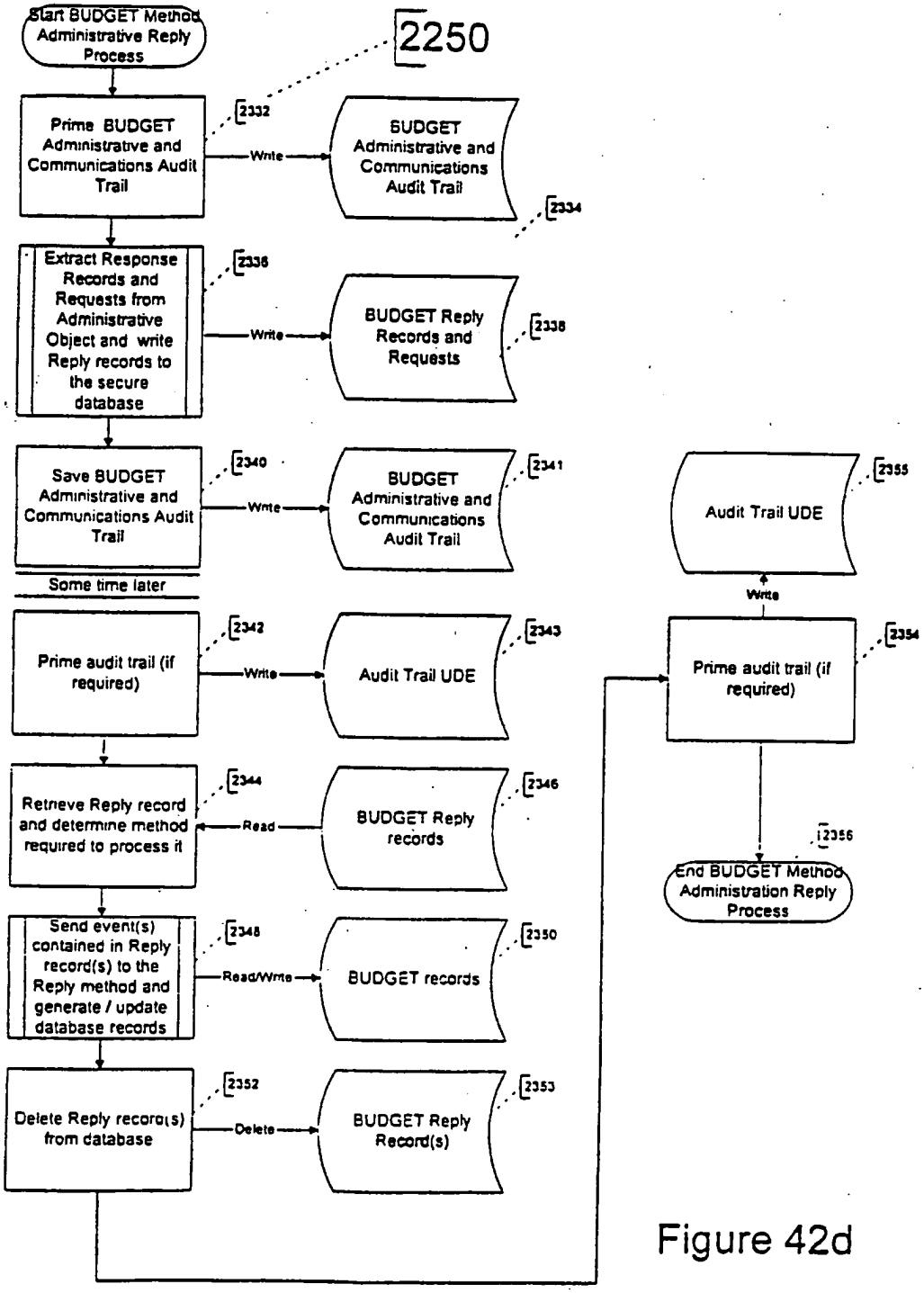

Start BUDGET Method Administrative Reply Process
2250
Prime BUDGET Administrative and Communications Audit Trail
2332
Write
BUDGET Administrative and Communications Audit Trail
2334
Extract Response Records and Requests from Administrative Object and write Reply records to the secure database
2336
Write
BUDGET Reply Records and Requests
2338
Save BUDGET Administrative and Communications Audit Trail
2340
Write
BUDGET Administrative and Communications Audit Trail
2341
Some time later
Prime audit trail (if required)
2342
Write
Audit Trail UDE
2343
Retrieve Reply record and determine method required to process it
2344
Read
BUDGET Reply records
2346
Send event(s) contained in Reply record(s) to the Reply method and generate / update database records
2348
Read/Write
BUDGET records
2350
Delete Reply record(s) from database
2352
Delete
BUDGET Reply Record(s)
2353
Audit Trail UDE
2355
Write
Prime audit trail (if required)
2354
2356
End BUDGET Method Administration Reply Process

Figure 42d

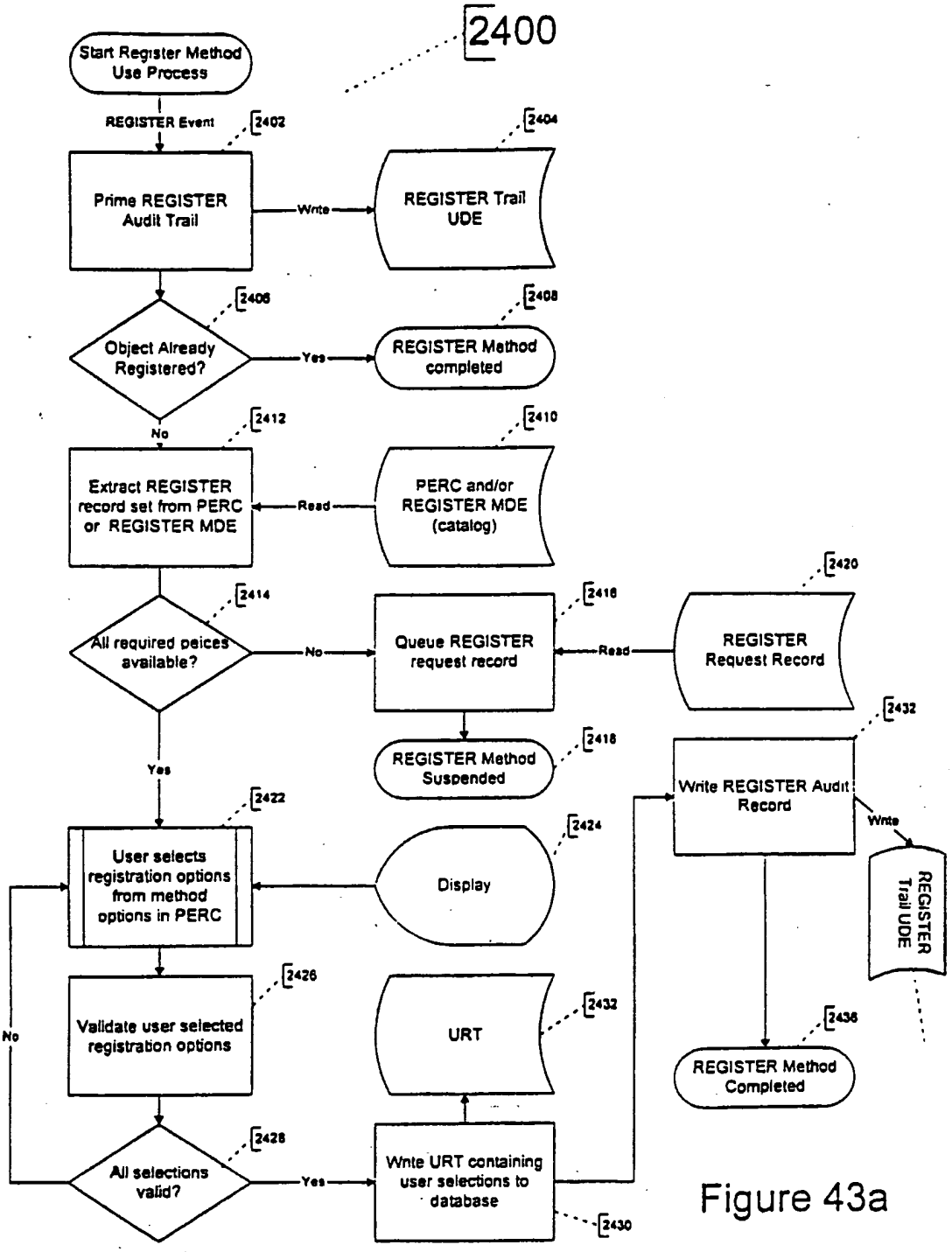



Figure 43a



Petitioner Apple Inc. - Exhibit 1006, p. 6179

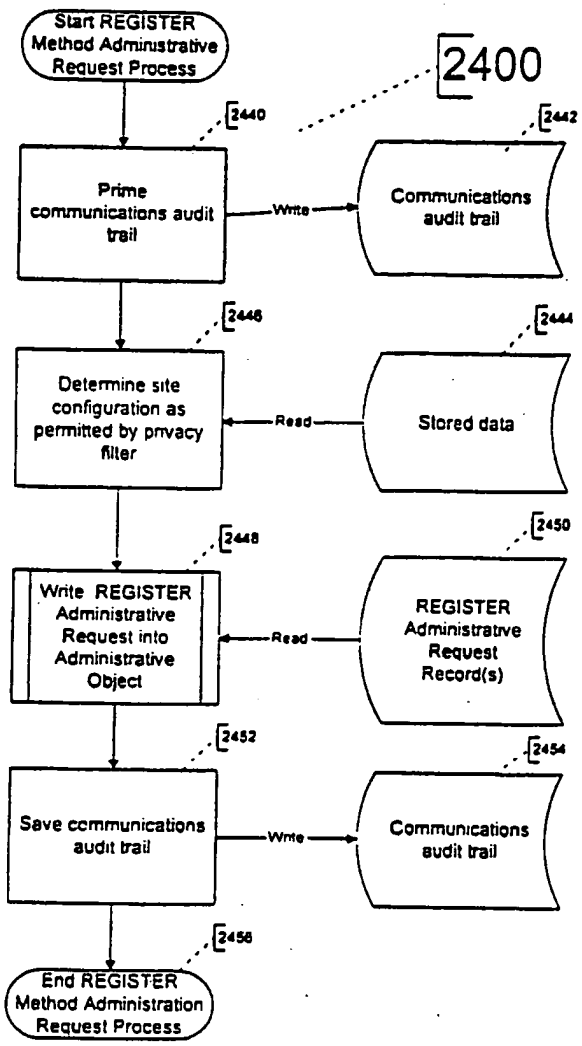

Start REGISTER Method Administrative Request Process
2400
2440
Prime communications audit trail
Write
2442
Communications audit trail
2446
Determine site configuration as permitted by privacy filter
Read
2444
Stored data
2448
Write REGISTER Administrative Request into Administrative Object
Read
2450
REGISTER Administrative Request Record(s)
2452
Save communications audit trail
Write
2454
Communications audit trail
2456
End REGISTER Method Administration Request Process

Figure 43b

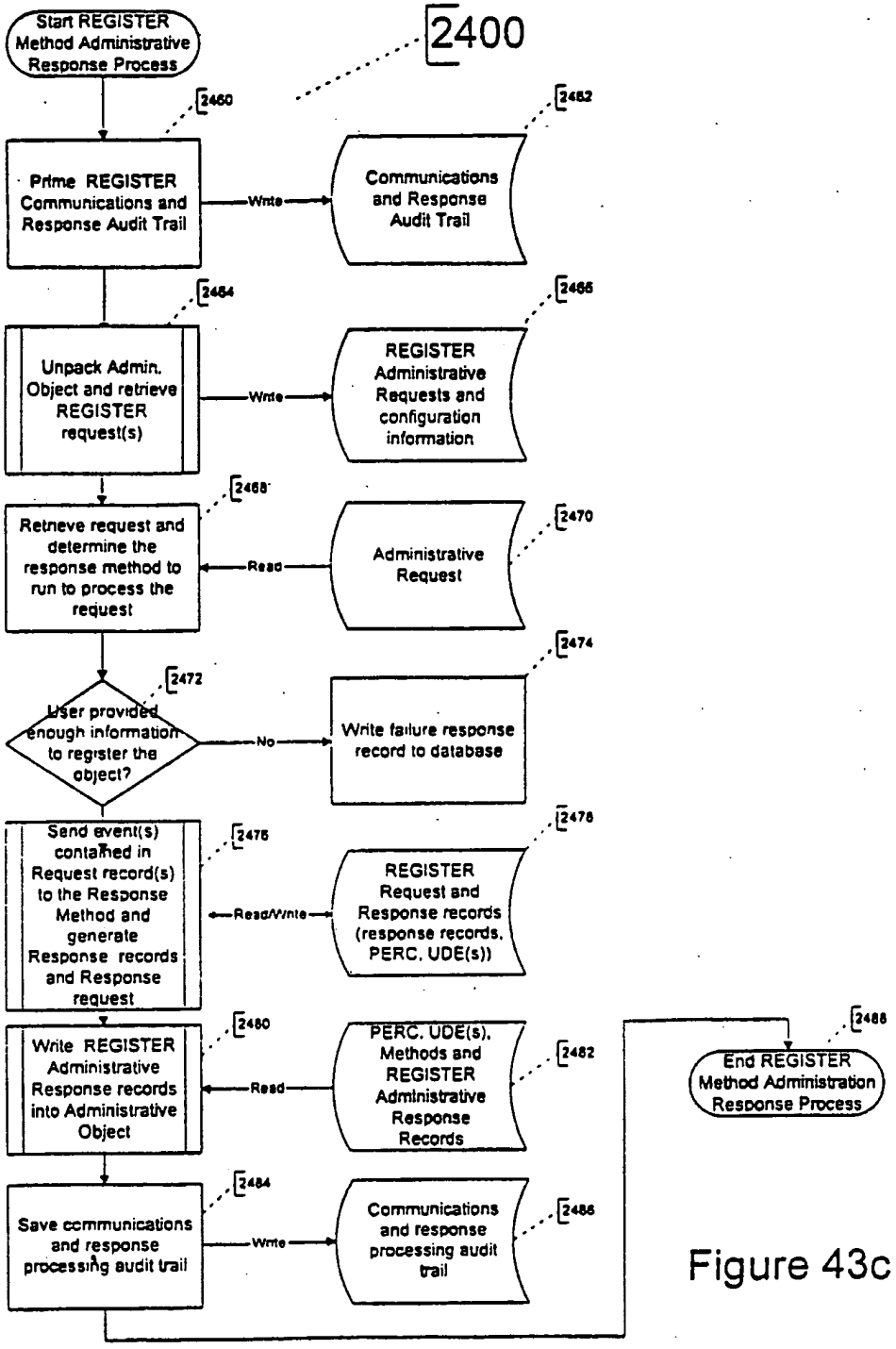



Figure 43c



Petitioner Apple Inc. - Exhibit 1006, p. 6181

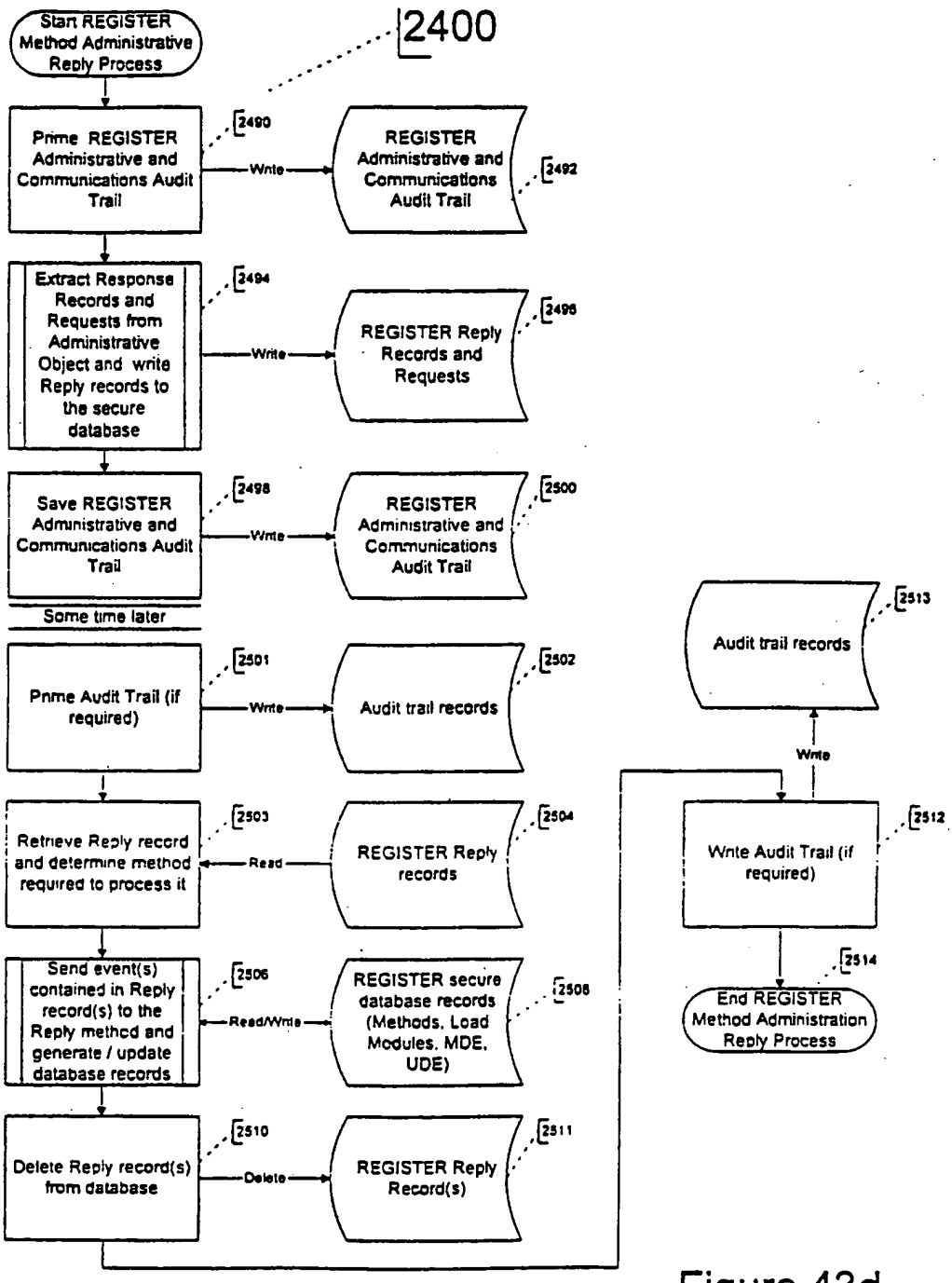



Figure 43d



Petitioner Apple Inc. - Exhibit 1006, p. 6182

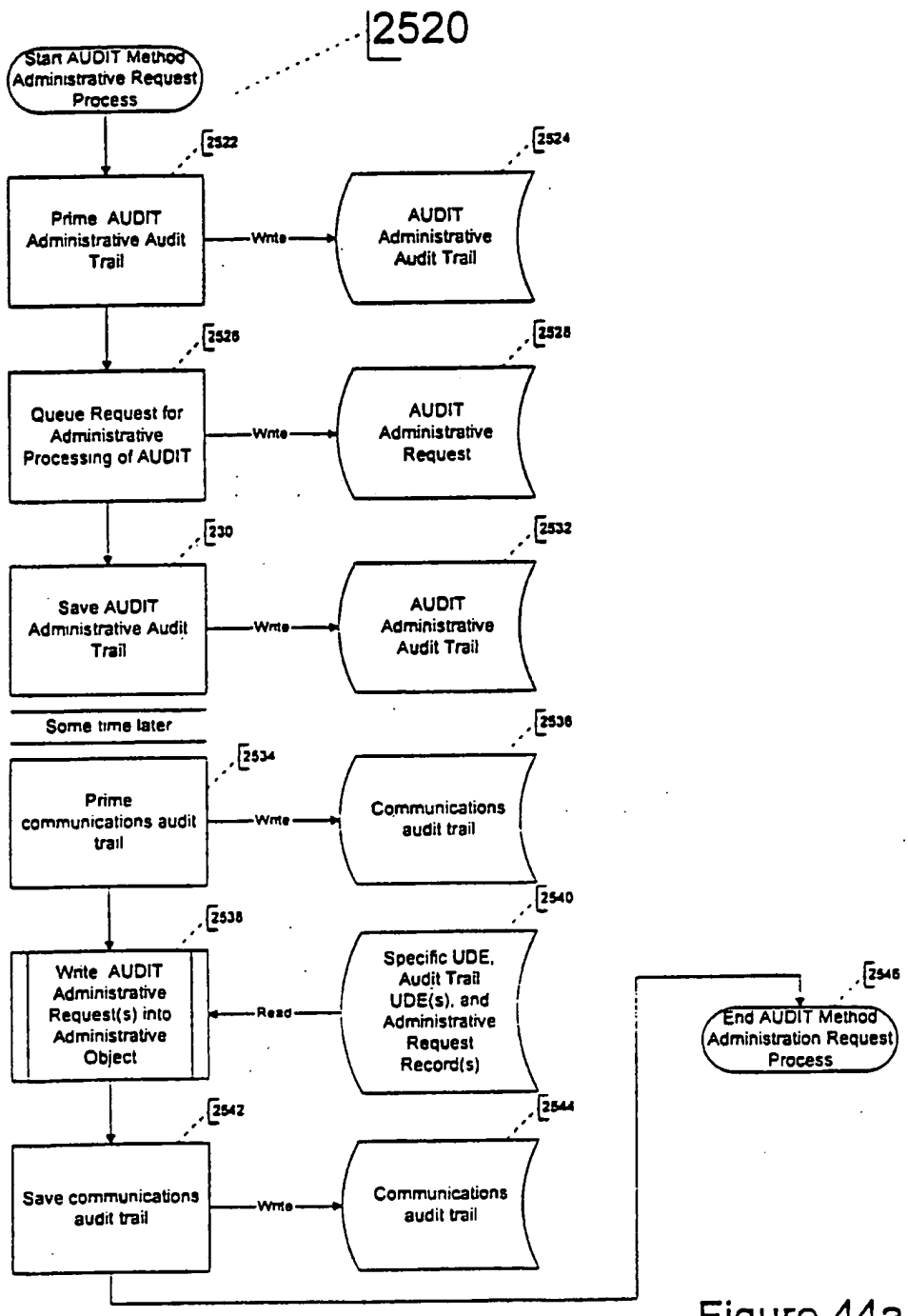



Figure 44a



Petitioner Apple Inc. - Exhibit 1006, p. 6183

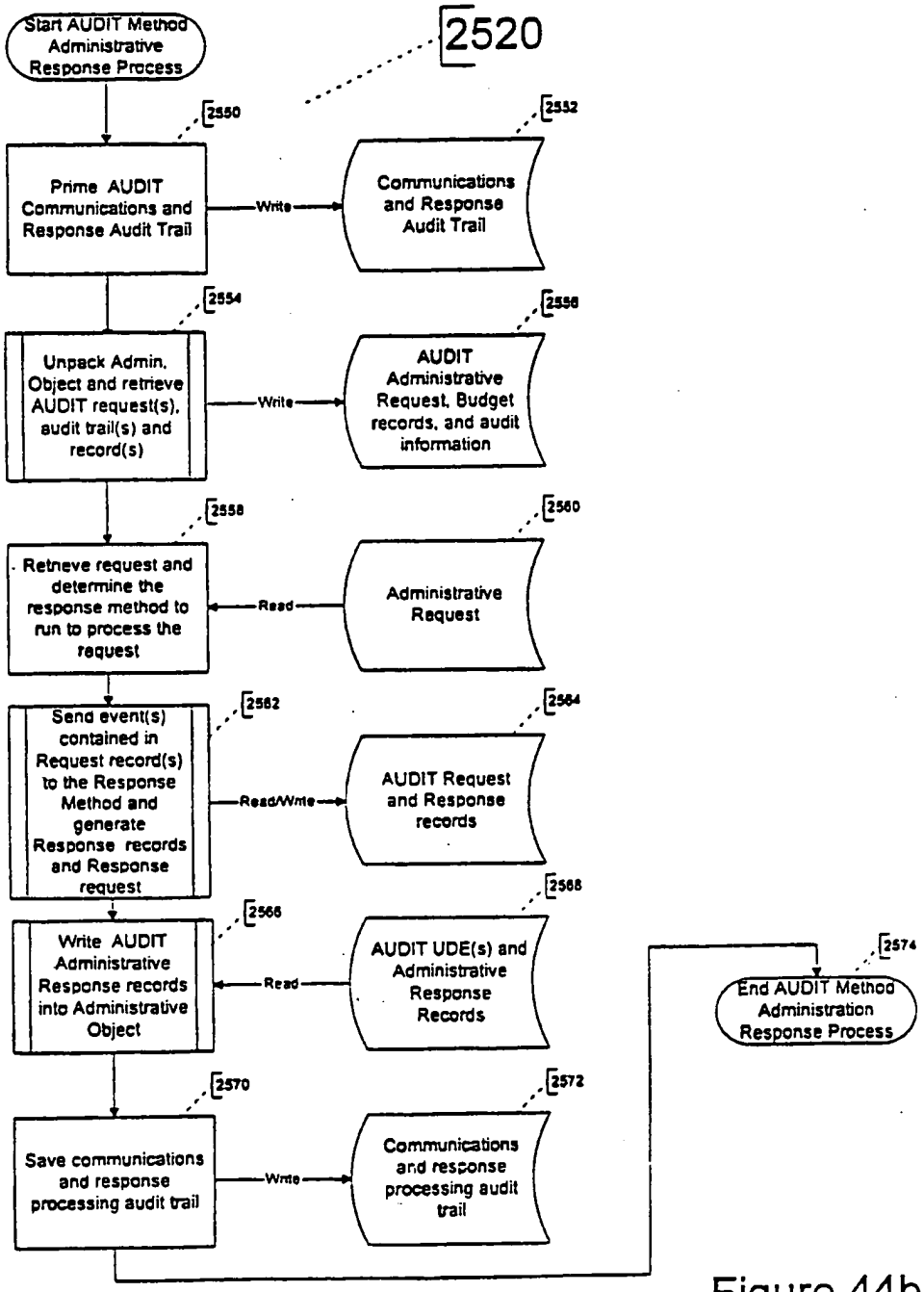



Figure 44b



Petitioner Apple Inc. - Exhibit 1006, p. 6184

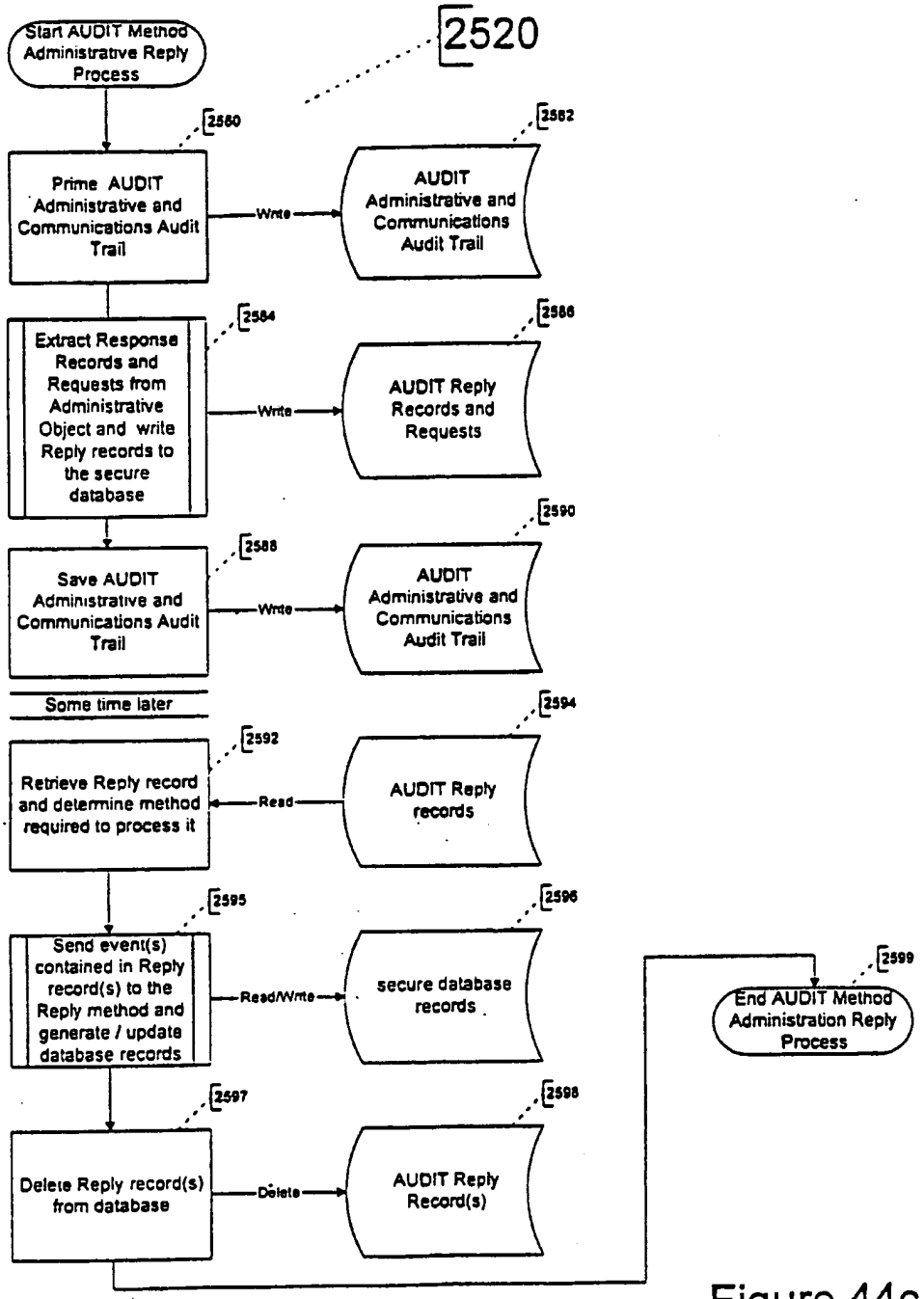



Figure 44c



Petitioner Apple Inc. - Exhibit 1006, p. 6185

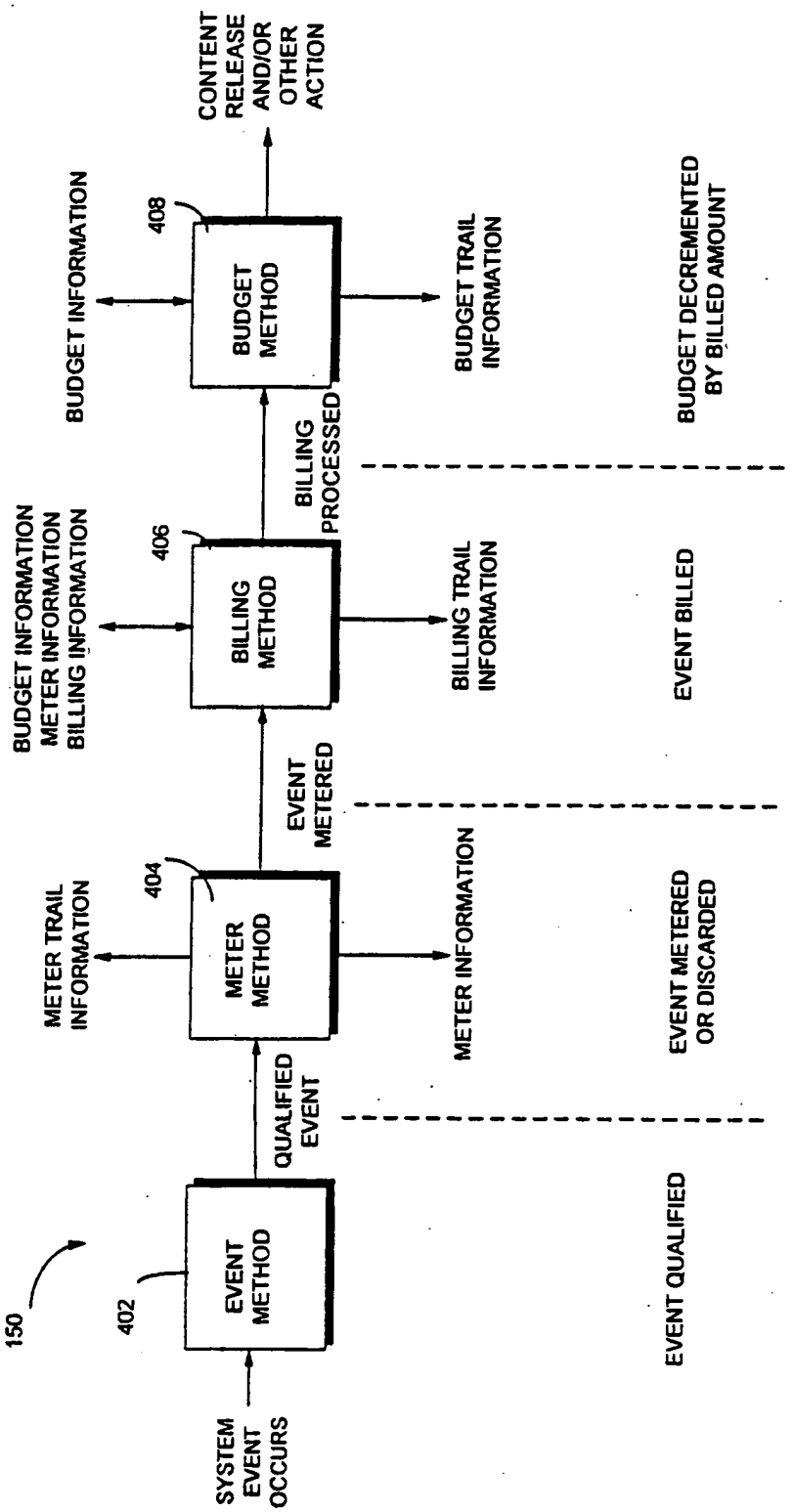
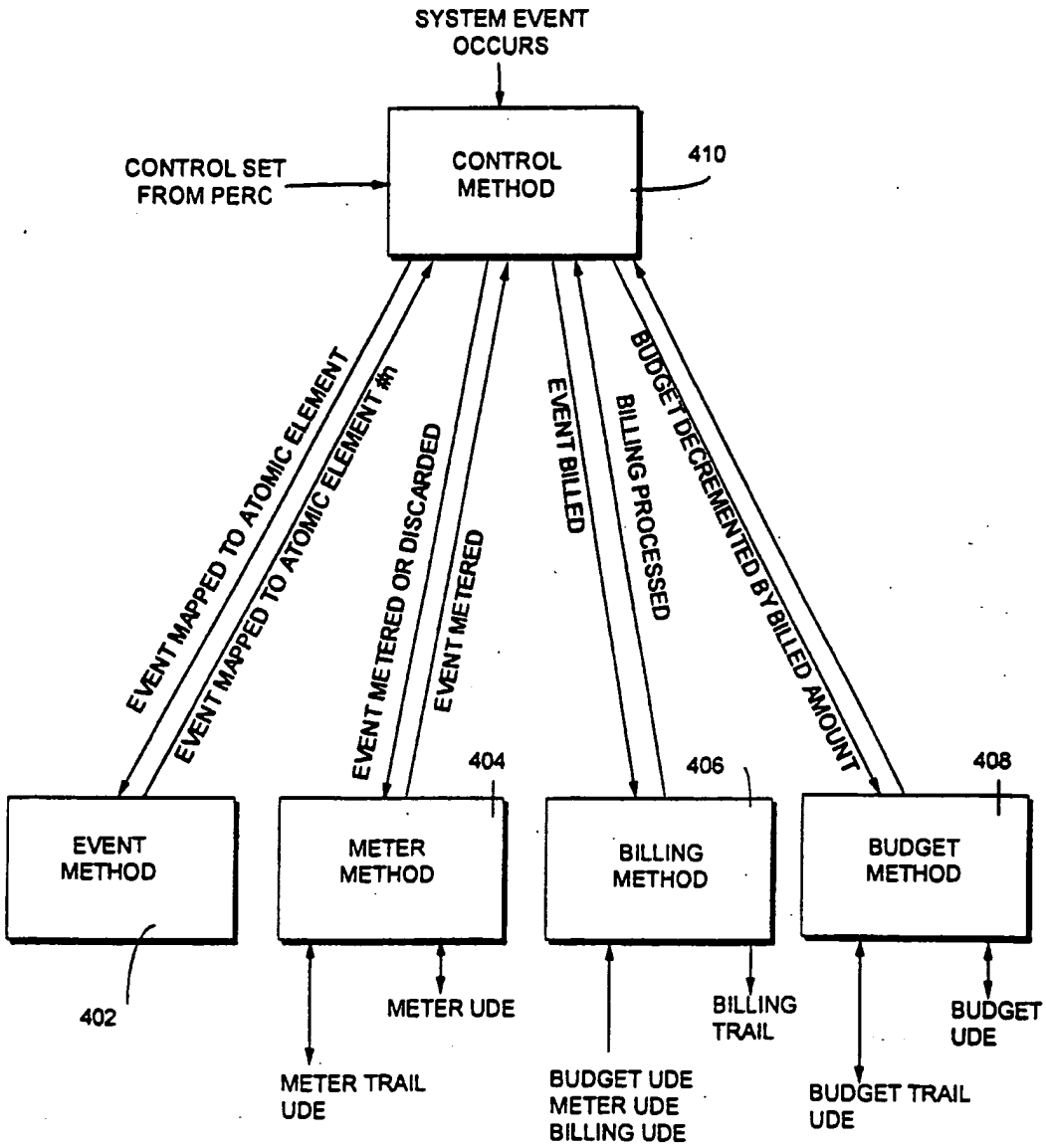



FIG. 45



Petitioner Apple Inc. - Exhibit 1006, p. 6186

FIG. 46






Petitioner Apple Inc. - Exhibit 1006, p. 6187

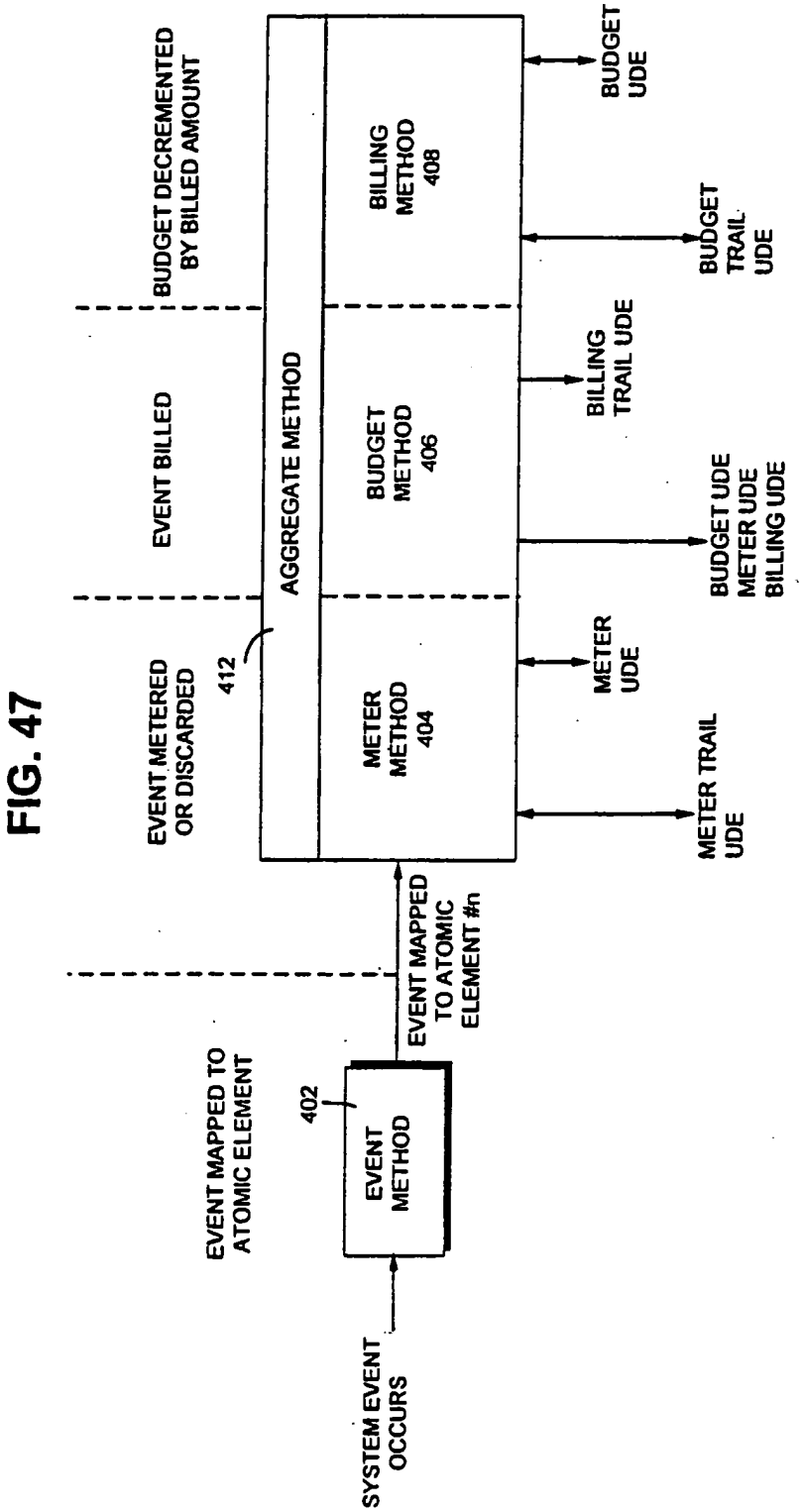



FIG. 47



Petitioner Apple Inc. - Exhibit 1006, p. 6188

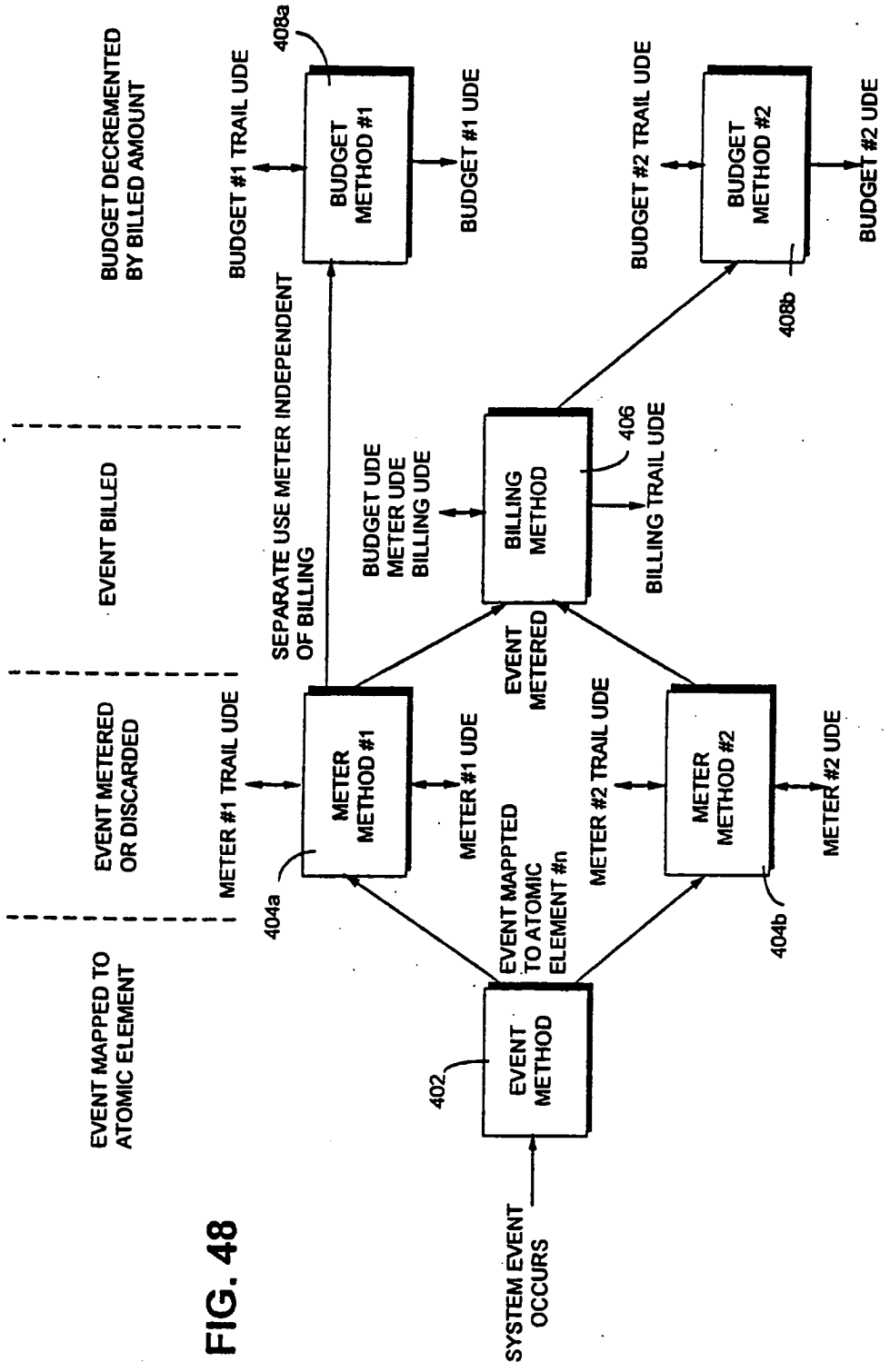



FIG. 48



Petitioner Apple Inc. - Exhibit 1006, p. 6189

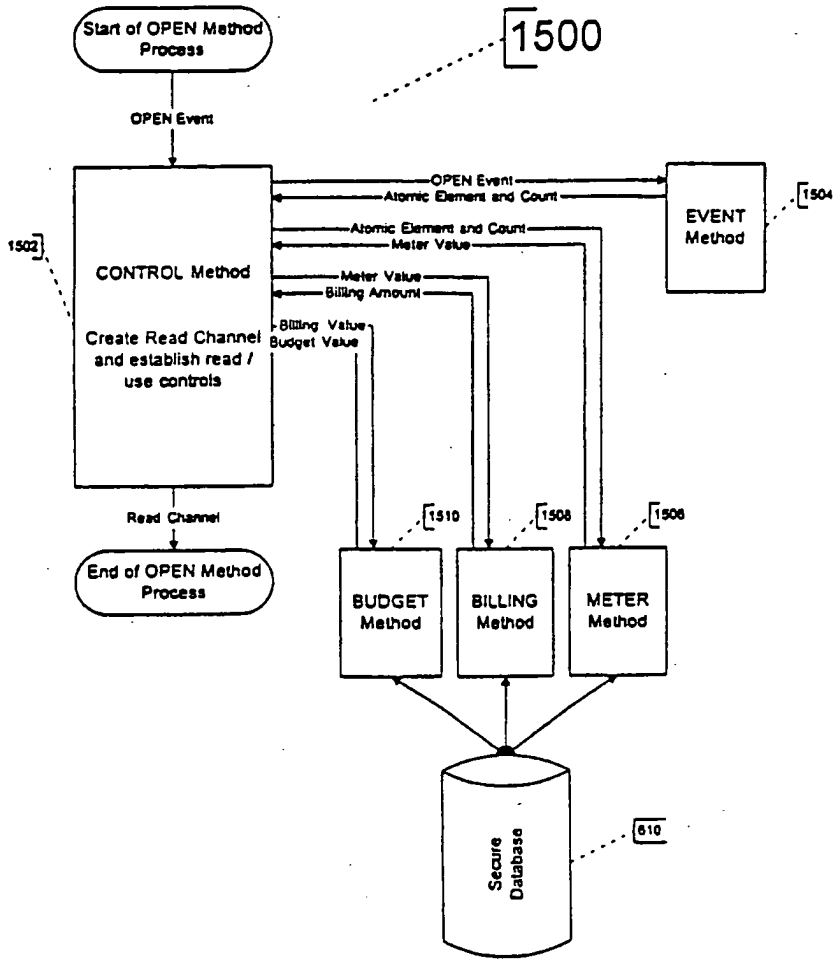

Start of OPEN Method Process
1500
OPEN Event
CONTROL Method
Create Read Channel and establish read / use controls
1502
OPEN Event
Atomic Element and Count
EVENT Method
1504
Atomic Element and Count
Meter Value
Meter Value
Billing Amount
Billing Value
Budget Value
Read Channel
End of OPEN Method Process
1510
1508
1506
BUDGET Method
BILLING Method
METER Method
Secure Database
610

Figure 49

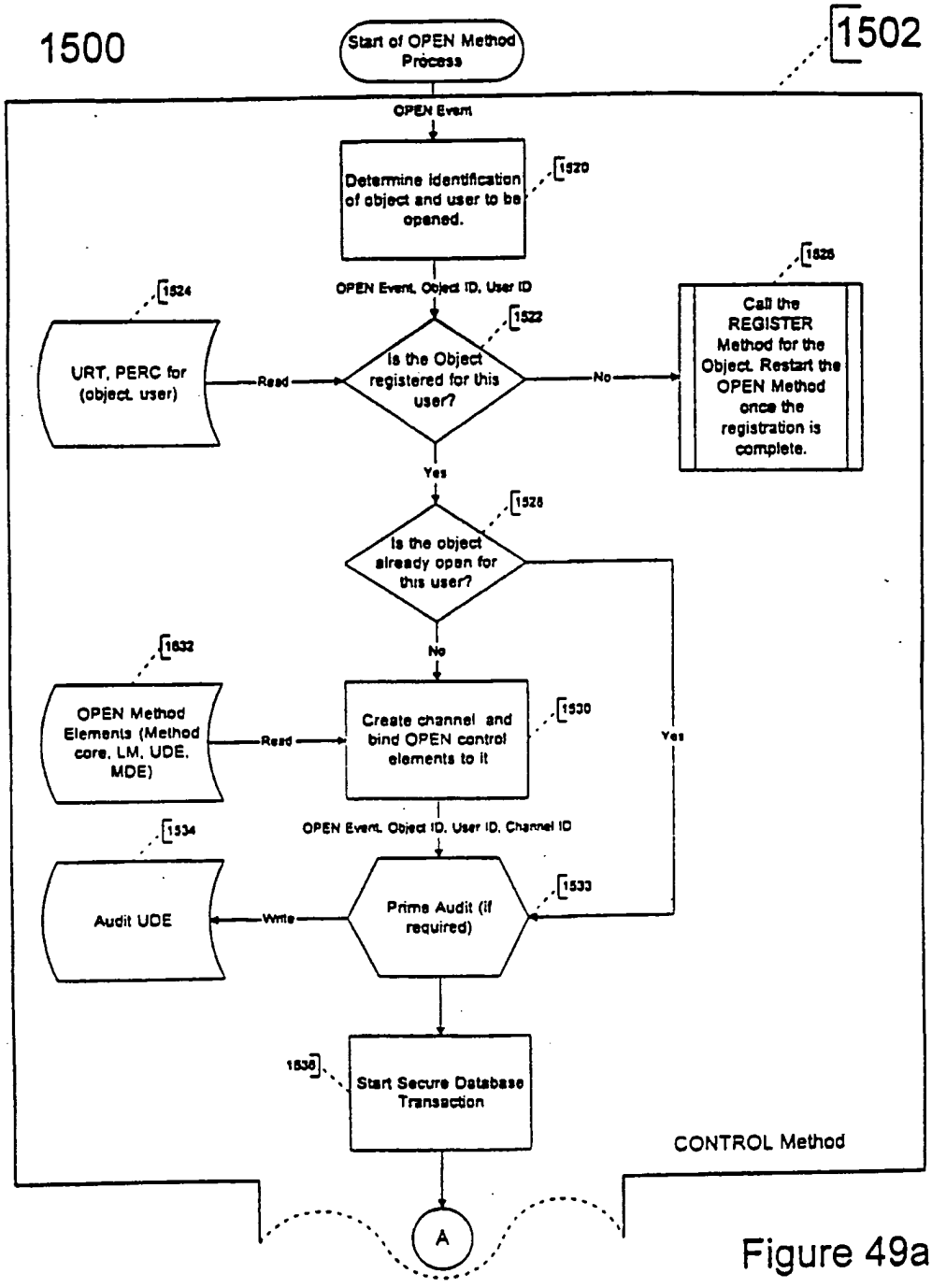

1500
1502
Start of OPEN Method Process
OPEN Event
Determine identification of object and user to be opened.
1520
OPEN Event, Object ID, User ID
1524
URT, PERC for (object, user)
Read
Is the Object registered for this user?
1522
No
1526
Call the REGISTER Method for the Object. Restart the OPEN Method once the registration is complete.
Yes
Is the object already open for this user?
1528
No
Yes
1532
OPEN Method Elements (Method core, LM, UDE, MDE)
Read
Create channel and bind OPEN control elements to it
1530
OPEN Event, Object ID, User ID, Channel ID
1534
Audit UDE
Write
Prime Audit (if required)
1533
1536
Start Secure Database Transaction
CONTROL Method
A

Figure 49a

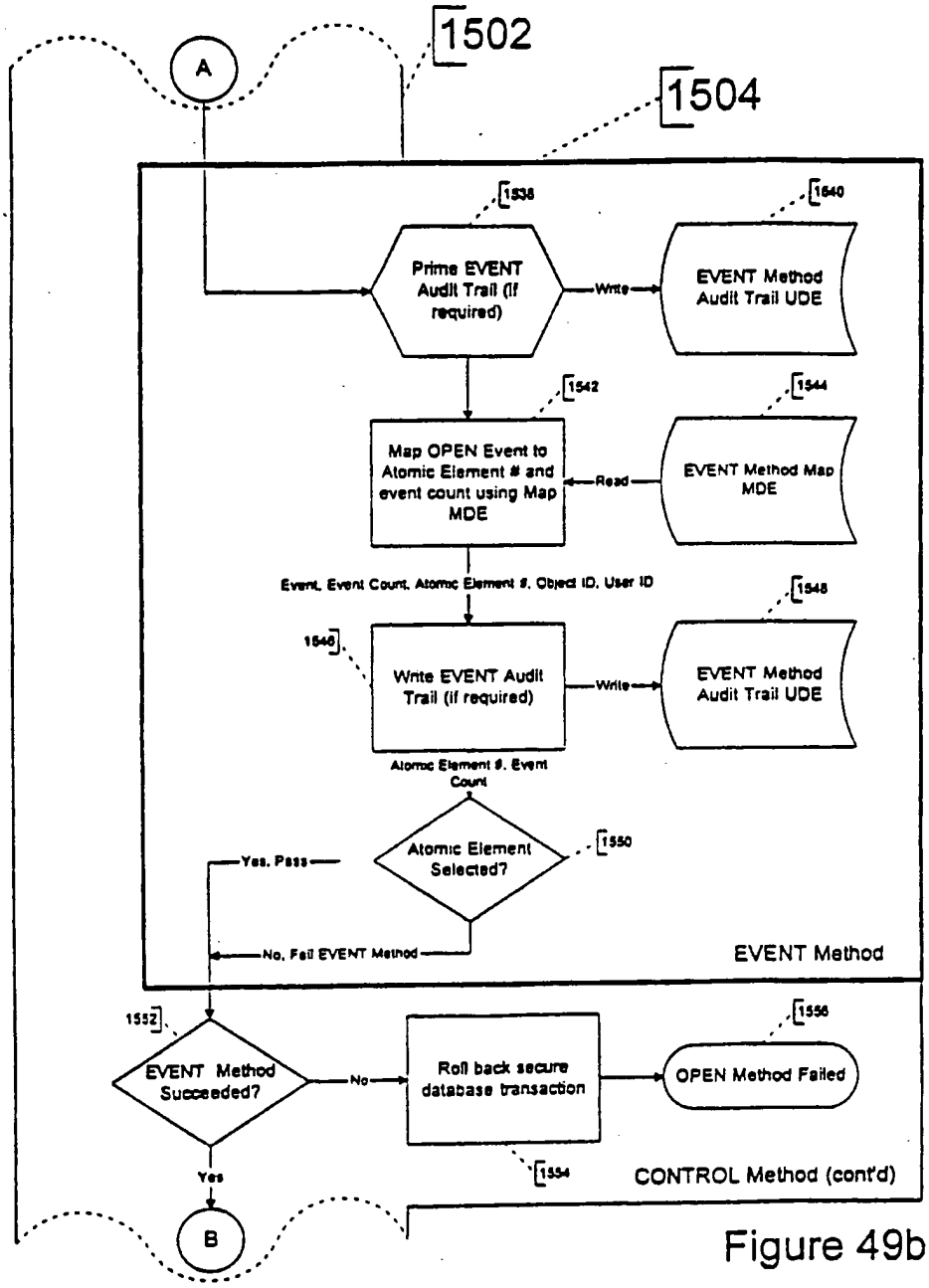



Figure 49b



Petitioner Apple Inc. - Exhibit 1006, p. 6192

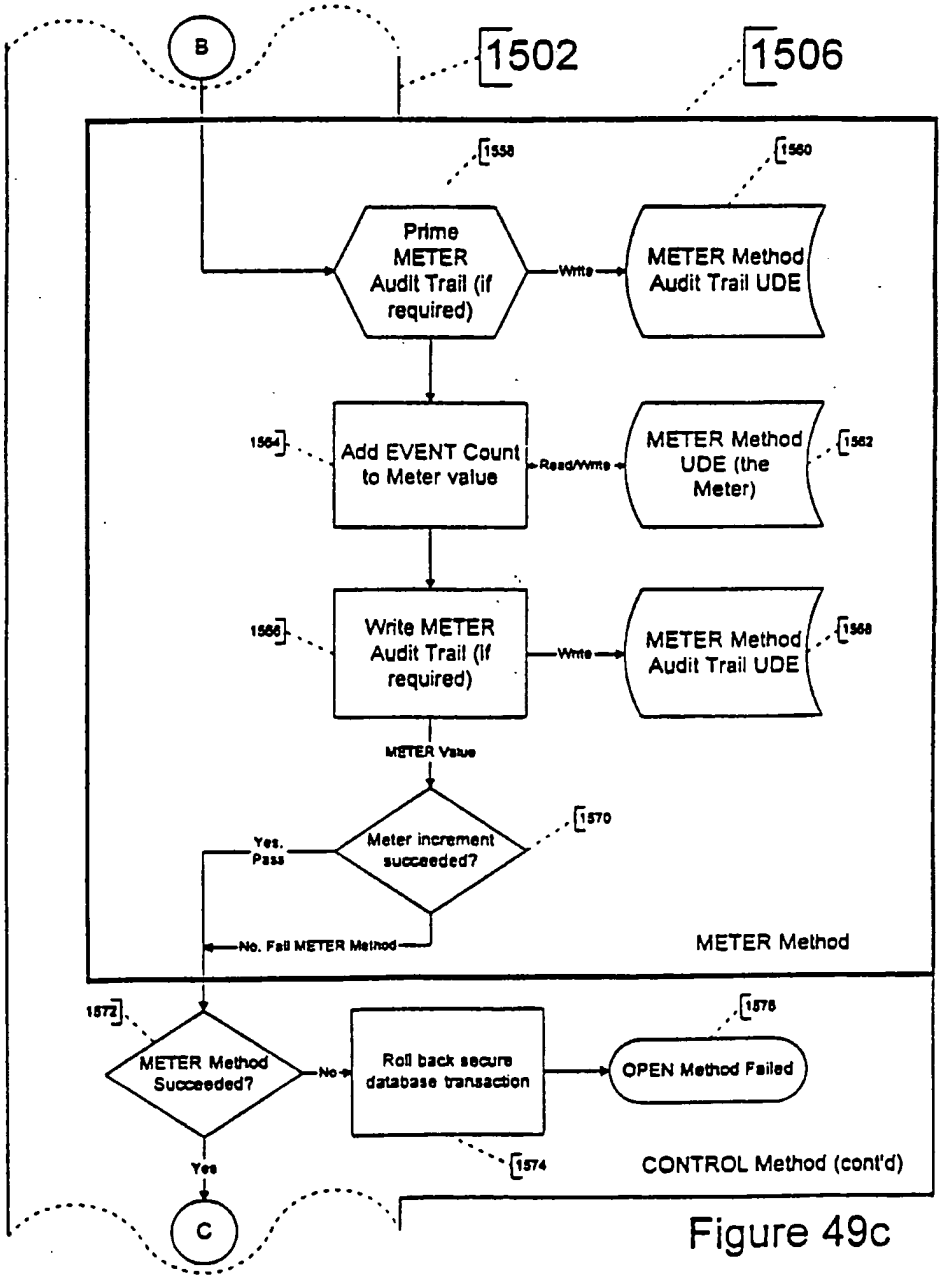



Figure 49c



Petitioner Apple Inc. - Exhibit 1006, p. 6193

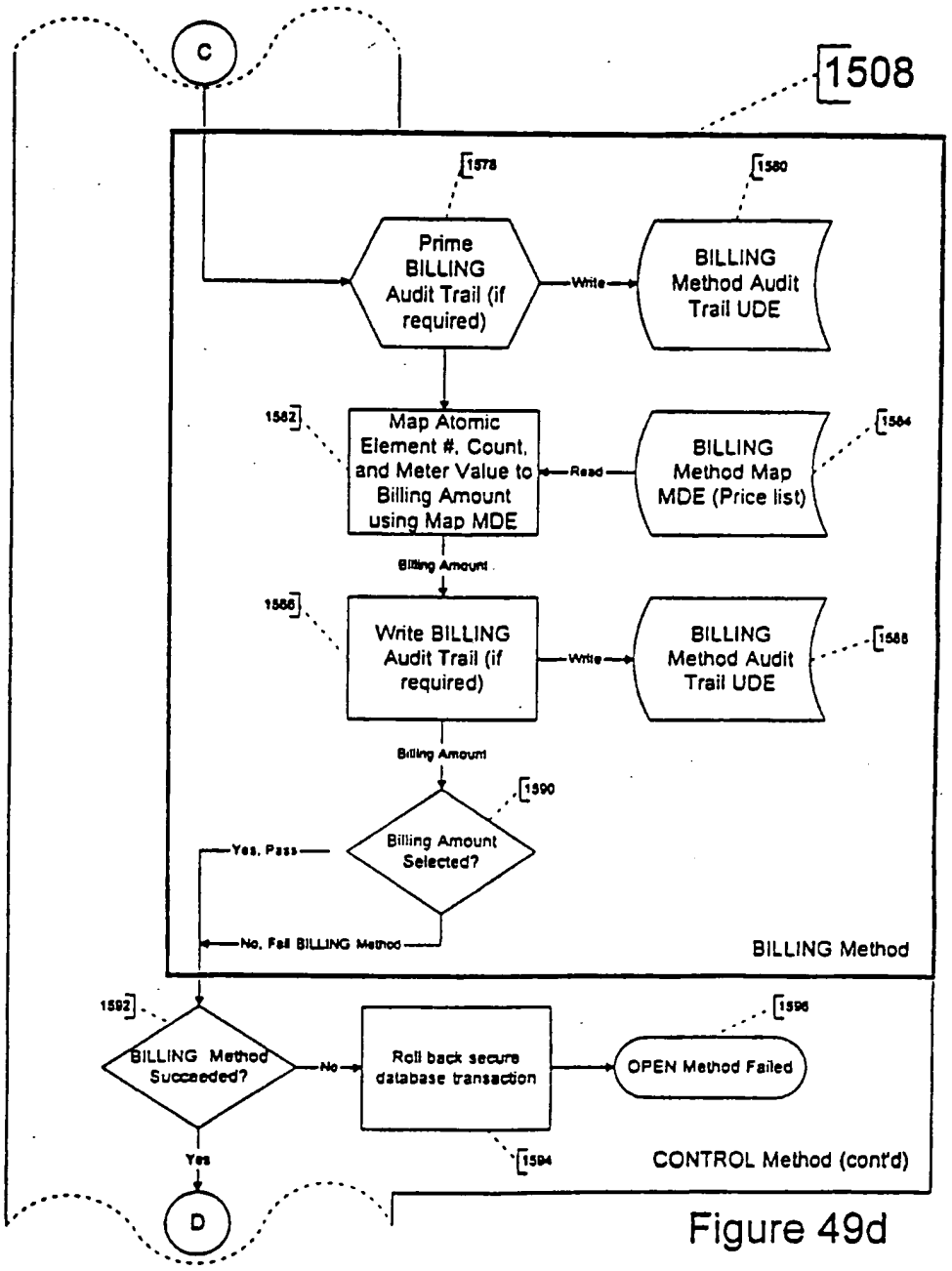



Figure 49d



Petitioner Apple Inc. - Exhibit 1006, p. 6194

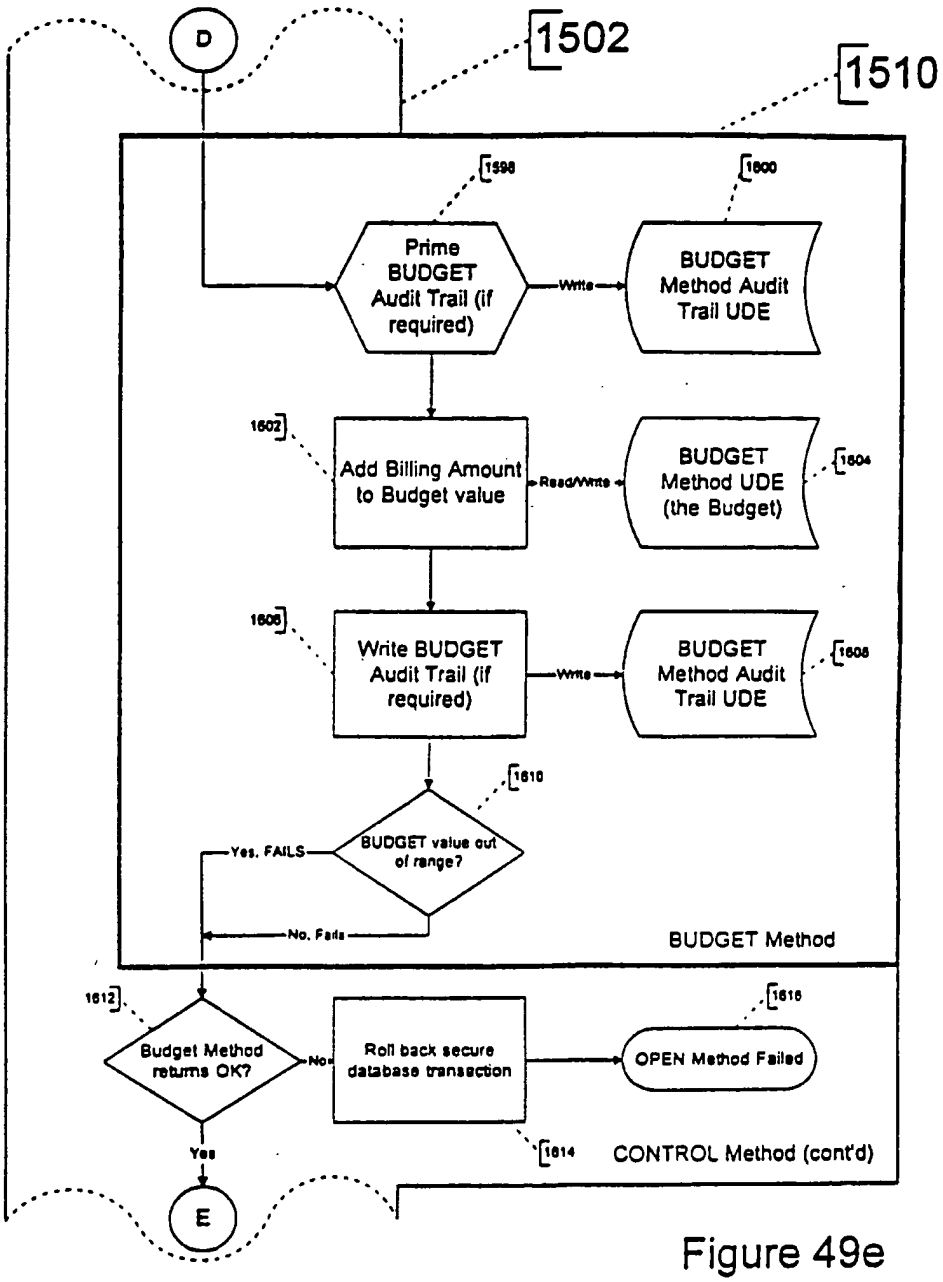



Figure 49e



Petitioner Apple Inc. - Exhibit 1006, p. 6195

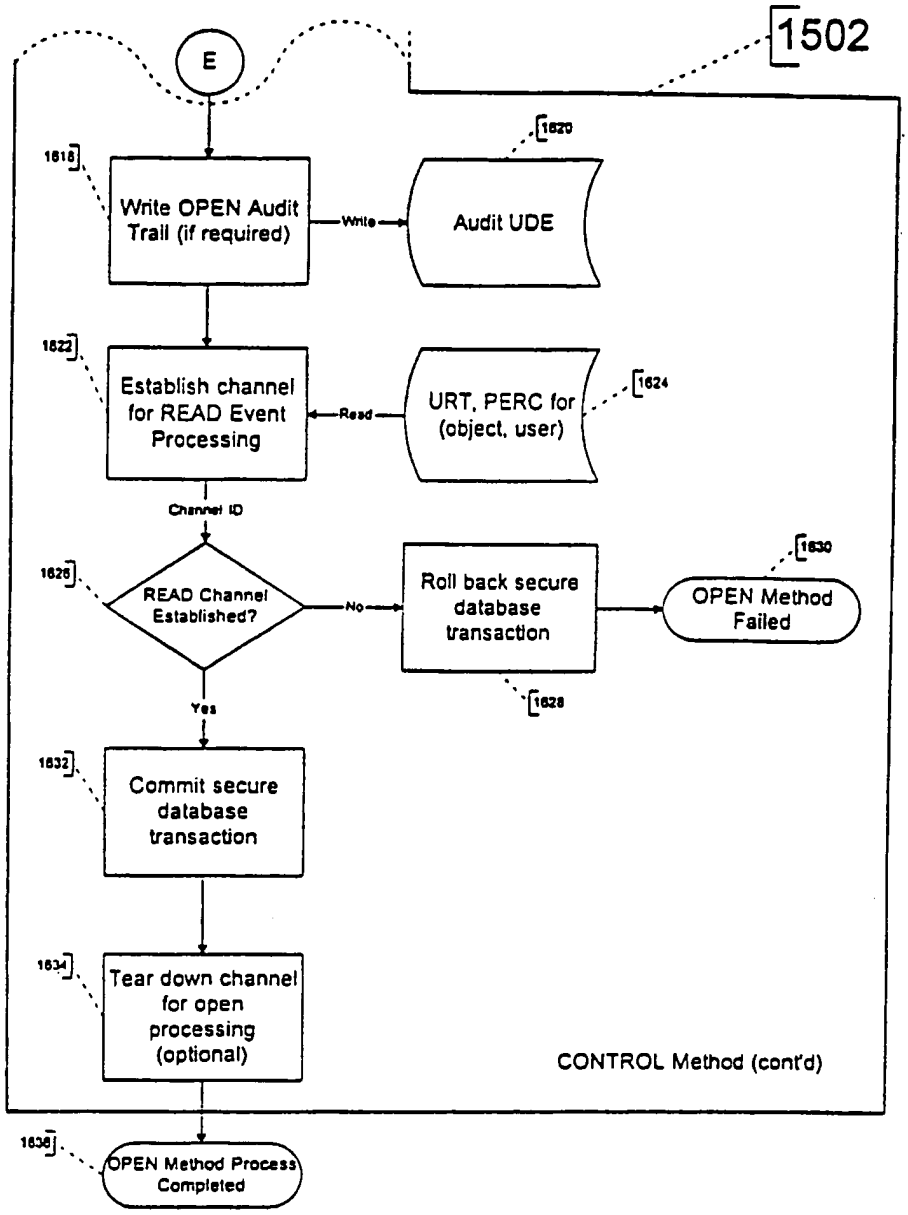

1502
E
1618
Write OPEN Audit Trail (if required)
Write
1620
Audit UDE
1622
Establish channel for READ Event Processing
Read
URT, PERC for (object, user)
1624
Channel ID
1626
READ Channel Established?
No
Roll back secure database transaction
1628
1630
OPEN Method Failed
Yes
1632
Commit secure database transaction
1634
Tear down channel for open processing (optional)
CONTROL Method (cont'd)
1636
OPEN Method Process Completed

Figure 49f

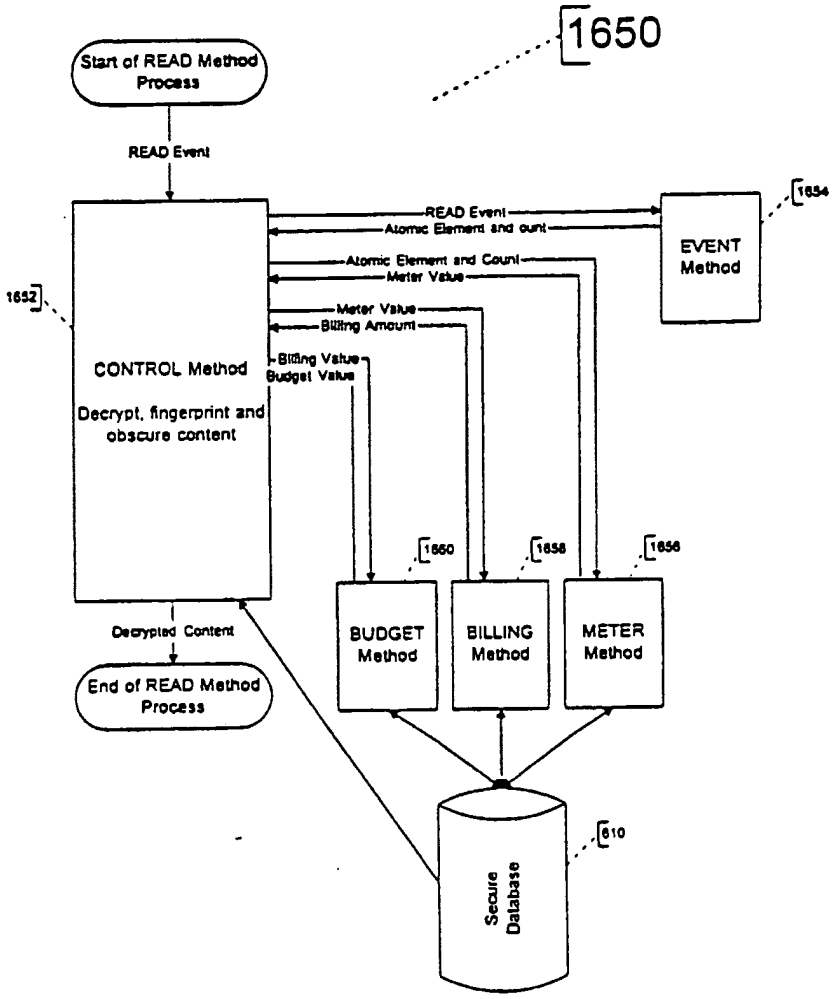

1650
Start of READ Method Process
READ Event
1652
CONTROL Method
Decrypt, fingerprint and obscure content
READ Event
Atomic Element and ount
Atomic Element and Count
Meter Value
Meter Value
Billing Amount
Billing Value
Budget Value
1654
EVENT Method
1660
1658
1656
BUDGET Method
BILLING Method
METER Method
Decrypted Content
End of READ Method Process
610
Secure Database

Figure 50

1650

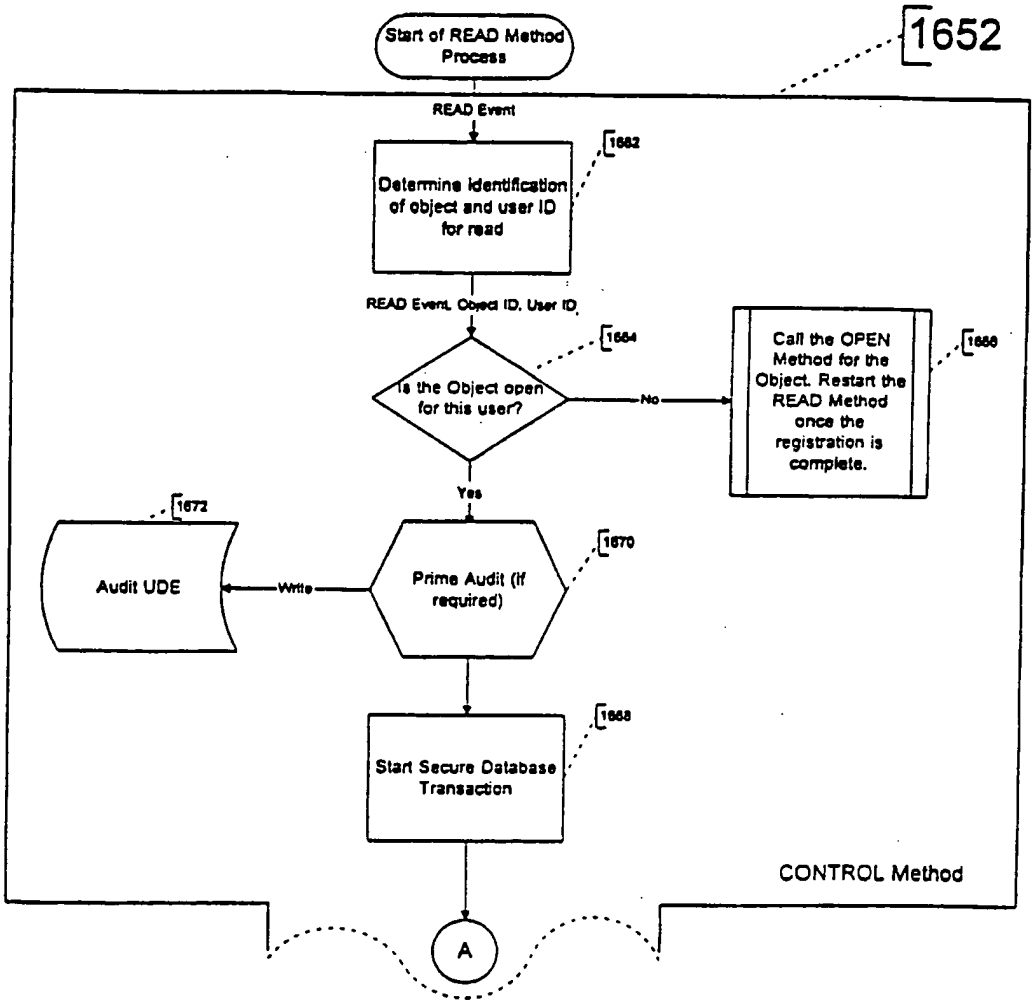



Figure 50a



Petitioner Apple Inc. - Exhibit 1006, p. 6198

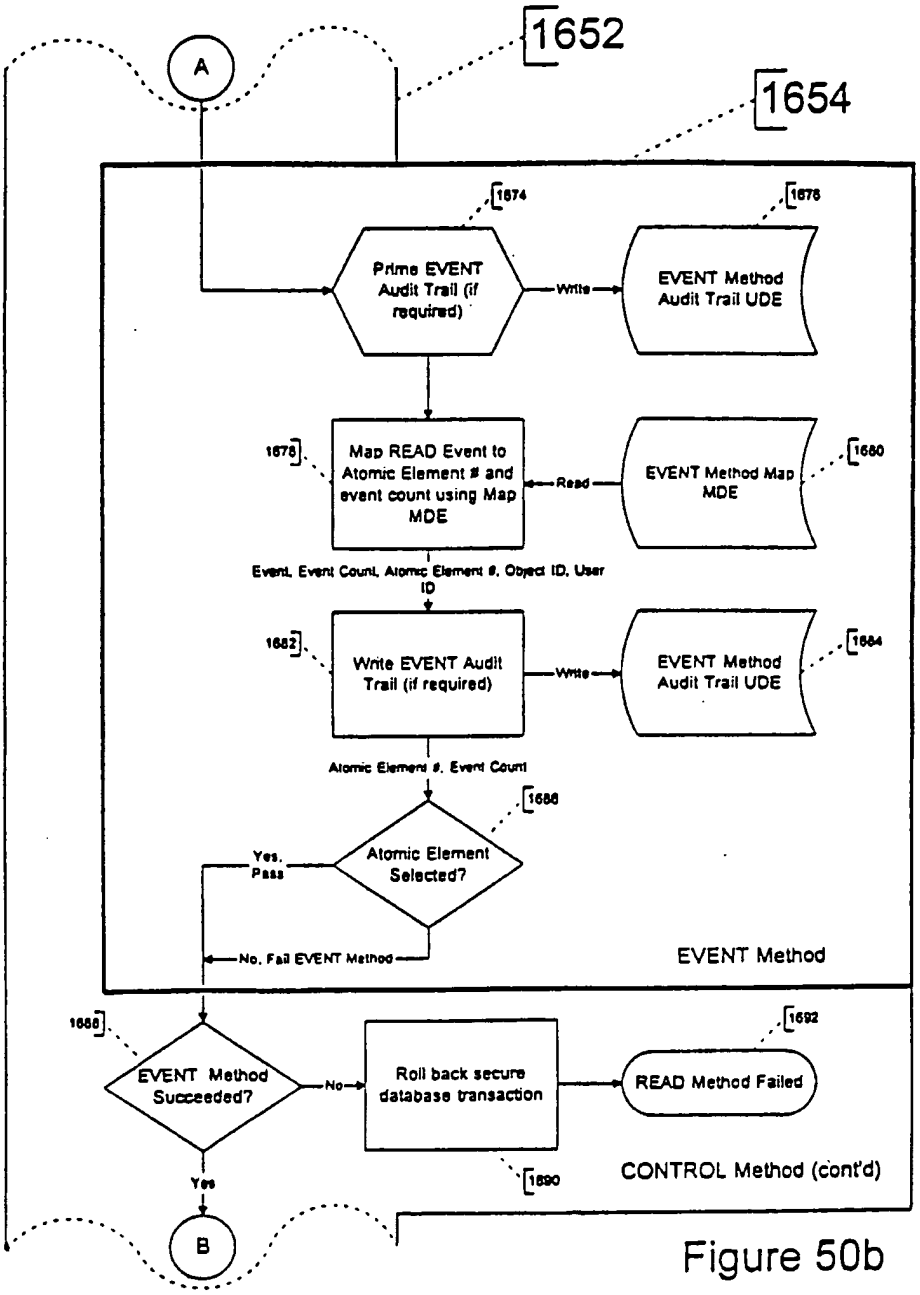



Figure 50b



Petitioner Apple Inc. - Exhibit 1006, p. 6199

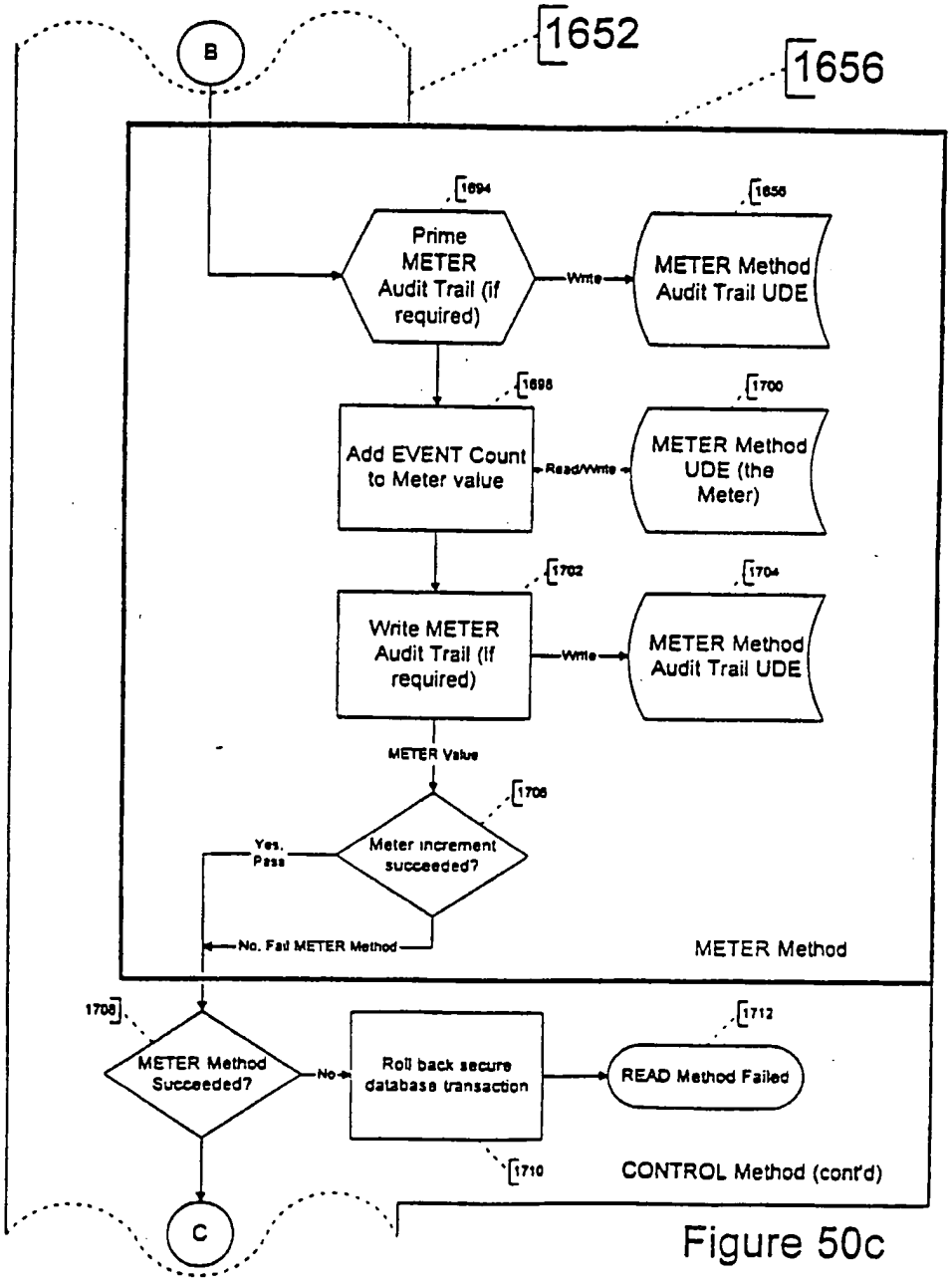



Figure 50c



Petitioner Apple Inc. - Exhibit 1006, p. 6200

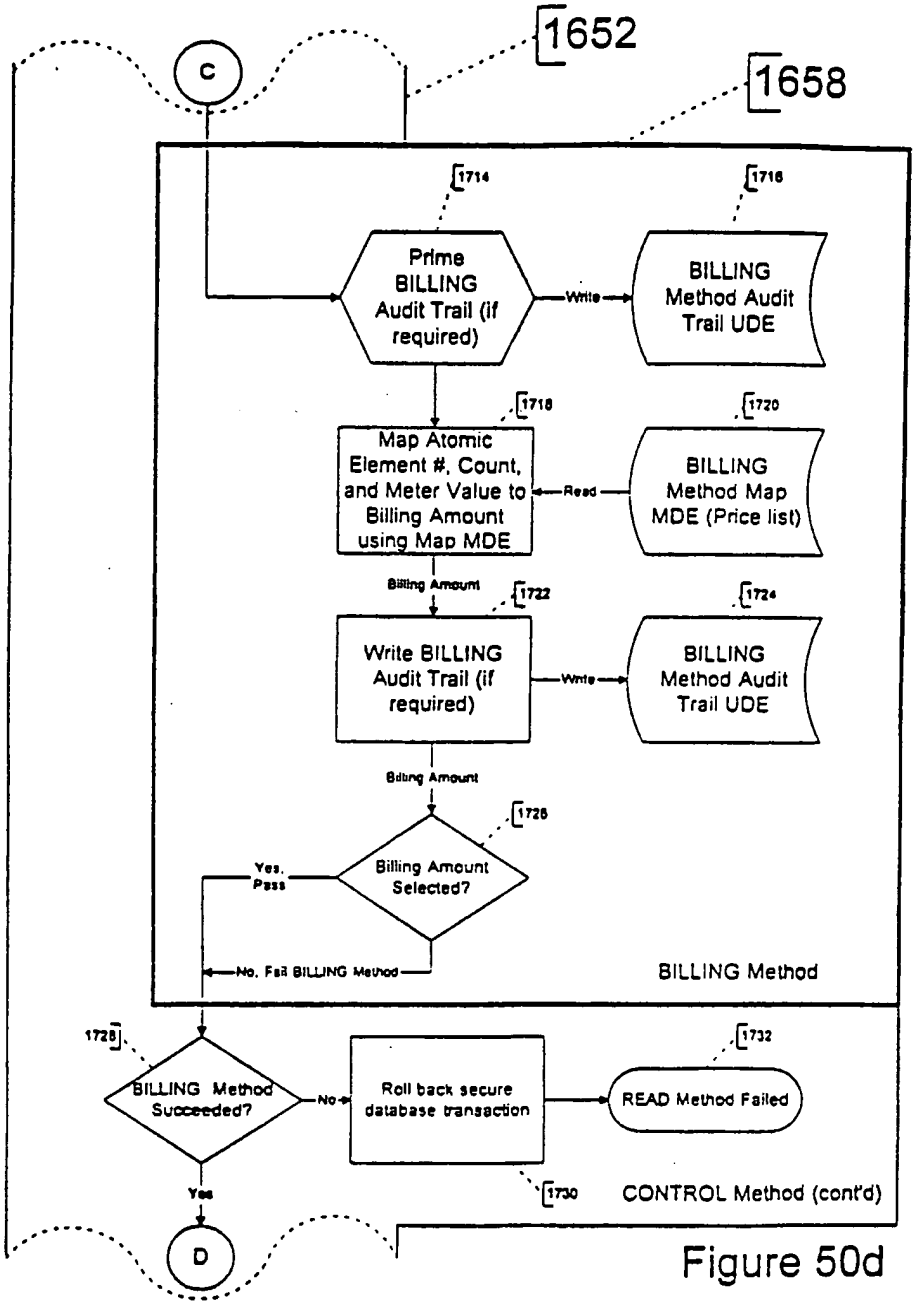



Figure 50d



Petitioner Apple Inc. - Exhibit 1006, p. 6201

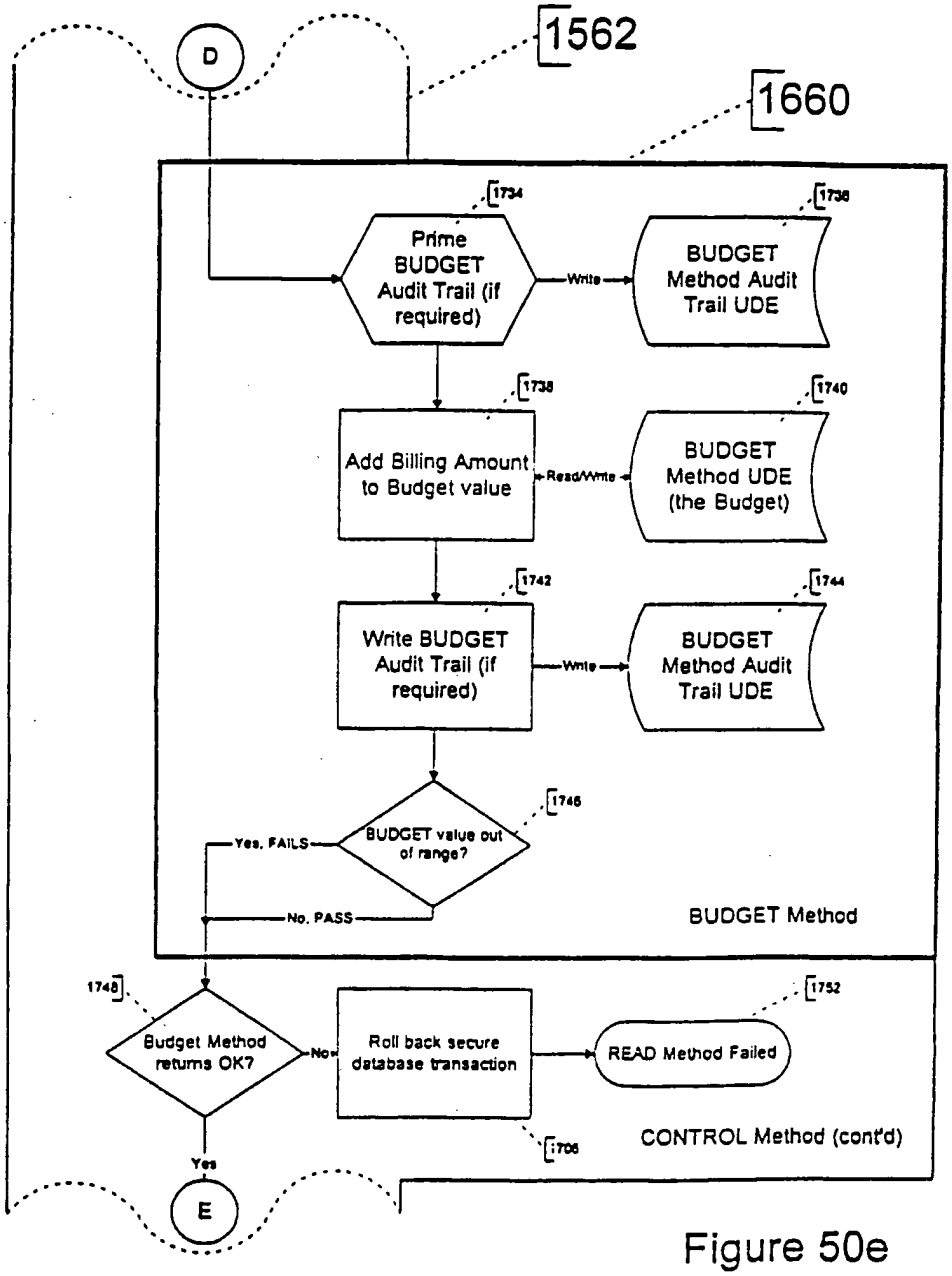



Figure 50e



Petitioner Apple Inc. - Exhibit 1006, p. 6202

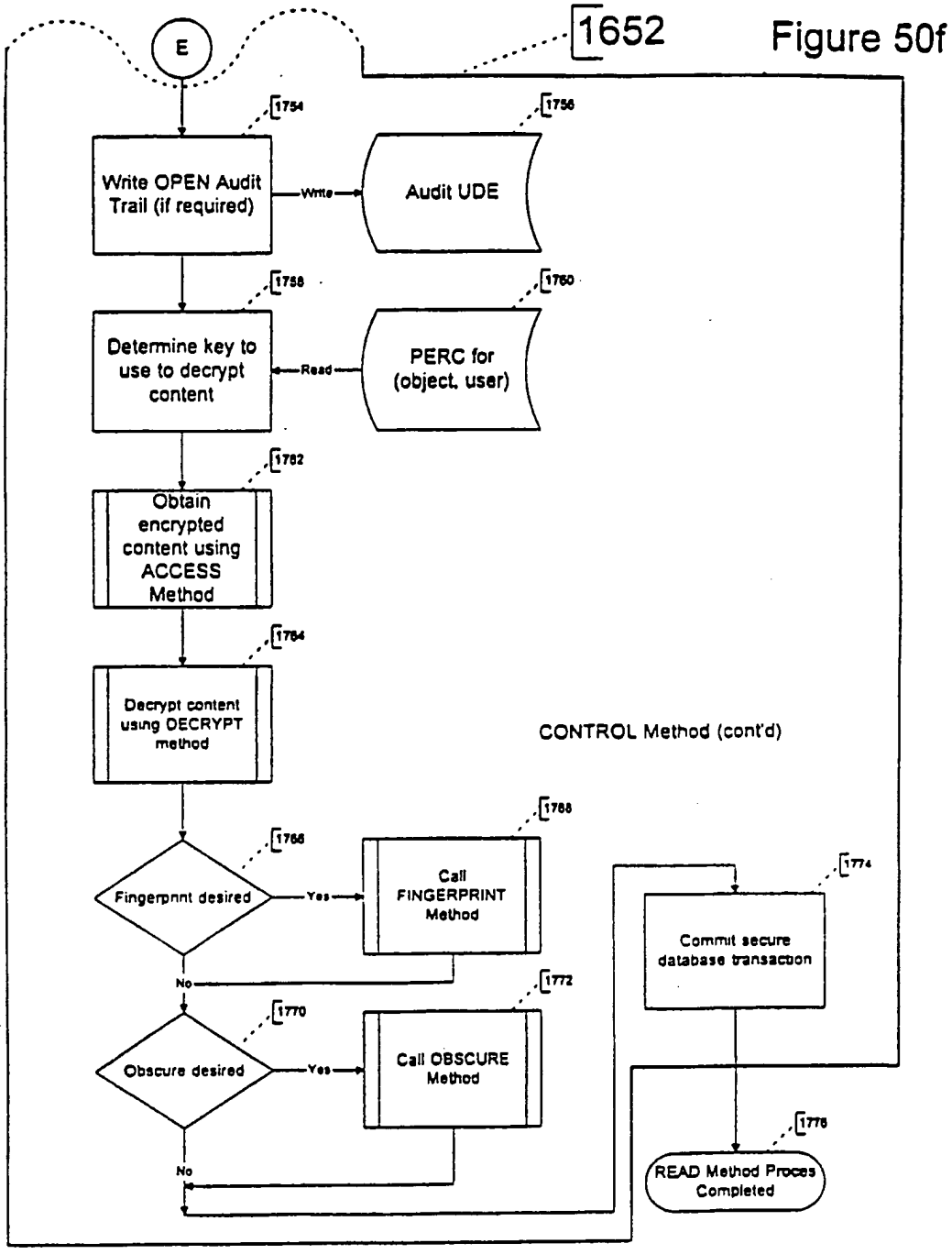



Figure 50f



Petitioner Apple Inc. - Exhibit 1006, p. 6203

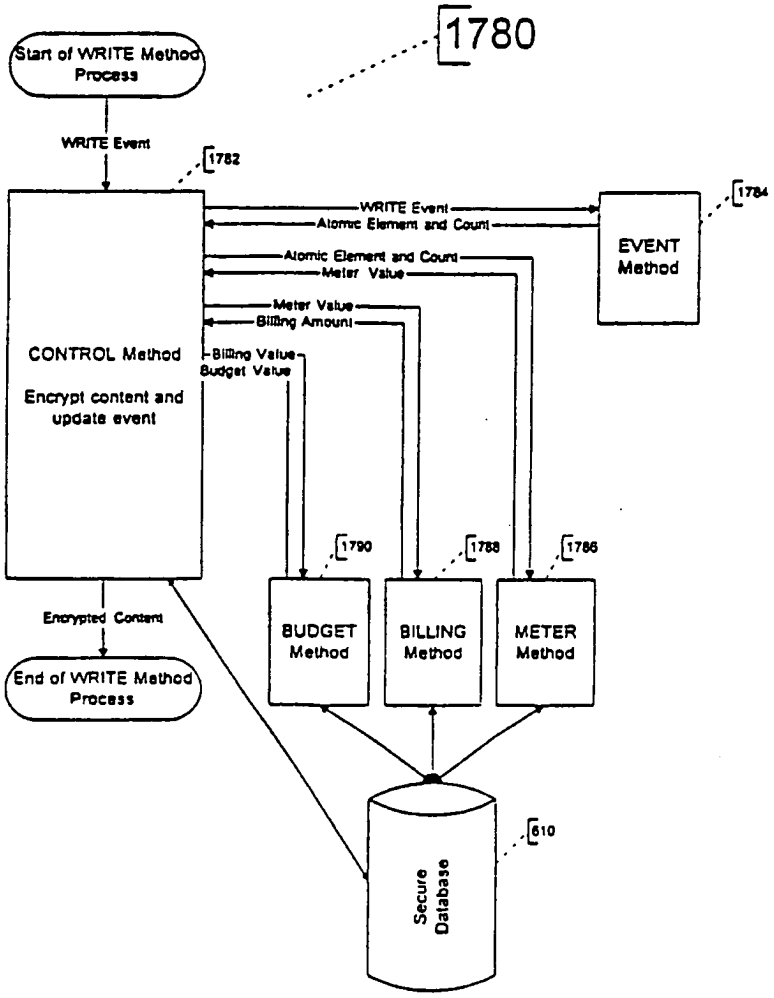

1780
Start of WRITE Method Process
WRITE Event
1782
CONTROL Method
Encrypt content and update event
WRITE Event
Atomic Element and Count
Atomic Element and Count
Meter Value
Meter Value
Billing Amount
Billing Value
Budget Value
1784
EVENT Method
1790
1788
1786
BUDGET Method
BILLING Method
METER Method
Encrypted Content
End of WRITE Method Process
610
Secure Database

Figure 51

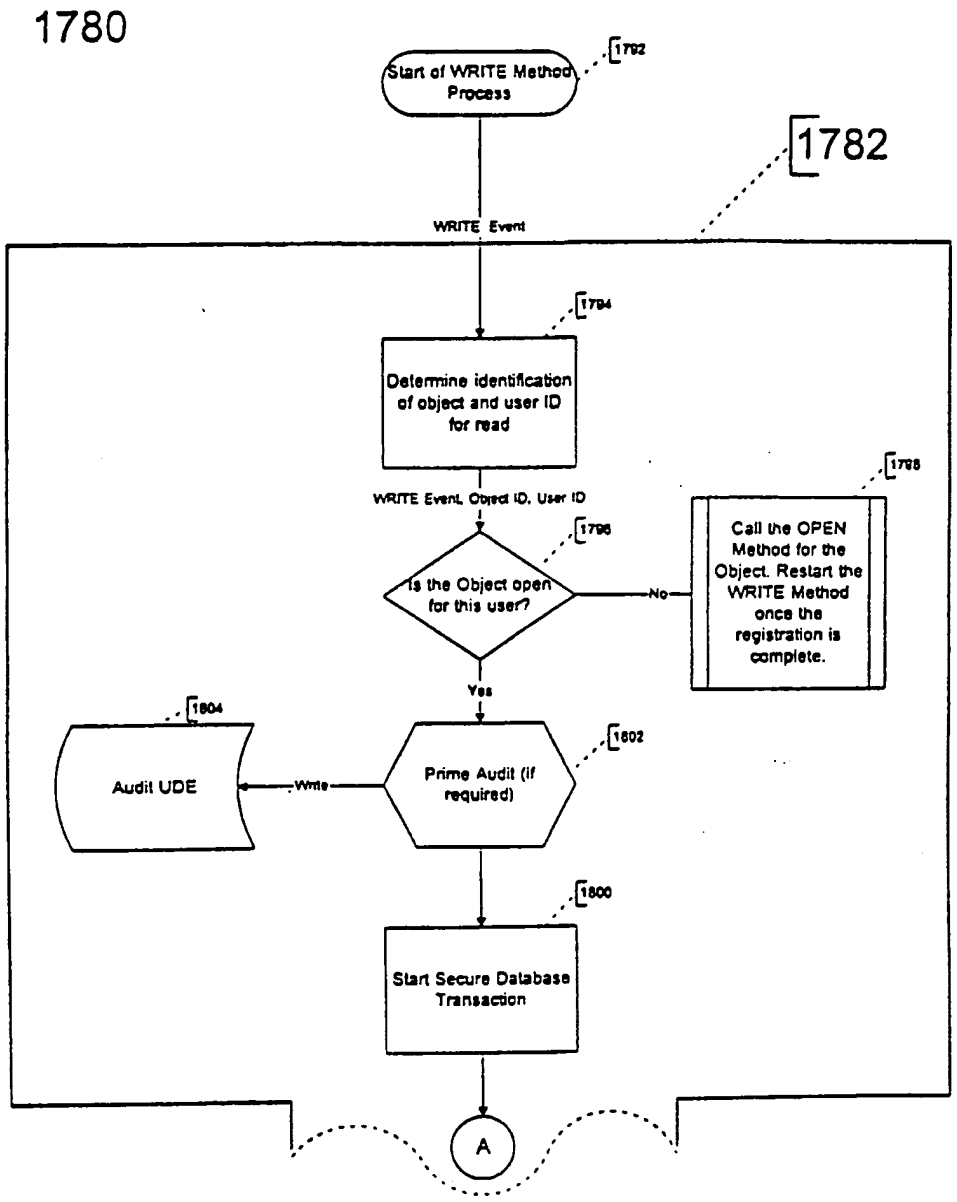



Figure 51a



Petitioner Apple Inc. - Exhibit 1006, p. 6205

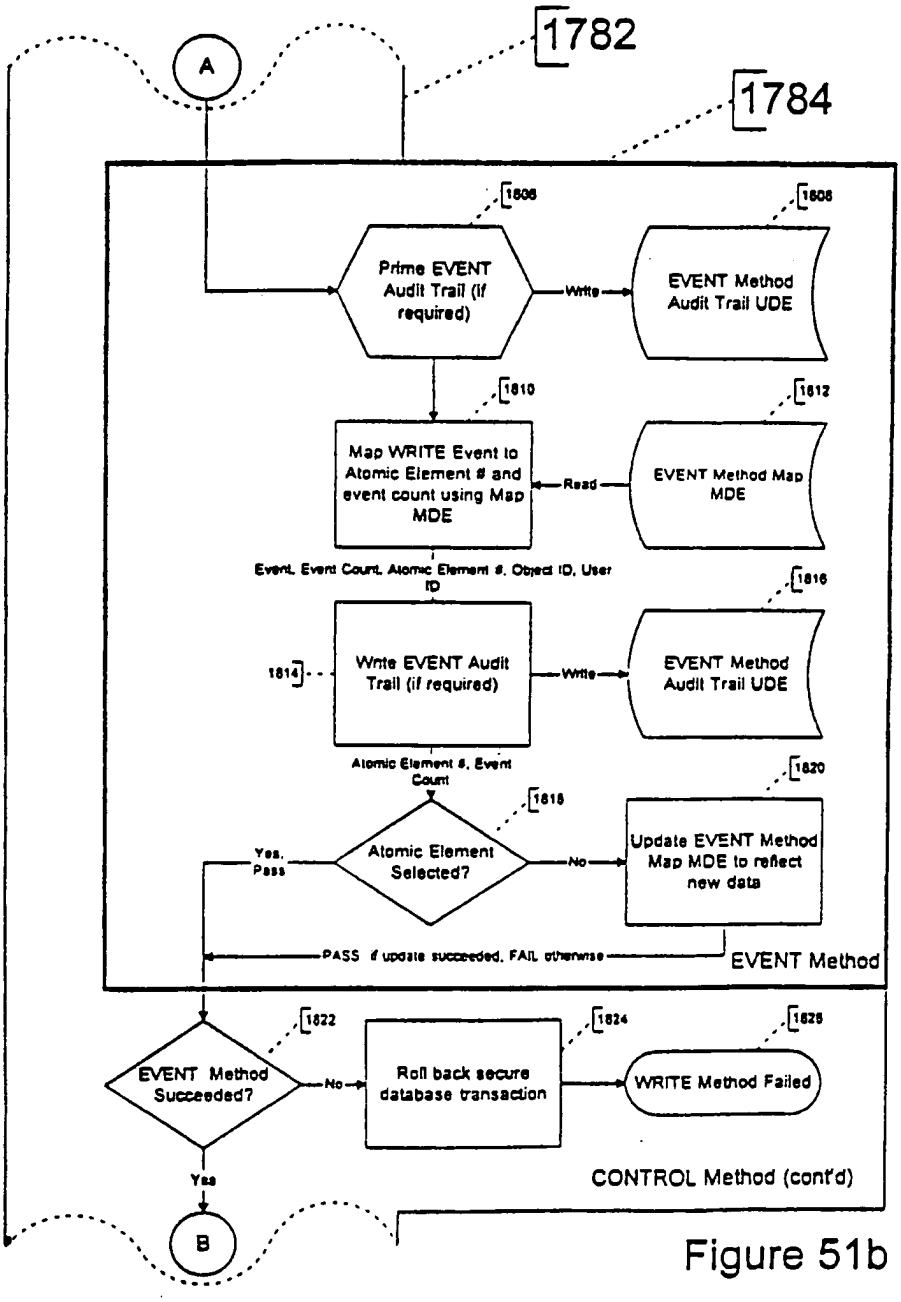



Figure 51b



Petitioner Apple Inc. - Exhibit 1006, p. 6206

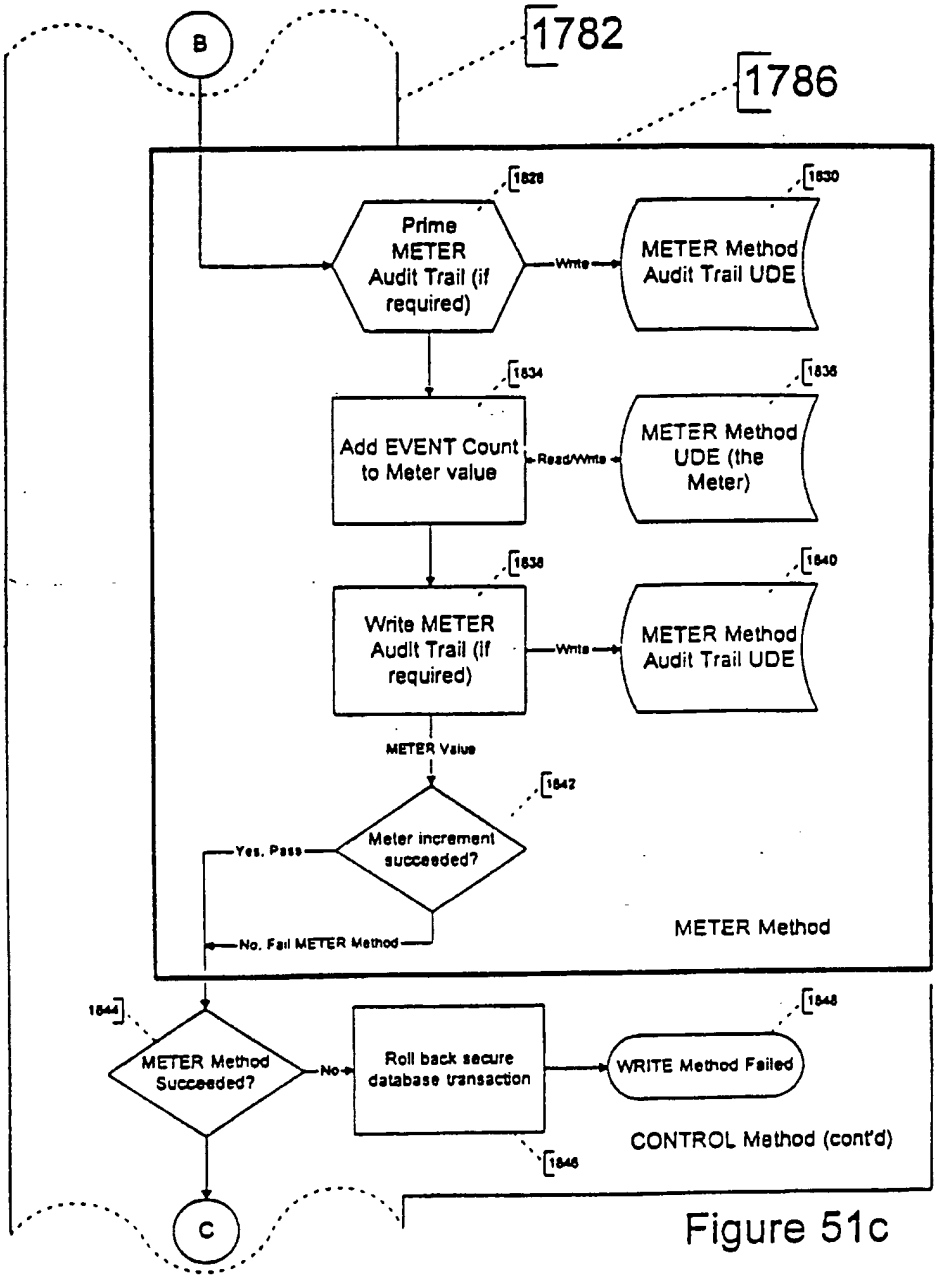



Figure 51c



Petitioner Apple Inc. - Exhibit 1006, p. 6207

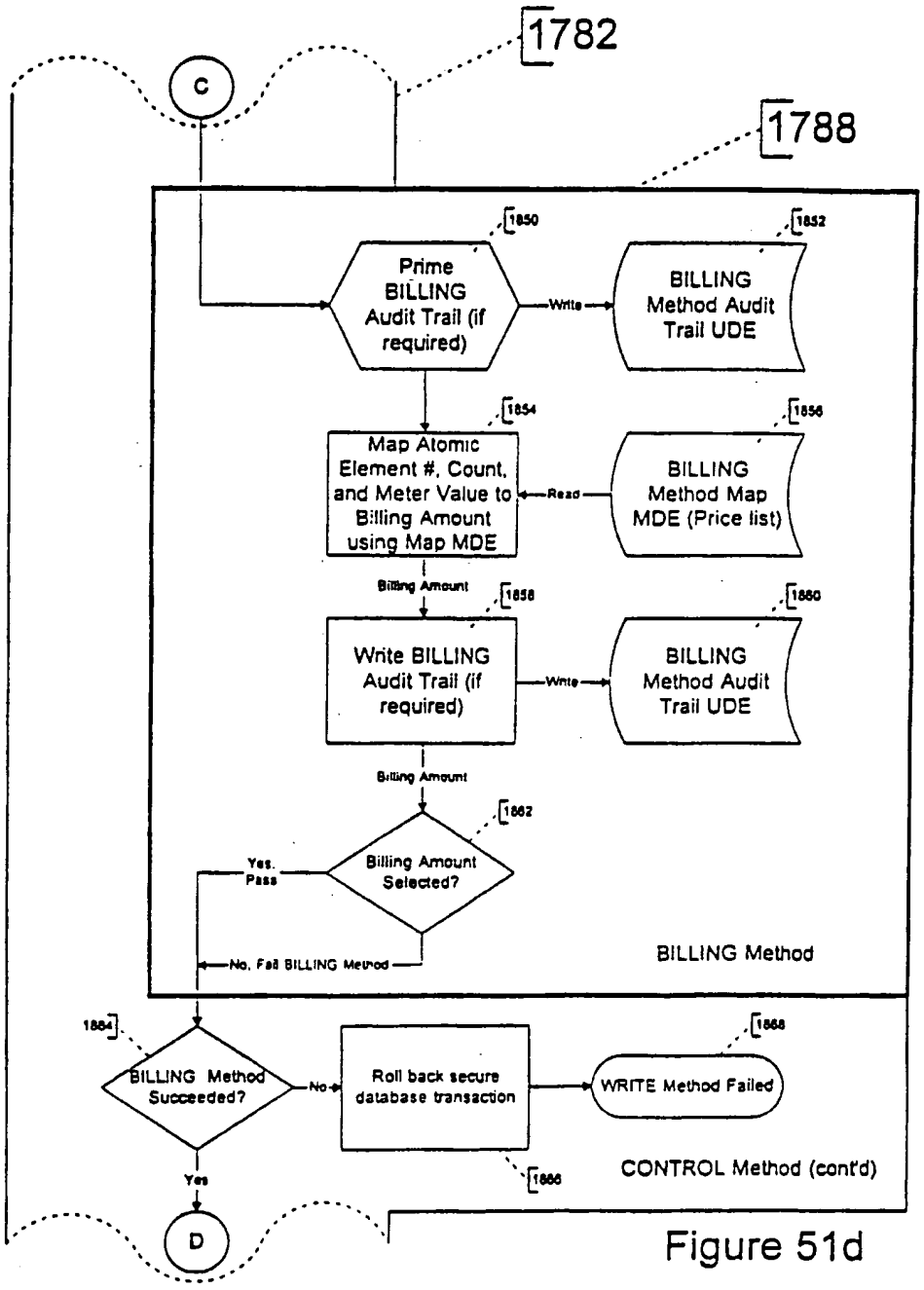



Figure 51d



Petitioner Apple Inc. - Exhibit 1006, p. 6208

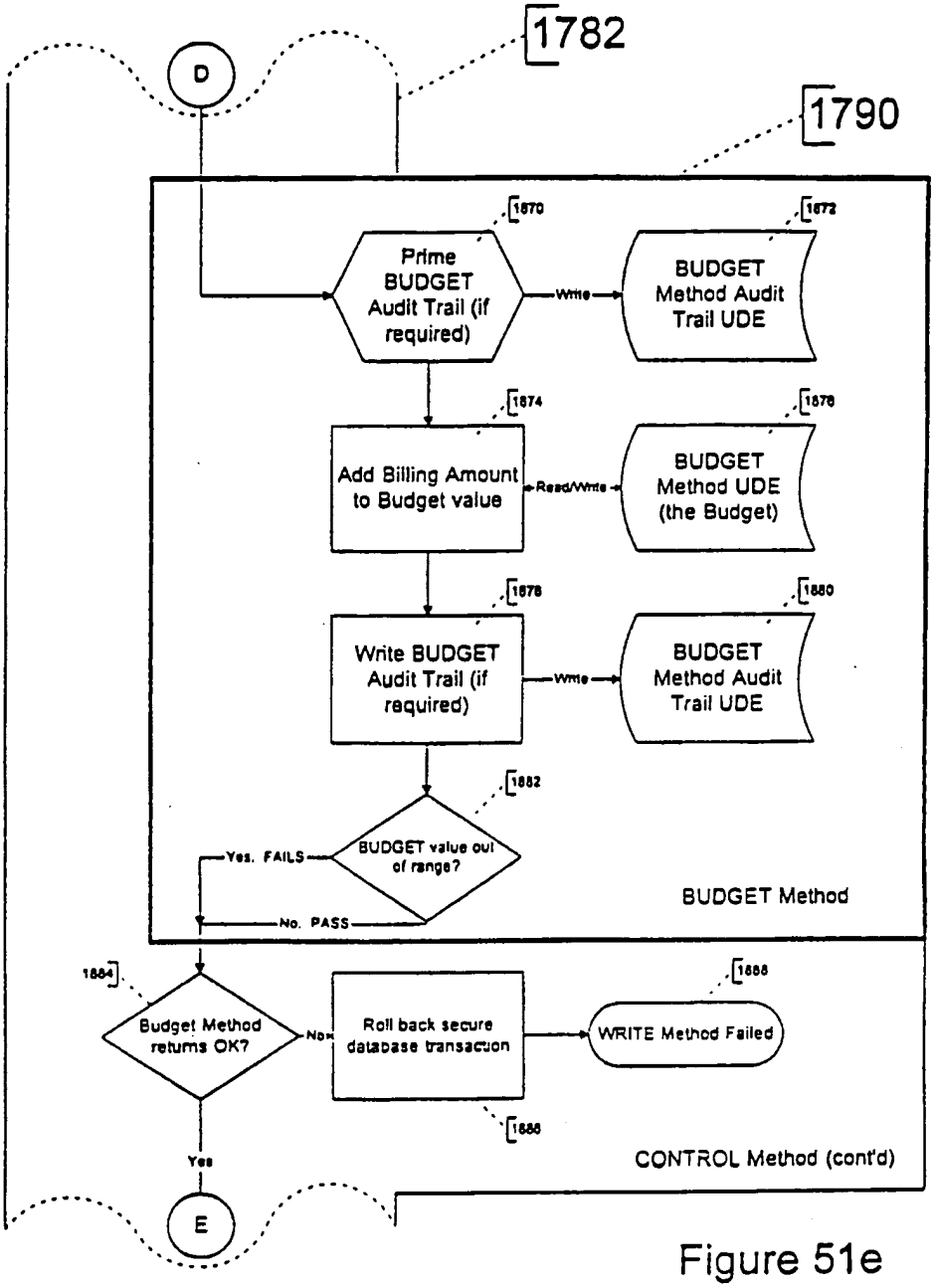



Figure 51e



Petitioner Apple Inc. - Exhibit 1006, p. 6209

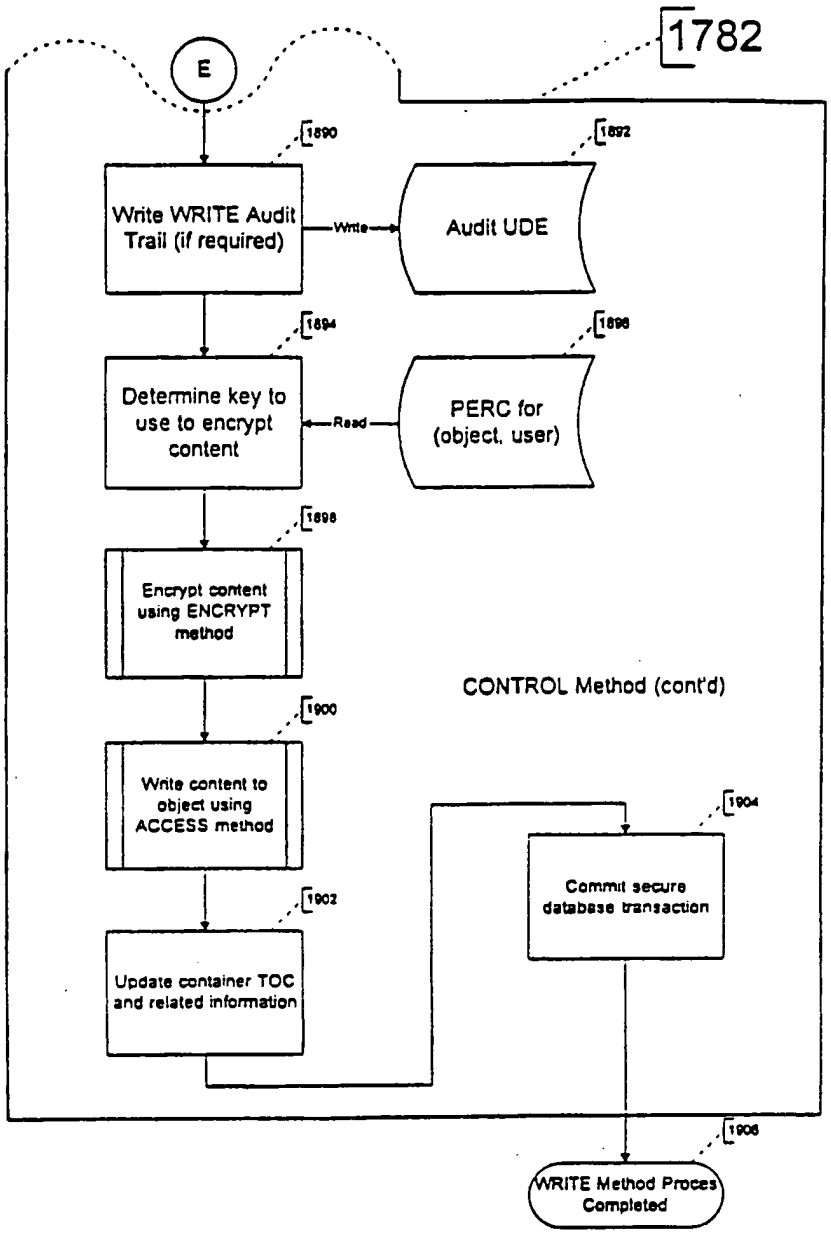

1782
E
1890
Write WRITE Audit Trail (if required)
Write
1892
Audit UDE
1894
Determine key to use to encrypt content
Read
1896
PERC for (object, user)
1898
Encrypt content using ENCRYPT method
CONTROL Method (cont'd)
1900
Write content to object using ACCESS method
1902
Update container TOC and related information
1904
Commit secure database transaction
1906
WRITE Method Proces Completed

Figure 51f

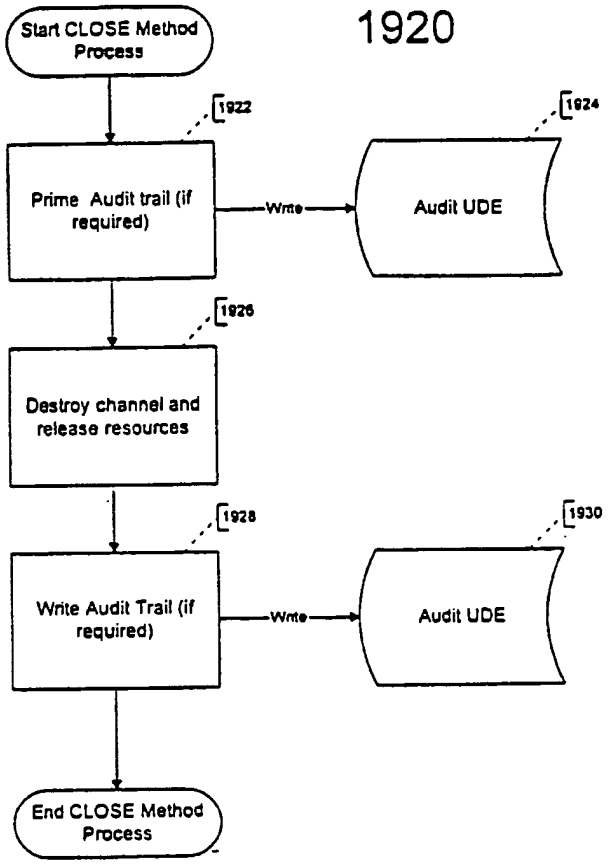

1920
Start CLOSE Method Process
1922
Prime Audit trail (if required)
Write
1924
Audit UDE
1926
Destroy channel and release resources
1928
Write Audit Trail (if required)
Write
1930
Audit UDE
End CLOSE Method Process

Figure 52

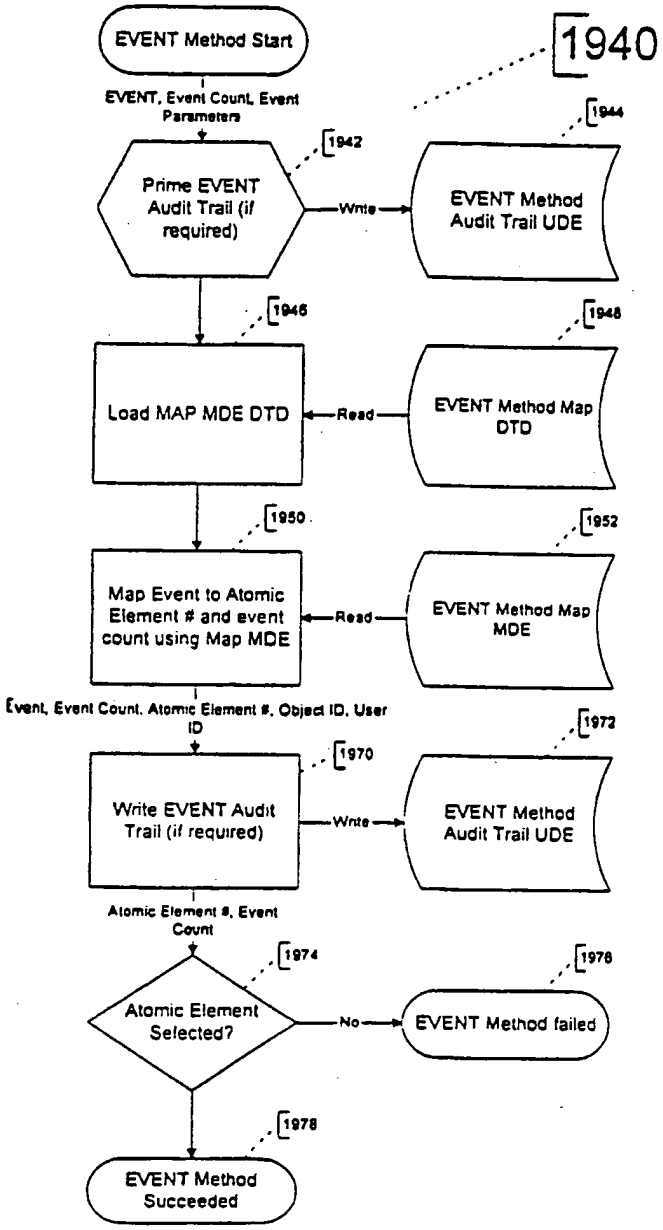

EVENT Method Start
1940
EVENT, Event Count, Event Parameters
1942
1944
Prime EVENT Audit Trail (if required)
Write
EVENT Method Audit Trail UDE
1946
1948
Load MAP MDE DTD
Read
EVENT Method Map DTD
1950
1952
Map Event to Atomic Element # and event count using Map MDE
Read
EVENT Method Map MDE
Event, Event Count, Atomic Element #, Object ID, User ID
1970
1972
Write EVENT Audit Trail (if required)
Write
EVENT Method Audit Trail UDE
Atomic Element #, Event Count
1974
1976
Atomic Element Selected?
No
EVENT Method failed
1978
EVENT Method Succeeded

Figure 53a

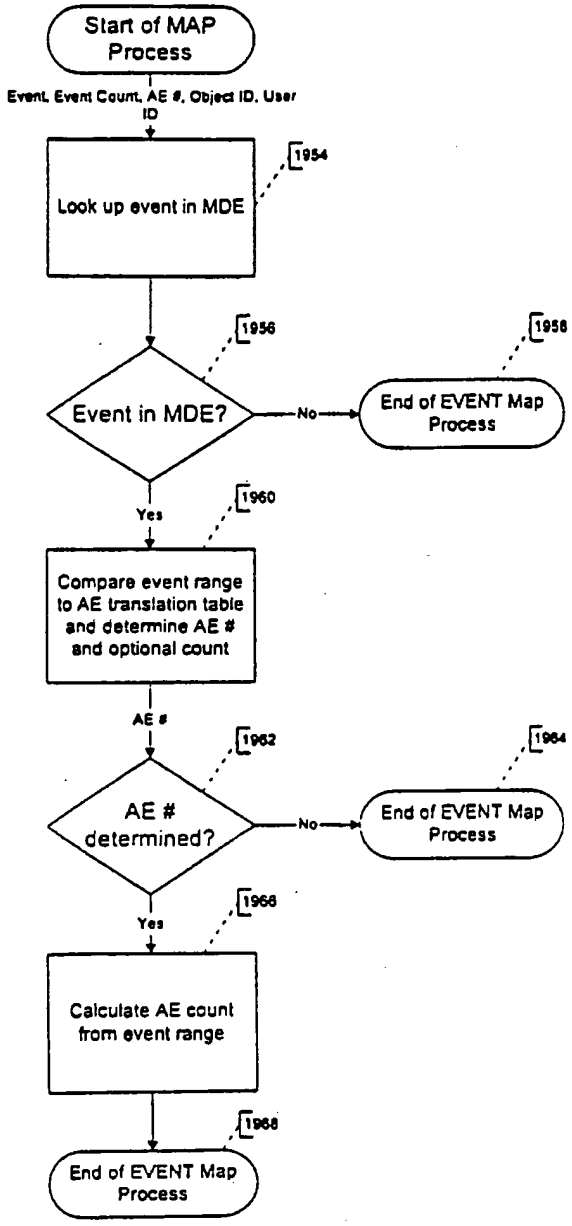



Figure 53b



Petitioner Apple Inc. - Exhibit 1006, p. 6213

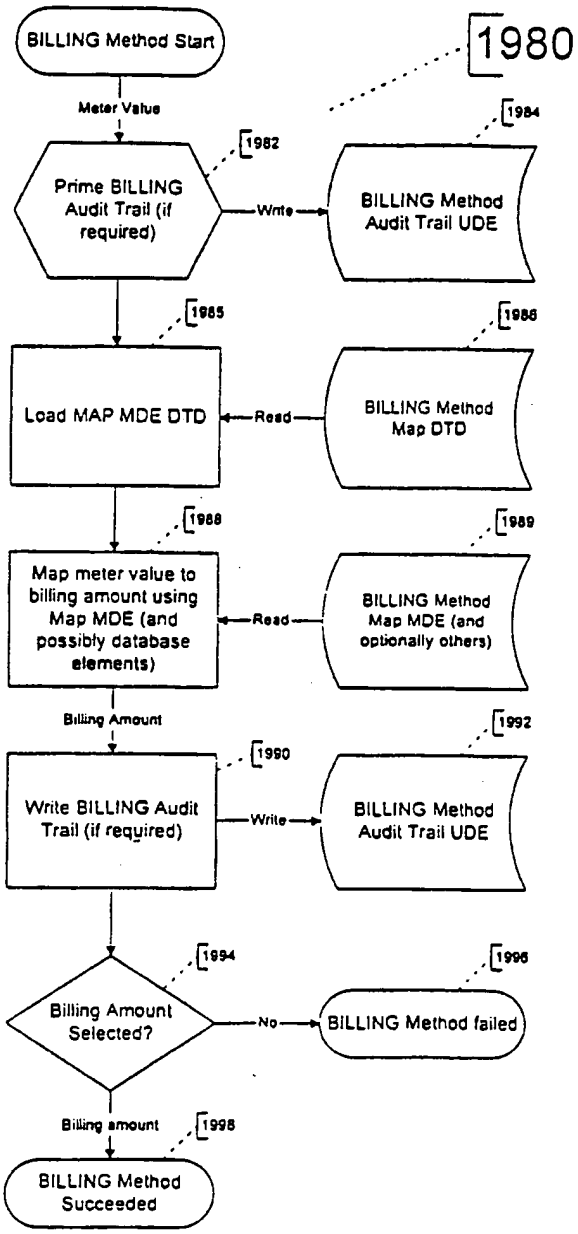

BILLING Method Start
1980
Meter Value
1982
Prime BILLING Audit Trail (if required)
Write
1984
BILLING Method Audit Trail UDE
1985
Load MAP MDE DTD
Read
1986
BILLING Method Map DTD
1988
Map meter value to billing amount using Map MDE (and possibly database elements)
Read
1989
BILLING Method Map MDE (and optionally others)
Billing Amount
1990
Write BILLING Audit Trail (if required)
Write
1992
BILLING Method Audit Trail UDE
1994
Billing Amount Selected?
No
1996
BILLING Method failed
Billing amount
1998
BILLING Method Succeeded

Figure 53c

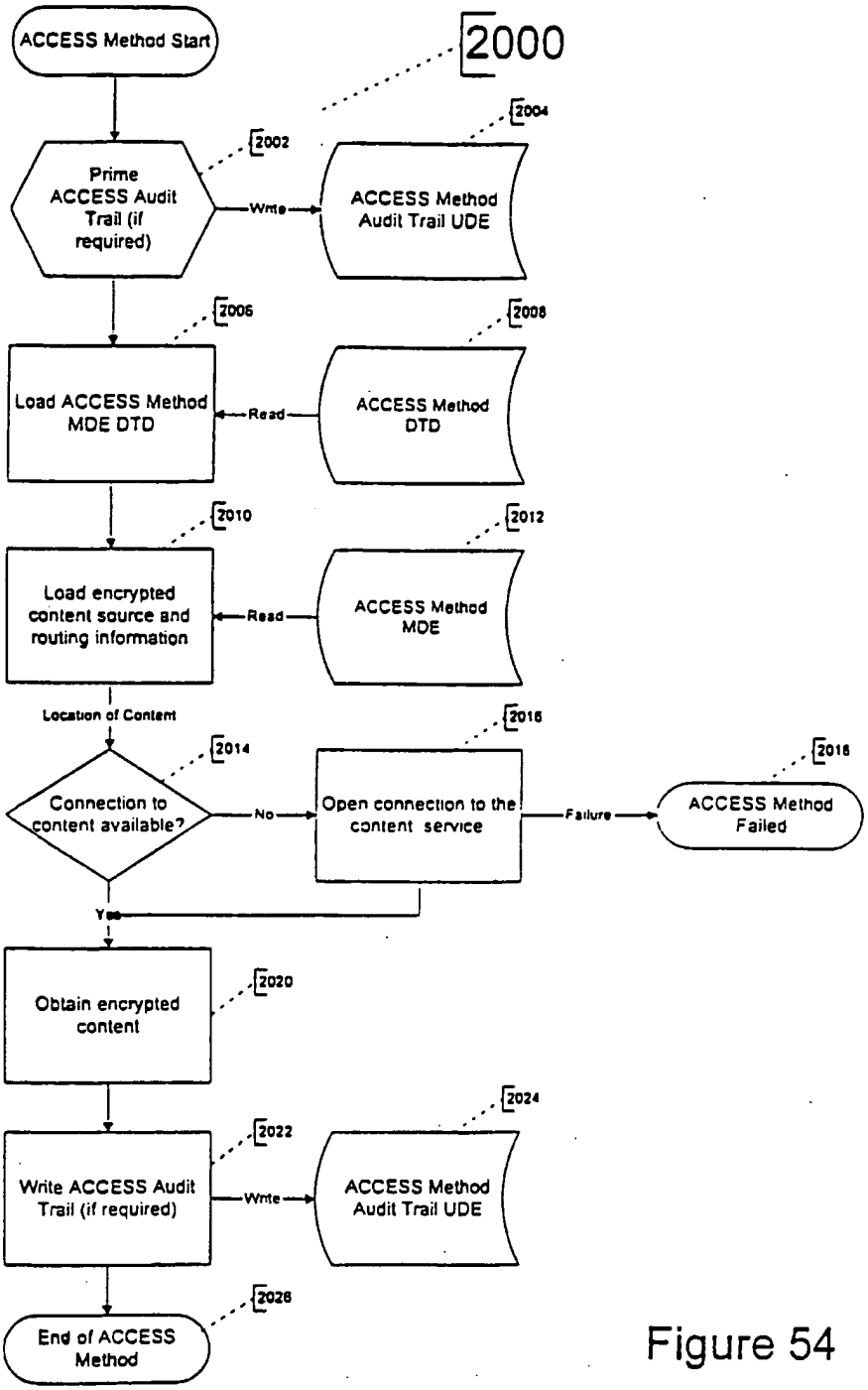



Figure 54



Petitioner Apple Inc. - Exhibit 1006, p. 6215

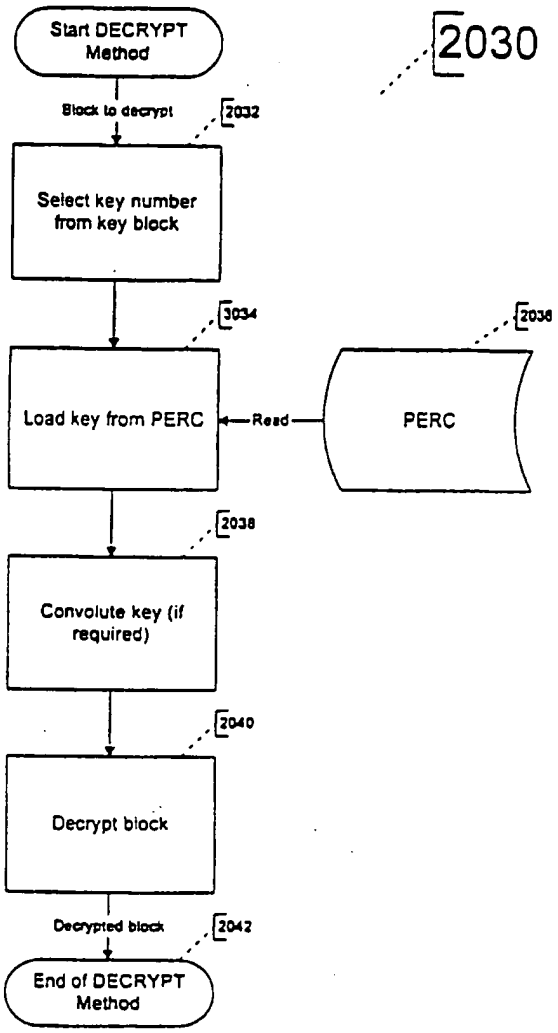



Figure 55a



Petitioner Apple Inc. - Exhibit 1006, p. 6216

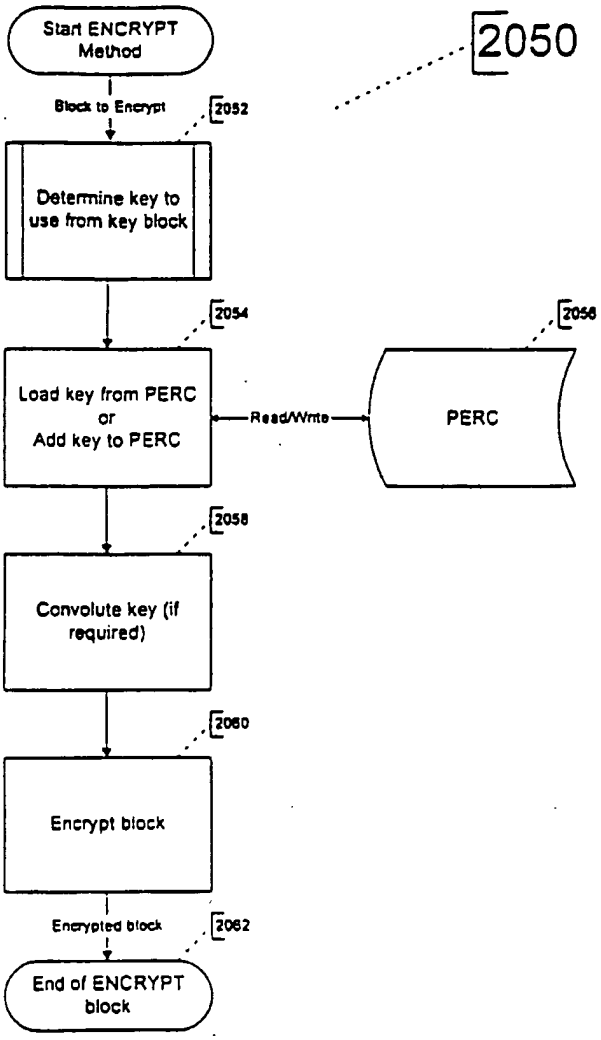

Start ENCRYPT Method
2050
Block to Encrypt
2052
Determine key to use from key block
2054
Load key from PERC or Add key to PERC
Read/Write
2056
PERC
2058
Convolute key (if required)
2060
Encrypt block
Encrypted block
2062
End of ENCRYPT block

Figure 55b

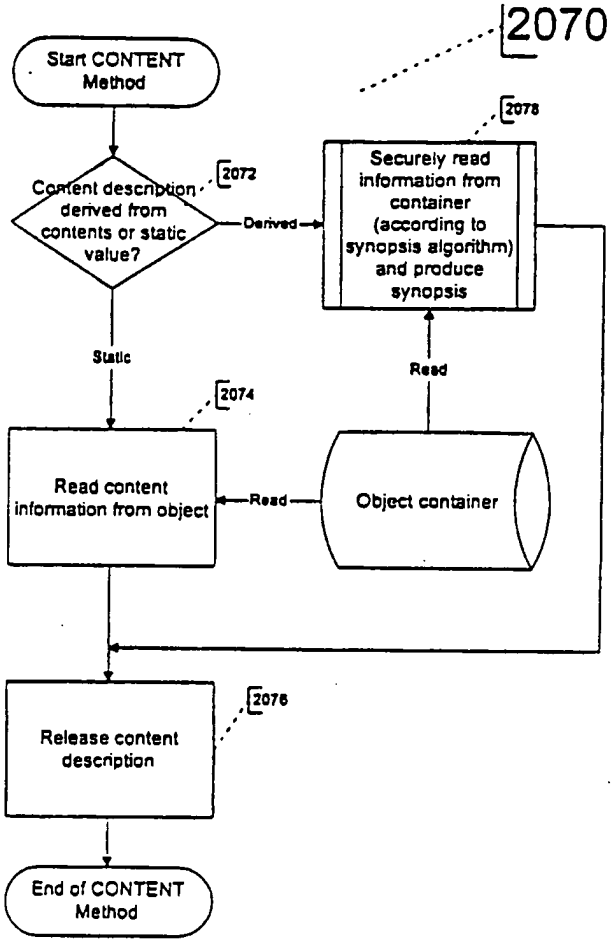



Figure 56



Petitioner Apple Inc. - Exhibit 1006, p. 6218

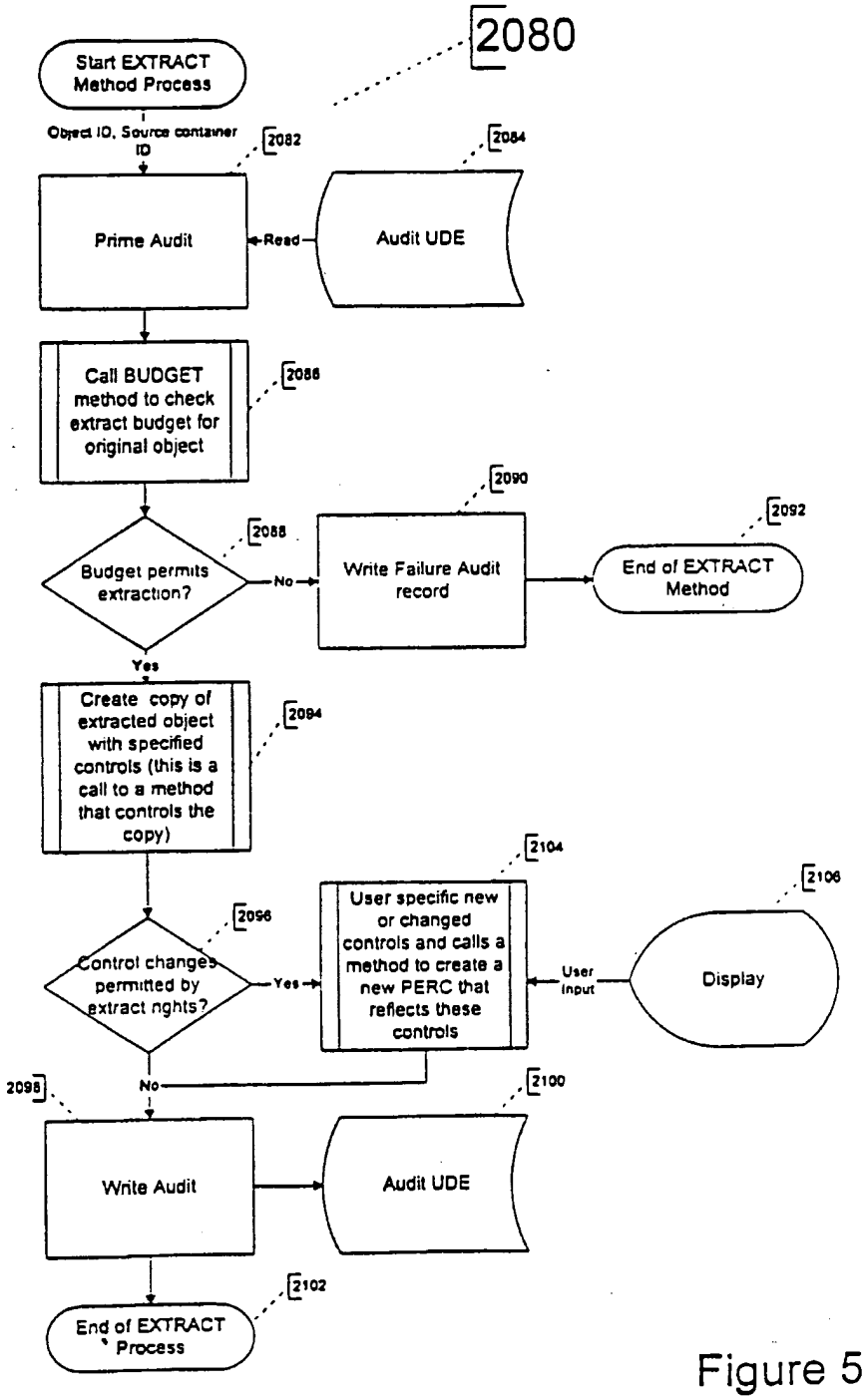



Figure 57a



Petitioner Apple Inc. - Exhibit 1006, p. 6219

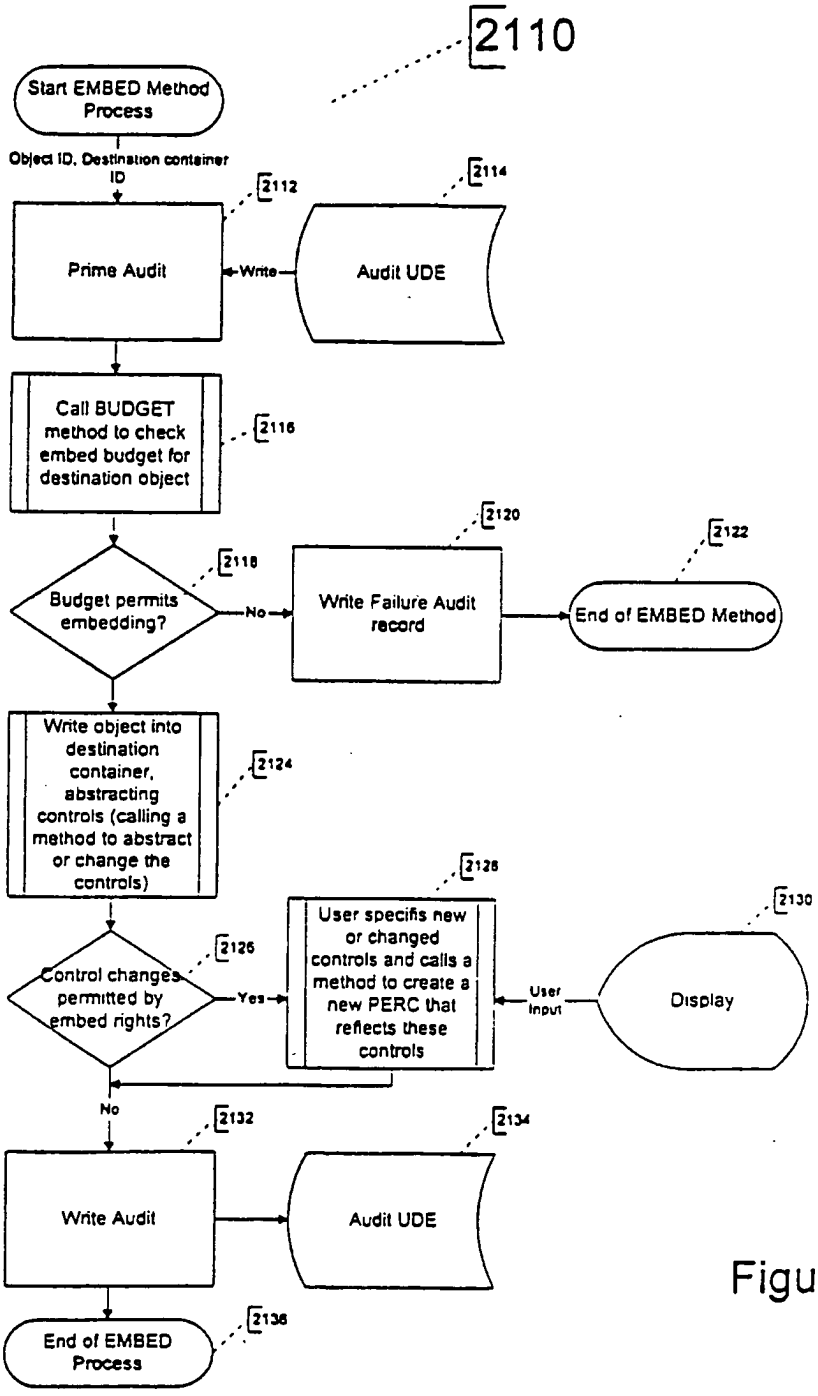



Figure 57b



Petitioner Apple Inc. - Exhibit 1006, p. 6220

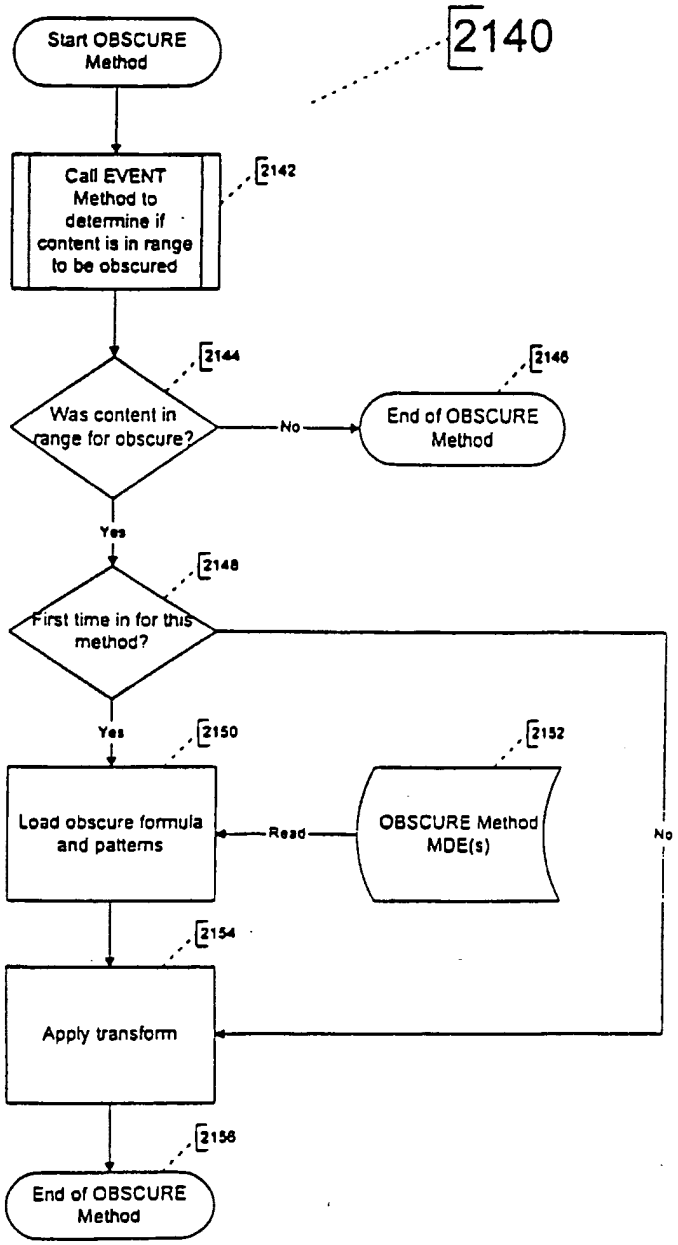



Figure 58a



Petitioner Apple Inc. - Exhibit 1006, p. 6221

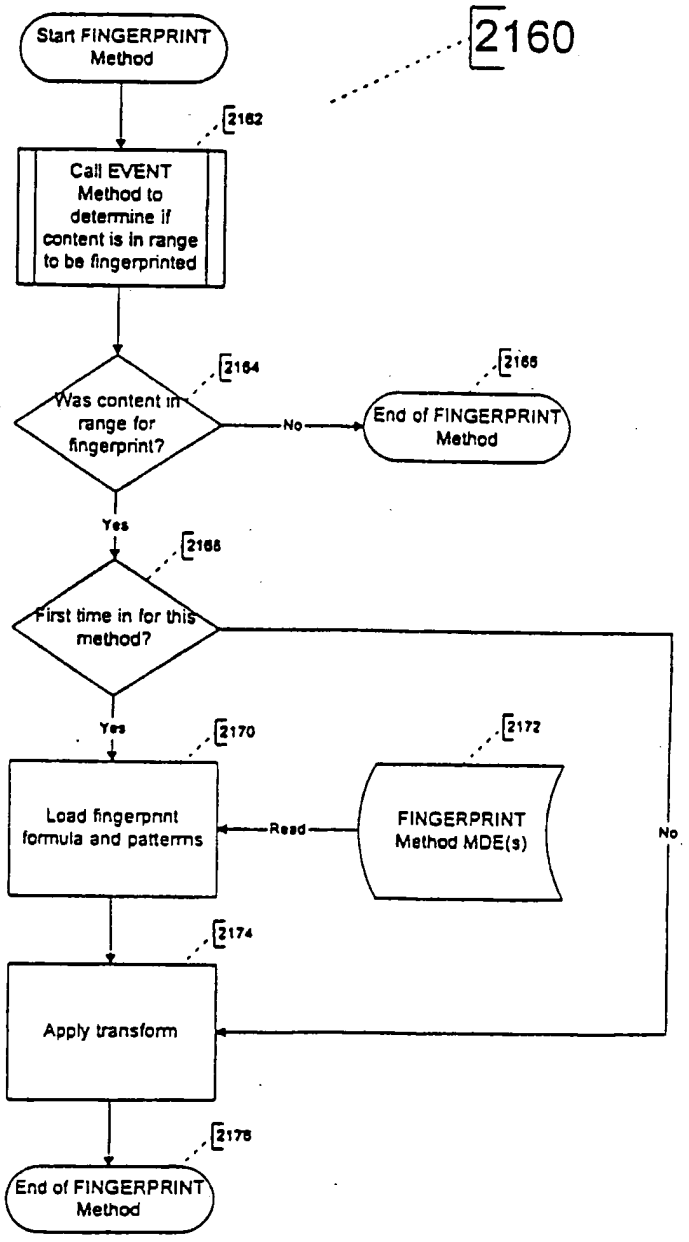



Figure 58b



Petitioner Apple Inc. - Exhibit 1006, p. 6222

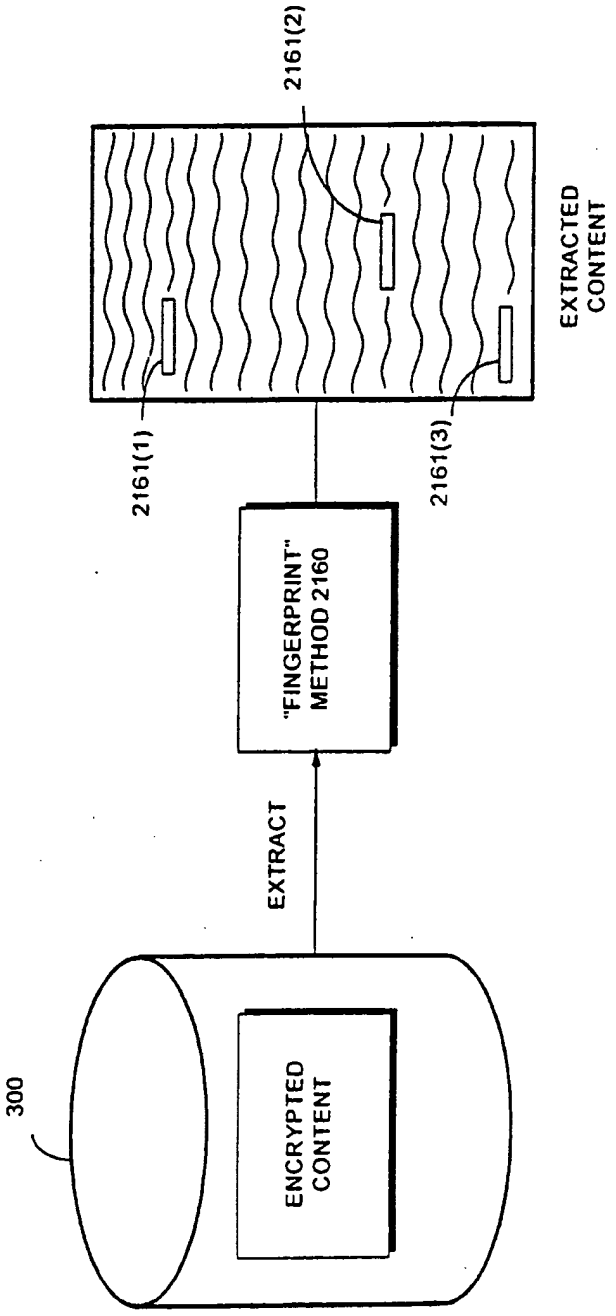



FIG. 58C



Petitioner Apple Inc. - Exhibit 1006, p. 6223

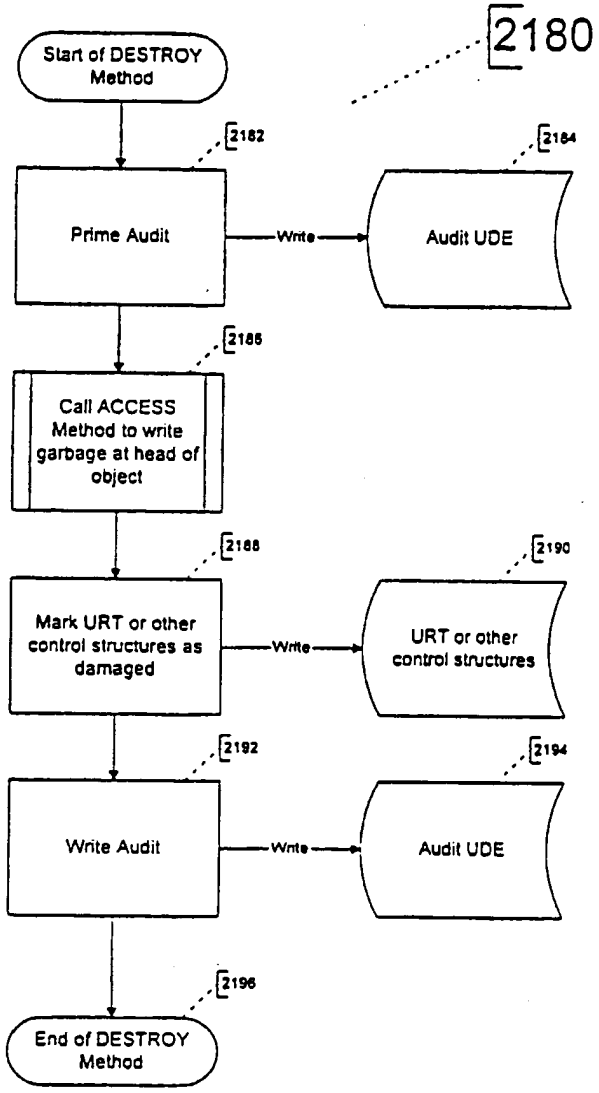

2180
Start of DESTROY Method
2182
Prime Audit
Write
2184
Audit UDE
2186
Call ACCESS Method to write garbage at head of object
2188
Mark URT or other control structures as damaged
Write
2190
URT or other control structures
2192
Write Audit
Write
2194
Audit UDE
2196
End of DESTROY Method

Figure 59

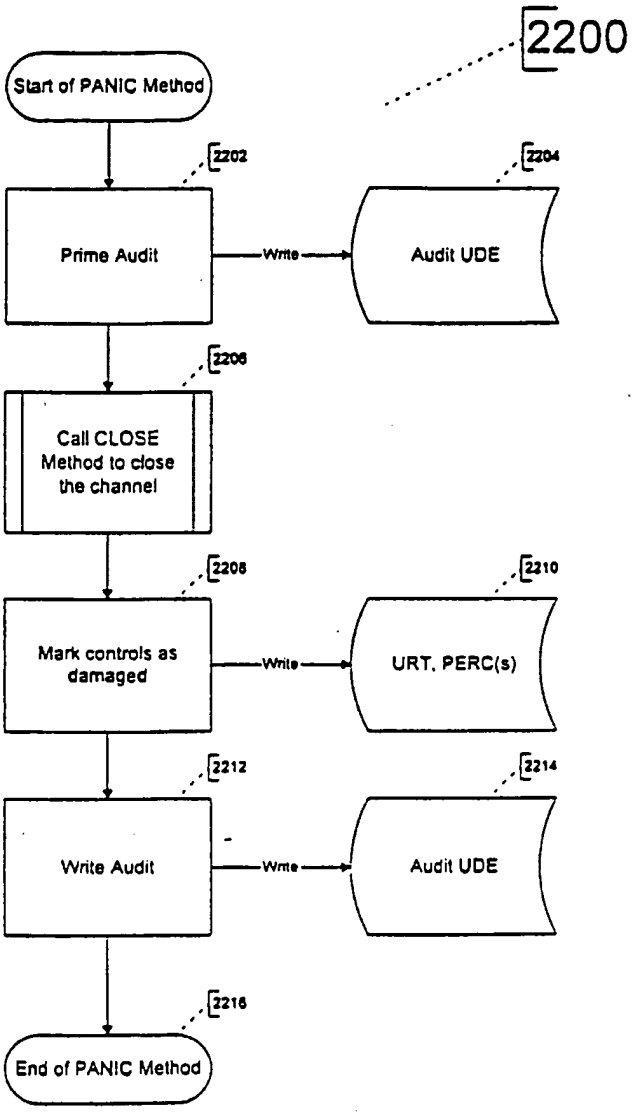

2200
Start of PANIC Method
2202
Prime Audit
Write
2204
Audit UDE
2206
Call CLOSE Method to close the channel
2208
Mark controls as damaged
Write
2210
URT, PERC(s)
2212
Write Audit
Write
2214
Audit UDE
2216
End of PANIC Method

Figure 60

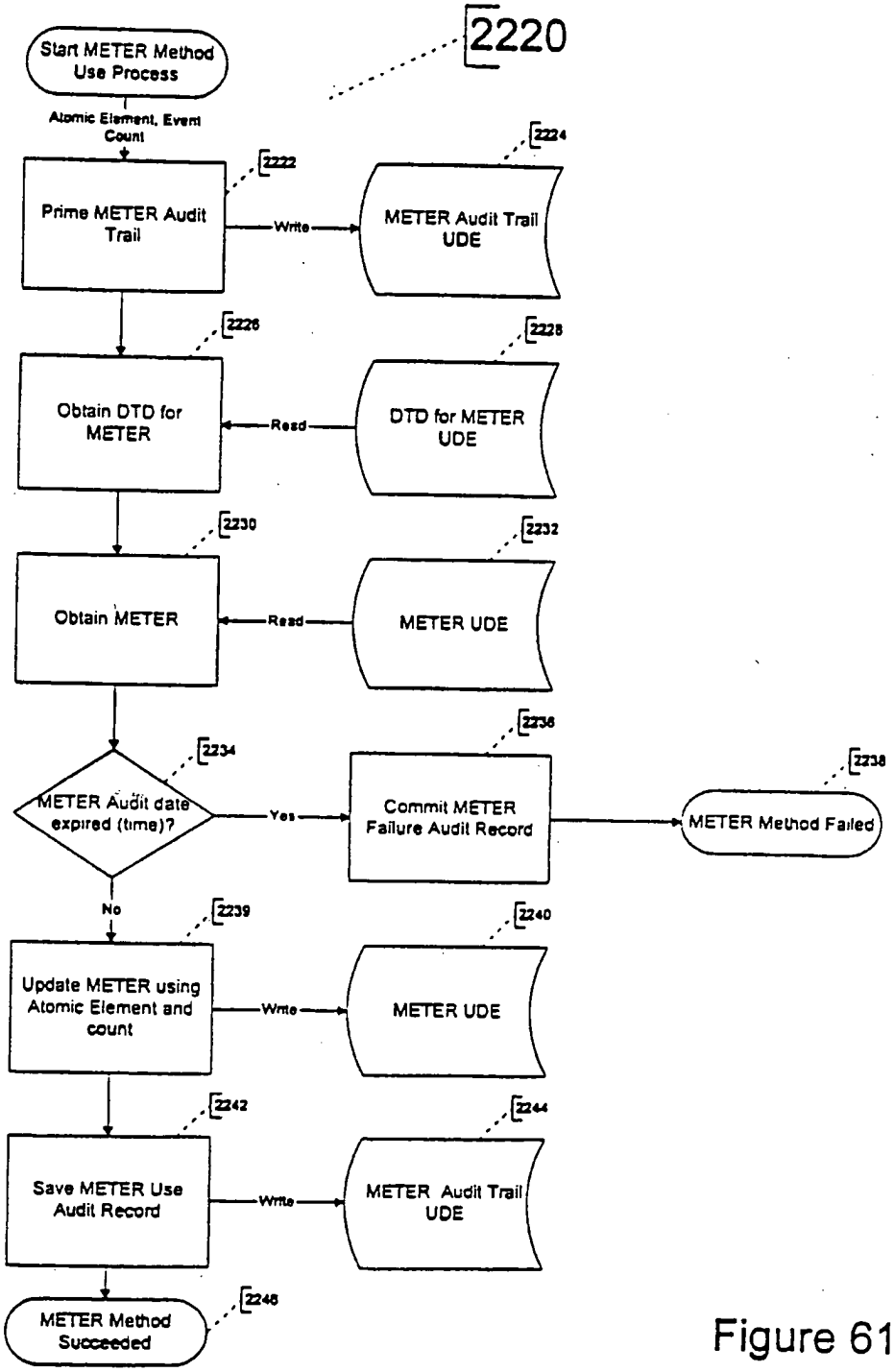
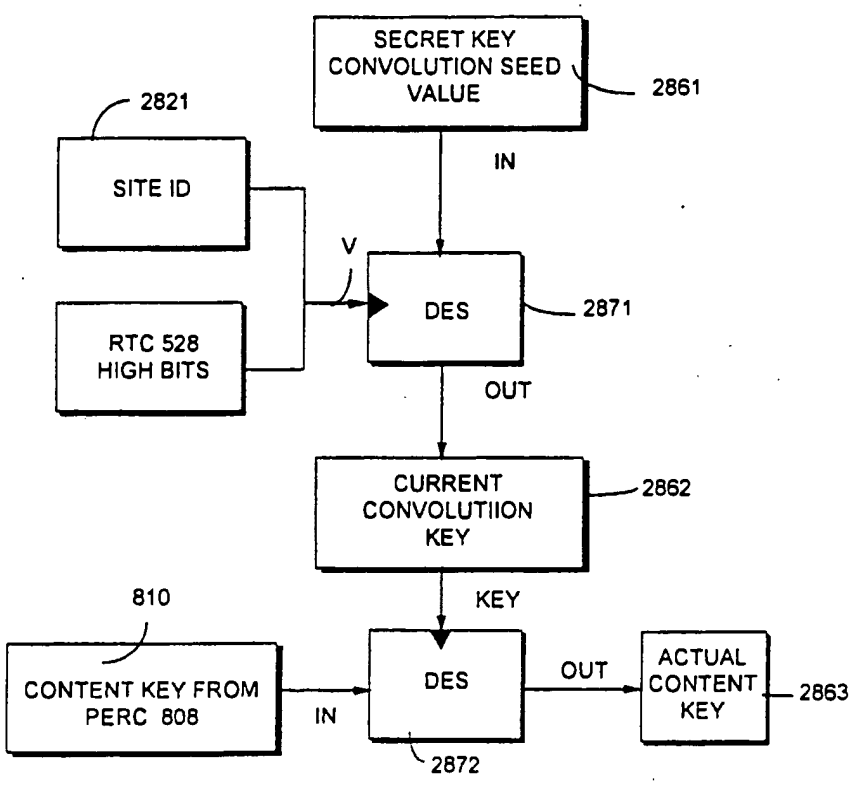

2220
Start METER Method Use Process
Atomic Element, Event Count
2222
Prime METER Audit Trail
Write
2224
METER Audit Trail UDE
2226
Obtain DTD for METER
Read
2228
DTD for METER UDE
2230
Obtain METER
Read
2232
METER UDE
2234
METER Audit date expired (time)?
Yes
2236
Commit METER Failure Audit Record
2238
METER Method Failed
No
2239
Update METER using Atomic Element and count
Write
2240
METER UDE
2242
Save METER Use Audit Record
Write
2244
METER Audit Trail UDE
2246
METER Method Succeeded

Figure 61

FIG. 62






Petitioner Apple Inc. - Exhibit 1006, p. 6227

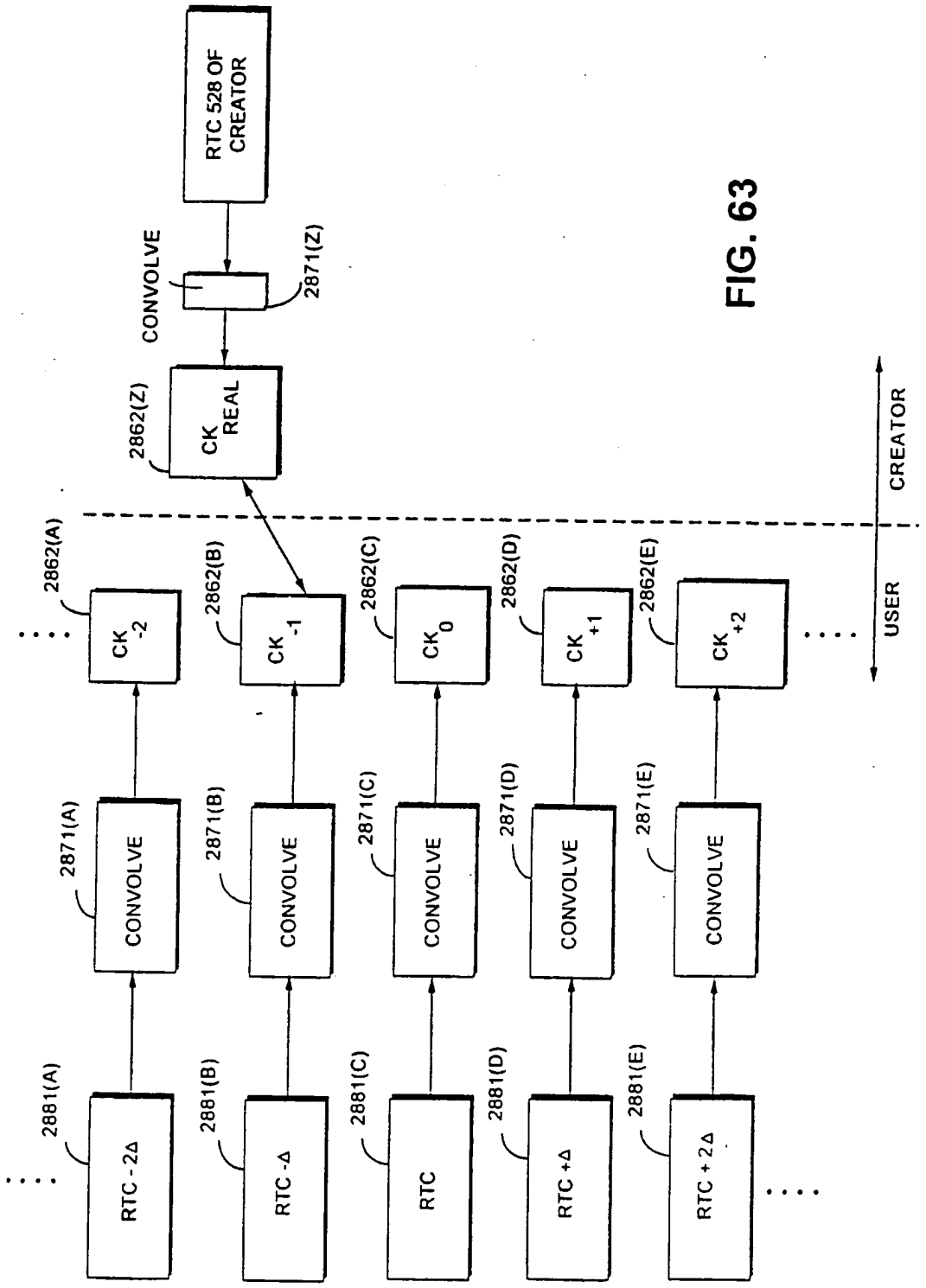
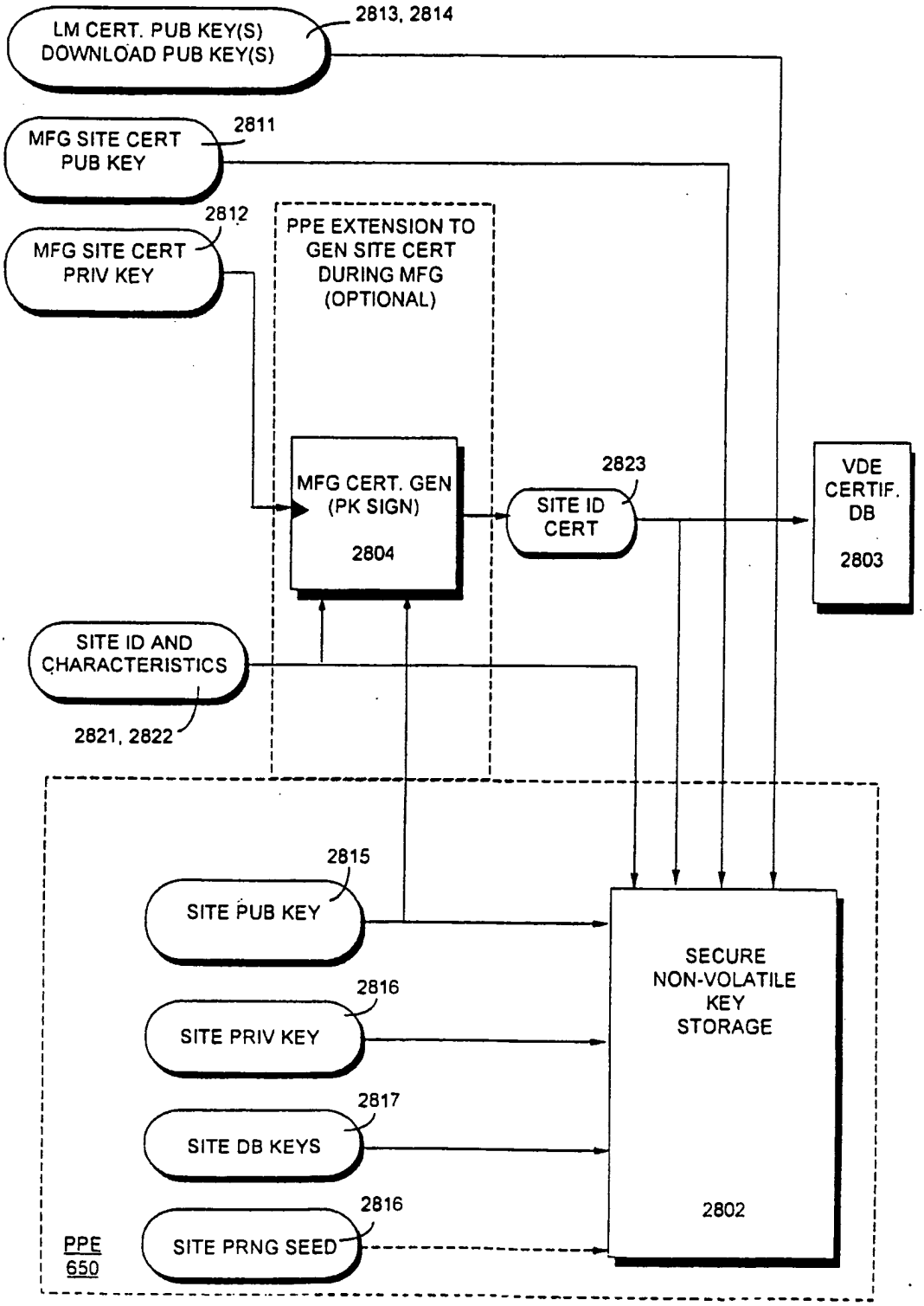



FIG. 63



Petitioner Apple Inc. - Exhibit 1006, p. 6228

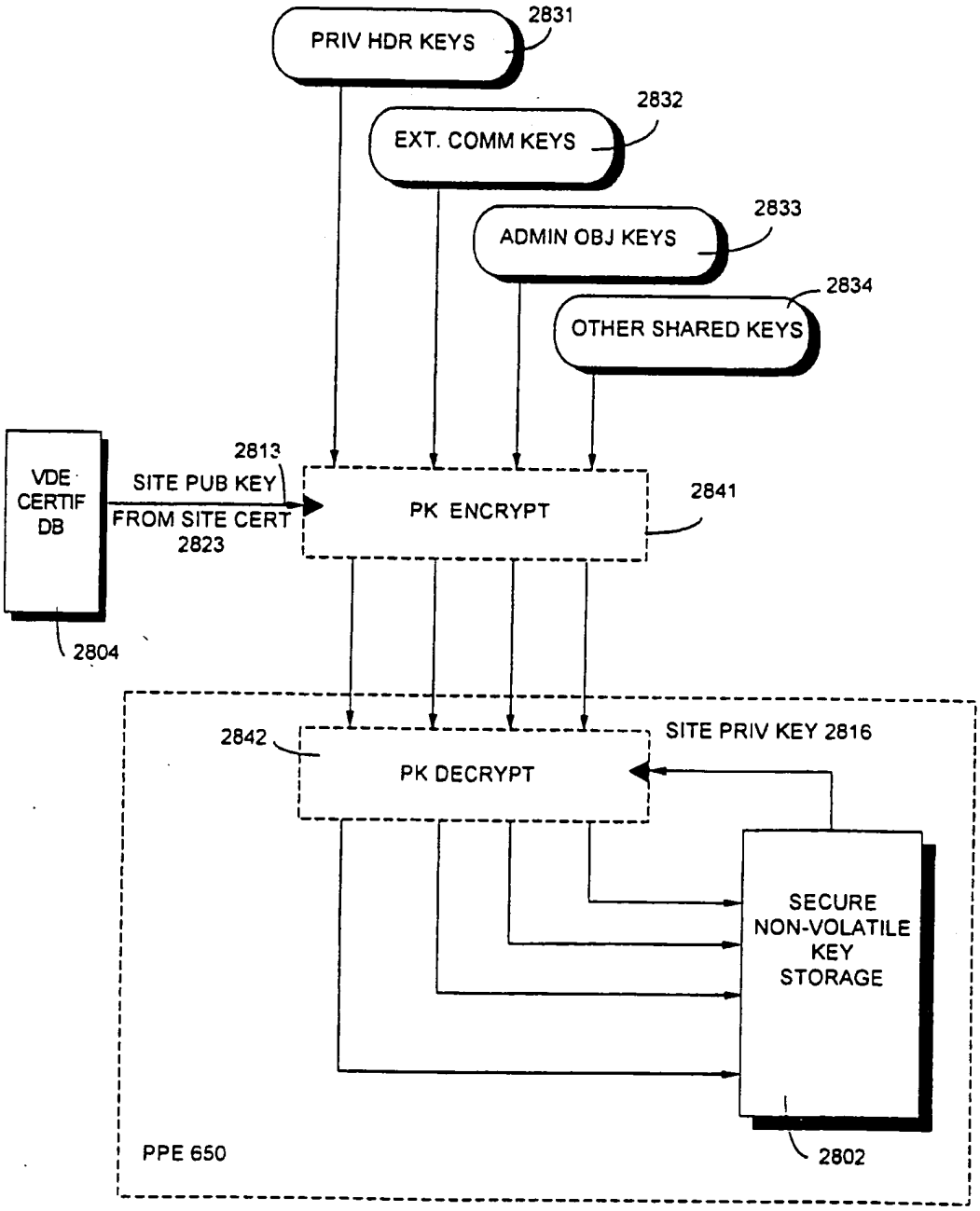
FIG. 64






Petitioner Apple Inc. - Exhibit 1006, p. 6229

FIG. 65






Petitioner Apple Inc. - Exhibit 1006, p. 6230

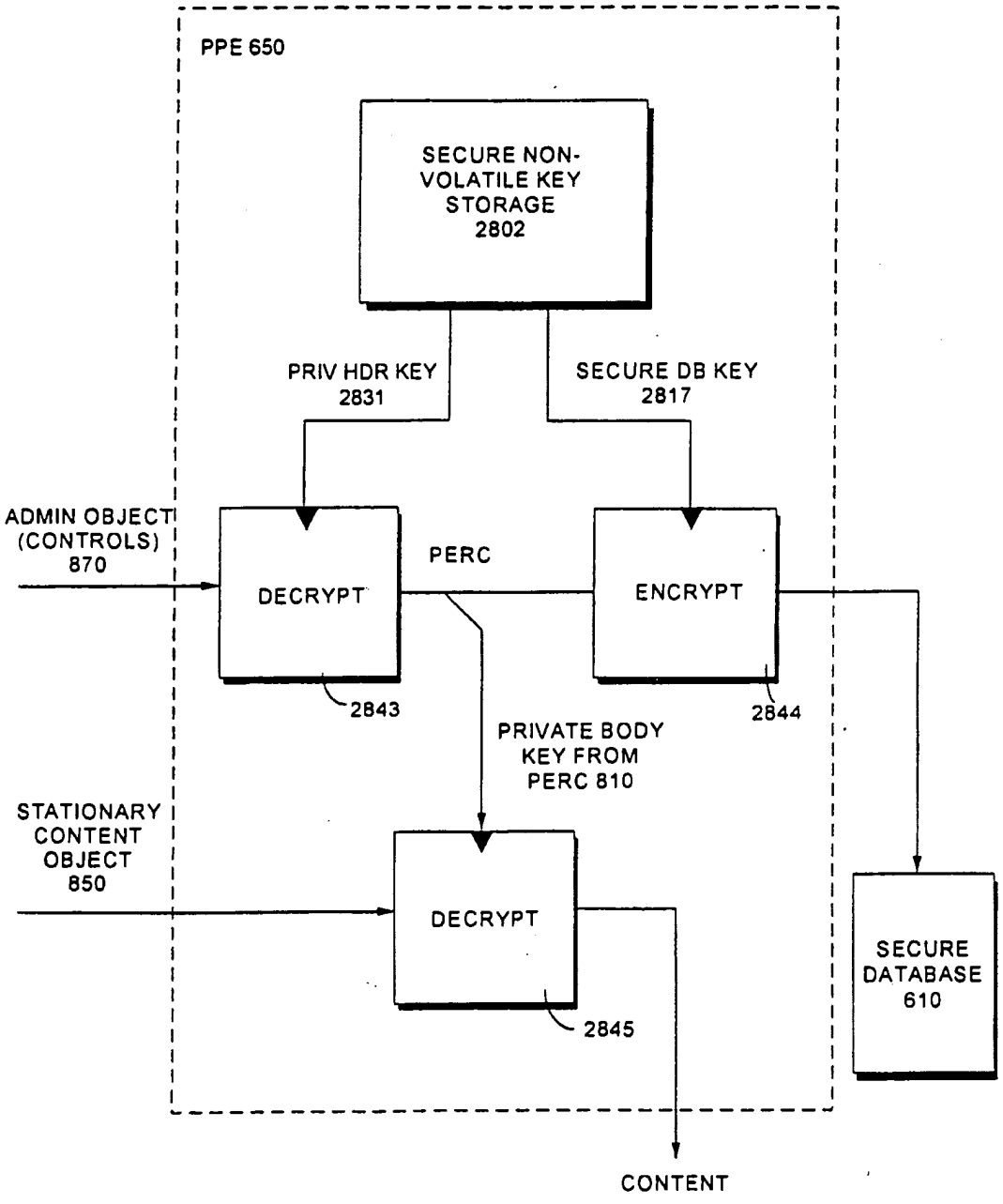



FIG. 66



Petitioner Apple Inc. - Exhibit 1006, p. 6231

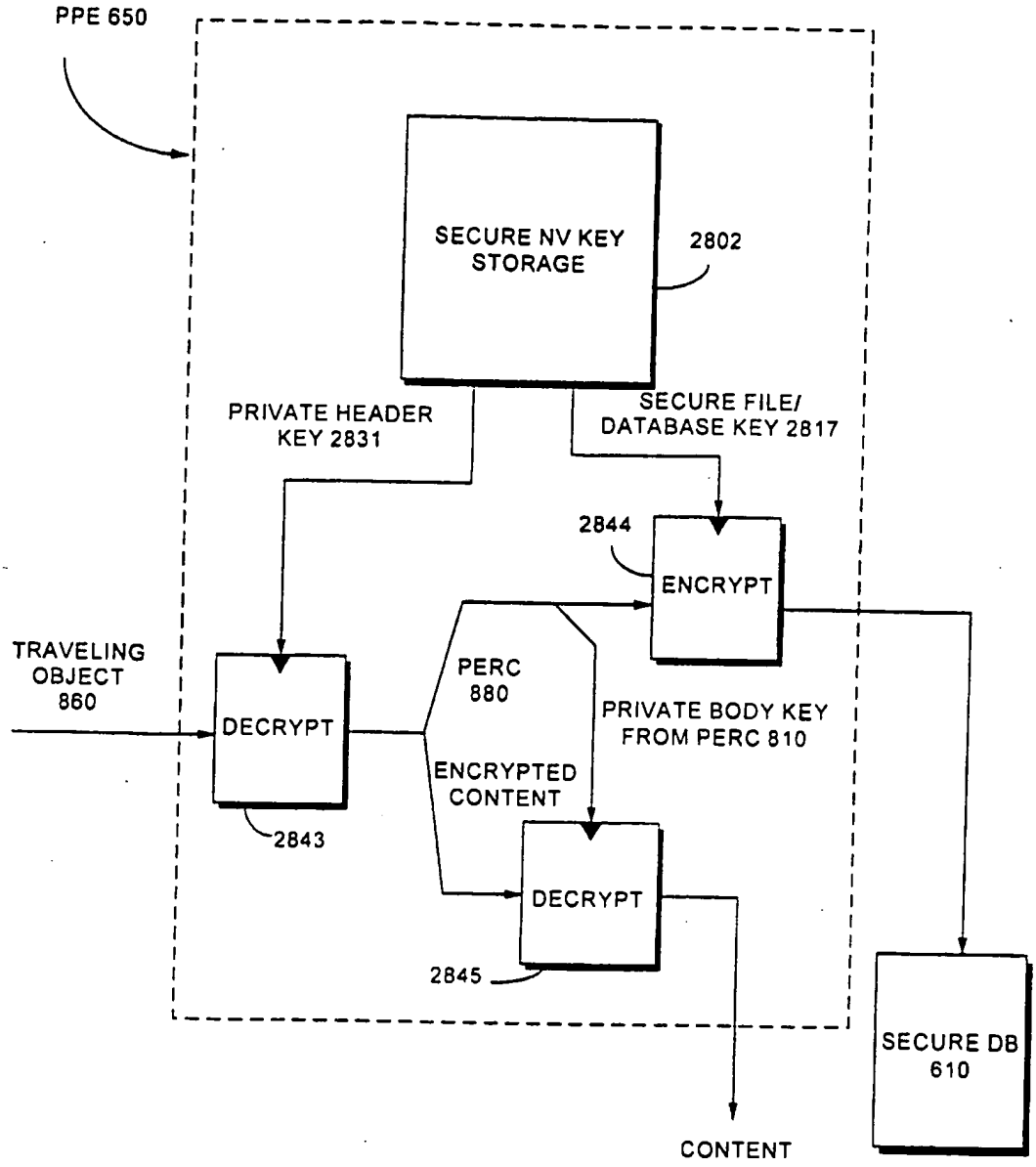
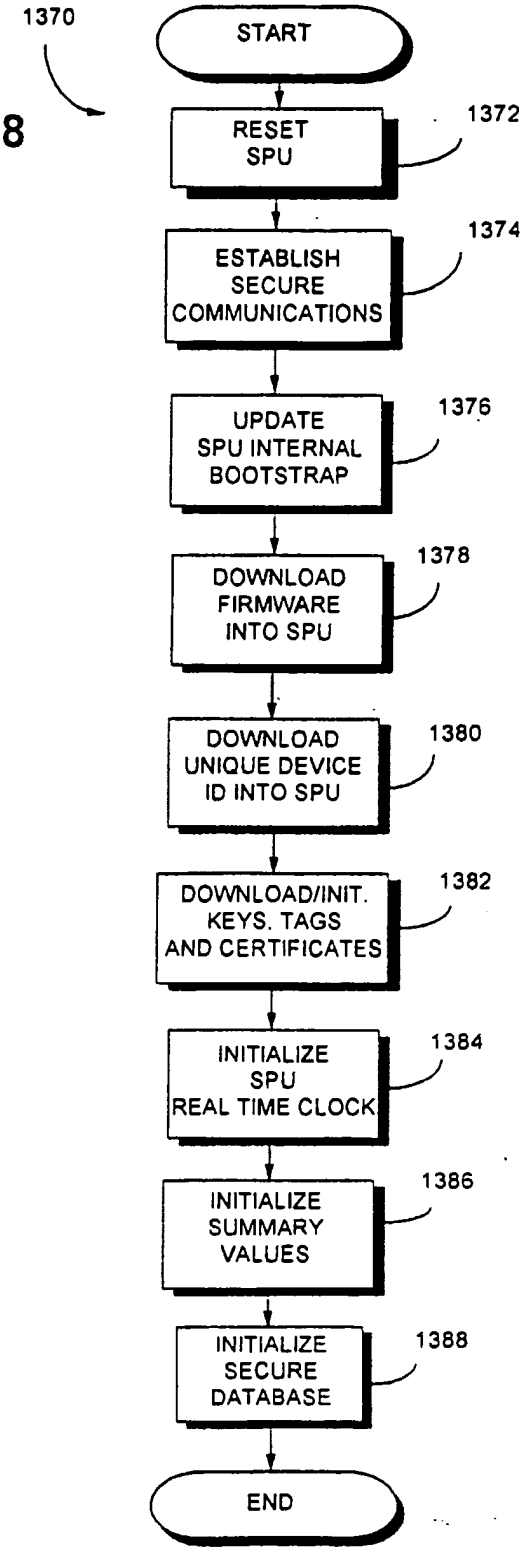



FIG. 67



Petitioner Apple Inc. - Exhibit 1006, p. 6232

FIG. 68






Petitioner Apple Inc. - Exhibit 1006, p. 6233

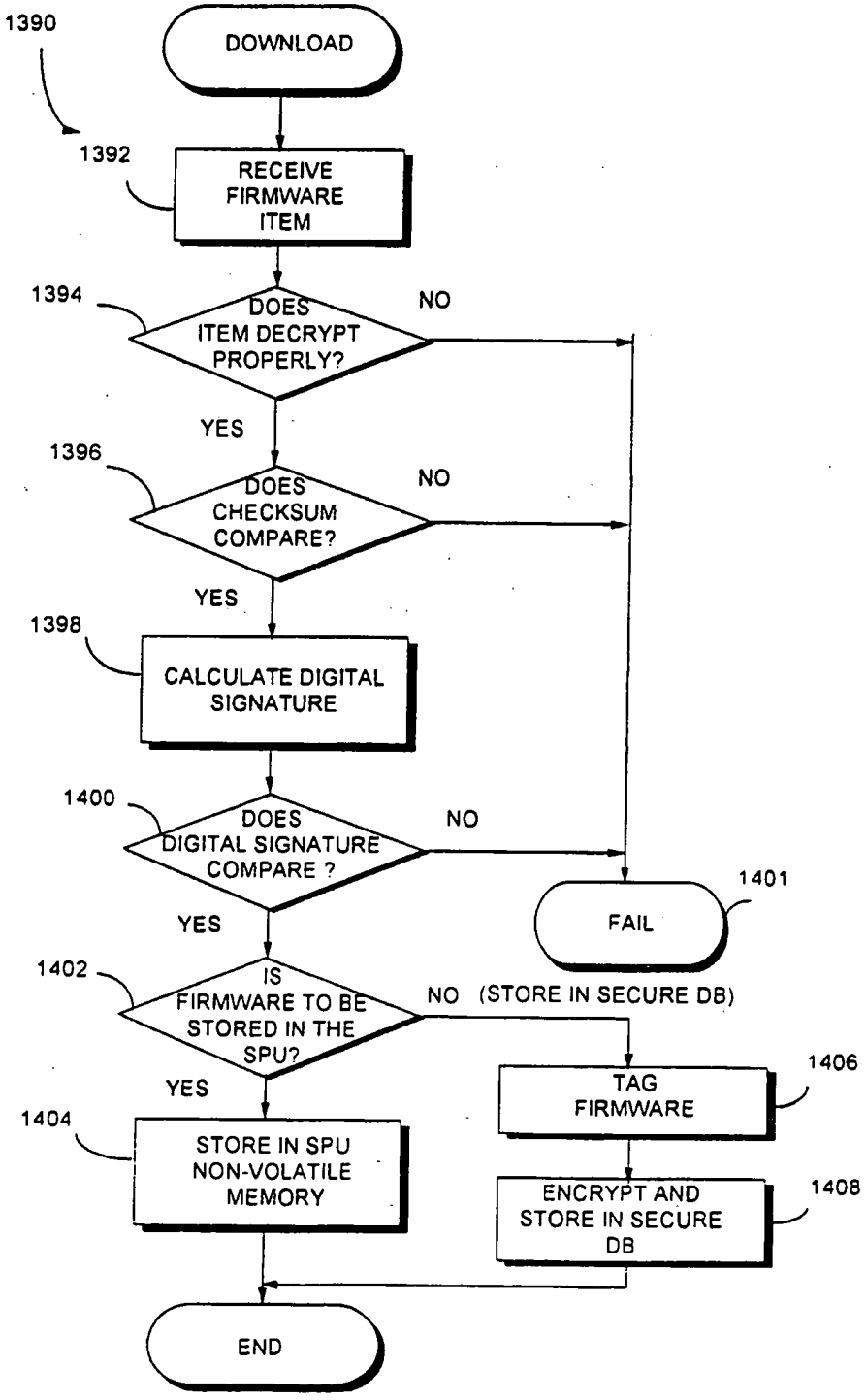



FIG. 69



Petitioner Apple Inc. - Exhibit 1006, p. 6234

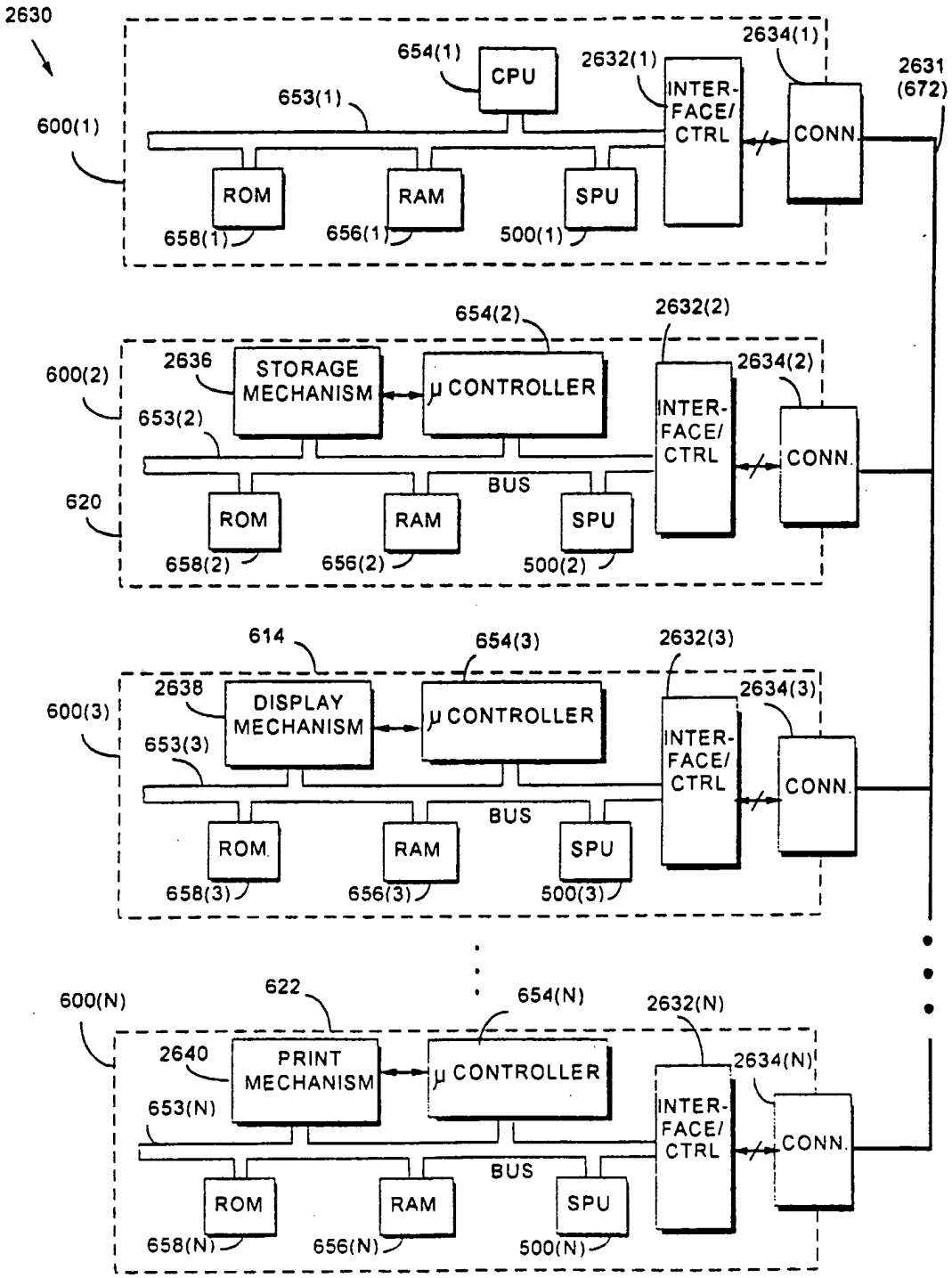
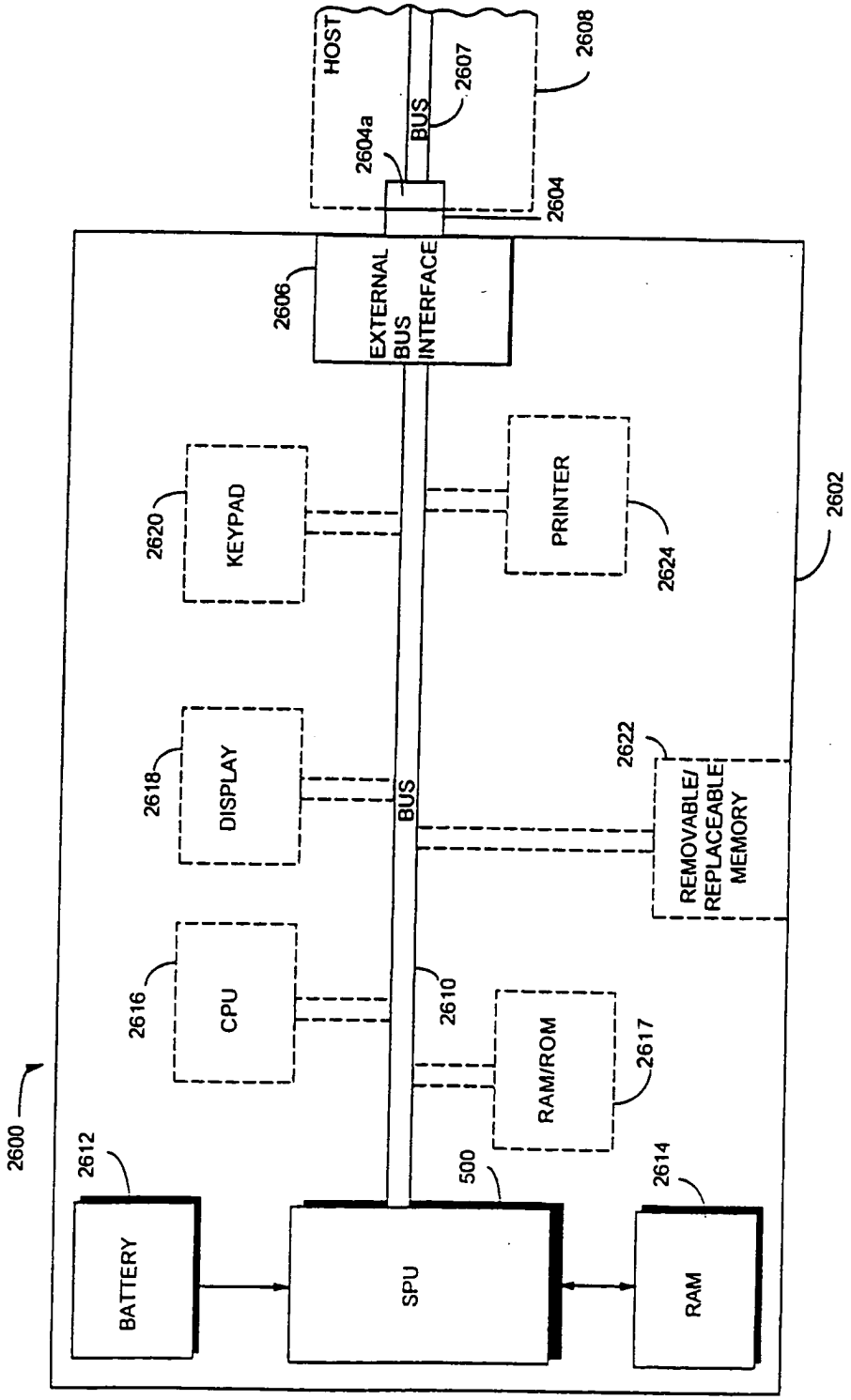



FIG. 70



Petitioner Apple Inc. - Exhibit 1006, p. 6235

FIG. 71






Petitioner Apple Inc. - Exhibit 1006, p. 6236

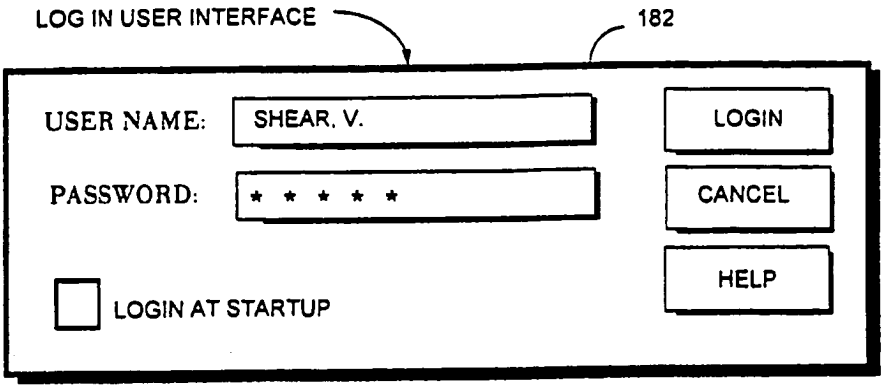



FIG. 72A

FIG. 72B

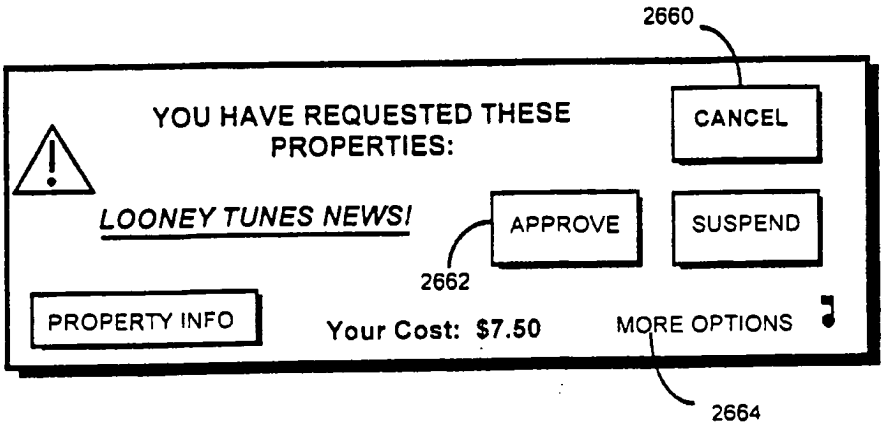





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FIG. 72C

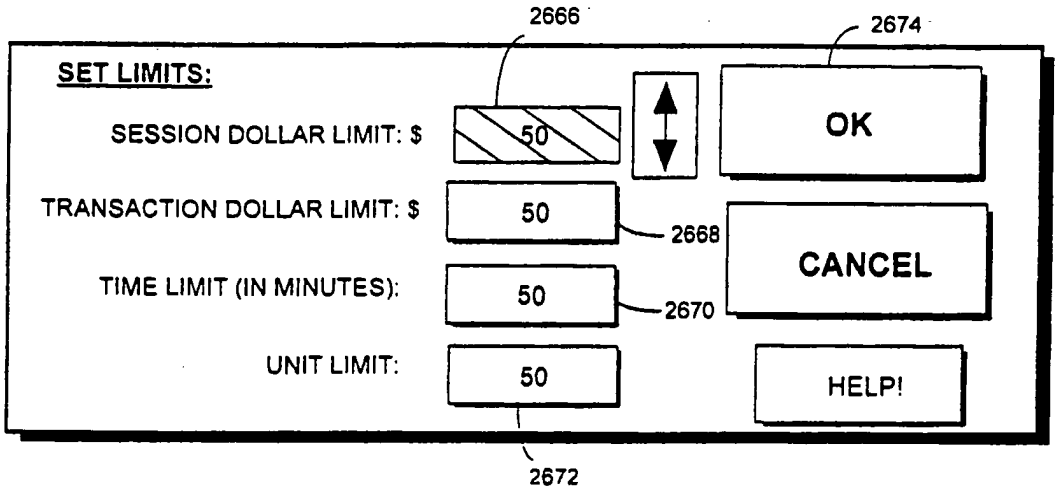




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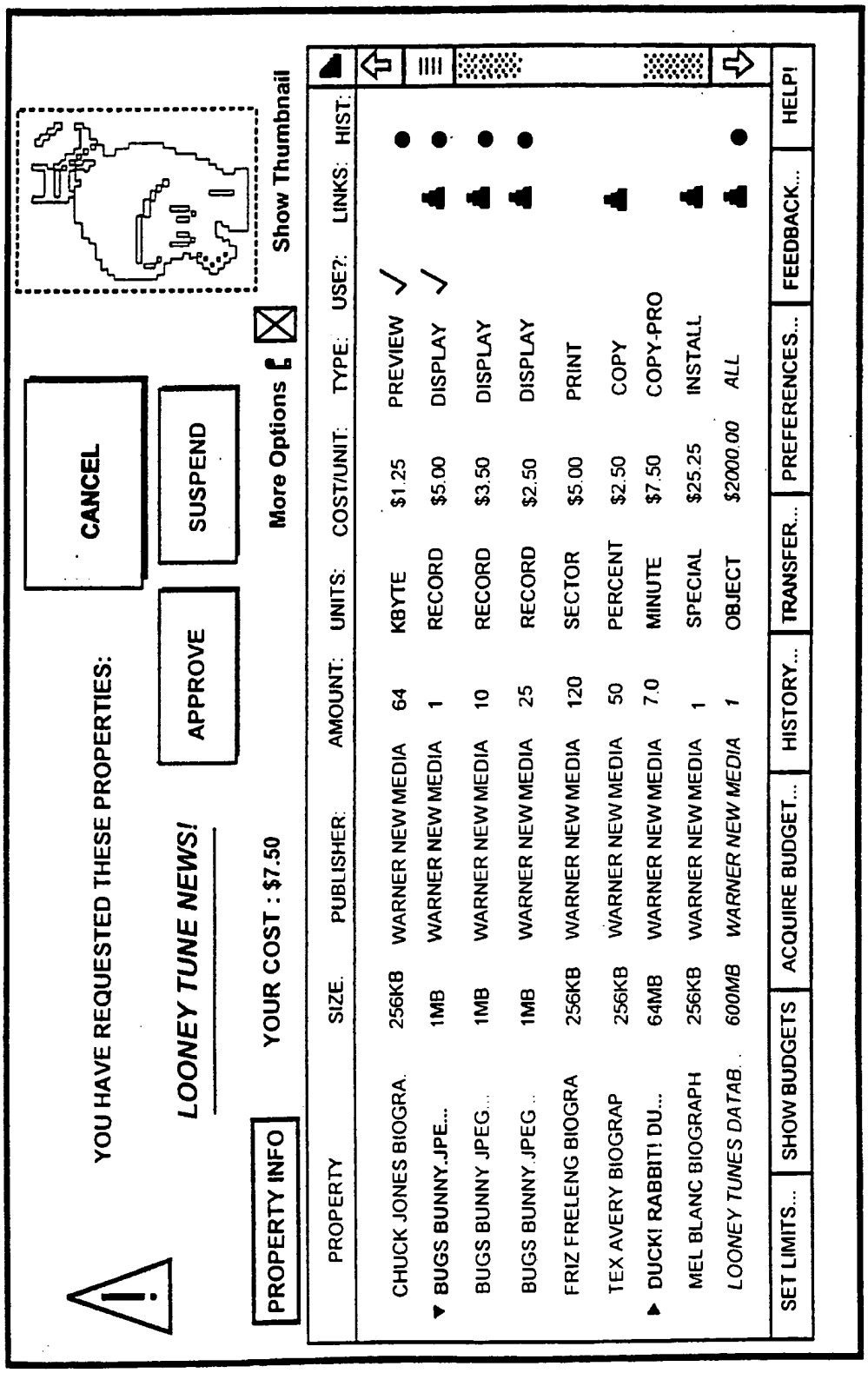
FIG. 72D






Petitioner Apple Inc. - Exhibit 1006, p. 6239

FIG. 73

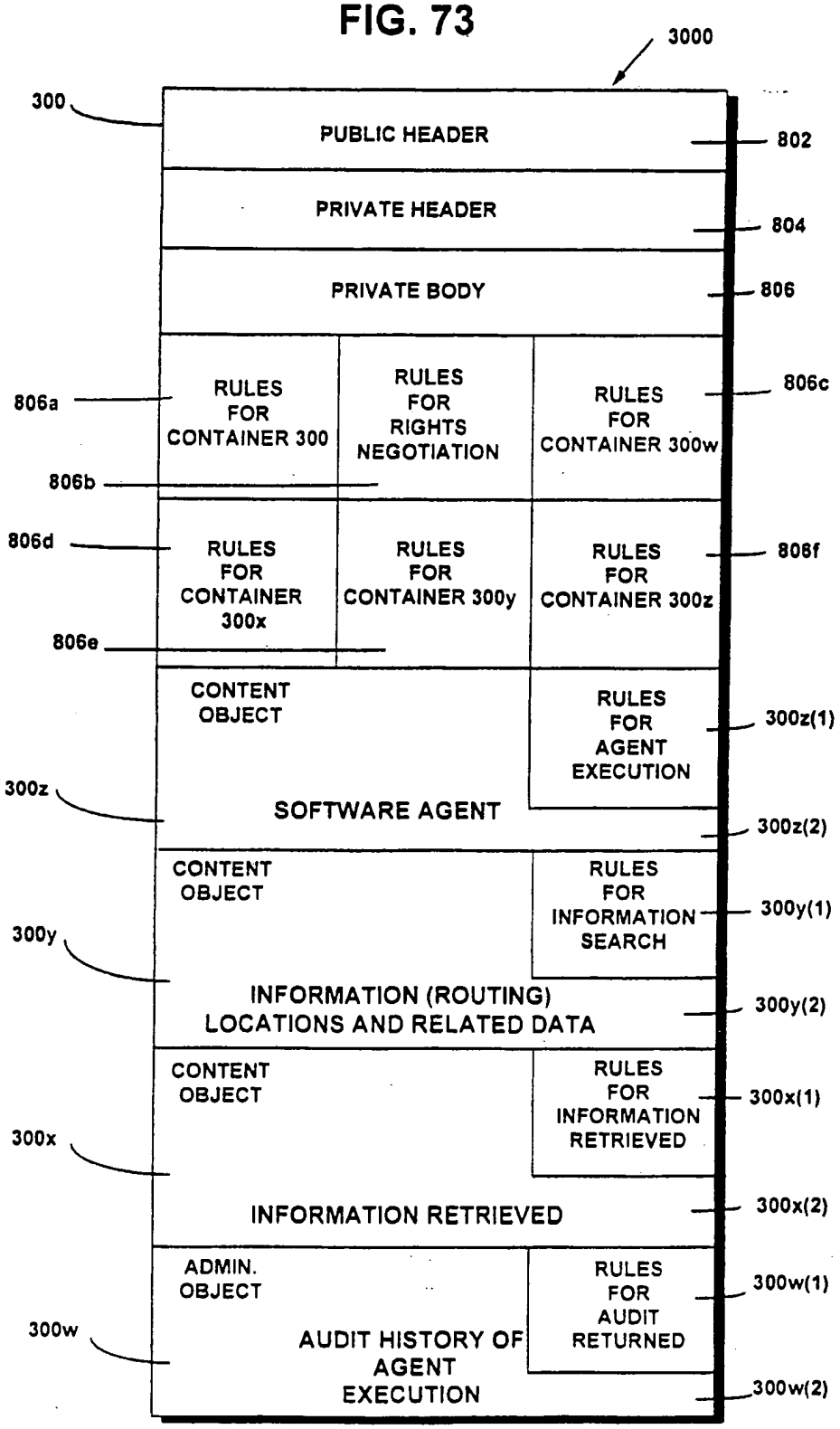





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FIG. 74

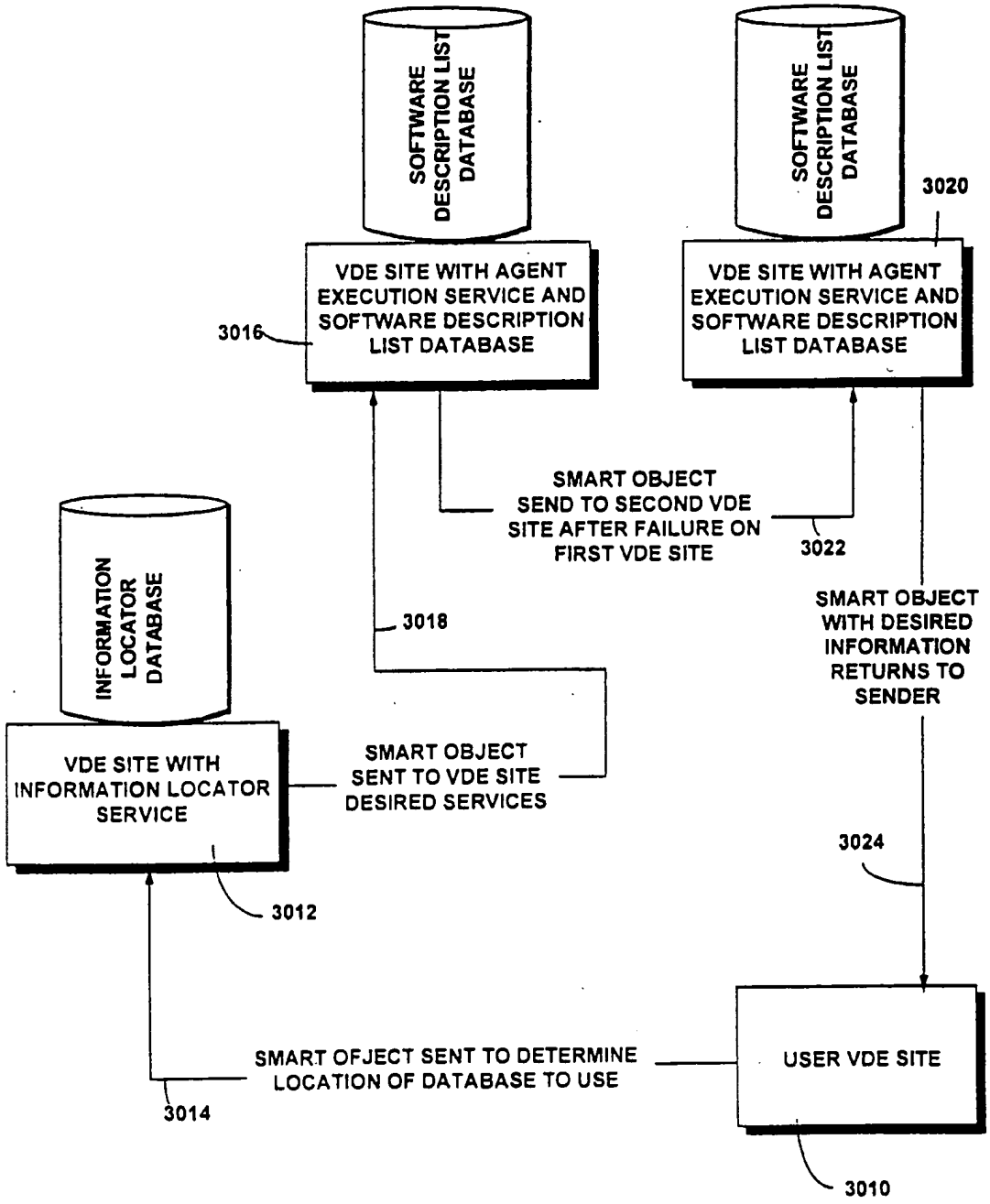




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FIG. 75A

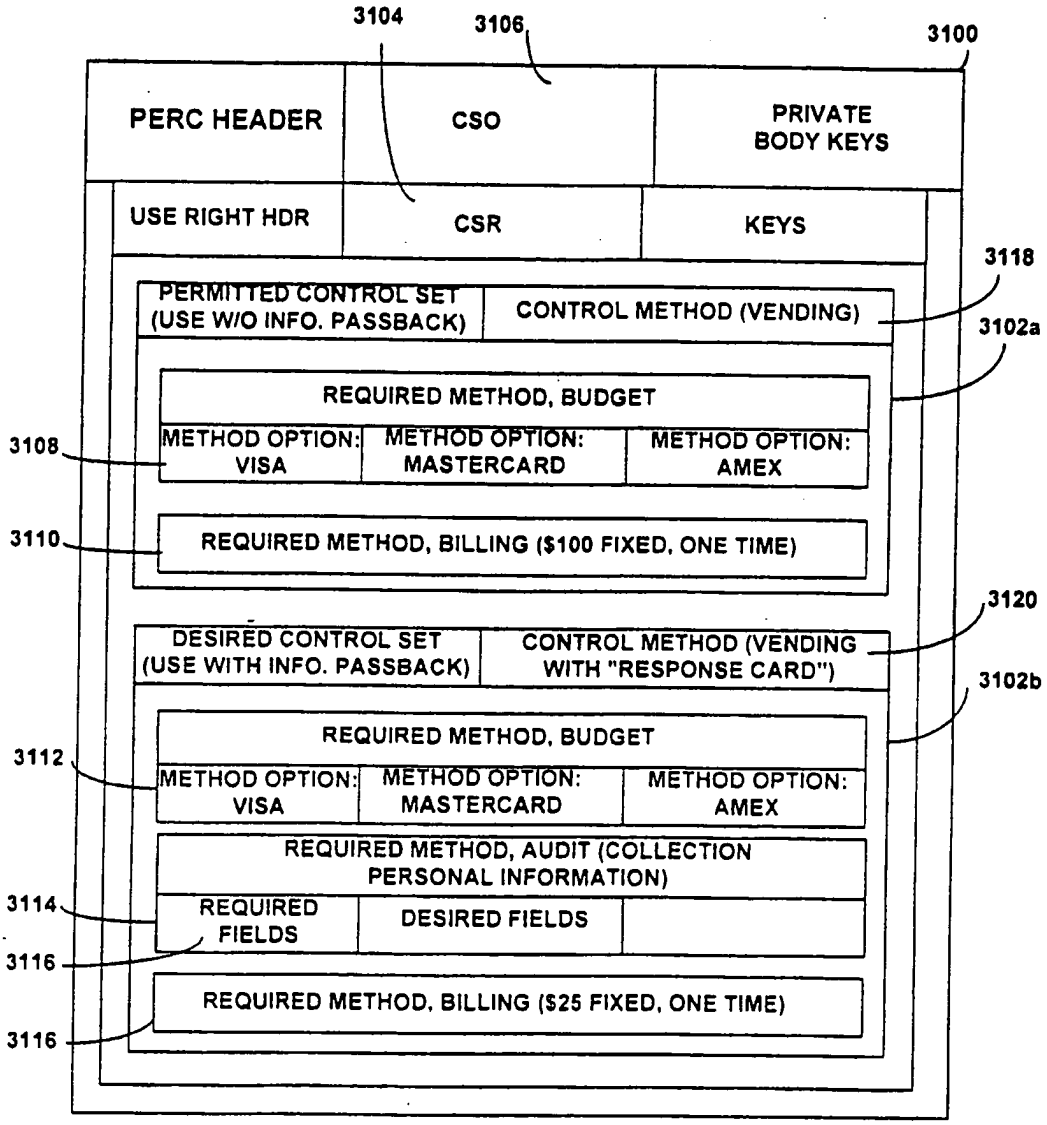




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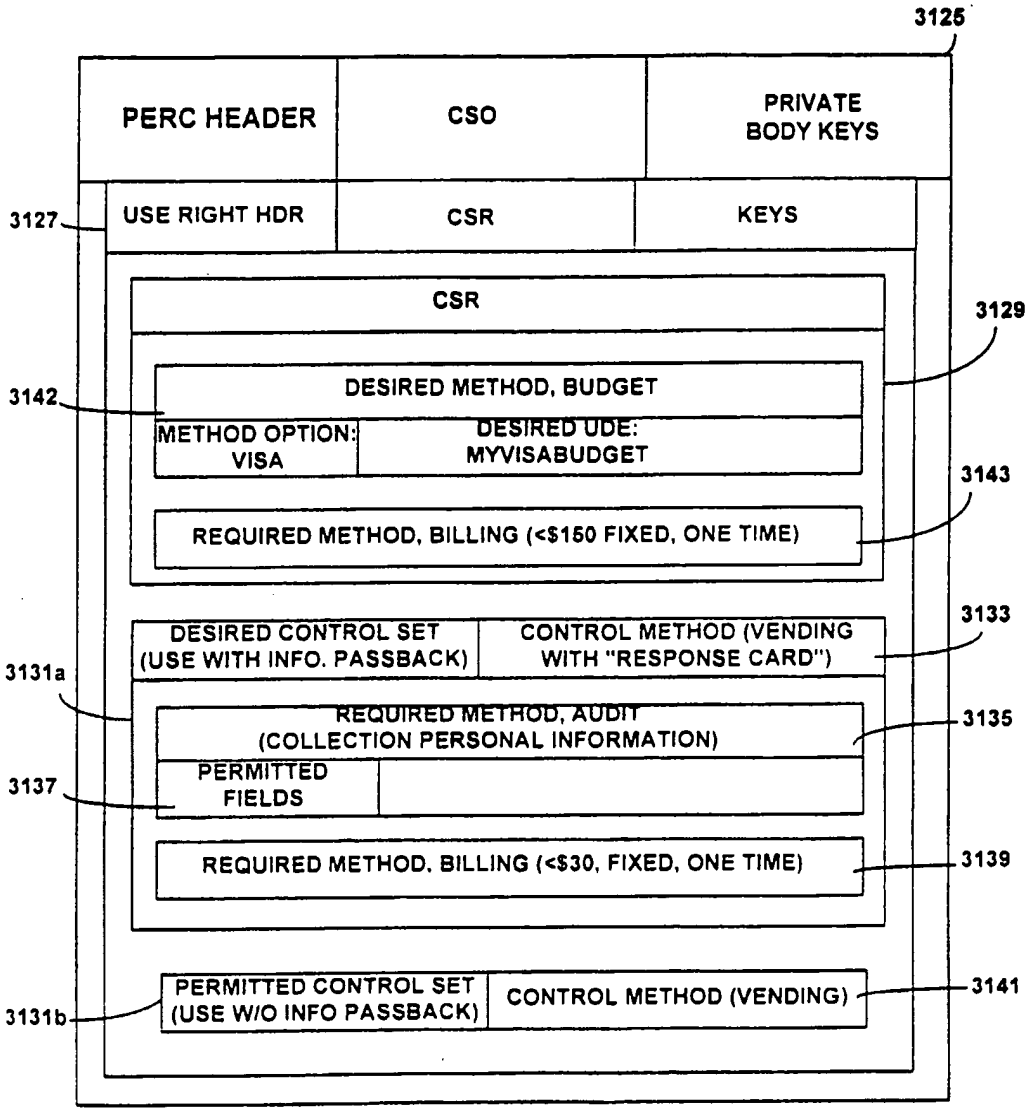
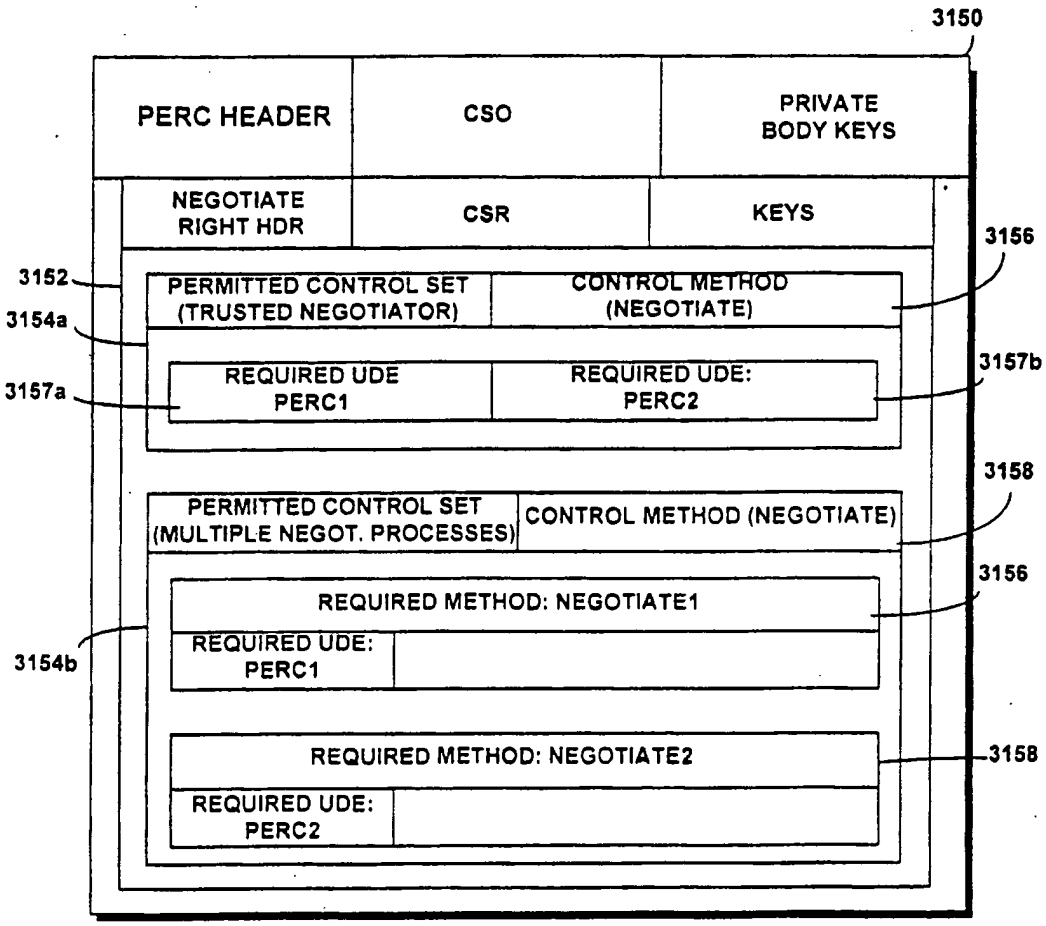
FIG. 75B






Petitioner Apple Inc. - Exhibit 1006, p. 6243

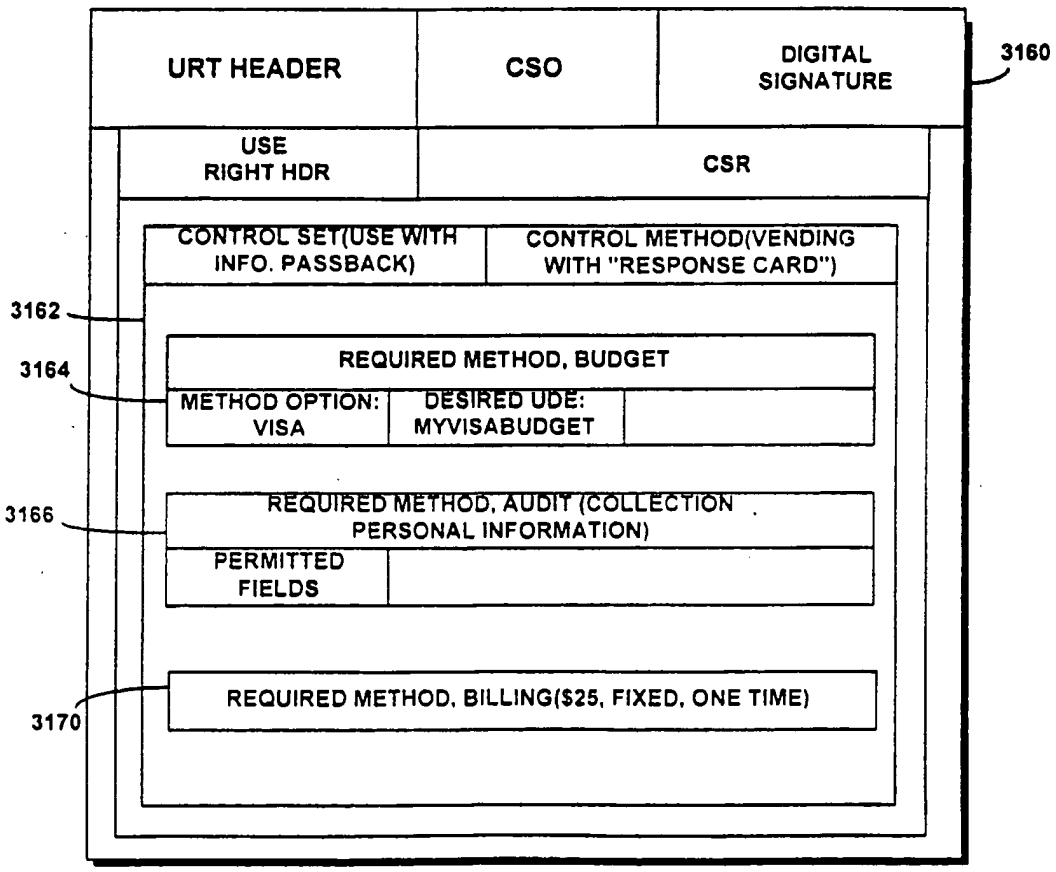
FIG. 75C






Petitioner Apple Inc. - Exhibit 1006, p. 6244

FIG. 75D



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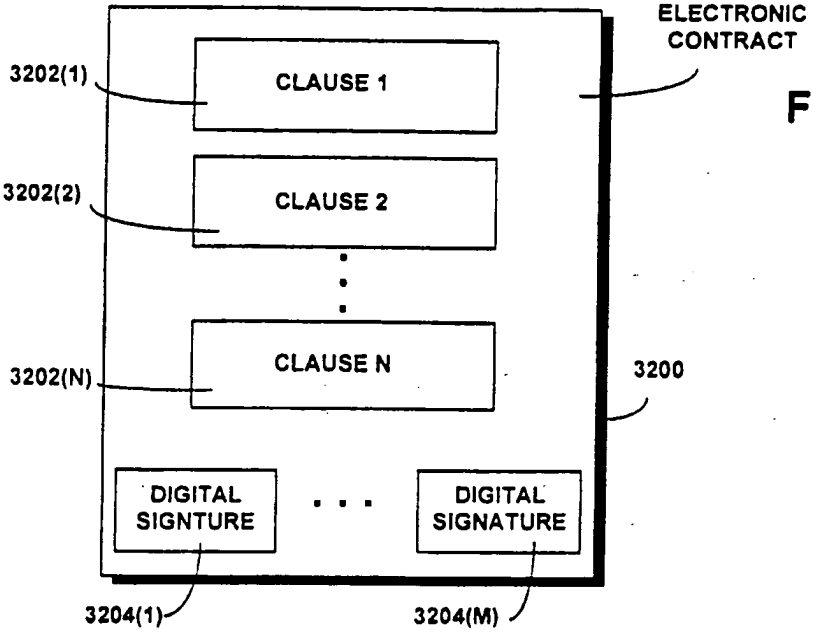


FIG. 75E

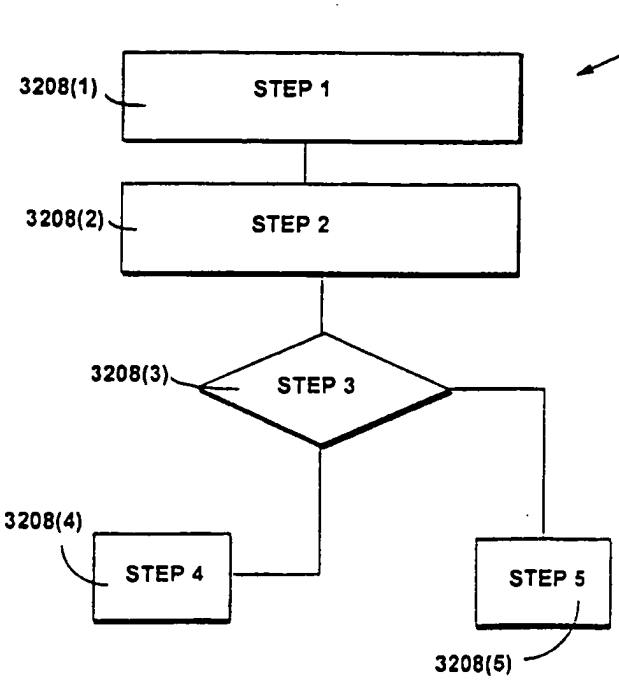


FIG. 75F

FIG. 76A

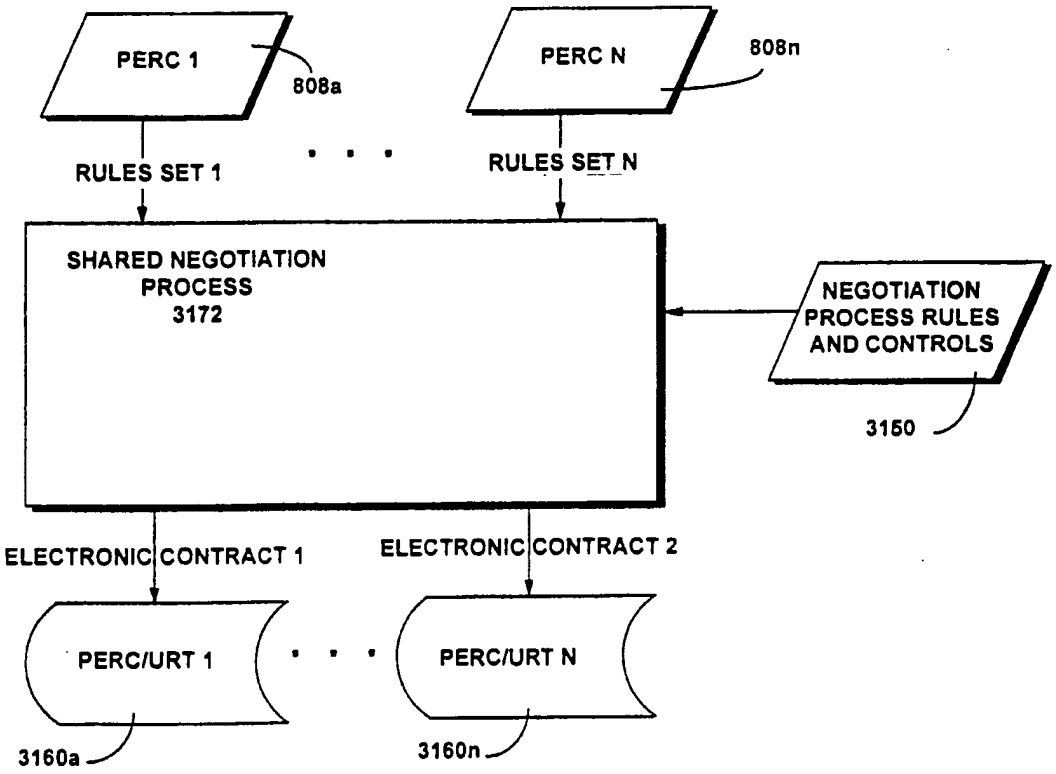




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FIG. 76B

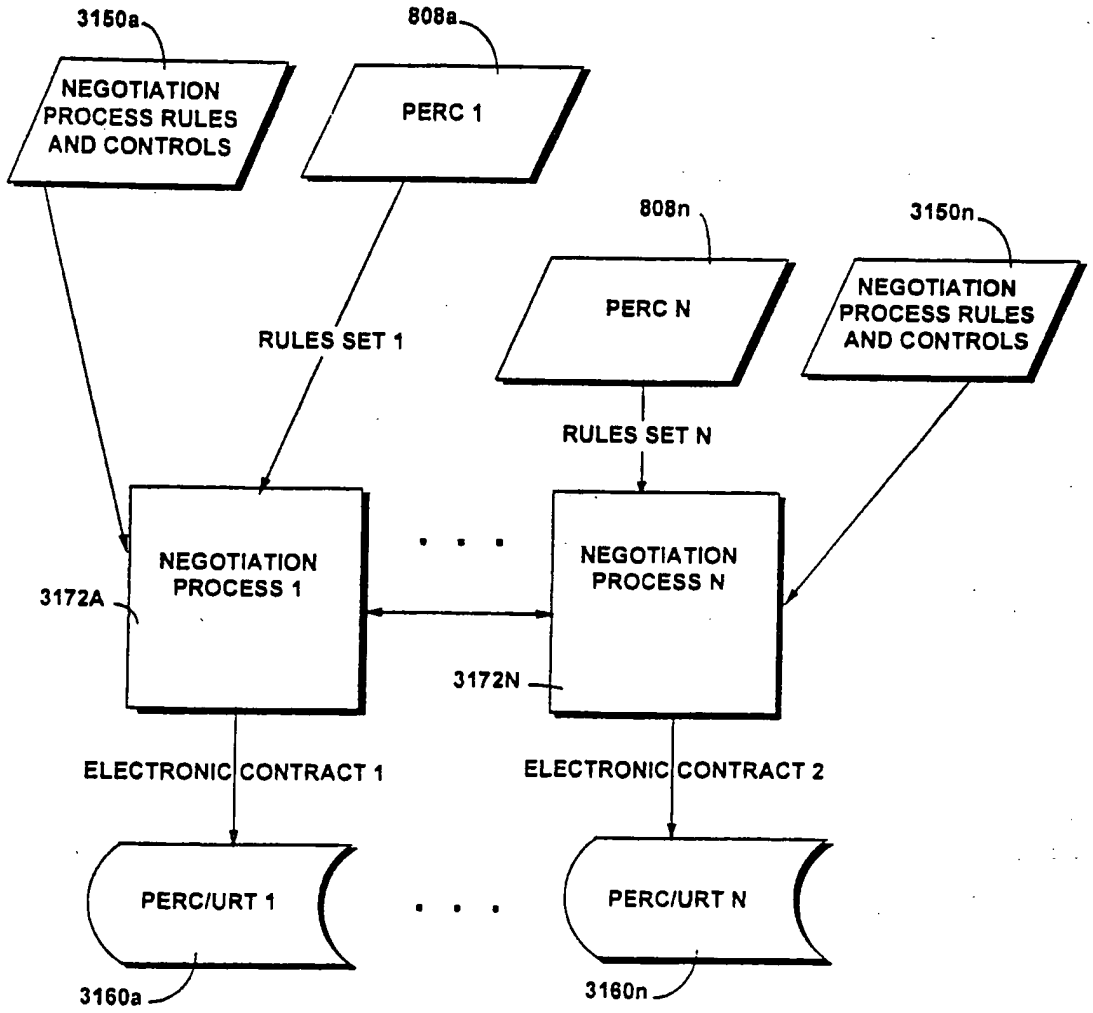




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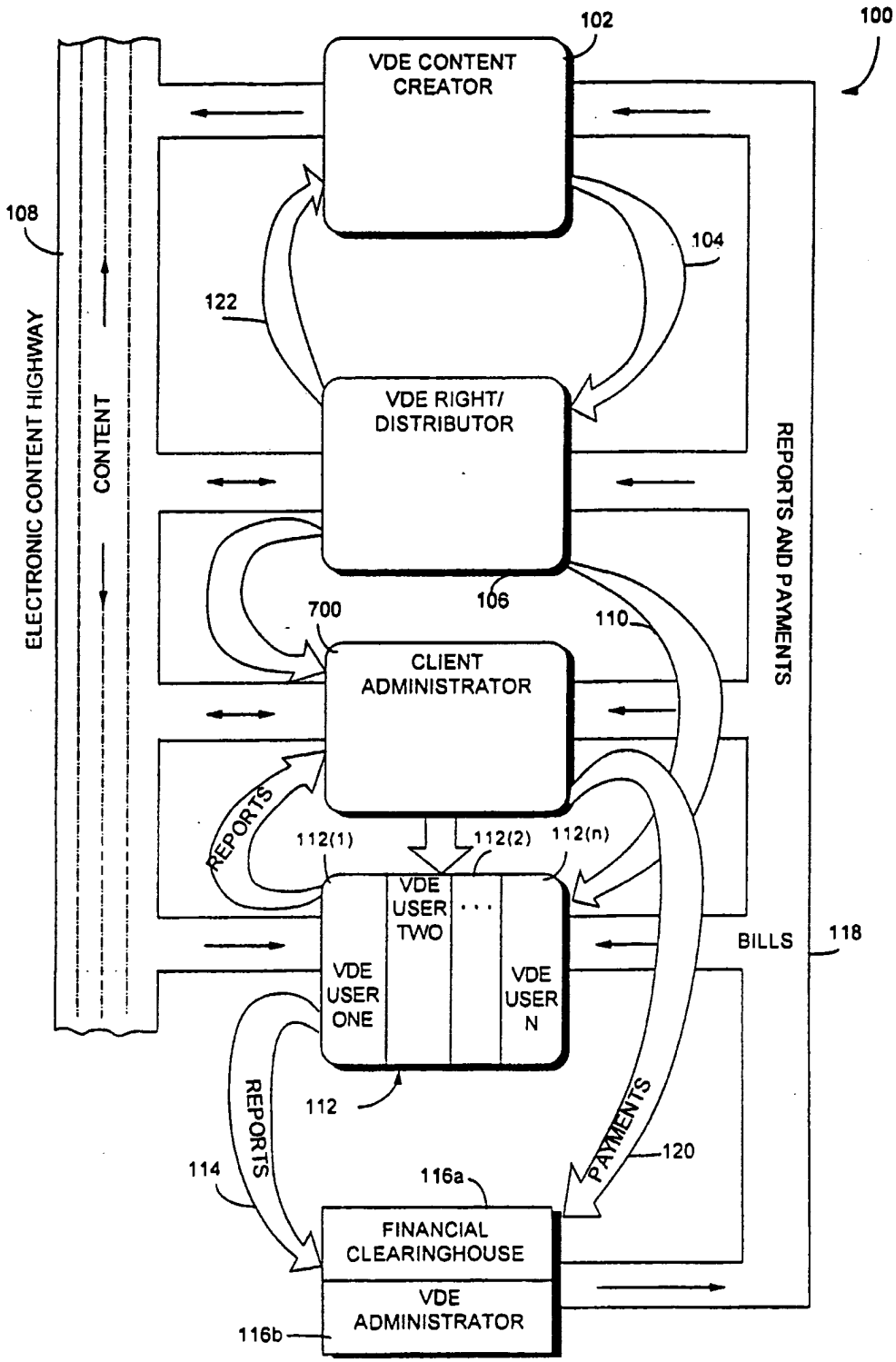
FIG. 77



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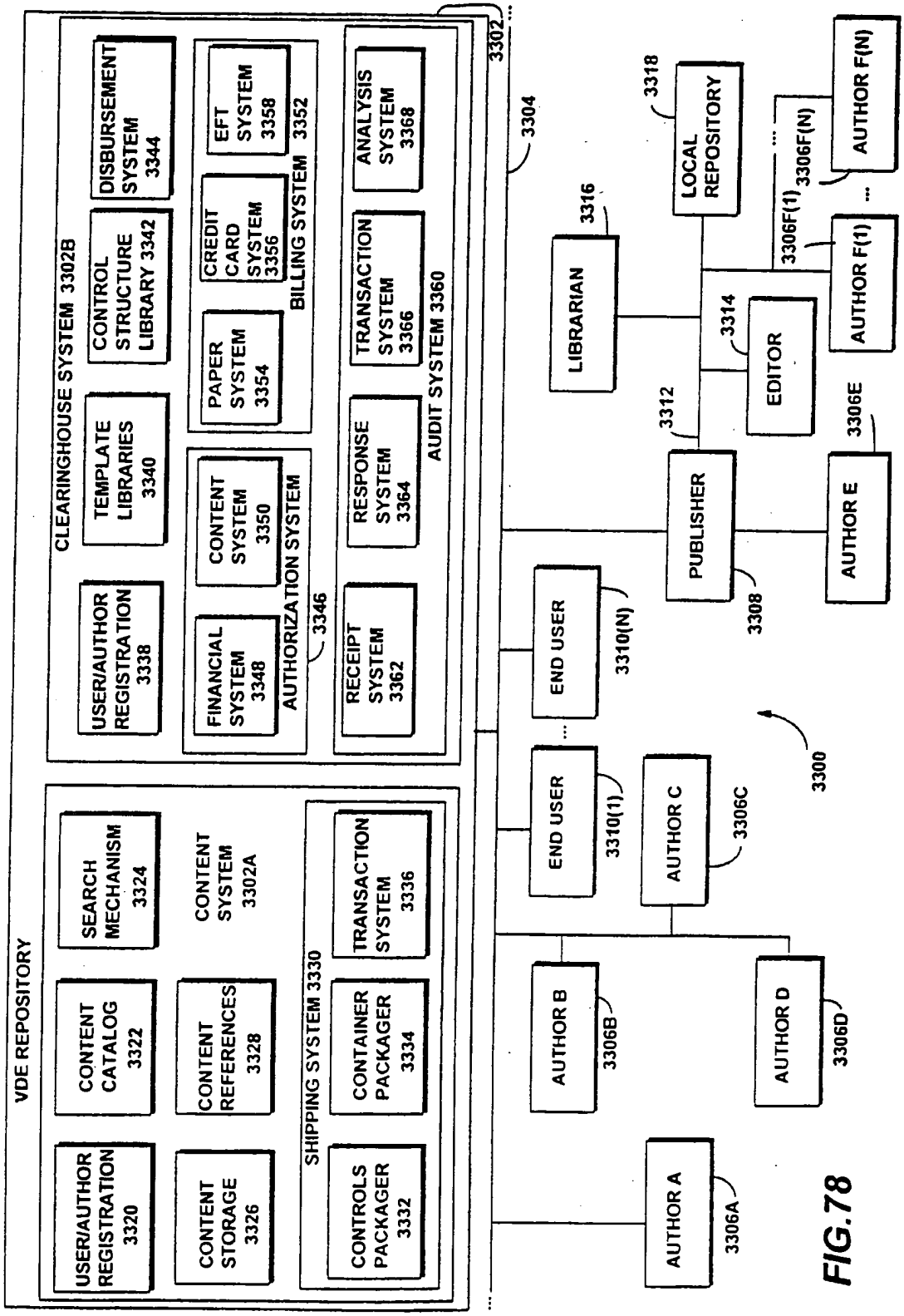


FIG.78



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FIG. 79

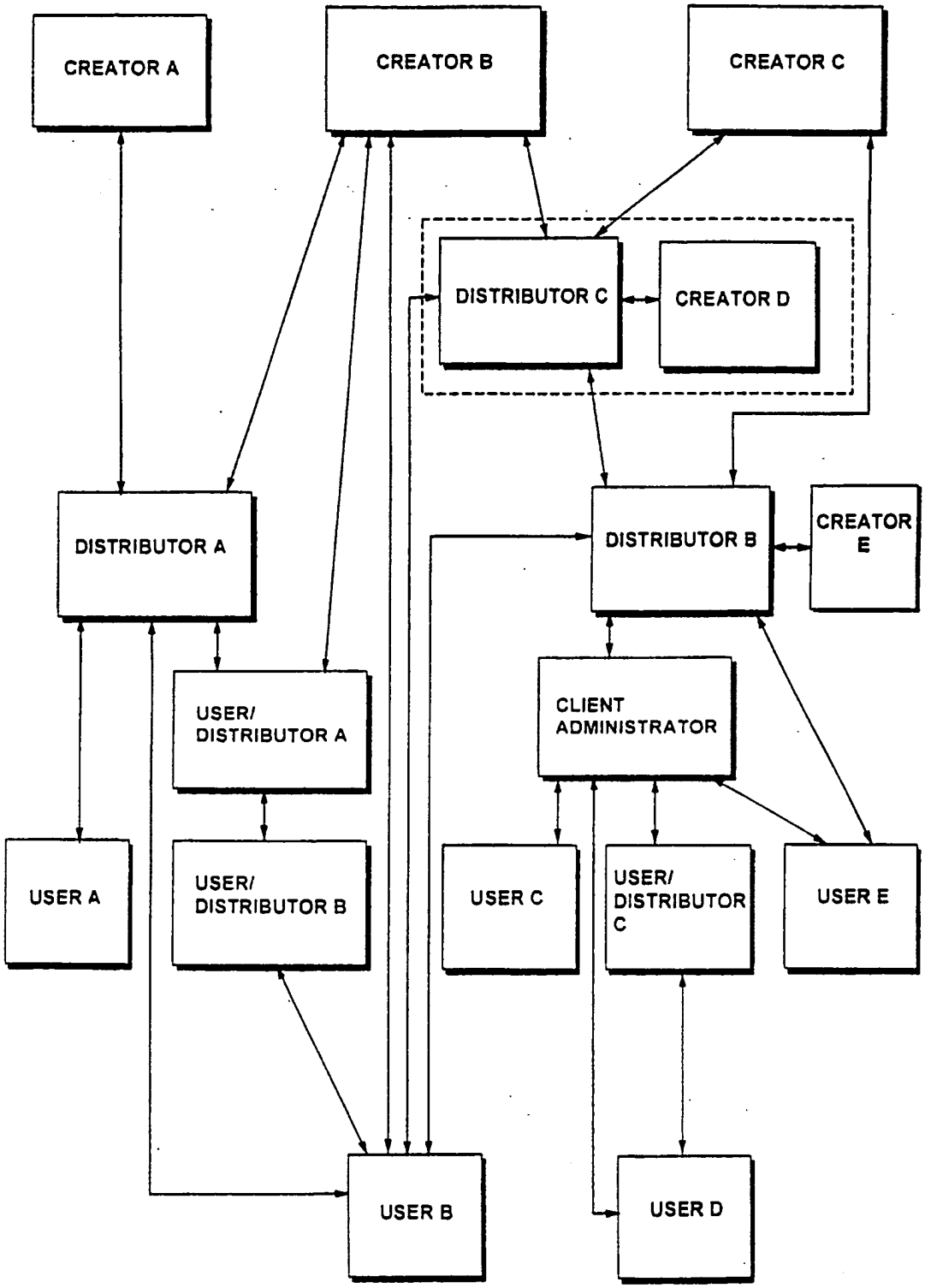




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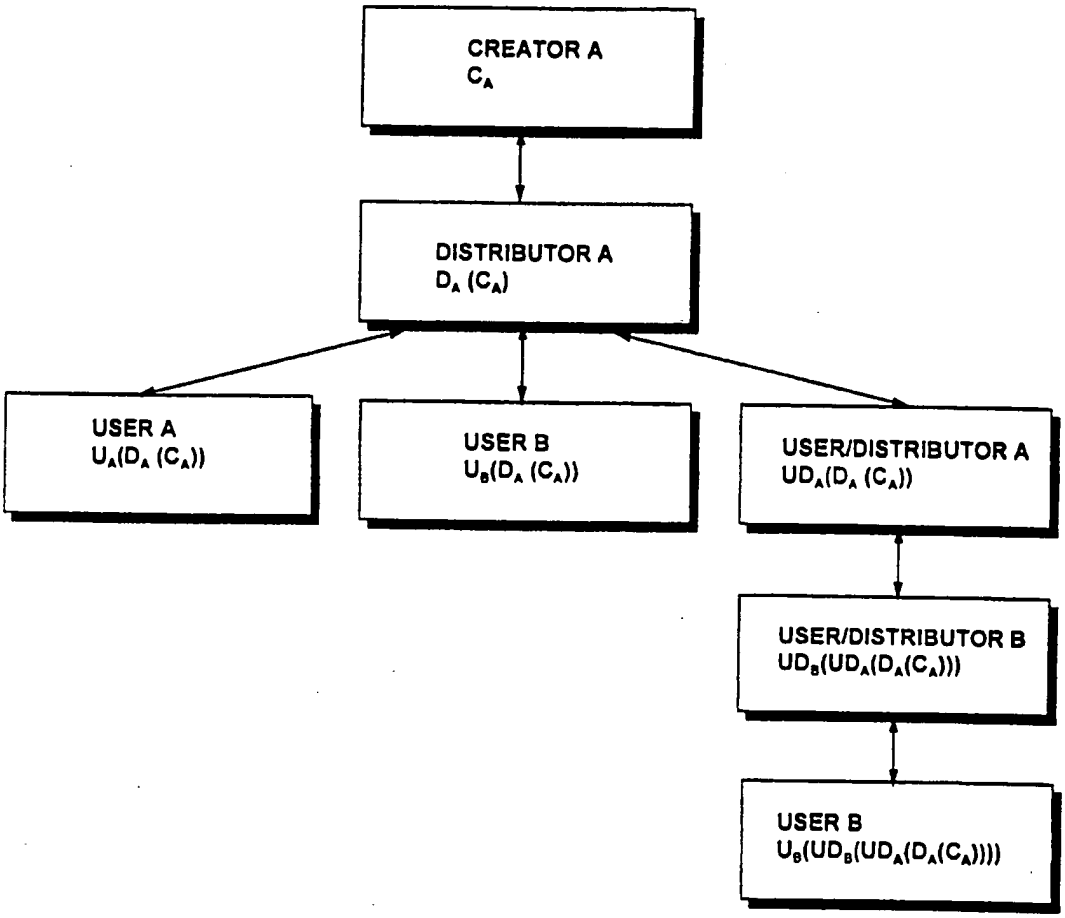
FIG. 80



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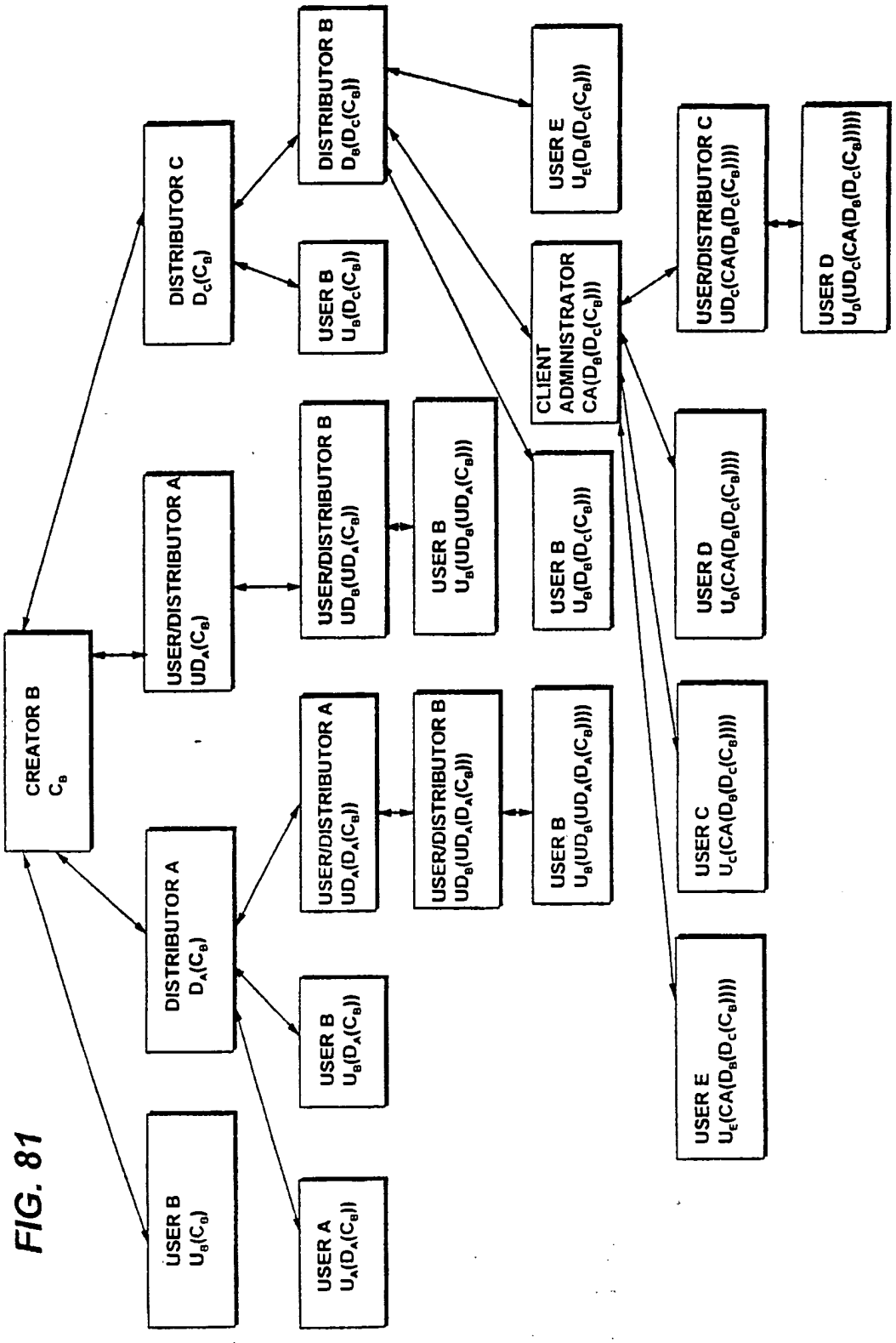


FIG. 81



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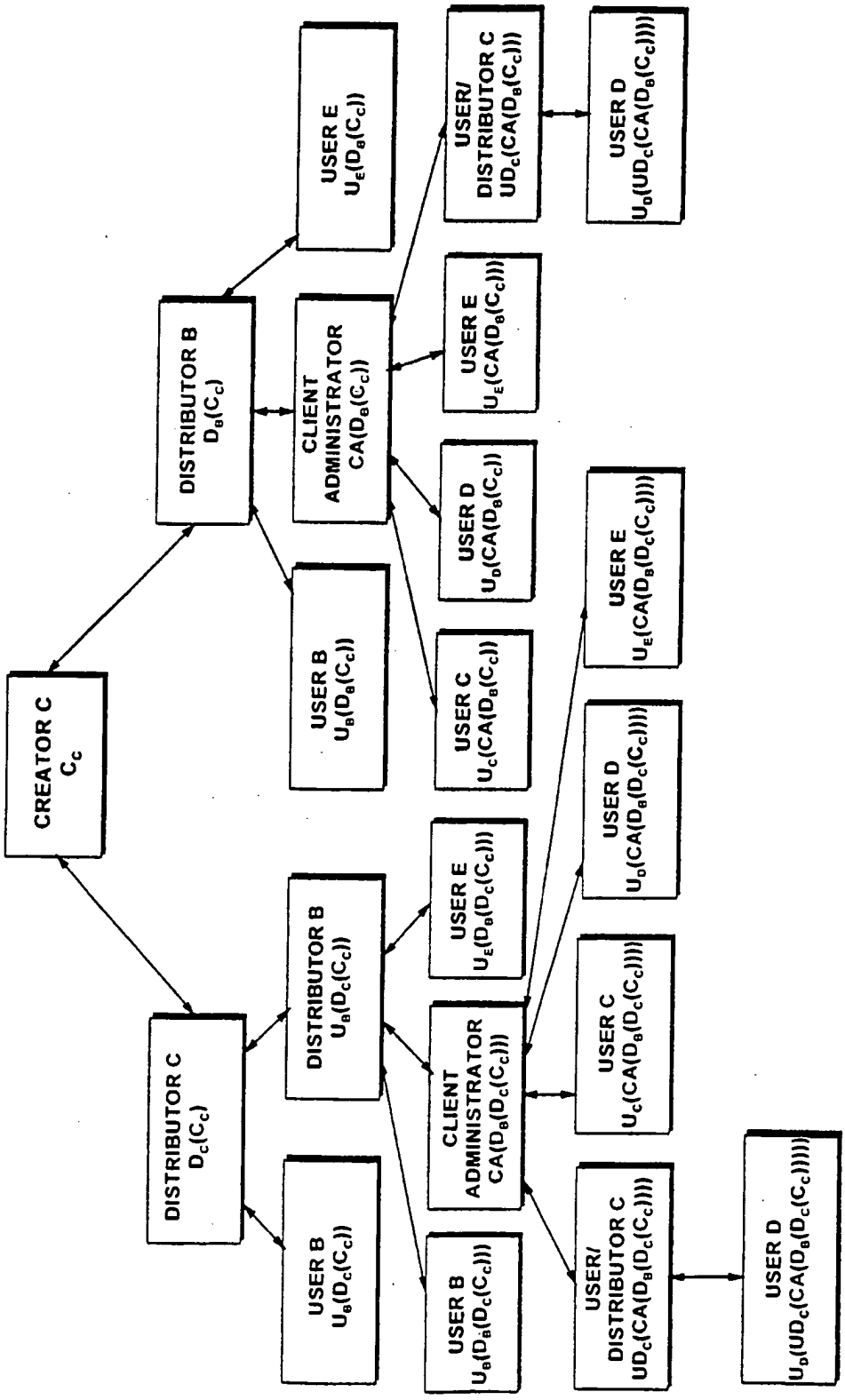


FIG. 82



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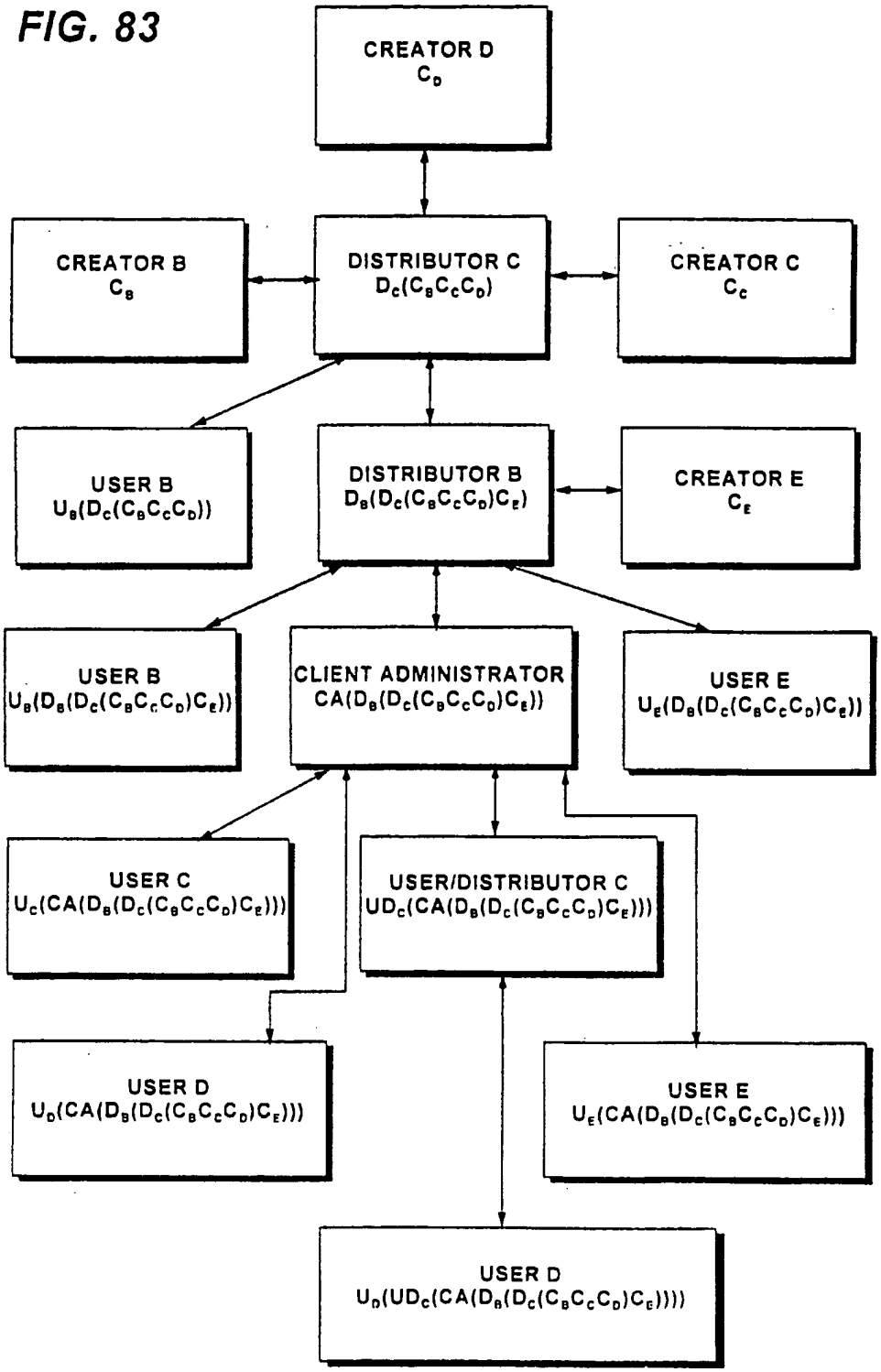
FIG. 83



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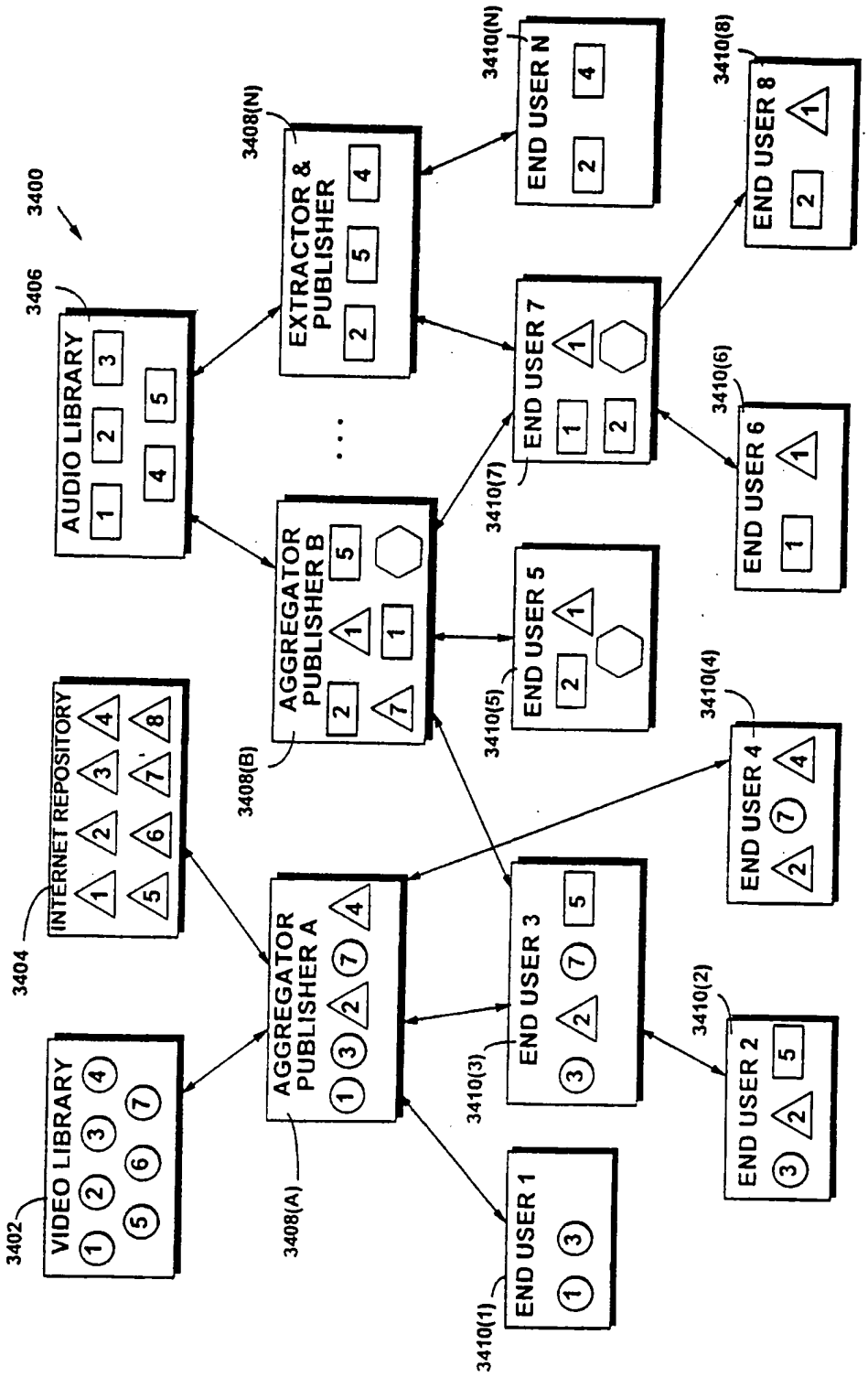


FIG. 84



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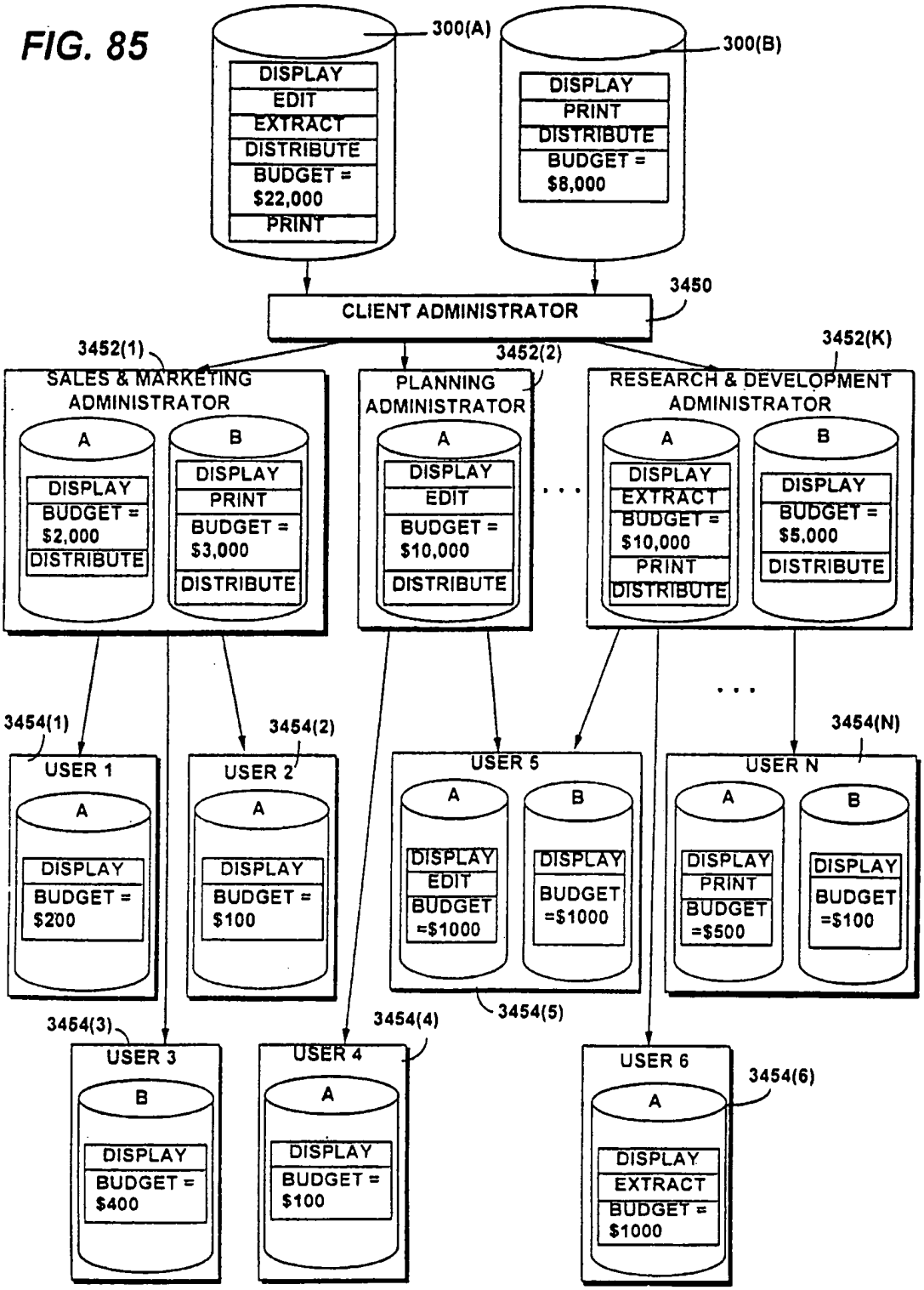
FIG. 85



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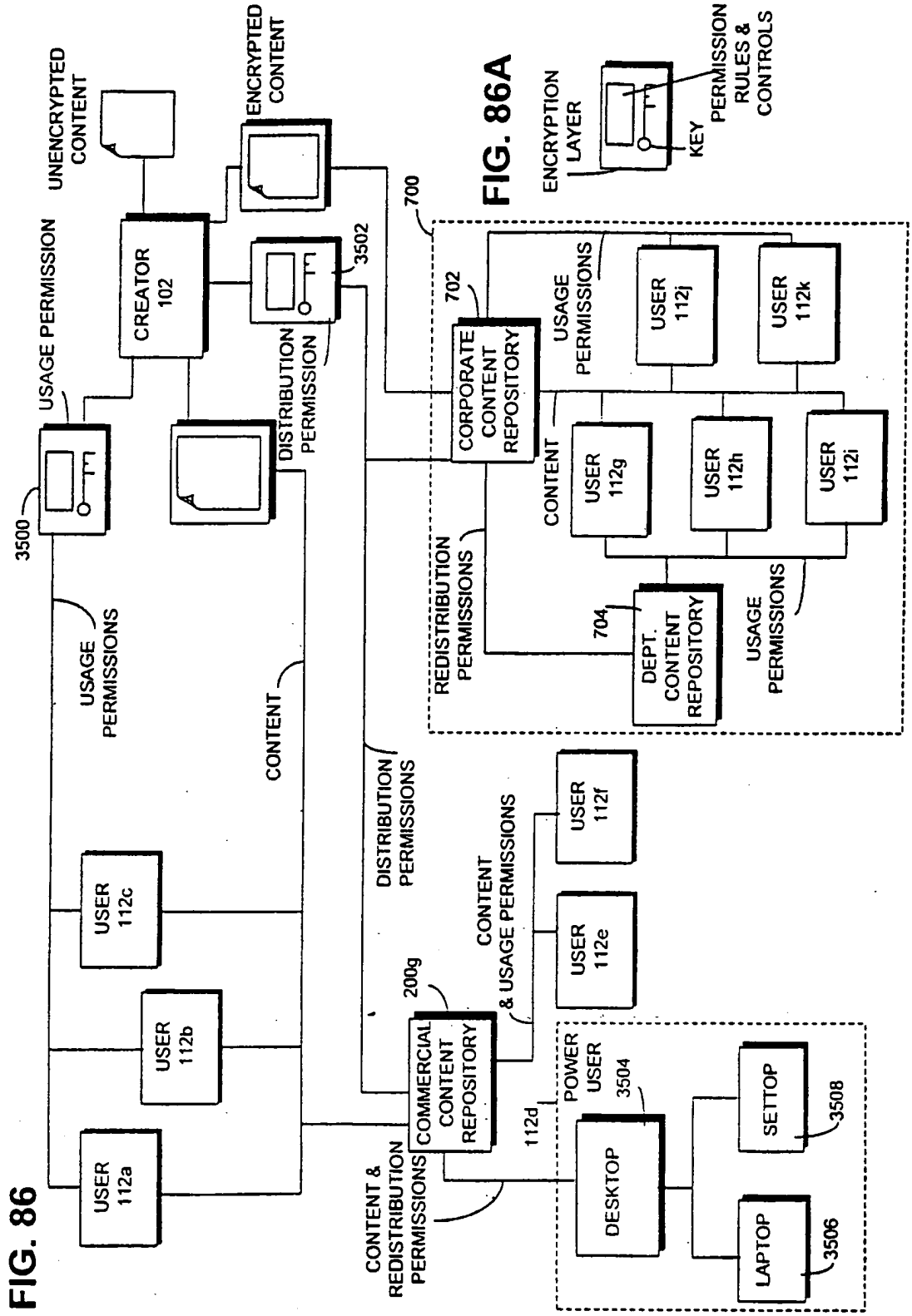


FIG. 86

FIG. 86A



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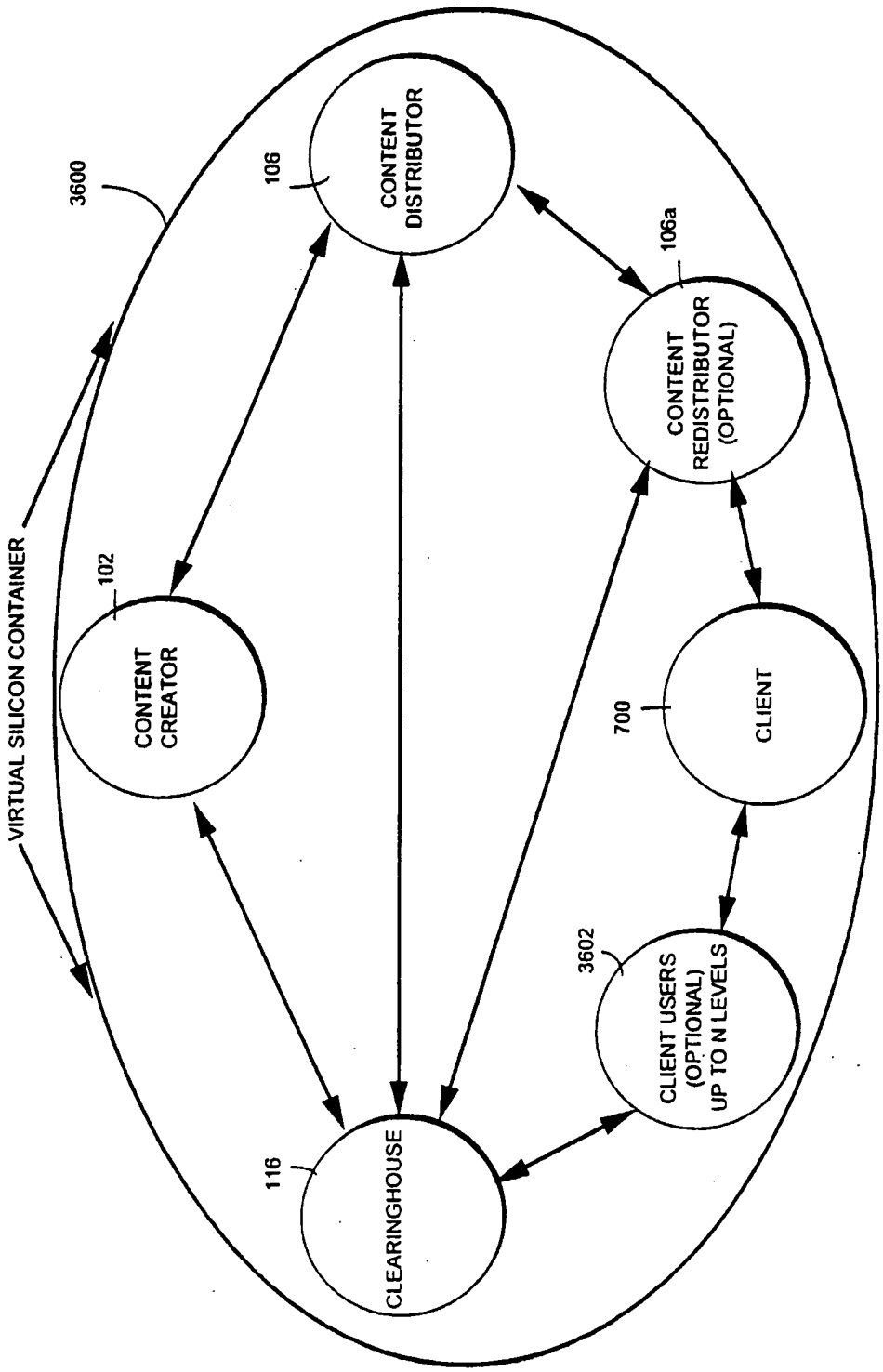


FIG. 87



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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 2994886 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 13-MAR-2008 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 15:40:26 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $630 |
| RAM confirmation Number | 899 |
| Deposit Account | 192380 |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes) /Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Notice of Appeal Filed | 111325-235000_-_2008-03-13_-_Notice_of_Appeal.pdf | 29117<br>1f7ce17fc2d65ef675a67aded96873092c10daf7 | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (PTO-06) | fee-info.pdf | 8328<br>16a36680ef5f9910cfb71b50595cde847c53b6e9 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 37445 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**
**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**
**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**
**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| First Named Inventor/Applicant Name: | Mai Nguyen |
| **Filer:** | Stephen M. Hertzler |
| **Attorney Docket Number:** | 111325-235000 |

Filed as Large Entity

**Utility Filing Fees**

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| Notice of appeal | 1401 | 1 | 510 | 510 |
| Post-Allowance-and-Post-Issuance: | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 1 month with $0 paid | 1251 | 1 | 120 | 120 |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **630** |

| **NOTICE OF APPEAL** FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES | Docket Number (Optional) **111325-235000** |
|---|---|

| CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.89(a)] | In re Application of Mai **NGUYEN**, *et al* | |
|---|---|---|
| I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, or being facsimile transmitted to the USPTO at _____, on _____. | Application Number **10/956,070** | Filed **10/04/2004** |
| | For **SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES** | |
| Signature:_____ Name:_____ | Group Art Unit 3621 | Examiner Evens J. Augustin |

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $**510.00**

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: _____

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account. I have enclosed a duplicate copy of this sheet.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 19-2380.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

I am the

☐ applicant/inventor. /Stephen M. Hertzler, Reg. No. 58,247/
Signature

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record Stephen M. Hertzler
Typed or printed name

☐ attorney or agent acting under 37 CFR 1.34(a).
Registration number if acting under 37 CFR 1.34(a) _____. March 13, 2008
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.



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JUL 02 2008
PATENT & TRADEMARK OFFICE

PATENT
DOCKET NO.: **111325/235000**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| Applicant | : | NGUYEN et al. | Examiner: Evens J. Augustin |
| Serial No. | : | 10/956,070 | |
| Cnfrm. No. | : | 8299 | Art Unit: 3621 |
| Filed | : | October 4, 2004 | |
| For | : | SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES | |

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§ 1.97–1.98**

United States Patent and Trademark Office
Customer Window
Randolph Building
401 Dulany Street
Alexandria, VA 22313

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.97–1.98, the references listed on the attached PTO/SB/08 form are hereby brought to the attention of the United States Patent and Trademark Office.

Pursuant to 37 C.F.R. § 1.98(a)(2)(ii), a copy of the cited U.S. patent (*i.e.*, Reference Cite No. 1) is not enclosed. Copies of the other listed references (*i.e.*, Reference Cite Nos. 2–5) are enclosed herewith.

The Commissioner is hereby authorized to charge Deposit Account No. 19-2380 the amount of $180.00 for the Information Disclosure Statement and thereby complying with 37 C.F.R. § 1.97(c).

Respectfully submitted,

Date: July 2, 2008

Stephen M. Hertzler
Registration No. 58,247

07/03/2008 JADD01 00000045 192380 10956070
01 FC:1806 180.00 DA

NIXON PEABODY LLP
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Fax: 202-585-8080

EXTENDED ABSTRACT

# A Secure Distributed Capability Based System

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Information Intelligence Sciences, Inc.
University of Denver, New College

John F. Koegel, Rhonda M. Koegel
Department of Mathematics and Computer Science
University of Denver
Denver, Colorado 80210

A novel design for a secure distributed system is described and evaluated. A capability based computer architecture is combined with cryptographic network security techniques to protect global objects and preserve access rights across system boundaries. The resulting architecture is evaluated against several criteria, including the DoD Computer System Evaluation Criteria. The strengths and weaknesses of the approach are presented.

key words: computer security; distributed system security; capability architecture; network encryption

## 1. Introduction

A distributed system connects various computing entities in several locations so resources can be shared by users. Distributed computing offers the advantage of flexibility so that each facility can be locally controlled and configured for a specific application. It also offers incremental growth so that additional features can be easily added, usually at a lower cost than upgrading a central host. The connection of distributed systems facilitates information sharing. The physical network can be implemented by point-to-point or multi-point links, LAN's or WAN's.

In a single centralized computing facility, system security is achieved through physical, operational, and system controls. System controls include operating system functions such as login passwords, file system protection, and memory management. In a distributed environment, these controls can still be effective for securing each specific system. However, additional problems arise because of the interconnection of systems and the information flows between systems.

There are two areas of concern in securing a distributed system. The first, that of securing the network facilities, has received greater attention in the literature. This need stems from the fact that physical facilities in most prevalent use today as communication media (land lines, microwave links, and satellite channels) offer little protection for themselves [1]. To secure these facilities, some type of cryptography is employed. The user who wishes to obtain an off-the-shelf solution to the problem can use a conventional substitution-permutation algorithm, such as the NBS's DES [2] or a public key algorithm such as RSA [3]. Although there is active research in both breaking and strengthening these techniques, for many applications currently available methods will suffice.

Even with encryption, a network is still vulnerable to certain types of threats against the communications protocol being employed [4]. Conventional link-level protocols only allow the data field to be encrypted, while control and address fields are transmitted unencrypted. This leaves a network open to such attacks as message modification and message replay.

The second area of concern, that has received relatively little attention in the literature, is the control of information protection across system boundaries. Within a given computer facility, the operating system can be used to enforce uniform and constant protection of information. However, once the information is removed from the computer, these controls no longer apply. Protection of information can only be maintained in a local environment. It would be preferable if access rights could be enforced across system boundaries. This would produce a secure distributed system and protect proprietary software and data.

Consider the case of a remote database user who has purchased read access to certain information in the database. If the user accesses the

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1985 ACM 0-89791-170-9/85/1000-0392 $00.75



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database with a personal computer, it is a straightforward step for the user to read the database and store the information in the PC. Once the user has a local copy, then he/she is free to distribute this data to any other party, regardless of whether that party has purchased access to the database. Thus, the access protection of a single system is easily violated by availability of distributed computing.

The database owner could protect his/her investment by requiring the user to purchase a proprietary interface program to access and manipulate the data. Not only does this restrict the user and provide an economic deterrent to the sale of information, it also makes this protection dependent on the copy protection of the interface program.

Another example is if the host is used as a central distribution point for software, possibly for a CAI application. Once a module is removed from the host, it is very difficult to limit the production of duplicates. Encryption of the key elements of a program has been proposed as a solution [5]. However, not only does this place additional burden on the applications programmer, but also requires a design that may not be met by many programs.

Most secure network strategies deal only with encryption of data as it is transmitted across network facilities, and not at all with the management of protection across system boundaries. However, there are numerous instances of distributed information system security and proprietary software protection not solved by network encryption. The authors believe that an integrated solution involving both capability-based computers and network protection using encryption and a secure protocol can provide distributed system security.

After discussion of network security and capability architectures in a distributed environment, we present an integrated design of a secure distributed capability based system. The resulting architecture is evaluated against several criteria, including the DoD Computer System Evaluation Criteria.

## 2. Network Security

### 2.1 General

This paper pertains to hardware (and a few hardware/software) data system security protection mechanisms, but design must be accomplished in the context of existing or proposed physical security, personnel security, operations security, emanations security, and communications security. The implementation of each guides implementation of the network data system security. A key criteria is minimized degradation in throughput and response.

A brief summary of network security follows. The term "association" is used to refer to a (potentially bidirectional) end-to-end data path through the network. The reader is directed to Voydock and Kent [4] and to Davies and Price [6] for a more complete treatment of these topics.

### 2.2 Threat

From [4], passive attacks to network security are intended to bring about the unauthorized release of information or authorized release of information sufficient to perform a traffic analysis. Passive attacks usually cannot be detected but can be prevented.

Active attacks include unauthorized modification of information, unauthorized resource use denial, and attempts to initiate spurious associations. Active attacks cannot be prevented, but can usually be detected. In a network environment we are equally concerned with threats internal to the system as those outside.

### 2.3 Protection Principles

#### 2.3.1 Encryption Techniques

Rushby and Randell [7] observed that separation is one of the key elements in enforcing a secure system, and that four separation methods exist: physical, temporal, cryptographical and logical. In a communication system, physical separation is the most desirable, but unless the system is completely contained in a secure building environment or in a specially constructed tunnel vault, the distances involved leave too much line unprotected.

Some transmission media are more secure than others, such as fiber optics, directional satellite links, and exotic military communications systems, but each has a reasonable vulnerability to capture or disruption of data flow. Within a secure environment, either logical or cryptographical means can be employed to protect data authenticity. Methods analogous to periods processing can make use of transmission links for different levels of control at different isolated periods of protection, performing necessary cleansing of storage registers or buffers, if any exist.

Data encryption is the primary means by which communicated data are protected. It directly prevents passive attacks by preventing an intruder from seeing data in the clear. Data patterns can be masked by using a unique key for each association, employing cipher block chaining which causes each encrypted value to be a complex function of previously encrypted data, and appropriately selecting the proper initialization vector for chaining.

There are three ways to incorporate cryptography into a communications system: link, node and end-to-end encryption. In link encryption, cryptographic devices bracket a communication line between two nodes. Node encryption uses a protected security module to absolutely protect data at the node. In end-to-end encryption, data are deciphered only at their final destination, requiring several keys at each origin and destination.



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There are several tradeoff variables in choosing between link, node, and end-to-end encryption:

- the number of encryption units required (and therefore the potential response degradation)
- the number of keys required by each node originating and receiving data
- the complexity required in specifying a routing path independent of the specification of data, or alternately the overhead in interim decryption attempts.

The number of security devices are fewer in end-to-end encryption, but number of keys required is greater. Addressing information must be developed independent of the data, or interim decryption attempts must be made. Both create a difficult design problem. Link and node encryption are normally transparent to the user, but so is end-to-end encryption if initiated by system services. The message and its header can both be encrypted with node encryption; however, with link encryption and end-to-end encryption normally both message and header are encrypted. The exception is a technique whereby each node attempts to decrypt the message and passes it if unsuccessful or if the successfully decrypted message indicates another addressee. If not all nodes have encryption facilities or if encryption of only selected messages is desired due to overhead, an additional mechanism is required to enable and disable the encryption function.

Voydock and Kent [4] observed that a communication network can also be viewed as providing a medium for establishing associations between protocol entities. An association oriented approach constitutes a refinement to end-to-end measures. It not only protects the path, but reduces the probability of undetected cross talk, whether induced by hardware or software.

### 2.3.2 Detection Techniques

If the communications header is in clear form, transmitting bogus messages helps prevent traffic analysis. The protocol layer selection determines the precision with which traffic analysis can be done. If encryption is performed in the presentation layer, an intruder could determine which presentation, session, and transport entities were involved. Performing encryption in the transport, network, or link layers limits the intruder to observing patterns at the network address levels. Contradistinctively, the higher the layer, the more of the path protected.

To prevent message stream modification, there are measures that ensure message integrity. Measures that ensure message authenticity rely on the integrity measures. Measures that ensure message ordering rely on both of the previous measures. Countermeasures involve use of unique keys, sequence numbers, and error detection codes.

Denial of service attacks often can be detected by message stream modification countermeasures. If the attacks begin when an association is quiescent, a request response mechanism must be employed.

For spurious association attacks, hierarchic or public key systems can defeat attempts to establish an association under a false identity. Timestamp, checksums, and/or random challenge-response mechanisms detect playing back of a previously legitimate association-initiation.

A covert channel allows a process to transfer information in a manner that violates the systems security policy. A covert timing channel is a covert channel in which one process signals information to another by modulating its own use of system resource (e.g., CPU time) in such a way that this manipulation affects the real response time observed by the second process. Covert channels with low bandwidths represent a lower threat than those with high bandwidths. In any complex system there are a number of relatively low-bandwidth covert channels whose existence is deeply ingrained in the system design. Faced with the large potential cost of reducing the bandwidths of such covert channels, it is felt that those with a maximum bandwidth of less than one bit per second are acceptable in most applications environments [8]. The channel bandwidth can be reduced by introducing noise, or complicated traffic patterns, making it difficult to detect and extract deliberate modulation.

These measures provide security only in a probabilistic sense, providing a high probability that the intruder cannot subvert the encryption algorithm and that active attacks will be detected. The goal is to make it more difficult for the intruder to break the system than to create the information through other means.

## 2.4 Protection Mechanisms

### 2.4.1 Reference Monitors

A reference monitor [9] must be tamperproof, must always be invoked, and must be small enough to be subject to analysis and tests, the completeness of which can be assured. The reference monitor is the most popular type of authentication mechanism. Interaction is generally only with the message header, whereas cryptographic compatibility serves to authenticate an entire message. Further, data can remain encrypted for continued protection while in buffers, storage, and internal communications. The reference monitor allows such things as separate encryption of the message without the header and requires neither the time and cost spent in encryption nor the cost of a key management and distribution system.

### 2.4.2 Authentication and Secrecy

Cryptography can not only be used for security, but can also be employed for authenticity. Solutions using encryption are equally applicable to local area networks as they are to large long-haul communications networks. Different applications lead to different solutions, as do design tradeoffs based on changing technologies (e.g., fiber optics), speed, cost, and level of protec-



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tion. The following are key topics associated with cryptography.

Secrecy and Authentication - Secrecy exists when it is computationally infeasible to determine the deciphering transformation. Authenticity exists when it is computationally infeasible to determine the enciphering transformation. The latter establishes the validity of a claimed identity (e.g., of the sender in a digital signature or user verification application).

Substitution-Permutation Ciphers (e.g., the DES) - Information theory has allowed theoretical data protection to any degree desired, based on the length of the key and repeated application of the algorithm steps; even when the algorithm is known to the perpetrator. This class of cipher has been implemented into a very fast chip. As cryptanalysis capability increases, the dimensionality of the implementation can be increased, with a corresponding loss in efficiency, (unless microcircuit technology makes up the difference). A DES block cipher breaks the message into blocks and enciphers each with the same key. A stream cipher breaks the message into characters or bits and enciphers them with successive elements of a key stream (which might be the prior encrypted text as in the cipher block chaining mode and the cipher feedback mode of the DES).

Public Key Ciphers (e.g., the RSA scheme) - These methods of protection provide both secrecy and authenticity. Several public key ciphers have fallen prey to cryptanalysts, but the RSA cipher stands a good chance of surviving these attacks based on the mathematical history of factorization of large numbers (although a surprisingly large number was factored on the Cray at Sandia Laboratories recently). Keys are large and computation still relatively complex. Technologies such as gallium arsenide and parallel bit stream implementations should solve immediate speed problems, however, as cryptanalysis comes closer, the size of the prime numbers must be increased.

One-way Ciphers - These virtually unknown, but simply implemented ciphers are important to design because once data are encrypted they cannot be simply decrypted, even by the originator. They are useful in applications, for example, where authentication of passwords can be accomplished by comparing pairs of encrypted data values. Certain simple functions such as comparison can be accomplished in encryption space.

### 2.4.3 Key Management Design

The responsibility for key management depends on the security policy and the choice of implementation. Unless keys are given at least the same level of protection as the data, they will be the weak link. Once the penetrator has gained access to the key (generally a very small piece of data) he has gained access to all data. Techniques of generating, transmitting and protecting keys include host keys, hierarchical key protection, partitioning of keys for different protection levels, and diverse means by which the key management system interfaces with the rest of the system [7].

In the normal implementation of public key systems, the public key is published with no protection whatsoever. The private key is originated and held by only one person. Certain implementations require distribution of the private key under a protected key distribution scheme, especially where the private key is used within the processor as a means of both secrecy and authentication of source of another system variable.

A third party or a host can provide the authentication necessary for key distribution. There are several established approaches for the implementation of a distributed session key system, appropriate to network communications. The public key system has the property that two parties can establish a secret key for use in a unique session between them, obviating involvement of a third party. The strategy can be repeated often for a greater degree of protection. Prolonged use of a single key makes a system more vulnerable to cryptanalysis. The degree of added vulnerability depends on the cryptographic technique used, which in turn is related to the nature of data transmission, intercommunication requirements, and security inherent to the communications system.

### 2.5 Network Protocol Considerations

In late 1970's, the International Standards Organization adopted a network architecture known as the reference model for open system interconnection, ISO/OSI. Layers 1 to 3 are concerned with data transmission/routing and deal respectively with physical, data link, and network concerns. Layer 4 provides end-to-end control of data transport. Layers 5 and 7 are the session, presentation, and application layers. Some of the possible approaches to implementing security under ISO/OSI are as follows:

| Layer | Protocol | Security |
|---|---|---|
| 7 | Applications Services | User identification, encryption of stored data, key distribution. |
| 6 | Presentation Formats | User controlled use of encryption for secrecy and identification including a user request for encryption. |
| 5 | User Session Control | Establishing secrecy and authentication during the conduct of a session between system users (people and programs). The most desirable encryption point in high level protocols [4]. |



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| | | |
|---|---|---|
| 4 | Transport Flow Control | |
| 3 | Network Routing | |
| 2 | Data Link Control | Security control entirely in the communications systems such as link encryption where the data are protected between adjacent network nodes and are decrypted and re-encrypted at each node. Security control entirely in the network communications use of node encryption schemes where data are not in the clear at an intermediate node, but are rather decrypted and re-encrypted by a special security module. |
| 1 | Physical Connection | |

Design should be such that acceptance of data or requests into the memory associated with a node should be based on the assurance that the transaction is legitimate and does not violate the security policy. An example of protocol layer 2 (data link) encryption is provided in [10], in which source and destination subnets and trusted interface units are designated in the packet formats for the carrier sense multiple access with collision detection (CSMA/CD) protocol. The protocol also specifies the data security level.

Popek and Kline [11] identified the important issues to be addressed in defining secure protocols:

- establishing initial cleartext/ciphertext/cleartext channel from sender to receiver
- passing cleartext addresses without providing a leakage path
- determining error recovery and resynchronization mechanisms to be employed
- performing flow control
- closing channels
- interaction of the encryption protocols with the rest of the protocols
- dependence on software in implementation.

## 3. Capability Architectures

### 3.1 Description

A capability-based computer uses an architecture in which objects are addressed by means of a two-component entity called a capability. One component of the capability is a unique object identification number which is translated by the hardware into an actual machine address. The other component of the capability can be viewed as an access rights field which identifies to the hardware the operations that the owner of the capability may perform on the object.

Capability architectures have been promoted for a number of reasons including their hardware support for object-based programming [12] and system security [13]. A capability-based computer offers greater generality than does a conventional computer architecture. This generality includes hardware support for object identification and management which allows the user to approach the machine interface at a higher level of abstraction. By encapsulating objects and defining unique object identification numbers, the system can provide a more secure hardware base on which to place the operating system.

To maintain system security and integrity, it is typical for a capability-based computer to use hardware tagging of capabilities stored in memory [14,15]. When a user attempts to use a capability to reference an object, the hardware tag indicates that use of the capability is a legal one. The capability itself will be further compared with the operation that the user is attempting to ensure its validity. Since the tag controlled by hardware, the user is not able to arbitrarily modify the tag bits associated with a memory address. If the user attempts to modify a capability, the hardware will reset the associated tag bits.

Another feature of capability architectures is that the machine interface is usually implemented at a higher level than that of a conventional architecture. This higher level includes functions that relate to object addressing and object management. By placing greater functionality in the firmware, the goal is to improve the performance of the architecture while ensuring that the object related operations can not be interrupted and possibly altered by another process. Thus, the security of a capability-based computer follows the precept that hardware is inherently more secure than software.

### 3.2 Design Issues

There are a number of issues to be faced by the designer of a capability machine. These include:

- generating and maintaining unique object id's for a large number of objects
- managing objects, including object deletion and the dangling pointer problem



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- controlling the copying of capabilities for object sharing
- defining object categories
- speeding-up object address translation
- permitting called programs to have more access rights than their callers for operating system functions
- providing object encapsulation to promote object protection.

The resolution of these issues can take various forms. Levy [16] surveys many of these in his book on capability based systems.

### 3.3 Goals

For the purposes of a discussion of capability system goals, we assume that the network facilities for the distributed system have already been secured using encryption and secure high-level protocols as described in the previous section. By employing capabilities for defining and protecting objects in a distributed environment, the following goals can be achieved:

- Objects can be transferred across system boundaries while preserving access rights across these boundaries. This is accomplished by forcing any object transfer between systems to be accompanied by the transfer of the capability needed to access the object. Without this capability, the object can not be accessed.

  The process performing the copy operation must possess the original capability on the source computer to effect the copy operation. The capability which results on the destination computer must uniquely identify the copied object and must have access rights equal to or less than those of the original capability. The network interfaces for each host are responsible for checking the validity of the operation. The network interface at the destination must generate a unique object id (possibly using already existing firmware for object creation) and must translate the source capability accordingly. At the same time it must preserve or decrease the access rights of the translated capability.

- Capabilities for objects can be transferred across system boundaries. This allows capabilities to be used to reference remote objects. This requires that the capability contain a field which identifies the network node containing the object. Alternatively, the capability could reference a local "network reference object" which would contain the information needed by the operating system and network interface to address the remote object.

- Objects can be referenced across system boundaries using either user-local or user-remote capabilities for these objects. This is analogous to a distributed file system, but is generalized to all the object categories defined in a given architecture.

  A user-local capability is one which is contained in the user's capability list in the local host from which the object reference is being made. Similarly, a user-remote capability is one that is contained in the user's capability list on the remote host that contains the object being referenced. Capabilities used to access objects created remotely are derived from the capability generated by the system where the object was created.

In describing these goals, it is assumed that object identification and addressing are defined locally. When a capability is transferred between systems, a new object id will be created by the destination host automatically. This object id will have meaning only in the context of this host. This will preclude the need for designing a universal object identification scheme that would be impractical both in terms of the size of the id needed and the overhead to coordinate the use of id's. It is also assumed that a capability can be safely and accurately transmitted between systems. The network interface for the capability-based computer controls the encryption and protocols needed to effect secure communications.

To support the preceding goals, a number of issues need to be addressed. First, in keeping with the fine granularity of capability access rights, it would be beneficial to define additional access rights that deal with network operations. These might include the capability to copy an object or the capability itself across the network interface. Access rights for remote operations on capabilities or objects might also be defined this way. Controlling the copying of a capability across a network interface has the same implication as controlling it between users on a single system.

Second, in some systems, an object can be given its own capability list for accessing whatever objects are needed in its operations. When the object is copied from one system to another, is this capability list also preserved? Although it may be desirable to define a network copy operation for capability lists, it does not seem advisable to automatically copy this list and translate it when the object itself is copied. This should be a separate operation, if done at all.

In translating a capability copied from one system to another, there are a number of conditions to be observed. First, the translated capability should never be greater than the original capability. This would violate the basic security principles of capability-based architectures. Second, the process receiving the copied capability should not be able to increase its access over any other objects by means of the copy operation. The situation where the copying of a capability gives the owner greater privilege must be avoided. Finally, if the two computers do not define their objects in the same fashion



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(heterogeneous distributed capability system case), the host receiving the capability must translate it to an equivalent or lower object and access rights pair, or else reject the operation.

## 4. A Secure Distributed Capability System

### 4.1 Integrated Design

In this paper we deal with distributed systems of user terminals, processing hosts, storage elements, and other resources. The processors and terminals may be heterogeneous or of a compatible family. Our goal is to consider a design based on a combination of cryptography and a capability based control to provide network security.

There is a strong desire in a distributed system for the system to be transparent to the user. Rushby and Randell [7] established that network transparency is most easily achieved if all system components have a common interface. The "recursive structuring" principle for the design of distributed systems states: each component of a distributed system should be functionally equivalent to the entire system of which it is a part. This does not preclude heterogeneous sub-elements, since each system interface must contain provisions for exception conditions to be returned when a requested operation cannot be carried out. The value of the recursive structuring of a system is that, by definition, it is indefinitely extensible.

To use the capability approach in a distributed environment, additional capability categories are needed. These include definitions that protect the network interface and that validate specific network operations:

- network interface to a specific node can be used
- network parameters can be modified, examined, or teated
- capability can be copied across network
- object can be copied across network
- object can be used remotely
- object can be deleted remotely if user has delete capability
- capability can be translated (needed by network interface)
- network object (for referencing remote objects) can be created, managed, or deleted
- audit trail enable.

The network interface design should follow the standard seven-layer ISO OSI model. It will be subject to the same protection that the operating system is given on a capability machine, plus additional protection provided by whatever capabilities are required to use the interface. The various network protocol layers should be designed to promote detection of active network attacks. Data encryption can be built into the user session layer.

All network operations which require capability checking for validation are passed by the network interface to the operating system and/or firmware. Outgoing network transactions are checked in the normal way by comparing the attempted operation with the capability list of the agent process. Incoming transactions that involve the copying of a capability from a remote system will also involve the translation of the object identification within the capability and the object encapsulation to a valid object identification for the destination host. This translation will also be a firmware function that most closely resembles object creation.

### 4.2 Multilevel Considerations

If a distributed capability system were used in a multilevel security environment, both network security mechanisms and the capability architecture would need to be enhanced to recognize and protect objects of different classification levels.

Here we review some of the characteristics of a multilevel secure system and then discuss its relation to the one proposed. Users are assigned levels, some resources are assigned maximum levels and one must keep track of the high watermark (highest level received since cleansing) of the device. Objects have levels indicated by labels. A process keeps track of the high watermark of objects used in a current period. Users can specify the level of an object created and a process can specify the level of the objects it creates (which must dominate, i.e., be greater than or equal to, the current high watermark). There are several other details that pertain to specific implementations that will not be dealt with here, such as the principals that control the flow of data based on dominance rules.

The protection domain extends across the network, encompassing its nodes. Capabilities are used to determine transmission of objects across nodes, the same as they are within a node. The transmission is not allowed if the process does not possess the capability (e.g., the high watermark is greater than the security level of the destination). At the receiving node the processes cannot have access to the object without the appropriate capability.

Encryption for authenticity, key passing, and secrecy protection is within the encapsulated portion of the capability protocol, implemented in firmware. Also, detection techniques such as those discussed earlier — unique transmission key, sequence numbers, error detection, request response, and time stamps — are implemented and initiated at that level.

Encryption is at the user session protocol (layer 5), so that there is end-to-end encryption between geographically separate parts of the protection domain. The capability system would communicate the necessary protocol information to the



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transport and other lower layers, providing the necessary protocol parameters.

Modifications to the capability hardware would consist of additional types of capabilities and additional bits to the object identification field of the capability. When a user account is created on a system, the profile of that user would be given capabilities to read, write, create and delete objects of specific classification levels. The capability to perform an operation at one classification level would allow the same operation to be performed at a lower level, provided that an indirect data leakage did not result. The user could also be given the capability to create objects, which could also be given the capability to read, write, create and delete sub-objects of different levels, all of which must be dominated by the user's own capabilities.

When an object is created, it would be created at a given classification level. This level could be economically encoded in the object identification field (2 bits provides 4 levels), which would also be encapsulated with the object itself. Thus, when any data transfer operation is performed on a given object, the object's classification level is used to insure that a legal data flow is occurring.

Additional capabilities would be needed to permit the changing of an object's classification level. Both the classification checks and capability tests would be performed by firmware. The rules governing legal and illegal data movements between levels would also be stored in firmware.

## 5. Evaluation

Just as the user community is slow to accept some of the most obviously beneficial computing improvements, it is felt that part of the task in portraying an unfamiliar way of thinking is to show consistency with present approaches. Rushby and Randell [7] have described a distributed computing system composed of small trustworthy security mechanisms linked together to provide multilevel security in such a way that the entire system appears as single system to its users. A prototype has been successfully demonstrated. Key to this system are separate security processors, operating in parallel with the general purpose processors, and a software subsystem "the Newcastle Connection," that links multiple UNIX systems, and does not require applications programs or operating system to be changed.

The Department of Defense Trusted Computer System Evaluation Criteria [8] will serve as a standard for the accreditation of commercial systems, at least in the near term, thus it was considered important to compare this system against those criteria. We have also considered Saltzer and Schroeder's [17] principles of design.

### 5.1 Definitions [8]

"Trusted Computing Base - All protection mechanisms within a computer system (including hardware, firmware, and software) the combination of which is responsible for enforcing the security policy." The cryptographic capabilities network can be considered a trusted computer base, but has an unusually large scope in that it encompasses a network.

"Domain - The set of objects that a subject has the ability to access." An object is defined here as a passive entity that contains or receives information, for which access potentially implies access to the information it contains. The capabilities system considers domain in the same context, however, it further specifies and controls resources and enforces the extent and type of access.

"Dominate - Security level S1 is said to dominate security level S2 if the hierarchical classification of S1 is greater than or equal to that of S2 and the non-hierarchical categories of S1 include those of S2 as a subset." A dominant capability can be enforced categorizing object id's into the appropriate classifications. Another approach would be to define a capabilities base at each independent level. In either case, the capabilities system can further restrict usage to what is required by a task.

"Reference Monitor Concept - An access control concept that refers to an abstract machine that mediates all accesses to objects by subjects." The hardware, firmware, and software elements of a Trusted Computing Base that implement the reference monitor concept are referred to as the security kernel. The capabilities based system employs and enforces a reference monitor type of control, independent of special hardware (although special hardware may be required to enhance performance).

"Star Property - A Bell-LaPadula security model [18] rule allowing a subject write access to an object only if the security level of an subject is dominated by the security level of the object." This rule can be enforced in a capabilities based system, but the implementation must place capabilities in control of the system and not the user.

### 5.1.2 Requirements [8]

"Discretionary access control - The trusted computer base (TCB) shall define and control access between named users and named objects. The enforcement mechanism shall allow users to specify and control sharing of those objects." Capability access control involves restricting access to objects or resources based on the possession of a ticket that unconditionally authorizes the possessor (user or process) access to the named object with specific rights, where objects include both resources and data. The list is actually inverted from the normal access control list, but contains at least the same information. It can be used by the operating system to emulate the discre-



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tionary access model. If the system places the user "in charge", he can establish his own policy with respect to the capabilities possessed by him. In most DoD implementations, however, only a special user (the security officer) can pass capabilities to a user that has not previously possessed them at that level.

"Object Reuse - When a storage object is initially assigned, allocated, or reallocated to a subject from the TCB's pool of unused storage objects, the TCB shall assure that the object contains no data for which the subject is not authorized." This requires cleansing of the resource upon reallocation.

"Labels - Sensitivity labels associated with each ADP system resource that is directly or indirectly accessible by subjects external to the TCB shall be maintained by the TCB and shall be used as the basis for mandatory access control decisions." The assignment of capabilities can be based on the sensitivity of resources. The sensitivity labels can be built directly into the encapsulation scheme as a standard part of the object control. The resources are assigned virtually with the security manager having ownership of the assignment table with the right of revocation and reassignment.

"Label Integrity - Sensitivity labels shall accurately represent security levels of the specific subjects or objects with which they are associated. When exported by the TCB, sensitivity labels shall accurately and unambiguously represent the internal labels and shall be associated with the information being exported." As stated before, the sensitivity labels can be inherent to the definition of the capabilities and become part of the encapsulation scheme. The capability system enforces the authorization for exportation.

"Exportation of Label Information - The TCB shall designate each communications channel and I/O device as either single-level or multilevel, with changes done manually and any changes auditable. When the TCB exports an object to an I/O device, the sensitivity label associated with that object shall also be exported and, in the case of multilevel devices, shall reside on the same physical medium as the exported information and shall be in the same form (i.e., machine readable or human readable form). When the TCB exports or imports an object over a multilevel communication channel, the protocol used on that channel shall provide for the unambiguous pairing between the sensitivity labels and the associated information that is sent or received." This functionality can be incorporated in the capability system. The capability system enforces the transfer request, whereas a conventional system may not.

"Device Labels - The TCB shall support the assignment of minimum and maximum security levels to all attached physical devices to enforce the constraints imposed by the physical environments in which the devices are located." This is indirectly accomplished by the assignment of capabilities. This corresponds better with non data processing information control.

"Mandatory Access Control - The TCB shall enforce a mandatory access control policy over all resources (i.e., subjects, storage objects, and I/O devices) that are directly or indirectly accessible by subjects external to the TCB." External subjects become internally controlled by the capabilities list when they are given the capability of access, otherwise they possess none.

"Identification and Authentication - The TCB shall require users to identify themselves to it before beginning to perform any other actions that the TCB is expected to mediate. Furthermore, the TCB shall maintain authentication data that includes information for verifying the identity of individual users as well as maximum security levels to all attached physical devices." The identification must be part of the issuing of capabilities. The association with devices is more restrictive than simple security levels.

"Trusted Path - The TCB shall support a trusted communications path between itself and users for use when a positive TCB-to-user connection is required. Communications via this trusted path shall be activated exclusively by the user or the TCB and shall be logically isolated and unmistakably distinguishable from other paths." Since user consoles are resources, and because of the cryptographic requirements of this system, this requirement is rigidly enforced.

"Audit - The TCB shall be able to create, maintain, and protect from modification or unauthorized access or destruction an audit trail of access to the object it protects." The audit trail will be a capability assigned solely to the security control function.

### 5.2 Principles of Design

Saltzer and Schroeder [17] identified several design principles for protection mechanisms. Following is an evaluation of this approach against those criteria:

Least privilege - The capability system enforces this principle to a greater extent than existing implementations.

Economy of mechanism - This architecture supports security control to a far greater degree than general architectures and therefore should be verifiable. In general, hardware is simpler to verify than software or software/hardware mechanisms.

Complete mediation - This requirement is a basic design principle.

Open Design - The design is completely open and does not depend on any secret parts.

Separation of privilege - Satisfaction of this requirement is moot, although the implementation depends on the technique for allocation of capabilities and identification when logging on the system. The implementation of labels and a consistency check against user identification should satisfy this requirement.



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Least common mechanism - The mechanism is protected and each user has a separate virtual capability. The concept of distributed control in physically distributed elements tends to support this principle, but certainly not to its ultimate intent.

Psychological acceptability - The mechanism cannot be bypassed and is transparent to the user.

### 5.3 Advantages and Disadvantages

A capability approach to distributed system security offers strong object protection in both local and distributed contexts. This strength derives from firmware support of access rights at the machine addressing level. In addition, the design offers greater granularity of access rights than is found in a conventional operating system.

A distributed capability system is not without its complications. One potential problem is the vulnerability of capabilities as they are transmitted across the network. This is analogous to the problem of password transmission across a network in a conventional system. Both can be solved by encryption.

Another possible problem is the translation of capabilities in an environment of heterogeneous capability machines. Because object categories may vary from machine to machine, the difficulty is in preserving the meaning of the capability when it is translated. From a security standpoint, security is not compromised if the original capability dominates the translated capability.

A more difficult situation is the linking of a conventional computer to a network of capability systems. Since conventional operating systems do not support the same granularity of protection, meaningful sharing and strong security will probably not be compatible goals. The conventional computer will be the Achille's heel of the distributed capability network if remote object references are uncontrolled.

A final issue is the translation of the capability list for an object that is being copied from one system to another. For efficiency reasons, we have considered it advantageous for the copy operation to copy only the object and the capability for its use, and ignore the capability lists belonging to the object and any of its creations.

## 6. Summary

The meshing of capability characteristics and a cryptographically supported network is natural. Cryptography will support network communications and detection functions using public key systems or trusted interface modules to provide satisfaction of security protection from the outside world, as well as authentication functions. The capability based resource control provides a simpler environment than that dealt with by a discretionary kernelized system. There is a natural checking mechanism for determination of system misuse and simpler recovery in the event of a malicious internal attack. The system can be changed as the security policy changes without hardware/software modification.

A capability approach can provide a distributed system where data originators or some central authority determine the data, program, and sharing policy. The distributed capability system described here solves the problem of preserving access rights across system boundaries, since an object can not be referenced or copied across the network interface without processing the capability for a specific operation. In comparison to a conventional operating system, a capability based design offers greater protection and more granularity.

With proper implementation, the system also appears to be capable of supporting the DoD trusted system requirements under the unique DoD security policy implementation. Further, a properly architected capability machine and network interface could provide a secure multilevel distributed system. The DoD security requirements could be met by a design including the following provisions:

- Star property should be enforced by the system through assignment of high water mark levels to capabilities, objects, and resources.
- Sensitivity labels need to be integrated into the capabilities protection mechanism, and then be supported accordingly.
- User identification and authentication must be part of the capability issue and usage mechanism
- End-to-end encryption needs to be integrated and network protocol interfaces need to be developed



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# INFORMATION SUPPLYING/COLLECTING DEVICE

**Publication number:** JP6131371
**Publication date:** 1994-05-13
**Inventor:** TSUTSUI KIYOUYA
**Applicant:** SONY CORP
**Classification:**
**- International:** ***G07F7/08; C04B28/04; G06F21/24; G06Q30/00; G06Q50/00; G07F17/00; H04H9/00; H04N5/775; H04N7/173;*** *H04N5/781; H04N5/85; H04N5/907;* **G07F7/08; C04B28/00; G06F21/00; G06Q30/00; G06Q50/00; G07F17/00; H04H9/00; H04N5/775; H04N7/173;** H04N5/781; H04N5/84; H04N5/907; (IPC1-7): G06F15/21; G07F7/08; G07F17/00
**- European:** C04B28/04; H04H9/00R; H04N5/775; H04N7/173C
**Application number:** JP19920304706 19921016
**Priority number(s):** JP19920304706 19921016

**Also published as:**
US5619570 (A1)

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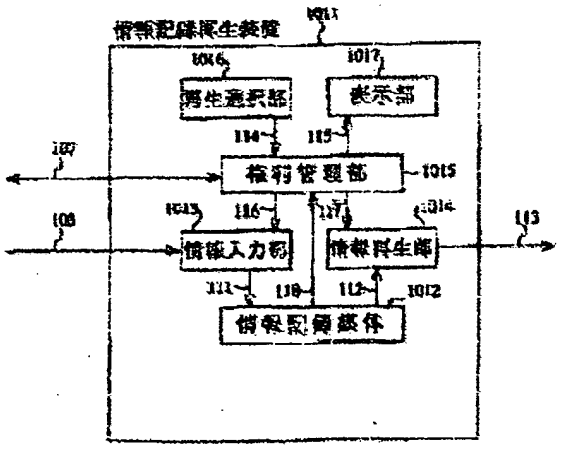
Abstract of **JP6131371**

PURPOSE:To obtain the information on the reactions of the viewers and to improve the safety of the information control by acquiring quickly the information and attaining the flexible payment of the charge. CONSTITUTION:The input of information is carried out to an information recording/reproducing device 1011 and also the information is recorded and reproduced to an information recording medium 1012 under the control of a right control part 1015. When the input of information is controlled to an information input part 1013 together with the control of recording given to the medium 1012 respectively, the part 1015 controls the information input function or the information recording function of the part 1013 by a control signal 116. A signal 103 is sent to the medium 1012 through the part 1013 as the information 111. When the reproduction of information is controlled to the medium 1012, the part 1015 reads the information 118 on the type and the reproduction conditions, etc., on the information itself out of those information recorded in the medium 1012. The information 118 is sent to a display part 1017 and shown there as the display information 115.

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特開平6－131371

(43)公開日　平成６年(1994)５月13日

| (51)Int.Cl.[5] | 識別記号 | 庁内整理番号 | ＦＩ | 技術表示箇所 |
|---|---|---|---|---|
| Ｇ０６Ｆ　15/21 | ３５０ | 7052－5Ｌ | | |
| Ｇ０７Ｆ　7/08 | | | | |
| 17/00 | Ｂ | 9028－3Ｅ | | |
| | | 9256－3Ｅ | Ｇ０７Ｆ　7／08 | Ｓ |

審査請求　未請求　請求項の数38(全 22 頁)

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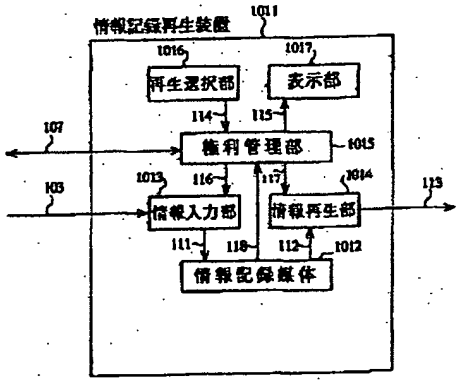
(54)【発明の名称】　情報提供収集装置

(57)【要約】

【目的】　情報の迅速な入手、柔軟な料金支払いを可能とし、視聴者の反応に関する情報を得る。また、情報管理の安全性を高める。

【構成】　権利管理部１０１５の制御の下に、情報記録再生装置１０１１への入力、情報記録媒体１０１２への記録及び再生が行なわれる。情報入力部１０１３への入力、または情報記録媒体１０１２への記録を制御する場合には、権利管理部１０１５は、制御信号１１６によって、情報入力部１０１３の情報入力機能または情報記録機能が制御される。信号１０３は、情報入力部１０１３を通して情報記録媒体１０１２に情報１１１として送られる。一方、情報記録媒体１０１２からの再生を制御する場合には、権利管理部１０１５においては、情報記録媒体１０１２に記録されている情報のうち、その情報自身の種類や再生条件などの情報１１８を読み出す。それが表示情報１１５として表示部１０１７に送って表示される。



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【特許請求の範囲】

【請求項1】　情報記録媒体および権利管理手段を備え、権利管理手段の制御により情報の記録または再生の制御を行なう情報記録装置から成ることを特徴とする情報提供収集装置。

【請求項2】　上記権利管理手段においては、上記記録媒体に記録された権利管理情報に基づいて制御を行なうことを特徴とする請求項1に記載の情報提供収集装置。

【請求項3】　上記権利管理情報は、記録もしくは再生前後で内容が変化することを特徴とする請求項2に記載の情報提供収集装置。

【請求項4】　上記権利管理情報は、記録または再生が許可される有効期限であることを特徴とする請求項2に記載の情報提供収集装置。

【請求項5】　上記記録媒体に記録される情報の一部は、その情報自身の内容を示すものであることを特徴とする請求項1に記載の情報提供収集装置。

【請求項6】　上記記録媒体は、半導体メモリであることを特徴とする請求項1に記載の情報提供収集装置。

【請求項7】　上記記録媒体及び上記権利管理手段は、1枚のカードに実装されている情報記録装置から成ることを特徴とする請求項1に記載の情報提供収集装置。

【請求項8】　上記記録媒体には書き換え不可能な情報を記録し、再生時に権利管理を行なうことを特徴とする請求項1に記載の情報提供収集装置。

【請求項9】　上記記録媒体には、情報提供装置から書き換え可能な情報を記録することを特徴とする請求項1に記載の情報提供収集装置

【請求項10】　上記記録媒体への情報の記録は、上記情報提供装置による正当性認証が成立した場合に行なわれることを特徴とする請求項9に記載の情報提供収集装置

【請求項11】　上記正当性認証は、上記情報提供装置及び上記情報記録装置に記録され、その値自身が暗号化された鍵情報に基づいて行なわれることを特徴とする請求項10に記載の情報提供収集装置

【請求項12】　上記情報の再生は再生選択信号に基づいて行なわれることを特徴とする請求項1に記載の情報提供収集装置。

【請求項13】　上記情報の再生は、外部からの再生選択信号に基づいて行なわれることを特徴とする請求項1に記載の情報提供収集装置。

【請求項14】　上記情報の再生は、上記情報提供装置によって、上記情報記録装置の正当性認証が成立した場合に行なわれることを特徴とする請求項13に記載の情報提供収集装置。

【請求項15】　上記正当性認証は、上記情報記録装置及び上記情報記録装置に記録され、暗号化された鍵情報に基づいて行なわれることを特徴とする請求項14に記載の情報提供収集装置。

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【請求項16】　上記権利管理情報は、権利管理情報更新装置により書き換え可能であることを特徴とする請求項2に記載の情報提供収集装置。

【請求項17】　上記権利管理情報の書き換えは、上記情報記録装置によって、上記権利管理情報更新装置の正当性認証が成立した場合に行なわれることを特徴とする請求項16に記載の情報提供収集装置。

【請求項18】　上記正当性認証は、上記権利管理情報更新装置及び上記情報記録装置に記録され、暗号化された鍵情報に基づいて行なわれることを特徴とする請求項17に記載の情報提供収集装置。

【請求項19】　上記権利管理更新装置に記録された鍵情報と、
上記情報記録装置に記録された鍵情報とは異なる値を持つことを特徴とする請求項18に記載の情報記録装置。

【請求項20】　上記情報記録装置の挿入部と排出部を別々に備え、上記情報記録装置への記録を行なう情報提供装置から成ることを特徴とする情報提供収集装置。

【請求項21】　内部に記録媒体を備え、その記録媒体に記録されている情報を上記情報再生装置に転送する情報提供装置から成ることを特徴とする請求項20に記載の情報提供収集装置。

【請求項22】　上記記録媒体として半導体メモリを用いる情報提供装置から成ることを特徴とする請求項21に記載の情報提供収集装置。

【請求項23】　上記記録媒体から上記情報記録装置への情報の転送を、端子を用いて行なう情報提供装置から成ることを特徴とする請求項20に記載の情報提供収集装置。

【請求項24】　上記記録媒体から上記情報提供装置への情報の転送を非接触の手段で行なうことを特徴とする請求項20に記載の情報提供収集装置。

【請求項25】　上記情報提供装置から転送された情報を、上記情報記録装置に転送し、上記権利管理手段の制御の下に上記情報の再生を行なう情報記録装置から成ることを特徴とする情報提供収集装置。

【請求項26】　再生利用する情報を記録する第1の情報記録媒体と、
その情報の再生利用者の入力に係わる情報を記録する第2の情報記録媒体と、
その第2の情報記録媒体に記録された情報を外部に伝達するための伝達手段とを備えていることを特徴とする情報提供収集装置。

【請求項27】　上記第1の情報記録媒体に対し、外部からの情報の書き込みが可能であることを特徴とする請求項26に記載の情報提供収集装置。

【請求項28】　上記情報の再生利用者の入力に係わる情報が、第1の情報記録媒体に記録された情報再生によって入力が促される選択情報であることを特徴とする請求項26に記載の情報提供収集装置。



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【請求項２９】　上記情報の再生利用者の入力に係わる情報が、その情報の再生利用状況に関する情報であることを特徴とする請求項２６に記載の情報提供収集装置。

【請求項３０】　上記第１の情報記録媒体は、ＩＣメモリで構成されていることを特徴とする請求項２６に記載の情報提供収集装置。

【請求項３１】　上記第２の情報記録媒体は、ＩＣメモリーで構成されていることを特徴とする請求項２６に記載の情報提供収集装置。

【請求項３２】　構成要素が１枚のカードに実装されている情報記録装置から成ることを特徴とする請求項２６に記載の情報提供収集装置。

【請求項３３】　上記第２の情報記録媒体に記録された情報を読みだす手段を備えたことを特徴とする情報提供収集装置。

【請求項３４】　上記第２の情報記録媒体から読みだされた情報に基づく情報を記録する媒体を装備することを特徴とする請求項３３に記載の情報提供収集装置。

【請求項３５】　上記第１の情報記録媒体への情報の書き込み機能を装備していることを特徴とする請求項３３に記載の情報提供収集装置。

【請求項３６】　有線または無線の伝達手段を装備し、上記第２の情報記録媒体から読み出された情報に基づく情報を、一旦記録媒体に蓄積した後に、または蓄積をせずに、処理を加え、または処理を加えずに上記伝達手段によって送信できることを特徴とする請求項３３に記載の情報提供収集装置。

【請求項３７】　上記情報記録装置の上記第２の情報記録媒体から読みだされた情報の種類あるいは内容に依存して、情報提供条件あるいは情報利用条件が変化することを特徴とする請求項３５に記載の情報提供収集装置。

【請求項３８】　複数個の上記情報記録装置から、上記伝達手段によって、上記第２の情報記録媒体から読みだされた情報に基づく情報を収集することを特徴とする情報提供収集装置。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、ニュース、音楽等の情報を迅速に入手及び提供し、視聴者の反応を知るための手段を備えた情報記録装置に関するものである。

【０００２】

【従来の技術】従来より、例えば、特開平３－１１８６９０号に述べられているように、「無線、または有線により情報送出用の制御機に接続され、情報入力手段、該入力手段より入力した情報を情報記録媒体へ記録する記録手段、該情報記録媒体の排出口、および決済手段から構成されたことを特徴とする情報記録装置」という技術が知られている。

【０００３】これを用いれば、例えば、手持ちのカセットテープを情報記録装置にセットし、コイン、カード、

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使用度数管理等の決済処理をすることにより情報記録装置を介してニュース、音楽等の情報をダビングし、提供することができる。そして、従来例では、以下の方法が記載されている。利用者は、上記情報記録装置の挿入口にカセットテープ等の記録媒体を挿入するとともに、コインの投下および情報の選択を行なう。そして、上記情報記録装置は、それらに基づいて挿入された上記情報記録媒体に情報をダビングし、挿入口と同一の排出口から上記記録媒体を排出する。

【０００４】一方、流行歌などの音楽やクイズ等を供給する媒体として、ラジオやテレビ等の放送が利用されることが多い。

【０００５】

【発明が解決しようとする課題】従来例の方法では、カセットテープ等、ダビング速度が遅い場合には問題にならない。ところが、例えば、半導体メモリを用いた記録媒体へのダビングを考えた場合には、情報提供は瞬時に行なうことが可能である。しかし、その場合に、記録媒体へのダビングは瞬時に終了するにも拘わらず、いちいちコイン等を使用して決済を行なうのでは、情報入手者にコイン投入等の余分な負担がかかることになり、時間もかかる。そのため、従来例では、例えば駅などで多くの人が情報を入手しようとしても、電車の待ち合わせ時など、限られた時間内に情報が得られる人数には限りができてしまうことになる。

【０００６】また、従来例では、各利用者の情報選択動作やコインの投入動作とともに、情報記録装置の記録媒体の吸引、排出作用が隘路となり、各利用者は、これらの作用が終了するまで情報記録装置を占有することになる。そのため、従来例では、多くの利用者に迅速に情報を供給することができなかった。

【０００７】さらに、従来例では、上記情報記録媒体への記録時に決済がなされる。ところが、例えば、記録された情報のうち、情報入手者に興味があるのは、そのほんの一部だけで、実際にはその部分しか再生しなかった場合がある。しかし従来例では、そうした場合でも、決済は情報記録時に行なわれているので、情報入手者は、すべての情報に対する料金を払わなければならないという不都合が生じる場合がある。

【０００８】また、従来、放送局は一方的に番組を流すだけである。従って、従来例においては、視聴者が、実際にそれらの番組をどのように視聴しているかの実態や、どの曲に人気があるかといった情報を把握することは困難であった。また、例えば、クイズ番組においても、従来例においては、視聴者の正当率を把握したり、視聴者同士で正当率を競ったりすることは困難であった。

【０００９】これに対し、双方向機能を持ったＣＡＴＶを使用して、これらの情報を把握するという方法も提案されている。しかし、これらは視聴のための装置が屋内



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に固定されているため、屋外での視聴者の状況を知るためには適用できない、という欠点があった。

【0010】また、一般に、正当な権利管理情報更新装置は、厳重に管理することが可能である。しかし、情報記録（再生）装置は多数の人が使用するため、厳重に管理することが難しい。しかも、不当な権利管理情報更新装置が1台でもできると、それによって多数の情報記録（再生）装置内の残度数が更新され得るので危険である。

【0011】本発明はこのような状況に鑑みてなされたものであり、情報の迅速な入手、柔軟な料金支払いを可能とし、さらに、視聴者の反応に関する情報を得ることができるようにすることを目的とする。また、情報管理の安全性を高めることを目的とする。

【0012】

【課題を解決するための手段】請求項1に記載の情報提供収集装置は、情報記録媒体１０４３及び権利管理手段としての権利管理部１０４５を備え、権利管理手段としての権利管理部１０４５の制御により情報の記録または再生の制御を行なう情報記録装置１０４１から成ることを特徴とする。

【0013】請求項2に記載の情報提供収集装置は、上記権利管理手段としての権利管理部１０４５において、上記記録媒体１０４３に記録された権利管理情報としての残度数情報Dに基づいて制御を行なうことを特徴とする。

【0014】請求項3に記載の情報提供収集装置は、上記権利管理情報としての残度数情報Dが、記録もしくは再生前後で内容が変化することを特徴とする。

【0015】請求項4に記載の情報提供収集装置は、上記権利管理情報としての残度数情報Dが、記録または再生が許可される有効期限であることを特徴とする。

【0016】請求項5に記載の情報提供収集装置は、上記記録媒体１０４３に記録される情報の一部が、その情報自身の内容を示すものであることを特徴とする。

【0017】請求項6に記載の情報提供収集装置は、上記記録媒体１０４３が、半導体メモリであることを特徴とする。

【0018】請求項7に記載の情報提供収集装置は、上記記録媒体１０４３及び上記権利管理手段としての権利管理部１０４５が、1枚のカードに実装されている情報記録装置１０４１から成ることを特徴とする。

【0019】請求項8に記載の情報提供収集装置は、上記記録媒体１０４３には書き換え不可能な情報を記録し、再生時に権利管理を行なうことを特徴とする。

【0020】請求項9に記載の情報提供収集装置は、上記記録媒体１０４３には、情報提供装置１００１から書き換え可能な情報を記録することを特徴とする。

【0021】請求項10に記載の情報提供収集装置は、上記記録媒体１０４３への情報の記録が、上記情報提供装置１００１による正当性認証が成立した場合に行なわれることを特徴とする。

【0022】請求項11に記載の情報提供収集装置は、上記正当性認証が、上記情報提供装置１００１及び上記情報記録装置１０４１に記録され、暗号化された鍵情報としての秘密鍵Kに基づいて行なわれることを特徴とする。

【0023】請求項12に記載の情報提供収集装置は、上記情報の再生が、再生選択信号としての再生選択情報１１４に基づいて行なわれることを特徴とする。

【0024】請求項13に記載の情報提供収集装置は、上記情報の再生が、外部からの再生選択信号としての再生選択情報１１４に基づいて行なわれることを特徴とする。

【0025】請求項14に記載の情報提供収集装置は、上記情報の再生が、上記情報提供装置１００１によって、上記情報記録装置１０４１の正当性認証が成立した場合に行なわれることを特徴とする。

【0026】請求項15に記載の情報提供収集装置は、上記正当性認証が、上記情報提供装置１００１及び上記情報記録装置１０４１に記録され、暗号化された鍵情報としての秘密鍵Kに基づいて行なわれることを特徴とする。

【0027】請求項16に記載の情報提供収集装置は、上記権利管理情報としての残度数情報Dが、権利管理情報更新装置１０６１により書き換え可能であることを特徴とする。

【0028】請求項17に記載の情報提供収集装置は、上記権利管理情報としての残度数情報Dの書き換えが、上記情報記録装置１０４１によって、上記権利管理情報更新装置１０６１の正当性認証が成立した場合に行なわれることを特徴とする。

【0029】請求項18に記載の情報提供収集装置は、上記正当性認証が、上記権利管理情報更新装置１０６１及び上記情報記録装置１０４１に記録され、暗号化された鍵情報としての復号化鍵L及び暗号化鍵Mに基づいて行なわれることを特徴とする。

【0030】請求項19に記載の情報提供収集装置は、上記権利管理更新装置１０６１に記録された鍵情報としての暗号化鍵Mと、上記情報記録装置１０４１に記録された鍵情報としての復号化鍵Lとは異なる値を持つことを特徴とする。

【0031】請求項20に記載の情報提供収集装置は、上記情報記録装置１０４１の挿入部と排出部を別々に備え、上記情報記録装置１０４１への記録を行なう情報提供装置１００１から成ることを特徴とする。

【0032】請求項21に記載の情報提供収集装置は、内部に記録媒体２０１２を備え、その記録媒体２０１２に記録されている情報を上記情報記録装置１０４１に転送する情報提供装置１００１から成ることを特徴とす



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る。

【0033】請求項22に記載の情報提供収集装置は、上記記録媒体2012として半導体メモリを用いる情報提供装置1001から成ることを特徴とする。

【0034】請求項23に記載の情報提供収集装置は、上記記録媒体2012から上記情報記録装置1041への情報の転送を端子2041を用いて行なうことを特徴とする。

【0035】請求項24に記載の情報提供収集装置は、記録媒体2023から情報記録装置2031への情報の転送を非接触の手段で行なうことを特徴とする。

【0036】請求項25に記載の情報提供収集装置は、上記情報提供装置1001から転送された情報を、上記情報記録装置1041に転送し、上記権利管理手段としての権利管理部1045の制御の下に上記情報の再生を行なう情報記録装置1041から成ることを特徴とする。

【0037】請求項26に記載の情報提供収集装置は、再生利用する情報を記録する第1の情報記録媒体4013と、その情報の再生利用者の入力に係わる情報を記録する第2の情報記録媒体4017と、その第2の情報記録媒体4017に記録された情報を外部に伝達するための伝達手段としての伝達部3008とを備えていることを特徴とする。

【0038】請求項27に記載の情報提供収集装置は、上記第1の情報記録媒体4013に対し、外部からの情報の書き込みが可能であることを特徴とする。

【0039】請求項28に記載の情報提供収集装置は、上記情報の再生利用者の入力に係わる情報が、第1の情報記録媒体4013に記録された情報再生によって入力が促される選択情報であることを特徴とする。

【0040】請求項29に記載の情報提供収集装置は、上記情報の再生利用者の入力に係わるその情報が、その情報の再生利用状況に関する情報であることを特徴とする。

【0041】請求項30に記載の情報提供収集装置は、上記第1の情報記録媒体4013が、ICメモリで構成されていることを特徴とする。

【0042】請求項31に記載の情報提供収集装置は、該第2の情報記録媒体4017が、ICメモリで構成されていることを特徴とする。

【0043】請求項32に記載の情報提供収集装置は、構成要素が1枚のカードに実装されている情報記録装置5021から成ることを特徴とする。

【0044】請求項33に記載の情報提供収集装置は、上記第2の情報記録媒体4017に記録された情報を読み出す手段としての制御部4014を備えたことを特徴とする。

【0045】請求項34に記載の情報提供収集装置は、上記第2の情報記録媒体4017から読みだされた情報に基づく情報を記録する媒体としての記録媒体3007を装備することを特徴とする。

【0046】請求項35に記載の情報提供収集装置は、上記第1の情報記録媒体4013への情報の書き込み機能を装備していることを特徴とする。

【0047】請求項36に記載の情報提供収集装置は、有線または無線の伝達手段としての伝達部3002，3008を装備し、上記第2の情報記録媒体4017から読み出された情報に基づく情報を、一旦記録媒体3007に蓄積した後に、または蓄積をせずに、処理を加え、または処理を加えずに上記伝達手段によって送信できることを特徴とする。

【0048】請求項37に記載の情報提供収集装置は、上記第2の情報記録媒体4017から読みだされた情報の種類あるいは内容に依存して、情報提供条件あるいは情報利用条件が変化することを特徴とする。

【0049】請求項38に記載の情報提供収集装置は、複数個の上記記情報記録装置5021から、上記伝達部3008によって、上記第2の情報記録媒体3007から読みだされた情報に基づく情報を収集することを特徴とする。

【0050】

【作用】請求項1に記載の情報提供収集装置においては、権利管理部1045の制御により情報の記録または再生の制御が行われる。以上のことにより、柔軟な料金支払いが可能となる。

【0051】請求項2に記載の情報提供収集装置においては、権利管理部1045において、上記記録媒体1043に記録された残度数情報Dに基づいて制御が行なわれる。以上のことにより、柔軟な料金支払いが可能となる。

【0052】請求項3に記載の情報提供収集装置においては、残度数情報Dが、記録もしくは再生前後で内容が変化する。以上のことにより、柔軟な料金支払いが可能となる。

【0053】請求項4に記載の情報提供収集装置においては、残度数情報Dが、記録または再生が許可される有効期限である。以上のことにより、柔軟な料金支払いが可能となる。

【0054】請求項5に記載の情報提供収集装置においては、記録媒体1043に記録される情報の一部が、その情報自身の内容を示す。以上のことにより、柔軟な料金支払いが可能となる。

【0055】請求項6に記載の情報提供収集装置においては、記録媒体1043が、半導体メモリである。以上のことにより、情報の迅速な入手が可能となる。

【0056】請求項7に記載の情報提供収集装置においては、記録媒体1043及び権利管理部1045が、1枚のカードに実装されている情報記録装置1041から成る。以上のことにより、情報の迅速な入手が可能とな



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る。

【００５７】請求項８に記載の情報提供収集装置においては、記録媒体１０４３には書き換え不可能な情報が記録され、再生時に権利管理が行なわれる。以上のことにより、柔軟な料金支払いが可能となる。

【００５８】請求項９に記載の情報提供収集装置においては、記録媒体１０４３に、情報提供装置１００１から書き換え可能な情報が記録される。以上のことにより、柔軟な料金支払いが可能となる。

【００５９】請求項１０に記載の情報提供収集装置においては、記録媒体１０４３への情報の記録が、上記情報提供装置１００１による正当性認証が成立した場合に行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６０】請求項１１に記載の情報提供収集装置においては、上記正当性認証が、情報提供装置１００１及び情報記録装置１０４１に記録され、秘密鍵Ｋに基づいて行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６１】請求項１２に記載の情報提供収集装置においては、上記情報の再生が、再生選択信号１１４に基づいて行なわれる。以上のことにより、柔軟な料金支払いが可能となる。

【００６２】請求項１３に記載の情報提供収集装置においては、上記情報の再生が、外部からの再生選択信号１１４に基づいて行なわれる。以上のことにより、柔軟な料金支払いが可能となる。

【００６３】請求項１４に記載の情報提供収集装置においては、上記情報の再生が、情報提供装置１００１によって、情報記録装置１０４１の正当性認証が成立した場合に行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６４】請求項１５に記載の情報提供収集装置においては、上記正当性認証が、情報提供装置１００１及び情報記録装置１０４１に記録され、秘密鍵Ｋに基づいて行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６５】請求項１６に記載の情報提供収集装置においては、残度数情報Ｄが、権利管理情報更新装置１０６１により書き換え可能である。以上のことにより、柔軟な料金支払いが可能となる。

【００６６】請求項１７に記載の情報提供収集装置においては、残度数情報Ｄの書き換えが、情報記録装置１０４１によって、権利管理情報更新装置１０６１の正当性認証が成立した場合に行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６７】請求項１８に記載の情報提供収集装置においては、上記正当性認証が、権利管理情報更新装置１０６１及び情報記録装置１０４１に記録され、復号化鍵Ｌ及び暗号化鍵Ｍに基づいて行なわれる。以上のことにより、情報管理の安全性が高められる。

【００６８】請求項１９に記載の情報提供収集装置においては、権利管理更新装置１０６１に記録された暗号化鍵Ｍと、情報記録装置１０４１に記録された復号化鍵Ｌとは異なる値を持つ。以上のことにより、情報管理の安全性が高められる。

【００６９】請求項２０に記載の情報提供収集装置においては、情報記録装置１０４１の挿入部と排出部を別々に備え、情報記録装置１０４１への記録を行なう情報提供装置１００１から成る。以上のことにより、情報の迅速な入手が可能となる。

【００７０】請求項２１に記載の情報提供収集装置においては、内部に記録媒体２０１２を備え、その記録媒体２０１２に記録されている情報を情報記録装置１０４１に転送する情報提供装置１００１から成る。以上のことにより、情報の迅速な入手が可能となる。

【００７１】請求項２２に記載の情報提供収集装置においては、記録媒体２０１２として半導体メモリを用いる情報提供装置１００１から成る。以上のことにより、情報の迅速な入手が可能となる。

【００７２】請求項２３に記載の情報提供収集装置においては、記録媒体２０１２から情報記録装置１０４１への情報の転送が端子２０４１を用いて行なわれる。以上のことにより、情報の迅速な入手が可能となる。

【００７３】請求項２４に記載の情報提供収集装置においては、記録媒体２０２３から情報記録装置２０３１への情報の転送が非接触の手段で行なわれる。以上のことにより、情報の迅速な入手が可能となる。

【００７４】請求項２５に記載の情報提供収集装置においては、情報提供装置１００１から転送された情報を、情報記録装置１０４１に転送し、権利管理部１０４５の制御の下に上記情報の再生を行なう情報記録装置１０４１から成る。以上のことにより、柔軟な料金支払いが可能となる。

【００７５】請求項２６に記載の情報提供収集装置においては、情報記録媒体４０１３により、再生利用する情報が記録され、情報記録媒体４０１７により、再生利用者の入力に係わる情報が記録される。そして、伝達部３００８により、情報記録媒体４０１７に記録された情報が外部に伝達される。以上のことにより、柔軟な料金支払いが可能となる。

【００７６】請求項２７に記載の情報提供収集装置においては、情報記録媒体４０１３に対し、外部からの情報の書き込みが可能である。以上のことにより、柔軟な料金支払いが可能となる。

【００７７】請求項２８に記載の情報提供収集装置においては、再生利用者の入力に係わる情報が、情報記録媒体４０１３に記録された情報再生によって入力が促される選択情報である。以上のことにより、視聴者の反応に関する情報が得られる。



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【0078】請求項29に記載の情報提供収集装置においては、再生利用者の入力に係わるその情報が、その情報の再生利用状況に関する情報である。以上のことにより、視聴者の反応に関する情報が得られる。

【0079】請求項30に記載の情報提供収集装置においては、情報記録媒体4013が、ICメモリで構成されている。以上のことにより、情報の迅速な入手が可能となる。

【0080】請求項31に記載の情報提供収集装置においては、情報記録媒体4017が、ICメモリーで構成されている。以上のことにより、情報の迅速な入手が可能となる。

【0081】請求項32に記載の情報提供収集装置においては、構成要素が1枚のカードに実装されている情報記録装置5021から成る。以上のことにより、情報の迅速な入手が可能となる。

【0082】請求項33に記載の情報提供収集装置においては、情報記録媒体4017に記録された情報が、制御部4014により読み出される。以上のことにより、視聴者の反応に関する情報が得られる。

【0083】請求項34に記載の情報提供収集装置においては、記録媒体3007により、情報記録媒体4017から読みだされた情報に基づく情報が記録される。以上のことにより、視聴者の反応に関する情報が得られる。

【0084】請求項35に記載の情報提供収集装置においては、情報記録媒体4013への情報の書き込み機能が装備されている。以上のことにより、柔軟な料金支払いが可能となる。

【0085】請求項36に記載の情報提供収集装置においては、情報記録媒体4017から読み出された情報に基づく情報が、一旦記録媒体3007に蓄積された後に、伝達部3002，3008により送信される。または、上記情報が蓄積されずに、処理が加えられ、または処理が加えられずに伝達部3002，3008により送信される。以上のことにより、柔軟な料金支払いが可能となる。

【0086】請求項37に記載の情報提供収集装置においては、情報記録媒体4017から読みだされた情報の種類あるいは内容に依存して、情報提供条件あるいは情報利用条件が変化する。以上のことにより、柔軟な料金支払いが可能となる。

【0087】請求項38に記載の情報提供収集装置においては、複数個の記情報記録装置5021から、伝達部3008によって、情報記録媒体3007から読みだされた情報に基づく情報が収集される。以上のことにより、視聴者の反応に関する情報が得られる。

【0088】

【実施例】以下、本発明の好ましい実施例について、図面を参照しながら説明する。図1は、本発明の方法による情報提供収集装置の一実施例における情報記録再生装置の外観を示したものである。この実施例の装置の一端には、情報提供装置結合端子が付いている。ここを通じて、情報提供装置から情報記録再生装置内に設置された記録媒体に情報がコピーされる。また、この実施例の装置の前面には、表示手段としての表示部と、再生選択手段としての再生選択ボタンが装備されている。

【0089】次に、その動作について説明する。上記表示部は、上記情報記録再生装置内に記録された情報の内容を表示することができる。情報提供収集装置の使用者は、上記表示部に表示されたものをもとに、ボタン等の再生選択手段を用いて必要な情報を選択的に再生することができる。情報の内容は、テキスト情報、音声情報、映像情報およびコンピュータプログラム等を含み、特に限定されない。ここでプログラムの再生とは、そのプログラムを実行することを意味するが、この場合、実行時に使用者が必要に応じて情報を入力しても良い。再生信号がテキストや映像信号の場合には、その再生信号は液晶装置等でできた表示部に表示され、音声情報の場合にはイアホンに出力される。図1の実施例には描かれていないが、もちろんイアホンのかわりに、スピーカが装備されていても良く、あるいは、その両方が装備されていても良い。その場合には、スピーカに音声情報の再生結果が出力されても良い。

【0090】やはり図1の実施例には描かれていないが、さらに再生信号は、外部端子が設けられて外部のCRTやスピーカー等に接続されてもよい。なお、記録媒体の種類も、特に限定はない。しかし、一般的に、記録媒体は、高速にコピーが可能で、かつ、ランダムアクセスが容易で、携帯性にも優れたICメモリが使用されると便利である。

【0091】図2は、本発明のもう1つの実施例の外観図である。この例では、図1の情報記録再生装置が、情報記録装置と情報再生装置とに物理的に分離して構成されている。そして、情報記録装置は1枚のカードに実装されている。ただし、再生時には、上記情報記録装置と上記情報再生装置との間でデータおよび制御のやりとりが必要になるので、両者を結合する情報提供装置結合端子及び情報再生装置結合端子が上記情報記録装置及び上記情報再生装置に装備されている。ただし、上記情報記録装置の上記情報記録装置結合端子及び上記情報再生装置結合端子は、実際には1つの端子を切り替えて使用されるように構成されることも可能である。その動作については、図1と同様であり、ここでは省略する。

【0092】図3は、本発明に係わる情報提供収集装置の一実施例における情報提供装置の外観図である。情報提供装置内には記録媒体が設置され、情報が記録されている。図3では省略されているが、記録する情報においては、有線または無線による情報伝達手段によって送信するようにすると便利である。ただし、もちろん、記録



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済みの記録媒体が直接に上記情報提供装置に挿入されても良い。

【0093】図3の実施例の情報提供装置の前面には、記録されている情報の内容や価格等を表示する表示手段としての表示部が装備されている。また、上記情報提供装置の前面には、どの情報を情報提供手段から出力するかを選択する出力選択手段としての出力選択ボタンが装備されている。そして、その出力選択ボタンにより、情報入手希望者は欲しい情報を選択することができる。さらに、上記情報提供装置の前面には、情報記録再生装置または情報記録装置を挿入するための挿入排出口が備えてある。その動作について説明する。情報の入手は、上記情報提供装置の挿入排出口に情報記録再生装置または情報記録装置が挿入され、情報のコピーを受けることによって実現される。

【0094】図4は、本発明に係わる情報提供収集装置のもう1つの実施例における情報提供装置の外観図である。この実施例では、挿入口と排出口が距離を置いて分離されている。そして、情報提供装置内には、情報記録装置を運ぶベルトが備えてある。その動作について説明する。上記挿入口から情報記録装置が挿入されると、その情報記録装置は上記ベルトに運ばれて排出口から出てくる。そして、情報入手希望者は歩きながら情報の入手をすることができる。以上のように、この実施例は多くの人に迅速に情報を提供する場合に便利である。

【0095】図5は、本発明の情報提供収集装置の一実施例における情報提供装置のブロック図である。図5において、情報記録媒体1003は、ハードディスクや光磁気ディスク等、何であっても良い。しかし、一般的には、ランダムアクセスが可能で、情報記録再生装置の記録速度と同等の読み出しが可能であると効率が良い。そのため、記録媒体1003は、ICメモリによって構成されていると便利である。情報記録媒体1003は、情報出力部1004に接続され、情報出力部1004は、制御部1005に接続されている。制御部1005には、出力選択部1006及び表示部1007に接続されている。そして、以上の構成により、情報提供装置1001を成している。一方、情報記録媒体1003は情報伝達部1002にも接続されている。

【0096】次に、その動作について説明する。情報101が、有線、無線等の情報伝達部1002によって送られ、情報記録媒体1003に記録される。その情報記録媒体1003から読みだされた情報102は、情報出力部1004を通して信号103として出力される。情報出力部1004は制御部1005により情報の出力制御を受ける。制御部1005は、表示部1007に情報の内容や提供条件、情報提供処理過程の経過等の信号105を送る。それと共に、制御部1005は、情報入手希望者が出力選択部1006を通じて入力した出力選択情報104を受け取る。そして、制御部1005は、図6に示す情報記録再生装置1011の権利管理部1015と後述する内容の通信107を行なう。その結果に基づいて、信号106により情報出力部1004の制御が行なわれる。その制御に基づいて、情報出力部1004は、情報記録媒体1003から読みだした情報102を情報記録再生装置1011に信号103として出力する。

【0097】図6は、本発明の情報提供収集装置の一実施例における情報記録再生装置のブロック図である。図6において、情報記録媒体1012は、情報入力部1013、権利管理部1015及び情報再生部1014に接続されている。そして、情報再生部1014及び情報入力部1013は、権利管理部1015に接続されている。さらに、権利管理部1015には、再生選択部1016及び表示部1017が接続されている。そして、以上の構成により、情報記録再生装置1011を成している。

【0098】次に、その動作について説明する。情報記録再生装置1011においては、権利管理部1015の制御の下に、情報記録再生装置1011への入力、情報記録媒体1012への記録及び再生が行なわれる。情報入力部1013への入力または情報記録媒体1012への記録を制御する場合には、権利管理部1015は、図5に示す情報提供装置1001の制御部1005と、後述する内容の通信107を行なう。その結果に基づいて、制御信号116によって、情報入力部1013の情報入力機能または情報記録機能が制御される。そして、信号103は、情報入力部1013を通して情報記録媒体1012に情報111として送られる。

【0099】一方、情報記録媒体1012からの再生を制御する場合には、権利管理部1015においては、情報記録媒体1012に記録されている情報のうち、その情報自身の種類や再生条件などの情報118を読み出す。それが表示情報115として表示部1017に送って表示される。この表示情報115に基づいて、装置の使用者が再生選択部1016によって入力した再生選択信号としての再生選択情報114が、権利管理部1015に送られる。そして、権利管理部1015においては、後述する処理を行なうことによって、情報再生部1014に再生制御信号117を送る。これに基づいて、情報再生部1014においては、情報記録媒体1012から情報112を読み出し、音や映像、テキストなどの再生信号113を出力する。ただし、再生信号113が映像やテキストである場合には、例えば、その映像やテキストが表示部1017上に再生されても良い。

【0100】図7は、図5に示す情報提供装置1001における制御部1005の実施例を示したものである。図7において、メモリ1021は、CPU1022に接続され、CPU1022は、乱数発生部1023に接続されている。以上のように、制御部1005は、メモリ



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1021とCPU1022及び乱数発生部1023で構成されている。そして、メモリ1021には、暗号化された秘密鍵Kが記録されている。その動作については、後のフローチャートで述べる。

【0101】図8は、図6に示す情報記録再生装置1011における権利管理部1015の実施例を示したものである。図8において、メモリ1031は、CPU1032に接続されている。そして、権利管理部1015は、メモリ1031及びCPU1032で構成されている。また、メモリ1031には、暗号化された鍵情報としての秘密鍵K及び権利管理情報としての残度数情報Dが記録されている。

【0102】ここで残度数情報Dとは、情報記録再生装置1011が、その時点で、あと何回外部から情報を入手して記録してもいいか、あるいは、何回その情報を再生してもいいか、という権利情報を表すものである。ただし、残度数情報Dは、それら記録または再生の回数を直接表すものでなくても良い。例えば、残度数情報Dは、その情報を記録または再生するのに必要な権利の単位の数量を表し、情報の内容によって異なる数量の単位が記録または再生時に減じられていくものとしても良い。また、残度数というのも権利管理情報の一例であり、例えば、残度数のかわりに、記録や再生の許される有効期限が記録してあってもよい。その動作については、後のフローチャートで述べる。

【0103】図9は、本発明の情報提供収集装置の一実施例において、情報記録再生装置への記録時に決済が行なわれる場合ついて説明するフローチャートである。ここで図9において、情報提供装置1001及び情報記録再生装置1011間の通信107及び情報の送受信信号113の実施例について説明を行なう。

【0104】先ずステップ1で、情報の入手希望者は、情報記録再生装置1011を情報提供装置1001に挿入し、出力選択部1006を用いて出力選択を行なう。ステップ2で、制御部1005は、この出力選択情報104を受信する。それと共に、ステップ10で、制御部1005と権利管理部1015との間で通信201が行なわれる。そして、後述する方法により、権利管理部1015の認証が行なわれる。ステップ3で、これにより権利管理部1015の正当性が証明されれば、ステップ5で、その情報の入手に必要な度数202が権利管理部1015に送信される。しかし、ステップ3で、もし正当性が証明されない場合には、ステップ4が実行される。ステップ4では、正当性が証明されないことが表示部1007に表示され、情報記録再生装置1011が排出されるなどのコピー不可処理1が行なわれる。

【0105】一方、ステップ5で、その正当性が証明された権利管理部1015は、ステップ11で、情報の入手に必要な度数情報を受信する。ステップ12では、権利管理部1015は、上記必要度数情報と権利管理部1015自身が保持する残度数情報Dとを比較する。そして、もし必要度数が残度数よりも等しいか、少なければ、ステップ13で、コピー要求信号203が制御部1005に送信される。ステップ6では、制御部1005は、コピー要求信号203を受信する。ステップ7では、情報記録媒体1003内の情報が情報103として情報記録再生装置1011に送信される。そして、ステップ14で、情報記録再生装置1011は、情報103を受信し記録する。それと共に、ステップ15で、残度数が減ずるように変更される。

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【0106】一方、ステップ12で、必要度数が残度数より大きい場合には、ステップ16で、権利管理部1015はコピー不可処理2要求信号205を送信する。ステップ8では、制御部1005はコピー不可処理2要求信号205を受信する。そして、ステップ9で、コピー不可であることが表示部1007に表示されるなどのコピー不可処理2が行なわれる。このようにして、情報送信が行なわれたり、必要度数が残度数より大きいためにコピー不可処理2が行なわれる。

【0107】ところで、以上の処理後、情報入手希望者が別の情報の入手を希望する場合がある。その場合は、情報記録媒体1012に十分な記録領域が確保できるのであれば、情報入手希望者が、別の情報の入手を希望することを情報記録装置に入力する。そして、情報提供装置1001及び情報記録再生装置1011は上述の処理を繰り返すようにしても良い。なお、権利管理情報として、残度数のかわりに有効期限が記録されている場合も考えられる。その場合には、権利管理部1015は、必要度数と残度数との比較ではなく、図では省略されているクロックに基づいて、現在の日付時刻と有効期限との比較を行なう。そして、残度数の変更にあたるような処理は不用になる。

【0108】図10は、図9に示す認証のための通信201について説明するフローチャートである。先ず、ステップ31で、制御部1005は乱数Pを発生する。ステップ32で、上記乱数Pが権利管理部1015に送信される。それと共に、ステップ33で、秘密鍵Kと乱数Pに依存する関数f（K，P）の値Aが計算される。

【0109】一方、ステップ36で、権利管理部1015は乱数Pを受信する。そして、ステップ37でも、関数f（K，P）の値Bが計算される。ステップ38で、上記値Bが制御部1005に送信される。ステップ34で、値Bを受信した制御部1005は、値Aと値Bとを比較する。ステップ35で、値Aと値Bとが、もし一致していれば、この権利管理部1015は正しい秘密鍵Kの値を保持し、正しい決済を行なう正当なものであると判断される。しかし、値Aと値Bとが、もし一致しなければ、この権利管理部1015は不当なものであると見なされる。

【0110】ここで、認証の方法としては、例えば、権



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利管理部１０１５が保持している秘密鍵Ｋを直接、制御部１００５に送信し、制御部１００５が正しい秘密鍵Ｋの値が送られてきたかを検証するという方法も採ることができる。しかし、実施例のような方法が用いられれば、秘密鍵Ｋが、制御部１００５や権利管理部１０１５の外部に出ることはないので、安全性が高められる。また、認証の方法としては、後述する公開鍵暗号を利用した方法を用いることももちろん、可能である。

【０１１１】図１１は、本発明の情報提供収集装置の一実施例において、権利管理部１０１５が情報の記録時ではなく、再生時に情報使用の決済を行なう場合の処理の流れのについて説明するフローチャートである。ステップ５１で、情報記録媒体１０１２に記録されている情報のうち、どの部分を再生するか再生選択がなされる。ステップ５２で、権利管理部１０１５においては、残度数が再生に必要な度数以上であるかどうかを調べ、もしそうであれば、ステップ５４が実行される。そして、情報が再生されると共に、ステップ５５で、残度数が減ずるように変更される。一方、ステップ５２で、残度数が必要度数に満たない場合には、ステップ５３で、残度数が必要度数に満たないことが表示部１０１７に表示されるなどの再生不可処理が行なわれる。

【０１１２】なお、残度数のかわりに有効期限が記録されている場合も考えられる。その場合には、権利管理部１０１５おいては、必要度数と残度数との比較ではなく、図では省略されているクロックに基づいて、現在の日付時刻と有効期限との比較を行なう。そして、この場合には、残度数の変更にあたるような処理は不用になる。なお、このように再生時に権利管理が行なわれる場合、記録媒体への書き込みは必ずしも情報提供装置を通じて行なわれなくても良い。例えば、マスクＲＯＭに記録されている情報が上述の方法で再生時に決済されるようにしても良い。

【０１１３】図１２は、図２の実施例における情報記録再生装置の構成を示すブロック図である。図１２において、情報記録再生装置は、情報記録装置１０４１と情報再生装置１０５１とに分離している。権利管理部１０４５は、情報入力部１０４４及び情報出力部１０４２とに接続され、情報入力部１０４４は、情報記録媒体１０４３に接続されている。また、情報記録媒体１０４３は、情報出力部１０４２に接続されている。以上の構成により、情報記録装置１０４１を成している。

【０１１４】一方、情報再生部１０５２は、再生制御部１０５３に接続され、再生制御部１０５３は、再生選択部１０５４及び表示部１０５５に接続されている。以上の構成により、情報再生装置１０５１を成している。そして、情報出力部１０４２は、情報再生装置１０５１に接続され、権利管理部１０４５は、再生制御部１０５３に接続されている。図１の実施例の場合と対応する部分には同一の符号を付してあり、その説明は適宜省略する。なお、情報記録装置１０４１は、１枚のカードに実装されている。

【０１１５】次に、その動作について説明する。図１２の場合には、図６に示す権利管理部１０１５の機能は、権利管理部１０４５と再生制御部１０５３に分離されている。情報記録媒体１０４３に情報が記録される時に、その情報の権利管理が行なわれる場合には、権利管理部１０４５は図６の権利管理部１０１５と同様に機能する。一方、情報記録媒体１０４３からの再生時に権利管理が行なわれる場合には、権利管理部１０４５及び再生制御部１０５３が、それら両者間の通信１２０を通じて、図６の権利管理部１０１５と同様の機能を果たす。

【０１１６】尚、この場合、権利管理部１０４５は、情報出力部１０４２の出力を制御信号１２１によって制御する。そのことにより、情報の再生が許可されたり禁止されたりする。もちろん、情報記録媒体１０４３からの出力そのものが制御されることによっても、同様の機能を実現することは可能である。尚、不当な情報再生装置によって情報が再生されることを防ぐため、例えば、再生選択の前に、情報記録装置１０４１による情報再生装置１０５１の認証が行なわれるようにしても良い。

【０１１７】本発明において、残度数などの権利管理情報は、重要な役割を持つ。そして、上記権利管理情報は、正当な権利管理情報更新装置を用いて、安全かつ容易に更新することが可能である。以下、これについて説明を行なう。

【０１１８】図１３は、権利管理情報更新装置の実施例の外観を示したものである。権利管理情報更新装置の前面には、情報記録（再生）装置を出し入れする挿入排出口及びコイン投入口がついている。その動作について説明する。権利管理情報の更新が必要な場合には、情報記録（再生）装置が挿入排出口に挿入されると共に、コイン投入口に必要な対価が入れられる。ただしもちろん、権利管理情報更新装置が人手によって管理され、その人が更新希望者から対価を受け取って、情報記録（再生）装置を挿入排出口に挿入するようにしても良い。

【０１１９】図１４は、図１３の実施例において、権利管理部１０１５及び権利管理情報更新装置１０６１の構成を示すブロック図である。ただし、権利管理情報の更新に直接関係しない部分については省略してある。図１４において、権利管理部１０１５には、図８に示された他に乱数発生部１０３３が装備されており、また、メモリ１０３１には、暗号化された鍵情報としての復号化鍵Ｌ及び残度数情報Ｄが記録されているものとする。この復号化鍵Ｌの意味と働きについては後述する。そして、乱数発生部１０３３及びメモリ１０３１は、ＣＰＵ１０３２に接続されている。また一方、権利管理情報更新装置１０６１には、メモリ１０６２，ＣＰＵ１０６３及びコイン受入部１０６４が装備されている。そして、メモリ１０６２には、暗号化鍵Ｍが記録されているものとす



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る。この暗号化鍵Mは前述の復号化鍵Lと対になるものであるが、その意味と働きについては後述する。メモリ１０６２及びコイン受入部１０６４はＣＰＵ１０６３に接続されている。そして、ＣＰＵ１０３２とＣＰＵ１０６３とが、通信３０１を行なうことによって、権利管理情報の更新は行なわれる。

【０１２０】図１５は、図１３の実施例において、権利管理部１０１５及び権利管理情報更新装置１０６１の処理のフローチャートを示したものである。権利管理情報更新装置１０６１に権利管理部１０１５が挿入されると、ステップ６１で、権利管理部１０１５によって権利管理情報更新装置１０６１の認証３０２が始まる。認証の結果、ステップ６２で、権利管理情報更新装置１０６１が正当なものであると認められれば、ステップ６３で、残度数更新のための処理が準備される。しかし、ステップ６２で、正当であると認められなければ、残度数更新拒否処理が行なわれる。ここで、残度数更新拒否処理は単に何もしないだけでも良いが、権利管理情報更新装置１０６１にその残度数更新拒否をすることが送信されても良い。

【０１２１】次に、残度数更新の処理として、ステップ６５で、認証が開始された後、ステップ６６で、権利管理情報更新装置１０６１はコインの投入を確認する。ステップ６７で、入金された額３０３が権利管理部１０１５に送信される。ステップ６３で、権利管理部１０１５が上記額３０３を受信し、ステップ６４で、その額に応じて残度数が増加するように変更される。一方、権利管理情報更新装置は排出口から情報記録（再生）装置を排出する。

【０１２２】図１６は、図１３の実施例において、認証の処理の流れを示したものである。認証の方法としては、例えば、図１０に示したものと同じように権利管理部１０１５と権利管理情報更新装置１０６１とで共通の秘密鍵を用いて行なうこともできる。しかし、そのような方法をとった場合、万が一、権利管理部１０１５に記録されている秘密鍵の情報が漏洩すると、不当な権利管理情報更新装置の制作が可能になる。

【０１２３】一般に、正当な権利管理情報更新装置は、厳重に管理することが可能である。しかし、情報記録（再生）装置は多数の人が使用するため、厳重に管理することが難しい。しかも、不当な権利管理情報更新装置が１台でもできると、それによって多数の情報記録（再生）装置内の残度数が更新され得るので危険である。そのため、この実施例では、公開鍵暗号を用いた認証を利用している。

【０１２４】公開鍵暗号ついては、例えば
Cryptographyand Data Security, Dorothy Elizabety Robling Denning, 1982 Addison-Wesley Publishing Company, Inc., Reading, Mass., U. S. A.）
（日本語訳）
暗号とデータセキュリティ
上園忠弘、小槍格、奥島晶子訳　　培風館
に詳細が記述されている。この技術を使うと、情報の暗号化時に使われる暗号化鍵と、暗号化情報の復号化時に使用される復号化鍵とが別なものに設定できる。しかも、復号化鍵が知られても、それから暗号化鍵を知ることは極めて困難なものにすることができ、安全性が高まる。

【０１２５】以下、図１６に示された認証のための処理手順について述べる。まず、ステップ８１で、権利管理部１０１５は乱数Ｑを発生する。ステップ８２で、乱数Ｑが権利管理情報更新装置１０６１に送信される。それと共に、ステップ８６で、権利管理情報更新装置１０６１が乱数Ｑを受信する。ステップ８７で、権利管理情報更新装置１０６１は、暗号化鍵Ｍと乱数Ｑとに依存する関数ｅ（Ｍ，Ｑ）の値Ｒを計算する（暗号化）。ステップ８８で、値Ｒが権利管理部１０１５に送信されると共に、ステップ８３で、値Ｒが権利管理部１０１５に受信される。ステップ８４で、権利管理部１０１５は、復号化鍵Ｌと値Ｒとに依存する関数ｄ（Ｌ，Ｒ）の値Ｓを計算する（復号化）。ステップ８５で、値Ｓが乱数Ｑと一致するかどうか調べられる。そして、値Ｓと乱数Ｑとがもし一致しているのであれば、権利管理情報更新装置１０６１は正当なものであると判断される。しかし、値Ｓと乱数Ｑとが一致しなければ、権利管理情報更新装置１０６１は不当なものであると判断される。

【０１２６】以上のように、本発明では、情報をコピーする側の情報提供装置ではなく、情報記録媒体と一体となった情報記録（再生）装置の側が決済等の権利管理を行なう機能を持つ。そのことにより、情報記録媒体への記録時だけでなく再生時の決済が可能になる。それと共に、記録時の決済の場合にも、情報入手者に余分な負担がかからないことが可能である。また、本発明による方法では、情報記録装置への記録媒体の挿入口と排出口とが分離している。それで、各利用者は挿入口に記録媒体を挿入した後、排出口へと移動することにより、多数の利用者が次々と情報記録装置を利用することが可能となる。そして、暗号化鍵を知ることは極めて困難なものにすることができ、安全性が高まる。

【０１２７】図１７は図４の情報提供装置の内部の構成例を示したものである。図１７において、挿入口２００２と排出口２００３とが情報転送部２００１を介してベルト２００４により連絡されている。

【０１２８】次に、その動作について説明する。挿入口２００２から挿入された情報記録装置は、ベルト２００４によって、情報転送部２００１に送られる。そして、情報転送部２００１では、上記情報記録装置内の記録媒



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体に情報が記録される。その後、上記情報記録装置は、ベルト２００４によって排出口２００３へと運ばれ排出される。もちろん、ベルト２００４のかわりに、例えば、高圧の空気によって上記情報記録装置が移動されても良い。

【０１２９】図１８は情報転送部２００１の内部構成を示したものである。図１８において、情報記録媒体２０１２は、例えば、半導体メモリ等で構成されている。制御部２０１１は、記録部２０１３及び情報記録媒体２０１２に接続されている。そして、情報記録媒体２０１２と記録部２０１３とは接続されている。さらに、記録部２０１３には端子２０１４が接続されている。

【０１３０】次に、その動作について説明する。情報記録媒体２０１２に記録されている情報４０２は、制御部２０１１からの制御信号４０１に基づいて記録部２０１３へと送られる。さらに、記録部２０１３から出力された情報４０４が、端子２０１４を通じて情報記録装置の端子に送られる。この情報４０４は、制御信号４０３に基づいた記録部２０１３の作用によって情報記録装置内の情報記録媒体に記録される。

【０１３１】図１９は、情報転送部のもう１つの内部構成例を示したものである。この例では、情報転送は非接触の方法で行なわれる。情報転送部２０２１は、制御部２０２２と情報記録媒体２０２３及び送信部２０２４とで構成されている。制御部２０２２は、送信部２０２４及び情報記録媒体２０２３に接続されている。そして、情報記録媒体２０２３と送信部２０２４とは接続されている。さらに、送信部２０２４は電磁波などの方法により、情報記録装置２０３１内の受信部２０３２と連絡されている。また、情報記録装置２０３１は、受信部２０３２と記録部２０３３及び情報記録媒体２０３４とで構成されている。そして、受信部２０３２は記録部２０３３に接続され、記録部２０３３は情報記録媒体２０３４に接続されている。

【０１３２】次に、その動作について説明する。情報記録媒体２０２３に記録されている情報５０２は、制御部２０２２からの制御信号５０１に基づいて送信部２０２４へと送られる。送信部２０２４においては、制御信号５０３に基づいて、情報５０４を情報記録装置２０３１内の受信部２０３２に電磁波などの方法により送信する。この情報５０４は、記録部２０３３の作用によって情報記録媒体２０３４に記録される。

【０１３３】以上のように、本発明による方法においては、情報提供装置への記録媒体の挿入口２００２と排出口２００３とを分離した。そして、利用者は挿入口２００２に記録媒体を挿入した後、排出口２００３へと移動する。そのことにより、多数の利用者が次々と情報提供装置を利用することが可能である。

【０１３４】図２０は、図１９の情報記録装置及び情報再生装置のブロック図である。図２０において、情報記録装置１０７１には情報記録媒体１０７３及び権利管理部１０７２が装備されている。権利管理部１０７２は、例えばＣＰＵ及びメモリから構成されている。そのメモリには、情報記録媒体に記録されている情報を再生する権利が記録されている。その権利は、例えば、情報記録媒体内の情報をあと何度再生することができるか等を表す残度数である。そして情報記録媒体１０７３は権利管理部１０７２に接続されている。一方、情報再生部１０７８は再生制御部１０７７に接続され、再生制御部１０７７は再生選択部１０７５及び表示部１０７６に接続されている。以上の構成により、情報再生装置１０７４を成している。

【０１３５】次に、その動作について説明する。権利管理部１０７２において、先ず、情報記録媒体１０７３に記録されている情報のうち、その情報自身の種類や再生に必要な権利の度数等の情報１２２を読み出す。そして、再生制御部１０７７に通信１２４が送信される。再生制御部１０７７においては、信号１２７を表示部１０７６に送り通信１２４の内容を表示する。情報利用希望者が、再生選択部１０７５を用いて、情報記録媒体１０７３に記録されているもののうち、どれを再生するかを選択する。すると、その選択情報１２６は再生制御部１０７７に送られる。その選択情報１２６は、さらに通信１２４を通じて、権利管理部１０７２に送られる。権利管理部１０７２においては、残度数が、その情報を再生するのに必要な度数以上であるかを調べる。そして、残度数が、その情報を再生するのに必要な度数以上であれば、その情報は再生可能と見なされる。それと共に、残度数から必要度数分が減じられる。

【０１３６】しかし、残度数が、その情報を再生するのに必要な度数以下であれば、その情報は再生不可と見なされる。再生可能であれば、制御信号１２３が情報記録媒体１０７３に送信される。それと共に、通信１２４が再生制御部１０７７に送信される。そこで、情報記録媒体１０７３は、記録されている情報１２５を出力する。その情報１２５は情報再生部１０７８に送信される。再生制御部１０７７から、情報再生の制御信号１２８が情報再生部１０７８に送られる。そして、情報再生部１０７８においては、受信した情報１２５を音声信号等１２９に変換して出力する。

【０１３７】以上のように、図２０に示された情報記録装置及び情報再生装置を使用すれば、再生時に、その情報利用の選択及び決済を実現することができる。

【０１３８】図２１は、情報提供と情報収集が同時に容易に行なえる実施例における情報記録再生装置の外観を示したものである。図２１において、情報記録再生装置の前面には表示部及び選択部が装備されている。また、情報記録再生装置の側面には、イヤホン及び情報提供収集装置結合端子６０１，６０２が装備されている。

【０１３９】次に、その動作について説明する。情報提



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供収集装置結合端子６０１を通じて、情報提供装置から情報記録再生装置内に設置された記録媒体に情報がコピーされる。また、情報提供収集装置結合端子６０２を通じて、情報提供装置へ情報記録再生装置内に設置された記録媒体から情報が転送される。ただし、情報提供収集装置結合端子６０１，６０２は、実際には同一の端子を切り替えて使用されるようにしてもよい。さらに、この実施例の装置には表示部と再生ボタンが装備されている。表示部には装置内に記録された情報の内容が表示される。上記表示部に表示されたものをもとに、装置の使用者は、選択ボタンを用いて必要な情報を選択的に再生することができる。また、利用者は、その他の選択情報を入力したりすることもできる。

【０１４０】図２２は、図２１の実施例に対するもう１つの実施例の外観図である。この例では、図２１の情報記録再生装置が、情報記録装置と情報再生装置とに物理的に分離して構成されている。そして、上記情報記録装置の構成要素が１枚のカードに実装されている。図２１の場合と対応する部分には同一の符号を付してあり、その説明は適宜省略する。図２２の実施例の装置には、情報再生装置結合端子６０３がついている。

【０１４１】次に、その動作について説明する。情報提供収集装置結合端子６０１を通じて、情報提供装置から情報記録再生装置内に設置された記録媒体に情報がコピーされる。また、情報提供収集装置結合端子６０２を通じて、情報提供装置へ情報記録再生装置内に設置された記録媒体から情報が転送される。ただし、情報提供収集装置結合端子６０１，６０２は、実際には同一の端子を切り替えて使用されるようにしてもよい。また、再生時には、情報記録装置と情報再生装置との間で、データ及び制御のやりとりが必要になる。それで、上記情報記録装置と情報再生装置とを結合する情報再生装置結合端子６０３が、情報記録装置及び情報再生装置に装備されている。ただし、情報記録装置の情報提供収集装置結合端子６０１，６０２及び情報再生装置結合端子６０３は、実際には１つの端子を切り替えて使用されるように構成されることも可能である。

【０１４２】図２３は、図２１または図２２の実施例における情報提供装置の外観図である。図３の実施例と対応する部分には同一の符号を付してあり、その説明は適宜省略する。情報提供装置内には記録媒体が設置され情報が記録されている。この実施例の情報提供装置には、伝達手段としての有線で他の装置に接続されている。

【０１４３】次に、その動作について説明する。上記有線を通じて、他の装置から情報提供装置へ情報が送信されたり、情報提供装置内の情報が他の装置へ送信されたりすることが可能である。もちろん、上記有線は無線に代えて使用されることも可能である。また、上記情報提供装置への伝達手段とその他の装置からの伝達手段とは物理的に別なものでも良い。ただし、もちろん、情報提

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供集装置への情報の入力は通信手段によらなくても、たとえば記録済みの記録媒体が直接、情報提供装置に挿入されても良い。また、情報提供装置からの情報の出力についても、情報提供装置内の記録媒体が取り外されたり、他の記録媒体へコピーされたりすることによって実現することもできる。そして、情報入手希望者は、欲しい情報を選択することができる。情報入手希望者は、情報提供装置の挿入排出口に、自分のもっている情報記録再生装置または情報記録装置を挿入する。そして、コピーを受けることによって情報が入手される。また、上記情報記録再生装置あるいは情報記録装置内の情報は、それらの装置が情報提供装置に挿入されてから排出されるまでの間に収集される。上記情報は、情報提供装置内の記録媒体に転送されることによって、迅速かつ容易に収集される。なお、情報提供装置内の記録媒体としては、特に限定はないが、高速にコピーが可能でランダム・アクセスが可能なＩＣメモリによって構成されると便利である。

【０１４４】図２４は、図２３の実施例における情報提供装置のブロック図である。また、図２５は、図１０の実施例における情報記録再生装置のブロック図である。

【０１４５】図２４において、記録媒体３００３は制御部３００４に接続されている。制御部３００４には、記録媒体３００７と選択部３００５及び表示部３００６が接続されている。そして、以上の構成により、情報提供装置３００１を成している。また、伝達部３００８は制御部３００４に接続され、伝達部３００２は記録媒体３００３に接続されている。

【０１４６】図２５において、再生部４０１２は記録媒体４０１３に接続され、記録媒体４０１３は制御部４０１４に接続されている。そして、制御部４０１４には、記録媒体４０１７と選択部４０１５及び表示部４０１６が接続されている。

【０１４７】次に、その動作について説明する。情報提供装置３００１では、有線、無線等の伝達部３００２によって送られてきた情報４０１が、記録媒体３００３に記録される。制御部３００４においては、記録媒体３００３から情報の内容等を示す情報４０４を読み出して、表示部３００６に表示情報４０７として送り表示する。情報入手希望者は、この表示情報を参考にしてどの情報を入手するかを、選択手段３００５を通じて入力する。選択部３００５は、選択信号４０６を制御部３００４に送る。そして、制御部３００４においては、情報記録再生装置４０１１の制御部４０１４との通信４０３に基づいて、情報を出力するか否かの制御信号４０５を記録媒体３００３に送る。さらに、記録媒体３００３においては、その制御によって情報４０２を情報記録再生装置４０１１に送る。

【０１４８】ここで、制御部３００４と制御部４０１４との間の通信４０３の一例について説明を行なう。制御



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部４０１４においては、情報記録再生装置４０１１が情報提供装置３００１からコピーを受ける権利情報の値、例えば残度数情報Ｄを記憶している。一方、制御部３００４においては、情報入手希望者がコピーを希望する情報をコピーした場合に、残度数情報Ｄから減じる値、必要度数ｄを制御部４０１４に送信する。制御部４０１４においては、残度数情報Ｄと必要度数ｄとの比較を行なう。ここで、Ｄがｄより大きいか等しければ、制御部３００４にコピー要求信号が送信されると共に、Ｄからｄを減じた値が新たな残度数情報Ｄの値とされる。また、Ｄがｄより小さい場合には、制御部３００４にコピー不要求信号が送信される。情報４０２の送信と同時に、または前後して、情報提供装置３００１は情報記録再生装置４０１１から通信４０３を受信する。ここで、通信４０３の内容は、情報記録再生装置４０１１において、記録媒体３００３に記録されたどの情報が何回再生されたか、といった情報である。その情報は記録媒体３００７に記録される。そして、制御部３００４においては、例えば一定時間毎に、記録媒体３００７に蓄積された情報４０８を読み出す。さらに、制御部３００４においては、その情報４０８に統計的な処理を加えた情報４０９が、計算されて伝達部３００８に送出される。

【０１４９】ただし、情報記録再生装置４０１１から送られてきた情報（通信４０３）は、制御部３００４によって必ずしも記録媒体３００７に蓄積されなくとも良い。そして、情報（通信４０３）は、直接あるいは統計処理等を施して伝達部３００８に送出されても良い。また、情報（通信４０３）が記録媒体３００７に蓄積された場合においても、伝達部３００８に送りだす前に、特別の統計処理は行なわれなくても良い。さらにまた、制御部３００４が記録媒体３００７に情報を記録する前に、統計処理などが施されても良い。

【０１５０】一方、情報提供装置３００１から情報の入手後、情報再生希望者の要求にしたがって、情報記録再生装置４０１１ではまず、制御部４０１４は、記録媒体４０１３から情報の内容等５１２を読み出す。そして、その情報は表示部４０１６に表示情報５１５として送られて表示される。情報再生希望者は、この表示情報を参考にして、どの情報を再生するかを、選択部４０１５を通じて入力する。選択部４０１５は選択信号５１４を制御部３０１４に送る。そして、制御部４０１４においては、選択信号５１４に基づいて、記録媒体４０１３に制御信号５１３を送る。その制御信号５１３に基づいて、記録媒体４０１３は情報５１１を出力する。そして、再生部４０１２は情報５１１を再生する。また、制御部４０１４においては、選択部４０１５への入力に依存する情報５１６を、記録媒体４０１７に記録する。情報記録再生装置４０１１が次回、情報提供装置３００１と結合される時、記録媒体４０１７に記録された情報は、制御部４０１４を通じて、情報提供装置３００１に送られる。

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【０１５１】ここで、「選択部４０１５への入力に依存する情報」とは、例えば、再生選択信号５１４そのものであっても良い。この場合、情報記録再生装置４０１１の使用者の情報再生利用実態に関する情報が得られる。「選択部４０１５への入力に依存する情報」の別の例として、クイズ情報に関する解答選択情報、あるいは、それを統計処理した情報であってもよい。この場合、情報記録再生装置４０１１の使用者のクイズに対する正解率が得られる。「選択部４０１５への入力に依存する情報」の別の例として、アンケートに関する解答選択情報、あるいは、それを統計処理した情報であっても良い。上記情報が例えば、記録媒体４０１３から再生された音楽のうち、情報記録再生装置４０１１の使用者が最も気に入ったものの選択情報とする。その選択情報が統計処理されることによって、どの音楽に人気があるかが把握される。

【０１５２】なお、多数の情報提供装置において収集された情報がセンターに集められ、それらの情報が統計処理されることによって、より有為な情報利用にかんするデータが得られる。また、情報記録再生装置から情報提供装置に送られる情報によって、情報提供装置から情報記録再生装置への条件を変化させても良い。例えば、上述のアンケートに協力する場合には、情報提供装置において、情報入手のための必要度数ｄの値を予め小さくしても良い。こうすることによって、情報使用者はより安価で情報入手が可能となり、情報提供者はより多くの使用者からのアンケート結果を期待することができる。また、クイズ情報を提供する場合には、情報提供装置において、その正解率によって必要度数ｄの値を変化させてもよい。こうすることにより、情報利用者はゲーム性を楽しむことができる。なお、記録媒体３００３及び記録媒体３００７においては、一体となっている記録媒体の異なる部分を使用するようにしても良い。

【０１５３】図２６は、図２２に示す実施例の構成を示すブロック図である。図２６において、記録媒体５０１７は制御部５０１８に接続され、制御部５０１８は記録媒体５０１３に接続されている。そして、以上の構成により、情報記録装置５０２１を成している。一方、再生部５０１２は制御部５０１９に接続されている。また、制御部５０１９は選択部５０１５及び表示部５０１６接続されている。そして、以上の構成により、情報再生装置５０３１を成している。

【０１５４】次に、その動作について説明する。この実施例の場合には、図２５に示す制御部４０１４の機能が、制御部５０１８と制御部５０１９及び通信６２１によって実現される。先ず、情報提供装置３００１から送られてきた情報１０２が、記録媒体５０１３に記録される。情報情報再生希望者の要求にしたがって、情報記録装置５０２１では、制御部５０１８が、記録媒体５０１



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3から情報の内容等612を読み出す。そして、その情報は、制御部5019から通信121を介して表示部5016に表示情報615として送られ、表示される。情報再生希望者は、この表示情報を参考にして、どの情報を再生するかを、選択部5015を通じて入力する。選択部5015は選択信号614を制御部5019に送る。そして、制御部5019においては、選択信号614に基づいて、制御部5018を介して、記録媒体5013に制御信号613を送る。その制御信号613に基づいて、記録媒体5013は情報611を出力する。そして、再生部5012は制御信号617に基づき情報611を再生する。また、制御部5018においては、選択部5015への入力に依存する情報616を、記録媒体5017に記録する。情報記録装置5021が次回、図24に示す情報提供装置3001と結合される時、記録媒体5017に記録された情報は、通信103を介して情報提供装置3001に送られる。

【0155】なお、図24に示す情報提供装置3001は情報提供機能と情報収集機能の両方を備えており、情報提供と情報収集が同時に容易に行なえるという利点を持っているが、これは必ずしも必要条件ではなく、情報提供装置で情報の提供を行ない、情報収集装置で情報の収集を行なうようにしてもよい。

【0156】以上の説明からも明らかなように、本発明では、ＩＣメモリー等で構成された記録媒体を装備した情報記録装置に音楽やクイズ等の番組が、情報提供装置から転送される。それと共に、これらの番組を再生する際に、視聴者が入力した選択情報が記録される。そして、これらの情報が情報提供装置に転送される。そのことにより、視聴者の反応に関する情報が得られる。そして、情報提供者が容易に、情報利用者の情報利用実態や好み等を把握することができる。さらにこうした情報を利用してサービス内容を充実させることができる。

【0157】

【発明の効果】以上のように、請求項1に記載の情報提供収集装置によれば、情報記録媒体および権利管理手段を備え、権利管理手段の制御により情報の記録または再生の制御を行なう情報記録装置から成るようにしたので、柔軟な料金支払いが可能となる。

【0158】請求項2に記載の情報提供収集装置によれば、上記権利管理手段においては、上記記録媒体に記録された権利管理情報に基づいて制御を行なうようにしたので、柔軟な料金支払いが可能となる。

【0159】請求項3に記載の情報提供収集装置によれば、上記権利管理情報は、記録もしくは再生前後で内容が変化するようにしたので、柔軟な料金支払いが可能となる。

【0160】請求項4に記載の情報提供収集装置によれば、上記権利管理情報は、記録または再生が許可される有効期限であるようにしたので、柔軟な料金支払いが可能となる。

【0161】請求項5に記載の情報提供収集装置によれば、上記記録媒体に記録される情報の一部は、その情報自身の内容を示すものであるようにしたので、柔軟な料金支払いが可能となる。

【0162】請求項6に記載の情報提供収集装置によれば、上記記録媒体は、半導体メモリであるようにしたので、情報の迅速な入手が可能となる。

【0163】請求項7に記載の情報提供収集装置によれば、上記記録媒体及び上記権利管理手段は、１枚のカードに実装されている情報記録装置から成るようにしたので、情報の迅速な入手が可能となる。

【0164】請求項8に記載の情報提供収集装置によれば、上記記録媒体には書き換え不可能な情報を記録し、再生時に権利管理を行なうようにしたので、柔軟な料金支払いが可能となる。

【0165】請求項9に記載の情報提供収集装置によれば、上記記録媒体には、情報提供装置から書き換え可能な情報を記録するようにしたので、柔軟な料金支払いが可能となる。

【0166】請求項10に記載の情報提供収集装置によれば、上記記録媒体への情報の記録は、上記情報提供装置による正当性認証が成立した場合に行なわれるようにしたので、情報管理の安全性が高められる。

【0167】請求項11に記載の情報提供収集装置によれば、上記正当性認証は、上記情報提供装置及び上記情報記録装置に記録され、その値自身が暗号化された鍵情報に基づいて行なわれるようにしたので、情報管理の安全性が高められる。

【0168】請求項12に記載の情報提供収集装置によれば、上記情報の再生は再生選択信号に基づいて行なわれるようにしたので、柔軟な料金支払いが可能となる。

【0169】請求項13に記載の情報提供収集装置によれば、上記情報の再生は、外部からの再生選択信号に基づいて行なわれるようにしたので、柔軟な料金支払いが可能となる。

【0170】請求項14に記載の情報提供収集装置によれば、上記情報の再生は、上記情報提供装置によって、上記情報記録装置の正当性認証が成立した場合に行なわれるようにしたので、情報管理の安全性が高められる。

【0171】請求項15に記載の情報提供収集装置によれば、上記正当性認証は、上記情報記録装置及び上記情報記録装置に記録され、暗号化された鍵情報に基づいて行なわれるようにしたので、情報管理の安全性が高められる。

【0172】請求項16に記載の情報提供収集装置によれば、上記権利管理情報は、権利管理情報更新装置により書き換え可能であるようにしたので、柔軟な料金支払いが可能となる。

【0173】請求項17に記載の情報提供収集装置によ



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れば、上記権利管理情報の書き換えは、上記情報記録装置によって、上記権利管理情報更新装置の正当性認証が成立した場合に行なわれるようにしたので、情報管理の安全性が高められる。

【0174】請求項18に記載の情報提供収集装置によれば、上記正当性認証は、上記権利管理情報更新装置及び上記情報記録装置に記録され、暗号化された鍵情報に基づいて行なわれるようにしたので、情報管理の安全性が高められる。

【0175】請求項19に記載の情報提供収集装置によれば、上記権利管理更新装置に記録された鍵情報と、上記情報記録装置に記録された鍵情報とは異なる値を持つようにしたので、情報管理の安全性が高められる。

【0176】請求項20に記載の情報提供収集装置によれば、上記情報記録装置の挿入部と排出部を別々に備え、上記情報記録装置への記録を行なう情報提供装置から成るようにしたので、情報の迅速な入手が可能となる。

【0177】請求項21に記載の情報提供収集装置によれば、内部に記録媒体を備え、その記録媒体に記録されている情報を上記情報再生装置に転送する情報提供装置から成るようにしたので、情報の迅速な入手が可能となる。

【0178】請求項22に記載の情報提供収集装置によれば、上記記録媒体として半導体メモリを用いる情報提供装置から成るようにしたので、情報の迅速な入手が可能となる。

【0179】請求項23に記載の情報提供収集装置によれば、上記記録媒体から上記情報記録装置への情報の転送を、端子を用いて行なう情報提供装置から成るようにしたので、情報の迅速な入手が可能となる。

【0180】請求項24に記載の情報提供収集装置によれば、上記記録媒体から上記情報提供装置への情報の転送を非接触の手段で行なうようにしたので、情報の迅速な入手が可能となる。

【0181】請求項25に記載の情報提供収集装置によれば、上記情報提供装置から転送された情報を、上記情報記録装置に転送し、上記権利管理手段の制御の下に上記情報の再生を行なう情報記録装置から成るようにしたので、柔軟な料金支払いが可能となる。

【0182】請求項26に記載の情報提供収集装置によれば、再生利用する情報を記録する第1の情報記録媒体と、その情報の再生利用者の入力に係わる情報を記録する第2の情報記録媒体と、その第2の情報記録媒体に記録された情報を外部に伝達するための伝達手段とを備えているようにしたので、柔軟な料金支払いが可能となる。

【0183】請求項27に記載の情報提供収集装置によれば、上記第1の情報記録媒体に対し、外部からの情報の書き込みが可能であるようにしたので、柔軟な料金支払いが可能となる。

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【0184】請求項28に記載の情報提供収集装置によれば、上記情報の再生利用者の入力に係わる情報が、第1の情報記録媒体に記録された情報再生によって入力が促される選択情報であるようにしたので、視聴者の反応に関する情報が得られる。

【0185】請求項29に記載の情報提供収集装置によれば、上記情報の再生利用者の入力に係わる情報が、その情報の再生利用状況に関する情報であるようにしたので、視聴者の反応に関する情報が得られる。

【0186】請求項30に記載の情報提供収集装置によれば、上記第1の情報記録媒体は、ICメモリで構成されているようにしたので、情報の迅速な入手が可能となる。

【0187】請求項31に記載の情報提供収集装置によれば、上記第2の情報記録媒体は、ICメモリーで構成されているようにしたので、情報の迅速な入手が可能となる。

【0188】請求項32に記載の情報提供収集装置によれば、構成要素が1枚のカードに実装されている情報記録装置から成るようにしたので、情報の迅速な入手が可能となる。

【0189】請求項33に記載の情報提供収集装置によれば、上記第2の情報記録媒体に記録された情報を読みだす手段を備えるようにしたので、視聴者の反応に関する情報が得られる。

【0190】請求項34に記載の情報提供収集装置によれば、上記第2の情報記録媒体から読みだされた情報に基づく情報を記録する媒体を装備するようにしたので、視聴者の反応に関する情報が得られる。

【0191】請求項35に記載の情報提供収集装置によれば、上記第1の情報記録媒体への情報の書き込み機能を装備しているようにしたので、柔軟な料金支払いが可能となる。

【0192】請求項36に記載の情報提供収集装置によれば、有線または無線の伝達手段を装備し、上記第2の情報記録媒体から読み出された情報に基づく情報を、一旦記録媒体に蓄積した後に、または蓄積をせずに、処理を加え、または処理を加えずに上記伝達手段によって送信できるようにしたので、柔軟な料金支払いが可能となる。

【0193】請求項37に記載の情報提供収集装置によれば、上記情報記録装置の上記第2の情報記録媒体から読みだされた情報の種類あるいは内容に依存して、情報提供条件あるいは情報利用条件が変化するようにしたので、柔軟な料金支払いが可能となる。

【0194】請求項38に記載の情報提供収集装置によれば、複数個の上記情報記録装置から、上記伝達手段によって、上記第2の情報記録媒体から読みだされた情報に基づく情報を収集するようにしたので、視聴者の反応



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に関する情報が得られる。

【図面の簡単な説明】

【図1】本発明の情報提供収集装置の一実施例における情報記録再生装置の外観を示した外観図である。

【図2】本発明の情報提供収集装置の一実施例において、情報記録再生装置が、情報記録装置と情報再生装置とに物理的に分離して構成されている場合の外観を示す外観図である。

【図3】本発明の情報提供収集装置の一実施例における情報提供装置の外観を示す外観図である。

【図4】本発明の情報提供収集装置のもう1つの実施例における情報提供装置の外観を示す外観図である。

【図5】本発明の情報提供収集装置の一実施例における情報提供装置の構成を示すブロック図である。

【図6】本発明の情報提供収集装置の一実施例における情報記録再生装置の構成を示すブロック図である。

【図7】図5に示す情報提供装置1001における制御部1005の実施例の構成を示すブロック図である。

【図8】図6に示す情報記録再生装置1011における権利管理部1015の実施例の構成を示すブロック図である。

【図9】本発明の情報提供収集装置の一実施例において、情報記録再生装置への記録時に決済が行なわれる場合ついて説明するフローチャートである。

【図10】図9に示す認証のための通信201について説明するフローチャートである。

【図11】本発明の情報提供収集装置の一実施例において、権利管理部1015が情報の記録時ではなく、再生時に情報使用の決済を行なう場合の処理の流れのについて説明するフローチャートである。

【図12】図2の実施例における情報記録再生装置の構成を示すブロック図である。

【図13】本発明の情報提供収集装置の一実施例において、権利管理情報更新装置の実施例の外観を示す外観図ある。

【図14】図13の実施例において、権利管理部1015及び権利管理情報更新装置1061の構成を示すブロック図である。

【図15】図13の実施例において、権利管理部1015及び権利管理情報更新装置1061の処理を説明するフローチャートである。

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【図16】図13の実施例において、認証の処理の流れを説明するフローチャートである。

【図17】図4の実施例における情報提供装置の内部の構成を示すブロック図である。

【図18】図17の実施例における情報転送部2001の内部構成を示したものである。

【図19】図17の実施例における情報転送部のもう1つの内部構成を示したものである。

【図20】図19の実施例における情報記録装置及び情報再生装置の構成を示すブロック図である。

【図21】本発明の情報提供収集装置の一実施例において、情報提供と情報収集が同時に容易に行なえる実施例における情報記録再生装置の外観を示す外観図である。

【図22】図20の実施例における情報記録再生装置に対するもう1つの実施例の外観を示す外観図である。

【図23】図20または図21の実施例における情報提供装置の外観を示す外観図である。

【図24】図22の実施例における情報提供装置の構成を示すブロック図である。

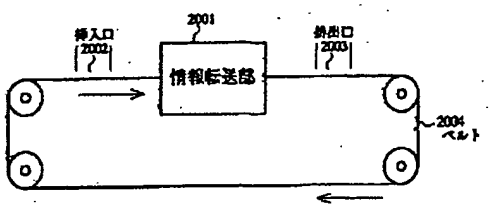
【図25】図10の実施例における情報記録再生装置の構成を示すブロック図である。

【図26】図21に示す実施例における情報記録再生装置の構成を示すブロック図である。

【符号の説明】

103　信号
111，112，118　情報
113　再生信号
114　再生選択情報（再生選択信号）
115　表示情報
116　制御信号
117　再生制御信号
1011　情報記録再生装置
1012　情報記録媒体
1013　情報入力部
1014　情報再生部
1015　権利管理部（権利管理手段）
1016　再生選択部
1017　表示部

【図17】



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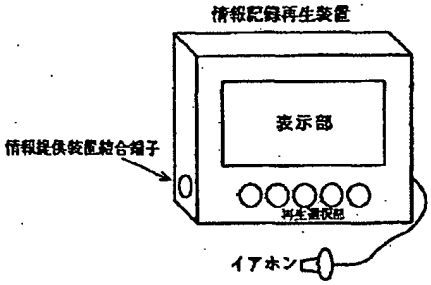
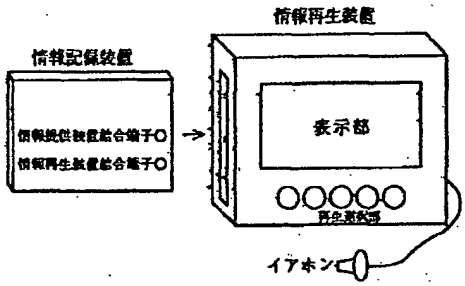
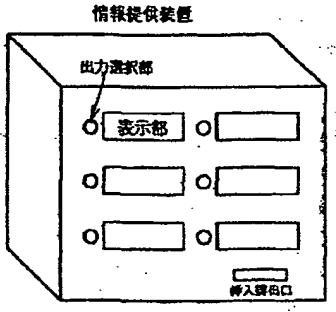
【図1】




【図2】




【図3】

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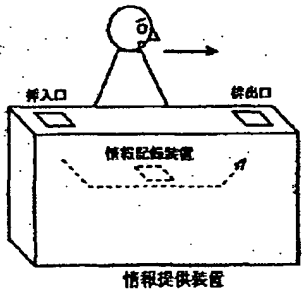
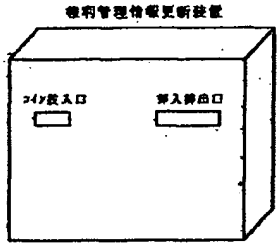



【図13】

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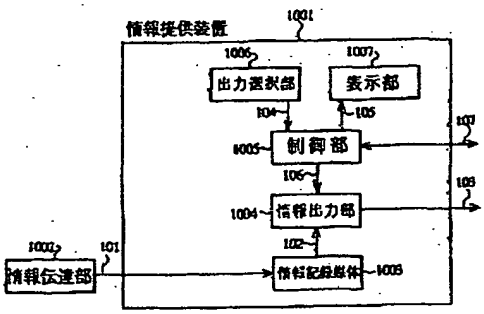


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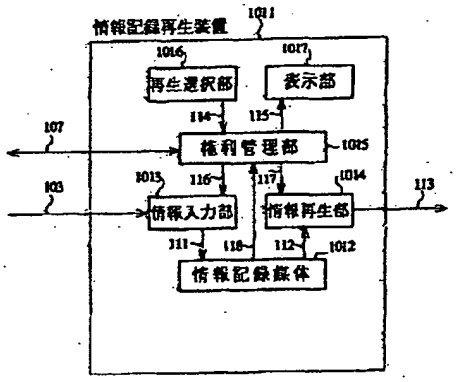




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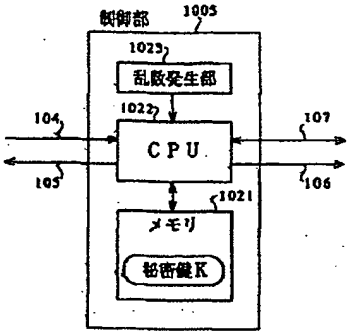
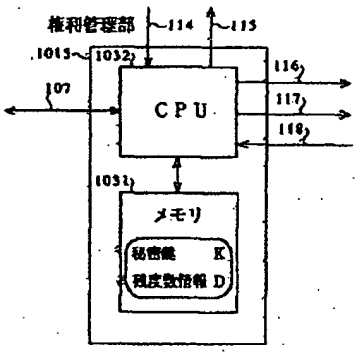
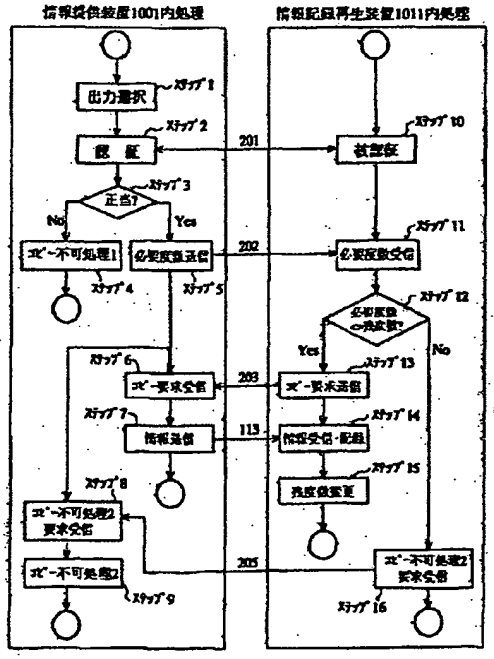
【図7】

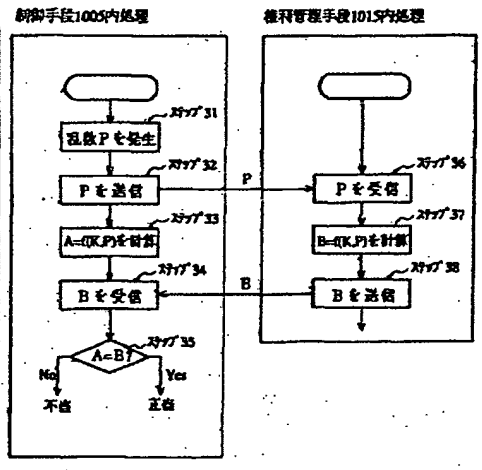



【図8】

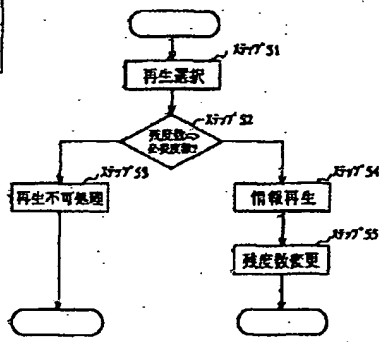



【図9】




【図11】



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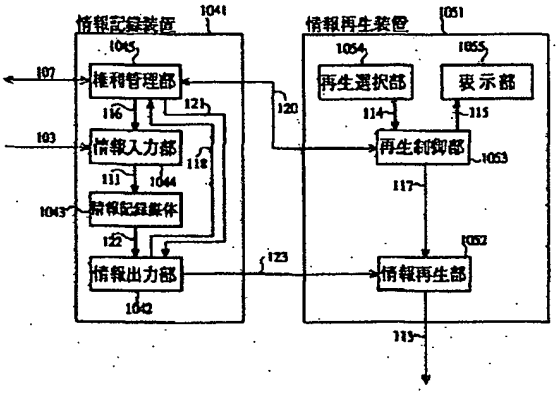
【図12】

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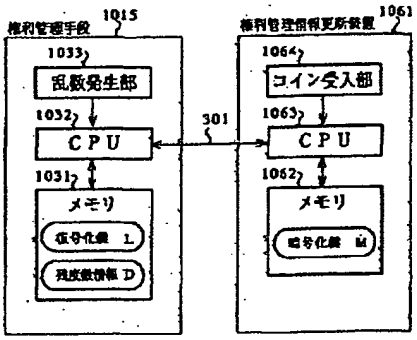
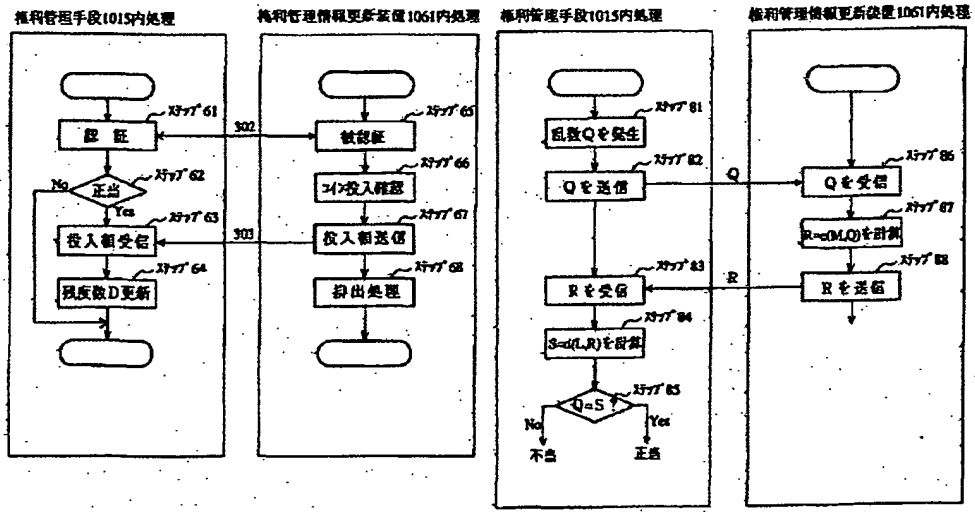
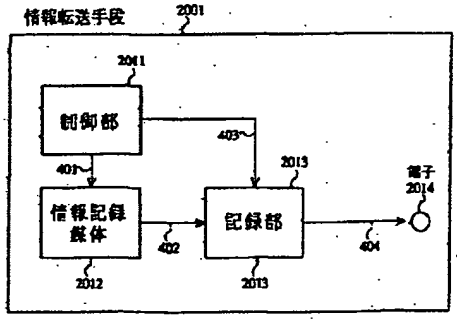



【図15】

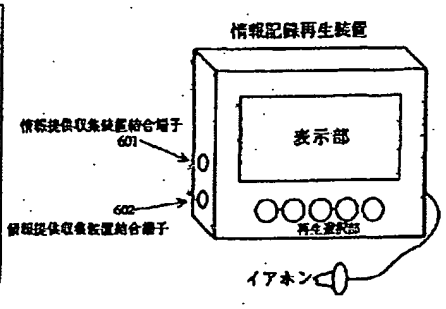
【図16】




【図18】




【図21】



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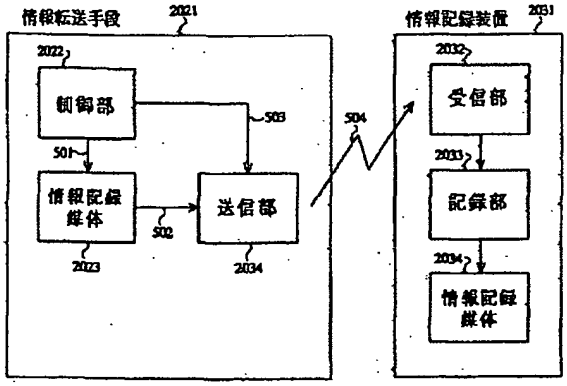
【図19】

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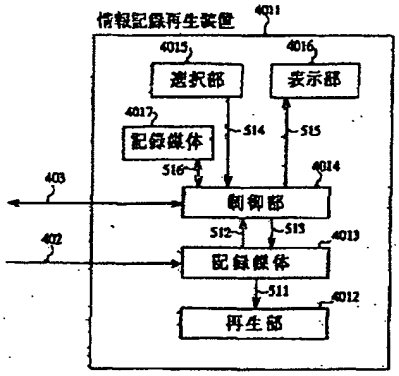


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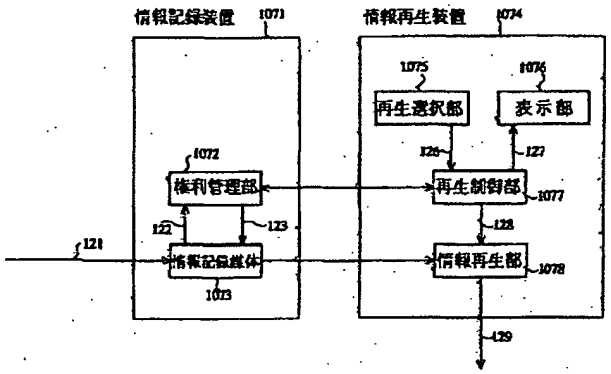
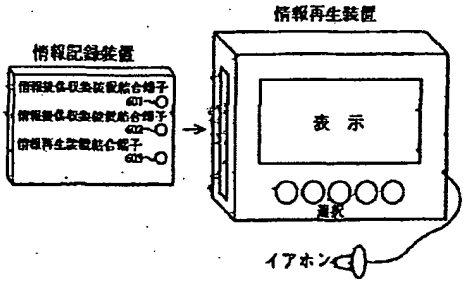



【図22】

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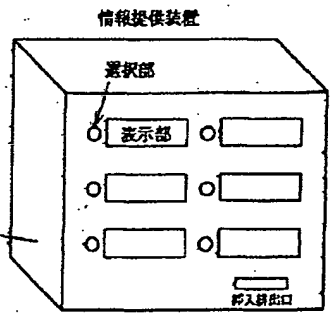




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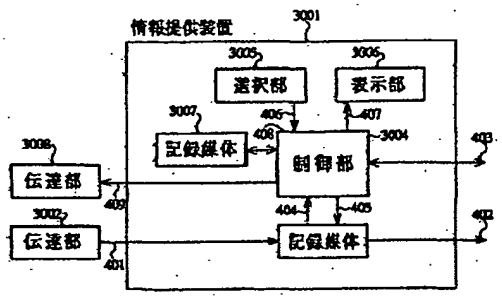
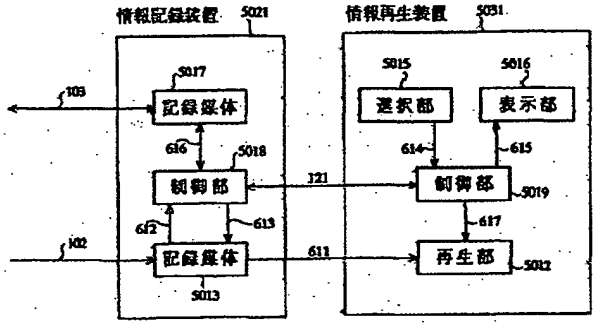
【図24】




【図26】



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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 1 of 1

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | NGUYEN et al. |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325/235000 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | U.S. Patent Document: Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| | 1. | 5,619,570 A1 | 04-08-1997 | Tsutsui | |
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## U.S. PUBLISHED PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | U.S. Patent Document: Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | Foreign Patent Document: Country Code[3] Number[4] | Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|---|
| | 2. | EP 0 262 025 | A2 | 03-30-1988 | Ogasawara | | |
| | 3. | JP 3-063717 | A | 03-19-1991 | Tsutsui et al. | (Ab in EN) | |
| | 4. | JP 6-131371 | A | 05-13-1994 | Tsutsui | (Ab in EN) | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

## OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
|---|---|---|---|
| | 5. | Johnson et al., "A Secure Distributed Capability Based System," PROCEEDINGS OF THE 1985 ACM ANNUAL CONFERENCE ON THE RANGE OF COMPUTING: MID-80'S PERSPECTIVE: MID-80'S PERSPECTIVE *Association for Computing Machinery* pp. 392–402 (1985) | |
| | | | |
| | | | |

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at 222.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 262 025**
**A2**

# (12) EUROPEAN PATENT APPLICATION

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(51) Int. Cl.⁴: G 07 F 7/10
G 06 F 12/14

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## (54) System for permitting access to data field area in IC card for multiple services.

(57) A system for permitting access to a data field area in an IC card for multiple services using an individual card holder identification number for each of a plurality of data fields (61, 62, 63) or for each group of data fields. Data field identification information (11), a personal identification number (12), access qualification information (13), and an authentication code (14) are supplied to the IC card before an execution of an access to the data field. An authentication is made (in 32, 33) between the personal identification number and the authentication code stored in identification number and the authentication code supplied to the IC card. Based on the result of authentication, an access to the data field area (61, 62 or 63) to which access is requested is permitted within the limit of the access right stored in the IC card (memories 51, 52, 53) corresponding to the access qualification information supplied to the IC card.

Fig. 4A

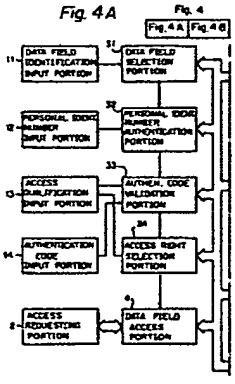
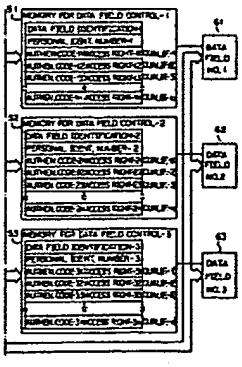


Fig. 4B



EP 0 262 025 A2



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Description

# SYSTEM FOR PERMITTING ACCESS TO DATA FIELD AREA IN IC CARD FOR MULTIPLE SERVICES

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a system for permitting access to a data field area in an integrated circuit card (IC card) for multiple services.

2. Description of the Related Art

In general, in the use of an IC card for multiple services, a card issuer, a service supplier, , a card acceptor, and a card holder are involved. An IC card has a plurality of data fields for the multiple services, and for each of the data fields, the access right, access qualification, of card issuer, service supplier, card acceptor, and card holder should be predetermined. Namely, although a person has access right to a predetermined data field of an IC card, that person should not be authorized to have access to a data field of the IC card other than the predetermined data field.

It is desired that access is permitted only within the limit of the access right to a predetermined data field of a card holder, and access outside such limitation is not permitted, so that the data fields cannot be used in an unauthorized manner.

In the prior art, only a personal identification number (PIN) and an authentication code (AC code) for the whole of an IC card are provided for an IC card for multiple services, and therefore, once a coincident result is obtained as the result of an authentication of the personal identification number and the authentication code, access to all data fields in the IC card becomes possible.

As a result, it is possible for a person, for example, a card acceptor, who is not authorized to have access to the data field in question, will be able to obtain access to the data field in question. This constitute an unfair use of the IC card and a violation of the principle of secrecy of the IC card. Therefore, these problems of the prior art must be solved.

## SUMMARY OF THE INVENTION

It is an object of the present invention to provide an improved system for permitting access to a data field area in an IC card for multiple services.

In accordance with the present invention, there is provided a system for permitting access to a data field area in an IC card for multiple services using an individual card holder identification number for each of a plurality of data fields or for each group of data fields, the system comprising: a plurality of data fields in the IC card; a sequence of a data field selection portion, a personal identification number authentication portion, an authentication code validation portion, and an access right selection portion, input portions for inputting data field identification information, a personal identification number, access qualification information, and an authentication code; a data field access portion and an access request portion; and storage portions for sorting information for data field control. An authentication between the information stored in the storage portions and the information input through the input portions is carried out.

Based on the cumulative result of a selection of a data field, a authentication of the personal identification number, a validation of the authentication code, and a selection of the access right, access to a data field area to which access is requested is permitted within the limit of the selected access right.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings,

Fig. 1 is a perspective view of an IC card to which the system according to the present invention is applied;

Fig. 2 shows a fundamental combination of an IC card and a terminal apparatus;

Fig. 3 shows a prior art system for access to a data field area in an IC card for multiple services;

Fig. 4 is a schematic diagram of a system for permitting access to a data field area in an IC card for multiple services according to an embodiment of the present invention;

Fig. 5 shows an example of combinations of the authentication code and the access right; and

Fig. 6 is a flow chart of the operation of the system of Fig. 4.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before describing a preferred embodiment of the present invention, an IC card to which the system according to the present invention is applied, a fundamental combination of an IC card and a terminal apparatus, and a prior art system for access to a data field area in an IC card for multiple services will be explained with reference to Figs. 1, 2, and 3.

As shown in Fig. 1, an IC card has contacts adapted for electrical connection with external apparatuses, an integrated circuit module beneath the area containing the contact electrodes, and an area to be embossed. As shown in Fig. 2, the circuit of the IC card includes the contacts, a central processing unit (CPU), a read only memory (ROM) for storing a control program, and an electrically erasable and programmable read only memory (EEPROM) or an erasable and programmable read only memory (EPROM) for storing data fields, input information, and control information. The circuit of the IC card can communicate with the program portion in the terminal apparatus.

As shown in Fig. 3, in the prior art, the authentication between the input personal identification number 101 and the stored personal identification number 301 is carried out in the personal identification number authentication portion 201. Based on the coincident result of this authentication, the validation between the input authentication code 102



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and the stored authentication 302 is carried out in the authentication code validation portion 202, and based on the result of this validation, the decision obtained from the stored information 303, 304, and 305 for data field. Identification No. 2, and No. 3 corresponding to the data fields No. 1, No. 2 and No. 3 is carried out in the data field decision portion 203 with respect to the input data field identification information 103.

Once one of the data fields No. 1, No. 2, and No. 3 is chosen according to the decision of one of the data field identification No. 1, No. 2, and No. 3, access through the access request portion 104 is permitted to the chosen data field.

A system for permitting access to a data field area in an IC card for multiple services according to an embodiment of the present invention is shown in Fig. 4. The system of Fig. 4 includes a data field input portion 11, a personal identification number input portion 12, an access qualification input portion 13, an authentication code input portion 14, an access request portion 2, a data field selection portion 31, a personal identification number authentication portion 32, an authentication code validation portion 33, an access right selection portion 34, and a data field access portion 4.

The system of Fig. 4 also includes a data field (No. 1) 61, a data field (No. 2) 62, a data field (No. 3) 63, a memory for data field control (No. 1) 51, a memory for data field control (No. 2) 52, and a memory for data field control (No. 3) 53. The memories 51, 52, and 53 corresponding to the data fields No. 1, No. 2, and No. 3, respectively.

For example, information for the data field identification No. 1, personal identification number (No. 1), authentication code Nos. 11, 12, 13 ... 1n, and information for the access right Nos. 11, 12, 13 ... 1n are stored in the memory 51. The authentication code No. 11 and the information for the access right No. 11 comprises an access qualification No. 1, the authentication code No. 12, and the information for the access right No. 12 comprises an access qualification No. 2, and so on. The authentication code No. 1n and the information for the access right No. 1n comprises an access qualification No. n.

Here, the information for the access right concerns which one of the processes of reading, writing, deleting, and re-writing should be permitted.

In the data field selection portion 31, a comparison between the input data field identification 11 and the data field identification stored in the memories 51, 52, and 53 is carried out, so that one of the data field Nos. 1, 2, and 3 is selected according to the coincident result of that comparison.

In the personal identification authentication portion 32, after the above-mentioned selection of the data field, the authentication between the input personal identification number and the personal identification number stored in the memory corresponding to the selected data field is carried out so that it can be confirmed whether or not the person inputting the personal identification number is the person authorized to use the data field in question

In the authentication code validation portion 33, after an affirmative confirmation of the personal identification, a validation concerning the input authentication code and the authentication code stored in the memory corresponding to the selected data field and the input access qualification is carried out so that it can be confirmed whether or not the access executor has the proper authentication code.

In the access right selection portion 34, after an affirmative confirmation of the authentication code, an extraction of the access right information stored in the memory corresponding to the selected data field and input access qualification information is carried out so that the access right permitted to the access executor is selected.

In the data field access portion 4, after the selection of the access right, the access to the selected data field is carried out corresponding to the permitted access right in response to the input access request through the access request portion 2.

An example of the combinations of the authentication codes and the access rights is shown in Fig. 5.

The operation of the system of Fig. 4 will be described below with reference to the flow chart of Fig. 6.

Upon input of an access start request, a data field identification, a personal identification number, access qualification information, and an authentication code, the data field identifications stored in the memory are searched and the data field corresponding to the input data field identification is selected (step S1). When there is no corresponding data field, the process proceeds to the error indication.

When the data field in question is selected, the process proceeds to step S2, where the personal selected data field is authenticated with regard to the input personal identification number. When the stored personal identification number does not coincide with the input personal identification number, the process proceeds to the error indication.

When the stored personal identification number coincides with the input personal identification number, the process proceeds to step S4 where the authentication code corresponding to the input access qualification information is derived, and the validation concerning the derived authentication code and the input authentication code is carried out. When the derived authentication code does not coincide with the input authentication code, the process proceeds to the error indication.

When the derived authentication code coincides with the input authentication code, the process proceeds to step S6, where the access right corresponding to the input access qualification information is derived from the memory for data field control and the decision for access right is made.

Then, in step S7, the request for access to data in the selected data field is executed within the range of the above-described access right.

**Claims**

1. A system for permitting access to a data



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field area in an IC card for multiple services using an individual card holder identification number for each of a plurality of data fields or for each groups of data fields, said system comprising:

a plurality of data fields in the IC card;

a sequence of data field selection means, a personal identification number authentication means, an authentication code validation means, and an access right selection means;

an input means for inputting data field identification information, a personal identification number, access qualification information, and an authentication code;

a data field access means and access request means; and

storage means for storing information for data field control;

comparisons between the information stored in said storage means and the information input through said input means being carried out, for authentication, validation, and selection; and

based on the cumulative result of a selection of a data field, an authentication of a personal identification number, a validation of an authentication code, and a selection of an access right, access to a data field area to which access is requested is permitted within a limit of the selected access right.

2. A system according to claim 1 wherein each memory for data field control stores data field identification information, a personal identification number, a plurality of authentication codes, and a plurality of access rights information.

3. A system according to claim 1, wherein the access qualification information input by said input means is an information for selecting an authentication code and an access right.

4. A system according to claim 1, wherein the access right information stored in the memories for data field control selected by the access qualification information is represented by one of the processes of reading, writing, deleting, and re-writing.

5. A system according to claim 1, wherein said personal identification number authentication means is operated based on signals from the data field selection means, the personal identification number input means, and the memories for data field control.

6. A system according to claim 1, wherein said authentication code validation means is operated based on signals from the personal identification number authentication means, the access qualification input means, the authentication code input means, and the memories for data field control.

7. A system according to claim 1, wherein said access right selection means is operated based on signals from the authentication code validation means, the access qualification input means, and the memories for data field control.



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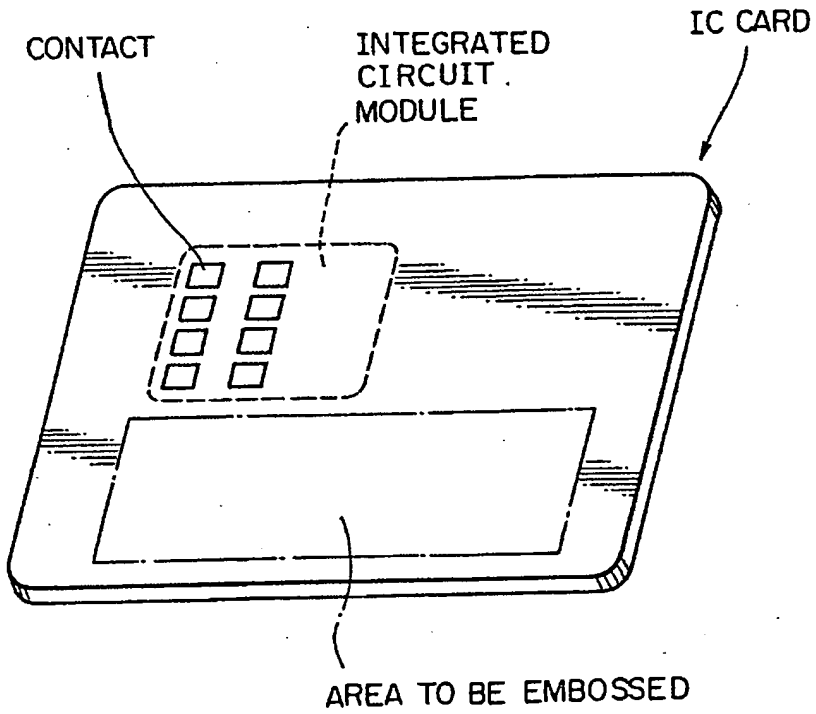
Fig. 1


CONTACT
INTEGRATED CIRCUIT MODULE
IC CARD
AREA TO BE EMBOSSED

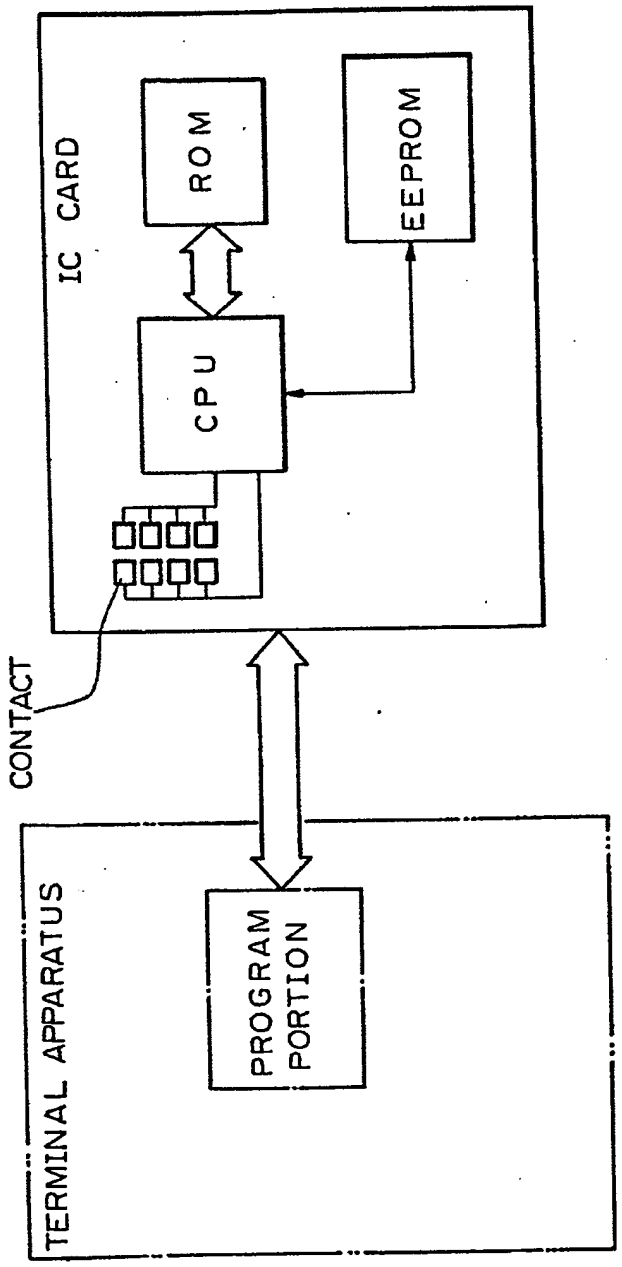

IC CARD
ROM
EEPROM
CPU
CONTACT
TERMINAL APPARATUS
PROGRAM PORTION

Fig. 2

Fig. 3 A

Fig. 3

| Fig. 3 A | Fig. 3 B |
|---|---|

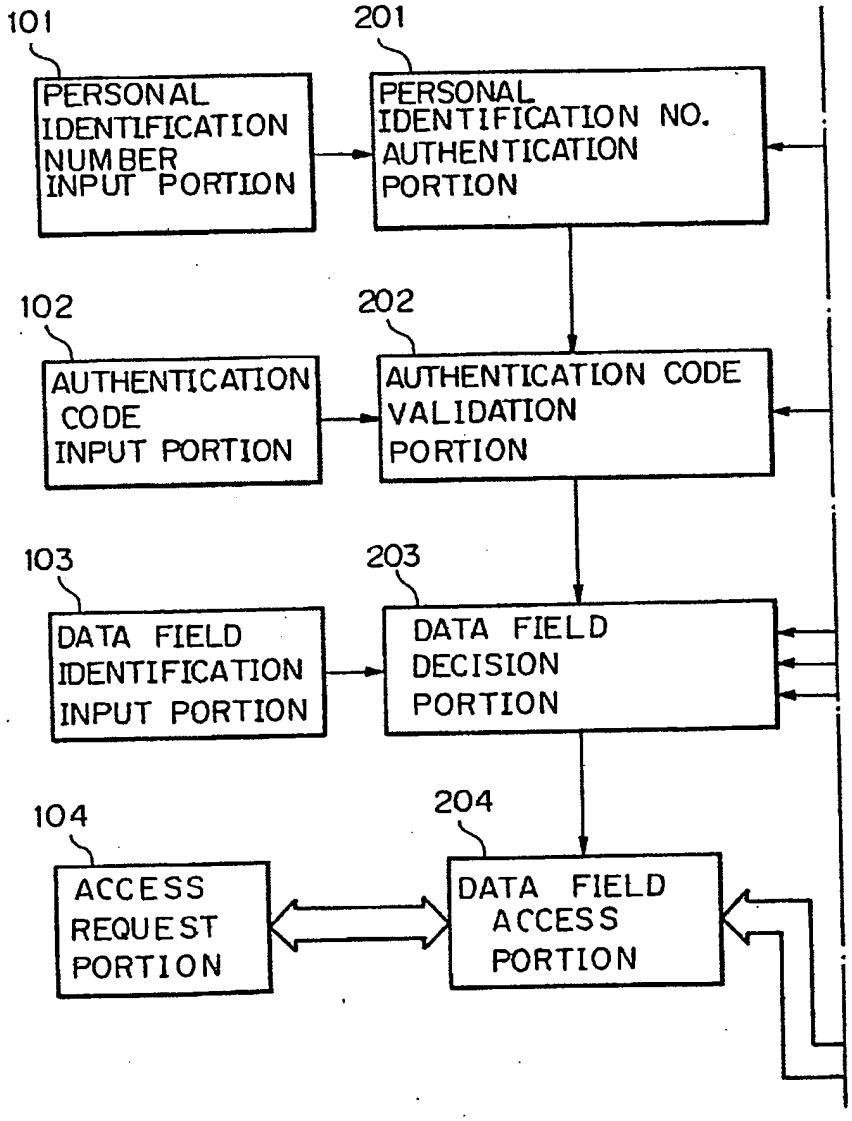


Fig. 3B

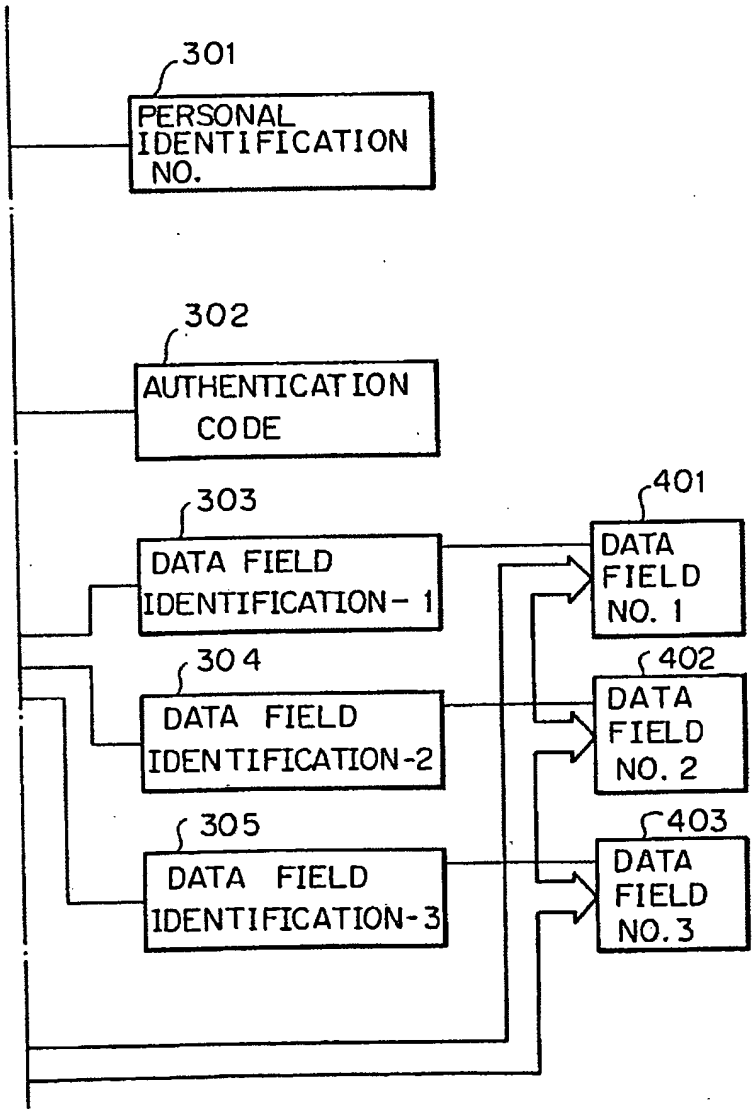

301
PERSONAL IDENTIFICATION NO.
302
AUTHENTICATION CODE
303
DATA FIELD IDENTIFICATION-1
304
DATA FIELD IDENTIFICATION-2
305
DATA FIELD IDENTIFICATION-3
401
DATA FIELD NO. 1
402
DATA FIELD NO. 2
403
DATA FIELD NO. 3

Fig. 4A

Fig. 4

Fig. 4 A | Fig. 4 B

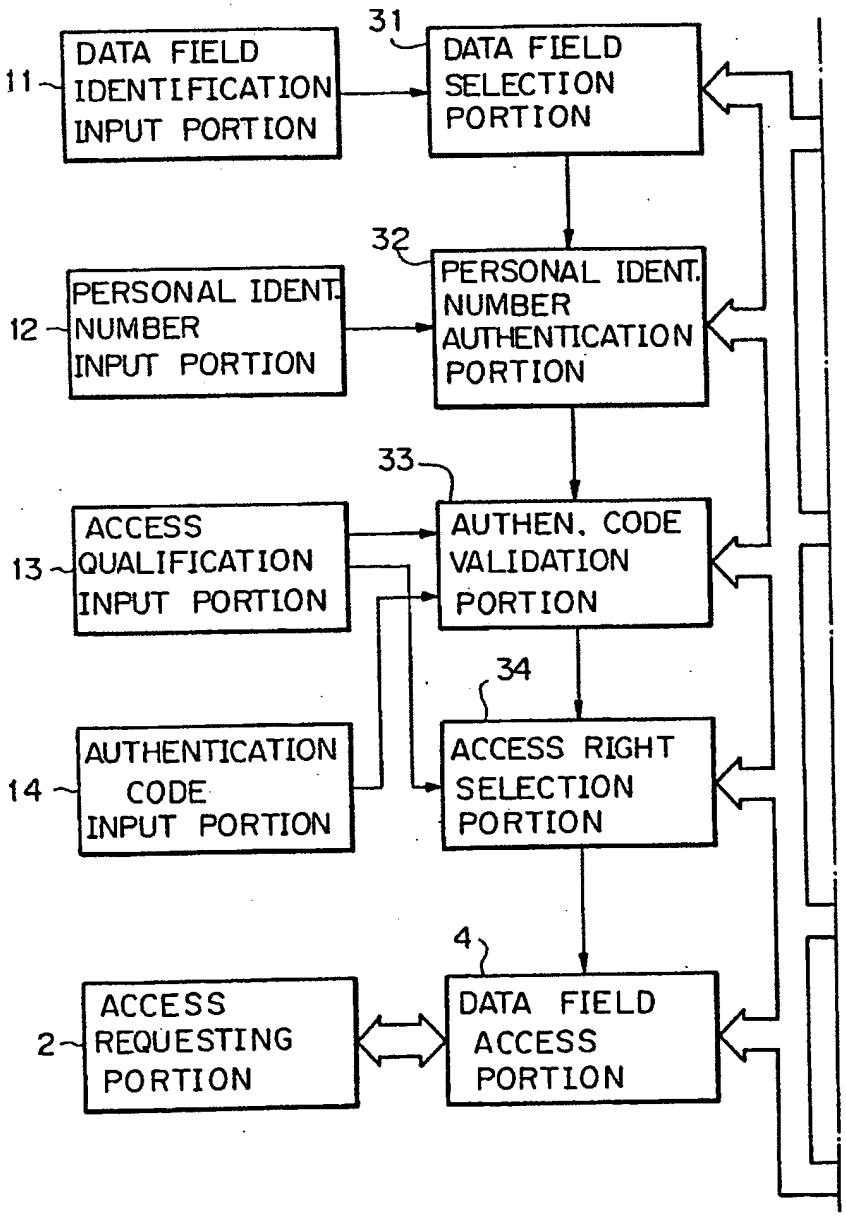


Fig. 4 B

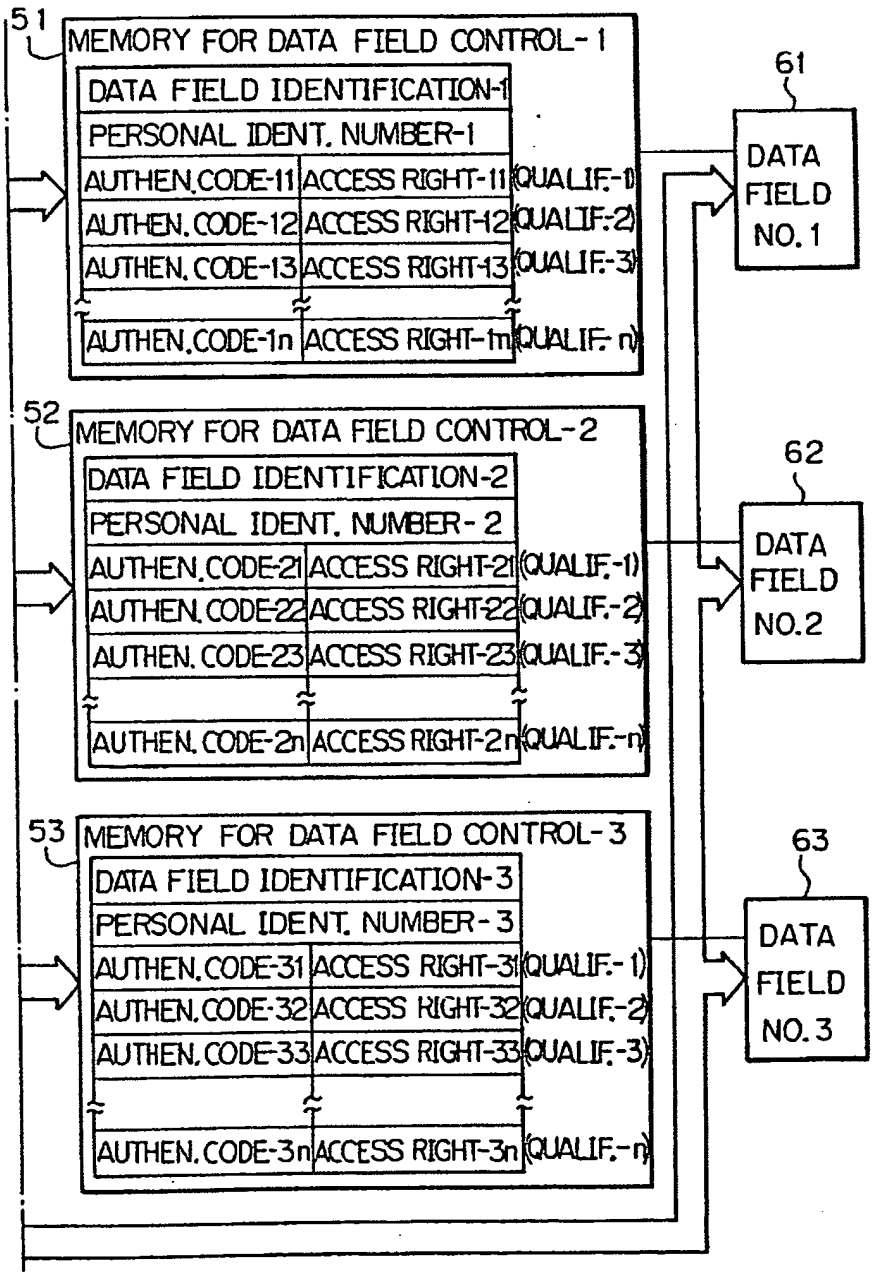

51
MEMORY FOR DATA FIELD CONTROL-1
DATA FIELD IDENTIFICATION-1
PERSONAL IDENT. NUMBER-1
AUTHEN.CODE-11
ACCESS RIGHT-11
(QUALIF.-1)
AUTHEN. CODE-12
ACCESS RIGHT-12
(QUALIF.-2)
AUTHEN. CODE-13
ACCESS RIGHT-13
(QUALIF.-3)
AUTHEN.CODE-1n
ACCESS RIGHT-1n
(QUALIF.-n)
52
MEMORY FOR DATA FIELD CONTROL-2
DATA FIELD IDENTIFICATION-2
PERSONAL IDENT. NUMBER-2
AUTHEN.CODE-21
ACCESS RIGHT-21
(QUALIF.-1)
AUTHEN. CODE-22
ACCESS RIGHT-22
(QUALIF.-2)
AUTHEN. CODE-23
ACCESS RIGHT-23
(QUALIF.-3)
AUTHEN. CODE-2n
ACCESS RIGHT-2n
(QUALIF.-n)
53
MEMORY FOR DATA FIELD CONTROL-3
DATA FIELD IDENTIFICATION-3
PERSONAL IDENT. NUMBER-3
AUTHEN.CODE-31
ACCESS RIGHT-31
(QUALIF.-1)
AUTHEN. CODE-32
ACCESS RIGHT-32
(QUALIF.-2)
AUTHEN. CODE-33
ACCESS RIGHT-33
(QUALIF.-3)
AUTHEN. CODE-3n
ACCESS RIGHT-3n
(QUALIF.-n)
61
DATA FIELD NO. 1
62
DATA FIELD NO.2
63
DATA FIELD NO. 3

Fig. 5

| | AUTHENTICATION CODE | ACCESS RIGHT |
|---|---|---|
| CARD ISSUER | X X X X X X | R W D RW |
| SERVICE SUPPLIER | Y Y Y Y Y Y | R W D RW |
| CARD ACCEPTOR | Z Z Z Z Z Z | R W D RW |
| CARD HOLDER | (PERSONAL IDENT. NUMBER) | R W D RW |

R : READ
W: WRITE
D : DELETE
RW : REWRITE

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Fig. 6A

Fig. 6

Fig. 6A

Fig. 6B

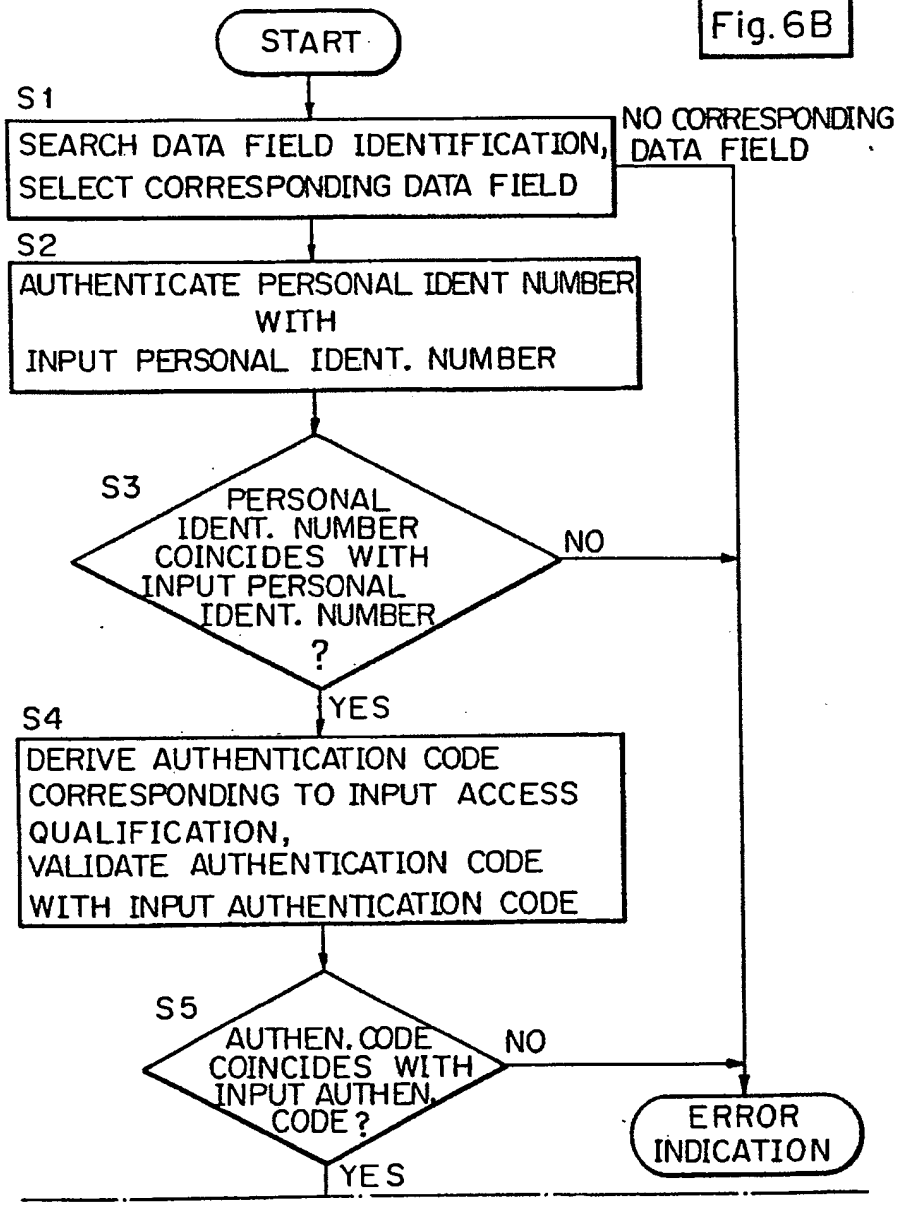
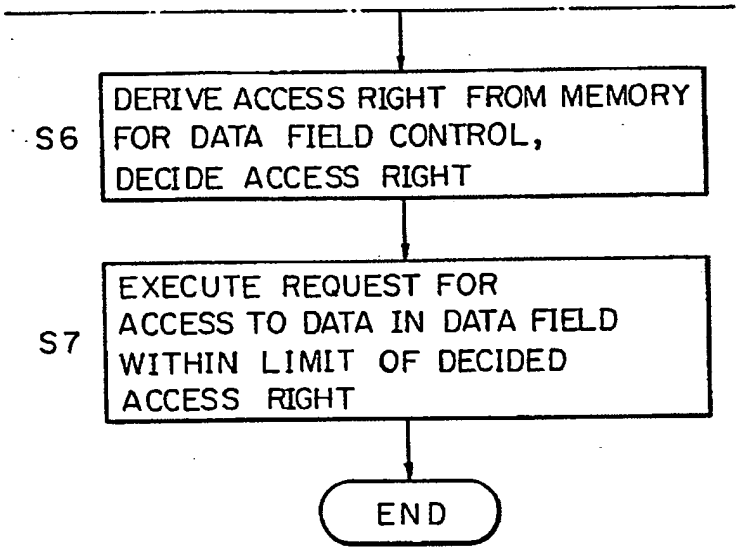


Fig. 6B


S6
DERIVE ACCESS RIGHT FROM MEMORY FOR DATA FIELD CONTROL, DECIDE ACCESS RIGHT
S7
EXECUTE REQUEST FOR ACCESS TO DATA IN DATA FIELD WITHIN LIMIT OF DECIDED ACCESS RIGHT
END

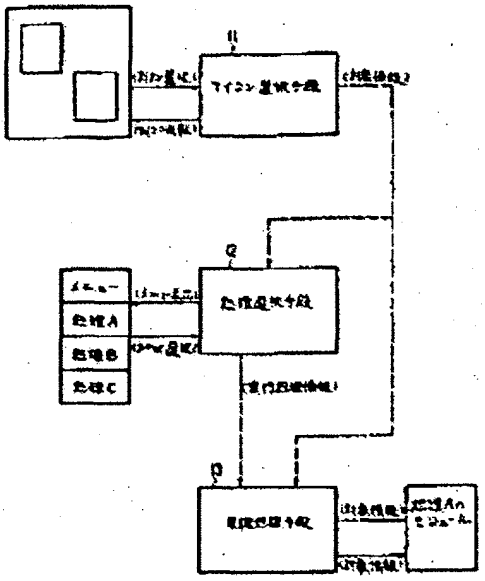
# BATCH PROCESSING SYSTEM BY SELECTING PLURAL ICONS

**Publication number:** JP3063717
**Publication date:** 1991-03-19
**Inventor:** TSUTSUI KENSAKU; DEWA YUJI
**Applicant:** NIPPON ELECTRIC CO
**Classification:**
**- international:** ***G06F3/02; G06F3/00; G06F3/048; G06F3/14;*** **G06F3/02; G06F3/00; G06F3/048; G06F3/14;** (IPC1-7): G06F3/02; G06F3/14
**- European:**
**Application number:** JP19890199025 19890731
**Priority number(s):** JP19890199025 19890731

**Report a data error here**

Abstract of **JP3063717**

PURPOSE:To decrease the operation burden by determining one from in processings defined in common among all objects corresponding to a selected icon, and repeating this processing to all the objects corresponding to the selected icon. CONSTITUTION:The subject system is provided with an icon selecting means 11, a processing selecting means 12, and a repetition processing means 13, plural icons corresponding to an arbitrary object being a processing object are selected, and also, one is determined from in processings defined in common among all objects corresponding to the selected icon, and the determined processing is repeated to all the processing request to a computer from a user, especially, at the time of requesting the same processing to plural processing objects, a monotonous repeating operation is replaced with a batch operation, and the operation burden of the user can be reduced.



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⑲日本国特許庁(JP)　⑪特許出願公開

⑫公開特許公報(A)　平3−63717

| ⑤Int.Cl.⁵ | | 識別記号 | 庁内整理番号 |
|---|---|---|---|
| G 06 F | 3/02 | 370 A | 7530−5B |
| | | 360 G | 7530−5B |
| | 3/14 | 370 A | 8323−5B |

⑬公開　平成3年(1991)3月19日

審査請求　未請求　請求項の数 1　(全4頁)

⑤④発明の名称　アイコンの複数選択による一括処理方式

⑳特　願　平1−199025

㉒出　願　平1(1989)7月31日

㉑発明者　筒井　健作　東京都港区芝5丁目33番1号　日本電気株式会社内

㉑発明者　出羽　雄二　東京都港区芝5丁目33番1号　日本電気株式会社内

㉑出願人　日本電気株式会社　東京都港区芝5丁目7番1号

㉔代理人　弁理士　井ノ口　壽

明　細　書

1. 発明の名称

アイコンの複数選択による一括処理方式

2. 特許請求の範囲

処理対象である任意のオブジェクトに対応するアイコンを複数選択するためのアイコン選択手段と、前記選択されたアイコンに対応するすべてのオブジェクトの間で共通に定義される処理の中から一つを決定するための処理選択手段と、前記決定された処理を前記選択されたアイコンに対応するすべてのオブジェクトに対して反復するための反復処理手段とを具備して構成したことを特徴とするアイコンの複数選択による一括処理方式。

3. 発明の詳細な説明

（産業上の利用分野）

本発明はコンピュータと利用者との間の対話方式に関し、特に、その利用者からコンピュータへの要求の伝達方式に関する。

（従来の技術）

従来、コンピュータと利用者との間でオブジェクト指向の対話を行う場合には、処理対象であるオブジェクトに対応する1個のアイコンに対し、実行可能な処理を一つ選択していた。また、利用者が複数のオブジェクトに対して同一の処理を要求する際にも、それぞれに対してアイコン選択、および処理選択の操作を繰返して行つていた。

（発明が解決しようとする課題）

上述した従来のコンピュータと利用者との間の対話方式で操作性を向上する必要がある場合には、単調な繰返し操作を一括操作に置換えることにより、利用者の操作負担の軽減を図る必要がある。上述した従来技術では、利用者からコンピュータへの処理要求において、各オブジェクトについて必ずアイコンの選択、および処理の選択の操作を行わなければならず、利用者の操作負担は大きいという欠点がある。

本発明の目的は、処理対象である任意のオブジェクトに対応するアイコンを複数選択するとともに、選択されたアイコンに対応するすべてのオブジェクトの間で共通に定義される処理の中から一



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つを決定し、決定された処理を選択されたアイコンに対応するすべてのオブジエクトに対して反復することによつて上記欠点を除去し、操作負担を減ずることができるように構成したアイコンの複数選択による一括処理方式を提供することにある。

（課題を解決するための手段）

本発明によるアイコンの複数選択による一括処理方式は、アイコン選択手段と、処理選択手段と、反復処理手段とを具備して構成したものである。

アイコン選択手段は、処理対象である任意のオブジエクトに対応するアイコンを複数選択するためのものである。

処理選択手段は、選択されたアイコンに対応するすべてのオブジエクトの間で共通に定義される処理の中から一つを決定するためのものである。

反復処理手段は、上記決定された処理を上記選択されたアイコンに対応するすべてのオブジエクトに対して反復するためのものである。

（実施例）

次に、本発明に関して図面を参照して説明する。

第１図は、本発明によるアイコンの複数選択による一括処理方式の一実施例を示すブロック図である。

第１図において、１１はアイコン選択手段、１２は処理選択手段、１３は反復処理手段である。

第１図においてアイコン選択手段１１は利用者が選択する画面上の複数のアイコンに対応する各オブジエクトの情報を取得して記憶する。また、当該情報は処理選択手段１２に伝えられ、それらオブジエクトで共通に定義されている実行可能処理がメニューとして画面上に表示される。処理選択手段１２は利用者にその中の一つを選択させ、選択された処理の情報を取得して記憶する。反復処理手段１３は、処理選択手段１２で記憶した実行処理を行うモジユールに対し、アイコン選択手段１１で記憶したオブジエクトの情報を１件づつ伝達し、オブジエクトの情報がなくなるまで上記動作を繰返す。これにより、本方式は構成される。

第２図～第７図は、それぞれ第１図に示すアイコンによる操作例を示す説明図である。

以下に、第２図～第７図を参照して画面での操作例を説明する。

第２図において、アイコンをポインタ２０で指示すると、これにより選択が行われ、選択が記憶されたフオルダアイコン５１は反転表示される。引続き、第３図において、他のアイコンをポインタ２０で指示すると、これにより複数選択が可能であり、選択が記憶された文書アイコン５２は同様に反転表示される。これらは、本方式のアイコン選択手段によつて行われる。第４図において、メニュー３０をポインタ２０で指示すると、これにより選択を記憶したすべてのアイコン５１、５２に共通的に定義された処理が提示される。このとき、共通して選択可能なメニュー項目は、３１で代表されるように実線文字で表わされ、そうでないメニュー項目は３２で代表されるように破線文字で表わされる。第５図において、ポインタ２０でメニュー３０中のメニュー項目３５を指示することにより、処理の選択が行われて選択が記憶される。これらは、本方式の処理選択手段１２によつて行われる。第６図においては、処理選択手段により記憶されている複写という処理がフオルダアイコン５１に適用された結果、同様のフオルダアイコン５３が画面上に生成されている。引続き、第７図においては、文書アイコン５２にも複写処理が適用され、同様の文書アイコン５４が画面上に生成されている。これにより、第６図および第７図の処理が実行されている間は、利用者は何等操作をする必要がなくなつたわけである。

（発明の効果）

以上説明したように本発明は、処理対象である任意のオブジエクトに対応するアイコンを複数選択するとともに、選択されたアイコンに対応するすべてのオブジエクトの間で共通に定義される処理の中から一つを決定し、決定された処理を選択されたアイコンに対応するすべてのオブジエクトに対して反復することによつて、利用者からコンピュータへの処理要求において、特に複数処理対象に対して同一処理を要求する際に、単調な繰返し操作が一括操作に置き換えられ、利用者の操作



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負担が軽減できるという効果がある。

4. 図面の簡単な説明

第1図は、本発明によるアイコンの複数選択による一括処理方式の一実施例を示すブロック図である。

第2図～第7図は、それぞれ第1図に示すアイコンによる操作例を示す説明図である。

11・・・アイコン選択手段

12・・・処理選択手段

13・・・反復処理手段

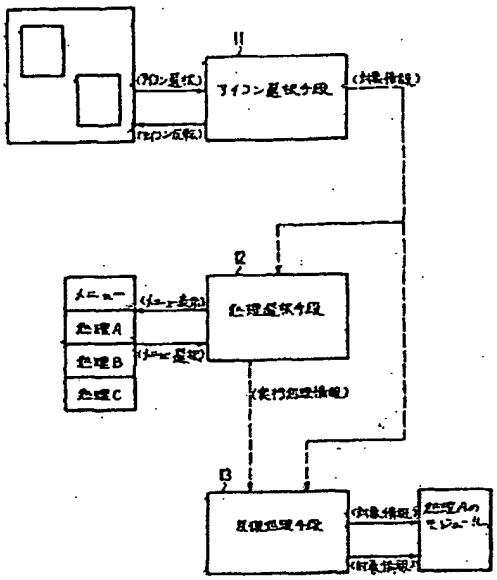
20・・・ポインタ

30・・・メニュー

31～33・・・項　目

40、50～54・・・アイコン

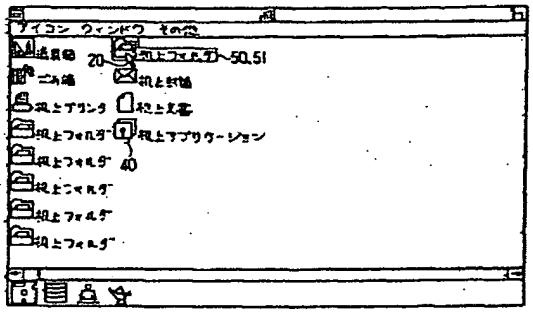
第1図



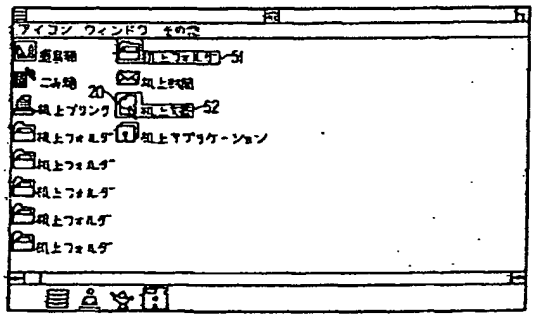

特許出願人　日本電気株式会社

代理人　弁理士　井ノ口　壽

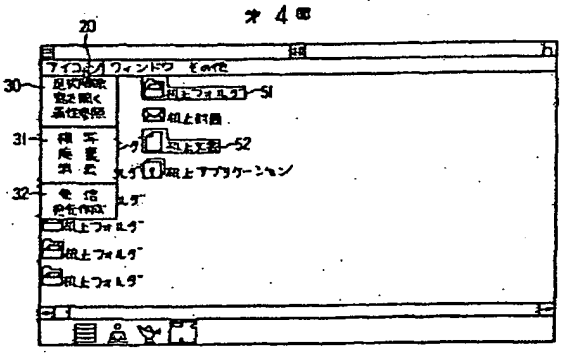
第2図



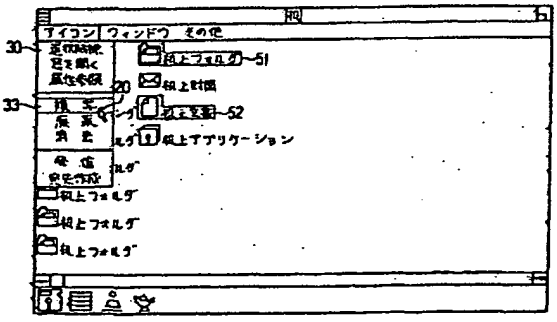

第3図




第4図




第5図



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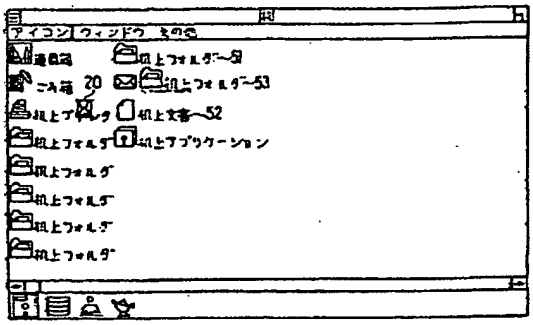
第6図


アイコン ウィンドウ その他
机上フォルダ
ごみ箱 20
机上フォルダ
机上フォルダ
机上フォルダ

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS & INTERFERENCES**

| | | |
|---|---|---|
| In re Patent Application of: | ) | Confirmation No.: 8299 |
| Mai NGUYEN, et al. | ) | Group Art Unit: 3621 |
| Serial No. 10/956,070 | ) | Examiner: Evens J. Augustin |
| Filed: October 4, 2004 | ) | |
| For: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES | ) | Date: August 13, 2008 |

United States Patent and Trademark Office
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

## APPEAL BRIEF

Sir:

In accordance with the provisions of 35 U.S.C. § 134 and 37 C.F.R. § 41.37, Appellants submit the following Appeal Brief in support of the appeal proceedings instituted by the Notice of Appeal filed March 13, 2008, in response to the non-final Office Action mailed December 13, 2007 in connection with the above-captioned patent application.

## I. REAL PARTY IN INTEREST

ContentGuard Holdings, Inc. is the real party in interest.

## II. RELATED APPEALS AND INTERFERENCES

There are presently no appeals or interferences known to the Appellants, the Appellants' representative, or the assignee, which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

## III. STATUS OF CLAIMS

Claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 are currently pending in the application. Claims 1, 9, 11-13, 21, 23-24, 26, 34, 36-39, and 46-48 have been canceled. This Appeal is taken from the rejection of claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57, as submitted in the Appendix herewith.

## IV. STATUS OF AMENDMENTS

No amendments have been entered to the claims subsequent to the non-final Office Action mailed on December 13, 2007.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention generally relates to offering and granting of rights and more particularly to a method, system and device for offering and granting of rights using shared state variables.

Independent claim 40 of the present application recites a method for sharing rights adapted to be associated with an item, the method comprising specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0098], [0099], etc.); defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item (*See* U.S. Patent Application Publication No. 20050137984, paras. [0010], [0042], etc.); defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights (*See* U.S. Patent Application Publication No. 20050137984, paras. [0041], [0088], etc.); associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked (*See* U.S. Patent Application Publication No. 20050137984, paras. [0093], [0096], [0101], etc.); generating in a second license one or more rights based on the meta-right in the first license,



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wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0098], [0099], etc.); and associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license. (*See* U.S. Patent Application Publication No. 20050137984, paras. [0093], [0096], [0101], etc.).

Independent claim 41 recites a system for sharing rights adapted to be associated with an item, the system comprising a means for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0098], [0099], etc.); means for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item (*See* U.S. Patent Application Publication No. 20050137984, paras. [0010], [0042], etc.); means for defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights (*See* U.S. Patent Application Publication No. 20050137984, paras. [0041], [0088], etc.); means for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked (*See* U.S. Patent Application Publication No. 20050137984, paras. [0093], [0096], [0101], etc.); means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0098], [0099], etc.); and means for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license. (*See* U.S. Patent Application Publication No. 20050137984, paras. [0093], [0096], [0101], etc.).



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Independent claim 42 recites a device for sharing rights adapted to be associated with an item, the device comprising means for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0041], [0042], [0088], [0093], [0096], [0098], [0099], [0101], etc.), etc.); and means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license. (*See* U.S. Patent Application Publication No. 20050137984, Figs. 15-16, and paras. [0010], [0028], [0029], [0098], [0099], etc.).

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed on appeal is the rejection of claims 2-10, 14-22, 25, 27-35, and 40-54 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,226,618 to Downs et al. (Downs).

However, in view of the prior cancellation of claims 9, 21, 34, and 46-48 (Amendment After Final, filed July 17, 2006), and in view of the prior addition of dependent claims 55-57 (Amendment, filed February 28, 2007), claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 are the remaining pending claims in this application. As such, Appellants assume that this rejection was intended to apply to each of pending claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-



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45, and 49-57, although no accurate indication has been received from the Examiner in this regard.

Thus, for the purposes of the Appeal, Appellants assume claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Downs.

## VII. ARGUMENTS

Claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,226,618 to Downs et al. In order to be anticipated under 35 U.S.C. § 102, each and every element set forth in a claim must be found, either expressly or inherently described, in a single prior art reference. *M.P.E.P.* § 2131.

### A. Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57.

Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57, and therefore fails to anticipate these claims. For example, independent claim 40 recites a method for sharing rights adapted to be associated with an item, the method comprising *specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices*, defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item, defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein *the at least one meta-right allows the one or more users or devices to transfer rights or to derive new rights*, associating at least one state variable with the at least one right in the first license, wherein *the at least one state variable identifies a location where a state of rights is tracked*, generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, and *associating at least one state variable with the at least one right that is shared in the second license, wherein the at least*



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*one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.*

In addition, independent claim 41 recites a system for sharing rights adapted to be associated with an item, the system comprising means for *specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices*, means for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item, means for defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein *the at least one meta-right allows the one or more users or devices to transfer rights or to derive new rights*, means for associating at least one state variable with the at least one right in the first license, wherein *the at least one state variable identifies a location where a state of rights is tracked*, means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, and means for *associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.*

Furthermore, independent claim 42 recites a device for sharing rights adapted to be associated with an item, the device comprising means for receiving *a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices,* the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, *the at least one meta-right allows the one or more users or devices to transfer rights or to derive new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked*, and means for *generating in a second license one or more rights based on the meta-right in the first license*, wherein the one or more rights in the second



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license includes at least one right that is shared among one or more users or devices, *at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.*

Thus, the invention recited in independent claims 40, 41 and 42 includes at least the novel features of specifying in a first license at least one usage right and at least one meta-right for an item, the at least one meta-right allows one or more users or devices to transfer rights or to derive new rights, associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked, generating in a second license one or more rights based on the meta-right in the first license, and associating at least one state variable with at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

In contrast, Downs is directed to a method and apparatus of securely providing data to a user's system, wherein the data is encrypted so as to only be decryptable by a data decrypting key, the data decrypting key being encrypted using a first public key, and the encrypted data being accessible to the user's system. The method includes transferring the encrypted data decrypting key to a clearing house that possesses a first private key, which corresponds to the first public key; decrypting the data decrypting key using the first private key; re-encrypting the data decrypting key using a second public key; transferring the re-encrypted data decrypting key to the user's system, the user's system possessing a second private key, which corresponds to the second public key; and decrypting the re-encrypted data decrypting key using the second private key.

Downs fails to disclose, teach or suggest at least the noted features recited in independent claims 40, 41, and 42.

### 1. Downs fails to disclose "meta-rights" as recited in the claims

Contrary to the Examiner's assertions, Downs fails to disclose meta-rights, as recited in the claims. Meta-rights are defined in the present patent application, as rights to "permit granting of rights to others or the derivation of rights." (*See* U.S. Patent Application Publication No. 20050137984, para. [0041]).

> [0041] **Rights can specify transfer rights, such as distribution rights, and can permit granting of rights to others or the derivation of rights**. Such rights are referred to as "meta-rights". **Meta-rights are the rights that one has to** [generate]**, manipulate, modify,** [dispose of] **or otherwise derive other meta-rights or usage rights. Meta-rights can be thought of as usage rights to usage rights** [or other meta-rights]. Meta-rights can include rights to offer, grant, obtain, transfer, delegate, track, surrender, exchange, and revoke usage rights to/from others. Meta-rights can include the rights to modify any of the conditions associated with other rights. For example, a meta-right may be the right to extend or reduce the scope of a particular right. A meta-right may also be the right to extend or reduce the validation period of a right.

As succinctly stated and defined in the present patent application, usage rights permit actions on an item, such as music, video, digital content, and the like. Such actions can include play, read, view, other uses, and the like, of the item. On the other hand, meta-rights permit actions on rights, such as usage rights and meta-rights. Such actions can include generate, modify, transfer, and the like, of rights.

By contrast, the system of Downs does not disclose meta-rights, but instead merely discloses that content stores can alter usage conditions. For example, and as identified by the Examiner, Downs discloses, at Col. 21, lines 30-42:

> The Content Usage Control Layer 505 permits the specification and enforcement of the conditions or restrictions imposed on the use of Content 113 use at the End-User Device(s) 109. The conditions may specify the number of plays allowed for the Content 113, whether or not a secondary copy of the Content 113 is allowed, the number of secondary copies, and whether or not the Content 113 may be copied to an external portable device. The Content Provider(s) 101 sets the allowable Usage Conditions 517 and transmits them to the Electronic Digital Content Store(s) 103 in a SC (see the License Control Layer 501 section). *The Electronic Digital Content Store(s) 103 can add to or narrow the Usage Conditions 517 as long as it doesn't invalidate the original conditions set by the Content Provider(s) 101.* The Electronic Digital Content Store(s) 103 then transmits all Store Usage Conditions 519 (in a SC) to the End-User Device(s) 109 and the Clearinghouse(s) 105. The Clearinghouse(s) 105 perform



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> Usage Conditions Validation 521 before authorizing the Content 113 release to an End-User Device(s) 109.

Thus, contrary to the Examiner's assertions, Downs does not disclose the concept of meta-rights as it is recited in the claims and used in this invention. Instead, this portion of Downs merely provides that a content store has the ability to add to or narrow usage conditions, but requires that the usage conditions do not invalidate the original conditions set by the Content Provider.

This is clearly distinguishable from meta-rights, as is recited in the claims. Specifically, Downs fails to disclose or suggest a license that includes "at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices," "defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item," and "defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights," as is recited in claim 40, for example.

Accordingly, Appellants again respectfully submit that, while Downs suggests that a store can add to or narrow usage conditions with restrictions, Downs completely fails to disclose or suggest the concept of meta-rights as set forth in the specification and recited in the claims. Accordingly, Downs is silent with respect to the novel meta-rights feature of the invention recited in independent claims 40, 41 and 42.

Moreover, contrary to the Examiner's assertion on page 4 of the Office Action that Downs discloses meta-rights by simply defining "onto what kinds of media the content can be transferred to" (citing Downs, col. 59, lines 52-54), Downs completely fails to disclose, teach or suggest meta-rights, which allow one or more users or devices to transfer rights or to derive new rights, as recited in independent claims 40, 41 and 42.



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**2. Downs fails to disclose the use of "state variable(s)" with "meta-rights"**

The combination of state variables together with meta-rights further patentably distinguishes the invention recited in independent claims 40, 41 and 42 over Downs. For example, the combination of state variables and meta-rights, advantageously, enables the sharing of rights, wherein one shared right can be derived from another shared right in accordance with a meta-right. In addition, a state variable referring to a location on the device can be used to infer that the right is exclusive to the device, whereas a state variable referring to a location on a server can be used to infer that the right is shared among multiple devices; wherein each device that exercises the right will cause the state variable on the server to be updated.

The following two examples illustrate the use of state variables together with meta-rights in more detail (*See* U.S. Patent Application Publication No. 20050137984, paras. [0095] and [0099]):

> [0095] FIG. 14 is used to illustrate employing of a state variable in deriving inherited usage rights, according to the present invention. In FIG. 14, a derived right can inherit a state variable from meta-rights. For example, a personal computer (PC) of a user, Alice, can be configured to play an e-book according to a license 1403. A personal data assistant (PDA) of Alice also can obtain a right to play the e-book according to offer 1401, if the PC and PDA share the same state variables 1404 and 1405, e.g., "AlicePlayEbook." A derived right 1402 allows Alice also to play the e-book on her PDA as long as the PDA and the PC share a same count limit 1406 of 5 times.
>
> [0099] FIG. 16 is used to illustrate employing of a state variable in deriving rights that are shared among a dynamic set of rights recipients, according to the present invention. In FIG. 16, an offer 1601 specifies that a distributor can issue site licenses to affiliated clubs, allowing 5 members of each club to concurrently view, play, and the like, content, such as an e-book. A corresponding state variable 1607 associated with such a right can be unspecified in the offer 1601. When corresponding rights 1602 and 1603 are issued to affiliated clubs, the corresponding club identities are used to specify state variables 1608 and 1609 in the issued rights. The offers 1602 and 1603 are meta-rights derived from the offer 1601, with offer being assigned the distinct state variables 1608 and 1609. Further rights 1604-1606 can be derived from the offers 1602 and 1603 to be shared among members of each respective club. The licenses 1604 and 1605 are examples of rights derived from the offer 1602, and which inherit the state variable 1608, e.g., "urn:acme:club," whereas the license 1606 inherits the state variable 1609, e.g., "urn:foo:club."

Thus, contrary to the Examiner's assertions, a state variable is not simply "the number of copies" or "rental terms." Instead, a state variable references, for example, a counter or variable



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where "the number of copies" or "rental terms" is maintained, and wherein such a counter or variable can be located on a local device or a remote server. The ability to choose the location of a state keeper instead of a specific number, advantageously, provides a mechanism for the rights owner to control rights sharing.

**3. The invention recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 offer distinct advantages over systems such as Downs**

The invention recognizes and solves the following problems:

> [0009] However, there are limitations associated with the above-mentioned paradigms wherein only usage rights and conditions associated with content are specified by content owners or other grantors of rights. Once purchased by an end user, a consumer, or a distributor, of content along with its associated usage rights and conditions has no means to be legally passed on to a next recipient in a distribution chain. Further the associated usage rights have no provision for specifying rights to derive other rights, i.e. Rights to modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, revoke, or the like. Common content distribution models often include a multi-tier distribution and usage chain. Known DRM systems do not facilitate the ability to prescribe rights and conditions for all participants along a content distribution and usage chain. Therefore, it is difficult for a content owner to commercially exploit content unless the owner has a relationship with each party in the distribution chain.

In addition, the invention provides the following advantages:

> [0090] There are multiple ways to specify the scope of state variables, each of which can affect whether the derivative state variables can be shared, how the derivative state variables can be shared, and the like. For example, a state variable can be local, and solely confined to a recipient or can be global, and shared by a predetermined group of recipients. A global state variable can be shared by a group of recipients not determined when derived rights are issued, but to be specified later, perhaps based on certain rules defined in the license or based on other means. A global state variable can be shared between one or more rights suppliers, predetermined recipients, un-specified recipients, and the like. Advantageously, depending on the sharing employed with a given a business model and the rights granted in the meta-rights, state variables can be created at different stages of the value chain.

**B. Downs fails to anticipate claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 under 35 U.S.C. § 102(b)**

For at least the above reasons set forth above, Downs fails to disclose or suggest each and every feature recited in independent claims 40-42, and therefore fails to anticipate these claims



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under 35 U.S.C. § 102(b). Accordingly, the rejection of these claims under 35 U.S.C. § 102(b) in view of Downs should be reversed.

Dependent claims 2-10, 14-22, 25, 27-33, 35, 43-45, and 49-57 are also allowable over Downs for at least the reasons set forth above, and also on their own merits.

## VIII. CONCLUSION

For at least the above reasons, pending claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 define patentable subject matter under 35 U.S.C. § 102(b). Accordingly, Appellants respectfully request that this Honorable Board reverse the rejections of claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 under 35 U.S.C. § 102(b) in view of Downs.

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,
**NIXON PEABODY, LLP**

Date: August 13, 2008

/Stephen M. Hertzler, Reg. No. 58,247/
Stephen M. Hertzler
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## IX. CLAIMS APPENDIX

1. (Cancelled)

2. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

3. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

4. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

5. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

6. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license represents a collection of states.

7. (Previously Presented) The method of claim 40, further comprising:

generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

associating at least one state variable with the at least one right that is shared in the third license,



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wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

8. (Previously Presented) The method of claim 40, further comprising a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

9. (Cancelled)

10. (Previously Presented) The method of claim 40, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

11-13. (Cancelled)

14. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

15. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

16. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

17. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.



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18. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license represents a collection of states.

19. (Previously Presented) The system of claim 41, further comprising:

means for generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

means for associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

20. (Previously Presented) The system of claim 41, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

21. (Cancelled)

22. (Previously Presented) The system of claim 41, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

23-24. (Cancelled)

25. (Previously Presented) The system of claim 41, wherein the system is implemented with one or more hardware and software components.

26. (Cancelled)



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27. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

28. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

29. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

30. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

31. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license represents a collection of states.

32. (Previously Presented) The device of claim 42, wherein a third license includes one or more rights from at least one of the usage right and the meta-right in the second license,

the one or more rights in the third license includes at least one right that is shared among one or more users or devices,

at least one state variable is associated with the at least one right that is shared in the third license, and

the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

33. (Previously Presented) The device of claim 42, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.



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34. (Cancelled)

35. (Previously Presented) The device of claim 42, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

36-39. (Cancelled)

40. (Previously Presented) A method for sharing rights adapted to be associated with an item, the method comprising:

specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

41. (Previously Presented) A system for sharing rights adapted to be associated with an item, the system comprising:



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means for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

means for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

means for defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

means for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

means for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

42. (Previously Presented) A device for sharing rights adapted to be associated with an item, the device comprising:

means for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked; and

means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that



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is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

43. (Previously Presented) The method of claim 40, wherein the method is implemented with one or more hardware and software components configured to perform the steps of the method.

44. (Previously Presented) The method of claim 40, wherein the method is implemented with one or more computer readable instructions embedded on a computer readable medium and configured to cause one or more computer processors to perform the steps of the method.

45. (Previously Presented) The device of claim 42, wherein the device is implemented with one or more hardware and software components.

46-48. (Cancelled)

49. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

50. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

51. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.



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52. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

53. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

54. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

55. (Previously Presented) The method of claim 40, further comprising:

generating in a further license one or more rights based on the meta-right in the second license, wherein the one or more rights in the further license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the further license, wherein the at least one state variable that is associated with the further license is based on the at least one state variable that is associated with the second license.

56. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is the same as the at least one state variable that is associated with the first license, if the at least one state variable that is associated with the first license does not identify an unspecified location.

57. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is assigned a new location identification, if the at least one state variable that is associated with the first license identifies an unspecified location.



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## X. EVIDENCE APPENDIX

None.

## XI. RELATED PROCEEDINGS APPENDIX

None.

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| First Named Inventor/Applicant Name: | Mai Nguyen |
| **Filer:** | Stephen M. Hertzler/Lynette James |
| **Attorney Docket Number:** | 111325-235000 |

Filed as Large Entity

## Utility Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| Filing a brief in support of an appeal | 1402 | 1 | 510 | 510 |
| Post-Allowance-and-Post-Issuance: | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 3 months with $0 paid | 1253 | 1 | 1050 | 1050 |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **1560** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 3772408 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 13-AUG-2008 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 13:01:42 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $1560 |
| RAM confirmation Number | 7851 |
| Deposit Account | 192380 |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes) /Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Appeal Brief Filed | 235000_2008-08-13_Appeal_Brief.pdf | 533391<br>1c097e5336a6ba340293489d40375716a1cf1000 | no | 22 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (PTO-06) | fee-info.pdf | 8347<br>282bb2b16cb49ba59f5c891d9791a247cbad68ec | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 541738 | | |

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**New Applications Under 35 U.S.C. 111**
**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**
**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**
**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

SEP 04 2008
PATENT & TRADEMARK OFFICE

Docket No: 111325-235000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | |
|---|---|---|
| In re Patent Application of | | |
| Mai NGUYEN et al. | ) | |
| Application No. 10/956,070 | ) | Art Unit: 3621 |
| Filed: October 4, 2004 | ) | Confirmation No. 8299 |
| For: SYSTEM AND METHOD FOR | ) | |
| RIGHTS OFFERING AND GRANTING | ) | |
| USING SHARED STATE VARIABLES | ) | |

INFORMATION DISCLOSURE STATEMENT

United States Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. §1.56, the accompanying information is being submitted in accordance with 37 C.F.R. §§1.97 and 1.98.

In accordance with the duty of disclosure as set forth in 37 C.F.R. §1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98. In accordance with the PTO notice dated July 11, 2003, waiving the requirement under 37 CFR 1.98 (a)(2)(i) for submitting copies of each cited U.S. Patent, for all U.S. national patent applications filed after June 30, 2003, no copies of U.S. Patents are enclosed. However, copies of foreign patents and non-patent literature are submitted under 37 CFR 1.98(a)(2).

The undersigned certifies that either (1) each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in connection with a counterpart foreign application not more than three (3) months prior to the filing of this statement, or (2) no item of information contained in this information disclosure



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SEP 04 2008
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statement was cited in a communication from a foreign patent office in a counterpart foreign application and to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this statement.

It is requested that the accompanying PTO-1449 be considered and made of record in the above-identified application. To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

The Commissioner is hereby authorized to charge any fees connected with this filing which may be required now, or credit any overpayment to Deposit Account No. 19-2380.

Respectfully submitted,

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# Digital watermarking

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## ABSTRACT

This paper presents a process able to mark digital pictures with an invisible and undetectable secrete information, called the watermark. This process can be the basis of a complete copyright protection system.
The process first step consists in producing a secrete image . The first part of the secret resides in a basic information that forms a binary image. That picture is then frequency modulated. The second part of the secret is precisely the frequencies of the carriers. Both secrets depends on the identity of the copyright owner and on the original picture contents. The obtained picture is called the stamp.
The second step consists in modulating the ampitude of the stamp according to a masking criterion stemming from a model of human perception. That too theoretical criterion is corrected by means of morphological tools helping to locate in the picture the places where the criterion is supposed not to match.
This is followed by the adaptation of the level of the stamp at that places. The so formed watermark is then added to the original to ensure its protection.
That watermarking method allows the detection of watermarked pictures in a stream of digital images, only with the knowledge of the picture owner's secrets.

**Keywords:** copyright protection, watermark, secrete key, masking, human vision model, perceptive components, morphology, robustness, detection, correlation.

## 1 GENERAL INTRODUCTION

With the increasing availability of digitally stored information and the development of new multimedia services, security questions are becoming even more urgent. The acceptance of new services depends on whether suitable techniques for the protection of the work providers' interests are available.[1]

Moreover the nature of digital media threatens its own viability:

- First the replication of digital works is very easy and, what is more dangerous, really perfect. The copy is identical to the original.

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- The ease of transmission and multiple uses is very worrying, too. Once a single pirate copy has been made, it is instantaneously accessible to anyone who wants it, without any control of the original picture owner.
- Eventually the plasticity of digital media is a great menace. Any malevolent user *(a pirate)* can modify an image at will. Such maniplations are really easy for a pirate and put many copyright protection methods at risk.

According to these considerations the conception of a copyright protection system is really vital and it constitutes a great challenge, because it should cope with all these threats. Without watermarking, most authors will not dare to broadcast their work.

This paper presents an additive watermarking technique. It consits in producing a synthetic picture (also called the stamp) which holds informations about the ownership of the original image and depends on the picture contents. That stamp is added to the original in a way that resulting picture is perceptually identical to the original one and so that the stamp is indetectable by a pirate computer. The aim of that technique is not the authentication of the picture content nor the identication of the owner. It is to allow a controller (i.e. the owner's computer or a Trusted Third Part) to find out watermarked pictures in a stream of images with the knowledge of the owner's secret key in order to detect broadcast of illegal copies.

The most interesting part of that method is the embedding process i.e. the weighting of each pixels of the stamp before adding it to the original. This is based on the masking concept coming from a model of human vision (the perceptive model). From this concept was deduced a method which reveals itself actually efficient. Another interesting part is the presentation of two methods used for the detection of watermarked pictures without the original. This last point is fundemental for the management of the copyright protection.
Eventually this paper ends with the analyse of the results and the system robustness.

# 2 THE MASKING

## 2.1 Introduction

The aim of a watermarking technique is to provide an invisible embedding of a secrete information, the watermark. This watermark must be masked (hidden) by the picture it is inlayed in. Precisely a master thesis has lead to a masking criterion deduced from physiological and psychophysic studies.[2] Nevertheless, this theoretical criterion having been formulated for monochromatic signals, it had to be adaptated to suit real images.

## 2.2 The perceptive model: approximation of the eye functionment

It is now admitted that the retina of the eye splits an image in several components. These components circulate from the eye to the cortex by different tuned channels, one channel being tuned to one component.

The characteristics of one component are:

- the location in the visual field (in the image).
- the spatial frequency (in the Fourier domain: the amplitude in polar coordinates).
- the orientation (in the Fourier domain: the phase in polar coordinates)

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So, one perceptive channel can only be excited by one component of a signal whose characteristics are tuned to its. Components that have different characteristics are independent.

## 2.3 The masking concept

According to perceptive model of human vision,[3] signals that have same (near) components take the same channels from the eye to the cortex. It appears that such signals interact and are submitted to non-linear effects. The masking is one of those effects.

**Definition:** *the detection threshold* is the minimum level below which a signal can not be seen.

**Definition:** *the masking* occurs when the detection threshold is increased because of the presence of another signal.

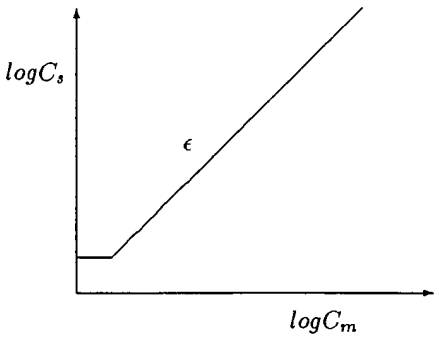
In other words, there is masking when a signal can not be seen because of another with near characteristics and at a higher level.

## 2.4 The masking model

With the object of modalizing the masking phenomenon, tests have been made on monochromatic signals, also called *gratings*. It appears that the eye is sensitive to the contrast of those gratings. This contrast is defined by:

$$C = \frac{2(Lmax - Lmin)}{Lmax + Lmin} \tag{1}$$

where L is the luminance.
It is possible to determine experimentally the detection threshold of one signal of contrast $C_s$ with respect to the contrast $C_m$ of the masking signal. That threshold can be modalized as follows:




Such bilogarithmic curves are traced for signals of one single frequency and one orientation ($f_0$, $\theta_0$).
The expression of the detection threshold is thus:

$$C_s = max[C_0, C_0(\frac{C_m}{C_0})^{\epsilon}] \tag{2}$$

where $\epsilon$ (the slope) depends on ($f_0$, $\theta_0$), typically, $0.6 \leq \epsilon \leq 1.1$.

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It is possible to extend that expression to introduce frequency dependence. The general expression of the detection threshold is becomes:

$$C_s(C_m, f, \theta) = C_0 + k_{(f_0,\theta_0)}(f, \theta)[C_{s(f_0,\theta_0)}(C_m) - C_0] \tag{3}$$

where:

$$k_{(f_0,\theta_0)}(f, \theta) = exp[-(\frac{log^2(\frac{f}{f_0})}{F^2(f_0)} + \frac{(\theta - \theta_0)^2}{\Theta^2(f_0)}] \tag{4}$$

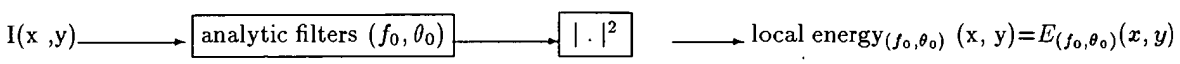
In that expression, $f_0$ and $\theta_0$ are relevant to the masking signal, $f$ and $\theta$ are relevant to the masked signal, $F(f_0)$ and $\Theta(f_0)$ are parameters that represent the spreading of the Gaussian function, $C_0$ is often negligable. The spread of the gaussian function depends upon the frequency $f_0$: For frequency, typical bandwith at half response are 2,5 octaves at 1 c/d and 1,5 octaves at 16 c/d with a linear decrease between both frequencies.[4] For orientation, half bandwith at half response depends on $f_0$ and it takes typical values like 30 degrees at 1 c/d and 15 degrees at 16 c/d.[5]

After this expression, the frequency dependence of the detection threshold has a Gaussian form. Only near frequency signals can interact. When the frequency of the masking signal (the mask) is far from this of the signal to mask, the detection threshold is almost equal to $C_0$.

## 2.5 The masking criterion

It is important to notice that those results concern only gratings signals. To deduce a masking criterion that will apply to signals like real images, the preceding masking condition has to be adaptated. So, it is necessary to define a new concept able to take the place of the contrast, because the contrast is not define for real images. That new concept,[2] is the *local energy*.

The local energy is defined on narrowband signals centered around one frequency and one orientation. A picture which is a broadband signal is first filtered by Gabor narrowband filters, whose characteristics are near to human perception. The local energy around one frequency and one orientation is calculated following the scheme presented in this figure:




**The masking criterion:** If the local energy of one picture is less than the local energy of the mask, around all the frequencies $(f_0, \theta_0)$ and for each pixel (x, y), then one can say that the picture is masked by the mask. Strictly, a picture is masked by a mask if $\forall(x, y)$ and $\forall(f_0, \theta_0)$, $E_{mask,(f_0,\theta_0)}(x, y) \geq E_{picture,(f_0,\theta_0)}(x, y)$. For real images, a good approximation of this criterion can be obtained by using a bank of filters whose central frequencies correspond to independent components and which are spread on all the Fourier space. It is admitted that 4 or 5 frequencies and 4 to 9 orientations are sufficient. The standard choice is twenty filters (5 frequencies and 4 orientations).

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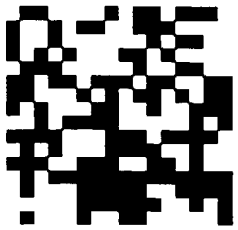

Figure 1: Example of basic information used

### 2.6 Conclusion

This section has lead to the expression of an easily implementable masking criterion appliable to any image. But this criterion is only an extension of a theoretic criterion appliable to monochromatic signals. Thus cases where that criterion does not match are possible.

## 3 PRINCIPLE OF THE SYSTEM

### 3.1 Basic information of the watermark

This information is a binary picture looking like a modified checkerboard (figure 1). As explained later, the pixels value of the square forming that picture can correspond to a binary sequence deduced from the copyright owner's (CO) *secrete key.*

### 3.2 The stamp

In order to take advantage of the eye behaviour, the basic information is modulated at different frequencies and orientations corresponding to rather independent components. Moreover, we take care to filter the initial checkerboard with a low pass filter (LPF) (i.e. a Butterworth LPF) so that the resulting signal is bandlimited. This point is very important because it permits to limit the verification of the masking criterion in the coresponding channel.
The position of the modulating carriers is *secret.* It can be deduced from CO's secret key. In practice, the frequency plan is divided into sectors. Each sector is relevant to one perceptive component and defined a group of couples $(f, \theta)$ where basic information can be modulated. Only one couple is chosen for each sector (because couples of a same sector don't stimulate independent components). The picture obtained from the sum of each modulated grid is called *the stamp* $S(x, y)$.

$$S(x,y) = \sum_{j \in K} G(x,y).cos(f_{x_j}.x + f_{y_j}.y) \tag{5}$$

K represents the set of sectors and $(f_{x_j}, f_{y_j})$ correspond to the couple chosen in sector j ( this couple is designed by the CO's secrete key).

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### 3.3 The position of the process in a global copyright scheme

The process should be placed in a copyright protection scheme like drawn at figure 2.
The skeletization function consists in an image processing program extracting essential characteristics from an image. The result is a bitsteam. This must be followed by a *hash-function*[6] whose result is a succession of blocks of bits. Every block has the same length. The skeletization function gives the same result for two near images (i.e. original image and watermarked image). But the H-function always gives different results from different bitstreams as inputs. So, the inscription keys will be different for perceptually distinct pictures. After the H-function, the ciphering function is a trapdoor function.[6] Thanks to this function the inscription keys used to deduce the basic grid and the position of the carriers depends on the CO's secret key.
The aim of the use of a trapdoor function is to prevent someone from reproducing the same inscription keys with the knowledge of the H-function result. But it is possible for anyone to inverse that trapdoor function and to find the H-function result from the inscription keys. It can be interesting in a proof procedure.

## 4 IMPLEMENTATION

### 4.1 Inscription

The purpose of the inscription is to adapt the level of each part of the stamp ( for all frequencies ) to make it invisible once added to the picture. As mentioned above, each part of the stamp is narrow band. Inscriptions at different frequencies are thus independent and one can treat the different components of the stamp one at a time. For each frequency designed by the inscription keys, the procedure is divided in three steps : the modulation, the regulation of the level and the correction.

- Modulation

  The first step consists in the modulation of the particular carrier by the lowpass grid $G(x,y)$. The result is $G(x,y).cos(f_{x_j}.x + f_{y_j}.y)$, where $f_{x_j}$ and $f_{y_j}$ are the carrier position.

- Regulation of the level

  According to the perceptual model, in order to guarantee the invisibility of the watermark its local energy has to be inferior to the picture local energy for each pixel around the inscription frequency. A way to reach this objective is to multiplicate the modulated grid by a weighting mask $Weight_j(x,y)$ reducing the amplitude of the stamp where energy in the correponding component of the original picture is weak. Nevertheless, one must take care to keep the narrow band characteristic of the resulting signal $S_j(x,y)$ $(= Weight_j(x,y).G(x,y).cos(f_{x_j}.x + f_{y_j}.y))$ in order to avoid non linear interactions between different parts of the stamp. In conclusion, $\forall j$, we have to find a signal $Weight_j(x,y)$ so that:

  - $\forall (x,y)\ E_{S_j}(x,y) < E_{I,(f_{xj},f_{xj})}(x,y)$
  - $S_j$ is narrow band

  For simplification, lets consider $Weight_j(x,y)$ be composed of two factors:

  - $\alpha_j$, a constant factor (fixing the global level of the stamp).
  - $M_j(x,y)$, a mask whose values $\in [0,1]$.

  When $\alpha_j$ is chosen, the way to find $M_j(x,y)$ so that $Weight_j(x,y)$ satisfy the conditions defined above is the following:

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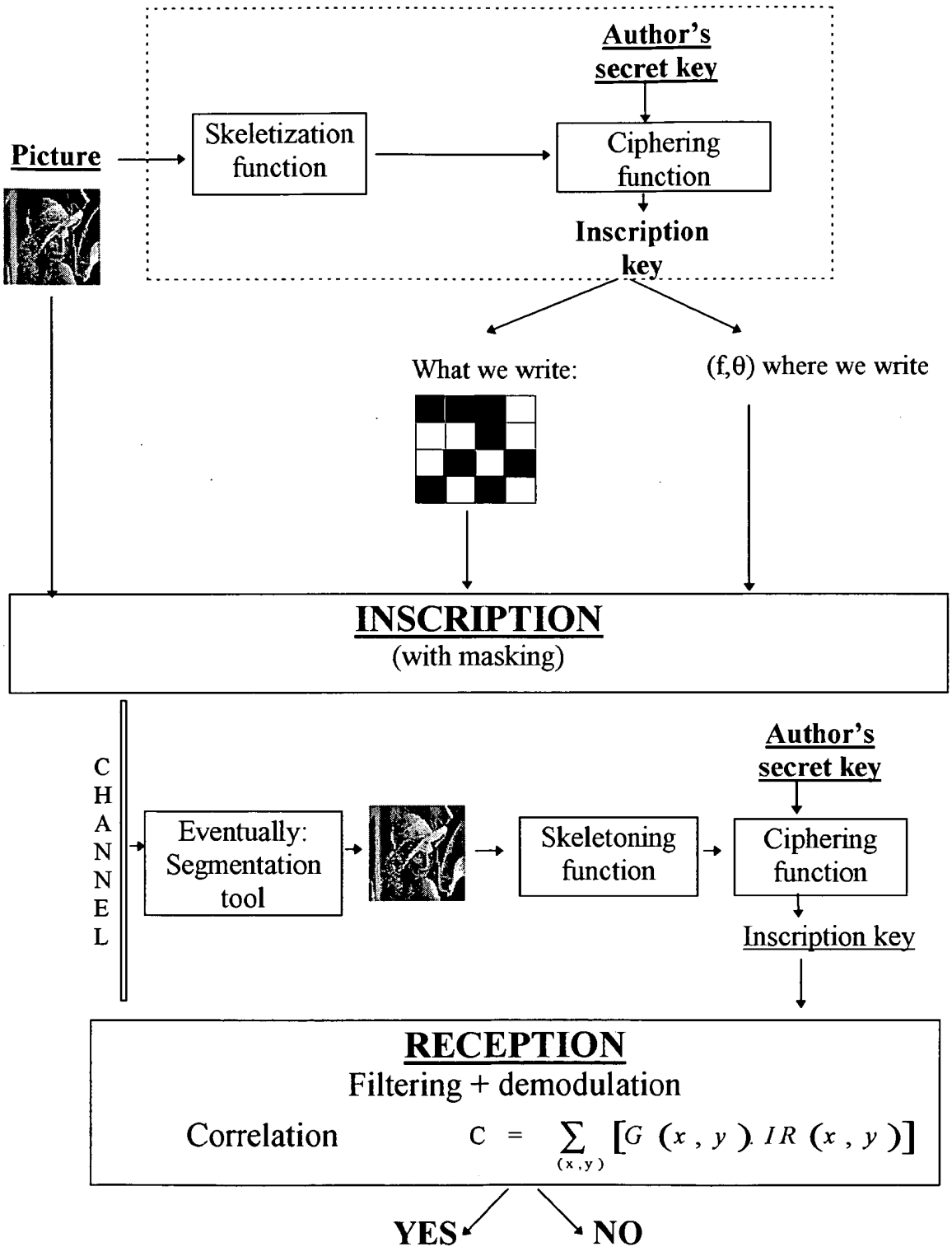
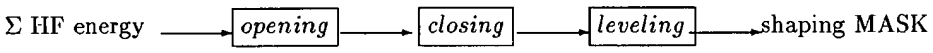



Figure 2: Global scheme for copyright protection.

- Firstly, $M_j(x,y)$ is a binary mask. $M_j(x,y) = 1$ when the local energy of the stamp pemits the masking and $M_j(x,y) = 0$ when the local energy of the stamp is too important. It is obvious that the initial choice of $\alpha_j$ has a direct influence on $M_j(x,y)$. Indeed, a great $\alpha_j$ value will lead to put most of the $M_j(x,y)$ values to zero, while a small $\alpha_j$ value will lead to keep most of $M_j(x,y)$ values at one.
- Secondly, $Weight_j(x,y)$ is filtered so that the stamp remains narrow band.
- After this second step, one has found a signal $\alpha_j.M_j(x,y).G(x,y)$ which is better masked than $\alpha_j.G(x,y)$. In order to really satisfy the masking criterion $\forall(x,y)$, this procedure must be repeated iteratively, taking $M_j(x,y).G(x,y)$ as new $G(x,y)$. Experiments have shown that only two iterations are sufficient to have a result satisfying the masking criterion everywhere.

**One important question remains: how to choose $\alpha_j$?**
It has already been said that the more $\alpha_j$ increases, the more $M_j(x,y)$ has points equal to zero. A trade off has to be found by means of a defined criterion. Maximizing the correlation at the detection (by maximizing $\sum \alpha_j.M_j(x,y).G(x,y)$) could have been a good criterion, but such a criterion often tends to impose an optimum with a lot of points equal to zero and a small number of points with a great value. The addition of the so obtained watermark generally entails a degradation of the picture quality. This emphasizes the lack of the masking criterion used.
As mentioned in section 2.6, the invisibility criterion used here is an extension for real images. It appears that this extension entails some imperfections. This criterion being insufficient, some improvements have been brought thanks to experimental results.

The conclusion of these observations is that the invisibility is only strictly observed in high activity regions, where the local energy of high fequencies is important. These regions have to be favoured during the inscription in the sense that the level of the watermark will be increased in those regions while it has to be decreased in other regions.
The correction process first isolates the high activity regions (figure 3.a). Then, an homogeneization of this picture is performed by use of morphological tools, e.g. one opening and one closing (figure 3.b). After a leveling (in fact, a division by the mean or mean square value of the homogenized mask), we obtain a new mask used to multiply the picture local energy and so, giving an advantage to regions of highfrequency energy in comparison with other areas. After that correction, the process is identical to the one described previously. Moreover, the complexity is not increased. Indeed, we first work on the inscription at high frequencies (where there is no quality problems). The value of high frequency local energy is then used for the calculation of the correcting mask used for inscription at lower frequencies. The correction scheme is drawn in the following schema.




## 4.2 Detection

The aim is to detect if a watermark has been embedded. This can be done with the use of a correlation, but first it is necessary to isolate the watermark and then to demodulate it in order to reconstruct something that is highly correlated with the basic information (the grid).
The formulation of the watermark is:

$$W(x,y) = \sum_{j \in K} A_j.cos(f_{x_j}.x + f_{y_j}.y) \tag{6}$$

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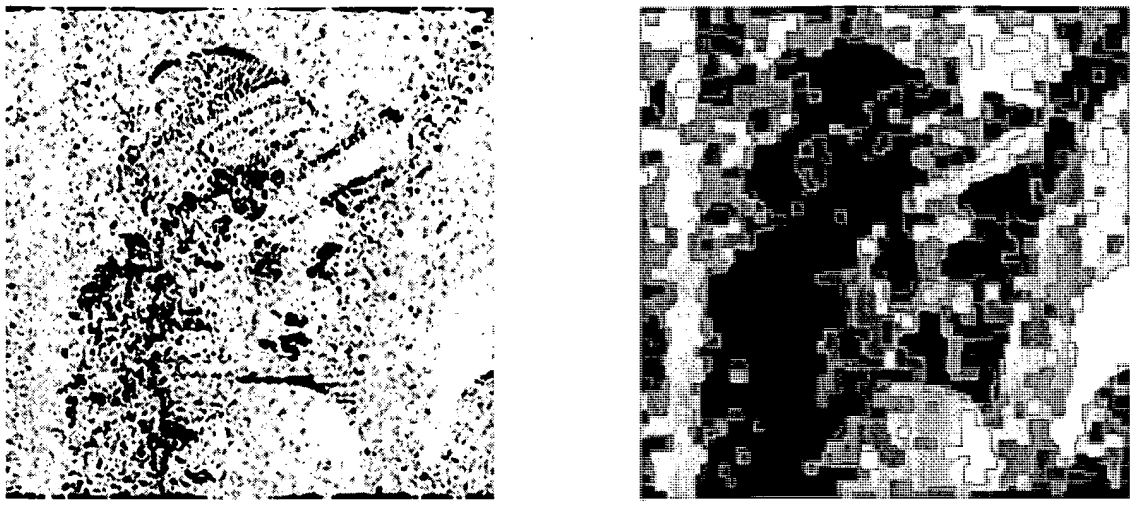

(a) (b)

Figure 3: Correcting mask for Lena: (a) Areas of high frequencies, (b) Morphological homogeneization of the mask.

$$where A_j = \alpha_j . G(x,y) . M(x,y) \tag{7}$$

In this expression, $M(x,y)$ adjusts the level of the grid in order it becomes invisible, it is called *a mask*, and its maximal value is one.
$\alpha_j$ is a constant that used to normalize the mask, it must be as high as possible.

The detection is divided in three steps : teh demodulation, the correlation and the decision.

- Demodulation

$$I_W(x,y) = \sum_{j \in K} A_j . cos(f_{x_j} . x + f_{y_j} . y) + I_O + N(x,y) \tag{8}$$

where $I_W(x,y)$ is the watermarked picture, $I_O(x,y)$ is the original picture and $N(x,y)$ is an additive noise from the channel.

The demodulation consists in multiplying $I_W$ by $cos(f_{x_j} . x + f_{y_j} . y), \forall j \in K$ and then to filter with a LP filter.
The result will be :

$$D_j(x,y) = \frac{1}{2} . A_j(x,y) + N^{\star}(x,y) \tag{9}$$

$N^{\star}(x,y)$ depends on the image and on the additive noise. The other parts of the stamp will be eliminated by the LP filter.

- Correlation It consists in mutiplying the demodulated information $D(x,y) = \sum_{j \in K} D_j(x,y)$ with the basic grid $G(x,y)$. If the picture has not been too deteriorated, $D(x,y)$ and $G(x,y)$ should be similar.

$$C = \sum_{j \in K} \sum_{x,y} D_j(x,y) . G(x,y) \tag{10}$$

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$$= \sum_{j \in K} \alpha_j \sum_{x,y} [G^2(x,y).M_j(x,y) + G(x,y).N^\star(x,y)] \quad (11)$$

In 11, the first term is even greater than the second, because G and $N^\star$ have null average values.
So C exclusively depends on the watermark value.
in the case the grid is not the good one, the correlation gives:

$$C^\star = \sum_{j \in K} \alpha_j \sum_{x,y} G(x,y).G^\star(x,y)..M_j(x,y) \quad (12)$$

$C^\star \ll C$ if the choice of the basic information has been appropriate.

- decision

  The detection algorithm performs demodulations and correlations at diverse frequencies and with diverse grids.The decision is made after the comparison of these correlations.

# 5 RESULTS

The first and probably mosty important result is the invisibility of the stam in all images that were tested. Figure 4.a and b compares the original and stamped picture for Lena. In figure 4.e, omne observes the watermark that was added to the original picture.

Two methods were used to determine whether an image is watermarked or not. The first one consists in comparing the result of $C$ the correlation made with the right grid $G(x,y)$ from the right key with $C^\star$ the correlation made with $G^\star(x,y)$, the grid obtained by random keys see 12. If the picture is watermarked, the correlation with the right key is even greater than the random correlations. The results below (Figure 5) show the pertinence of this method.

The second method uses a grid $G(x,y)$ formed from a MLS sequence, having good correlation properties. Correlations are made with shifted versions of the basic grid. Due to these good correlation properties, the correlation with the the right grid gives a result even greater than the correlations with shifted grids. Results are presented below (figure 4.c and d), if a picture is watermarked, a pick appears in the center.

# 6 SYSTEM ROBUSTNESS

Many tests have been performed concerning usual pictures deteriorations in image processing like blurring and compression. The inspection of these results are quite satisfying, but expected due to the frequency approach. For all classical pirate attacks like zoom, cropping, overwatermarking it is not as simple. The overwatermarking makes no problem, the presence of the watermark is still detected. But for zoom and cropping, the remaing point is to find a few tools permitting to complete the process. The concept of these tools is already defined but yet no implementation has been acheived.[7]

# 7 CONCLUSION

The process developed here allows the watermarking of the ownership of any picture. The perceptual approach used here is probably the best one, that is why the results obtained are so satifying compared with other methods and this method is so performant. Nevertheless studies are still running to acheive a new goal, consisting in

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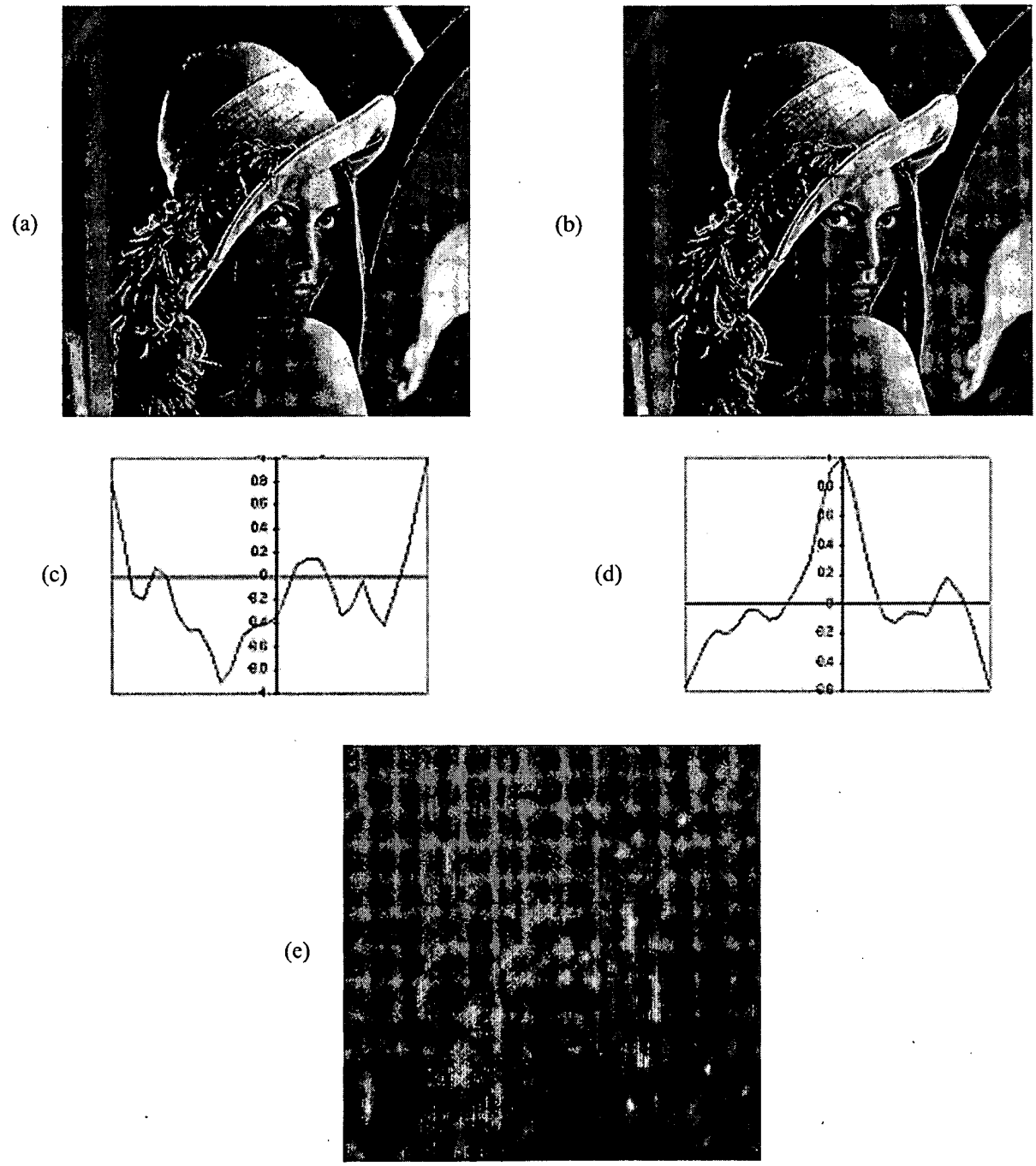


Figure 4: Results for Lena: (a) Original, (b) Watermarked one, (c) Correlation grafic for original, (d) Correlation grafic for watermarked, (e) Watermark.

| Image Name | Optimal correlation | Random correlation 1 | Random correlation 2 | Random correlation3 | Random correlation 4 | Conclusion |
|---|---|---|---|---|---|---|
| **Lena watermarked** | **584609** | 92605 | 133920 | 80534 | 143633 | *watermarked* |
| **Lena original** | 94538 | 98099 | 135492 | 76739 | **137120** | *Non watermarked* |

Figure 5: Results of correlation for Lena and decision.

making more information (e.g. ownership, date of marking) readable by the key owner from the watermark. This could be useful for real copyright protection protocols[8].[9]

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# Knowbots, Permissions Headers and Contract Law

paper for the conference on

Technological Strategies for Protecting Intellectual Property in the Networked Multimedia Environment

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## Introduction

One of the ways to protect intellectual property on the NREN is through a digital library concept. Under this concept, a work would have attached to it a "permissions header," defining the terms under which the copyright owner makes the work available. The digital library infrastructure, implemented on the NREN, would match request messages from users with the permissions headers. If the request message and the permissions header match, the user would obtain access to the work. This concept encompasses major aspects of electronic contracting, which is already in wide use employing Electronic Data Interchange ("EDI") standards developed by ANSI Committee X12.1

This paper explains the relationship between the digital library concept and EDI practice, synthesizing appropriate solutions for contract law, evidence, and agency issues that arise in electronic contracting. The question of how electronic signatures should work to be legally effective is an important part of this inquiry. The paper also defines particular types of service identifiers, header descriptors, and other forms of labeling and tagging appropriate to allow copyright owners to give different levels of permission, including outright transfer of the copyright interest, use

permission, copying permission, distribution permission, display permission, and permission to prepare derivative works.The paper considers how payment authorization procedures should work in conjunction with a permissions header and digital library concept in order to integrate the proposed copyright licensing procedures with existing and anticipated electronic payment authorization systems. The paper necessarily considers whether existing standards approaches related to SGML and X12 are sufficient or whether some new standards development efforts will be necessary for implementation of the concepts. The paper considers the relationship between technology and law in enforcing intellectual property, and emphasizes that the traditional adaptation of legal requirements to levels of risk is appropriate as the law is applied to new technologies.

There are certain common issues between the intellectual property question and other applications of wide area digital network technology. The question of signatures and writings to reflect the establishment of duties and permissions and the transfer of rights is common to the intellectual property inquiry and to electronic commerce using EDI techniques. There also are common questions involving rights to use certain information channels: First Amendment privileges, and tort liability. These are common not only to technological means of protecting intellectual property but to all forms of wide area networking.

The problem

The law recognizes intellectual property because information technology permits one person to get a free ride on another person's investment in creating information value. Creative activity involving information usually is addressed by copyright, although patent has a role to play in protecting innovative means of processing information.2

Intellectual property arose in the context of letterpress printing technology. Newer technologies like xerography and more recently small computer technology and associated word processing and networking have increased the potential for free rides and accordingly increased the pressure on intellectual property.

The concern about free ride potential is especially great when people envision putting creative works on

electronic publishing servers connected to wide area networks intending to permit consumers of information products to access these objects, frequently combining them and generally facilitating "publishing on demand" rather than the well known publishing just in case, typified by guessing how many copies of a work will sell, printing those in advance, and then putting them in inventory until someone wants them.

The concern is that it will be too easy to copy an entire work without detection and without paying for it. Worse, it will be easy to copy an entire work and resell it either by itself or as a part of a new derivative work or collection.

But technology is capable of protecting investment in new ways as well as gaining a free ride. Computer networks make it possible to restrict access and to determine when access occurs. Depending on how new networks are designed, they may actually reduce the potential for a free ride. The digital library is one way of realizing that potential. Professor Pamela Samuelson has observed that the digital library model replaces intellectual property with a system of technological controls.3

## Digital Library Concepts

### Basic Concepts

A digital library is a set of information resources ("information objects") distributed throughout an electronic network. The objects reside on servers (computers with associated disk drives connected to the network). They can be retrieved remotely by users using "client" workstations.

### Origin of Concepts

The phrase "digital library" and the basic concept was first articulated in a 1989 report growing out of a workshop sponsored by the Corporation for National Research Initiatives.4 From its inception, the digital library concept envisioned retrieval of complete information resources and not merely bibliographic information.5

The technologies of remote retrieval of complete information objects using electronic technologies is in wide use through the WESTLAW, Dialog, LEXIS, NEXIS, and National Library of Medicine databases. These remotely accessible

databases, however, unlike the digital library involved a single host on which most of the data resides. The digital library concept envisions a multiplicity of hosts (servers).

Recent Developments

The remotely accessible database host concept is converging with the digital library concept as more of the electronic database vendors provide gateways to information objects actually residing on other computers. This now is commonplace with WESTLAW access to Dialog, and Dialog's gateways to other information providers.

The most explicit implementation of the digital library concept is the Wide Area Information Service ("WAIS"), which implements ANSI standard Z.39.6 WAIS permits a remote user to formulate a query that is applied to a multiplicity of WAIS servers each of which may contain information responsive to the query. The WAIS architecture permits search engines of varying degrees of sophistication, resident on WAIS information servers to apply the query against their own information objects, reporting matches back to the user.7 Future implementations of WAIS permit automatic refinement of searches according to statistical matching techniques.

The Corporation for National Research Initiatives has proposed a test bed for an electronic copyright management system.8 The proposed system would include four major elements: automated copyright recording and registration, automated, on line clearance of rights, private electronic mail and digital signatures to provide security. It would include three subsystems: a Registration and Recording System (RRS), a Digital Library System (DLS), and a Rights Management System (RMS). The RRS would provide the functions enumerated above and would be operated by the Library of Congress. It would provide "change of title" information.9 The RMS would be an interactive distributed system capable of granting rights on line and permitting the use of copyrighted material in the Digital Library System. The test bed architecture would involve computers connected to the Internet performing the RRS and RMS functions.

Digital signatures would link an electronic bibliographic record with the contents of the work, ensuring against alteration after deposit.10 Multiple RMS servers would be attached to the Internet. A user wishing to obtain

rights to an electronically published work would interact electronically with the appropriate RMS. When copyright ownership is transferred, a message could be sent from the RMS to the RRS11 - creating an electronic marketplace for copyrighted material.

The EBR submitted with a new work would "identify the rights holder and any terms and conditions on the use of the document or a pointer to a designated contact for rights and permissions."12 The EBR, thus, is apparently equivalent to the permissions header discussed in this paper. Security in the transfer of rights would be provided by digital signatures using public key encryption, discussed further, infra in the section on encryption.

Basic Architectural Concepts

The digital library concept in general contemplates three basic architectural elements: a query, also called a "knowbot" in some descriptions; a permissions header attached to each information object; and a procedure for matching the query with the permissions header.

Two kinds of information are involved in all three architectural elements: information about the content of information objects desired and existing, and information about the economic terms on which an information object is made available. For example, a query desiring court opinions involving the enforcement of foreign judgments evidencing a desire to download the full text of such judicial opinions and to pay up to $1.00 per minute of search and downloading time would require that the knowbot appropriately represent the subject matter "enforcement of foreign judgments." It also requires that the knowbot appropriately represent the terms on which the user is willing to deal: downloading and the maximum price. The permissions header similarly must express the same two kinds of information. If the information object to which the permissions header is attached is a short story rather than a judicial opinion, the permissions header must so indicate. Or, if the information object is a judicial opinion and it is about enforcement of foreign judgments, the permission header may indicate that only a summary is available for downloading at a price of $10.00 per minute. The searching, matching, and retrieval procedure in the digital library system must be capable of determining whether there is a match on both subject matter and economic terms, also copying and

transmitting the information object if there is a match.

Comparison to EDI

Electronic Data Interchange ("EDI") is a practice involving computer-to-computer commercial dealing without human intervention. In the most widespread implementations, computers are programmed to issue purchase orders to trading partners, and the receiving computer is programmed to evaluate the terms of the purchase order and to take appropriate action, either accepting it and causing goods to be manufactured or shipped or rejecting it and sending an appropriate message. EDI is in wide use in American and foreign commerce, using industry-specific standards for discrete commercial documents like purchase orders, invoices, and payment orders, developed through the American National Standards Institute.

There obviously are similarities between the three architectural elements of the digital library concept and EDI. There is a structured way of expressing an offer or instruction, and a process for determining whether there is a match between what the recipient is willing to do and what the sender requests.

There is also, however, an important difference. In the digital library concept, a match results in actual delivery of the desired goods and services in electronic form. In EDI practice, the performance of the contractual arrangement usually involves physical goods or performance of nonelectronic services.

Nevertheless, the digital library and EDI architectures are sufficiently similar and, it turns out the legal issues associated with both are sufficiently similar to make analogies appropriate.

Elements of Data Structure

For purposes of this paper, the interesting parts of the data structure are those elements that pertain to permission, more than those elements that pertain to content of the information object to which the header is attached. Accordingly, this section will focus on only permissions-related elements, after noting in passing that the content part of the header well might be a pointer to an inverted file to permit full text searching and matching.

The starting point conceptually for identifying the elements of the permissions header are the rights exclusively reserved to the copyright owner by 106 of the copyright statute. But these exclusive rights need not be tracked directly because the owner of an information object free to impose contractual restrictions as well as to enjoy rights granted by the Copyright Act. Accordingly, it seems that the following kinds of privileges in the requester should be addressed in the permissions header:

outright transfer of all rights

use privilege, either unrestricted or subject to restrictions

copying, either unlimited or subject to restrictions like quantitative limits

distribution, either unlimited or subject to restrictions, like geographic ones or limits on the markets to which distribution can occur

preparation of derivative works

Display and presentation rights, separately identified in 106 would be subsumed into the use element, because they are particular uses.

The simplest implementation would allow only binary values for each of these elements. But a binary approach does not permit the permissions header to express restrictions, like those suggested in the enumerated list. Elements could be defined to accept the most common kinds of restrictions on use, and quantitative limits on copying, but it would be much more difficult to define in advance the kinds of geographic or market-definition restrictions that an owner might wish to impose with respect to distribution.

In addition to these discrete privileges, the permissions header must express pricing information. The most sensible way of doing this is to have a price associated with each type of privilege. In the event that different levels of use, copying, or distribution privilege are identified, the data structure should allow a price to be associated with each level.

A complicating factor in defining elements for price is the likelihood that different suppliers would want to price differently. For example, some would prefer to impose a flat fee for the grant of a particular privilege. Others might wish to impose a volume-based fee, and still others might wish to impose a usage or connect-time based fee. The data structure for pricing terms must be flexible enough to accommodate at least these three different approaches to pricing.

Finally, the data structure must allow for a specification of acceptable payment terms and have some kind of trigger for a payment approval procedure. For example, the permissions header might require presentation of a credit card number and then trigger a process that would communicate with the appropriate credit card database to obtain authorization. Only if the authorization was obtained would the knowbot and the permissions header "match."

There is a relationship between the data structures and legal concepts. The knowbot is a solicitation of offers. The permissions header is an offer. The matching of the two constitutes an acceptance. Mr. Linn's "envelope" could be the "contract."

There are certain aspects of the data structure design that are not obvious. One is how to link price with specific levels of permission. Another is how to describe particular levels of permission. This representation problem may benefit from the use of some deontic logic, possibly in the form of a grammar developed for intellectual property permissions. Finally, it is not clear what the acceptance should look like. Conceptually, the acceptance occurs when the knowbot matches with a permissions header, but it is unclear how this legally significant event should be represented.

Role of Encryption

The CNRI test bed proposal envisions the use of public key encryption to ensure the integrity of digital signatures and to ensure the authenticity of information objects. Public key encryption permits a person to encrypt a message - like a signature using a secret key, one known only to the sender, while permitting anyone with access to a public key

to decrypt it. Use of public key cryptography in this fashion permits any user to authenticate a message, ensuring that it came from the purported sender.13 A related technology called "hashing" permits an encrypted digital signature to be linked to the content of a message. The message can be sent in plain text (unencrypted) form, but if any part of it is changed, it will not match the digital signature. The digital signature and hashing technologies thus permit not only the origin but also the content integrity of a message of arbitrary length to be authenticated without necessitating encryption of the content of the message. This technology has the advantage, among others, that it is usable by someone lacking technological access to public key encryption. An unsophisticated user not wishing to incur the costs of signature verification nevertheless can use the content of the signed information object.

It is well recognized that encryption provides higher levels of security than other approaches. But security through encryption comes at a price. Private key encryption systems require preestablished relationships and exchange of private keys in advance of any encrypted communication. The burdens of this approach have led most proponents of electronic commerce to explore public key encryption instead. But public key systems require the establishment and policing of a new set of institutions. An important infrastructure requirement for practicable public key cryptography is the establishment and maintenance of certifying entities that maintain the public keys and ensure that they are genuine ones rather than bogus ones inserted by forgers. A rough analogy can be drawn between the public key certifying entities and notaries public. Both kinds of institutions verify the authenticity of signature. Both kinds require some level of licensing by governmental entities. Otherwise the word of the "electronic notary" (certifying entity) is no better than an uncertified, unencrypted signature. In a political and legal environment in which the limitations of regulatory programs have been recognized and have led to deregulation of major industries, it is not clear that a major new regulatory arrangement for public key encryption is practicable. Nevertheless, experimentation with the concept in support of digital library demonstration programs can help generate more empirical data as to the cost and benefits of public key encryption to reinforce electronic signatures.

On the other hand, it is not desirable to pursue approaches requiring encryption of content. No need to encrypt the contents is apparent in a network environment. Database access controls are sufficient to prevent access to the content if the permissions header terms are not matched by the knowbot. On the other hand, if the electronic publishing is effected through CDROMs or other physical media possessed by a user, then encryption might be appropriate to prevent the user from avoiding the permissions header and going directly to the content.

While encrypted content affords greater security to the owner of copyrighted material. Someone who has not paid the price to the copyright owner must incur much higher cost to steal the material. But the problem is everyone must pay a higher price to use the material. One of the dramatic lessons of the desktop computer revolution was the clear rejection of copyright protection in personal computer software. The reasons that copy protection did not survive in the market place militate against embracing encryption for content. Encryption interferes with realization of electronic markets, because producer and consumer must have the same encryption and description protocols. Encryption burdens processing of electronic information objects because it adds another layer. Some specific implementations have encryption require additional hardware at appreciable costs.

Digital libraries cannot become a reality until consumers perceive that the benefits of electronic formats outweigh the costs, compared to paper formats. Encryption interferes with electronic formats' traditional advantages of density, reusability, editability, and computer search ability and also, by impairing open architectures may perpetuate some of papers' advantages with respect with browsibility.14

The need for encryption of any kind depends upon whether security is available without it. That depends, in turn, on the kinds of free rides that may be obtainable and the legal status of various kinds of electronics transactions in the digital library system.

Legal Issues

Copyright: What legal effect is intended?

The design of the permissions header and the values in the elements of the header must be unambiguous as to whether an outright transfer of a copyright interest is intended or whether only a license is intended. If an outright transfer15 is intended, then the present copyright statute requires a writing signed by the owner of the rights conveyed.16 Recordation of the transfer with the Copyright office is not required, but provides advantages in enforcing transferee rights.17 On the other hand, non exclusive licenses need not be in writing nor registered. If the electronic transaction transfers the copyright in its entirety, then the rights of the transferor are extinguished, and the rights of the transferee are determined by the copyright statute. The only significant legal question is whether the conveyance was effective.

On the other hand, when the copyright is not transferred outright but only certain permissions are granted or certain rights conveyed, the legal questions become more varied. Then, the rights of the transferor and the obligations of the transferee are matters of contract law. It is important to understand the degree to which the contract is enforceable and how it is to be interpreted in the event of subsequent disputes. The following sections consider briefly the first sale doctrine as a potential public policy obstacle to enforcing contractual restrictions different from those imposed by the copyright statute and then explore in greater depth whether electronic techniques satisfy the formalities traditionally required for making a contract, whether they adequately ensure against repudiation, and whether they provide sufficient information to permit predictable interpretation of contractual obligations and privileges.

First Sale Doctrine

The first sale doctrine may invalidate restrictions on use. It is impermissible for the holder of a patent to impose restrictions on the use of a patented product after the product has been sold. Restrictions may be imposed, however, on persons who merely license the product.18 The rationale for this limit on the power of the owner of the intellectual property interest is that to allow limitations on use of the product would interfere with competition beyond what the Congress - and arguably the drafters of the Constitution - intended in setting up the patent system.

The first sale doctrine applies to copyright owners.19 Indeed, because of the First Amendment's protection of informational activity, the argument against restrictions after the first sale may be even stronger in the copyright arena then in the patent arena.

The first sale doctrine is potentially important because it may invalidate restrictions imposed on the use of information beyond what is authorized by the Copyright Act and by common law trade secret. Thus, there may be serious questions about the legal efficacy of use restrictions suggested in ___, although such restrictions are common in remote database service agreements. The vendors could argue that the limitations pertain to the contractual terms for delivery of a service rather than use of information as such. The characterization avoids the overlap with copyright and thus may also avoid the conflict between federal policy and contract enforcement.20

Contract Formation Issues

The law does not enforce every promise. Instead, it focuses its power only on promises surrounded with certain formalities to make it likely that the person making the promise (the "promisor") and the person receiving the promise (the "promisee") understood that their communication had legal consequences. A threshold question for the digital library system is whether the traditional formalities for making a contract are present when the contract is made through electronic means. The digital library system considered in this paper clearly contemplates that a contract is formed when the knowbot and the permissions header achieve a match. In this respect, the digital library concept converges with EDI where trading parties contemplate that a contract to perform services or deliver goods is formed when a match occurs either upon the receipt of a purchase order or upon the transmission of a purchase order acknowledgment.

It is not altogether clear, however, whether the match between values and computer data structures meets contract formation requirements, particularly those expressed in various statutes of frauds. Statutes of frauds require "writings" and "signatures" for certain kinds of contracts - basically those contemplating performance extending beyond a period of one year.21

In many instances, the digital library contract will be fully performed almost instantaneously upon delivery of the information object after the knowbot and the permissions header match. In such a case, the statute of frauds is not a problem and its requirements need not be satisfied. In other cases, however, as when the intent of the owner of the information object is to grant a license to do things that will extend beyond one year, the statute of frauds writing and signature requirements must be met.

Historical application of Statutes Of Frauds by the courts clearly indicates that there is flexibility in the meaning of "writing" and "signature." A signature is any mark made with the intent that it be a signature.22 Thus an illiterate person signs by making an "X," and the signature is legally effective. Another person may sign a document by using a signature stamp. Someone else may authorize an agent to sign his name or to use the signature stamp. In all three cases the signature is legally effective. There may of course be arguments about who made the X, or whether the person applying the signature stamp was the signer or his authorized agent, but these are evidentiary and agency questions, not arguments about hard and fast contract-law requirements.

Under the generally accepted legal definition of a signature, there is no legal reason why the "mark" may not be made by a computer printer, or for that matter by the write head on a computer disk drive or the data bus in a computer random access memory. The authorization to the computer agent to make the mark may be given by entering a PIN ("Personal Identification Number") on a keyboard. To extend the logic, there is no conceptual reason to doubt the legal efficacy of authority to make a mark if the signer writes a computer program authorizing the application of a PIN upon the existence of certain conditions that can be tested by the program. The resulting authority is analogous to a signature pen that can be operated only with a mechanical key attached to somebody's key ring, coupled with instructions to the possessor of the key.

Which of these various methods should be selected for particular types of transactions must depend, not on what the law requires, because the law permits any of these methods. Rather, it must depend on the underlying purposes of the legal requirement and which method best serves those

purposes.

The real issue is how to prove that a particular party made the mark. In other words, the contingency to be concerned about is repudiation, not absence of formalities. Repudiation should be dealt with through usual evidentiary and fact finding processes rather than artificial distinctions between signed and unsigned documents.

Authority is skimpier on how flexible the "writing" requirement is. The best approach is to borrow the fixation idea from the copyright statute and conclude that a writing is "embodiment in a copy . . . sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for more a period of more than transitory duration."23

The most important thing conceptually is to understand the purpose of the writing and signature requirements. They have two purposes: awareness or formality and reliability of evidence. Signature requirements, like requirements for writings and for original documents have an essentially evidentiary purpose. If there is a dispute later, they specify what kind of evidence is probative of certain disputed issues, like "who made this statement and for what purpose?" The legal requirements set a threshold of probativeness. Surely the values in a knowbot as well as the values in a permissions header constitute and "mark," and someone who knowingly sets up potential transactions in a digital library scheme can have the intent that the mark be a signature.

When a contract is made through a signed writing, it is more likely that the parties to the contract understand what they are doing. They are aware of the legal affect of their conduct because the writing in the signature involve a greater degree of formality than a simple conversation.

The awareness/formality purpose can be served by computerized contracting systems. This is so not so much because the computers are "aware" of the affect of their "conduct." Rather, it is true because the computers are agents of human principals. The programming of the computer to accept certain contract terms is the granting of authority to the computer agent to enter into a contract. The fact that a principal acts through an agent engaging in

conduct at a later point and time never has been thought to defeat contract formation in the traditional evolution of agency and contract law. Nor should it when the agent is a computer.

Fulfillment of the evidentiary purpose depends on the reliability of the information retained by the computer systems making up the digital library. Such systems must be designed to permit the proponent of contract formation to establish the following propositions if the other party to the purported contract attempts to repudiate it.

1.It came from computer X

2.It accurately represents what is in computer X24 now25

3.What is in computer X now is what was in computer X at the time of the transaction

4.What was in computer X at the time of the transaction is what was received from the telecommunications channel26

5.What was received from the telecommunications channel is what was (a) sent, (b) by computer Y.

Two other questions relate to matters other than the authenticity of the message:

6 Computer Y was the agent of B

7 The message content expresses the content of the contract (or more narrowly, the offer or the acceptance).27

Factual propositions 1-4 can be established by testimony as to how information is written to and from telecommunications channel processors, primary storage, and secondary storage. Factual proposition 5 requires testimony as to the accuracy of the telecommunications channel and characteristics of the message that associate it with computer Y. Only the last proposition (number 5) relates to signatures, because signature requirements associate the message with its source.28 The other propositions necessitate testimony as to how the basic message and database management system works. It is instructive to compare these

propositions with the kinds of propositions that must be established under the business records exception to the hearsay rule when it is applied to computer information.

Those propositions may be supported with non technical evidence, presented by non programmers. A witness can lay a foundation for admission of computer records simply by testifying that the records are generated automatically and routinely in the ordinary course of business. The more inflexible the routine, and the less human intervention in the details of the computer's management of the database the better the evidence.29

The ultimate question is trustworthiness, and if the computer methods are apparently reliable, the information should be admitted unless the opponent of admissibility can raise some reasonable factual question undercutting trustworthiness.30

Contract Interpretation Issues

Assuming that the permissions header and knowbot constitute sufficient writings to permit a contract to be formed and that the signature requirement also is met, through digital signature technology or otherwise, there still are difficult contract interpretation questions. Contract interpretation questions arise not only after contractual relationships are formed, but also in connection with deciding whether there has been offer and acceptance, the prerequisites to contract formation.31 Contract interpretation always seeks to draw inferences about what the parties intended. When contract interpretation issues arise at the contract formation stage, the questions are what the offeror intended the content of the offer to be and what the offeree intended the content of the purported acceptance to be. The proposed Digital Library System envisions extremely cryptic expressions of offer and acceptance - by means of codes. The codes have no intrinsic meaning. Rather, extrinsic reference must be made to some kind of table, standard, or convention associating particular codes with the concepts they represent. Extrinsic evidence is available to resolve contract interpretation questions when the language of the contract itself is ambiguous, and perhaps at other times as well.32 The codes in the permissions header and knowbots certainly are ambiguous and become unambiguous only when extrinsic evidence is considered. So there is no problem in getting a standard or

cable into evidence. The problem is whether the parties meant to assent to this standard.

In current EDI practice, this question is resolved by having parties who expect to have EDI transactions with each other to sign a paper trading partner agreement, in which the meaning of values or codes in the transaction sets is established.33 But requiring each pair of suppliers and users of information in a digital library to have written contracts with each other in advance would defeat much of the utility of the digital library. Thus the challenge is to establish some ground rules for the meaning of permissions header and knowbot values that all participants are bound by. There are analogous situations. One is a standard credit card agreement that establishes contractual terms among credit card issuer, credit card subscriber, and merchant who accepts the credit card. The intermediary - the credit card company - unilaterally establishes contract terms to which the trading partners assent by using and accepting the credit card.34 Also, it is widely recognized that members of a private association can, through their constitution and bylaws establish contractual relationships that bind all of the members in dealing with each other.35 In the Digital Library System, similar legal arrangements can establish the standards by which electronic transactions between permissions header and knowbots will bind transferor and transferee of information.

Third Party Liability

It is not enough merely to ensure that the licensee is contractually bound. Trading partners also must ensure that the participants in funds transfers have enforceable obligations. For example, if the digital library system envisions that the information object would not be released to the purchaser without simultaneous release of a payment order, the supplier may be interested in enforcing the obligations of financial intermediaries who handle the payment order. This implicates the federal Electronic Funds Transfer Act, and Article 4A of the Uniform Commercial Code, regulating wire transfers.

Solutions

Satisfy the Business Records Exception to the Hearsay Rule

The discussion of contract formalities earlier in this

paper concluded that legally enforceable contracts can be formed through electronic means and that the significant legal questions relate to reliability of proof and intent of the parties to be bound by using the electronic techniques. This section considers the reliability of proof further. Traditional evidence law permits computer records to be introduced in evidence when they satisfy the requirements of the business records exception: basically that they are made in the ordinary course of business, that they are relied on for the performance of regular business activities, and that there is no independent reason for questioning their reliability.36

The business records exception shares with the authentication concept statute of frauds and the parol evidence rule a common concern with reliability.37 The same procedural guarantees and established practices that ensure reliability for hearsay purposes also ensure reliability for the other purposes. Under the business records exception, the proponent must identify the source of a record, through testimony by one familiar with a signature on the record, or circumstantially.38 The steps in qualifying a business record under the common law, which since have been relaxed,39 were:

Proving that the record is an original entry made in the routine course of business

Proving that the entries were made upon the personal knowledge of the proponent/witness or someone reporting to him

Proving that the entries were made at or near the time of the transaction

Proving that the recorder and his informant are unavailable.40

These specific requirements are easier to understand and to adapt to electronic permissions and obligations formed in a digital library system by understanding the rationale for the business records exception. The hearsay rule excludes out of court statements because they are inherently unreliable, primarily because the maker of the statement's demeanor cannot be observed by the jury and because the maker of the statement is not subject to cross examine. On the other hand, there are some out of court statements that

have other guarantees of reliability. Business records are one example. If a continuing enterprise finds the records sufficiently reliable to use them in the ordinary course of business, they should be reliable enough for a court. The criteria for the business records exception all aim at ensuring that the records really are relied upon the business to conduct its ordinary affairs.

The Manual for Multidistrict Litigation suggests steps for qualifying computer information under the business records exception:

1.The document is a business record

2.The document has probative value

3.The computer equipment used is reliable

4.Reliable data processing techniques were used41

The key in adapting the business records exception to electronic permissions in a digital library system are points 3 and 4. Establishing these propositions and the propositions set forth in section ___ of this paper requires expert testimony. Any designer of a digital library system must consult with counsel and understand what testimony an expert would give to establish these propositions. Going through that exercise will influence system design.

Reinforce the Evidentiary Reliability by Using Trusted Third Parties

The evidentiary purpose of contract formation requirements can be satisfied by using a trusted third party as an intermediary, when the third party maintains archival records of the transactions. The third party lacks any incentive for tampering with the records and when the third parties archiving system is properly designed, it can provide evidence sufficient to establish all of the propositions identified in ___.

This third party intermediary concept is somewhat different from the concept for a certifying agent in digital signature systems. To be sure, the custodian of transaction records envisioned by this section could be the same as the certifying entity for public and key encryption, but the custodian role can be played in the absence of any

encryption. Indeed, the digital library itself is a good candidate for the custodian role. The library has no incentive to manipulate its records in favor of either of the producers of information value or the consumers. In order to carry out its affairs, it must use these transactional records in the ordinary course of business, thereby making it likely that digital library records would qualify under the business records exception.

Standardization

Obviously, the digital library concept depends upon the possibility of an automated comparison between the knowbot and the permissions header. This means that potential requesters of information and suppliers of information must know in advance the data structures for representing the elements of the permissions header and the knowbot. This requires compatibility. Compatibility requires standardization. Standardization does not, however, necessarily require "Standard" in the sense that they are developed by some bureaucratic body like ANSI. It may simply imply market acceptance of a particular vendor's approach. Indeed, each digital library might use different data structures. All that is necessary is that the structure of the knowbot and the structure of the permissions header be compatible within any one digital library system. Also, as demands emerge for separate digital libraries to communicate with each other, there can be proprietary translation to assure compatibility between systems much as common word processing programs translate to and from other common formats and much as printers and word processing software communicate with each other through appropriate printer drivers. In neither of these cases has any independent standards organization developed a standard that is at all relevant in the marketplace.

Standardizing the elements of Knowbot and permissions headers involves content standardization, which generally is more challenging than format standardization.42 A permissions header/Knowbot standard is a system for representing legal concepts and for defining legal relations. As such, the standard is basically a grammar for a rule based substantive system in a very narrow domain.43 The data elements must correspond to legally meaningful relational attributes. The allowable values must correspond to legally allowable rights, obligations, privileges and powers. In other words, the standard setter must meet many of the challenges that a

legal expert system designer working with Hohfeldian frameworks must meet.44 This adds a constraint to the standards setting process. Unlike setting format standards, where the participants are free to agree on an arbitrary way of expressing format attributes, participants in setting a content standard must remain within the universe of permissible content. The set of permissible values is determined by the law rather than being determined only by the imagination of format creators.

Enforcement and Bottlenecks

One of the many profound observations by Ithiel de Sola Pool was that copyright always has depended upon technological bottlenecks for its enforceability. The printing press was the original enforcement bottleneck. Now, a combination of the printing press and the practical need to inventory physical artifacts representing the work constitute the enforcement bottlenecks. As technologies change, old bottlenecks disappear and enforceability requires a search for new bottlenecks. When there are single hosts, like Westlaw, Dialog, Lexis, and CompuServe, access to that host is the bottleneck. The problem with distributed publishing on an open architecture internet is that there is no bottleneck in the middle of the distribution chain corresponding to the printer, the warehouse or the single host.

If new bottlenecks are to be found, they almost surely will be found at the origin and at the point of consumption. Encryption and decryption techniques discussed elsewhere in this volume concentrate on those bottlenecks as points of control. It also is possible that rendering software could become the new bottleneck as Mr. Linn suggests.

Even with those approaches, however, a serious problem remains in that the new technologies make it difficult or impossible to distinguish between mere use and copying. Thus the seller cannot distinguish between an end user45 and a potential competitor. On the other hand, the new technologies permit a much better audit trail, potentially producing better evidence for enforcement adjudication.

If network architectures for electronic publishing evolve in the way that Ted Nelson suggests with his Xanadu concept, the real value will be in the network and the

pointers, not in the raw content. Thus, the creative and productive effort that the law should reward is the creation and productive effort that the law should reward is the creation and production and delivery of pointers, presentation, distribution, and duplication value. If this is so, then technological means will be particularly important, foreclosing access by those lacking passwords and other keys and limiting through contract what a consumer may do with the information.

In such an architecture, the law either will be relatively unimportant because technology can be counted on to prevent free riding or, the law will need to focus not on prohibiting copying or use without permission, but on preventing circumvention of the technological protections. Thus, legal approaches like that used to prevent the sale of decryption devices for television broadcasts and legal issues associated with contract enforcement may be more important than traditional intellectual property categories.

Weighing Risks and Costs

The law generally imposes sensible levels of transaction costs. Usually, transaction costs are proportional to the risk. Figure 1 shows a continuum of risk and transaction cost in traditional and new technologies. A real estate closing involves significant risks if there is some dispute later about the transaction. Therefore, the law affords much protection, including a constitutional officer called a registrar of deeds who is the custodian of records associated with the transaction. The risk level analogous to this in electronic publishing might be access to an entire library including access software as well as contents. Next, is a transaction involving a will or power of attorney. There, the risk is substantial because the maker of the instrument is not around to help interpret it. The law requires relatively high levels of assurance here, though not as great as those for real estate transactions. The law requires witnesses and attestation by a commissioned minor official called a notary public. The electronic publishing analogy of this level of risk might be the contents of an entire CDROM.

Next, in level of risk is the purchase of a large consumer durable like an automobile. The law requires somewhat less, but still significant protections for this

kind of transaction: providing for the filing and enforcement of financing statements under the Uniform Commercial Code. The electronic publishing analogy might be the transfer of copyright to a complete work. Next, down the risk continuum, is the purchase of a smaller consumer durable like a television set. Here, the law typically is reflected in written agreements of sale, but no special third party custodial mechanisms. The electronic publishing analogy might be use permission for a complete work.

Finally, is the purchase of a relatively small consumer item, say a box of diskettes. Neither the law or commercial practice involves much more than the exchange of the product for payment, with no written agreement or anything else to perform channeling, cautionary, evidentiary, or protective functions [make sure these function and the citation appears earlier]. The electronic publishing analogy might be use permission for part of a work.

Cost effectiveness = risk-proportional security

| traditional transaction | institutions | electronic equivalent |
|---|---|---|
| real estate closing | registrar of deeds | entire library - software and contents |
| will/power of attorney | witnesses, notary public | contents of entire CDROM |
| auto purchase | UCC financing statement | complete work - transfer of copyright |
| television set purchase | written sale agreement | complete work - use permission |
| box of diskettes | - | part of a work - use permission |

An encrypted object combined with rendering software is probably inconsistent with an open architecture. Because of the difficulty of setting standards for such technologies, this approach to intellectual property protection probably would be effectuated by proprietary approaches thus frustrating the vision of an open market for electronic publishing.

Conclusion

Realization of the digital library vision requires a method for collecting money and granting permission to use works protected by intellectual property. The concept of a knowbot and a permissions header attached to the work is the right way to think about such a billing and collection system. Standards for the data structures involved must be agreed to, and systems must be designed to satisfy legal formalities aimed at ensuring awareness of the legal significance of transactions and reliable proof of the terms of the transactions.

In the long run, not only must these technological issues be resolved, with appropriate attention to levels of risk and protections available under traditional legal doctrines, but also further conceptual development must be undertaken. Proponents of electronic publishing over wide area networks need to think about the appropriate metaphors: whether it is a library or a bookstore, if a library whether with or without xerox machines, if a bookstore whether it is a retail bookstore, or a mail order operation. Then, thought must be given to how standards will be set. Finally, and most important, much more needs to be understood about the need for third party institutions. There is a good deal of enthusiasm for public key encryption. Yet the vulnerability of public key encryption systems is in the integrity of the key authority. In traditional legal protections, the third party custodians or authenticating agents like notary public and registrars of deeds receive state sanction and approval, and in the case of registrars of deeds, public funding. We must be clearer as to whether a similar infrastructure must be developed to protect against substantial risks and the use of EDI and electronic publishing technologies.

Finally, and perhaps most importantly, we must be thoughtful about what legal obligations, imposed on whom, are appropriate? The suggested 102(e) and (f) in the High Performance Computing Act looks very much like King James I's licensing of printing presses. It also looks like the FBI's proposal to prohibit the introduction of new technologies until certain conformity with past legal concepts is assured. Such approaches make the law a hurdle to new technology -- an uncomfortable position for both law and technology.

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1 The use of EDI techniques to meter usage and determine charges for use of intellectual property is an example of billing and collection value in a typology of different types of value that can be produced in electronic marketplaces for information. See Henry H. Perritt, Jr., Market Structures for Electronic Publishing and Electronic Contracting in Brian Kahin, ed., Building Information Infrastructure: Issues in the Development of the National Research and Education Network (Harvard University and McGraw-Hill 1992) (developing typology for different types of value and explaining how market structures differ for the different types); Henry H. Perritt, Jr., Tort Liability, the First Amendment, and Equal Access to Electronic Networks, 5 Harv.J.Law & Tech. 65 (1992) (using typology of ten types of value to analyze access by competing producers of value).

2 See, e.g.U.S.Pat. No. 5,016,009, Data compression apparatus and method (May 14, 1991); U.S. Pat. No. 4,996,690, Write operator with gating capability (Feb. 26, 1991);U.S. Pat. No. 4,701,745, Data compression system (Oct. 20, 1987); Multi Tech Systems, Inc. v. Hayes Microcomputer Products, Inc., 800 F. Supp. 825 (D. Minn. 1992) (denying summary judgment on claim that patent for modem escape sequence is invalid)..

3 Comments on the 8\21 draft of "Knowbots in the Real World" from the intellectual property workshop participants at page 6 (author unknown, source unknown). Professor Samuelson also observed that the workshop, despite its title, actually did not focus much on intellectual property issues.

4 Corporation for National Research Initiatives, Workshop On The Protection Of Intellectual Property Rights In A Digital Library System: Knowbots in the Real World-May 18-19, 1989 (describing digital library system).

5 See generally Clifford A. Lynch, Visions of Electronic Libraries (libraries of future can follow acquisition-on-demand model rather than acquiring an advance of use; Z39.50 protocol will facilitate realization of that possibility, citing Robert E. Kahn & Vinton G. Serf, An Open Architecture for a Digital Library System and a Plan for Its Development. The Digital Library Project, volume 1: The World of Knowbots (draft) (Washington D.C.: Corporation for National Research

Initiatives; 1988)).

6 Clifford A. Lynch, The Z39.50 Information Retrieval Protocol: An Overview and Status Report, ACM Sigcomm Computer Communication Review at 58 (describing Z39.50 as an OSI application layer protocol that relieves clients from having to known the structure of data objects to be queried, and specifies a framework for transmitting and managing queries and results and syntax for formulating queries).

7 Brewster Kahle, Wide Area Information Server Concepts (Nov. 3, 1989 working copy; updates available from Brewster @THINK. (describing WAIS as "open protocol for connecting user interfaces on workstations and server computers") (describing information servers as including bulletin board services, shared databases, text searching and automatic indexing and computers containing current newspapers and periodicals, movie and television schedules with reviews, bulletin boards and chat lines, library catalogues, Usenet articles).

8 Robert E. Kahn, Deposit, Registration, Recordation in an Electronic Copyright Management System (August 1992) (Corporation for National Research Initiatives, Reston, Virginia).

9 Kahn 1992 at 4.

10 Kahn 1992 at 6.

11 Kahn 1992 at 10.

12 Kahn 1992 at 12.

13 Kahn 1992 at 15.

14 Browsability through techniques like the collapsible outliner function in Microsoft Word for Windows and competing products require more chunking and tagging value in the form of style and text element codes. Handling this additional formatting information through encryption and description processes is problematic.

15 " A 'transfer of copyright ownership' is an assignment, mortgage, exclusive license, or any other conveyance, alienation, or hypothecation of a copyright or

of any of the exclusive rights comprised in a copyright, whether or not it is limited in time or place of effect, but not including a non-exclusive license " 17 U.S.C. 101 (1988).

16 17 U.S.C. 204(a) (1988); Valente-Kritzer Video v. Pinckney, 881 F.2d 772, 774 (9th Cir. 1989) (affirming summary judgment for author; oral agreement unenforceable under Copyright Act); Library Publications, Inc. v. Medical Economics Co., 548 F. Supp. 1231, 1233 (E.D. Pa. 1982) (granting summary judgment against trade book publisher who sought enforcement of oral exclusive distribution agreement; transfer of exclusive rights, no matter how narrow, must be in writing), aff'd mem., 714 F.2d 123 (3d Cir. 1983).

17 17 U.S.C. 205 (1988) provides constructive notice of the contents of the recorded document, determining priority as between conflicting transfers, and determines priority as between recorded transfer and non-exclusive license. The former requirement for transfers to be recorded in order for the transferee to maintain an infringement, 17 U.S.C. 205(d), was repealed by the Berne Act Amendments 5.

18 under Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873), a patentee must not attempt to exert control past the first sale. In general, use restrictions may be placed only on licensees, consistent with General Talking Pictures v. Western Elec., 304 U.S. 175 (1938). See generally Baldwin-Lima-Hamilton Corp. v. Tatnall, 169 F. Supp. 1 (E.D. Pa.1958) (applying no control after purchase rule).

19 See Red-Baron-Franklin Park, Inc. v. Taito Corp., 883 F.2d 275, 278 (4th Cir. 1989) (purchase of video game circuit boards did not create privilege to perform video game under first sale doctrine); United States v. Moore, 604 F.2d 1228, 1232 (9th Cir. 1979) (pirated sound recording not within first sale doctrine in criminal copyright infringement prosecution). But see Mirage Editions, Inc. v. Albuquerque A.R.T. Co., 856 F.2d 1341, 1344 (9th Cir. 1988) (first sale doctrine did not create privilege to prepare derivative work by transferring art in book to ceramic tiles).

20 The way in which the first sale doctrine would impact the electronically imposed use restrictions is by frustrating a breach-of-contract lawsuit by the licensor

against a licensee who exceeds the use restrictions. The licensee exceeding the use restrictions would argue that it violates public policy to enforce the restrictions and therefore that state contract law may not impose liability for their violation. See generally Restatement (second) of Contracts 178 (1981) (stating general rule for determining when contract term in unenforceable on grounds of public policy).

21 In addition, as ___ of this paper notes, the Copyright Act itself requires signed writings for transfers of copyright interests. 17 U.S.C. 204(a). (1988).

22 Michael S. Baum & Henry H. Perritt, Jr., Electronic Contracting, Publishing and EDI Law ch. 6 (1991) (contract, evidence and agency issues) [hereinafter "Baum & Perritt"]. Accord, Signature Requirements Under EDGAR, Memorandum from D. Goelzer, Office of the General Counsel, SEC to Kenneth A. Fogash, Deputy Executive Director, SEC (Jan. 13, 1986) (statutory and non-statutory requirements for "signatures" may be satisfied by means other than manual writing on paper in the hand of the signatory . . . "In fact, the electronic transmission of an individual's name may legally serve as that person's signature, providing it is transmitted with the present intention to authenticate.").

23 17 U.S.C. 101 (1988). For copyright purposes, a work is created, and therefore capable of protection, when it is fixed for the first time. 17 U.S.C. 101 (1988). "[I]t makes no difference what the form, manner, or medium of fixation may be - whether it is in words, numbers, notes, sounds, pictures, or any other graphic or symbolic indicia, whether embodied in a physical object in written, printed, photographic, sculptural, punched, magnetic, or any other stable form, and whether it is capable of perception directly or by means of any machine or device 'now known or later developed.'" 1976 U.S. Code Cong. & Admin. News 5659, 5665. The legislative history further says that, "the definition of `fixation' would exclude from the concepts purely of an evanescent or transitory nature -- reproductions such as those projected briefly on a screen shown electronically on a television or other video display or captured momentarily in the `memory' of a computer." 17 U.S.C. 102 note (excerpting from House Report 94-1476).

24 Or, more likely, what is on computer medium read by

computer x, such as a magnetic cartridge used for archival records. Further references in the textual discussion to "what is in computer x now" should be understood to include such computer readable media.

25 Cf. Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 980 (1986) (proof that a printout accurately reflects what is in the computer is too limited a basis for authentication of computer records).

26 In some cases, the electronic transaction will be accomplished by means of a physical transfer of computer readable media. In such a case, this step in the proof would involve proving what was received physically.

27 See generally Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 979 (1986) (citing as examples of authentication Ford Motor Credit Co. v. Swarens, 447 S.W.2d 53 (Ky. 1969) (authentication by establishing relationship between computer-generated monthly summary of account activity and the customer reported on); Ed Guth Realty, Inc. v. Gingold, 34 N.Y.2d 440, 315 N.E.2d 441, 358 N.Y.S.2d 367 (1974) (authentication of summary of taxpayer liability and the taxpayer)).

28 Of course, a paper document signed at the end also is probative of the fact that no alternations have been made. In this sense, a signature requirement telescopes several steps in the inquiry outlined in the text.

29 United States v. Linn, 880 F.2d 209, 216 (9th Cir. 1989) (computer printout showing time of hotel room telephone call admissible in narcotics prosecution). See also United States v. Miller, 771 F.2d 1219, 1237 (9th Cir. 1985) (computer generated toll and billing records in price-fixing prosecution based on testimony by billing supervisor although he had no technical knowledge of system which operated from another office; no need for programmer to testify; sufficient because witness testified that he was familiar with the methods by which the computer system records information).

30 See United States v. Hutson, 821 F.2d 1015, 1020 (5th Cir. 1987) (remanding embezzlement conviction, although

computer records were admissible under business records exception, despite trustworthiness challenged based on fact that defendant embezzled by altering computer files; access to files offered in evidence was restricted by special code).

31 Restatement (Second) of Contracts ___ (1981).

32 Cite for when extrinsic evidence is admissible.

33 See Baum & Perritt 2.6; The Electronic Messaging Services Task Force, The Commercial Use of Electronic Data Interchange--A Report and Model Trading Partner Agreement, 45 Bus.Law. 1645 (1990); Jeffrey B. Ritter, Scope of the Uniform Commercial Code: Computer Contracting Cases and Electronic Commercial Practices, 45 Bus.Law. 2533 (1990); Note, Legal Responses to Commercial Transactions Employing Novel Communications Media, 90 Mich.L.Rev. 1145 (1992)

34 Garber v. Harris Trust & Savings Bank, 432 N.E.2d 1309, 1311-1312 (Ill. App. 1982) ("each use of the credit card constitutes a separate contract between the parties;" citing cases).

It is not quite this simple, because both merchant and credit card customer have separate written contracts with the credit card issuer. But there is no reason that a supplier of information to a Digital Library System and all customers of that system might not have their own contracts with the Digital Library System in the same fashion.

35 Rowland v. Union Hills Country Club, 757 P.2d 105 (Ariz. 1988) (reversing summary judgment for country club officers because of factual question whether club followed bylaws in expelling members); Straub v. American Bowling Congress, 353 N.W.2d 11 (Neb. 1984) (rule of judicial deference to private associations, and compliance with association requirements, counseled affirmance of summary judgment against member of bowling league who complained his achievements were not recognized). But see Wells v. Mobile County Board of Realtors, Inc., 387 So.2d 140 (Ala. 1980) (claim of expulsion of realtor from private association was justiciable and bylaws, rules and regulations requiring arbitration were void as against public policy; reversing declaratory judgment for defendant association).

36 F.R.E. 803(6) (excluding business records from inadmissibility as hearsay); 28 U.S.C. 1732 ("Business Records Act" permitting destruction of paper copies of government information reliably recorded by any means and allowing admission of remaining reliable record).

37 See Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 978-80, 984-85 (1986) (noting body of commentator opinion saying that business records exception and authentication are parallel ways of establishing reliability).

38 See F.R.E. 901(b)(4) (appearance, contents, substance, internal patterns, as examples of allowable authentication techniques).

39 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 963-64 (1986) (identifying steps and trend resulting in F.R.E.).

40 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 963 (1986).

41 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 974 (1986) (reporting four requirements of Manual, and endorsing their use generally).

42 See Henry H. Perritt, Jr., ___, ___ Jurimetrics ___ (1993) (distinguishing between format and content standardization).

43 See Marc Lauritsen, ___ (explaining relationship between substantive legal systems and the field of artificial intelligence).

44 See Thorne, McCarty; Kevin Ashley; and Gardner.

45 It may not be particularly important to limit competition by consumers, because the consumers will never have the pointers and the rest of the network infrastructure.

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

| Sheet | | of | |
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| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN et al. |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325-235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number - Kind Code[2] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| | | US-5,287,408 | 02-15-1994 | Samson | |
| | | US-5,390,297 | 02-14-1995 | Barber et al. | |
| | | US-5,553,143 | 09-03-1996 | Ross et al. | |
| | | US-5,564,038 | 10-08-1996 | Grantz et al. | |
| | | US-5,625,690 | 04-29-1997 | Michel et al. | |
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**FOREIGN PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Application of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
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|---|---|---|---|
| | | Perritt, "Technologies Strategies for Protecting IP in the Networked Multimedia Environment", Apr. 2-3, 1993, Knowbot Permissions | |
| | | Delaigle, "Digital Watermarking", Spie Conference in Optical Security and Counterfeit Deterrence Techniques, San Jose, CA Feb, 1996, Vol 2659 pp 99-110 | |
| | | | |

| Examiner Signature | | Date Considered | |
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/956,070
Filing Date: October 04, 2004
Appellant(s): NGUYEN ET AL.

Stephen M. Hertzler
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 13th, 2008 appealing from the Office action mailed December 13th, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 6226618 | Downs et al. | 08-1998 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. . . .
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 2-10, 14-22, 25, 27-35, and 40-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Downs et al (U.S 6226618).

3. As per claims 2-10, 14-22, 25, 27-35, and 40-54, Downs et al. disclose an invention that broadly relates to the field of electronic commerce and more particularly to a system and related tools for the secure delivery and rights management of digital assets, such as print media, films, games, and music over global communications networks such as the Internet and the World Wide Web. The invention includes the means and devices (hardware and software combination) (columns 53, lines 65-67, column 54, lines 1-3) to accomplish the items below- Claims 25, 38, 39,41-45,48, 51, 54. The invention comprising of the following:

A. (**"specifying in a first license at least one usage right and at least one meta-right for the item"**) -- Owners setting/specifying initial usage rights/licensing (**first license**) for content to the distributors (column 21, lines 30-33). Those usage rights

can be modified by the digital store (column 21, lines 33-39) to create **secondary licensing/rights (meta-rights)** or customized licensing (column 10, lines 15-18) to the end user – *Claims 40-42;*

B. (**"specifying in a first license at least one usage right and at least one meta-right for the item"**), (**"defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item"**) -- Example of usage rights include (column 59, lines 38-69– *Claims 40, 49-54*:

| | |
|---|---|
| Compressed Version | 384 Kbps |
| Type of user | Private Consumer |
| Type of Transaction | Purchase or Rental |
| Number Of copies | 1 |
| Rental Terms | 14 Days |
| Transfer on What Media | Mini Disc or Computer |

C. (**"wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices"**) -- Owners setting initial usage rights/licensing (**first license**) for content to the distributors (column 21, lines 30-33). Those usage rights can be modified by the digital store (column 21, lines 33-39) to create **secondary licensing** or customized licensing (column 10, lines 15-18) to the end user –*Claims 40-42, 10, 22, 35*

D. Content providers (entity that supplies the content), providing (equivalent to generating) usage conditions (equivalent to usage rights), The content providers also

stipulate that the content stores or distributors can add or narrow the original usage rights (meta-rights or rights derived from the initial usage rights) (column 21, lines 30-36) - *Claims 40-42*

E. Usage rights being copy restrictions, which is manner in which the content can be used (column 9, 32-34, col. 26, lines 10-12). - *Claims 40-42*

F. Content stores or distributors can add or narrow the original usage rights (sub-rights) (column 21, lines 30-36) - *Claims 40-42*

G. The system also defines the manner in which the content can be used (**meta-rights**) such as onto what kinds of media the content can be transferred to (column 59, lines 52-54) – *Claims 40-42, 46-48*

H. State variable such the number of copies a user is allowed to make (column 59, line 50 or rental terms (column 59, lines 55-60) - *Claims 40-42*

I. State variables can be the number of copies a user is allowed to make - (**"associating at least one state variable with the at least one right "**) (column 59, line 50 or rental terms (column 59, lines 55-60). Content providers and distributors specify the number of plays and local copies allowed for the Content, and whether or not the Content may be recorded to an external portable device (state variable). Downs et al. keep track of the content's copy/play usage and update the copy/play status (column 20, lines 43-50, column 12, lines 11-12). The system also uses watermarks, as state variable, to ensure that the content is being played in a compliant user device (col. 7, lines 45-55). Inherently the identity or location of where the content is being played or copied has to be established, in order to determine whether or not a user is

compliant. - ("**defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights**") -*Claims 40-42, 55-57*

J. The secondary licensing such as restrictions on rental time period can not violate the initial time period set by the initial licensing (column 21, line 35) - ("**generating in a second license one or more rights based on the meta-right in the first license**") *Claims 40-42*

K. The state variable is derived from the usage rights (column 59, line 50) or rental terms (column 59, lines 55-60) - *Claims 2-4, 14-16, 27-29*

L. The system keeps track of the content's copy/play usage and updates the copy/play status (column 20, lines 49-50) – *Claims 5, 17, 30*

M. A state variable can represent various other states, for example an item that rented can affect the number of copies that can be made or whether or not copies can be made - *Claims 6, 8, 18, 20, 31,33*

N. The system embeds a code on every copy the content, as it is transferred form user device to the next. When the Digital Content is accessed in a compliant End-User Devices, the End-User Player Application reads the watermark to check the use restrictions and updates the watermark as required. If the requested use of the content does not comply with the usage conditions, e.g., the number of copies has been exhausted, the End-User Device(s) will not perform the request (column 7, lines 40-55) - *Claims 7, 19, 32*

O. The content does not specify how the initial set of rights and variable are to modified, as long as it does not violate the initial licensing (column 21, line 35) - *Claims 9, 21, 34*

**(10) Response to Argument**

Argument 1: Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57. – Specifically, Downs fails to disclose "meta-rights" as recited in the claims.

Response 1: With regard to the argument of "Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57", Examiner respectfully disagree (see grounds of rejection). With regard to the aspect of meta-rights, as claim 40 states, meta-rights are rights derived from usage rights. Owners setting/specifying initial usage rights/licensing (**first license**) for content to the distributors (column 21, lines 30-33). Those usage rights can be modified by the digital store (column 21, lines 33-39) to create **secondary licensing/rights (meta-rights)** or customized licensing (column 10, lines 15-18) to the end users. (see table below)

App#: 10956070

| Limitation # | Claim 40 | Prior Art (Downs, US 6226618) |
|---|---|---|
| 1 | 1 generating, by a supplier, at least one first offer, including **usage rights** and **meta-rights** for the items, , | Content providers (entity that supplies the content), providing (equivalent to generating) **usage conditions** (equivalent to **usage rights**), The content providers also stipulate that the content stores or distributors can add or narrow the original usage r |
| 2 | said usage rights defining a manner of use for the items | **Usage rights heing copy restrictions, which is manner in which the content can he used** (column 9, 32-34, col. 26, lines 10-12). |
| 3 | said meta-rights specifying rights to derive usage rights or other meta-rights for the items | **Content stores or distrihutors can add or narrow the original usage rights (suh-rights)** (column 21, lines 30-36) |
| 4 | Associating at leat one state variable with at least one right, state variable being shared by one or more devices | State variable such the number of copies a user is allowed to make (column 59, line 50 or rental terms (column 59, lines 55-60). Specify the number of plays and local copies allowed for the Content, and whether or not the Content may be recorded to an e |
| 5 | Generating a second license with one or more rights | |
| 6 | | |
| 7 | | |
| 8 | | |

**Supplier = Content provider**
**First Consumer = digital content store or distrihutor**
**Usage Rights = Usage conditions such as copy protection**
**First license = Digital certificate given to distrihutor**
**Meta-rights = Suhrights, or addtionnal usage conditions derived from the usage rights**

With regard to aspect of “state variables”, par 43 or appellant’s published specification defines the term as "variables having values that represent status of an item, usage rights, license or other dynamic conditions ". As such, a state variable can be a rental term of 14 days, which can be further restricted by the first consumer. This value can be tracked from 0 days to 14 (Col 20, Lines 48-50), therefore is dynamic – similar to the number of prints in par. 43 of appellant's published specification.

Therefore, appellant’s invention is not patentably distinct from Downs’ invention.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Evens J. Augustin/
Art Unit 3621
October 25th, 2007

Conferees:

/A. J. F./
Andrew J. Fischer
Supervisory Patent Examiner, Art Unit 3621

Vincent Millin /VM/
Appeals Conference Specialist

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 4228506 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Marc S. Kaufman/Peaches Thomas |
| **Filer Authorized By:** | Marc S. Kaufman |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 04-NOV-2008 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 13:49:17 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $180 |
| RAM confirmation Number | 7377 |
| Deposit Account | 192380 |
| Authorized User | |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1 | Information Disclosure Statement (IDS) Filed (SB/08) | 235000_-_2008-11-04_-_IDS.pdf | 727775<br>bf4b26a3bab017c0e44fc1b60a9ab42356c438b4 | no | 5 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Foreign Reference | JP_05100939.pdf | 609457<br>bbd745e5cc6a7e23c3d4e26147ee093a0b6b625c | no | 10 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | NPL Documents | Delaigle_Digital_1996.pdf | 542236<br>533b2ba855f0906f13954d8ccf50c5d04442e485 | no | 12 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 4 | NPL Documents | Perritt_Technologies_1993.pdf | 472130<br>a44b784949bd53b5754a3b65fa1f8c23c249b8e4 | no | 31 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 5 | Fee Worksheet (PTO-06) | fee-info.pdf | 29943<br>4a36c5d399eeb8efe145b772a6ddb573a7bbf915 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 2381541 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

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**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Filer:** | Marc S. Kaufman/Peaches Thomas |
| **Attorney Docket Number:** | 111325-235000 |

Filed as Large Entity

## Utility under 35 USC 111(a) Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Miscellaneous:** | | | | |
| Submission- Information Disclosure Stmt | 1806 | 1 | 180 | 180 |
| | | **Total in USD ($)** | | **180** |

# Knowbots, Permissions Headers and Contract Law

paper for the conference on

Technological Strategies for Protecting Intellectual Property in the Networked Multimedia Environment

April 2-3, 1993 with revisions of 4/30/93

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## Introduction

One of the ways to protect intellectual property on the NREN is through a digital library concept. Under this concept, a work would have attached to it a "permissions header," defining the terms under which the copyright owner makes the work available. The digital library infrastructure, implemented on the NREN, would match request messages from users with the permissions headers. If the request message and the permissions header match, the user would obtain access to the work. This concept encompasses major aspects of electronic contracting, which is already in wide use employing Electronic Data Interchange ("EDI") standards developed by ANSI Committee X12.1

This paper explains the relationship between the digital library concept and EDI practice, synthesizing appropriate solutions for contract law, evidence, and agency issues that arise in electronic contracting. The question of how electronic signatures should work to be legally effective is an important part of this inquiry. The paper also defines particular types of service identifiers, header descriptors, and other forms of labeling and tagging appropriate to allow copyright owners to give different levels of permission, including outright transfer of the copyright interest, use

permission, copying permission, distribution permission, display permission, and permission to prepare derivative works.The paper considers how payment authorization procedures should work in conjunction with a permissions header and digital library concept in order to integrate the proposed copyright licensing procedures with existing and anticipated electronic payment authorization systems. The paper necessarily considers whether existing standards approaches related to SGML and X12 are sufficient or whether some new standards development efforts will be necessary for implementation of the concepts. The paper considers the relationship between technology and law in enforcing intellectual property, and emphasizes that the traditional adaptation of legal requirements to levels of risk is appropriate as the law is applied to new technologies.

There are certain common issues between the intellectual property question and other applications of wide area digital network technology. The question of signatures and writings to reflect the establishment of duties and permissions and the transfer of rights is common to the intellectual property inquiry and to electronic commerce using EDI techniques. There also are common questions involving rights to use certain information channels: First Amendment privileges, and tort liability. These are common not only to technological means of protecting intellectual property but to all forms of wide area networking.

## The problem

The law recognizes intellectual property because information technology permits one person to get a free ride on another person's investment in creating information value. Creative activity involving information usually is addressed by copyright, although patent has a role to play in protecting innovative means of processing information.2

Intellectual property arose in the context of letterpress printing technology. Newer technologies like xerography and more recently small computer technology and associated word processing and networking have increased the potential for free rides and accordingly increased the pressure on intellectual property.

The concern about free ride potential is especially great when people envision putting creative works on

electronic publishing servers connected to wide area networks intending to permit consumers of information products to access these objects, frequently combining them and generally facilitating "publishing on demand" rather than the well known publishing just in case, typified by guessing how many copies of a work will sell, printing those in advance, and then putting them in inventory until someone wants them.

The concern is that it will be too easy to copy an entire work without detection and without paying for it. Worse, it will be easy to copy an entire work and resell it either by itself or as a part of a new derivative work or collection.

But technology is capable of protecting investment in new ways as well as gaining a free ride. Computer networks make it possible to restrict access and to determine when access occurs. Depending on how new networks are designed, they may actually reduce the potential for a free ride. The digital library is one way of realizing that potential. Professor Pamela Samuelson has observed that the digital library model replaces intellectual property with a system of technological controls.3

## Digital Library Concepts

### Basic Concepts

A digital library is a set of information resources ("information objects") distributed throughout an electronic network. The objects reside on servers (computers with associated disk drives connected to the network). They can be retrieved remotely by users using "client" workstations.

### Origin of Concepts

The phrase "digital library" and the basic concept was first articulated in a 1989 report growing out of a workshop sponsored by the Corporation for National Research Initiatives.4 From its inception, the digital library concept envisioned retrieval of complete information resources and not merely bibliographic information.5

The technologies of remote retrieval of complete information objects using electronic technologies is in wide use through the WESTLAW, Dialog, LEXIS, NEXIS, and National Library of Medicine databases. These remotely accessible

databases, however, unlike the digital library involved a single host on which most of the data resides. The digital library concept envisions a multiplicity of hosts (servers).

Recent Developments

The remotely accessible database host concept is converging with the digital library concept as more of the electronic database vendors provide gateways to information objects actually residing on other computers. This now is commonplace with WESTLAW access to Dialog, and Dialog's gateways to other information providers.

The most explicit implementation of the digital library concept is the Wide Area Information Service ("WAIS"), which implements ANSI standard Z.39.6 WAIS permits a remote user to formulate a query that is applied to a multiplicity of WAIS servers each of which may contain information responsive to the query. The WAIS architecture permits search engines of varying degrees of sophistication, resident on WAIS information servers to apply the query against their own information objects, reporting matches back to the user.7 Future implementations of WAIS permit automatic refinement of searches according to statistical matching techniques.

The Corporation for National Research Initiatives has proposed a test bed for an electronic copyright management system.8 The proposed system would include four major elements: automated copyright recording and registration, automated, on line clearance of rights, private electronic mail and digital signatures to provide security. It would include three subsystems: a Registration and Recording System (RRS), a Digital Library System (DLS), and a Rights Management System (RMS). The RRS would provide the functions enumerated above and would be operated by the Library of Congress. It would provide "change of title" information.9 The RMS would be an interactive distributed system capable of granting rights on line and permitting the use of copyrighted material in the Digital Library System. The test bed architecture would involve computers connected to the Internet performing the RRS and RMS functions.

Digital signatures would link an electronic bibliographic record with the contents of the work, ensuring against alteration after deposit.10 Multiple RMS servers would be attached to the Internet. A user wishing to obtain

rights to an electronically published work would interact electronically with the appropriate RMS. When copyright ownership is transferred, a message could be sent from the RMS to the RRS11 - creating an electronic marketplace for copyrighted material.

The EBR submitted with a new work would "identify the rights holder and any terms and conditions on the use of the document or a pointer to a designated contact for rights and permissions."12 The EBR, thus, is apparently equivalent to the permissions header discussed in this paper. Security in the transfer of rights would be provided by digital signatures using public key encryption, discussed further, infra in the section on encryption.

Basic Architectural Concepts

The digital library concept in general contemplates three basic architectural elements: a query, also called a "knowbot" in some descriptions; a permissions header attached to each information object; and a procedure for matching the query with the permissions header.

Two kinds of information are involved in all three architectural elements: information about the content of information objects desired and existing, and information about the economic terms on which an information object is made available. For example, a query desiring court opinions involving the enforcement of foreign judgments evidencing a desire to download the full text of such judicial opinions and to pay up to $1.00 per minute of search and downloading time would require that the knowbot appropriately represent the subject matter "enforcement of foreign judgments." It also requires that the knowbot appropriately represent the terms on which the user is willing to deal: downloading and the maximum price. The permissions header similarly must express the same two kinds of information. If the information object to which the permissions header is attached is a short story rather than a judicial opinion, the permissions header must so indicate. Or, if the information object is a judicial opinion and it is about enforcement of foreign judgments, the permission header may indicate that only a summary is available for downloading at a price of $10.00 per minute. The searching, matching, and retrieval procedure in the digital library system must be capable of determining whether there is a match on both subject matter and economic terms, also copying and

transmitting the information object if there is a match.

Comparison to EDI

Electronic Data Interchange ("EDI") is a practice involving computer-to-computer commercial dealing without human intervention. In the most widespread implementations, computers are programmed to issue purchase orders to trading partners, and the receiving computer is programmed to evaluate the terms of the purchase order and to take appropriate action, either accepting it and causing goods to be manufactured or shipped or rejecting it and sending an appropriate message. EDI is in wide use in American and foreign commerce, using industry-specific standards for discrete commercial documents like purchase orders, invoices, and payment orders, developed through the American National Standards Institute.

There obviously are similarities between the three architectural elements of the digital library concept and EDI. There is a structured way of expressing an offer or instruction, and a process for determining whether there is a match between what the recipient is willing to do and what the sender requests.

There is also, however, an important difference. In the digital library concept, a match results in actual delivery of the desired goods and services in electronic form. In EDI practice, the performance of the contractual arrangement usually involves physical goods or performance of nonelectronic services.

Nevertheless, the digital library and EDI architectures are sufficiently similar and, it turns out the legal issues associated with both are sufficiently similar to make analogies appropriate.

Elements of Data Structure

For purposes of this paper, the interesting parts of the data structure are those elements that pertain to permission, more than those elements that pertain to content of the information object to which the header is attached. Accordingly, this section will focus on only permissions-related elements, after noting in passing that the content part of the header well might be a pointer to an inverted file to permit full text searching and matching.

The starting point conceptually for identifying the elements of the permissions header are the rights exclusively reserved to the copyright owner by 106 of the copyright statute. But these exclusive rights need not be tracked directly because the owner of an information object free to impose contractual restrictions as well as to enjoy rights granted by the Copyright Act. Accordingly, it seems that the following kinds of privileges in the requester should be addressed in the permissions header:

outright transfer of all rights

use privilege, either unrestricted or subject to restrictions

copying, either unlimited or subject to restrictions like quantitative limits

distribution, either unlimited or subject to restrictions, like geographic ones or limits on the markets to which distribution can occur

preparation of derivative works

Display and presentation rights, separately identified in 106 would be subsumed into the use element, because they are particular uses.

The simplest implementation would allow only binary values for each of these elements. But a binary approach does not permit the permissions header to express restrictions, like those suggested in the enumerated list. Elements could be defined to accept the most common kinds of restrictions on use, and quantitative limits on copying, but it would be much more difficult to define in advance the kinds of geographic or market-definition restrictions that an owner might wish to impose with respect to distribution.

In addition to these discrete privileges, the permissions header must express pricing information. The most sensible way of doing this is to have a price associated with each type of privilege. In the event that different levels of use, copying, or distribution privilege are identified, the data structure should allow a price to be associated with each level.

A complicating factor in defining elements for price is the likelihood that different suppliers would want to price differently. For example, some would prefer to impose a flat fee for the grant of a particular privilege. Others might wish to impose a volume-based fee, and still others might wish to impose a usage or connect-time based fee. The data structure for pricing terms must be flexible enough to accommodate at least these three different approaches to pricing.

Finally, the data structure must allow for a specification of acceptable payment terms and have some kind of trigger for a payment approval procedure. For example, the permissions header might require presentation of a credit card number and then trigger a process that would communicate with the appropriate credit card database to obtain authorization. Only if the authorization was obtained would the knowbot and the permissions header "match."

There is a relationship between the data structures and legal concepts. The knowbot is a solicitation of offers. The permissions header is an offer. The matching of the two constitutes an acceptance. Mr. Linn's "envelope" could be the "contract."

There are certain aspects of the data structure design that are not obvious. One is how to link price with specific levels of permission. Another is how to describe particular levels of permission. This representation problem may benefit from the use of some deontic logic, possibly in the form of a grammar developed for intellectual property permissions. Finally, it is not clear what the acceptance should look like. Conceptually, the acceptance occurs when the knowbot matches with a permissions header, but it is unclear how this legally significant event should be represented.

Role of Encryption

The CNRI test bed proposal envisions the use of public key encryption to ensure the integrity of digital signatures and to ensure the authenticity of information objects. Public key encryption permits a person to encrypt a message - like a signature using a secret key, one known only to the sender, while permitting anyone with access to a public key

to decrypt it. Use of public key cryptography in this fashion permits any user to authenticate a message, ensuring that it came from the purported sender.13 A related technology called "hashing" permits an encrypted digital signature to be linked to the content of a message. The message can be sent in plain text (unencrypted) form, but if any part of it is changed, it will not match the digital signature. The digital signature and hashing technologies thus permit not only the origin but also the content integrity of a message of arbitrary length to be authenticated without necessitating encryption of the content of the message. This technology has the advantage, among others, that it is usable by someone lacking technological access to public key encryption. An unsophisticated user not wishing to incur the costs of signature verification nevertheless can use the content of the signed information object.

It is well recognized that encryption provides higher levels of security than other approaches. But security through encryption comes at a price. Private key encryption systems require preestablished relationships and exchange of private keys in advance of any encrypted communication. The burdens of this approach have led most proponents of electronic commerce to explore public key encryption instead. But public key systems require the establishment and policing of a new set of institutions. An important infrastructure requirement for practicable public key cryptography is the establishment and maintenance of certifying entities that maintain the public keys and ensure that they are genuine ones rather than bogus ones inserted by forgers. A rough analogy can be drawn between the public key certifying entities and notaries public. Both kinds of institutions verify the authenticity of signature. Both kinds require some level of licensing by governmental entities. Otherwise the word of the "electronic notary" (certifying entity) is no better than an uncertified, unencrypted signature. In a political and legal environment in which the limitations of regulatory programs have been recognized and have led to deregulation of major industries, it is not clear that a major new regulatory arrangement for public key encryption is practicable. Nevertheless, experimentation with the concept in support of digital library demonstration programs can help generate more empirical data as to the cost and benefits of public key encryption to reinforce electronic signatures.

On the other hand, it is not desirable to pursue approaches requiring encryption of content. No need to encrypt the contents is apparent in a network environment. Database access controls are sufficient to prevent access to the content if the permissions header terms are not matched by the knowbot. On the other hand, if the electronic publishing is effected through CDROMs or other physical media possessed by a user, then encryption might be appropriate to prevent the user from avoiding the permissions header and going directly to the content.

While encrypted content affords greater security to the owner of copyrighted material. Someone who has not paid the price to the copyright owner must incur much higher cost to steal the material. But the problem is everyone must pay a higher price to use the material. One of the dramatic lessons of the desktop computer revolution was the clear rejection of copyright protection in personal computer software. The reasons that copy protection did not survive in the market place militate against embracing encryption for content. Encryption interferes with realization of electronic markets, because producer and consumer must have the same encryption and description protocols. Encryption burdens processing of electronic information objects because it adds another layer. Some specific implementations have encryption require additional hardware at appreciable costs.

Digital libraries cannot become a reality until consumers perceive that the benefits of electronic formats outweigh the costs, compared to paper formats. Encryption interferes with electronic formats' traditional advantages of density, reusability, editability, and computer search ability and also, by impairing open architectures may perpetuate some of papers' advantages with respect with browsibility.14

The need for encryption of any kind depends upon whether security is available without it. That depends, in turn, on the kinds of free rides that may be obtainable and the legal status of various kinds of electronics transactions in the digital library system.

Legal Issues

Copyright: What legal effect is intended?

The design of the permissions header and the values in the elements of the header must be unambiguous as to whether an outright transfer of a copyright interest is intended or whether only a license is intended. If an outright transfer15 is intended, then the present copyright statute requires a writing signed by the owner of the rights conveyed.16 Recordation of the transfer with the Copyright office is not required, but provides advantages in enforcing transferee rights.17 On the other hand, non exclusive licenses need not be in writing nor registered. If the electronic transaction transfers the copyright in its entirety, then the rights of the transferor are extinguished, and the rights of the transferee are determined by the copyright statute. The only significant legal question is whether the conveyance was effective.

On the other hand, when the copyright is not transferred outright but only certain permissions are granted or certain rights conveyed, the legal questions become more varied. Then, the rights of the transferor and the obligations of the transferee are matters of contract law. It is important to understand the degree to which the contract is enforceable and how it is to be interpreted in the event of subsequent disputes. The following sections consider briefly the first sale doctrine as a potential public policy obstacle to enforcing contractual restrictions different from those imposed by the copyright statute and then explore in greater depth whether electronic techniques satisfy the formalities traditionally required for making a contract, whether they adequately ensure against repudiation, and whether they provide sufficient information to permit predictable interpretation of contractual obligations and privileges.

First Sale Doctrine

The first sale doctrine may invalidate restrictions on use. It is impermissible for the holder of a patent to impose restrictions on the use of a patented product after the product has been sold. Restrictions may be imposed, however, on persons who merely license the product.18 The rationale for this limit on the power of the owner of the intellectual property interest is that to allow limitations on use of the product would interfere with competition beyond what the Congress - and arguably the drafters of the Constitution - intended in setting up the patent system.

The first sale doctrine applies to copyright owners.19 Indeed, because of the First Amendment's protection of informational activity, the argument against restrictions after the first sale may be even stronger in the copyright arena then in the patent arena.

The first sale doctrine is potentially important because it may invalidate restrictions imposed on the use of information beyond what is authorized by the Copyright Act and by common law trade secret. Thus, there may be serious questions about the legal efficacy of use restrictions suggested in ___, although such restrictions are common in remote database service agreements. The vendors could argue that the limitations pertain to the contractual terms for delivery of a service rather than use of information as such. The characterization avoids the overlap with copyright and thus may also avoid the conflict between federal policy and contract enforcement.20

Contract Formation Issues

The law does not enforce every promise. Instead, it focuses its power only on promises surrounded with certain formalities to make it likely that the person making the promise (the "promisor") and the person receiving the promise (the "promisee") understood that their communication had legal consequences. A threshold question for the digital library system is whether the traditional formalities for making a contract are present when the contract is made through electronic means. The digital library system considered in this paper clearly contemplates that a contract is formed when the knowbot and the permissions header achieve a match. In this respect, the digital library concept converges with EDI where trading parties contemplate that a contract to perform services or deliver goods is formed when a match occurs either upon the receipt of a purchase order or upon the transmission of a purchase order acknowledgment.

It is not altogether clear, however, whether the match between values and computer data structures meets contract formation requirements, particularly those expressed in various statutes of frauds. Statutes of frauds require "writings" and "signatures" for certain kinds of contracts - basically those contemplating performance extending beyond a period of one year.21

In many instances, the digital library contract will be fully performed almost instantaneously upon delivery of the information object after the knowbot and the permissions header match. In such a case, the statute of frauds is not a problem and its requirements need not be satisfied. In other cases, however, as when the intent of the owner of the information object is to grant a license to do things that will extend beyond one year, the statute of frauds writing and signature requirements must be met.

Historical application of Statutes Of Frauds by the courts clearly indicates that there is flexibility in the meaning of "writing" and "signature." A signature is any mark made with the intent that it be a signature.22 Thus an illiterate person signs by making an "X," and the signature is legally effective. Another person may sign a document by using a signature stamp. Someone else may authorize an agent to sign his name or to use the signature stamp. In all three cases the signature is legally effective. There may of course be arguments about who made the X, or whether the person applying the signature stamp was the signer or his authorized agent, but these are evidentiary and agency questions, not arguments about hard and fast contract-law requirements.

Under the generally accepted legal definition of a signature, there is no legal reason why the "mark" may not be made by a computer printer, or for that matter by the write head on a computer disk drive or the data bus in a computer random access memory. The authorization to the computer agent to make the mark may be given by entering a PIN ("Personal Identification Number") on a keyboard. To extend the logic, there is no conceptual reason to doubt the legal efficacy of authority to make a mark if the signer writes a computer program authorizing the application of a PIN upon the existence of certain conditions that can be tested by the program. The resulting authority is analogous to a signature pen that can be operated only with a mechanical key attached to somebody's key ring, coupled with instructions to the possessor of the key.

Which of these various methods should be selected for particular types of transactions must depend, not on what the law requires, because the law permits any of these methods. Rather, it must depend on the underlying purposes of the legal requirement and which method best serves those

purposes.

The real issue is how to prove that a particular party made the mark. In other words, the contingency to be concerned about is repudiation, not absence of formalities. Repudiation should be dealt with through usual evidentiary and fact finding processes rather than artificial distinctions between signed and unsigned documents.

Authority is skimpier on how flexible the "writing" requirement is. The best approach is to borrow the fixation idea from the copyright statute and conclude that a writing is "embodiment in a copy . . . sufficiently permanent or stable to permit it to be perceived, reproduced, or otherwise communicated for more a period of more than transitory duration."23

The most important thing conceptually is to understand the purpose of the writing and signature requirements. They have two purposes: awareness or formality and reliability of evidence. Signature requirements, like requirements for writings and for original documents have an essentially evidentiary purpose. If there is a dispute later, they specify what kind of evidence is probative of certain disputed issues, like "who made this statement and for what purpose?" The legal requirements set a threshold of probativeness. Surely the values in a knowbot as well as the values in a permissions header constitute and "mark," and someone who knowingly sets up potential transactions in a digital library scheme can have the intent that the mark be a signature.

When a contract is made through a signed writing, it is more likely that the parties to the contract understand what they are doing. They are aware of the legal affect of their conduct because the writing in the signature involve a greater degree of formality than a simple conversation.

The awareness/formality purpose can be served by computerized contracting systems. This is so not so much because the computers are "aware" of the affect of their "conduct." Rather, it is true because the computers are agents of human principals. The programming of the computer to accept certain contract terms is the granting of authority to the computer agent to enter into a contract. The fact that a principal acts through an agent engaging in

conduct at a later point and time never has been thought to defeat contract formation in the traditional evolution of agency and contract law. Nor should it when the agent is a computer.

Fulfillment of the evidentiary purpose depends on the reliability of the information retained by the computer systems making up the digital library. Such systems must be designed to permit the proponent of contract formation to establish the following propositions if the other party to the purported contract attempts to repudiate it.

1.It came from computer X

2.It accurately represents what is in computer X24 now25

3.What is in computer X now is what was in computer X at the time of the transaction

4.What was in computer X at the time of the transaction is what was received from the telecommunications channel26

5.What was received from the telecommunications channel is what was (a) sent, (b) by computer Y.

Two other questions relate to matters other than the authenticity of the message:

6 Computer Y was the agent of B

7 The message content expresses the content of the contract (or more narrowly, the offer or the acceptance).27

Factual propositions 1-4 can be established by testimony as to how information is written to and from telecommunications channel processors, primary storage, and secondary storage. Factual proposition 5 requires testimony as to the accuracy of the telecommunications channel and characteristics of the message that associate it with computer Y. Only the last proposition (number 5) relates to signatures, because signature requirements associate the message with its source.28 The other propositions necessitate testimony as to how the basic message and database management system works. It is instructive to compare these

propositions with the kinds of propositions that must be established under the business records exception to the hearsay rule when it is applied to computer information.

Those propositions may be supported with non technical evidence, presented by non programmers. A witness can lay a foundation for admission of computer records simply by testifying that the records are generated automatically and routinely in the ordinary course of business. The more inflexible the routine, and the less human intervention in the details of the computer's management of the database the better the evidence.29

The ultimate question is trustworthiness, and if the computer methods are apparently reliable, the information should be admitted unless the opponent of admissibility can raise some reasonable factual question undercutting trustworthiness.30

Contract Interpretation Issues

Assuming that the permissions header and knowbot constitute sufficient writings to permit a contract to be formed and that the signature requirement also is met, through digital signature technology or otherwise, there still are difficult contract interpretation questions. Contract interpretation questions arise not only after contractual relationships are formed, but also in connection with deciding whether there has been offer and acceptance, the prerequisites to contract formation.31 Contract interpretation always seeks to draw inferences about what the parties intended. When contract interpretation issues arise at the contract formation stage, the questions are what the offeror intended the content of the offer to be and what the offeree intended the content of the purported acceptance to be. The proposed Digital Library System envisions extremely cryptic expressions of offer and acceptance - by means of codes. The codes have no intrinsic meaning. Rather, extrinsic reference must be made to some kind of table, standard, or convention associating particular codes with the concepts they represent. Extrinsic evidence is available to resolve contract interpretation questions when the language of the contract itself is ambiguous, and perhaps at other times as well.32 The codes in the permissions header and knowbots certainly are ambiguous and become unambiguous only when extrinsic evidence is considered. So there is no problem in getting a standard or

cable into evidence. The problem is whether the parties meant to assent to this standard.

In current EDI practice, this question is resolved by having parties who expect to have EDI transactions with each other to sign a paper trading partner agreement, in which the meaning of values or codes in the transaction sets is established.33 But requiring each pair of suppliers and users of information in a digital library to have written contracts with each other in advance would defeat much of the utility of the digital library. Thus the challenge is to establish some ground rules for the meaning of permissions header and knowbot values that all participants are bound by. There are analogous situations. One is a standard credit card agreement that establishes contractual terms among credit card issuer, credit card subscriber, and merchant who accepts the credit card. The intermediary - the credit card company - unilaterally establishes contract terms to which the trading partners assent by using and accepting the credit card.34 Also, it is widely recognized that members of a private association can, through their constitution and bylaws establish contractual relationships that bind all of the members in dealing with each other.35 In the Digital Library System, similar legal arrangements can establish the standards by which electronic transactions between permissions header and knowbots will bind transferor and transferee of information.

Third Party Liability

It is not enough merely to ensure that the licensee is contractually bound. Trading partners also must ensure that the participants in funds transfers have enforceable obligations. For example, if the digital library system envisions that the information object would not be released to the purchaser without simultaneous release of a payment order, the supplier may be interested in enforcing the obligations of financial intermediaries who handle the payment order. This implicates the federal Electronic Funds Transfer Act, and Article 4A of the Uniform Commercial Code, regulating wire transfers.

Solutions

Satisfy the Business Records Exception to the Hearsay Rule

The discussion of contract formalities earlier in this

paper concluded that legally enforceable contracts can be formed through electronic means and that the significant legal questions relate to reliability of proof and intent of the parties to be bound by using the electronic techniques. This section considers the reliability of proof further. Traditional evidence law permits computer records to be introduced in evidence when they satisfy the requirements of the business records exception: basically that they are made in the ordinary course of business, that they are relied on for the performance of regular business activities, and that there is no independent reason for questioning their reliability.36

The business records exception shares with the authentication concept statute of frauds and the parol evidence rule a common concern with reliability.37 The same procedural guarantees and established practices that ensure reliability for hearsay purposes also ensure reliability for the other purposes. Under the business records exception, the proponent must identify the source of a record, through testimony by one familiar with a signature on the record, or circumstantially.38 The steps in qualifying a business record under the common law, which since have been relaxed,39 were:

Proving that the record is an original entry made in the routine course of business

Proving that the entries were made upon the personal knowledge of the proponent/witness or someone reporting to him

Proving that the entries were made at or near the time of the transaction

Proving that the recorder and his informant are unavailable.40

These specific requirements are easier to understand and to adapt to electronic permissions and obligations formed in a digital library system by understanding the rationale for the business records exception. The hearsay rule excludes out of court statements because they are inherently unreliable, primarily because the maker of the statement's demeanor cannot be observed by the jury and because the maker of the statement is not subject to cross examine. On the other hand, there are some out of court statements that

have other guarantees of reliability. Business records are one example. If a continuing enterprise finds the records sufficiently reliable to use them in the ordinary course of business, they should be reliable enough for a court. The criteria for the business records exception all aim at ensuring that the records really are relied upon the business to conduct its ordinary affairs.

The Manual for Multidistrict Litigation suggests steps for qualifying computer information under the business records exception:

1.The document is a business record

2.The document has probative value

3.The computer equipment used is reliable

4.Reliable data processing techniques were used41

The key in adapting the business records exception to electronic permissions in a digital library system are points 3 and 4. Establishing these propositions and the propositions set forth in section ___ of this paper requires expert testimony. Any designer of a digital library system must consult with counsel and understand what testimony an expert would give to establish these propositions. Going through that exercise will influence system design.

Reinforce the Evidentiary Reliability by Using Trusted Third Parties

The evidentiary purpose of contract formation requirements can be satisfied by using a trusted third party as an intermediary, when the third party maintains archival records of the transactions. The third party lacks any incentive for tampering with the records and when the third parties archiving system is properly designed, it can provide evidence sufficient to establish all of the propositions identified in ___.

This third party intermediary concept is somewhat different from the concept for a certifying agent in digital signature systems. To be sure, the custodian of transaction records envisioned by this section could be the same as the certifying entity for public and key encryption, but the custodian role can be played in the absence of any

encryption. Indeed, the digital library itself is a good candidate for the custodian role. The library has no incentive to manipulate its records in favor of either of the producers of information value or the consumers. In order to carry out its affairs, it must use these transactional records in the ordinary course of business, thereby making it likely that digital library records would qualify under the business records exception.

Standardization

Obviously, the digital library concept depends upon the possibility of an automated comparison between the knowbot and the permissions header. This means that potential requesters of information and suppliers of information must know in advance the data structures for representing the elements of the permissions header and the knowbot. This requires compatibility. Compatibility requires standardization. Standardization does not, however, necessarily require "Standard" in the sense that they are developed by some bureaucratic body like ANSI. It may simply imply market acceptance of a particular vendor's approach. Indeed, each digital library might use different data structures. All that is necessary is that the structure of the knowbot and the structure of the permissions header be compatible within any one digital library system. Also, as demands emerge for separate digital libraries to communicate with each other, there can be proprietary translation to assure compatibility between systems much as common word processing programs translate to and from other common formats and much as printers and word processing software communicate with each other through appropriate printer drivers. In neither of these cases has any independent standards organization developed a standard that is at all relevant in the marketplace.

Standardizing the elements of Knowbot and permissions headers involves content standardization, which generally is more challenging than format standardization.42 A permissions header/Knowbot standard is a system for representing legal concepts and for defining legal relations. As such, the standard is basically a grammar for a rule based substantive system in a very narrow domain.43 The data elements must correspond to legally meaningful relational attributes. The allowable values must correspond to legally allowable rights, obligations, privileges and powers. In other words, the standard setter must meet many of the challenges that a

legal expert system designer working with Hohfeldian frameworks must meet.44 This adds a constraint to the standards setting process. Unlike setting format standards, where the participants are free to agree on an arbitrary way of expressing format attributes, participants in setting a content standard must remain within the universe of permissible content. The set of permissible values is determined by the law rather than being determined only by the imagination of format creators.

## Enforcement and Bottlenecks

One of the many profound observations by Ithiel de Sola Pool was that copyright always has depended upon technological bottlenecks for its enforceability. The printing press was the original enforcement bottleneck. Now, a combination of the printing press and the practical need to inventory physical artifacts representing the work constitute the enforcement bottlenecks. As technologies change, old bottlenecks disappear and enforceability requires a search for new bottlenecks. When there are single hosts, like Westlaw, Dialog, Lexis, and CompuServe, access to that host is the bottleneck. The problem with distributed publishing on an open architecture internet is that there is no bottleneck in the middle of the distribution chain corresponding to the printer, the warehouse or the single host.

If new bottlenecks are to be found, they almost surely will be found at the origin and at the point of consumption. Encryption and decryption techniques discussed elsewhere in this volume concentrate on those bottlenecks as points of control. It also is possible that rendering software could become the new bottleneck as Mr. Linn suggests.

Even with those approaches, however, a serious problem remains in that the new technologies make it difficult or impossible to distinguish between mere use and copying. Thus the seller cannot distinguish between an end user45 and a potential competitor. On the other hand, the new technologies permit a much better audit trail, potentially producing better evidence for enforcement adjudication.

If network architectures for electronic publishing evolve in the way that Ted Nelson suggests with his Xanadu concept, the real value will be in the network and the

pointers, not in the raw content. Thus, the creative and productive effort that the law should reward is the creation and productive effort that the law should reward is the creation and production and delivery of pointers, presentation, distribution, and duplication value. If this is so, then technological means will be particularly important, foreclosing access by those lacking passwords and other keys and limiting through contract what a consumer may do with the information.

In such an architecture, the law either will be relatively unimportant because technology can be counted on to prevent free riding or, the law will need to focus not on prohibiting copying or use without permission, but on preventing circumvention of the technological protections. Thus, legal approaches like that used to prevent the sale of decryption devices for television broadcasts and legal issues associated with contract enforcement may be more important than traditional intellectual property categories.

Weighing Risks and Costs

The law generally imposes sensible levels of transaction costs. Usually, transaction costs are proportional to the risk. Figure 1 shows a continuum of risk and transaction cost in traditional and new technologies. A real estate closing involves significant risks if there is some dispute later about the transaction. Therefore, the law affords much protection, including a constitutional officer called a registrar of deeds who is the custodian of records associated with the transaction. The risk level analogous to this in electronic publishing might be access to an entire library including access software as well as contents. Next, is a transaction involving a will or power of attorney. There, the risk is substantial because the maker of the instrument is not around to help interpret it. The law requires relatively high levels of assurance here, though not as great as those for real estate transactions. The law requires witnesses and attestation by a commissioned minor official called a notary public. The electronic publishing analogy of this level of risk might be the contents of an entire CDROM.

Next, in level of risk is the purchase of a large consumer durable like an automobile. The law requires somewhat less, but still significant protections for this

kind of transaction: providing for the filing and enforcement of financing statements under the Uniform Commercial Code. The electronic publishing analogy might be the transfer of copyright to a complete work. Next, down the risk continuum, is the purchase of a smaller consumer durable like a television set. Here, the law typically is reflected in written agreements of sale, but no special third party custodial mechanisms. The electronic publishing analogy might be use permission for a complete work.

Finally, is the purchase of a relatively small consumer item, say a box of diskettes. Neither the law or commercial practice involves much more than the exchange of the product for payment, with no written agreement or anything else to perform channeling, cautionary, evidentiary, or protective functions [make sure these function and the citation appears earlier]. The electronic publishing analogy might be use permission for part of a work.

Cost effectiveness = risk-proportional security

| traditional transaction | institutions | electronic equivalent |
|---|---|---|
| real estate closing | registrar of deeds | entire library - software and contents |
| will/power of attorney | witnesses, notary public | contents of entire CDROM |
| auto purchase | UCC financing statement | complete work - transfer of copyright |
| television set purchase | written sale agreement | complete work - use permission |
| box of diskettes | - | part of a work - use permission |

An encrypted object combined with rendering software is probably inconsistent with an open architecture. Because of the difficulty of setting standards for such technologies, this approach to intellectual property protection probably would be effectuated by proprietary approaches thus frustrating the vision of an open market for electronic publishing.

Conclusion

Realization of the digital library vision requires a method for collecting money and granting permission to use works protected by intellectual property. The concept of a knowbot and a permissions header attached to the work is the right way to think about such a billing and collection system. Standards for the data structures involved must be agreed to, and systems must be designed to satisfy legal formalities aimed at ensuring awareness of the legal significance of transactions and reliable proof of the terms of the transactions.

In the long run, not only must these technological issues be resolved, with appropriate attention to levels of risk and protections available under traditional legal doctrines, but also further conceptual development must be undertaken. Proponents of electronic publishing over wide area networks need to think about the appropriate metaphors: whether it is a library or a bookstore, if a library whether with or without xerox machines, if a bookstore whether it is a retail bookstore, or a mail order operation. Then, thought must be given to how standards will be set. Finally, and most important, much more needs to be understood about the need for third party institutions. There is a good deal of enthusiasm for public key encryption. Yet the vulnerability of public key encryption systems is in the integrity of the key authority. In traditional legal protections, the third party custodians or authenticating agents like notary public and registrars of deeds receive state sanction and approval, and in the case of registrars of deeds, public funding. We must be clearer as to whether a similar infrastructure must be developed to protect against substantial risks and the use of EDI and electronic publishing technologies.

Finally, and perhaps most importantly, we must be thoughtful about what legal obligations, imposed on whom, are appropriate? The suggested 102(e) and (f) in the High Performance Computing Act looks very much like King James I's licensing of printing presses. It also looks like the FBI's proposal to prohibit the introduction of new technologies until certain conformity with past legal concepts is assured. Such approaches make the law a hurdle to new technology -- an uncomfortable position for both law and technology.

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1 The use of EDI techniques to meter usage and determine charges for use of intellectual property is an example of billing and collection value in a typology of different types of value that can be produced in electronic marketplaces for information. See Henry H. Perritt, Jr., Market Structures for Electronic Publishing and Electronic Contracting in Brian Kahin, ed., Building Information Infrastructure: Issues in the Development of the National Research and Education Network (Harvard University and McGraw-Hill 1992) (developing typology for different types of value and explaining how market structures differ for the different types); Henry H. Perritt, Jr., Tort Liability, the First Amendment, and Equal Access to Electronic Networks, 5 Harv.J.Law & Tech. 65 (1992) (using typology of ten types of value to analyze access by competing producers of value).

2 See, e.g.U.S.Pat. No. 5,016,009, Data compression apparatus and method (May 14, 1991); U.S. Pat. No. 4,996,690, Write operator with gating capability (Feb. 26, 1991);U.S. Pat. No. 4,701,745, Data compression system (Oct. 20, 1987); Multi Tech Systems, Inc. v. Hayes Microcomputer Products, Inc., 800 F. Supp. 825 (D. Minn. 1992) (denying summary judgment on claim that patent for modem escape sequence is invalid)..

3 Comments on the 8\21 draft of "Knowbots in the Real World" from the intellectual property workshop participants at page 6 (author unknown, source unknown). Professor Samuelson also observed that the workshop, despite its title, actually did not focus much on intellectual property issues.

4 Corporation for National Research Initiatives, Workshop On The Protection Of Intellectual Property Rights In A Digital Library System: Knowbots in the Real World-May 18-19, 1989 (describing digital library system).

5 See generally Clifford A. Lynch, Visions of Electronic Libraries (libraries of future can follow acquisition-on-demand model rather than acquiring an advance of use; Z39.50 protocol will facilitate realization of that possibility, citing Robert E. Kahn & Vinton G. Serf, An Open Architecture for a Digital Library System and a Plan for Its Development. The Digital Library Project, volume 1: The World of Knowbots (draft) (Washington D.C.: Corporation for National Research

Initiatives; 1988)).

6 Clifford A. Lynch, The Z39.50 Information Retrieval Protocol: An Overview and Status Report, ACM Sigcomm Computer Communication Review at 58 (describing Z39.50 as an OSI application layer protocol that relieves clients from having to known the structure of data objects to be queried, and specifies a framework for transmitting and managing queries and results and syntax for formulating queries).

7 Brewster Kahle, Wide Area Information Server Concepts (Nov. 3, 1989 working copy; updates available from Brewster @THINK. (describing WAIS as "open protocol for connecting user interfaces on workstations and server computers") (describing information servers as including bulletin board services, shared databases, text searching and automatic indexing and computers containing current newspapers and periodicals, movie and television schedules with reviews, bulletin boards and chat lines, library catalogues, Usenet articles).

8 Robert E. Kahn, Deposit, Registration, Recordation in an Electronic Copyright Management System (August 1992) (Corporation for National Research Initiatives, Reston, Virginia).

9 Kahn 1992 at 4.

10 Kahn 1992 at 6.

11 Kahn 1992 at 10.

12 Kahn 1992 at 12.

13 Kahn 1992 at 15.

14 Browsability through techniques like the collapsible outliner function in Microsoft Word for Windows and competing products require more chunking and tagging value in the form of style and text element codes. Handling this additional formatting information through encryption and description processes is problematic.

15 " A 'transfer of copyright ownership' is an assignment, mortgage, exclusive license, or any other conveyance, alienation, or hypothecation of a copyright or

of any of the exclusive rights comprised in a copyright, whether or not it is limited in time or place of effect, but not including a non-exclusive license " 17 U.S.C. 101 (1988).

16 17 U.S.C. 204(a) (1988); Valente-Kritzer Video v. Pinckney, 881 F.2d 772, 774 (9th Cir. 1989) (affirming summary judgment for author; oral agreement unenforceable under Copyright Act); Library Publications, Inc. v. Medical Economics Co., 548 F. Supp. 1231, 1233 (E.D. Pa. 1982) (granting summary judgment against trade book publisher who sought enforcement of oral exclusive distribution agreement; transfer of exclusive rights, no matter how narrow, must be in writing), aff'd mem., 714 F.2d 123 (3d Cir. 1983).

17 17 U.S.C. 205 (1988) provides constructive notice of the contents of the recorded document, determining priority as between conflicting transfers, and determines priority as between recorded transfer and non-exclusive license. The former requirement for transfers to be recorded in order for the transferee to maintain an infringement, 17 U.S.C. 205(d), was repealed by the Berne Act Amendments 5.

18 under Adams v. Burke, 84 U.S. (17 Wall.) 453 (1873), a patentee must not attempt to exert control past the first sale. In general, use restrictions may be placed only on licensees, consistent with General Talking Pictures v. Western Elec., 304 U.S. 175 (1938). See generally Baldwin-Lima-Hamilton Corp. v. Tatnall, 169 F. Supp. 1 (E.D. Pa.1958) (applying no control after purchase rule).

19 See Red-Baron-Franklin Park, Inc. v. Taito Corp., 883 F.2d 275, 278 (4th Cir. 1989) (purchase of video game circuit boards did not create privilege to perform video game under first sale doctrine); United States v. Moore, 604 F.2d 1228, 1232 (9th Cir. 1979) (pirated sound recording not within first sale doctrine in criminal copyright infringement prosecution). But see Mirage Editions, Inc. v. Albuquerque A.R.T. Co., 856 F.2d 1341, 1344 (9th Cir. 1988) (first sale doctrine did not create privilege to prepare derivative work by transferring art in book to ceramic tiles).

20 The way in which the first sale doctrine would impact the electronically imposed use restrictions is by frustrating a breach-of-contract lawsuit by the licensor

against a licensee who exceeds the use restrictions. The licensee exceeding the use restrictions would argue that it violates public policy to enforce the restrictions and therefore that state contract law may not impose liability for their violation. See generally Restatement (second) of Contracts  178 (1981) (stating general rule for determining when contract term in unenforceable on grounds of public policy).

21 In addition, as ___ of this paper notes, the Copyright Act itself requires signed writings for transfers of copyright interests. 17 U.S.C.  204(a). (1988).

22 Michael S. Baum & Henry H. Perritt, Jr., Electronic Contracting, Publishing and EDI Law ch. 6 (1991) (contract, evidence and agency issues) [hereinafter "Baum & Perritt"]. Accord, Signature Requirements Under EDGAR, Memorandum from D. Goelzer, Office of the General Counsel, SEC to Kenneth A. Fogash, Deputy Executive Director, SEC (Jan. 13, 1986) (statutory and non-statutory requirements for "signatures" may be satisfied by means other than manual writing on paper in the hand of the signatory . . . "In fact, the electronic transmission of an individual's name may legally serve as that person's signature, providing it is transmitted with the present intention to authenticate.").

23 17 U.S.C.  101 (1988). For copyright purposes, a work is created, and therefore capable of protection, when it is fixed for the first time. 17 U.S.C.  101 (1988). "[I]t makes no difference what the form, manner, or medium of fixation may be - whether it is in words, numbers, notes, sounds, pictures, or any other graphic or symbolic indicia, whether embodied in a physical object in written, printed, photographic, sculptural, punched, magnetic, or any other stable form, and whether it is capable of perception directly or by means of any machine or device 'now known or later developed.'" 1976 U.S. Code Cong. & Admin. News 5659, 5665. The legislative history further says that, "the definition of `fixation' would exclude from the concepts purely of an evanescent or transitory nature -- reproductions such as those projected briefly on a screen shown electronically on a television or other video display or captured momentarily in the `memory' of a computer." 17 U.S.C.  102 note (excerpting from House Report 94-1476).

24 Or, more likely, what is on computer medium read by

computer x, such as a magnetic cartridge used for archival records. Further references in the textual discussion to "what is in computer x now" should be understood to include such computer readable media.

25 Cf. Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 980 (1986) (proof that a printout accurately reflects what is in the computer is too limited a basis for authentication of computer records).

26 In some cases, the electronic transaction will be accomplished by means of a physical transfer of computer readable media. In such a case, this step in the proof would involve proving what was received physically.

27 See generally Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 979 (1986) (citing as examples of authentication Ford Motor Credit Co. v. Swarens, 447 S.W.2d 53 (Ky. 1969) (authentication by establishing relationship between computer-generated monthly summary of account activity and the customer reported on); Ed Guth Realty, Inc. v. Gingold, 34 N.Y.2d 440, 315 N.E.2d 441, 358 N.Y.S.2d 367 (1974) (authentication of summary of taxpayer liability and the taxpayer)).

28 Of course, a paper document signed at the end also is probative of the fact that no alternations have been made. In this sense, a signature requirement telescopes several steps in the inquiry outlined in the text.

29 United States v. Linn, 880 F.2d 209, 216 (9th Cir. 1989) (computer printout showing time of hotel room telephone call admissible in narcotics prosecution). See also United States v. Miller, 771 F.2d 1219, 1237 (9th Cir. 1985) (computer generated toll and billing records in price-fixing prosecution based on testimony by billing supervisor although he had no technical knowledge of system which operated from another office; no need for programmer to testify; sufficient because witness testified that he was familiar with the methods by which the computer system records information).

30 See United States v. Hutson, 821 F.2d 1015, 1020 (5th Cir. 1987) (remanding embezzlement conviction, although

computer records were admissible under business records exception, despite trustworthiness challenged based on fact that defendant embezzled by altering computer files; access to files offered in evidence was restricted by special code).

31 Restatement (Second) of Contracts ___ (1981).

32 Cite for when extrinsic evidence is admissible.

33 See Baum & Perritt 2.6; The Electronic Messaging Services Task Force, The Commercial Use of Electronic Data Interchange--A Report and Model Trading Partner Agreement, 45 Bus.Law. 1645 (1990); Jeffrey B. Ritter, Scope of the Uniform Commercial Code: Computer Contracting Cases and Electronic Commercial Practices, 45 Bus.Law. 2533 (1990); Note, Legal Responses to Commercial Transactions Employing Novel Communications Media, 90 Mich.L.Rev. 1145 (1992)

34 Garber v. Harris Trust & Savings Bank, 432 N.E.2d 1309, 1311-1312 (Ill. App. 1982) ("each use of the credit card constitutes a separate contract between the parties;" citing cases).

It is not quite this simple, because both merchant and credit card customer have separate written contracts with the credit card issuer. But there is no reason that a supplier of information to a Digital Library System and all customers of that system might not have their own contracts with the Digital Library System in the same fashion.

35 Rowland v. Union Hills Country Club, 757 P.2d 105 (Ariz. 1988) (reversing summary judgment for country club officers because of factual question whether club followed bylaws in expelling members); Straub v. American Bowling Congress, 353 N.W.2d 11 (Neb. 1984) (rule of judicial deference to private associations, and compliance with association requirements, counseled affirmance of summary judgment against member of bowling league who complained his achievements were not recognized). But see Wells v. Mobile County Board of Realtors, Inc., 387 So.2d 140 (Ala. 1980) (claim of expulsion of realtor from private association was justiciable and bylaws, rules and regulations requiring arbitration were void as against public policy; reversing declaratory judgment for defendant association).

36 F.R.E. 803(6) (excluding business records from inadmissibility as hearsay); 28 U.S.C. 1732 ("Business Records Act" permitting destruction of paper copies of government information reliably recorded by any means and allowing admission of remaining reliable record).

37 See Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 978-80, 984-85 (1986) (noting body of commentator opinion saying that business records exception and authentication are parallel ways of establishing reliability).

38 See F.R.E. 901(b)(4) (appearance, contents, substance, internal patterns, as examples of allowable authentication techniques).

39 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 963-64 (1986) (identifying steps and trend resulting in F.R.E.).

40 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 963 (1986).

41 Peritz, Computer Data and Reliability: A Call for Authentication of Business Records Under the Federal Rules of Evidence, 80 Nw.U.L.Rev. 956, 974 (1986) (reporting four requirements of Manual, and endorsing their use generally).

42 See Henry H. Perritt, Jr., ___, ___ Jurimetrics ___ (1993) (distinguishing between format and content standardization).

43 See Marc Lauritsen, ___ (explaining relationship between substantive legal systems and the field of artificial intelligence).

44 See Thorne, McCarty; Kevin Ashley; and Gardner.

45 It may not be particularly important to limit competition by consumers, because the consumers will never have the pointers and the rest of the network infrastructure.

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| | 1 | 5-100939 | JP | | 1993-04-23 | | | ☐ |

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| | Application Number | 10956070 |
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| | Art Unit | 3621 |
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# FILE SYSTEM


| | |
|---|---|
| **Publication number:** | JP5100939 |
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| **Inventor:** | HAYATA HIROSHI |
| **Applicant:** | FUJI XEROX CO LTD |
| **Classification:** | |
| **- international:** | ***G06F12/00;* G06F12/00;** (IPC1-7): G06F12/00 |
| **- European:** | |
| **Application number:** | JP19910213036 19910731 |
| **Priority number(s):** | JP19910213036 19910731 |


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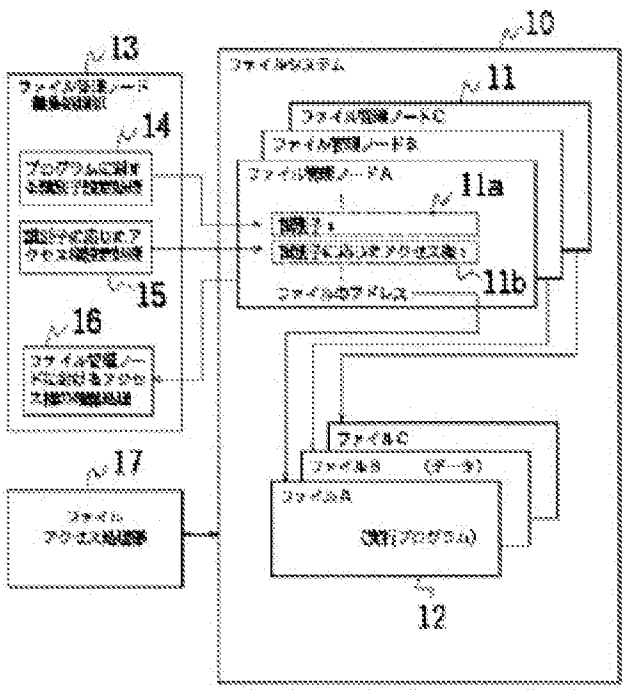
Abstract of **JP5100939**

PURPOSE:To execute read-out and write of a file only from a specific program by deciding an identifier of a program by an identifier of a file management node, and executing the access management by the access right corresponding to the identifier.
CONSTITUTION:An access right setting means 13 sets an identifier 11a given to a program of a file 12 as file management information to a file management node 11 for managing the file 12. Also, the access right 11b corresponding to the identifier 11a is registered and set as the access right of the file 12. In such a way, in the case of accessing the file 12 by executing the program, a file access managing means 17 decides an identifier of the program concerned by the identifier 11a set to the file management node 11. Subsequently, by this identifier, the access right 11b registered in the file management node 11 of the file 12 being an access object is discriminated. In accordance with information of this access right 11b, an access of the file 12 is controlled.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特開平5－100939

(43)公開日　平成５年(1993)４月23日

| (51)Int.Cl.[5] | 識別記号 | 庁内整理番号 | ＦＩ | 技術表示箇所 |
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| Ｇ０６Ｆ　12/00 | ５３７　Ａ | 7832－5B | | |

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(21)出願番号　特願平3－213036

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(74)代理人　弁理士　南野　貞男　(外２名)

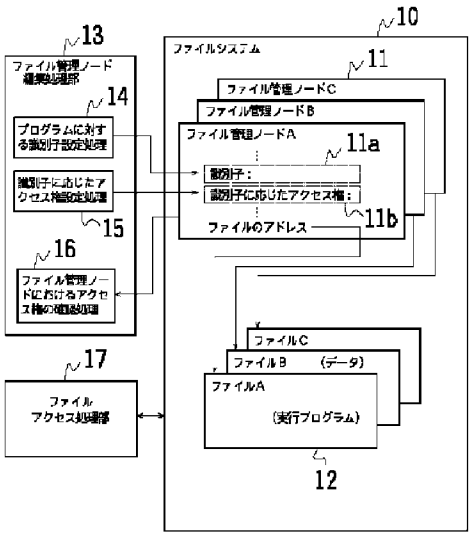
(54)【発明の名称】　フアイルシステム

(57)【要約】

【目的】　ある特定のプログラムからのみ、ファイルの読出し，ファイルへの書込みを可能とするファイルシステムを提供する。

【構成】　ファイル対応のファイル管理ノードに当該ファイルのアクセス権を登録し、ファイル管理ノードに登録したアクセス権により、ファイルアクセスを行うファイルシステムおいて、ファイル管理ノードに当該ファイルのプログラムに与える識別子と、識別子対応のアクセス権とを登録し、プログラム実行によりファイルをアクセスする場合、ファイル管理ノードの識別子により当該プログラムの識別子を判定し、当該プログラムの識別子により、アクセス対象のファイルのファイル管理ノードの識別子に対応して設定されたアクセス権により、当該ファイルのアクセス管理を行う。

図1



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【特許請求の範囲】

【請求項1】　各々のファイル対応に設けられるファイル管理ノードに当該ファイルのアクセス権を登録し、ファイル管理ノードに登録したアクセス権により、各々のファイルのアクセスを行うファイルシステムにおいて、

ファイル管理ノードに、当該ファイルのプログラムに与える識別子と当該ファイルのアクセス権として更に識別子対応のアクセス権とを登録するアクセス権設定手段と、

プログラムの実行によりファイルをアクセスする場合に、ファイル管理ノードの識別子により当該プログラムの識別子を判定し、当該プログラムの識別子により、アクセス対象のファイルのファイル管理ノードに登録された識別子に対応して設定されたアクセス権により、ファイルのアクセスを管理するファイルアクセス管理手段とを含むことを特徴とするファイルシステム。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、ファイルシステムに関し、特に、情報処理装置におけるファイルシステムにおいて、アクセス権によるファイル管理機能を有効利用してシステムのセキュリティを高めたファイルシステムに関するものである。

【0002】

【従来の技術】従来、情報処理システムにおいて、ある目的を持ったデータの集まりはファイルとして取り扱われ、データ処理がなされる。ファイルはシステム規模が大きくなると、爆発的に増加する。このため、多くの各種のファイルを統一的に取り扱うための手法が開発されている。例えば、ファイル管理は、情報処理装置で取り扱われる各種のファイルを標準的な方法で統一的に管理し、プログラムが簡便な使い方でファイルに関する処理を効率よく、経済的に行える機能を提供する。このようなファイル管理の機能は、オペレーティングステムの中におけるファイルシステムとして提供される。プログラムは、オペレーティングシステムが提供するファイルシステムのインタフェースを介して、ファイルへの読み出しや書込みを行うことになる。その場合、各々のファイルは、アクセス権によるファイル管理が行なわれ、データ保護，システムの機密保護などが機能できるようになっている。

【0003】例えば、ＵＮＩＸシステムにおけるファイルシステムでは、ファイルからのデータの読み出しは、readシステムコールで行なわれ、また、ファイルへのデータの書き込みは、writeシステムコールで行なわれる（Maurie J Bach著／坂本文・多田好克・村井純　訳“ＵＮＩＸカーネルの設計”，1991年6月10日，共立出版発行，pp51～54，pp82～87などを参照）。

【0004】このようなファイルシステムにおいては、ユーザのファイルアクセスリクエストに対してのファイルへの読み出しや書込みの制御は、ファイルに対するアクセス権で管理されている。ファイルのアクセス権に関する情報はｉノード（ファイル管理ノード）に設けられ、このｉノードにおけるファイル管理情報により管理される。図6はファイル管理ノードであるｉノードの一例を説明する図である。ｉノードは次のようなフィールドから構成される。

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ファイル所有者識別子：　所有者は個人所有者と「グループ」所有者が分け持ち、ファイルにアクセスする権利を持つ所有者を定義する。

ファイルの種類：　ファイルは通常型，ディレクトリ，文字型またはブロック特殊ファイル，ＦＩＦＯ（パイプ）のいずれかである。

ファイルへのアクセス許可：　システムは、ファイルの所有者，ファイルのグループ所有者，その他の利用者の３つの等級に従ってファイル保護を行う。各等級に対して当該ファイルの読出し（ｒ），書込み（ｗ），実行（ｘ）に関するアクセス権を持ち、個々に設定する。例えば、ディレクトリのファイルは、実行できないため、ディレクトリに対する実行許可では、当該ディレクトリの中でファイル名を探す権利を有することを意味する。

ファイルへのアクセス時刻：　ファイルを最後に更新した時刻，最後にアクセスした時刻，ｉノードを最後にアクセスした時刻を示す。

ファイル内のデータにディスクアドレスに関するアドレス表：　利用者はファイル中のデータをバイトの論理ストリームとして扱うが、システムのカーネルはデータを不連続なディスクブロックとして管理する。ｉノードはファイルのデータを含むディスクブロックを識別する。

ファイルの大きさ：　ファイル中のデータは、バイト０から始まるファイルの最初から数えたバイト数でアドレス指定することができる。このファイルの大きさは、ファイル中のデータの最高のバイト変位よりも１だけ大きい。例えば、利用者があるファイルを作成し、ファイルのバイト変位１０００のところに１バイトのデータを書込んだ場合、ファイルの大きさは１００１バイトとなる。

【0005】例えば、図6に示すｉノードの例は、“ＭＪＢ”が所有する通常型のファイルのｉノードの例である。このファイルは６０３０バイトのデータを含んでおり、許可モード（アクセス権）として“ｒｗｘｒ－ｘｒ－ｘ”の９桁の文字データを設定している。ここでの最初の３桁の文字“ｒｗｘ”により、ファイルシステムは所有者“ＭＪＢ”に対して、ファイルの読出し、書込み、実行を許可していることを意味している。また、次の３桁の文字“ｒ－ｘ”により、“ＯＳ”というグループのメンバーに対し、ファイルシステムは当該ファイルの読出しと実行のみを許可していることを意味し、そして、最後の３桁の文字“ｒ－ｘ”により、他の利用者に対して、ファイルシステムは当該ファイルの読出しと実



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行のみを許可することを意味している。。このため、“ＯＳ”というグループのメンバーと他の利用者は、当該ファイルに対して、ファイルの読出しと実行だけが可能であり、書込みはできない。

【０００６】また、ｉノードでは、最終アクセス時刻，最終更新時刻などの時刻情報を保持して、ファイルを管理している。この例のｉノードでは、最後に誰かがこのファイルを読み出したのは１９９０年１０月２３日午後１時４５分であり、最後に誰かがこのファイルに書込みをしたのは１９９０年１０月２２日午後１０時３０分であるという管理情報が保持されている。

【０００７】このように、ＵＮＩＸシステムのファイルシステムでは、各々のファイルに１対１に設けられたファイル管理ノード（ｉノード）を用い、そのファイル管理ノードに当該ファイルのアクセス権，所有者などのファイル管理情報を設定し、当該ファイルを管理している。

【０００８】

【発明が解決しようとする課題】ところで、ファイルシステムでは、上述のように、ファイル管理ノードに設定する当該ファイルのアクセス権，所有者などのファイル管理情報により、当該ファイルが管理されているため、利用者がアクセス権さえ、何らの方法により持てば、同じファイルを複数のプログラムから読み出したり、書込んだりできることになる。このようなファイルシステムを用いて、例えば、データベース管理システムのような特定のプログラムからのみファイルへの読み出しや書込みを行い、一般のプログラムからは読み出しのみしか行えないようなシステムを構成する場合には、上述のようなファイル管理機能では、その対応のプログラムを実現する上で不具合が生ずることになる。

【０００９】本発明は、上記のような問題点を解決するためになされたものであり、本発明の目的は、ある特定のプログラムからのみファイルの読出し，ファイルへの書込みを可能とするファイルシステムを提供することにある。

【００１０】

【課題を解決するための手段】上記の目的を達成するため、本発明のファイルシステムは、各々のファイル対応に設けられるファイル管理ノード（１１；図１）に当該ファイル（１２；図１）のアクセス権を登録し、ファイル管理ノードに登録したアクセス権により、各々のファイルのアクセスを行うファイルシステムにおいて、ファイル管理ノード（１１；図１）に、当該ファイルのプログラムに与える識別子と当該ファイルのアクセス権として更に識別子対応のアクセス権とを登録するアクセス権設定手段（１３；図１）と、プログラムの実行によりファイルをアクセスする場合に、ファイル管理ノードの識別子により当該プログラムの識別子を判定し、当該プログラムの識別子により、アクセス対象のファイルのファイル管理ノードに登録された識別子に対応して設定されたアクセス権により、ファイルのアクセスを管理するファイルアクセス管理手段（１７；図１）とを含むことを特徴とする。

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【００１１】

【作用】ファイルシステムにおいては、各々のファイル対応に設けられるファイル管理ノード（１１）に当該ファイル（１２）のアクセス権を登録し、ファイル管理ノードに登録したアクセス権によって、各々のファイルのアクセス権が管理され、ファイルのアクセス制御が行なわれる。このようなファイルシステムにおいて、アクセス権設定手段（１３）と、ファイルアクセス管理手段（１７）とが設けられる。アクセス権設定手段（１３）は、ファイルを管理するためのファイル管理ノード（１１）に、ファイル管理情報として、当該ファイルのプログラムに与える識別子を設定し、更にファイルのアクセス権として、識別子対応のアクセス権とを登録設定する。これにより、ファイルアクセス管理手段（１７）は、プログラムの実行によりファイルをアクセスする場合、ファイル管理ノードに設定した識別子により当該プログラムの識別子を判定し、当該プログラムの識別子により、アクセス対象のファイルのファイル管理ノードに登録された識別子に対応して設定されたアクセス権を判別し、当該アクセス権の情報に従って、ファイルのアクセスを行うアクセス制御を行う。

【００１２】このように、実行プログラムのファイルからは、プログラム実行にかかるファイルアクセス要求が発行された場合、当該プログラムの識別子が判定され、その識別子に対応して設定されているアクセス権によりファイルアクセス制御が行なわれる。これにより、単にファイル所有者，利用者に対して設定されているアクセス権によるファイルアクセス制御のみでなく、実行プログラムのレベルでのアクセス権でのファイルのアクセス制御が可能となり、ファイル操作，ファイル処理，ファイル管理などシステム構築の自由度が大きくなり、また、システムの安全性を配慮したシステム構成が容易に実現可能となる。

【００１３】

【実施例】以下、本発明の一実施例を図面により具体的に説明する。図１は本発明の一実施例にかかるファイルシステムの要部構成を説明するブロック図である。図１において、１０はファイルシステム、１１は各々のファイル管理ノード、１２は各々のファイルを示している。各々のファイル１２とファイル管理ノード１１とは１対１に対応している。ファイルＡに対してはファイル管理ノードＡが対応し、ファイルＢに対してはファイル管理ノードＢが対応し、また、ファイルＣに対してはファイル管理ノードＣが対応している。ファイル管理ノード１２には自己が管理する該当のファイルにおける実行プログラムに対して、識別子を設定するため識別子フィール



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ド11aと、識別子に応じたアクセス権を設定するための識別子アクセス権フィールド11bが設けられている。

【0014】このようなファイル管理ノード12に対して、識別子，識別子に応じたアクセス権などを個別に設定し、また、設定したファイル管理情報の確認を行うため、ファイル管理ノード編集処理部13が設けられる。このファイル管理ノード編集処理部13の処理機能により、プログラムに対する識別子設定処理14，識別子に応じたアクセス権設定処理15，ファイル管理ノードにおけるアクセス権確認処理16などが行なわれる。

【0015】また、このように設定されたファイル管理ノードにおけるファイル管理情報を用いて、ファイルアクセス処理を行う場合のファイルアクセス制御を行うため、ファイルアクセス処理部17がシステム内に設けられる。

【0016】図2は、ファイルシステムにおけるファイル管理ノードと各ファイルの関係をファイル管理情報のデータ例と共に説明する図である。データファイルのファィル管理ノードの例を図2（A）に示し、実行プログラムファイルのファィル管理ノードの例を図2（B）に示している。各ファイル管理ノードは、従来のファイルシステムにおけるファイル管理ノードと同様に、ファイル所有者，ファイル所有者のグループ，ファイルの最終アクセス時刻，ユーザに応じたアクセス権，ファイルの実体のディスク上の位置を示すディスクのアドレスなどのファイル管理情報を保持しており、ここでは、更に、プログラムに与えられる識別子，プログラムに応じたアクセス権のファイル管理情報が付加される。

【0017】ファイル内容がデータであるファイル21に対するファイル管理ノード20には、ファイル管理情報として、所有者“Ｈａｙａｔａ”，グループ“ＦＸＫＳＰ”，最終アクセス時刻“Ａｐｒ．５　１９９１　１９：００：００”，最終変更時刻“Ａｐｒ．４　１９９１　１２：３０：００”，ユーザに応じたアクセス権“ｒｗｘｒ－ｘｒ－ｘ”，プログラムに応じたアクセス権“（１００ｒｗｘ）（１０１　ｒ－－）（１０２　ｒ－ｘ）”，プログラムに与えられる識誕子“０”，ディスクのアドレス“１２３４５”が設定されている。

【0018】ファイル内容が実行プログラムであるファイル23に対するファイル管理ノード22には、ファイル管理情報として、所有者“Ｈａｙａｔａ”，グループ“ＦＸＫＳＰ”，最終アクセス時刻“Ａｐｒ．３　１９９１　１９：００：００”，最終変更時刻“Ａｐｒ．３　１９９１　１２：３０：００”，ユーザに応じたアクセス権“ｒｗｘｒ－ｘｒ－ｘ”，プログラムに応じたアクセス権“０”，プログラムに与えられる識別子“１００”，ディスクのアドレス“２２３４５”が設定されている。

【0019】この例では、データファイルのファイルA

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（21）に関して、そのファイル管理情報であるプログラムに応じたアクセス権として、“（１００　ｒｗｘ）（１０１　ｒ－－）（１０２　ｒ－ｘ）”が設定されている。この設定のプログラムに応じたアクセス権の意味は、識別子１００のプログラムについては、読出し、書込み、実行を許可し、識別子１０１のプログラムについては、読出しのみを許可し、また、識別子１０２のプログラムについては、読出し、実行を許可し、書込みは許可しない。それら以外のプログラムについては、読出しも、書込みも、実行も許可しないことを意味している。なお、ファイルＡの識別子フィールドは“０”となっており、実行形式ファイルの実行プログラムファイルでないため、ファイルＡには識別子は与えられていない。

【0020】また、実行プログラムファイルのファイルＢに関しては、そのファイル管理情報であるプログラムに与えられる識別子として“１００”が設定されており、このファイルＢにおけるプログラムには識別子１００が与えられることを示している。また、ファイルＢは、データファイルではないので、プログラムに応じたアクセス権のファイル管理情報は設定されておらず、当該フィールドの各々の識別子に応じたアクセス権の情報は与えられていない。

【0021】図3は、ファイル管理ノードのファイル管理情報を用いてファイルアクセス時に行なわれるアクセス権チェック処理の一例を示すフローチャートである。この処理は、ファイルアクセス処理部（17；図1）により行なわれる。このアクセス権チェック処理では、まず、ステップ31において、実行プログラムファイルに対するファイル管理ノードを得ると、次に、ステップ32において、ファイル管理ノードからプログラムに与えられた識別子ＩＤを得る。次に、ステップ33において、読み出し対象ファイルのファイル管理ノードを得る。そして、次のステップ34において、ファイル管理ノードからプログラムに応じたアクセ権データＡを読み出す。次に、ステップ35において、読み出したアクセス権データＡの中からプログラム識別子ＩＤに対応するアクセス権ＡＣを得る。そして、次のステップ36において、アクセス権ＡＣの内容の判別を行い、アクセス権に応じたアクセス処理を行う。すなわち、アクセス権ＡＣにｒｅａｄ許可がある場合には、当該ファイル読出しが可能なので、リターン処理を行い、ファイルアクセスを行っているＲＥＡＤシステムコールのメインルーチンに戻る。アクセス権ＡＣにｒｅａｄ許可がない場合には、当該ファイル読出しが不可なので、エラーリターン処理を行い、ファイルのリードエラー処理を行う。

【0022】このようにして、プログラムの実行中にファイルがアクセスがなされた場合、当該実行プログラムに与えられている識別子を対応のファイル管理ノードから得て、この識別子よりアクセス対象のファイル管理ノードから、識別子対応のアクセス権（プログラムに応じ



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たアクセス権）を得て、このアクセス権により、ファイルアクセスを行うファイル管理を行う。これにより、アクセス権情報によるアクセス管理は、単にファイル所有者，利用者に対して設定されているアクセス権によるファイルアクセス制御のみでなく、実行プログラムのレベルでのアクセス権でのファイルのアクセス制御が可能となる。また、ファイル処理，ファイル操作にかかるシステム構築の自由度が大きくなり、システムの安全性を配慮したシステム構成が容易に実現可能となる。

【００２３】次に、このようなファイルシステムに用いられるファイル管理ノードにおけるファイル管理情報を設定し、確認するための処理機能要素について説明する。前述したように、ここでは、ファイル管理ノードに対して、識別子，識別子に応じたアクセス権などを個別に設定し、また、設定したファイル管理情報の確認を行うため、ファイル管理ノード編集処理部（１３；図１）が設けられている。このファイル管理ノード編集処理部の各々の処理機能により、プログラムに対する識別子設定処理，識別子に応じたアクセス権設定処理，ファイル管理ノードにおけるアクセス権確認処理などが行なわれる。

【００２４】図４はファイル管理ノードに対するプログラム識別子設定処理を示すフローチャートであり、また、図５はファイル管理ノードに対するプログラム対応のアクセス権設定処理を示すフローチャートである。例えば、図４に示すファイル管理ノードに対するプログラム識別子設定処理では、まず、ステップ４１において、ファイル名から対応するファイル管理ノードを得て、次のステップ４２で、このファイル管理ノードに対してプログラムに与える識別子をセットする。具体的には、例えば、ファイル毎のファイル管理ノードに、当該ファイルの識別子を設定する手続き関数として、次のような関数形式のプログラムset_idを作成して実行する。

set_id(ファイル名，識別子)

set_idは、実行プログラムであるファイル名ならびに識別子を引数としてとり、指定したファイル名のファイル管理ノードに指定した識別子を書き込む処理を行う手続き関数である。

【００２５】また、図５に示すファイル管理ノードに対するプログラム対応のアクセス権を設定する処理では、まず、ステップ５１において、ファイル名から対応するファイル管理ノードを得て、次のステップ５２において、このファイル管理ノードに対して、識別子とそれに応じたアクセス権データをセットする。具体的には、例えば、ファイル毎のファイル管理ノードに対し、識別子（プログラム）に応じたアクセス権を設定する手続き関数として、次のような関数形式のプログラムchapmodを作成して実行する。

chapmod(ファイル名，識別子，アクセス権)

chapmodは、ファイル名，識別子ならびにアクセス権を



引数として取り、指定したファイル名に対応するファイル管理ノードに、指定した識別子に応じとそれに対応したアクセス権の情報を書き込む処理を行う手続き関数である。

【００２６】また、ファイルアクセスを行う上でのファイル毎の各々の識別子に応じたアクセス権を確認する機能コマンドは、ファイルの読出し，書込みなどのファイルアクセスを行うreadや、writeなどのシステムインタフェース機能を用いることにより実行する。すなわち、システムにおけるファイルインタフェース機能を用いて、従来からユーザ対応に設定したアクセス権の確認処理と同様にして、プログラム（識別子）に対応して設定したアクセス権の確認を行う。

【００２７】以上説明したように、本実施例のファイルシステムによれば、実行プログラムのファイルに識別子を与えて、当該ファイルのプログラムに対応する識別子を設定しておき、また、アクセス対象のデータのファイルには、識別子に応じたアクセス権を与えておく。これにより、プログラム実行により、データファイルへのアクセスが行なわれる場合、実行プログラムのファイルに設定された識別子により、プログラムに設定された識別子を判定し、この識別子に基づいて、データファアルの識別子対応のアクセス権を判定する。そして、このアクセス権によりファイルアクセス制御を行う。これにより、ファイル管理を、ユーザレベルだけでなく、プログラムレベルにおいても同様に行うことができる。また、プログラム毎に一意の識別子を与えることにより、特定のプログラムからのみのアクセスの制御を可能とするファイルが実現できる。

【００２８】

【発明の効果】以上に説明したように、本発明によれば、実行プログラムのファイルからは、プログラム実行にかかるファイルアクセス要求が発行された場合、ファイル管理ノードから当該プログラムの識別子が判定され、データファイルのファイル管理ノードにその識別子に対応して設定されているアクセス権によりファイルアクセス制御が行なわれる。これにより、単にファイル所有者，利用者に対して設定されているアクセス権によるファイルアクセス制御のみでなく、実行プログラムのレベルでのアクセス権でのファイルのアクセス制御が可能となる。また、ファイル操作，ファイルの管理などのシステム構築の自由度が大きくなり、システムの安全性を配慮したシステム構成が容易に実現可能となる。

【図面の簡単な説明】

【図１】　図１は本発明の一実施例にかかるファイルシステムの要部構成を説明するブロック図、

【図２】　図２はファイルシステムにおけるファイル管理ノードと各ファイルの関係をファイル管理情報のデータ例と共に説明する図、

【図３】　図３はファイル管理ノードのファイル管理情



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報を用いてファイルアクセス時に行なわれるアクセス権チェック処理の一例を示すフローチャート、

【図４】　図４はファイル管理ノードに対するプログラム識別子設定処理を示すフローチャート、

【図５】　図５はファイル管理ノードに対するプログラム対応のアクセス権

【図６】　図６はファイル管理ノードであるｉノードの一例を説明する図である。

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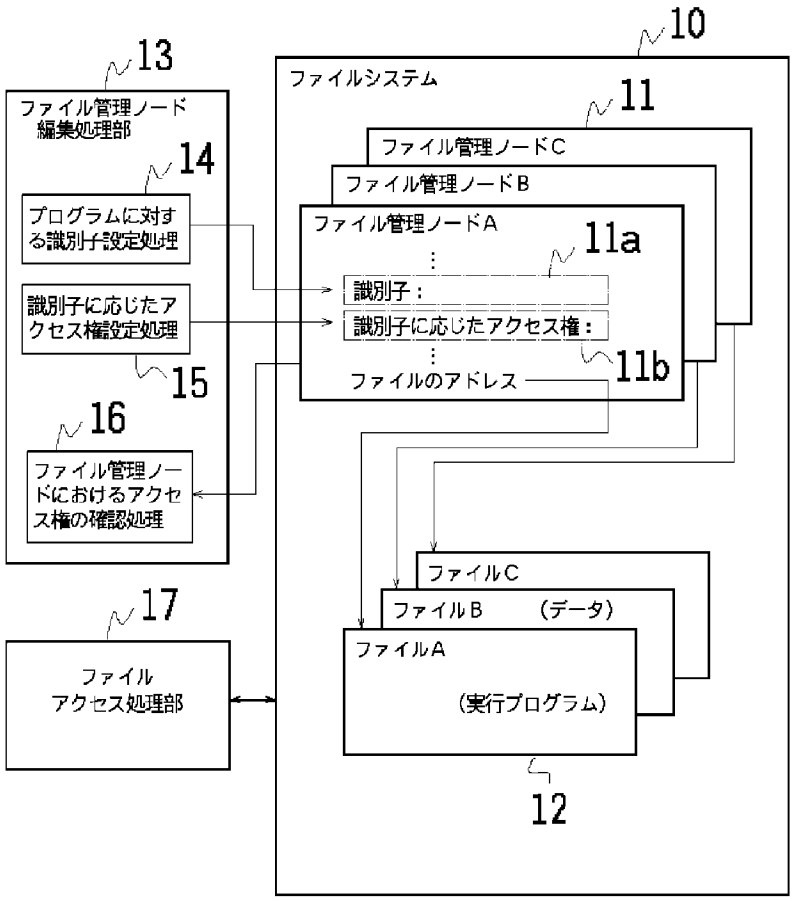
【符号の説明】

１０…ファイルシステム、１１…ファイル管理ノード、１１ａ…識別子フィールド、１１ｂ…識別子アクセス権フィールド、１２…ファイル、１３…ファイル管理ノード編集処理部、１７…ファイルアクセス処理部、２０…ファイル管理ノードＡ、２１…ファイルＡ（データファイル）、２２…ファイル管理ノードＢ、２１…ファイルＢ（実行プログラムファイル）。

【図１】

図1



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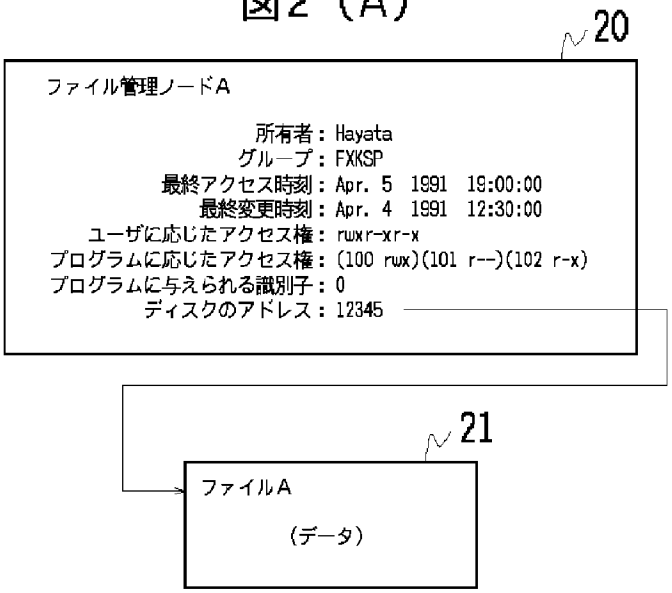
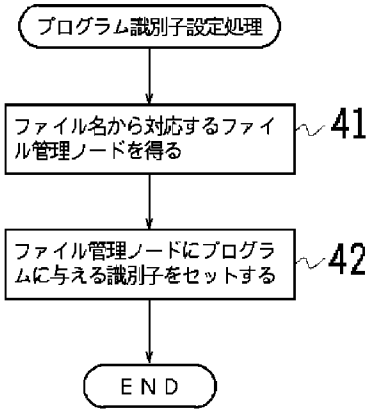
【図２】

図２（Ａ）



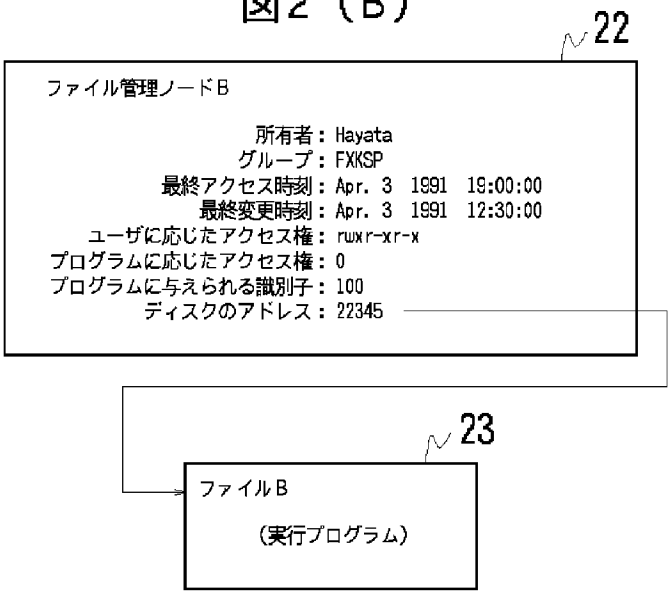

【図４】

図４



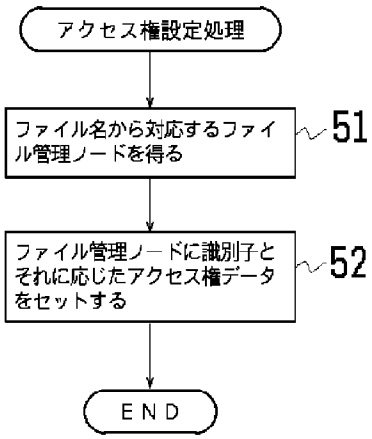

【図２】

図２（Ｂ）




【図５】

図５



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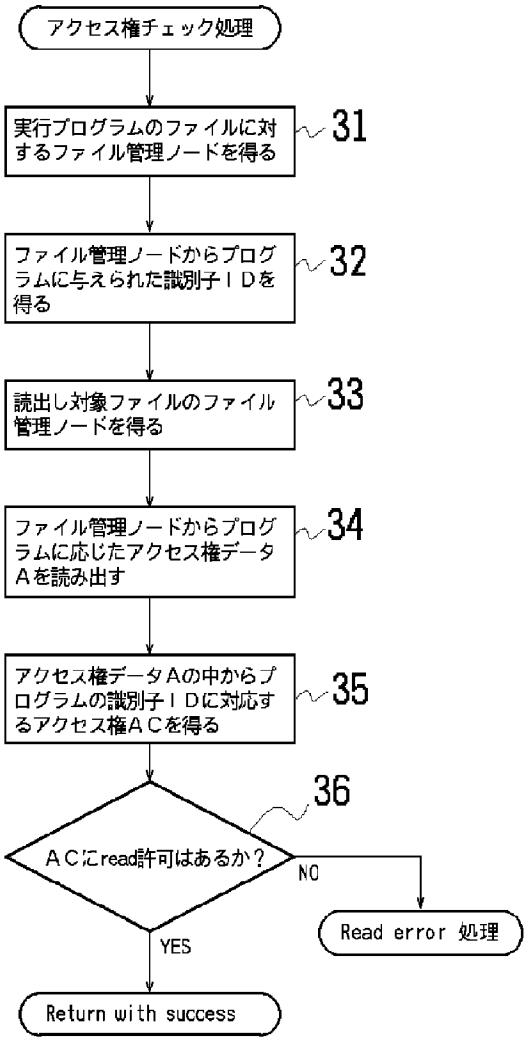
【図３】

図３



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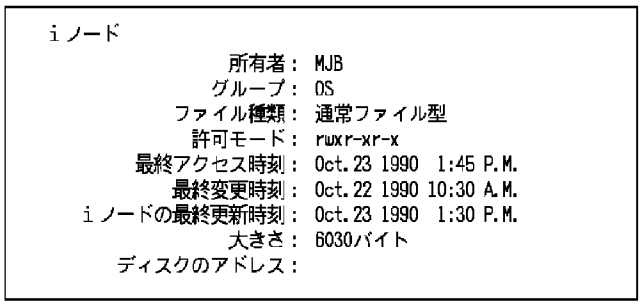
【図６】

# 図6



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# Digital watermarking

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## ABSTRACT

This paper presents a process able to mark digital pictures with an invisible and undetectable secrete information, called the watermark. This process can be the basis of a complete copyright protection system.
The process first step consists in producing a secrete image . The first part of the secret resides in a basic information that forms a binary image. That picture is then frequency modulated. The second part of the secret is precisely the frequencies of the carriers. Both secrets depends on the identity of the copyright owner and on the original picture contents. The obtained picture is called the stamp.
The second step consists in modulating the ampitude of the stamp according to a masking criterion stemming from a model of human perception. That too theoretical criterion is corrected by means of morphological tools helping to locate in the picture the places where the criterion is supposed not to match.
This is followed by the adaptation of the level of the stamp at that places. The so formed watermark is then added to the original to ensure its protection.
That watermarking method allows the detection of watermarked pictures in a stream of digital images, only with the knowledge of the picture owner's secrets.

**Keywords:** copyright protection, watermark, secrete key, masking, human vision model, perceptive components, morphology, robustness, detection, correlation.

## 1 GENERAL INTRODUCTION

With the increasing availability of digitally stored information and the development of new multimedia services, security questions are becoming even more urgent. The acceptance of new services depends on whether suitable techniques for the protection of the work providers' interests are available.[1]

Moreover the nature of digital media threatens its own viability:

- First the replication of digital works is very easy and, what is more dangerous, really perfect. The copy is identical to the original.

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- The ease of transmission and multiple uses is very worrying, too. Once a single pirate copy has been made, it is instantaneously accessible to anyone who wants it, without any control of the original picture owner.
- Eventually the plasticity of digital media is a great menace. Any malevolent user *(a pirate)* can modify an image at will. Such maniplations are really easy for a pirate and put many copyright protection methods at risk.

According to these considerations the conception of a copyright protection system is really vital and it constitutes a great challenge, because it should cope with all these threats. Without watermarking, most authors will not dare to broadcast their work.

This paper presents an additive watermarking technique. It consits in producing a synthetic picture (also called the stamp) which holds informations about the ownership of the original image and depends on the picture contents. That stamp is added to the original in a way that resulting picture is perceptually identical to the original one and so that the stamp is indetectable by a pirate computer. The aim of that technique is not the authentication of the picture content nor the identication of the owner. It is to allow a controller (i.e. the owner's computer or a Trusted Third Part) to find out watermarked pictures in a stream of images with the knowledge of the owner's secret key in order to detect broadcast of illegal copies.

The most interesting part of that method is the embedding process i.e. the weighting of each pixels of the stamp before adding it to the original. This is based on the masking concept coming from a model of human vision (the perceptive model). From this concept was deduced a method which reveals itself actually efficient. Another interesting part is the presentation of two methods used for the detection of watermarked pictures without the original. This last point is fundemental for the management of the copyright protection.
Eventually this paper ends with the analyse of the results and the system robustness.

# 2 THE MASKING

## 2.1 Introduction

The aim of a watermarking technique is to provide an invisible embedding of a secrete information, the watermark. This watermark must be masked (hidden) by the picture it is inlayed in. Precisely a master thesis has lead to a masking criterion deduced from physiological and psychophysic studies.[2] Nevertheless, this theoretical criterion having been formulated for monochromatic signals, it had to be adaptated to suit real images.

## 2.2 The perceptive model: approximation of the eye functionment

It is now admitted that the retina of the eye splits an image in several components. These components circulate from the eye to the cortex by different tuned channels, one channel being tuned to one component.

The characteristics of one component are:

- the location in the visual field (in the image).
- the spatial frequency (in the Fourier domain: the amplitude in polar coordinates).
- the orientation (in the Fourier domain: the phase in polar coordinates)

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So, one perceptive channel can only be excited by one component of a signal whose characteristics are tuned to its. Components that have different characteristics are independent.

## 2.3 The masking concept

According to perceptive model of human vision,[3] signals that have same (near) components take the same channels from the eye to the cortex. It appears that such signals interact and are submitted to non-linear effects. The masking is one of those effects.

**Definition:** *the detection threshold* is the minimum level below which a signal can not be seen.

**Definition:** *the masking* occurs when the detection threshold is increased because of the presence of another signal.

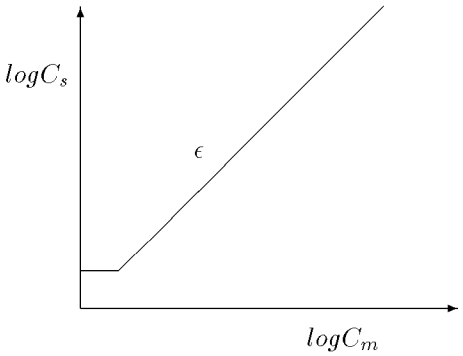
In other words, there is masking when a signal can not be seen because of another with near characteristics and at a higher level.

## 2.4 The masking model

With the object of modalizing the masking phenomenon, tests have been made on monochromatic signals, also called *gratings.* It appears that the eye is sensitive to the contrast of those gratings. This contrast is defined by:

$$C = \frac{2(Lmax - Lmin)}{Lmax + Lmin} \tag{1}$$

where L is the luminance.
It is possible to determine experimentally the detection threshold of one signal of contrast $C_s$ with respect to the contrast $C_m$ of the masking signal. That threshold can be modalized as follows:




Such bilogarithmic curves are traced for signals of one single frequency and one orientation ($f_0$, $\theta_0$).
The expression of the detection threshold is thus:

$$C_s = max[C_0, C_0(\frac{C_m}{C_0})^{\epsilon}] \tag{2}$$

where $\epsilon$ (the slope) depends on ($f_0$, $\theta_0$), typically, $0.6 \leq \epsilon \leq 1.1$.

It is possible to extend that expression to introduce frequency dependence. The general expression of the detection threshold is becomes:

$$C_s(C_m, f, \theta) = C_0 + k_{(f_0,\theta_0)}(f, \theta)[C_{s\,(f_0,\theta_0)}(C_m) - C_0] \tag{3}$$

where:

$$k_{(f_0,\theta_0)}(f, \theta) = exp[-(\frac{log^2(\frac{f}{f_0})}{F^2(f_0)} + \frac{(\theta - \theta_0)^2}{\Theta^2(f_0)}] \tag{4}$$

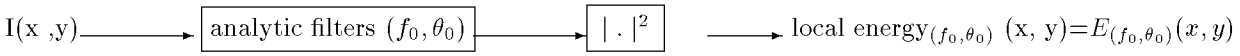
In that expression, $f_0$ and $\theta_0$ are relevant to the masking signal, $f$ and $\theta$ are relevant to the masked signal, $F(f_0)$ and $\Theta(f_0)$ are parameters that represent the spreading of the Gaussian function, $C_0$ is often negligable. The spread of the gaussian function depends upon the frequency $f_0$: For frequency, typical bandwith at half response are 2,5 octaves at 1 c/d and 1,5 octaves at 16 c/d with a linear decrease between both frequencies.[4] For orientation, half bandwith at half response depends on $f_0$ and it takes typical values like 30 degrees at 1 c/d and 15 degrees at 16 c/d.[5]

After this expression, the frequency dependence of the detection threshold has a Gaussian form. Only near frequency signals can interact. When the frequency of the masking signal (the mask) is far from this of the signal to mask, the detection threshold is almost equal to $C_0$.

## 2.5 The masking criterion

It is important to notice that those results concern only gratings signals. To deduce a masking criterion that will apply to signals like real images, the preceding masking condition has to be adaptated. So, it is necessary to define a new concept able to take the place of the contrast, because the contrast is not define for real images. That new concept,[2] is the *local energy*.

The local energy is defined on narrowband signals centered around one frequency and one orientation. A picture which is a broadband signal is first filtered by Gabor narrowband filters, whose characteristics are near to human perception. The local energy around one frequency and one orientation is calculated following the scheme presented in this figure:




**The masking criterion:** If the local energy of one picture is less than the local energy of the mask, around all the frequencies $(f_0, \theta_0)$ and for each pixel (x, y), then one can say that the picture is masked by the mask. Strictly, a picture is masked by a mask if $\forall(x, y)$ and $\forall(f_0, \theta_0)$, $E_{mask,(f_0,\theta_0)}(x, y) \geq E_{picture,(f_0,\theta_0)}(x, y)$. For real images, a good approximation of this criterion can be obtained by using a bank of filters whose central frequencies correspond to independent components and which are spread on all the Fourier space. It is admitted that 4 or 5 frequencies and 4 to 9 orientations are sufficient. The standard choice is twenty filters (5 frequencies and 4 orientations).

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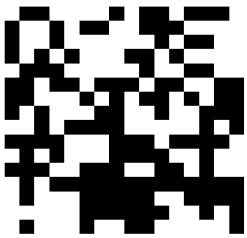

Figure 1: Example of basic information used

### 2.6 Conclusion

This section has lead to the expression of an easily implementable masking criterion appliable to any image. But this criterion is only an extension of a theoretic criterion appliable to monochromatic signals. Thus cases where that criterion does not match are possible.

## 3 PRINCIPLE OF THE SYSTEM

### 3.1 Basic information of the watermark

This information is a binary picture looking like a modified checkerboard (figure 1). As explained later, the pixels value of the square forming that picture can correspond to a binary sequence deduced from the copyright owner's (CO) *secrete key*.

### 3.2 The stamp

In order to take advantage of the eye behaviour, the basic information is modulated at different frequencies and orientations corresponding to rather independent components. Moreover, we take care to filter the initial checkerboard with a low pass filter (LPF) (i.e. a Butterworth LPF) so that the resulting signal is bandlimited. This point is very important because it permits to limit the verification of the masking criterion in the coresponding channel.
The position of the modulating carriers is *secret*. It can be deduced from CO's secret key. In practice, the frequency plan is divided into sectors. Each sector is relevant to one perceptive component and defined a group of couples $(f, \theta)$ where basic information can be modulated. Only one couple is chosen for each sector (because couples of a same sector don't stimulate independent components). The picture obtained from the sum of each modulated grid is called *the stamp* $S(x, y)$.

$$S(x,y) = \sum_{j \in K} G(x,y).cos(f_{x_j}.x + f_{y_j}.y) \tag{5}$$

K represents the set of sectors and $(f_{x_j}, f_{y_j})$ correspond to the couple chosen in sector j ( this couple is designed by the CO's secrete key).

### 3.3 The position of the process in a global copyright scheme

The process should be placed in a copyright protection scheme like drawn at figure 2.
The skeletization function consists in an image processing program extracting essential characteristics from an image. The result is a bitsteam. This must be followed by a *hash-function*[6] whose result is a succession of blocks of bits. Every block has the same length. The skeletization function gives the same result for two near images (i.e. original image and watermarked image). But the H-function always gives different results from different bitstreams as inputs. So, the inscription keys will be different for perceptually distinct pictures. After the H-function, the ciphering function is a trapdoor function.[6] Thanks to this function the inscription keys used to deduce the basic grid and the position of the carriers depends on the CO's secret key.
The aim of the use of a trapdoor function is to prevent someone from reproducing the same inscription keys with the knowledge of the H-function result. But it is possible for anyone to inverse that trapdoor function and to find the H-function result from the inscription keys. It can be interesting in a proof procedure.

## 4 IMPLEMENTATION

### 4.1 Inscription

The purpose of the inscription is to adapt the level of each part of the stamp ( for all frequencies ) to make it invisible once added to the picture. As mentioned above, each part of the stamp is narrow band. Inscriptions at different frequencies are thus independent and one can treat the different components of the stamp one at a time. For each frequency designed by the inscription keys, the procedure is divided in three steps : the modulation, the regulation of the level and the correction.

- Modulation

  The first step consists in the modulation of the particular carrier by the lowpass grid $G(x, y)$. The result is $G(x, y).cos(f_{x_j}.x + f_{y_j}.y)$, where $f_{x_j}$ and $f_{y_j}$ are the carrier position.

- Regulation of the level

  According to the perceptual model, in order to guarantee the invisibility of the watermark its local energy has to be inferior to the picture local energy for each pixel around the inscription frequency. A way to reach this objective is to multiplicate the modulated grid by a weighting mask $Weight_j(x, y)$ reducing the amplitude of the stamp where energy in the correponding component of the original picture is weak. Nevertheless, one must take care to keep the narrow band characteristic of the resulting signal $S_j(x, y)$ $(= Weight_j(x, y).G(x, y).cos(f_{x_j}.x + f_{y_j}.y))$ in order to avoid non linear interactions between different parts of the stamp. In conclusion, $\forall j$, we have to find a signal $Weight_j(x, y)$ so that:

  - $\forall(x, y)\ E_{S_j}(x, y) < E_{I,(f_{xj},f_{xj})}(x, y)$
  - $S_j$ is narrow band

  For simplification, lets consider $Weight_j(x, y)$ be composed of two factors:

  - $\alpha_j$, a constant factor (fixing the global level of the stamp).
  - $M_j(x, y)$, a mask whose values $\in [0, 1]$.

  When $\alpha_j$ is chosen, the way to find $M_j(x, y)$ so that $Weight_j(x, y)$ satisfy the conditions defined above is the following:

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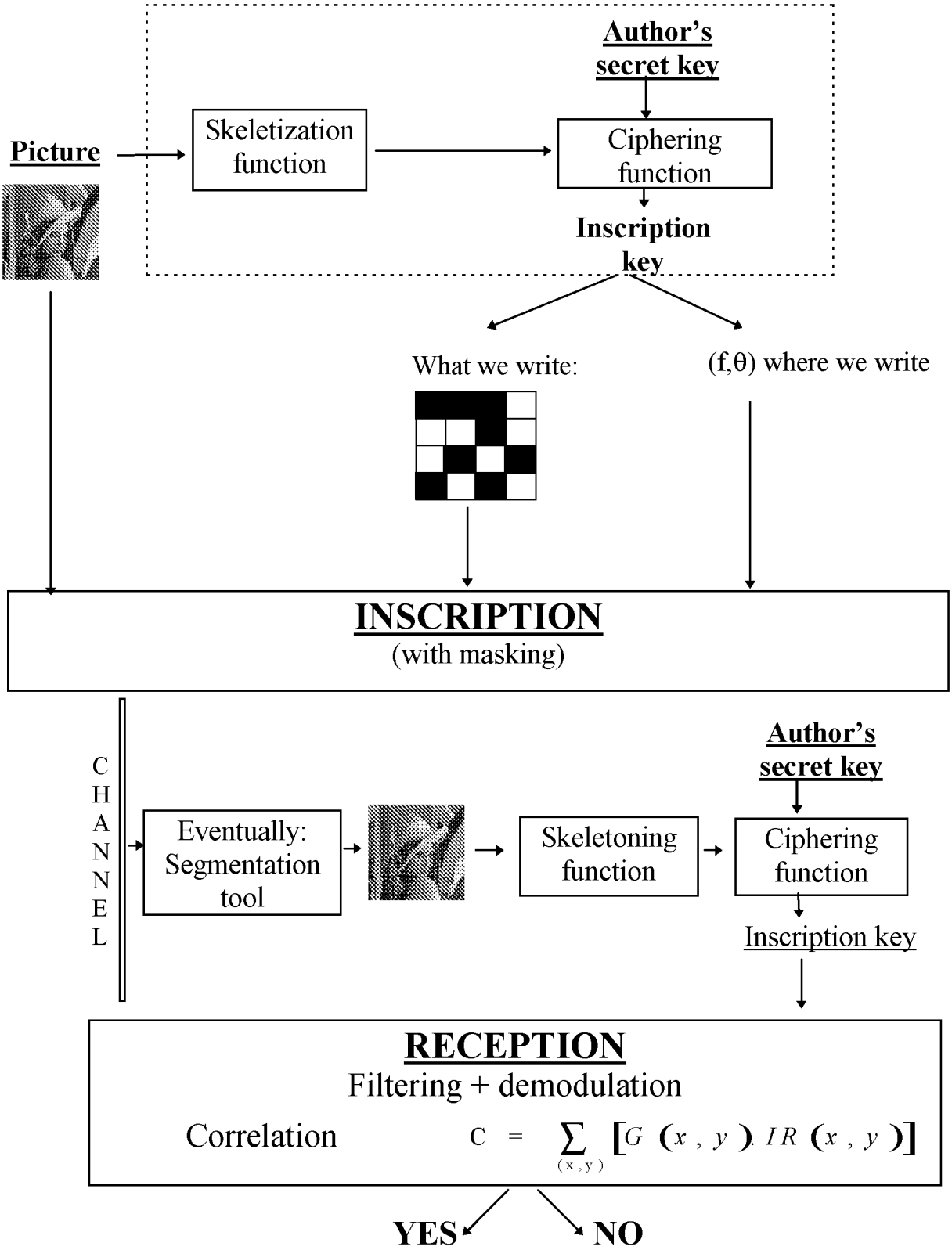
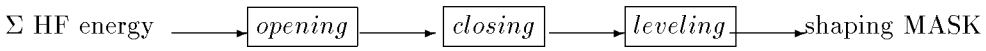



Figure 2: Global scheme for copyright protection.

- Firstly, $M_j(x,y)$ is a binary mask. $M_j(x,y) = 1$ when the local energy of the stamp pemits the masking and $M_j(x,y) = 0$ when the local energy of the stamp is too important. It is obvious that the initial choice of $\alpha_j$ has a direct influence on $M_j(x,y)$. Indeed, a great $\alpha_j$ value will lead to put most of the $M_j(x,y)$ values to zero, while a small $\alpha_j$ value will lead to keep most of $M_j(x,y)$ values at one.
- Secondly, $Weight_j(x,y)$ is filtered so that the stamp remains narrow band.
- After this second step, one has found a signal $\alpha_j.M_j(x,y).G(x,y)$ which is better masked than $\alpha_j.G(x,y)$. In order to really satisfy the masking criterion $\forall(x,y)$, this procedure must be repeated iteratively, taking $M_j(x,y).G(x,y)$ as new $G(x,y)$. Experiments have shown that only two iterations are sufficient to have a result satisfying the masking criterion everywhere.

**One important question remains: how to choose $\alpha_j$?**
It has already been said that the more $\alpha_j$ increases, the more $M_j(x,y)$ has points equal to zero. A trade off has to be found by means of a defined criterion. Maximizing the correlation at the detection (by maximizing $\sum \alpha_j.M_j(x,y).G(x,y)$) could have been a good criterion, but such a criterion often tends to impose an optimum with a lot of points equal to zero and a small number of points with a great value. The addition of the so obtained watermark generally entails a degradation of the picture quality. This emphasizes the lack of the masking criterion used.
As mentioned in section 2.6, the invisibility criterion used here is an extension for real images. It appears that this extension entails some imperfections. This criterion being insufficient, some improvements have been brought thanks to experimental results.

The conclusion of these observations is that the invisibility is only strictly observed in high activity regions, where the local energy of high fequencies is important. These regions have to be favoured during the inscription in the sense that the level of the watermark will be increased in those regions while it has to be decreased in other regions.
The correction process first isolates the high activity regions (figure 3.a). Then, an homogeneization of this picture is performed by use of morphological tools, e.g. one opening and one closing (figure 3.b). After a leveling (in fact, a division by the mean or mean square value of the homogenized mask), we obtain a new mask used to multiply the picture local energy and so, giving an advantage to regions of highfrequency energy in comparison with other areas. After that correction, the process is identical to the one described previously. Moreover, the complexity is not increased. Indeed, we first work on the inscription at high frequencies (where there is no quality problems). The value of high frequency local energy is then used for the calculation of the correcting mask used for inscription at lower frequencies. The correction scheme is drawn in the following schema.




## 4.2 Detection

The aim is to detect if a watermark has been embedded. This can be done with the use of a correlation, but first it is necessary to isolate the watermark and then to demodulate it in order to reconstruct something that is highly correlated with the basic information (the grid).
The formulation of the watermark is:

$$W(x,y) = \sum_{j \in K} A_j.cos(f_{x_j}.x + f_{y_j}.y) \tag{6}$$

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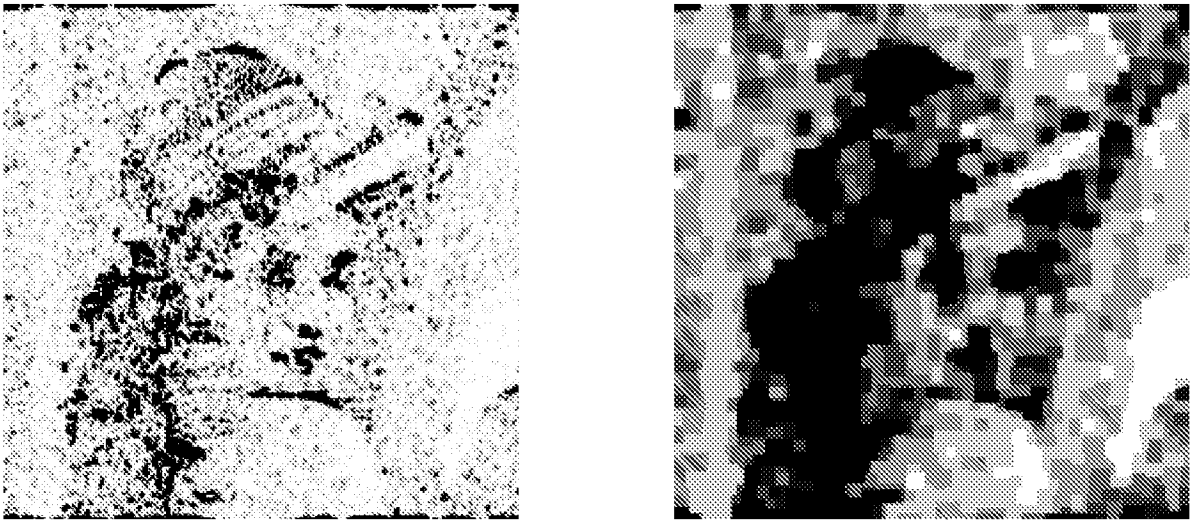

(a) (b)

Figure 3: Correcting mask for Lena: (a) Areas of high frequencies, (b) Morphological homogeneization of the mask.

$$where A_j = \alpha_j.G(x,y).M(x,y) \tag{7}$$

In this expression, $M(x,y)$ adjusts the level of the grid in order it becomes invisible, it is called *a mask*, and its maximal value is one.
$\alpha_j$ is a constant that used to normalize the mask, it must be as high as possible.

The detection is divided in three steps : teh demodulation, the correlation and the decision.

- Demodulation

$$I_W(x,y) = \sum_{j \in K} A_j.cos(f_{x_j}.x + f_{y_j}.y) + I_O + N(x,y) \tag{8}$$

where $I_W(x,y)$ is the watermarked picture, $I_O(x,y)$ is the original picture and $N(x,y)$ is an additive noise from the channel.

The demodulation consists in multiplying $I_W$ by $cos(f_{x_j}.x + f_{y_j}.y), \forall j \in K$ and then to filter with a LP filter.
The result will be :

$$D_j(x,y) = \frac{1}{2}.A_j(x,y) + N^\star(x,y) \tag{9}$$

$N^\star(x,y)$ depends on the image and on the additive noise. The other parts of the stamp will be eliminated by the LP filter.

- Correlation It consists in mutiplying the demodulated information $D(x,y) = \sum_{j \in K} D_j(x,y)$ with the basic grid $G(x,y)$. If the picture has not been too deteriorated, $D(x,y)$ and $G(x,y)$ should be similar.

$$C = \sum_{j \in K} \sum_{x,y} D_j(x,y).G(x,y) \tag{10}$$

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$$= \sum_{j \in K} \alpha_j \sum_{x,y} [G^2(x,y).M_j(x,y) + G(x,y).N^\star(x,y)] \quad (11)$$

In 11, the first term is even greater than the second, because G and $N^\star$ have null average values.
So C exclusively depends on the watermark value.
in the case the grid is not the good one, the correlation gives:

$$C^\star = \sum_{j \in K} \alpha_j \sum_{x,y} G(x,y).G^\star(x,y)..M_j(x,y) \quad (12)$$

$C^\star \ll C$ if the choice of the basic information has been appropriate.

- decision

  The detection algorithm performs demodulations and correlations at diverse frequencies and with diverse grids.The decision is made after the comparison of these correlations.

# 5 RESULTS

The first and probably mosty important result is the invisibility of the stam in all images that were tested. Figure 4.a and b compares the original and stamped picture for Lena. In figure 4.e, omne observes the watermark that was added to the original picture.

Two methods were used to determine whether an image is watermarked or not. The first one consists in comparing the result of $C$ the correlation made with the right grid $G(x,y)$ from the right key with $C^\star$ the correlation made with $G^\star(x,y)$, the grid obtained by random keys see 12. If the picture is watermarked, the correlation with the right key is even greater than the random correlations. The results below (Figure 5) show the pertinence of this method.

The second method uses a grid $G(x,y)$ formed from a MLS sequence, having good correlation properties. Correlations are made with shifted versions of the basic grid. Due to these good correlation properties, the correlation with the the right grid gives a result even greater than the correlations with shifted grids. Results are presented below (figure 4.c and d), if a picture is watermarked, a pick appears in the center.

# 6 SYSTEM ROBUSTNESS

Many tests have been performed concerning usual pictures deteriorations in image processing like blurring and compression. The inspection of these results are quite satisfying, but expected due to the frequency approach. For all classical pirate attacks like zoom, cropping, overwatermarking it is not as simple. The overwatermarking makes no problem, the presence of the watermark is still detected. But for zoom and cropping, the remaing point is to find a few tools permitting to complete the process. The concept of these tools is already defined but yet no implementation has been acheived.[7]

# 7 CONCLUSION

The process developed here allows the watermarking of the ownership of any picture. The perceptual approach used here is probably the best one, that is why the results obtained are so satifying compared with other methods and this method is so performant. Nevertheless studies are still running to achcive a new goal, consisting in

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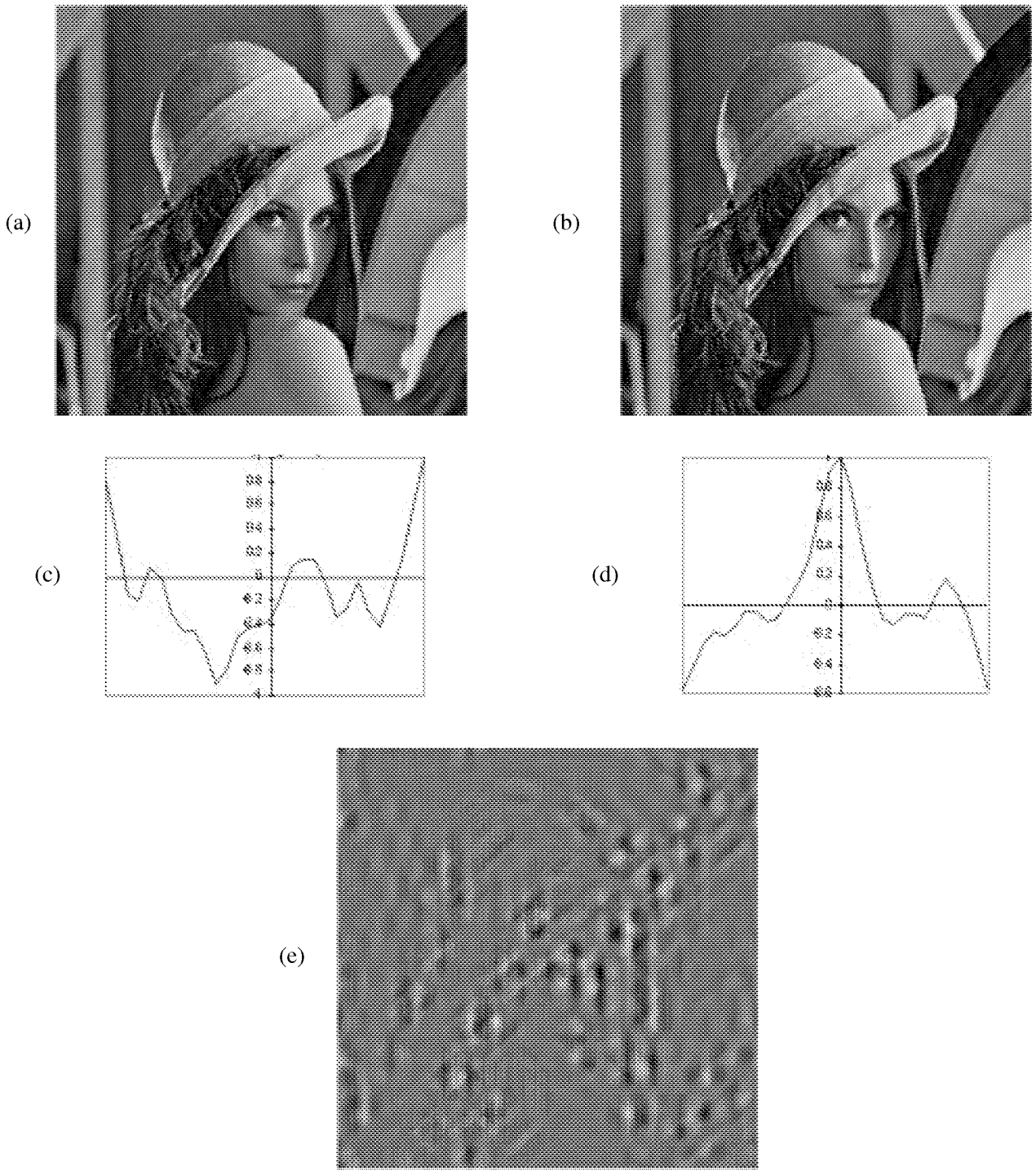


Figure 4: Results for Lena: (a) Original, (b) Watermarked one, (c) Correlation grafic for original, (d) Correlation grafic for watermarked, (e) Watermark.

| Image Name | Optimal correlation | Random correlation 1 | Random correlation 2 | Random correlation3 | Random correlation 4 | Conclusion |
|---|---|---|---|---|---|---|
| **Lena watermarked** | **584609** | 92605 | 133920 | 80534 | 143633 | *watermarked* |
| **Lena original** | 94538 | 98099 | 135492 | 76739 | **137120** | *Non watermarked* |

Figure 5: Results of correlation for Lena and decision.

making more information (e.g. ownership, date of marking) readable by the key owner from the watermark. This could be useful for real copyright protection protocols[8].[9]

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

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| Application Number | 10956070 |
| Filing Date | 2004-10-04 |
| First Named Inventor | Mai Nguyen |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325/235000 |

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☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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☒ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

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| Signature | /Marc S. Kaufman, Reg. No. 35,212/ | Date (YYYY-MM-DD) | 2008-11-04 |
| Name/Print | Marc S. Kaufman | Registration Number | 35,212 |

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| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Marc S. Kaufman/Peaches Thomas |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
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| Application Number | 10956070 |
| Filing Date | 2004-10-04 |
| First Named Inventor | Mai Nguyen |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325/235000 |

**U.S.PATENTS**

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|---|---|---|---|---|---|---|---|---|
| | 1 | 7-36768 | JP | | 1995-02-07 | Sachiyo et al. | | ☐ |

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| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T[5] |
|---|---|---|---|

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| Examiner Signature | | Date Considered | |
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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

# ELECTRONIC FILING DEVICE

**Publication number:** JP7036768
**Publication date:** 1995-02-07
**Inventor:** OTSUKA SACHIYO; SASAKI MASAHIRO
**Applicant:** MATSUSHITA ELECTRIC IND CO LTD
**Classification:**
**- international:** ***G06F12/00; G06F12/14; G06F21/24;*** **G06F12/00; G06F12/14; G06F21/00;** (IPC1-7): G06F12/00; G06F12/14
**- European:**
**Application number:** JP19930175470 19930715
**Priority number(s):** JP19930175470 19930715

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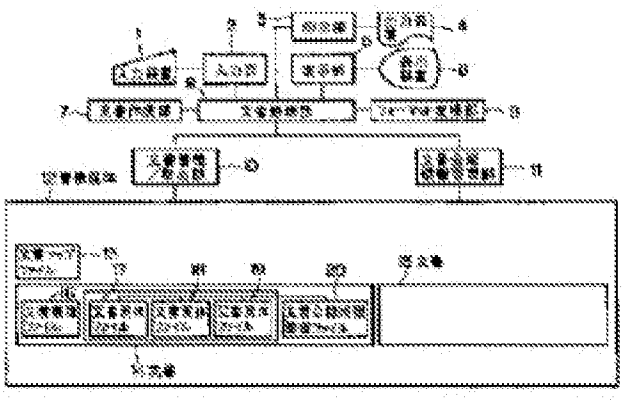
Abstract of **JP7036768**

PURPOSE:To permit any person who owns a right in accordance with respective disclosure level to approach a targeted document without permission or a password and to perform security management in a wide range flexibly by performing a document by attaching disclosure level information and disclosuer information including disclosure destination information. CONSTITUTION:The disclosure information consists of the disclosure level information representing to what degree it can be disclosed and the disclosure destination information representing to whom it can be disclosed. The disclosure information inputted from an input device 1 is sent from an input part 2 to a document processing part 8. and it is delivered from the document processing part 8 to a document disclosure information registration part 11. The document disclosure information registration part 11 retrieves a corresponding document file name from a document map file 13, and furthermore, retrieves a disclosure information managing file name from a document managing file 16, and sets the disclosure information on a corresponding document disclosure information managing file 20. When document disclosure is requested from the input part 1 by a user, the document disclosure information managing part 11 checks the disclosure information by the request of the document processing part 8.



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(19)日本国特許庁（ＪＰ）　(12) **公開特許公報（A）**　(11)特許出願公開番号

**特開平7－36768**

(43)公開日　平成７年(1995)２月７日

| (51)Int.Cl.[6] | | 識別記号 | 庁内整理番号 | ＦＩ | 技術表示箇所 |
|---|---|---|---|---|---|
| Ｇ０６Ｆ | 12/00 | ５３７　Ｍ | 8944－5B | | |
| | 12/14 | ３１０　Ａ | | | |

審査請求　未請求　請求項の数５　ＯＬ　（全 14 頁）

(21)出願番号　特願平5－175470

(22)出願日　平成５年(1993)７月15日

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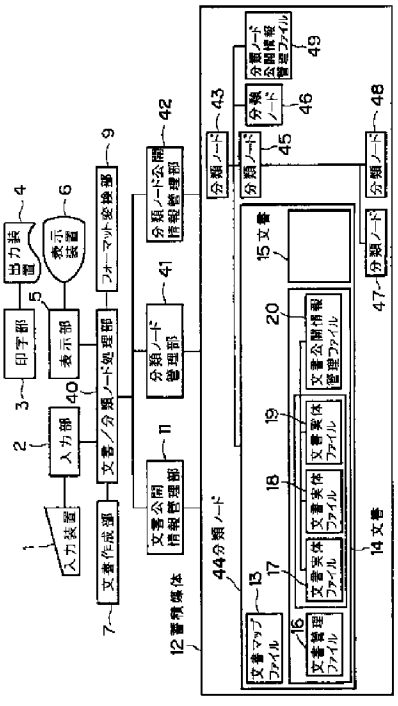
(54)【発明の名称】　電子ファイル装置

(57)【要約】

【目的】　文書および文書を階層的に分類した分類ノードの存在明示の許可、閲覧の許可、複写印刷の許可、登録更新の許可からなる公開レベルおよび公開先を管理するための公開情報管理ファイルを備え、公開情報管理ファイルに設定管理されている情報に従い文書または分類単位で処理を行うことにより、ユーザおよびグループに対して文書または分類ノードの詳細なセキュリティー機構を提供することを目的とする。

【構成】　文書公開情報管理部１１を設け、文書の公開レベルおよび公開先を設定管理することにより、公開レベルに応じて文書を処理し、また、分類ノード公開管理部４１を設け、文書を階層的に分類した分類ノードの管理を行うとともに、分類ノード公開情報管理部４２を設けることにより、分類単位での公開レベルおよび公開先を設定管理し、公開レベルに応じて分類ノードを処理する。



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【特許請求の範囲】

【請求項１】　１以上のファイルで構成された文書ごとに、公開程度を表わす公開レベル情報と公開相手を表わす公開先情報を含む公開情報を付加して管理する手段を備えた電子ファイル装置。

【請求項２】　公開情報を設定、変更可能とした請求項１記載の電子ファイル装置。

【請求項３】　１以上のファイルで構成された文書の蓄積保管および取り出しを管理する文書蓄積／取出部と、蓄積した前記文書の処理の許可レベルとして該当文書の一覧表示の許可、該当文書の内容表示の許可、該当文書の複写印刷の許可、該当文書の内容更新の許可の少なくとも４レベルが設定可能な公開レベル情報と複数の公開先情報からなる公開情報を格納する文書公開情報格納手段と、前記公開情報を設定管理および検査する文書公開情報管理部と、前記文書公開情報管理部の検査結果に応じて文書を処理する文書処理部とを備えた電子ファイル装置。

【請求項４】　１以上のファイルで構成された文書を分類ノードと呼ぶ文書の集合として処理し、前記分類ノードを階層的に設定管理するとともに分類ノード内の文書を管理する分類ノード管理部と、前記分類ノード内の文書の処理の許可レベルとして該当文書の一覧表示の許可、該当文書の内容表示の許可、該当文書の複写印刷の許可、該当文書の内容更新の許可の少なくとも４レベルが設定可能な公開レベル情報および複数の公開先情報からなる公開情報を格納する文書公開情報格納手段と、前記公開情報を設定管理および検査する文書公開情報管理部と、前記分類ノードの処理の許可レベルとして該当分類ノードの一覧表示の許可、該当分類ノードおよび該当分類ノード下の文書の一覧表示の許可、該当分類ノードの複写および該当分類ノード下の文書すべての複写印刷の許可、該当分類ノード下の新規分類ノード作成および新規文書登録の許可の少なくとも４レベルが設定可能な公開レベル情報と複数の公開先情報からなる分類ノード公開情報を格納する分類ノード公開情報格納手段と、前記分類ノード公開情報を設定管理および検査する分類ノード公開情報管理部と、前記文書公開情報管理部および前記分類ノード公開情報管理部の検査結果に応じて文書および分類ノードを処理する文書／分類ノード処理部とを備えた電子ファイル装置。

【請求項５】　公開情報が公開期間情報を含む請求項１から４のいずれかに記載の電子ファイル装置。

【発明の詳細な説明】

【０００１】

【産業上の利用分野】本発明は、セキュリティ機構を有する電子ファイル装置に関するものである。

【０００２】

【従来の技術】近年、オフィス業務の効率化、ペーパーレス化、省スペース化などを目的とする電子ファイル装置は、システム開発以来オフィス内で急速に普及し、そのシステムに対する要求も、使用範囲として専門に文書を入力管理する業務担当者から、個人および一般作業グループへと広がり、運用形態としてもさまざまな業務および文書への適応が求められてきており、文書の共有形態と文書のセキュリ　ティ機構においてもさまざまな運用形態に適合できる機能が要求されている。

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【０００３】このような要求に対応するために、従来の電子ファイル装置では、基本的には文書ごとにパーミッションあるいはパスワード等を設け、文書に対する操作レベルと操作範囲を設定し、文書の保護を実現していた。この場合、文書に対して許される操作のレベルとして、該当の文書に対しての読み出し、書き込みの許可を与えるかどうかという許可レベルを設定し、また、許可レベルを与え得る操作者として、該当の文書の持ち主あるいは持ち主が属しているグループのメンバーあるいは全員などの設定を行なっていた。

【０００４】

【発明が解決しようとする課題】しかしながら、上記の従来の構成では、文書の保護を文書ごとに設けたパスワード等により行なっており、許可レベルが文書の読み出しおよび書き込みのみに限られているため、あるいは許可レベルを与え得る操作者としてユーザおよび単一グループ等に限定されているため、さまざまな運用形態に適合できる柔軟なセキュリティ機構を提供することができないという問題点を有していた。

【０００５】本発明は、このような従来の問題点を解決するもので、文書に対する公開レベルの設定を細かに行なえるようにするとともに、公開先をユーザおよびグループの区別なく複数設定可能とし、柔軟かつ広範囲なセキュリティ機構を備えた電子ファイル装置を提供することを目的とする。

【０００６】

【課題を解決するための手段】上記目的を達成するために、本発明の電子ファイル装置は、１以上のファイルで構成された文書ごとに、公開程度を表わす公開レベル情報と公開相手を表わす公開先情報を含む公開情報を付加して管理するようにしたものである。

【０００７】本発明はまた、１以上のファイルで構成された文書を分類ノードで階層的に管理し、文書と同様に各分類ノードについても公開情報を付加して管理するようにしたものである。

【０００８】本発明はまた、公開情報に公開期間を加えるようにしたものである。

【０００９】

【作用】したがって、本発明によれば、文書を公開レベル情報と公開先情報を含む公開情報を付加して管理することにより、それぞれの公開レベルに対応した権利を有する者であれば、パーミッションやパスワードがなくても誰でも目的の文書に近づくことができ、柔軟で広範囲



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なセキュリティ管理を行なうことができる。

【００１０】また本発明によれば、文書が分類ノードにより階層的に管理されている場合には、分類ノードについても文書と同様に公開情報を付加して管理することにより、より柔軟で極め細かなセキュリティ管理を行なうことができる。

【００１１】さらに本発明によれば、公開情報に公開期間を加えることにより、さらに柔軟で極め細かなセキュリティ管理を行なうことができる。

【００１２】

【実施例】

（実施例１）以下、本発明の実施例について、図面を参照しながら説明する。図１は本発明の第１の実施例における電子ファイル装置の概略構成を示すブロック図である。図１において、１はユーザがデータを入力する入力装置、２は入力装置１を制御する入力部、３は印刷の制御を行なう印刷部、４は印刷を行なう出力装置、５は表示を制御する表示部、６は表示を行なう表示装置、７は文書の作成を行なう文書作成部、８は装置全体の制御を行ない、文書を処理する文書処理部、９は文書処理部８からの指示を受け、文書のフォーマット変換を行なうフォーマット変換部、１０は作成された文書の蓄積保管および取り出しを管理する文書蓄積／取出部、１１は文書の公開情報を設定管理および検査する文書公開情報管理部、１２は文書および各種管理情報の蓄積を行なう蓄積媒体、１３は文書を探し出すための情報を格納する文書マップファイル、１４、１５は複数のファイルによって構成された論理的な集まりを表わす文書、１６は文書を構成するファイル群を管理するための情報を格納する文書管理ファイル、１７、１８、１９は個々の文書を構成する文書実体ファイル、２０は公開先情報および公開レベル情報からなる公開情報を格納する文書公開情報管理ファイルである。

【００１３】以上のように構成された電子ファイル装置について以下その動作を説明する。まず、文書を構成するファイル群が管理されるまでの処理を説明する。ユーザにより作成された文書が入力装置１を通じて入力部２または文書作成部７から文書処理部８へと送られると、文書を構成するファイル群は文書処理部８から文書蓄積／取出部１０を経て蓄積媒体１２に送られる。蓄積媒体１２では、文書蓄積／取出部１０によって図２（ａ）に示す文書管理ファイル１６が作成されて文書管理ファイル名と文書名とが登録され、図２（ｃ）に示す文書マップファイル１３にその文書名および文書管理ファイル名からなる文書マップ情報が登録される。次に、図２（ｂ）に示す文書公開管理情報ファイル２０が作成され、文書管理ファイル１６に文書名と公開情報管理ファイル名と文書実体ファイル名が登録され、その文書に対する構成が管理される。以上のように登録され管理された文書は、文書蓄積／取出部１０によって文書を構成するファイル群が取り出され、文書処理部８を経て表示および印刷などの文書処理が行なわれる。

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【００１４】次に、作成された文書の公開情報の初期設定を行なう場合について説明する。公開情報は、どの程度まで公開してよいかを示す公開レベル情報と、だれ（個人またはグループ）に公開してよいかを示す公開先情報からなる。入力装置１から入力された公開情報は、入力部２から文書処理部８へ送られ、文書処理部８から文書公開情報登録部１１へ渡される。文書公開情報管理部１１は、まず図２に示す文書マップファイル１３から、該当の文書管理ファイル名を探し、さらに文書管理ファイル１６から公開情報管理ファイル名を探し、該当の文書公開情報管理ファイル２０に公開情報を設定する。文書公開情報管理ファイル２０に設定された公開情報は、本実施例では、ユーザ１に対しては公開レベルとしてＥで表わされる該当文書の一覧表示の許可、グループ１に対しては公開レベルとしてＢで表わされる該当文書の内容表示の許可、グループ２に対しては公開レベルとしてＣで表わされる該当文書の複写印刷の許可、ユーザ２に対しては公開レベルとしてＩで表わされる該当文書の内容更新の許可等が設定されている。公開レベルは、Ｅを最下位としてＢ、Ｃ、Ｉの順番に高くなっており、上位のレベルはその下位のレベルをすべて含むように定義されている。このようにして公開情報の設定を行なったある文書に対し、入力部１からユーザまたはグループが文書公開を要求した場合は、文書処理部８の要求により文書公開情報管理部１１が公開情報のチェックを行ない、文書処理部８へ処理結果の通知を行なった後、フォーマット変換部９を経由して、表示部５、印刷部３で処理が行なわれる。

【００１５】以下、図３を参照して文書公開情報管理部１１における公開情報のチェック処理について説明をする。まず入力部１から例えばユーザ１による文書の公開レベルＢの要求が入力された場合、文書処理部８からユーザ名とユーザ１の属している全てのグループ名からなる公開先情報群および公開レベルが文書公開情報管理部１１に渡され（ステップ３１）、文書公開情報管理部１１は、この要求に対し文書マップファイル１３を読み込み、該当の文書管理ファイル名を探し（ステップ３２）、探し出した文書管理ファイル１６から該当文書の公開情報管理ファイル名を探す（ステップ３３）。探し出した文書公開情報管理ファイル２０を読み出し、公開先情報群の一つの情報を文書公開情報管理ファイル２０の公開情報の中から検出する（ステップ３４）。検出ができなかった場合は、公開先情報群の全てのチェックが終了するまでこの処理を繰り返し（ステップ３５）、チェックが終了した場合は異常値を文書処理部８へ返す（ステップ３６）。検出できた場合は、公開レベルの設定がＢ以上（ＣおよびＩを含む。）のレベルかどうかを判定し（ステップ３７）、公開レベルがこの条件を満た



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している場合は正常値を文書処理部８へ返し（ステップ３８）、満たしていない場合は、公開先情報群のチェックが全て終了しているかを判定する（ステップ３５）。文書処理部８は、文書公開情報管理部１１からの公開情報のチェック結果に従って処理を行なう。

【００１６】このように、上記第１の実施例によれば、１以上のファイルで構成された文書ごとに、公開程度を表わす公開レベル情報と公開相手を表わす公開先情報とを含む公開情報を任意に設定して管理する手段を備えているので、それぞれの公開レベルに対応する権利を有する者であれば、パーミッションやパスワードによらずに、誰でも目的の文書に近づくことができ、柔軟なセキュリティ管理を行なうことができる。

【００１７】（実施例２）次に、本発明の第２の実施例について図面を参照しながら説明する。図４は本発明の第２の実施例における電子ファイル装置の概略構成を示すブロック図であり、図１に示した第１の実施例と同じ構成要素には同じ符号を付してある。図４において、１はユーザがデータを入力する入力装置、２は入力装置１を制御する入力部、３は印刷の制御を行なう印刷部、４は印刷を行なう出力装置、５は表示を制御する表示部、６は表示を行なう表示装置、７は文書の作成を行なう文書作成部、９は文書のフォーマット変換を行なうフォーマット変換部、１１は文書の公開情報を設定管理および検査する文書公開情報管理部、１２は文書および各情報の蓄積を行なう蓄積媒体、１３は文書を探し出すための情報を格納する文書マップファイル、１４、１５は複数のファイルによって構成された論理的な集まりを表わす文書、１６は文書を構成するファイル群を管理するための情報を格納する文書管理ファイル、１７、１８、１９は個々の文書を構成する文書実体ファイル、２０は公開先および公開レベルからなる公開情報を格納する文書公開情報管理ファイルであり、以上は図１の構成と同様なものである。図１の構成と異なるのは、装置全体の制御を行ない文書を処理する文書処理部８を分類ノードを処理する機能を加えた文書／分類ノード処理部４０としたことと、文書を階層的に分類した情報を設定管理する分類ノード管理部４１、分類ノードの公開レベルを設定管理する分類ノード公開情報管理部４２、文書を階層的に分類している分類ノード４３、４４、４５、４６、４７、４８、分類ノードの公開先および公開レベルからなる公開情報を格納する分類ノード公開情報管理ファイル４９を加えたことである。分類ノード公開情報管理ファイル４９は、各分類ノード４３～４８のそれぞれに設けられている。

【００１８】以上のように構成された電子ファイル装置の動作について、まず文書の登録を行なう場合について説明する。ユーザにより作成された文書は、入力装置１を通じて入力部２または文書作成部７から文書／分類ノード処理部４０へ送られるとともに、登録文書名および

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その文書を登録される登録場所分類ノード名がユーザにより入力装置１から入力される。文書／分類ノード処理部４０は、分類ノード公開情報管理部４２で登録場所の分類ノードの公開レベルのチェックを行なった後、分類ノード管理部４１に文書を構成するファイル群の登録を依頼する。依頼を受けた分類ノード管理部４１は、蓄積媒体１２に階層的に設定されている分類ノードをたぐり、ユーザにより指定された登録場所の分類ノードを探し出し、該当分類ノード下に文書を構成するファイル群を登録する。以降、登録場所の分類ノード内でのファイル群の管理は実施例１と同様にして行なわれる。

【００１９】次に、登録された文書を閲覧する場合について説明する。入力装置１からある文書に対して閲覧要求が入力部２を経て文書／分類ノード処理部４０へ通知されると、その閲覧文書名と文書が存在する分類ノード名が文書／分類ノード処理部４０へ渡される。文書／分類ノード処理部４０は、分類ノード公開情報管理部４２における分類ノードの公開情報のチェックを行なった後、さらに文書公開情報管理部１１に文書の公開情報のチェックを依頼する。文書公開情報管理部１１は、分類ノードをたぐり、指定の分類ノード下で実施例１と同様の処理を行なう。その結果に従って文書／分類ノード処理部４０は、分類ノード管理部４１に該当文書のファイル群の取り出しを依頼し、文書の処理を行なう。

【００２０】分類ノードおよび文書の公開レベル設定内容と効果は、図５に示すような形で定義されている。分類ノードに設定可能な公開レベルは、それぞれ実施例１の文書に設定する公開レベルと同様に、Ｅで表わされる存在明示許可、Ｂで表わされる閲覧許可、Ｃで表わされる複写印刷許可、Ｉで表わされる登録更新許可の４レベルとなっている。分類ノードは、最上位を１つのルートノードとして、その下に枝分かれした階層構造になっている。したがって、ある分類ノードに対してＥが許可されると、階層構造上において該当分類ノードが属している分類ノード以上の分類ノード名の一覧表示が許可され、該当分類ノードの存在が確認される。またある文書に対してＥが許可されると、該当文書が属している分類ノードにおける文書の一覧表示が許可され、該当文書の存在が確認される。またある分類ノードに対してＢが許可されると、階層構造上において該当分類ノード以上でＢ以下のレベル（Ｂ、Ｅ）が設定されている分類ノードおよびそれらに属している文書の一覧表示が許可され、該当分類ノードの内容が確認可能となる。またある文書に対してＢが許可されると、該当文書の内容表示が許可され、該当文書の内容が確認可能となる。さらにある分類ノードに対してＣが許可されると、該当分類ノードが複写元分類ノードとして設定可能となり、階層構造上において該当分類ノード以上でＣ以下のレベル（Ｂ、Ｅ）が設定されている分類ノード群およびそれらに属してＣ以下のレベルが設定されている文書群がまとめて複写印



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刷可能となる。またある文書に対してＣが許可されると、階層構造上において該当文書が属している分類ノード以上の分類ノードにおいてＣ以下のレベルが設定されている文書が複写印刷可能となる。さらにまた、ある分類ノードに対してＩが許可されると、階層構造上において該当分類ノード以上でＩ以下のレベル（Ｉ、Ｃ、Ｂ、Ｅ）が設定されている分類ノード群およびそれらに属しているすべての文書群について、移動、削除、更新、新規作成等が可能になる。文書に対してＩが許可されると、既に存在するすべての文書について同様な内容更新が可能となる。

【００２１】次に、図６および図７を参照して分類ノードの公開情報チェック処理について説明する。まず入力装置１から例えばユーザ２による分類ノードの公開レベルＢの要求が入力されると、文書／分類ノード処理部４０からユーザ２による分類ノードの公開レベルＢの要求が分類ノード公開情報管理部４２に通知される（ステップ６１）。分類ノード公開情報管理部４２は、この要求に対し指定の分類ノードに移動し（ステップ６２）、移動先の該当分類ノードで固定ファイル名である分類ノード公開情報管理ファイル４９を探し出し（ステップ６３）、公開先情報群の一つの情報を分類ノード公開情報管理ファイル４９の公開情報の中から検出する（ステップ６４）。検出できなかった場合は、公開先情報群の全てのチェックが終了するまでこの処理を繰り返し（ステップ６５）、チェックが終了した場合は、異常値を文書／分類ノード処理部４０へ返す（ステップ６６）。検出できた場合は公開レベルの設定がＢ以上のレベルかどうかを判定し（ステップ６７）、公開レベルがこの条件を満たしている場合は正常値を文書処理部４０へ返し（ステップ６８）、満たしていない場合は、公開先情報群のチェックが全て終了しているかを判定する（ステップ６５）。文書／分類ノード処理部４０は、分類ノード公開情報管理部４２からの公開情報のチェック結果に従って処理を行なう。

【００２２】このように、上記第２の実施例によれば、１以上のファイルで構成された文書を分類ノードで階層的に管理し、文書については上記第１の実施例と同様に管理するとともに、分類ノードについても同様に公開情報を付加して管理することにより、より柔軟で極め細かなセキュリティ管理を行なうことができる。

【００２３】（実施例３）次に、本発明の第３の実施例について説明する。図８は本発明の第３の実施例における電子ファイル装置の概略構成を示すブロック図であり、図４に示した第２の実施例と同じ構成要素には同じ符号を付してある。図８において、１はユーザがデータを入力する入力装置、２は入力装置１を制御する入力部、３は印刷の制御を行なう印刷部、４は印刷を行なう出力装置、５は表示を制御する表示部、６は表示を行なう表示装置、７は文書の作成を行なう文書作成部、９は

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文書のフォーマット変換を行なうフォーマット変換部、１２は文書および各情報の蓄積を行なう蓄積媒体、１３は文書を探し出すための情報を格納する文書マップファイル、１４、１５は複数のファイルによって構成された論理的な集まりを表す文書、１７、１８、１９は個々の文書を構成する文書実体ファイル、４０は装置全体の制御を行ない文書と分類ノードを処理する文書／分類ノード処理部、４１は文書を階層的に分類した情報を設定管理する分類ノード管理部であり、以上は図４の構成と同様なものである。図４の構成と異なるのは、文書の公開レベルを設定管理する文書公開情報管理部１１を、これに文書の公開期間の設定管理を行なう機能を加えて文書公開情報管理部８０としたことと、分類ノードの公開レベルを設定管理する分類ノード公開情報管理部４２を、これに分類ノードの公開期間の設定管理を行なう機能を加えて分類ノード公開情報管理部８１としたことと、文書の公開先および公開レベルからなる公開情報を格納する文書公開情報管理ファイル２０を、これに公開期間を設定可能として文書公開情報管理ファイル８２としたことと、分類ノードの公開先および公開レベルからなる公開情報を格納する分類ノード公開情報管理ファイル４９を、これに公開期間を設定可能として分類ノード公開情報管理ファイル８３としたことである。

【００２４】次に、以上のように構成された電子ファイル装置の動作について説明するが、文書の登録処理および登録された文書を閲覧する処理については実施例２と同様なので、ここでは文書および分類ノードの公開期間の設定を行なう処理について説明する。まず入力装置１から入力された公開先および公開レベルからなる公開情報と公開期間は、入力部２から文書／分類ノード処理部４０へ送られ、文書／分類ノード処理部４０の指示により文書公開情報管理部８０および分類ノード公開情報管理部８１が、それぞれ図９に示す文書公開情報管理ファイル８２および分類ノード公開情報管理ファイル８３の中に、公開期間および公開情報をそれぞれ設定する。

【００２５】図１０および図１１は分類ノードおよび文書の公開期間のチェックを行なう処理を示している。図１０において、入力装置１から例えばユーザ２による分類ノードの公開レベルＢのチェックが要求された場合、文書／分類ノード処理部４０からユーザ２による分類ノードの公開レベルＢの要求が分類ノード公開情報管理部８１に通知される（ステップ１０１）。分類ノード公開情報管理部８１は、本要求に対し指定の分類ノードに移動し（ステップ１０２）、移動先の該当分類ノードで固定ファイル名である分類ノード公開情報管理ファイル６３を探し出し（ステップ１０３）、図９に示す分類ノード公開情報管理ファイル８３から公開期間の判定を行ない（ステップ１０４）、公開期間内であれば正常値を返し（ステップ１０７）、公開期間外ならば以降、分類ノードの公開情報のチェックを実施例２と同様、まず公開



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先情報群の一つの情報を分類ノード公開情報管理ファイル８３の公開情報の中から検出し（ステップ１０５）、検出できなかった場合は、公開先情報群の全てのチェックが終了するまでこの処理を繰り返し（ステップ１０８）、チェックが終了した場合は、異常値を文書／分類ノード処理部４０へ返す（ステップ１０９）。検出できた場合は、公開レベルの設定がB以上のレベルかどうかを判定し（ステップ１０６）、公開レベルがこの条件を満たしている場合は、正常値を文書／分類ノード処理部４０へ返し（ステップ１０７）、満たしていない場合は、公開先情報群のチェックが全て終了しているかを判定する（ステップ１０８）。文書／分類ノード処理部４０は、分類ノード公開情報管理部８１からの公開情報のチェック結果に従って処理を行なう。

【００２６】また、図１１において、例えばユーザ１による文書の公開レベルBのチェックが要求された場合（ステップ１１１）、文書／分類ノード処理部４０からユーザ１による文書公開の要求が文書情報管理部８０に通知され、文書公開情報管理部８０は、本要求に対し以降、文書の公開情報を設定管理しているファイル群から実施例１と同様に、文書管理ファイル１６を探し（ステップ１１２）、次いで文書公開情報管理ファイル８２を探し出し（ステップ１１３）、図９に示す文書公開情報管理ファイル８２の公開期間の判定を行ない（ステップ１１４）、公開期間内であれば正常値を返し（ステップ１１７）、期間外であれば、以降、文書の公開情報のチェックを実施例１と同様に処理し（ステップ１１５、１１６、１１８）、その処理結果を文書／分類ノード処理部４０へ返す（ステップ１１９）。

【００２７】このように、上記第３の実施例によれば、公開情報に公開期間を加えることにより、さらに柔軟で極め細かなセキュリティ管理を行なうことができる。

【００２８】

【発明の効果】以上のように、本発明によれば、文書を公開レベル情報と公開先情報を含む公開情報を付加して管理することにより、それぞれの公開レベルに対応した権利を有する者であれば、パーミッションやパスワードがなくても誰でも目的の文書に近づくことができ、柔軟で広範囲なセキュリティ管理を行なうことができる。

【００２９】また本発明によれば、文書が分類ノードにより階層的に管理されている場合には、分類ノードについても文書と同様に公開情報を付加して管理することにより、より柔軟で極め細かなセキュリティ管理を行なうことができる。

【００３０】さらに本発明によれば、公開情報に公開期間を加えることにより、さらに柔軟で極め細かなセキュリティ管理を行なうことができる。

【図面の簡単な説明】

【図１】本発明の第１の実施例における電子ファイル装置の概略構成を示すブロック図

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【図２】本発明の第１の実施例における蓄積媒体におけるファイル構造を示す模式図

【図３】本発明の第１の実施例における公開情報のチェック処理を示すフロー図

【図４】本発明の第２の実施例における電子ファイル装置の概略構成を示すブロック図

【図５】本発明の第２の実施例における公開レベルの一覧を示す模式図

【図６】本発明の第２の実施例における公開情報のチェック処理を示すフロー図

【図７】本発明の第２の実施例における分類ノード公開情報管理ファイルの構造を示す模式図

【図８】本発明の第３の実施例における電子ファイル装置の概略構成を示すブロック図

【図９】本発明の第３の実施例におけるファイル構造を示す模式図

【図１０】本発明の第３の実施例における分類ノードの公開期間のチェック処理を示すフロー図

【図１１】本発明の第３の実施例における文書の公開期間のチェック処理を示す別のフロー図

【符号の説明】

１　入力装置
２　入力部
３　印刷部
４　出力装置
５　表示部
６　表示装置
７　文書作成部
８　文書処理部
９　フォーマット変換部
１０　文書蓄積／取出部
１１　文書公開情報管理部
１２　蓄積媒体
１３　文書マップファイル
１４　文書
１５　文書
１６　文書管理ファイル
１７　文書実体ファイル
１８　文書実体ファイル
１９　文書実体ファイル
２０　公開情報管理ファイル
４０　文書／分類ノード処理部
４１　分類ノード管理部
４２　分類ノード公開情報管理部
４３　分類ノード
４４　分類ノード
４５　分類ノード
４６　分類ノード
４７　分類ノード
４８　分類ノード



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４９　分類ノード公開情報管理ファイル
５０　公開情報
８０　文書公開情報管理部

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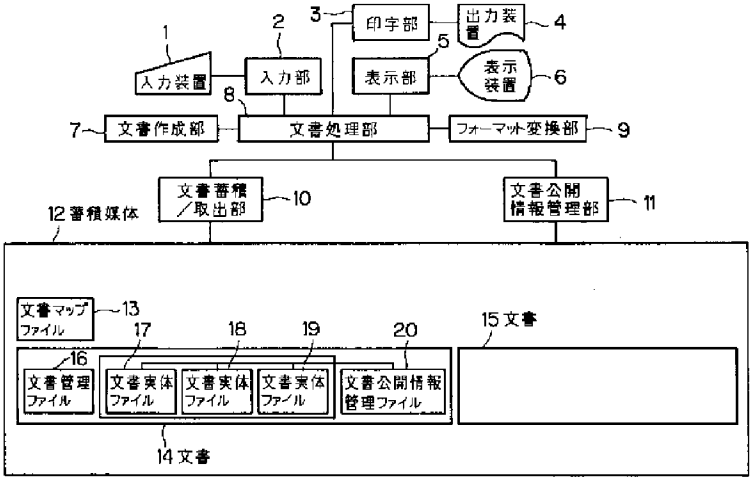
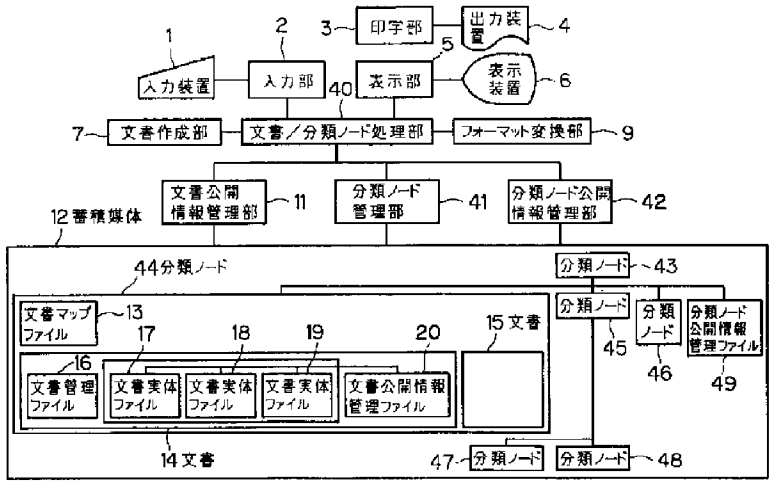
８１　分類ノード公開情報管理部
８２　文書公開情報管理部
８３　分類ノード公開情報管理ファイル

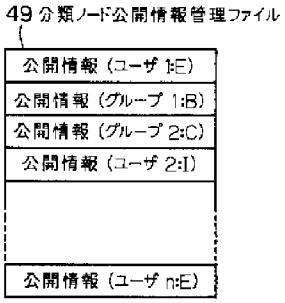
【図１】




【図４】



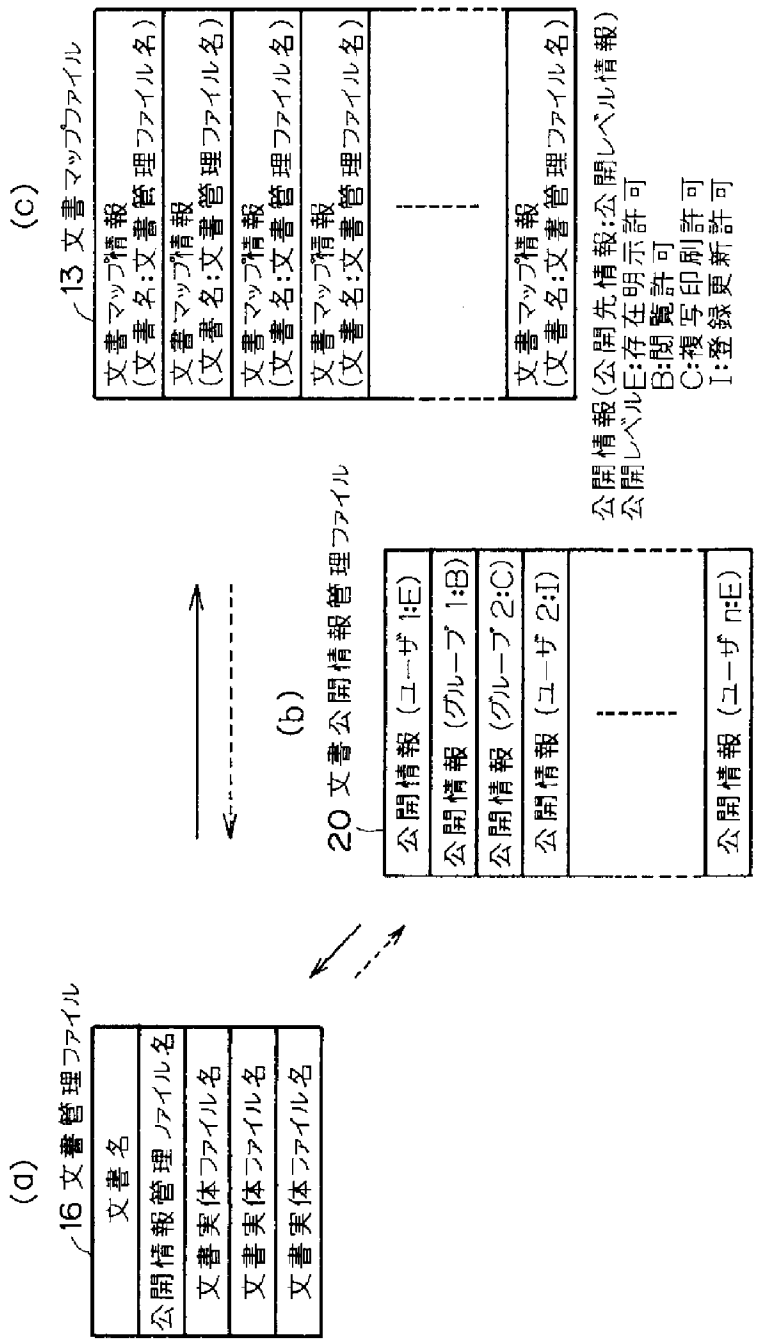

【図７】






Petitioner Apple Inc. - Exhibit 1006, p. 6476

【図2】



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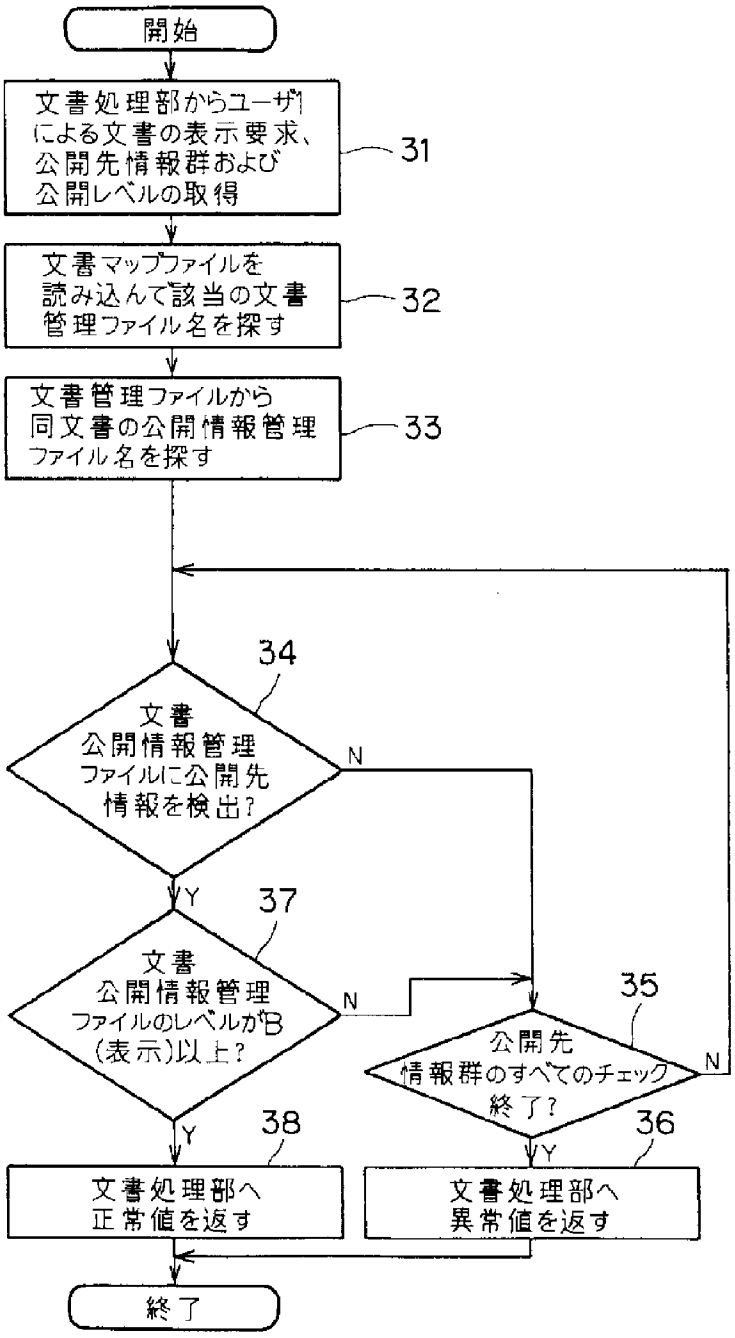
【図３】



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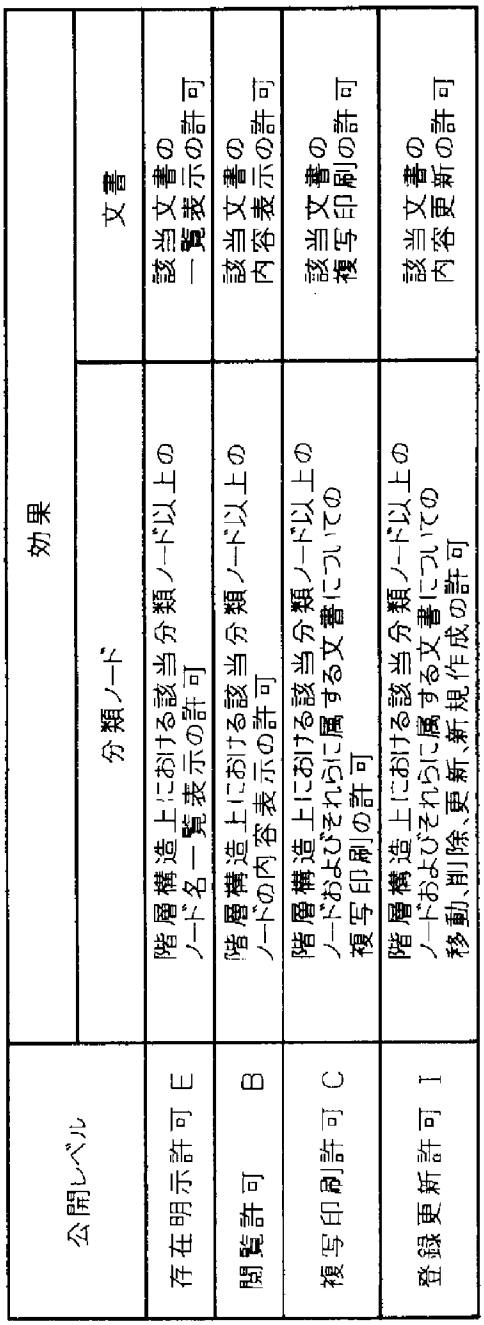
【図５】

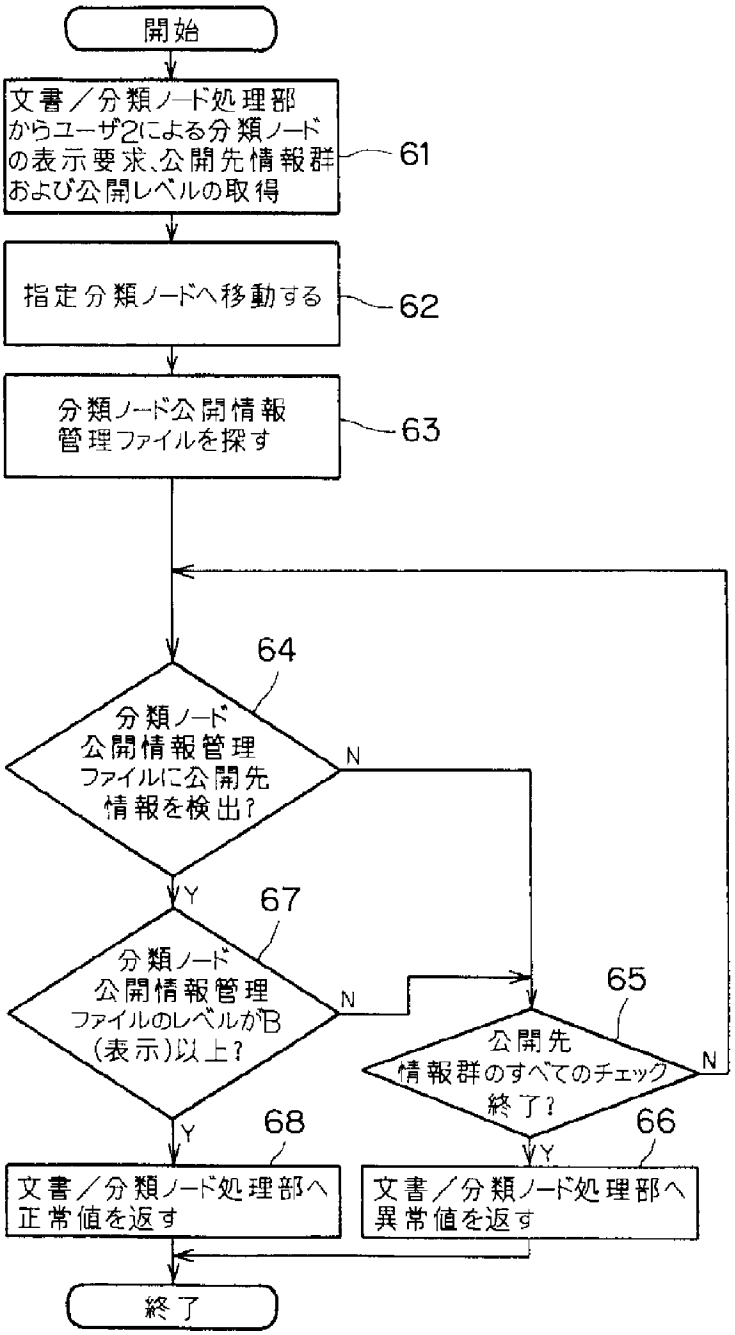


| 公開レベル | 効果 | |
|---|---|---|
| | 分類ノード | 文書 |
| 存在明示許可 E | 階層構造上における該当分類ノード以上のノード名一覧表示の許可 | 該当文書の一覧表示の許可 |
| 閲覧許可 B | 階層構造上における該当分類ノード以上のノードの内容表示の許可 | 該当文書の内容表示の許可 |
| 複写印刷許可 C | 階層構造上における該当分類ノード以上のノードおよびそれらに属する文書についての複写印刷の許可 | 該当文書の複写印刷の許可 |
| 登録更新許可 I | 階層構造上における該当分類ノード以上のノードおよびそれらに属する文書についての移動、削除、更新、新規作成の許可 | 該当文書の内容更新の許可 |



Petitioner Apple Inc. - Exhibit 1006, p. 6479

【図６】



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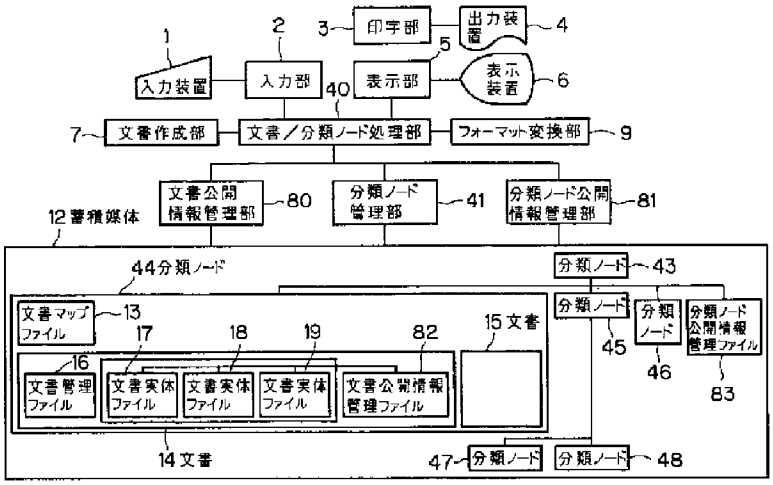
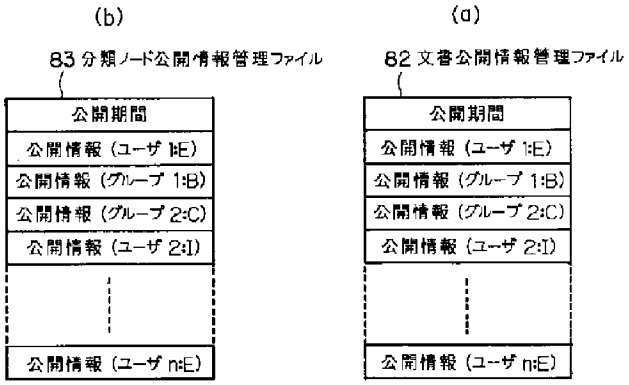
【図８】




【図９】



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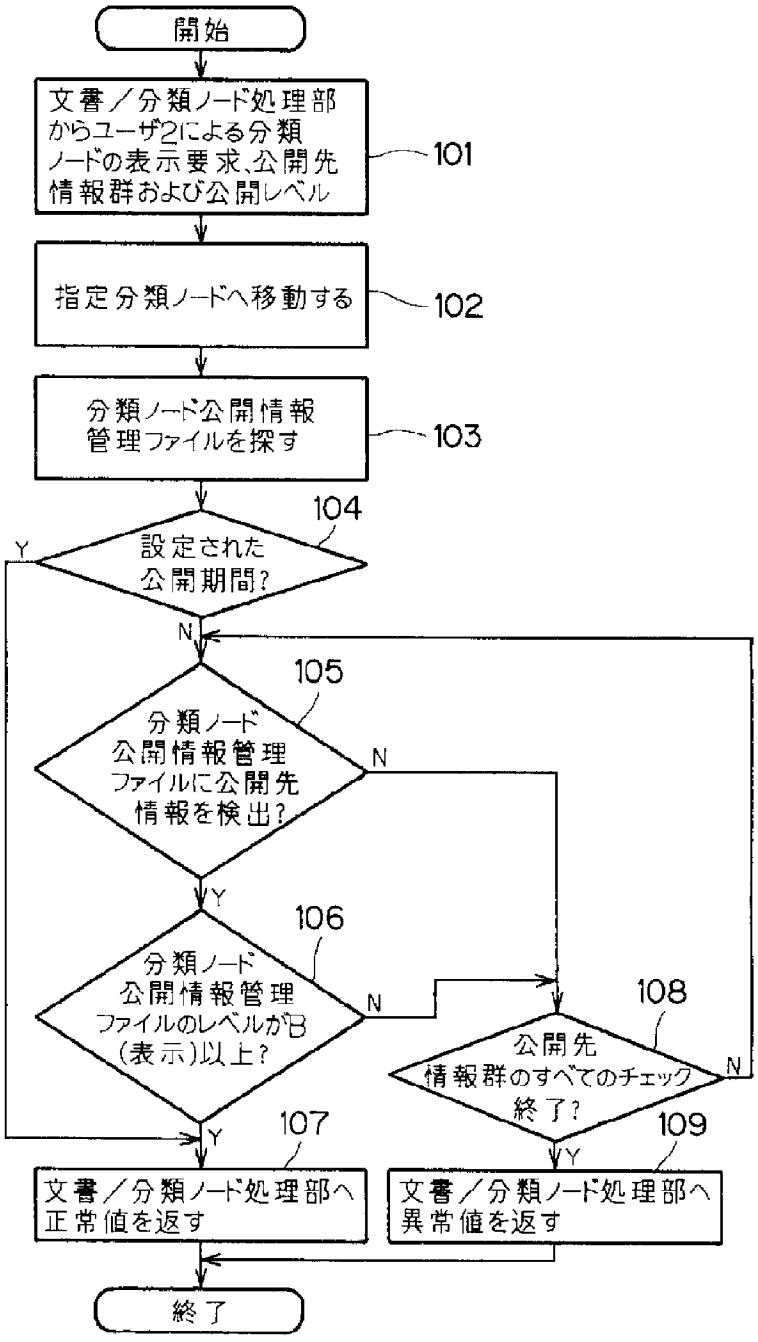
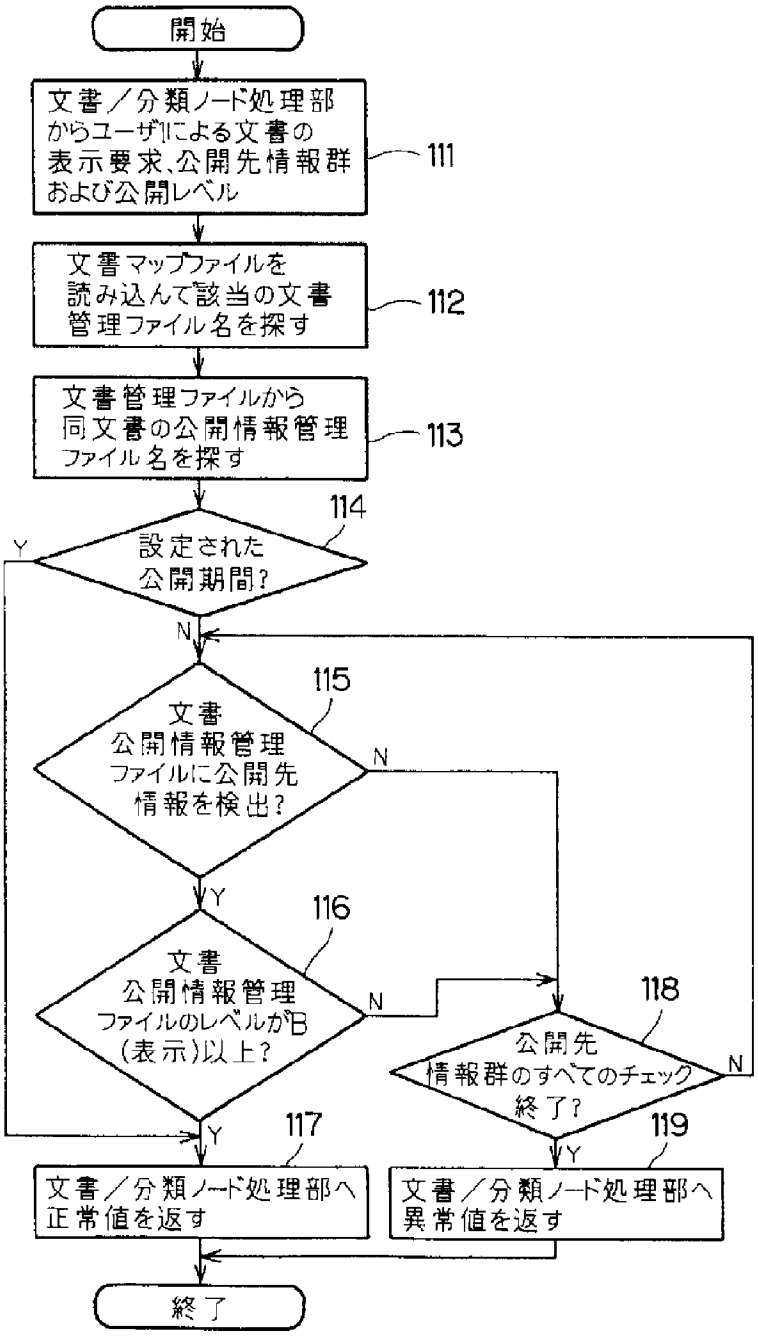
【図１０】






Petitioner Apple Inc. - Exhibit 1006, p. 6482

【図１１】






Petitioner Apple Inc. - Exhibit 1006, p. 6483

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

( **Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 10956070 |
| Filing Date | 2004-10-04 |
| First Named Inventor | Mai Nguyen |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325/235000 |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| | | | |
|---|---|---|---|
| Signature | /Marc S. Kaufman, Reg. No. 35,212/ | Date (YYYY-MM-DD) | 2008-11-04 |
| Name/Print | Marc S. Kaufman | Registration Number | 35,212 |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 4544254 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 31-DEC-2008 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 14:44:36 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Reply Brief Filed | 235000_-_2008-12-31_-_Reply_Brief.pdf | 172687<br>4f27f3a35add4d3b969d1c77599594d03e17731c | no | 15 |

| | |
|---|---|
| **Warnings:** | |
| **Information:** | |

| | |
|---|---|
| **Total Files Size (in bytes):** | 172687 |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS & INTERFERENCES**

| | | |
|---|---|---|
| In re Patent Application of: | ) | Confirmation No.: 8299 |
| Mai NGUYEN, et al. | ) | Group Art Unit: 3621 |
| Serial No. 10/956,070 | ) | Examiner: Evens J. Augustin |
| Filed: October 4, 2004 | ) | |
| For: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES | ) | Date: December 31, 2008 |

# REPLY BRIEF

**Mail Stop Appeal Brief – Patents**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following Reply Brief is submitted in support of the appeal proceedings instituted by the Notice of Appeal filed March 13, 2008, and in response to the Examiner's Answer dated October 31, 2008.

As stated in the Appeal Brief, this Appeal is taken from the rejection of claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57, as submitted in the Appendix herewith.

## I. RESPONSE TO EXAMINER'S "RESPONSE TO ARGUMENT"

On pages 7-8 of the Examiner's Answer, the Examiner states:

> Argument 1: Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57. – Specifically, Downs fails to disclose "meta-rights" as recited in the claims.
>
> Response 1: With regard to the argument of "Downs fails to disclose or suggest each and every feature recited in claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57", Examiner respectfully disagree (see grounds of rejection). With regard to the aspect of meta-rights, as claim 40 states, meta-rights are rights derived from usage rights. Owners setting/specifying initial usage rights/licensing **(first license)** for content to the distributors (column 21, lines 30-33). Those usage rights can be modified by the digital store (column 21, lines 33-39) to create **secondary licensing/rights (meta-rights)** or customized licensing (column 10, lines 15-18) to the end users. (see table below)

App#: 10956070

| Limitation # | Claim 40 | Prior Art (Downs, US 6226618) |
|---|---|---|
| | 1 generating, by a supplier, at least one first offer, including usage rights and meta-rights for the items; , | Content providers certify that supplies the content), providing (equivalent to generating) usage conditions (equivalent to usage rights). The content providers also stipulate that the content stores or distributors can add or narrow the original usage r |
| | 2 said usage rights defining a manner of use for the items | Usage rights being copy restrictions, which is manner in which the content can be used (column 9, 32-34, col. 26, lines 10-12). |
| | 3 said meta-rights specifying rights to derive usage rights or other meta-rights for the items | Content stores or distributors can add or narrow the original usage rights (sub-rights) (column 21, lines 30-36) |
| | 4 Associating at least one state variable with at least one right, state variable being shared by one or more devices | State variable such the number of copies a user is allowed to make (column 50, line 50 or rental terms (column 59, lines 55-60). Specify the number of plays and local copies allowed for the Content, and whether or not the Content may be recorded to an e |
| | 5 Generating a second license with one or more rights | |
| | 6 | |
| | 7 | |
| | 8 | |

Supplier = Content provider
First Consumer = digital content store or distributor
Usage Rights = Usage conditions such as copy protection
First license = Digital certificate given to distributor
Meta-rights = Subrights, or additional usage conditions derived from the usage rights

With regard to aspect of "state variables", par 43 or appellant's published specification defines the term as "variables having values that represent status of an item, usage rights, license or other dynamic conditions ". As such, a state variable can be a rental term of 14 days, which can be further restricted by the first consumer. This value can be tracked from 0 days to 14 (Col 20, Lines 48-50), therefore is dynamic – similar to the number of prints in par. 43 of appellant's published specification.

Therefore, appellant's invention is not patentably distinct from Downs' invention.

In making the above new arguments, the Examiner cites the following portions of Downs:

Col. 21, lines 30-39

> be copied to an external portable device. The Content Provider(s) **101** sets the allowable Usage Conditions **517** and transmits them to the Electronic Digital Content Store(s) **103** in a SC (see the License Control Layer **501** section). The Electronic Digital Content Store(s) **103** can add to or narrow the Usage Conditions **517** as long as it doesn't invalidate the original conditions set by the Content Provider(s) **101**. The Electronic Digital Content Store(s) **103** then transmits all Store Usage Conditions **519** (in a SC) to the End-User Device(s) **109** and the Clearinghouse(s) **105**. The

Col. 10, lines 15-18

> The secondary usage conditions data can include retail business offers such as Content **113** purchase price, pay-per-listen price, copy authorization and target device types, or timed-availability restrictions.

Col. 9, lines 32-34

> bution. The Metadata Assimilation and Entry Tool **161** is also used to enter the Usage Conditions for the Content **113**. The data in Usage Conditions can include copy restriction



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Col. 26, lines 10-12

> the Usage Conditions **517**. Each Content Provider(s) **101** specifies the Usage Conditions **517** for each of its Content **113** items. Electronic Digital Content Store(s) **103** interpret

Col. 59, lines 50-60

> the number of playable copies the End-User(s) is allowed to make.
>
> onto what kinds of media can he/she make those copies (e.g., CD-Recordable (CD-R), MiniDisc, Personal Computer).
>
> 4. the period of time during which the purchase/rental transaction is allowed to occur (i.e., an End-User(s) can purchase/rent under the terms of this usage condition only after the beginning availability date and before the last date of availability).

Col. 20, lines 48-50

> device. The functions in the Content Usage Control Layer **505** keep track of the content's copy/play usage and update the copy/play status.

Appellants respectfully submit that the above portions of Downs cited by the Examiner do not overcome Appellants' arguments that Downs fails to disclose "meta-rights" as recited in the claims.

Meta-rights are defined in the present patent application, as rights to "permit granting of rights to others or the derivation of rights." (*See* U.S. Patent Application Publication No. 20050137984, para. [0041]).

> [0041] **Rights can specify transfer rights, such as distribution rights, and can permit granting of rights to others or the derivation of rights**. Such rights are referred to as "meta-rights". **Meta-rights are the rights that one has to** [generate]**, manipulate, modify,** [dispose of] **or otherwise derive other meta-rights or usage rights. Meta-rights can be thought of as usage rights to usage rights** [or other meta-rights]. Meta-rights can include rights to offer,

> grant, obtain, transfer, delegate, track, surrender, exchange, and revoke usage rights to/from others. Meta-rights can include the rights to modify any of the conditions associated with other rights. For example, a meta-right may be the right to extend or reduce the scope of a particular right. A meta-right may also be the right to extend or reduce the validation period of a right.

As succinctly stated and defined in the present patent application, usage rights permit actions on an item, such as music, video, digital content, and the like. Such actions can include play, read, view, other uses, and the like, of the item. On the other hand, *meta-rights permit actions on rights*, such as usage rights and meta-rights. Such actions can include generate, modify, transfer, and the like, of rights.

By contrast, the system of Downs does not disclose meta-rights, but instead merely discloses that content stores can alter usage conditions. For example, and as identified by the Examiner, Downs discloses, at Col. 21, lines 30-42:

> The Content Usage Control Layer 505 permits the specification and enforcement of the conditions or restrictions imposed on the use of Content 113 use at the End-User Device(s) 109. The conditions may specify the number of plays allowed for the Content 113, whether or not a secondary copy of the Content 113 is allowed, the number of secondary copies, and whether or not the Content 113 may be copied to an external portable device. The Content Provider(s) 101 sets the allowable Usage Conditions 517 and transmits them to the Electronic Digital Content Store(s) 103 in a SC (see the License Control Layer 501 section). *The Electronic Digital Content Store(s) 103 can add to or narrow the Usage Conditions 517 as long as it doesn't invalidate the original conditions set by the Content Provider(s) 101.* The Electronic Digital Content Store(s) 103 then transmits all Store Usage Conditions 519 (in a SC) to the End-User Device(s) 109 and the Clearinghouse(s) 105. The Clearinghouse(s) 105 perform Usage Conditions Validation 521 before authorizing the Content 113 release to an End-User Device(s) 109.

Contrary to the Examiner's repeated assertions, Downs does not disclose the concept of meta-rights as it is recited in the claims and used in this invention. Instead, this portion of Downs merely provides that a content store has the ability to add to or narrow usage conditions, but requires that the usage conditions do not invalidate the original conditions set by the Content Provider.

Contrary to the Examiner's assertions, meta-rights are not simply "sub-rights, or additional usage conditions derived from the usage rights." Accordingly, Appellants again respectfully submit that, while Downs suggests that a store can add to or narrow usage conditions

with restrictions, Downs completely fails to disclose or suggest the concept of meta-rights as set forth in the specification and recited in the claims. Accordingly, Downs is silent with respect to the novel meta-rights feature of the invention recited in independent claims 40, 41 and 42.

In addition, the combination of state variables together with meta-rights further patentably distinguishes the invention recited in independent claims 40, 41 and 42 over Downs. For example, the combination of state variables and meta-rights, advantageously, enables the sharing of rights, wherein one shared right can be derived from another shared right in accordance with a meta-right. In addition, a state variable referring to a location on the device can be used to infer that the right is exclusive to the device, whereas a state variable referring to a location on a server can be used to infer that the right is shared among multiple devices; wherein each device that exercises the right will cause the state variable on the server to be updated.

The following two examples illustrate the use of state variables together with meta-rights in more detail (*See* U.S. Patent Application Publication No. 20050137984, paras. [0095] and [0099]):

> [0095] FIG. 14 is used to illustrate employing of a state variable in deriving inherited usage rights, according to the present invention. In FIG. 14, a derived right can inherit a state variable from meta-rights. For example, a personal computer (PC) of a user, Alice, can be configured to play an e-book according to a license 1403. A personal data assistant (PDA) of Alice also can obtain a right to play the e-book according to offer 1401, if the PC and PDA share the same state variables 1404 and 1405, e.g., "AlicePlayEbook." A derived right 1402 allows Alice also to play the e-book on her PDA as long as the PDA and the PC share a same count limit 1406 of 5 times.
>
> [0099] FIG. 16 is used to illustrate employing of a state variable in deriving rights that are shared among a dynamic set of rights recipients, according to the present invention. In FIG. 16, an offer 1601 specifies that a distributor can issue site licenses to affiliated clubs, allowing 5 members of each club to concurrently view, play, and the like, content, such as an e-book. A corresponding state variable 1607 associated with such a right can be unspecified in the offer 1601. When corresponding rights 1602 and 1603 are issued to affiliated clubs, the corresponding club identities are used to specify state variables 1608 and 1609 in the issued rights. The offers 1602 and 1603 are meta-rights derived from the offer 1601, with offer being assigned the distinct state variables 1608 and 1609. Further rights 1604-1606 can be derived from the offers 1602 and 1603 to be shared among members of each respective club. The licenses 1604 and 1605 are examples of rights derived from the offer 1602, and which inherit the state variable 1608, e.g., "urn:acme:club," whereas the license 1606 inherits the state variable 1609, e.g., "urn:foo:club."



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Thus, contrary to the Examiner's assertions, a state variable is not simply "the number of copies" or "rental terms." Instead, a state variable references, for example, a counter or variable where "the number of copies" or "rental terms" is maintained, and wherein such a counter or variable can be located on a local device or a remote server. The ability to choose the location of a state keeper instead of a specific number, advantageously, provides a mechanism for the rights owner to control rights sharing.

## II. CONCLUSION

In view of the above arguments, and in view of the arguments previously presented in the Appeal Brief, Appellants submit that the rejection of claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57, under 102(b) in view of Downs should be overturned, and an indication of immediate allowability is respectfully requested.

Respectfully submitted,
**NIXON PEABODY, LLP**

Date: December 31, 2008

/Stephen M. Hertzler, Reg. No. 58,247/
Stephen M. Hertzler
Reg. No. 58,247

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(202) 585-5000
(202) 585-8080 (Fax)

## III. CLAIMS APPENDIX

1. (Cancelled)

2. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

3. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

4. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

5. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

6. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license represents a collection of states.

7. (Previously Presented) The method of claim 40, further comprising:

generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

8. (Previously Presented) The method of claim 40, further comprising a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

9. (Cancelled)

10. (Previously Presented) The method of claim 40, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

11-13. (Cancelled)

14. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

15. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

16. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

17. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

18. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license represents a collection of states.

19. (Previously Presented) The system of claim 41, further comprising:

means for generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

means for associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

20. (Previously Presented) The system of claim 41, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

21. (Cancelled)

22. (Previously Presented) The system of claim 41, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

23-24. (Cancelled)

25. (Previously Presented) The system of claim 41, wherein the system is implemented with one or more hardware and software components.

26. (Cancelled)



Petitioner Apple Inc. - Exhibit 1006, p. 6497

27. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

28. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

29. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

30. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

31. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license represents a collection of states.

32. (Previously Presented) The device of claim 42, wherein a third license includes one or more rights from at least one of the usage right and the meta-right in the second license,

the one or more rights in the third license includes at least one right that is shared among one or more users or devices,

at least one state variable is associated with the at least one right that is shared in the third license, and

the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

33. (Previously Presented) The device of claim 42, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

34. (Cancelled)

35. (Previously Presented) The device of claim 42, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

36-39. (Cancelled)

40. (Previously Presented) A method for sharing rights adapted to be associated with an item, the method comprising:

specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

41. (Previously Presented) A system for sharing rights adapted to be associated with an item, the system comprising:

means for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

means for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

means for defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

means for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

means for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

42. (Previously Presented) A device for sharing rights adapted to be associated with an item, the device comprising:

means for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked; and

means for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that

is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

43. (Previously Presented) The method of claim 40, wherein the method is implemented with one or more hardware and software components configured to perform the steps of the method.

44. (Previously Presented) The method of claim 40, wherein the method is implemented with one or more computer readable instructions embedded on a computer readable medium and configured to cause one or more computer processors to perform the steps of the method.

45. (Previously Presented) The device of claim 42, wherein the device is implemented with one or more hardware and software components.

46-48. (Cancelled)

49. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

50. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

51. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.



Petitioner Apple Inc. - Exhibit 1006, p. 6501

52. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

53. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

54. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

55. (Previously Presented) The method of claim 40, further comprising:

generating in a further license one or more rights based on the meta-right in the second license, wherein the one or more rights in the further license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the further license, wherein the at least one state variable that is associated with the further license is based on the at least one state variable that is associated with the second license.

56. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is the same as the at least one state variable that is associated with the first license, if the at least one state variable that is associated with the first license does not identify an unspecified location.

57. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is assigned a new location identification, if the at least one state variable that is associated with the first license identifies an unspecified location.



Petitioner Apple Inc. - Exhibit 1006, p. 6502

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 12/31/2008

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 12/31/2008 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**ACTION**

1. The USPTO's Board of Patent Appeals and Interferences ("Board") returned this application to the Examiner. See "Review Form/Checklist for Appeal Brief or Examiner Answer" mailed on November 05, 2008 ("November 2008 Review").

2. In the November 2008 Review, the Board ordered the Examiner to:

(1) include claims 49-57 in the caption of rejected claims in the Grounds of Rejection;
(2) for such further action as may be appropriate.

3. In accordance with (1) above, the the caption of rejected claims in the Grounds of Rejection now reads:.

**i. Claims 2-10, 14-22, 25, 27-35, 40-54 and 49-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Downs et al (U.S 6226618).**

4. In accordance with (2) above, it is the Examiner's position that no further action is necessary.

/Evens J. Augustin/
Art Unit 3621
December 31, 2008

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|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 01/09/2009

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WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

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|---|---|
| 01/09/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**ACTION**

1. Appellant's IDS filed on 08/02/05, 02/20/08, 07/02/2008 and 09/04/08 have been considered by Examiner.

2. It is the Examiner's position that no further action is necessary.

/EVENS J. AUGUSTIN/
Primary Examiner, Art Unit 3621
January 9, 2009

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PTO/SB/08A (10-01)
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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| Examiner Signature | | Date Considered | |
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Sheet 2 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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| Examiner Signature | | Date Considered | |
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Sheet 3 of 9

| *Complete if Known* | |
|---|---|
| **Application Number** | 10/956,070 |
| **Filing Date** | October 4, 2004 |
| **First Named Inventor** | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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Sheet 4 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

## FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | Foreign Patent Document: Country Code[3] Number[4] Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
|---|---|---|---|---|---|---|
| | 102 | WO 83/04461 A1 | 12-22-1983 | Western Electric Company, Inc. | | |
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Petitioner Apple Inc. - Exhibit 1006, p. 6510

Substitute for form 1449A/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

| Sheet | 5 | of | 9 |
|---|---|---|---|

| *Complete if Known* | |
|---|---|
| **Application Number** | 10/956,070 |
| **Filing Date** | October 4, 2004 |
| **First Named Inventor** | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| Examiner Initials* | Cite No.[1] | Foreign Patent Document: Country Code[3] Number[4] | Foreign Patent Document: Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
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Petitioner Apple Inc. - Exhibit 1006, p. 6511

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 6 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| | | | | **First Named Inventor** | Mai Nguyen et al. |
| | | | | Art Unit | 3621 |
| | | | | Examiner Name | Augustin, Evens J. |
| Sheet | 7 | of | 9 | Attorney Docket Number | 111325/235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
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Petitioner Apple Inc. - Exhibit 1006, p. 6513

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| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(use as many sheets as necessary)* | | | | **Application Number** | 10/956,070 |
| | | | | **Filing Date** | October 4, 2004 |
| | | | | **First Named Inventor** | Mai Nguyen et al. |
| | | | | Art Unit | 3621 |
| | | | | Examiner Name | Augustin, Evens J. |
| Sheet | 8 | of | 9 | Attorney Docket Number | 111325/235000 |

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| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(use as many sheets as necessary)* | | | | **Application Number** | 10/956,070 |
| | | | | **Filing Date** | October 4, 2004 |
| | | | | **First Named Inventor** | Mai Nguyen et al. |
| | | | | Art Unit | 3621 |
| | | | | Examiner Name | Augustin, Evens J. |
| Sheet | 9 | of | 9 | Attorney Docket Number | 111325/235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
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| *Examiner Signature | /Evens Augustin/ | Date Considered | 01/07/2009 |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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| Sheet | | of | |
|---|---|---|---|

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| First Named Inventor | Mai NGUYEN et al. |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325-235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number - Kind Code[2] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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| Examiner Signature | /Evens Augustin/ | Date Considered | 01/07/2009 |
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[1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 1

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | NGUYEN et al. |
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| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 111325/235000 |

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| Examiner Signature | /Evens Augustin/ | Date Considered | 01/07/2009 |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai **NGUYEN**, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

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Sheet 2 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

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| Examiner Signature | | Date Considered | |
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Sheet 3 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 4 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai **NGUYEN**, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

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Sheet 5 of 10

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|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number - Kind Code[2] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
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**FOREIGN PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | Foreign Patent Document Country Code[3] Number[4] | Kind Code[5] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 7 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

## U.S. PATENT DOCUMENTS

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 8 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

| Sheet | 9 | of | 10 |
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| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai **NGUYEN**, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|---|---|---|
| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
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| Examiner Signature | | Date Considered | |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

| Sheet | 10 | of | 10 |
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| *Complete if Known* | |
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| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai NGUYEN, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
|---|---|---|---|
| | | Nelson, T., "A Publishing and Royalty Model for Networked Documents", pp. 257-259, January 1994, IMA Intellectual Property Project Proceedings, Vol. 1, Issue 1 | |
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| Examiner Signature | /Evens Augustin/ | Date Considered | 01/07/2009 |
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 04/01/2009

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 04/01/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## DETAILED ACTION

1. The reply brief filed on December 31st, 2008 has been entered and considered. The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.

### *Conclusion*

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evens Augustin whose telephone number is 571-272-6860. The examiner can normally be reached on Monday thru Friday 8 to 5 pm.
3. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Fischer can be reached on 571-272-6779.

/Evens J. Augustin/
Evens J. Augustin
April 1, 2009
Art Unit 3621

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22204 7590 05/29/2009

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
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| AUGUSTIN, EVENS J | |

| ART UNIT | PAPER NUMBER |
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401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

Appeal No: 2009-010842
Application: 10/956,070
Appellant: Mai Nguyen et al.

# Board of Patent Appeals and Interferences
# Docketing Notice

Application 10/956,070 was received from the Technology Center at the Board on April 08, 2009 and has been assigned Appeal No: 2009-010842.

A review of the file indicates that the following documents have been filed by appellant:

| | |
|---|---|
| Appeal Brief filed on: | August 13, 2008 |
| Reply Brief filed on: | December 31, 2008 |
| Request for Hearing filed on: | NONE |

In all future communications regarding this appeal, please include both the application number and the appeal number.

The mailing address for the Board is:

BOARD OF PATENT APPEALS AND INTERFERENCES
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VIRGINIA 22313-1450

The facsimile number of the Board is 571-273-0052. Because of the heightened security in the Washington D.C. area, facsimile communications are recommended. Telephone inquiries can be made by calling 571-272-9797 and should be directed to a Program and Resource Administrator.

By order of the Board of Patent Appeals and Interferences.

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* MAI NGUYEN, XIN WANG, EDDIE J. CHEN and BIJAN TADAYON

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Appeal 2009-010842
Application 10/956,070
Technology Center 3600

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Mailed: September 25, 2009

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Before DALE M. SHAW, *Chief Appeals Administrator*

ORDER REMANDING APPEAL TO EXAMINER

This application was electronically received at the Board of Patent Appeals and Interferences on April 8, 2009. A Docketing Notice was mailed and Appeal No. 2009-010842 was assigned on May 29, 2009. A review of the application has revealed that the application was not ready for docketing as an appeal. Accordingly, the application is herewith being

remanded to the Examiner. The matter requiring attention is identified below.

Claims 2-8, 10, 40, 43, 44, 49, 52 and 55-57 of the instant application are set forth as method claims that may not fall within one of the four statutory categories of invention recited in 35 U.S.C. § 101. On May 15, 2008, the Deputy Commissioner for Patent Examining Policy, John J. Love, issued a memorandum entitled "Clarification of "Processes" under 35 U.S.C. § 101." This memorandum is further used in conjunction with the Interim Guidelines and the Manual of Patent Examining Procedure § 2106.IV.B, when determining whether a claimed invention falls within a statutory category of invention. *See In re Bilski,* 545 F.3d 963 (Fed. Cir. 2008) (en banc). Thus, there is a question as to whether claims 2-8, 10, 40, 43, 44, 49, 52 and 55-57 meet the requirements of being a patent eligible process under 35 U.S.C. § 101.

Accordingly, it is

ORDERED that the application is remanded to the Examiner to determine if claims 2-8, 10, 40, 43, 44, 49, 52 and 55-57 meet the requirements of being a patent eligible process under 35 U.S.C. § 101.

If there are any questions pertaining to this order, please contact the Board of Patent Appeals and Interferences at 571-272-9797.



Petitioner Apple Inc. - Exhibit 1006, p. 6534

mls

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128



Petitioner Apple Inc. - Exhibit 1006, p. 6535

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| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 11/17/2009

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| **ART UNIT** | **PAPER NUMBER** |
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 11/17/2009 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Interview Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS J. AUGUSTIN | 3621 | |

All participants (applicant, applicant's representative, PTO personnel):

(1) *EVENS J. AUGUSTIN*. (3)_____.

(2) *Stephen Hertzler*. (4)_____.

Date of Interview: *13 November 2009*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *40-42*.

Identification of prior art discussed: _____.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Examiner indicated that there are 101 issues with claim 40. Attorney indicated that he'll discuss with client, but more than likely will file an amendment to alleviate 101 concerns. Examiner also indicated potential 112 issues with "means for" languages in claims 41-42. Attorney also indicated that these claims will be revised or cancelled to alleviate 112 issues.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

| /EVENS J. AUGUSTIN/<br>Primary Examiner, Art Unit 3621 | |
|---|---|



Petitioner Apple Inc. - Exhibit 1006, p. 6537

# Summary of Record of Interview Requirements

**Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record**
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

**Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews**
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

**Examiner to Check for Accuracy**

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 03/05/2010

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| AUGUSTIN, EVENS J | |
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The time period for reply, if any, is set in the attached communication.

| Interview Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS J. AUGUSTIN | 3621 | |

All participants (applicant, applicant's representative, PTO personnel):

(1) *EVENS J. AUGUSTIN*. (3)_____.

(2) *Stephen Hertzler*. (4)_____.

Date of Interview: *02 March 2010*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: _____.

Identification of prior art discussed: *Attorney was reminded of pending issues that were discussed during the 11/13/09 interview. Applican tstated that he'd contact and handle pending issues within a few days*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: _____.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

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| /EVENS J. AUGUSTIN/<br>Primary Examiner, Art Unit 3621 | |
|---|---|



Petitioner Apple Inc. - Exhibit 1006, p. 6540

# Summary of Record of Interview Requirements

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- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
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4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
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22204 7590 03/16/2010

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SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 03/16/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

***Supplemental Examiner's Answer - On Remand FOR FURTHER CONSIDERATION OF A REJECTION***

1. Pursuant to the remand under 37 C.F.R. § 41.50(a)(1) by the Board of Patent Appeals and Interferences on September 9th, 2009 for further consideration of a 101 rejection, a supplemental Examiner's Answer under 37 C.F.R. § 41.50(a)(2) is set forth below.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requires of this title.

3. Claims 2-8, 10, 40, 43, 44, 49, 52 and 55-57 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter.

4. Based on Supreme Court precedent[1] and recent Federal Circuit decisions, § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing.[2] If neither of these requirements is met by the claim(s), the method is not a patent eligible process under 35 U.S.C. § 101.

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

[2] The Supreme Court recognized that this test is not necessarily fixed or permanent and may evolve with technological advances. *Gottschalk v. Benson*, 409 U.S. 63, 71 (1972).

5. In this particular case, independent claim 40 is not tied to any particular machine and does not transform an article or material. Therefore, it is not a patent eligible process under 35 U.S.C. § 101.
6. Appellant was contacted via telephone November 17th, 2009, and March 4th 2010 to alleviate the 101 issues via a written amendment, but has yet to respond.

***Conclusion***

7. The appellant must within TWO MONTHS from the date of the supplemental examiner's answer exercise one of the following two options to avoid sua sponte dismissal of the appeal as to the claims subject to the rejection for which the Board has remanded the proceeding:
8. **(1) Reopen prosecution.** Request that prosecution be reopened before the examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit, or other evidence. Any amendment, affidavit, or other evidence must be relevant to the issues set forth in the remand or raised in the supplemental examiner's answer. Any request that prosecution be reopened will be treated as a request to withdraw the appeal. See 37 CFR 41.50(a)(2)(i).
9. **(2) Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. If such a reply brief is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened under 37 CFR 41.50(a)(2)(i). See 37 CFR 41.50(a)(2)(ii).

10. Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

/Evens J. Augustin/
Art Unit 3621
16 March 2010

/ANDREW J. FISCHER/
Supervisory Patent Examiner, Art Unit 3621

Vincent Millin/vm/
Appeals Conference Specialist

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | |
|---|---|---|
| In re Patent Application of: | ) | Confirmation No.: 8299 |
| Mai **NGUYEN**, *et al.* | ) | Group Art Unit: 3621 |
| Serial No. 10/956,070 | ) | Examiner: Evens J. Augustin |
| Filed: October 4, 2004 | ) | |
| For: **SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES** | ) | Date: May 17, 2010 |

## RESPONSE TO SUPPLEMENTAL EXAMINER'S ANSWER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Supplemental Examiner's Answer mailed March 16, 2010, Applicants request that prosecution be reopened to consider the amendments presented herein, and further request reconsideration and allowance of the above-identified application in view of the following amendments and remarks.

**Amendments to the Claims** begin on page 2 of this paper.

**Remarks** begin on page 11 of this paper.

**Amendments to the Claims:**

1. (Cancelled)

2. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

3. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

4. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

5. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

6. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license represents a collection of states.

7. (Currently Amended) The method of claim 40, further comprising:

generating, in a third license, using a processor, one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

associating, using a processor, at least one state variable with the at least one right that is shared in the third license,



Petitioner Apple Inc. - Exhibit 1006, p. 6547

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

8. (Previously Presented) The method of claim 40, further comprising a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

9. (Cancelled)

10. (Previously Presented) The method of claim 40, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

11-13. (Cancelled)

14. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

15. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

16. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

17. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

18. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license represents a collection of states.

19. (Currently Amended) The system of claim 41, further comprising:

~~means for~~ a processor for generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

~~means for~~ a processor for associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

20. (Previously Presented) The system of claim 41, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

21. (Cancelled)

22. (Previously Presented) The system of claim 41, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

23-26. (Cancelled)

27. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

28. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

29. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

30. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

31. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license represents a collection of states.

32. (Previously Presented) The device of claim 42, wherein a third license includes one or more rights from at least one of the usage right and the meta-right in the second license,

the one or more rights in the third license includes at least one right that is shared among one or more users or devices,

at least one state variable is associated with the at least one right that is shared in the third license, and

the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

33. (Previously Presented) The device of claim 42, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

34. (Cancelled)



Petitioner Apple Inc. - Exhibit 1006, p. 6550

35. (Previously Presented) The device of claim 42, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

36-39. (Cancelled)

40. (Currently Amended) A method for sharing rights adapted to be associated with an item, the method comprising:

specifying, in a first license, using a processor, at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

defining, via the at least one usage right, using a processor, a manner of use selected from a plurality of permitted manners of use for the item;

defining, via the at least one meta-right, using a processor, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

associating, using a processor, at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

generating, in a second license, using a processor, one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

associating, using a processor, at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.



Petitioner Apple Inc. - Exhibit 1006, p. 6551

41. (Currently Amended) A system for sharing rights adapted to be associated with an item, the system comprising:

~~means for~~ a processor for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

~~means for~~ a processor for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

~~means for~~ a processor for defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights;

~~means for~~ a processor for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

~~means for~~ a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

~~means for~~ a processor for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

42. (Currently Amended) A device for sharing rights adapted to be associated with an item, the device comprising:

~~means for~~ a repository for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, said at least one meta-right allows said one or more users or



Petitioner Apple Inc. - Exhibit 1006, p. 6552

devices to transfer rights or to derive new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked; and

~~means for~~ a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

43-48. (Canceled)

49. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

50. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

51. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

52. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

53. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

54. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of rights derivation for the item include issue, modify, transfer, offer, grant, obtain, delegate, track, surrender, exchange, transport, exercise, and revoke rights for the item.

55. (Currently Amended) The method of claim 40, further comprising:

generating, in a further license, using a processor, one or more rights based on the meta-right in the second license, wherein the one or more rights in the further license includes at least one right that is shared among one or more users or devices; and

associating, using a processor, at least one state variable with the at least one right that is shared in the further license, wherein the at least one state variable that is associated with the further license is based on the at least one state variable that is associated with the second license.

56. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is the same as the at least one state variable that is associated with the first license, if the at least one state variable that is associated with the first license does not identify an unspecified location.

57. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is assigned a new location identification, if the at least one state variable that is associated with the first license identifies an unspecified location.

58. (New) The method of claim 40, wherein two or more of the specifying, defining, associating, and generating steps may be carried out using a single processor.

59. (New) The system of claim 41, wherein a single processor may be used to carry out two or more of the specifying, defining, associating, and generating steps.



Petitioner Apple Inc. - Exhibit 1006, p. 6555

## REMARKS

Claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 are currently pending in the application. By this paper, claims 7, 19, 40, 41, 42, and 55 are amended, and new dependent claims 58 and 59 are added. These amendments are made to respond to the new rejection under 35 U.S.C. § 101 presented in the Supplemental Examiner's Answer, and also to remove the "means for" language in the claims as requested by the Examiner. No new matter has been added by this amendment, and the scope of the claims have not been substantively altered. Thus, Applicants respectfully submit that no further search or consideration is needed, and an immediate indication of allowance is requested.

### New Rejection under 35 U.S.C. § 101

Claims 2-8, 10, 40, 43, 44, 49, 52, and 55-57 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Claims 7, 19, 40, and 55 are amended herein to clearly recite the use of hardware to carry out the method steps. Support for this amendment can be found in at least paragraphs [0006], [0110], and [0111] of the specification. Thus, Applicants believe this rejection is clearly overcome, and should be withdrawn.

### New Dependent Claims

New claims 58 and 59 are added herein to specify that a single processor may be used to carry out two or more of the specifying, defining, associating, and generating steps recited in the method claims. These claims do not introduce any new matter, and are submitted in response to the new rejection under 35 U.S.C. § 101.

### Request for Interview

As discussed with Supervisory Examiner Fischer on May 11, 2010, Applicants respectfully request that the Examiner contact Applicants' representative below to schedule an interview, *before mailing a further office action*, to discuss the merits of this case, and hopefully further the prosecution of this case.



Petitioner Apple Inc. - Exhibit 1006, p. 6556

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

Date: May 17, 2010

/Stephen M. Hertzler, Reg. No. 58,247/
Stephen M. Hertzler
Reg. No. 58,247

**Nixon Peabody LLP**
401 9th Street, N.W. Suite 900
Washington, D.C. 20004-2128
(202) 585-8000



Petitioner Apple Inc. - Exhibit 1006, p. 6557

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 7621736 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 17-MAY-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 13:40:31 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Supplemental Response or Supplemental Amendment | 111325-235000_-_Response_To_Supplemental_Examiners_Answer.pdf | 47364<br>198a85aea3478a0105068a309be64236f07be481 | no | 12 |

| | |
|---|---|
| **Warnings:** | |
| **Information:** | |

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|---|---|
| **Total Files Size (in bytes):** | 47364 |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

| Application or Docket Number | Filing Date | ☐ To be Mailed |
|---|---|---|
| 10/956,070 | 10/04/2004 | |

## APPLICATION AS FILED – PART I

| FOR | (Column 1) NUMBER FILED | (Column 2) NUMBER EXTRA | SMALL ENTITY RATE ($) | SMALL ENTITY FEE ($) | OR | OTHER THAN SMALL ENTITY RATE ($) | OTHER THAN SMALL ENTITY FEE ($) |
|---|---|---|---|---|---|---|---|
| ☒ BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | 790 |
| ☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | |
| ☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | |
| TOTAL CLAIMS (37 CFR 1.16(i)) | minus 20 = | * | X $ = | | OR | X $ = | |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | minus 3 = | * | X $ = | | | X $ = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | 790 |

## APPLICATION AS AMENDED – PART II

| AMENDMENT 05/17/2010 | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | SMALL ENTITY RATE ($) | SMALL ENTITY ADDITIONAL FEE ($) | OR | OTHER THAN SMALL ENTITY RATE ($) | OTHER THAN SMALL ENTITY ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|
| Total (37 CFR 1.16(i)) | * 38 | Minus | ** 40 | = 0 | X $ = | | OR | X $52= | 0 |
| Independent (37 CFR 1.16(h)) | * 4 | Minus | ***3 | = 1 | X $ = | | OR | X $220= | 220 |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | 220 |

| AMENDMENT | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) | | RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|
| Total (37 CFR 1.16(i)) | * | Minus | ** | = | X $ = | | OR | X $ = | |
| Independent (37 CFR 1.16(h)) | * | Minus | *** | = | X $ = | | OR | X $ = | |
| ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/GLORIA TRAMMELL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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United States Patent and Trademark Office
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P.O. Box 1450
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www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 07/08/2010

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 07/08/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

United States Patent and Trademark Office

Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

Appeal No: 2010-009554
Application: 10/956,070
Appellant: Mai Nguyen et al.

# Board of Patent Appeals and Interferences
# Docketing Notice

Application 10/956,070 was received from the Technology Center at the Board on June 28, 2010 and has been assigned Appeal No: 2010-009554.

In all future communications regarding this appeal, please include both the application number and the appeal number.

The mailing address for the Board is:

BOARD OF PATENT APPEALS AND INTERFERENCES
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VIRGINIA 22313-1450

The facsimile number of the Board is 571-273-0052. Because of the heightened security in the Washington D.C. area, facsimile communications are recommended. Telephone inquiries can be made by calling 571-272-9797 and referencing the appeal number listed above.

By order of the Board of Patent Appeals and Interferences.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

22204 7590 07/09/2010

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3621 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 07/09/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

---

*Ex parte* MAI NGUYEN, XIN WANG, EDDIE J. CHEN and
BIJAN TADAYON

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Appeal 2010-009554
Application 10/956,070
Technology Center 3600

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Before DALE M. SHAW, *Division 2 Support Administrator.*

ORDER REMANDING TO EXAMINER

This application was electronically received at the Board of Patent Appeals and Interferences on June 28, 2010. A Docketing Notice was mailed and Appeal No. 2010-009554 was assigned on July 7, 2010. Upon review of the application, it has been determined that a remand to the Examiner is necessary to review Appellants' Response to Supplemental Examiner's Answer, filed May 17, 2010, requesting prosecution to be reopened in the above identified application.

Accordingly, it is order that the application is being remanded to the Examiner to:

1) to consider the request to reopen prosecution filed May 17, 2010 as required; and

2) for such further action as may be appropriate.

If there are any questions pertaining to this order, please contact the Board of Patent Appeals and Interferences at 571-272-9797.

DMS/kmm

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128



Petitioner Apple Inc. - Exhibit 1006, p. 6565

Doc Code: PET.POA.WDRW
Document Description: Petition to withdraw attorney or agent (SB83)

PTO/SB/83 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
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# REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

| | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | 10-04-2004 |
| First Named Inventor | Mai Nguyen |
| Art Unit | 3621 |
| Examiner Name | Evens J Augustin |
| Attorney Docket Number | 111325-235000 |

**To: Commissioner for Patents**
**P.O. Box 1450**
**Alexandria, VA 22313-1450**

Please withdraw me as attorney or agent for the above identified patent application, and

☐ all the practitioners of record;

☐ the practitioners (with registration numbers) of record listed on the attached paper(s); or

☑ the practitioners of record associated with Customer Number: 22204

**NOTE:** The immediately preceding box should only be marked when the practitioners were appointed using the listed Customer Number.

The reason(s) for this request are those described in 37 CFR :

| | | | |
|---|---|---|---|
| ☐ 10.40(b)(1) | ☐ 10.40(b)(2) | ☐ 10.40(b)(3) | ☑ 10.40(b)(4) |
| ☐ 10.40(c)(1)(i) | ☐ 10.40(c)(1)(ii) | ☐ 10.40(c)(1)(iii) | ☐ 10.40(c)(1)(iv) |
| ☐ 10.40(c)(1)(v) | ☐ 10.40(c)(1)(vi) | ☐ 10.40(c)(2) | ☐ 10.40(c)(3) |
| ☐ 10.40(c)(4) | ☐ 10.40(c)(5) | ☐ 10.40(c)(6) Please explain below: | |

## Certifications

***Check each box below that is factually correct. WARNING: If a box is left unchecked, the request will likely not be approved.***

1. ☑ I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment.

2. ☑ I/We have delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled.

3. ☑ I/We have notified the client of any responses that may be due and the time frame within which the client must respond.

Please provide an explanation, if necessary:



This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

PTO/SB/83 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
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# REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

**Complete the following section only when the correspondence address will change.** *Changes of address will only be accepted to an inventor or an assignee that has properly made itself of record pursuant to 37 CFR 3.71.*

Change the correspondence address and direct all future correspondence to:

A. ☐ The address of the inventor or assignee associated with Customer Number: _____

*OR*

| | | | | |
|---|---|---|---|---|
| B. ☑ Inventor or Assignee name | ContentGuard Holdings, Inc. | | | |
| Address | 222 N.Sepulveda Blvd. , Suite 1400 | | | |
| City El Segundo | State CA | Zip 90245 | Country US | |
| Telephone | | Email | | |

I am authorized to sign on behalf of myself and all withdrawing practitioners.

| | | | |
|---|---|---|---|
| Signature | /Jeffrey L. Costellia, Reg. No. 35,483 | | |
| Name | Jeffrey L. Costellia | Registration No. 35,483 | |
| Address | 401 9th Street N.W., Suite 900 | | |
| City Washington | State DC | Zip 20004 | Country US |
| Date | 9-10-10 | Telephone No. 202-585-8000 | |

*NOTE:* ***Withdrawal is effective when approved rather than when received.***



This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 8390318 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Jeffrey Costellia/Yvette Jones |
| **Filer Authorized By:** | Jeffrey Costellia |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 10-SEP-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 10:47:37 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Miscellaneous Incoming Letter | DOC005.PDF | 100947<br>6838a7a330d490cd88a0defc29f021cd3f3ac01e | no | 2 |

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|---|---|
| **Warnings:** | |
| **Information:** | |

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| **Total Files Size (in bytes):** | 100947 |

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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 8413885 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 14-SEP-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 16:12:39 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Supplemental Appeal Brief | 235000_-_2010-09-14_-_Supplemental_Appeal_Brief.pdf | 121774<br>1bede81da58eaa54db4a58369d8b5518be8602e5 | no | 7 |

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| **Warnings:** | |
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| 2 | Affidavit/Dec/Exhibit after Notice of Appeal | 230300_Decision.pdf | 282081<br>4265f67c6f0aad43ccabb275dc038e9e0e1c9c92 | no | 9 |
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| **Information:** | | | | | |
| 3 | Affidavit/Dec/Exhibit after Notice of Appeal | 230400_Decision.pdf | 562149<br>236249c5182bdd5be2ca067f23cc730dc37d7545 | no | 16 |
| **Warnings:** | | | | | |
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| 4 | Affidavit/Dec/Exhibit after Notice of Appeal | 310100_Decision.pdf | 279764<br>6d1235bb33cdb1daa1267558630c3e2d6aa88d46 | no | 9 |
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**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

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**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/298,220 | 11/18/2002 | Joseph Zhung Yee Fung | 111325-310100 | 1893 |

22204 7590 08/13/2010

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| EXAMINER | |
|---|---|
| SHERR, CRISTINA O | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3685 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 08/13/2010 | PAPER |

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The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

---

*Ex parte* JOSEPH ZHUNG YEE FUNG, ROBERT CHANCELLOR,
THOMAS DEMARTINI, MAI NGUYEN,
THANH TA, VINCENT HSIANG TIEU,
DUC TRAN, and EDGARDO VALENZUELA

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Appeal 2009-013562
Application 10/298,220
Technology Center 3600

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Before HUBERT C. LORIN, ANTON W. FETTING, and
BIBHU R. MOHANTY, *Administrative Patent Judges.*

FETTING, *Administrative Patent Judge.*

DECISION ON APPEAL[1]

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF THE CASE

Joseph Zhung Yee Fung, Robert Chancellor, Thomas DeMartini, Mai Nguyen, Thanh Ta, Vincent Hsiang Tieu, Duc Tran, and Edgardo Valenzuela (Appellants) seek review under 35 U.S.C. § 134 (2002) of a final rejection of claims 1, 6-7, 9-26 and 66-91, the only claims pending in the application on appeal.

We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION[2]

We REVERSE.

## THE INVENTION

The Appellants invented an extensible grammar based rights expression system and method to allow processing of new rights expressions. Spec. ¶ 0003.

An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below [bracketed matter and some paragraphing added].

---

[2] Our decision will make reference to the Appellants' Appeal Brief ("App. Br.", filed December 9, 2008) and the Examiner's Answer ("Ans.", mailed March 24, 2009), Final Rejection ("Final Rej.", mailed September 8, 2008) and Specification ("Spec.", mailed November 18, 2002).



Petitioner Apple Inc. - Exhibit 1006, p. 6574

1. An extensible grammar-based rights expression system for processing a plurality of extensible rights expressions, said system comprising:

[1] at least one extensible interpreter configured to evaluate said plurality of extensible rights expressions;

[2] at least one extensible validator configured to validate compliance with respective conditions set forth in said plurality of rights expressions upon authorization by said interpreter; and

[3] an extensible framework configured to provide an interface between said at least one interpreter and said at least one validator; said framework comprising

[a] means for registering configuration information of plural interpreters and plural validators and

[b] means for invoking an appropriate interpreter and an appropriate validator based on a programmatic call from an application and the registered configuration information.

## THE REJECTIONS

The Examiner relies upon the following prior art[3]:

Stefik et al. US 6,895,392 B2 May 17, 2005

Liu, Ling; Pu, Calton; Han, Wei, "An XML-enabled data extraction toolkit for web sources", *Information Systems*, December 2001 ("Liu")

Greenberg, EA; Ismeurt, R; Long, CO; Karam, CM, "Using Plug-ins and Internet Browsing Extensions", *Home Healthc Nurse Manag*, Sep-Oct 2000 ("Greenberg")

[3] The Liu and Greenberg references were provided by the Examiner in support of the taken Official Notice and are not relied upon in the rejection of the claims.



Petitioner Apple Inc. - Exhibit 1006, p. 6575

Claims 1, 6-7, 9-26 and 66-91 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Stefik and Official Notice.

## ISSUES

The issue of whether the Examiner erred in rejecting claims 1, 6-7, 9-26 and 66-91 under 35 U.S.C. § 103(a) as unpatentable over Stefik and Official Notice turns on whether Stefik describes limitations [3][a] and [3][b] of claim 1.

## FACTS PERTINENT TO THE ISSUES

The following enumerated Findings of Fact (FF) are believed to be supported by a preponderance of the evidence.

*Facts Related to the Prior Art*

*Stefik*

01. Stefik is directed to usage rights enforcement for digitally encoded works and to the use of a grammar for creating usage rights. Stefik 1:15-18.

02. Stefik describes that the operation of the invention begins with a creator creating a digital work and determining the appropriate usage rights and fees for the digital work. Stefik 5:52-55. The digital work is securely stored in a first repository. Stefik 5:57-58. When a request for access to the digital work comes from a second repository to the first repository, the first repository checks the usage rights associated with the digital work to determine if access to the digital work may be granted. Stefik 6:2-4. The check of the usage right involves a determination of whether a



Petitioner Apple Inc. - Exhibit 1006, p. 6576

right associated with the access request has been associated with the digital work and if all of the conditions associated with the right is satisfied. Stefik 6:4-8.

03. The usage rights language is based on a grammar, which defines a valid sequence of symbols for a language. Stefik 17:62-64. The second repository encrypts a request message, which includes the usage rights grammar, and transmits the message to the first repository for decryption. Stefik 26:35-50. After decryption, the first repository checks all of the time based conditions and security and access conditions before checking the usage rights. Stefik 30:54-65.

04. An upgrade ticket may also be purchased or provided with a digital work. Stefik 45:19-20. When a new work is available, a consumer goes to a distributor and arranges to copy the new version of the work. Stefik 45:30-36.

*Liu*

05. Liu is directed to a discussion on the methodology and development of an XML-enabled wrapper construction system for semi-automatic generation of wrapper programs. Liu Abstract.

*Greenberg*

06. Greenberg is directed to a discussion on plug-ins and browser extensions. Greenberg Abstract.



Petitioner Apple Inc. - Exhibit 1006, p. 6577

## ANALYSIS

*Claims 1, 6-7, 9-26 and 66-91 rejected under 35 U.S.C. § 103(a) as unpatentable over Stefik and Official Notice*

The Appellants contend that Stefik fails to describe limitations [3][a] and [3][b] of claim 1. App. Br. 7-10. We agree with the Appellants. Limitation [3] requires an extensible framework that provides an interface between an interpreter and a validator. Limitation [3][a] additionally requires a means for registering configuration information for multiple interpreters and multiple validators components. Limitations [3][b] further requires a means for invoking the appropriate interpreter and validator based on the registered configuration information. The Specification discloses the structure for performing the functions of these components can be hardware, such as a personal computer, or software. Spec. ¶ 0035.

Stefik describes a system that uses grammar to encode usage rights with digital works. FF 01-02. A second repository requests from a first repository access to a digital work. FF 02. The request is in the form of a message, which consists of grammar that defines a valid sequence of symbols for a language for a usage right. FF 03. That is, the message consists of the same syntax or grammar that is known by both repositories.

Stefik fails to describe the step of registering information of multiple interpreters and multiple validators. As such, Stefik further fails to describe invoking the appropriate interpreter and validator for a specific request. Stefik only describes the use of a single set of syntax and therefore has no use for multiple interpreters and validators; and as such fails to describe an extensible framework. The Examiner argues that Stefik describes a call



Petitioner Apple Inc. - Exhibit 1006, p. 6578

from the consumer and an amount paid by the consumer gives right to the consumer (Ans. 6). However, these descriptions to not describe the requirements of limitations [3][a] and [3][b]. Likewise the Examiner fails to provide any rationale connecting Stefik's descriptions to the requirements of these limitations. As such, Stefik fails to describe limitations [3][a] and [3][b].

The Examiner argues that validators and an extensible framework are merely *software per se* and therefore should not be afforded patentable weight. Ans. 6. The Appellants respond that the interpreters, validators, and framework are structural components. App. Br 10-11. We agree with the Appellants. These limitations are expressed as means plus function. As such, the claim covers the structure disclosed in the Specification. The Specification explicitly describes the structure of the rights expression system and the components therein. The structures include interpreters and validators that can be implemented using hardware, such as a personal computer, or software. Spec. ¶'s 0034-0035, 0037. As such, the interpreters, validators, and the framework are all structural components of the recited system and should be afforded patentable weight.

## CONCLUSIONS OF LAW

The Examiner erred in rejecting claims 1, 6-7, 9-26 and 66-91 under 35 U.S.C. § 103(a) as unpatentable over Stefik and Official Notice.

## DECISION

The rejection of claims 1, 6-7, 9-26 and 66-91 under 35 U.S.C. § 103(a) as unpatentable over Stefik and Official Notice is not sustained.



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REVERSED

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Petitioner Apple Inc. - Exhibit 1006, p. 6580

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/162,212 | 06/05/2002 | Xin Wang | 111325-230300 | 3700 |

22204 7590 12/16/2009

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| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

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| 12/16/2009 | PAPER |

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* XIN WANG and BIJAN TADAYON

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Appeal 2009-008480
Application 10/162,212
Technology Center 3600

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Decided: December 16, 2009

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Before MURRIEL E. CRAWFORD, HUBERT C. LORIN, and JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

LORIN, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Xin Wang and Bijan Tadayon (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-19 and 29-40. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We REVERSE.[1]

## THE INVENTION

The invention "relates to a method and system for digital rights management and, more particularly, to a method and system for automatically offering and granting rights over a communications network or other channels." Specification [0003].

Claim 1, reproduced below, is illustrative of the subject matter on appeal.

> 1. A method for transferring usage rights adapted to be associated with items within a digital rights management system, said method comprising:
>
> generating, by a supplier, at least one first offer including usage rights and meta-rights for the items, said usage rights defining a manner of use for the items, said meta-rights specifying rights to derive usage rights or other meta-rights for the items;
>
> presenting, by the supplier, said offer to a first consumer in said system,

[1] Our decision will make reference to the Appellants' Appeal Brief ("Br.," filed Jul. 7, 2006) and the Examiner's Answer ("Answer," mailed Feb. 13, 2007).



Petitioner Apple Inc. - Exhibit 1006, p. 6583

wherein the offer expresses what rights the consumer can acquire for the items;

receiving, by the supplier, a selection from the first consumer indicating desired usage rights and meta-rights; and

generating, by the supplier, a first license granting to the first consumer the usage rights and meta-rights for the items,

wherein the first license grants the usage rights and meta-rights that are selected by the first consumer during the receiving step.

## THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

| | | |
|---|---|---|
| Downs | US 6,226,618 B1 | May 1, 2001 |
| Hitson | US 2002/0010759 A1 | Jan. 24, 2002 |

The following rejections are before us for review:

1. Claims 1-13, 15-18, and 29-40 are rejected under 35 U.S.C. §102(b) as being anticipated by Downs.
2. Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Downs.
3. Claim 19 is rejected under 35 U.S.C. §103(a) as being unpatentable over Downs and Hitson.

## ISSUE

The issue is whether Downs describes, expressly or inherently, "meta-rights" as claimed.

## FINDINGS OF FACT

We find that the following enumerated findings of fact (FF) are supported by at least a preponderance of the evidence. *Ethicon, Inc. v.*



Petitioner Apple Inc. - Exhibit 1006, p. 6584

*Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. All the claims call for "meta-rights."
2. The Specification provides an express definition for "meta-rights":

> Rights can specify transfer rights, such as distribution rights, and can permit granting of rights to others or the derivation of rights. Such rights are referred to as "meta-rights". Meta-rights are the rights that one has to manipulate, modify, or otherwise derive other meta-rights or usage rights. Meta-rights can be thought of as usage rights to usage rights. Meta-rights can include rights to offer, grant, obtain, transfer, delegate, track, surrender, exchange, and revoke usage rights to/from others. Meta-rights can include the rights to modify any of the conditions associated with other rights. For example, a meta-right may be the right to extend or reduce the scope of a particular right. A meta-right may also be the right to extend or reduce the validation period of a right.

   Specification [0030] (p. 9).
3. The Examiner defines "meta-rights" to mean "Sub-rights, or additional usage conditions derived from the usage rights." Answer 8.
4. According to the Examiner, Downs describes "meta-rights" at col. 9, lines 33-35 and col. 10, ll. 15-18. Answer 3.
5. Col. 9, ll. 33-35, of Downs discloses: "The Metadata Assimilation and Entry Tool 161 is also used to enter the Usage Conditions for the Content 113. The data in Usage Conditions can include copy restriction rules, the wholesale price, and any business rules deemed necessary."
6. Col. 10, ll. 15-18, of Downs discloses: "The secondary usage conditions data can include retail business offers such as Content 113



Petitioner Apple Inc. - Exhibit 1006, p. 6585

purchase price, pay-per-listen price, copy authorization and target device types, or timed-availability restrictions."

## PRINCIPLES OF LAW

*Claim Construction*

During examination of a patent application, a pending claim is given the broadest reasonable construction consistent with the specification and should be read in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1369 (Fed. Cir. 2004).

*Anticipation*

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

## ANALYSIS

*The rejection of claims 1-13, 15-18, and 29-40 under 35 U.S.C. §102(b) as being anticipated by Downs.*

It was proper that the Examiner first attempted to construe the claims before reaching a determination as to whether Downs anticipated the claimed subject matter. *Cf. In re Crish*, 393 F.3d 1253, 1256 (Fed. Cir. 2004): "A determination that a claim is anticipated, under 35 U.S.C. § 102(b) involves two analytical steps. First, the Board must interpret the claim language, where necessary. Because the PTO is entitled to give claims their broadest reasonable interpretation, our review of the Board's claim construction is limited to determining whether it was reasonable. *In re*



Petitioner Apple Inc. - Exhibit 1006, p. 6586

*Morris,* 127 F.3d 1048, 1055 (Fed. Cir. 1997). Secondly, the Board must compare the construed claim to a prior art reference and make factual findings that "each and every limitation is found either expressly or inherently in [that] single prior art reference." *Celeritas Techs. Ltd. v. Rockwell Int'l Corp.,* 150 F.3d 1354, 1360 (Fed. Cir. 1998)." FF 3.

However, "claims are to be read in the light [of the specification], not in a vacuum." *In re Dean*, 291 F.2d 947, 951 (CCPA 1961). The written description is "always highly relevant" in construing a claim, and "the speicification … is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1582 (Fed. Cir. 1996).

Here the Specification provides an express definition of "meta-rights". FF 2. The definition for "meta-rights" given in the Specification governs the construction to be given that term in the claims.

> [O]ur cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor's lexicography governs. *See CCS Fitness, Inc. v. Brunswick Corp*., 288 F.3d 1359, 1366 (Fed. Cir. 2002). In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive. *See SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys*., Inc., 242 F.3d 1337, 1343-44 (Fed. Cir. 2001).

*Phillips v. AWH Corp*., 415 F.3d 1303 (Fed. Cir. 2005).

The Examiner did not rely on the definition for "meta-rights" expressly provided in the Specification but construed the term in a manner that would cover information about conditions set forth in "metadata" like



Petitioner Apple Inc. - Exhibit 1006, p. 6587

those described in Downs. FF 5 - 6. However, information about conditions set forth in "metadata" is not the same as "meta-rights" as the Appellants have defined them - which are "the rights that one has to manipulate, modify, or otherwise derive other meta-rights or usage rights." FF 2. We do not find the information about conditions set forth in "metadata" that Downs discloses to be the same as the "meta-rights" as claimed. Accordingly, we find that a prima facie case of anticipation of the claimed subject matter over Downs has not been established.

*The rejection of claim 14 under 35 U.S.C. §103(a) as being unpatentable over Downs.*
*and*
*The rejection of claim 19 under 35 U.S.C. §103(a) as being unpatentable over Downs and Hitson.*

Claims 14 and 19 depend on claim 15 whose rejection under § 102 is reversed. *See supra*. The rationale in support of the rejections of these claims relies on a construction of the claim term "meta-rights" which is inconsistent with the definition of that term as expressly provided for in the Specification. Answer 6-7. See FF 2. Since the claims have not been given the broadest reasonable construction *in light of the Specification*, a prima facie case of obviousness of the *claimed* subject matter has not been established.

## CONCLUSIONS

We conclude that the Appellants have shown that the Examiner erred in rejecting claims 1-13, 15-18, and 29-40 under 35 U.S.C. §102(b) as being anticipated by Downs; claim 14 under 35 U.S.C. §103(a) as being



Petitioner Apple Inc. - Exhibit 1006, p. 6588

unpatentable over Downs; and, claim 19 is rejected under 35 U.S.C. §103(a) as being unpatentable over Downs and Hitson.

## DECISION

The decision of the Examiner to reject claims 1-19 and 29-40 is reversed.

## REVERSED

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Petitioner Apple Inc. - Exhibit 1006, p. 6589

Docket No.: 111325-235000

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS & INTERFERENCES**

| | | |
|---|---|---|
| In re Patent Application of: | ) | Confirmation No.: 8299 |
| Mai NGUYEN, et al. | ) | Group Art Unit: 3621 |
| Serial No. 10/956,070 | ) | Examiner: Evens J. Augustin |
| Filed: October 4, 2004 | ) | |
| For: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES | ) | Date: September 14, 2010 |

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

## SUPPLEMENTAL APPEAL BRIEF

Sir:

The following Supplemental Appeal Brief is submitted in supplement to the Appeal Brief filed August 13, 2008, in connection with the above-identified case.



Petitioner Apple Inc. - Exhibit 1006, p. 6590

## I. REAL PARTY IN INTEREST

ContentGuard Holdings, Inc. is the real party in interest.

## II. RELATED APPEALS AND INTERFERENCES

The following appeals, interferences or judicial proceedings may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Copies of any decisions rendered by a court or the Board in any proceeding identified under this paragraph, if applicable, are included in an appendix as required by 37 CFR 41.37(c)(1)(x).

- Appeal No. 2009-8480, U.S. Application No. 10/162,212, U.S. Patent No. 7,774,279 (Attorney Docket No. 111325-230300)
- Appeal No. 2009-008881, U.S. Application No. 10/163,634 (Attorney Docket No. 111325-230400)
- Appeal No. 2009-010855, U.S. Application No. 10/388,162 (Attorney Docket No. 111325-380100)
- Appeal No. 2009-013562, U.S. Application No. 10/298,220 (Attorney Docket No. 111325-310100)
- Appeal No. 2010-006357, U.S. Application No. 10/452,928 (Attorney Docket No. 111325-160600)
- U.S. Application No. 10/388,161 (Attorney Docket No. 111325-370100)
- U.S. Application No. 10/452,920 (Attorney Docket No. 111325-160700)
- U.S. Application No. 10/777,044 (Attorney Docket No. 111325-234900)
- U.S. Application No. 11/389,096 (Attorney Docket No. 111325-164700)

- U.S. Application No. 12/204,393 (Attorney Docket No. 111325-380200)

## III. STATUS OF CLAIMS

The *Status of Claims* submitted in the original Appeal Brief is hereby incorporated by reference.

## IV. STATUS OF AMENDMENTS

The *Status of Amendments* submitted in the original Appeal Brief is hereby incorporated by reference.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

The *Summary of Claimed Subject Matter* submitted in the original Appeal Brief is hereby incorporated by reference.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The *Grounds of Rejection to be Reviewed on Appeal* submitted in the original Appeal Brief is hereby incorporated by reference.

## VII. ARGUMENTS

The *Arguments* submitted in the original Appeal Brief is hereby incorporated by reference.



Petitioner Apple Inc. - Exhibit 1006, p. 6592

## VIII. CONCLUSION

For all of the reasons set forth in the original Appeal Brief, Appellants respectfully submit that all pending claims define patentable subject matter. Accordingly, Appellants respectfully request this Honorable Board to reverse the rejections of the pending claims.

Respectfully submitted,

Date: September 14, 2010

/Stephen M. Hertzler, Reg. No. 58,247/
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## IX. CLAIMS APPENDIX

The *Claims Appendix* submitted in the original Appeal Brief is hereby incorporated by reference.



Petitioner Apple Inc. - Exhibit 1006, p. 6594

## X. EVIDENCE APPENDIX

There is no evidence related to this Appeal.



Petitioner Apple Inc. - Exhibit 1006, p. 6595

## XI. RELATED PROCEEDINGS APPENDIX

- Decision on Appeal dated December 16, 2009, in Appeal No. 2009-8480, U.S. Application No. 10/162,212, U.S. Patent No. 7,774,279 (Attorney Docket No. 111325-230300)
- Decision on Appeal dated February 18, 2010, in Appeal No. 2009-008881, U.S. Application No. 10/163,634 (Attorney Docket No. 111325-230400)
- Decision on Appeal dated August 13, 2010, in Appeal No. 2009-013562, U.S. Application No. 10/298,220 (Attorney Docket No. 111325-310100)



Petitioner Apple Inc. - Exhibit 1006, p. 6596

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/163,634 | 06/07/2002 | Thanh Ta | 111325-230400 | 8116 |

22204 7590 02/18/2010

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| EXAMINER | |
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| AUGUSTIN, EVENS J | |

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| 02/18/2010 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* THANH TA,
THOMAS DEMARTINI,
JOSEPH Z. FUNG,
GUILLERMO LAO,
MAI NGUYEN,
BIJAN TADAYON,
VINCENT TIEU,
DUC TRAN,
XIN WANG, and
EDGARDO VALENZUELA

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Appeal 2009-008881
Application 10/163,634
Technology Center 3600

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Decided: February 18, 2010

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Before MURRIEL E. CRAWFORD, ANTON W. FETTING, JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

FISCHETTI, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Thanh Ta, et al. (Appellants) seek review under 35 U.S.C. § 134 (2002) of a final rejection of claims 1-9, 18-21 and 23-28. Claims 10-17 and 22 have been cancelled.

We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM.

## THE INVENTION

Appellants claim a system and method for managing use of protected resources within a system of resources. (Specification: 3)

Claim 1, reproduced below, is representative of the subject matter on appeal.

> 1. A method for managing use of protected resources within a system of resources, said method comprising:
>
> granting access to a protected resource by a principal when pre-conditions associated with the protected resource and the principal are satisfied,
>
> wherein the satisfaction of said pre-conditions is only required before the principal accesses the protected resource;
>
> permitting the principal to continue to access the protected resource only as long as during-access conditions associated with the protected resource and the principal are satisfied, said during-access conditions being distinct from said preconditions,

wherein the satisfaction of said during-access conditions is only required after the principal accesses the protected resource and before the access to the protected resource terminates; and

terminating access to the protected resource by the principal when a termination event occurs, said termination event comprising the satisfaction of post-conditions distinct from said during-access conditions,

wherein the satisfaction of the post-conditions is only required after the access to the protected resource terminates.

## THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

| | | |
|---|---|---|
| Stefik | US 5,629,980 | May 13, 1997 |

The following rejection is before us for review.

The Examiner rejected claims 1-9, 18-21, and 23-28 as being anticipated under 35 U.S.C. § 102(b) by Stefik.

## ISSUE

Have Appellants shown that the Examiner erred in rejecting claims 1-9, 18-21, and 23-28 as being anticipated by Stefik in that the post-conditions are distinct from the during-access conditions given that the value(s) of the loan period and/or copy counts are different in each condition, and thus are distinct as required by the claims?



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## PRINCIPLES OF LAW

*Anticipation*

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987).

## FINDINGS OF FACT

We find the following facts by a preponderance of the evidence:

1. The Examiner found with respect to the claim limitations: "permitting the principal to continue to access the protected resource only as long as during-access conditions associated with the protected resource and the principal are satisfied, said during-access conditions being distinct from said preconditions; wherein satisfying the during-access conditions is only required after the principal accesses the protected resource and before the access to the protected resource terminates"; that Stefik discloses this feature:

> During the accessing (col35, lines 66-67), the system checks to see if the loan period has been exhausted, and to see if the number of copies to be loaned is valid, also check to see if number of copies permitted are valid (column 36, lines 3-14), if those conditions are satisfied, continue to access content (column 3 1, lines 59-60). During Access, different than pre access conditions(pre access: Satisfies security checks (column 3 1, lines 38-45), Request is valid (column 35, lines 43-46), During Access: Loan period is not exhausted (column



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> 36,3-5), Number of copies in use less than requested (col 36, lines 8-13)

(Answer 12: Appendix A; Table 1, row 3, col. 2)

2. The Examiner found that Stefik discloses the claim limitation of: "terminating access to the protected resource by the principal when a termination event occurs, said termination event comprising the satisfaction of post-conditions distinct from said during-access conditions, wherein the satisfaction of the post-conditions is only required after the access to the protected resource terminates", in that:

> If the loan period is exhausted (termination event), then the user is deactivated from the system and the content is erased (post conditions) from the user's memory (column 36, lines 8-14, lines 15-22). A Termination event is when a loan period exhausted (column 36, lines 15-22). Interpreting post access conditions as erasing or removing content from memory, which does not happen until after the user is deactivated (consistent with appellant's specification in par. 50, where "a post condition is the removal of access to the resource after an exercise limit has been reached, when the limit is reached the resource is deleted or some other action is taken which disables or prevents access")

(Answer 12: Appendix A; Table 1, row 6, col.2)

3. Stefik discloses :

> The check of the usage rights essentially involves a determination of whether a right associated with the access request has been attached to the digital work and if all conditions associated with the right are satisfied. If the access is denied, repository 1 terminates the session with an error message, step 106. If access is granted, repository 1 transmits the digital work to repository 2, step 107. Once the digital work has been transmitted to repository



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> 2, repository 1 and 2 each generate billing information for the access which is transmitted to a credit server, step 108. Such double billing reporting is done to insure against attempts to circumvent the billing process.

Stefik: col.7 ll. 25-36.

4. Stefik discloses

> Assuming that the copy count does not equal zero, the server checks if the copies in use for the requested right is greater than or equal to any copy count for the requested right (or relevant parts), step 1809. If the copies in use is greater than or equal to the copy count, this indicates that usage rights for the version of the transaction have been exhausted. Accordingly, the server terminates the transaction, step 1805. If the copy count is less than the copies in use for the transaction the transaction can continue, and the copies in use would be incremented by the number of digital works requested in the transaction, step 1810.

Stefik: col. 31, ll. 52-62

4. Stefik discloses that "[t]he specifications components 1452 are used to specify conditions which must be satisfied prior to the right being exercised or to designate various transaction related parameters." Stefik: col.18, ll. 33-35.

5. The Examiner found with respect to claims 2 and 3 that "[t]he system uses digital content such as audio, video, text, or software (column 6, lines 39-40) and uses rendering devices (means) such as printers to render the content into its desired form (column 8, lines 23-33)." (Answer 4).

6. The Examiner found with respect to claim 29 that Stefik discloses a method specification indicating a manner by which the value of the state variable can be obtained from a device so that the value can be used to



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determine whether the pre-conditions, during-access conditions, and post-conditions are satisfied in that:

> [t]he requester sends the server a message to initiate the Transfer Transaction. This message indicates the work to be transferred, the version of the transfer right to be used in the transaction, the destination address information for placing the work, the file data for the work, and the number of copies involved.
>
> The repositories perform the common opening transaction steps.
>
> The server transmits the requested contents and data to the requester according to the transmission protocol. If a Next-Set-Of-Rights has been provided, those rights are transmitted as the rights for the work. Otherwise, the rights of the original are transmitted. In either case, the Copy-Count field for the transmitted rights are set to the number-of-copies requested.
>
> The requester records the work contents, data, and usage rights and stores the work.
>
> The server decrements its copy count by the number of copies involved in the transaction.
>
> The repositories perform the common closing transaction steps.
>
> If the number of copies remaining in the server is now zero, it erases the digital work from its memory.

Stefik: col. 35, ll. 6-29.

## ANALYSIS

We affirm the rejection of claims 1-9, 18-21 and 23-28.

Initially, we note that the Appellants argue claims 1, 4, 6-9, 23 and 24 together as a group. Correspondingly, we select representative claim 1 to decide the appeal of these claims, remaining claims standing or falling with claim 1.



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Appellants' arguments against each of the independent claims are based on perceived deficiencies of Stefik. Inasmuch as Appellants raise the same issues with respect to each of these claims, we discuss them together, addressing each of Appellants' arguments in turn.

A statement which merely points out what a claim recites will not be considered an argument for separate patentability of the claim. See, 37 C.F.R. § 41.37 (c)(1)(vii) (2004)

Appellants argue that:

> …Stefik fails to disclose the satisfaction during-access conditions after principal accesses the protected resource but before access is terminated, AND the satisfaction post-conditions only after access to the protected resource terminates, wherein the post-conditions are distinct from the during-access conditions.
>
> (Appeal Br. 7)

We disagree with Appellants' assertion that Stefik fails to disclose the required satisfaction of during access and post conditions. We find that the Examiner made findings that show that Stefik discloses the required satisfaction of during access and of post-conditions. (FF 1-2). The Examiner further found that in Stefik either the loan period or copy-count conditions could be read as the during-access or post conditions. (Answer 12: Appendix A; Table 1, rows 4,5,6), Appellants however argue that the Examiner has improperly analogized the copy count conditions as equatable to post-conditions of the invention because "[a]ccess to the resource would not be granted if the copies in use are greater than the copy count of the request (1809), since the transaction is otherwise immediately terminated (1805)." (Appeal Br. 7, 8). We disagree with Appellants because the copy



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count condition is a contingent condition which allows access to the content "if the copy count is less than the copies in use for the transaction [and thus] the transaction can continue, and the copies in use would be incremented by the number of digital works requested in the transaction, step 1810. (FF 4)

Even using one of the loan period or copy-count conditions as both the during-access or post conditions, we find that both the loan period and the copy count have different values when taken as access and post conditions, and hence are distinct as required by the claims.

Regarding claims 25 and 27, Appellants argue that

> After careful review of the Office Action of October 21, 2005, Appellants note that Examiner fails to distinctly point out the section(s) of the Stefik reference or other prior art that allegedly discloses the device recited in independent claim 27. Thus, the Examiner fails to provide support for a prima facie case of anticipation.

Appeal Br. 10.

We disagree with Appellants because we find that the Examiner has set forth a comprehensive claim chart (Answer 12) citing to Stefik by column and line number to the process steps of claim 1 which correspond to those functions set forth in the means-plus-function recitations in claim 27.

For example, the Examiner found with respect to the granting access function that Stefik discloses this feature at column 18 lines 33-35. (Answer 12). This section of Stefik discloses that the involved device in Stefik is the specific component 1452 which is used to specify conditions which must be satisfied prior to the right being exercised or to designate various transaction related parameters. (FF 4). We thus find this presentation sufficient to establish the elements of anticipation against claims 27 especially in light of



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Appellants' similar type of citing made in their SUMMARY section of the Brief on pages 4-5 for the required citations for specific elements of the means plus function language. We therefore sustain the rejection of claims 25 and 27, and claims 26 and 28 which depend therefrom, respectively.

With regard to claims 2 and 3, the Examiner found that "[t]he system uses digital content such as audio, video, text, or software (column 6, lines 39-40) and uses rendering devices such as printers to render the content into its desired form (column 8, lines 23-33)". (FF 5)

Appellants however argue that

> When derived resources are derived from protected content such as an encrypted file, the derived resources may include, but are not limited to a clear, unencrypted image and the memory address of the image. (*See* Specification: ¶ 22). In this example, the clear image (a derived resource) is the resource that can be used for rendering the protected content. Clearly, this example is distinguishable from the Examiner's assertion

We disagree with Appellants because Appellants' Specification describes, in one scenario the content is in usable form *e.g.*, unencrypted, we thus chose this scenario to meet the claim limitation where the rendering devices (printers) can use the data as a derived resource.

Regarding claim 5, this claim recites in pertinent part "said during-access conditions are applied to said primary resource and said derived resources."

Appellants argue first that, conditions are not disclosed as applied to both a primary and a derived resource in the manner claimed in dependent claim 5; and second, that usage rights are clearly distinct from conditions, such as during-access conditions. (Appeal Br. 12).



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We disagree with Appellants, as to the first point. We find that Stefik would necessarily function such that the conditions which control the primary source and would inherently control the downstream derived source because the latter is tied to the conditions of the former. "It is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it. [...] 'Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.'" *In re Cruciferous Sprout Lit.,* 301 F.3d 1343, 1349, (Fed. Cir. 2002) (citations and internal quotation marks omitted). As to point 2, Appellants' argument thus fails because Appellants use of the term "usage rights" is not recited in the claims. "[A]ppellant's arguments fail from the outset because [] they are not based on limitations appearing in the claims." *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Claim 18 recites in pertinent part

> providing a condition specification adapted to associate conditions with the protected resource to control the protected resource, said specification including:
>
> a resource designation indicating the protected resource that the pre-conditions, during-access conditions, and post-conditions are associated with;
>
> a state variable indicating a status of the resource with respect to the pre-conditions, during-access conditions, and post-conditions; and
>
> a method specification indicating a manner by which the value of the state variable can be obtained from a device so that the value can be used to determine whether the pre-conditions,



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> during-access conditions, and post-conditions are satisfied.

The Examiner found that status conditions are state variables which can be obtained from devices as described by Stefik at col.35, lines 6-29. (Answer 5). We agree with the Examiner. We find that Stefik's count status is a state variable in that it conveys information about the machine state. This is because Stefik discloses a message which includes data about "the work to be transferred, the version of the transfer right to be used in the transaction, the destination address information for placing the work, the file data for the work, and the number of copies involved." (FF 4).

Appellants however argue that "Stefik does not disclose a method specification that includes the location of state variables, appropriate communication protocols, and any parameters needed to obtain the value of a state variable in the manner claimed in dependent claim 18." (Appeal Br. 18). However, the Appellants' arguments "fail from the outset because . . . they are not based on limitations appearing in the claims . . .," because claim 18 does not recite "appropriate communication protocols". *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Appellants further argue that the "method specification can include the location(s) where values of state variables are stored (such as a remote server that manages a condition). (Appeal Br. 14). However, we find that Stefik at column 35 lines 6-29 similarly discloses a server, a location, at which in response to a message to initiate the Transfer Transaction, the count status is decremented (FF 6). In light of the breadth of the claim, the Appellants' arguments are not persuasive as to error in the rejection.

Appellants' arguments as to claim 21 rely on those asserted for claim 18 which found unpersuasive.



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Claim 19 recites in pertinent part wherein said method specification includes a location of a device on which the value of the state variable is stored.

The Examiner found that "The method indicates the destination address to stored (*sic*) the content and state variables (column 35, lines 9-11) (Answer 5).

Appellants argue that "[t]he method specification of claim 19 includes the location of a device on which a state variable is stored. This is not the same as the destination address information for placing work as suggested by Stefik." (Appeal Br. 15).

We disagree with Appellants. We find that the server sets the copy count to the number-of-copies requested (FF 4), and thus stores this value as required by the claims. We thus read the server as the location on which the value of the state variable is stored. The server also stores the destination address of the device which will receive the content as also required by the claims.

Claim 20 recites in pertinent part said method specification includes a communication protocol for obtaining the value of the state variable.

Appellants argue that "[c]laim 20 is distinguishable over Stefik, because claim 20 recites including the applicable communication protocol within the method specification for obtaining the value of a state variable." (Appeal Br. 16) We disagree with Appellants. We find that Stefik discloses a server which we read as including the required method specification. Since the communication from the server to the requester via a communication protocol causes the server to decrement its copy count by the number of copies involved in the transaction, it thus meets the required



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claims language. In light of the breadth of the claim, the Appellants' argument is not persuasive as to error in the rejection.

We therefore will not sustain the rejection of claim 18 or claims 19-21 which depend therefrom

## CONCLUSIONS OF LAW

We conclude the Appellants have not shown that the Examiner erred in rejecting claims 1-9, 18-21 and 23-28 as being anticipated under 35 U.S.C. § 102(b) by Stefik is affirmed.

## DECISION

To summarize, our decision is as follows.

The decision of the Examiner to reject claims 1-9, 18-21 and 23-28 is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

mev



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 | 8299 |

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| AUGUSTIN, EVENS J | |
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The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS J. AUGUSTIN | 3621 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *2-8,10,14-20,22,25,27-33,35,40-45 and 49-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Acknowledgements*

1. On August 13, 2008, applicant filed an appeal brief, appealing the rejection mailed on December 13, 2007. On September 25th, 2009, the Board ordered the Examiner to reconsider the claims for not meeting the requirements of being a patent eligible process under 35 U.S.C § 101. On May 17th, 2010 filed an amendment, correcting the 101 issues raised by the Board. This is in response to an amendment filed on May 17th, 2010. Claims 7, 19, 40, 41, 42 and 55 have been amended. Claims 2-8, 10, 14-20, 22, 25, 27-33, 35, 40-45, and 49-57 are pending.

2. In view of the amendment filed on May 17th, 2010, PROSECUTION IS HEREBY REOPENED.

3. To avoid abandonment of the application, appellant must exercise one of the following two options:

4. (1) file a reply under 37 CFR 1.113 (if this Office action is final); or,

5. (2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States. . . .

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 2-10, 14-22, 25, 27-35, and 40-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Downs et al (U.S 6226618).

8. As per claims 2-10, 14-22, 25, 27-35, and 40-54, Downs et al. disclose an invention that broadly relates to the field of electronic commerce and more particularly to a system and related tools for the secure delivery and rights management of digital assets, such as print media, films, games, and music over global communications networks such as the Internet and the World Wide Web. The invention includes the means and devices (hardware and software combination) (columns 53, lines 65-67, column 54, lines 1-3) to accomplish the items below- Claims 25, 38, 39,41-45,48, 51, 54. The invention comprising of the following:

A. Owners setting/specifying initial usage rights/licensing (**first license**) for content to the distributors (column 21, lines 30-33) (**"specifying in a first license at least one usage right and at least one meta-right for the item"**) – *Claims 40-42*

B. Example of usage rights include (column 59, lines 38-69 (**"specifying in a first license at least one usage right and at least one meta-right for the item"**), (**"defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item"**)– *Claims 40, 49-54*:

| | |
|---|---|
| Compressed Version | 384 Kbps |
| Type of user | Private Consumer |
| Type of Transaction | Purchase or Rental |
| Number Of copies | 1 |
| Rental Terms | 14 Days |
| Transfer on What Media | Mini Disc or Computer |

C. Owners setting initial usage rights/licensing (**first license**) for content to the distributors (column 21, lines 30-33). Those usage rights can be modified by the digital store (column 21, lines 33-39) to create **secondary licensing** or customized licensing (column 10, lines 15-18) to the end user – (**"wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices"**) *Claims 40-42, 10, 22, 35*

D. Content providers (entity that supplies the content), providing (equivalent to generating) usage conditions (equivalent to usage rights), The content providers also stipulate that the content stores or distributors can add or narrow the original usage rights (meta-rights or rights derived from the initial usage rights) (column 21, lines 30-36) - *Claims 40-42*

E. Usage rights being copy restrictions, which is manner in which the content can be used (column 9, 32-34, col. 26, lines 10-12). - *Claims 40-42*

F. Content stores or distributors can add or narrow the original usage rights (sub-rights) (column 21, lines 30-36) - *Claims 40-42*

G. The system also defines the manner in which the content can be used (**meta-rights**) such as onto what kinds of media the content can be transferred to (column 59, lines 52-54) – *Claims 40-42, 46-48*

H. State variable such the number of copies a user is allowed to make (column 59, line 50 or rental terms (column 59, lines 55-60) - *Claims 40-42*

I. State variables can be the number of copies a user is allowed to make - (**"associating at least one state variable with the at least one right "**) (column 59, line 50 or rental terms (column 59, lines 55-60). Content providers and distributors specify the number of plays and local copies allowed for the Content, and whether or not the Content may be recorded to an external portable device (state variable). Downs et al. keep track of the content's copy/play usage and update the copy/play status (column 20, lines 43-50, column 12, lines 11-12). The system also uses watermarks, as state variable, to ensure that the content is being played in a compliant user device (col. 7, lines 45-55). Inherently the identity or location of where the content is being played or copied has to be established, in order to determine whether or not a user is compliant. - ("**defining, via the at least one meta-right, a manner of rights derivation selected from a plurality of permitted manners of rights derivation for the item, wherein said at least one meta-right allows said one or more users or devices to transfer rights or to derive new rights**") -*Claims 40-42, 55-57*

J. The secondary licensing such as restrictions on rental time period can not violate the initial time period set by the initial licensing (column 21, line 35) - ("**generating in a second license one or more rights based on the meta-right in the first license**") *Claims 40-42*

K. The state variable is derived from the usage rights (column 59, line 50) or rental terms (column 59, lines 55-60) - *Claims 2-4, 14-16, 27-29*

L. The system keeps track of the content's copy/play usage and updates the copy/play status (column 20, lines 49-50) – *Claims 5, 17, 30*

M. A state variable can represent various other states, for example an item that rented can affect the number of copies that can be made or whether or not copies can be made - *Claims 6, 8, 18, 20, 31,33*

N. The system embeds a code on every copy the content, as it is transferred form user device to the next. When the Digital Content is accessed in a compliant End-User Devices, the End-User Player Application reads the watermark to check the use restrictions and updates the watermark as required. If the requested use of the content does not comply with the usage conditions, e.g., the number of copies has been exhausted, the End-User Device(s) will not perform the request (column 7, lines 40-55) - *Claims 7, 19, 32*

O. The content does not specify how the initial set of rights and variable are to modified, as long as it does not violate the initial licensing (column 21, line 35) - *Claims 9, 21, 34*

***Response to Arguments***

9. The United States Patent and Trademark Office has fully considered the applicant's arguments filed on 28 February 2007, but has not found those arguments to be persuasive.

**Argument 1:** Downs et al., fails to disclose, teach or suggest meta-rights, which allow one or more users or devices to transfer rights or to derive new rights.

**Response 1:** According to the applicant's specification, meta-rights are the rights that one has to manipulate, modify, or otherwise derive other meta-rights or usage rights. Meta-rights can be thought of as usage rights to usage rights (page 9, par. 41). Content providers (entity(s) that supplies the content), providing (equivalent to generating) usage conditions (equivalent to usage rights) also stipulate that the content stores or distributors also have rights to add or narrow the original usage rights (meta-rights or rights derived from the initial usage rights) (column 21, lines 30-36).

Additionally, state variables can be the number of copies a user is allowed to make (column 59, line 50 or rental terms (column 59, lines 55-60). Content providers and distributors specify the number of plays and local copies allowed for the Content, and whether or not the Content may be recorded to an external portable device (state variable). Downs et al. keep track of the content's copy/play usage and update the copy/play status (column 20, lines 43-50, column 12, lines 11-12). The system uses watermarks to ensure that the content is being played in a compliant user device (col. 7, lines 45-55). Inherently the identity or location of where the content is being played or copied has to be established, in order to determine whether or not a user is compliant.

Application stands finally rejected.

## *Conclusion*

10. **THIS ACTION IS MADE FINAL.** Any new ground(s) of rejection is due to the applicant's amendment. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EVENS J. AUGUSTIN whose telephone number is 571-272-6860. The examiner can normally be reached on 10am - 6pm M-F.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Fischer can be reached on (571)272-6779.

/EVENS J. AUGUSTIN/
Primary Examiner, Art Unit 3621

## Index of Claims

| Application/Control No. | Applicant(s)/Patent under Reexamination |
|---|---|
| 10/956,070 | NGUYEN ET AL. |
| **Examiner** | **Art Unit** |
| EVENS J. AUGUSTIN | 3621 |

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**AUTHORIZATION TO ACT ON BEHALF OF THE ASSIGNEE**

**UNDER 37 CFR 3.73(b)(2)(i)**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The practitioners associated with Customer Number 98804 have been authorized (or empowered) to act on behalf of ContentGuard Holdings, Inc. before the United States Patent and Trademark Office (i.e. to sign the enclosed submission on behalf of the assignee), pursuant to 37 CFR 3.73(b)(2)(i).

If any additional information is required in this regard, please contact the undersigned as soon as possible.

Respectfully submitted,

Date: September 16, 2010

/Stephen M. Hertzler, Reg. No. 58,247/
Stephen M. Hertzler
Registration No. 58,247

**REED SMITH LLP**
CUSTOMER NO.: 98804
1301 K Street N.W.
Suite 1100 – East Tower
Washington, D.C. 20005



Petitioner Apple Inc. - Exhibit 1006, p. 6624

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 8499526 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 22204 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 111325-235000 |
| **Receipt Date:** | 27-SEP-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 21:29:55 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Power of Attorney | 235000POA.pdf | 673384<br>656bb8c41bc47cfc1f8d885dd454c9a76d2af7f8 | no | 2 |

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| **Warnings:** | |
| **Information:** | |

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| 2 | New or Additional Drawings | 235000AuthLetter.pdf | 457176<br>14f6b1acd391e279d24182bff821898c15697ac0 | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Assignee showing of ownership per 37 CFR 3.73(b). | 235000_37CFR373_Certificate.pdf | 432738<br>5e4aebde85274d4b0042c042baf663006c3aa7ad | no | 2 |
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| | | **Total Files Size (in bytes):** | 1563298 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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# STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: CONTENTGUARD HOLDINGS, INC.

Application No./Patent No.: 10/956,070 Filed/Issue Date: 10-04-2004

Titled: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

CONTENTGUARD HOLDINGS, INC. , a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 016311, Frame 0809, or for which a copy therefore is attached.

**OR**

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

| /Stephen M. Hertzler, Reg. No. 58,247/ | September 27, 2010 |
|---|---|
| Signature | Date |
| Stephen M. Hertzler, Reg. No. 58,247 | |
| Printed or Typed Name | Title |

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

# Privacy Act Statement

The **Privacy Act of 1974** (**P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 98804

*OR*

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number | Name | Registration Number |
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as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☑ The address associated with Customer Number: 98804

*OR*

| | | | |
|---|---|---|---|
| ☐ Firm or Individual Name | | | |
| Address | | | |
| City | | State | Zip |
| Country | | | |
| Telephone | | Email | |

Assignee Name and Address:

ContentGuard Holdings, Inc.
222 N. Sepulveda Blvd., Suite 1400
El Segundo, CA 90245

**A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

| | | | |
|---|---|---|---|
| Signature | [signature] | Date | 9/16/2010 |
| Name | Eddie Chen | Telephone | |
| Title | Chief Technology Officer | | |

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 |

**CONFIRMATION NO. 8299**

98804
Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

**POA ACCEPTANCE LETTER**

*OC000000043812311*

Date Mailed: 10/08/2010

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/27/2010.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/atesfai/

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Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



Petitioner Apple Inc. - Exhibit 1006, p. 6631

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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 111325-235000 |

**CONFIRMATION NO. 8299**

**POWER OF ATTORNEY NOTICE**

22204
NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

*OC000000043812287*

Date Mailed: 10/08/2010

## NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/27/2010.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/atesfai/

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Petitioner Apple Inc. - Exhibit 1006, p. 6632

Docket No.: 10-531-US-P4 (235000)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**
**BEFORE THE BOARD OF PATENT APPEALS & INTERFERENCES**

| | | |
|---|---|---|
| In re Patent Application of: | ) | Confirmation No.: 8299 |
| Mai NGUYEN, et al. | ) | Group Art Unit: 3621 |
| Serial No. 10/956,070 | ) | Examiner: Evens J. Augustin |
| Filed: October 4, 2004 | ) | |
| For: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES | ) | Date: November 22, 2010 |

**AMENDMENT AFTER FINAL**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the final Office Action mailed September 20, 2010, response to which is timely due December 20, 2010, the present response is deemed to be timely filed. Entry of this amendment and response is respectfully requested.

**Amendments to the Claims** begin on page 2 of this paper.
**Remarks** begin on page 10 of this paper.



Petitioner Apple Inc. - Exhibit 1006, p. 6633

## REMARKS

Claims 2-8, 10, 14-20, 22, 27-33, 35, 40-42 and 49-59 were pending in this application prior to the Final Office Action. Claims 40-42 are amended herein, and claims 52-54 are canceled. Thus, claims 2-8, 10, 14-20, 22, 27-33, 35, 40-42, 49-51, and 55-59 remain pending in this application.

### *Interview Summary*

Applicants discussed the amendments presented herein with the Examiner on November 10, 2010. During this interview, the Examiner agreed to enter amendments after-final that specified that the claimed meta-right (1) is enforceable by a repository and (2) allows one or more users or devices to create new rights. Applicants have amended claims 40-42 in this manner because of the Examiner's indication that these amendments overcame the rejections based on the prior art of record.

Applicants submit that this amendment presents no new matter and requires no further search or consideration. Thus, Applicants submit that entry of this amendment would be proper at this time. In addition, the amendments presented herein necessitated the cancellation of claims 52-54 to maintain clarity and consistency in view of the amendments made to claims 40-42.

The Examiner further indicated that this case would be in condition for allowance upon entry of the above amendments and submission of a Terminal Disclaimer over U.S. Patent No. 7,774,279. Applicants will file a Terminal Disclaimer in this application upon an indication from the Examiner that the amendments presented herein will be entered, and that this case is otherwise in condition for immediate allowance. The Examiner is encouraged to contact the undersigned directly regarding submission of a Terminal Disclaimer.

### *Rejections under 35 U.S.C. § 102*

Claims 2-10, 14-22, 25, 27-35, and 40-54 stand rejected under 35 U.S.C. § 102(b) over Downs (U.S. Patent No. 6,226,618). However, as discussed with the Examiner during the interview, Downs fails to disclose, suggest, or render obvious the concept of meta-rights as set forth in the claims as amended herein. Specifically, Downs fails to disclose meta-rights that (1)

are enforceable by a repository and (2) allow one or more users or devices to create new rights. Accordingly, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections under 35 U.S.C. § 102 in view of Downs.

***Conclusion***

In view of the foregoing, Applicant respectfully submits that the present application is in condition for allowance and notice to that effect is respectfully requested. If, however, the Examiner deems that any issue remains after considering this response, the Examiner is invited to contact the undersigned attorney/agent to expedite the prosecution and engage in a joint effort to work out a mutually satisfactory solution.

**Except** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application, including fees due under 37 C.F.R. § 1.16 and 1.17, which may be required, including any required extension of time fees, or credit any overpayment, to Deposit Account No. 50-1529. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

Date: November 22, 2010

/Stephen M. Hertzler, Reg. No. 58,247/
Stephen M. Hertzler
Reg. No. 58,247

**REED SMITH LLP**
CUSTOMER NO.: 98804
1301 K Street N.W.
Suite 1100 – East Tower
Washington, D.C. 20005



Petitioner Apple Inc. - Exhibit 1006, p. 6635

**Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)

2. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

3. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

4. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

5. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

6. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license represents a collection of states.

7. (Previously Presented) The method of claim 40, further comprising:

generating in a third license, using a processor, one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

associating, using a processor, at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

8. (Previously Presented) The method of claim 40, further comprising a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

9. (Canceled)

10. (Previously Presented) The method of claim 40, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

11-13. (Canceled)

14. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

15. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

16. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

17. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

18. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license represents a collection of states.

19. (Previously Presented) The system of claim 41, further comprising:

a processor for generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

a processor for associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

20. (Previously Presented) The system of claim 41, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

21. (Canceled)

22. (Previously Presented) The system of claim 41, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

23-26. (Canceled)

27. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other

generated usage rights and meta-rights.

28. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

29. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

30. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

31. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license represents a collection of states.

32. (Previously Presented) The device of claim 42, wherein a third license includes one or more rights from at least one of the usage right and the meta-right in the second license,

the one or more rights in the third license includes at least one right that is shared among one or more users or devices,

at least one state variable is associated with the at least one right that is shared in the third license, and

the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

33. (Previously Presented) The device of claim 42, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

34. (Canceled)

35. (Previously Presented) The device of claim 42, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

36-39. (Canceled)

40. (Currently Amended) A method for sharing rights adapted to be associated with an item, the method comprising:

specifying, in a first license, using a processor, at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

defining, via the at least one usage right, using a processor, a manner of use selected from a plurality of permitted manners of use for the item;

defining, via the at least one meta-right, using a processor, a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, wherein said at least one meta-right is enforceable by a repository and allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights;

associating, using a processor, at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

generating, in a second license, using a processor, one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

41. (Currently Amended) A system for sharing rights adapted to be associated with an item, the system comprising:

a processor for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

a processor for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

a processor for defining, via the at least one meta-right, a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, wherein said at least one meta-right is enforceable by a repository and allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights;

a processor for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

a processor for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

42. (Currently Amended) A device for sharing rights adapted to be associated with an item, the device comprising:

a repository for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, said at least one meta-right is enforceable by a repository and

allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked; and

a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

43-48. (Canceled)

49. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

50. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

51. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

52-54. (Canceled)

55. (Previously Presented) The method of claim 40, further comprising:

generating in a further license, using a processor, one or more rights based on the meta-right in the second license, wherein the one or more rights in the further license includes at least

one right that is shared among one or more users or devices; and

associating, using a processor, at least one state variable with the at least one right that is shared in the further license, wherein the at least one state variable that is associated with the further license is based on the at least one state variable that is associated with the second license.

56. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is the same as the at least one state variable that is associated with the first license, if the at least one state variable that is associated with the first license does not identify an unspecified location.

57. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is assigned a new location identification, if the at least one state variable that is associated with the first license identifies an unspecified location.

58. (Previously Presented) The method of claim 40, wherein two or more of the specifying, defining, associating, and generating steps may be carried out using a single processor.

59. (Previously Presented) The system of claim 41, wherein a single processor may be used to carry out two or more of the specifying, defining, associating, and generating steps.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 8890555 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 98804 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 10-531-US-P4 (cg235000) |
| **Receipt Date:** | 22-NOV-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 18:23:40 |
| **Application Type:** | Utility under 35 USC 111(a) |

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| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
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| 1 | Amendment After Final | 10531USP4_-_2010-11-22_-_Amendment_After_Final.pdf | 501804<br>e6af748dd085ee53622a1270fcbceac0617329a8 | no | 11 |

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**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

PTO/SB/06 (07-06)
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|---|---|---|
| 10/956,070 | 10/04/2004 | |

## APPLICATION AS FILED – PART I

| | (Column 1) | (Column 2) | SMALL ENTITY ☐ RATE ($) | SMALL ENTITY ☐ FEE ($) | OR | OTHER THAN SMALL ENTITY RATE ($) | OTHER THAN SMALL ENTITY FEE ($) |
|---|---|---|---|---|---|---|---|
| FOR | NUMBER FILED | NUMBER EXTRA | | | | | |
| ☐ BASIC FEE (37 CFR 1.16(a), (b), or (c)) | N/A | N/A | N/A | | | N/A | |
| ☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m)) | N/A | N/A | N/A | | | N/A | |
| ☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q)) | N/A | N/A | N/A | | | N/A | |
| TOTAL CLAIMS (37 CFR 1.16(i)) | minus 20 = | * | X $ = | | OR | X $ = | |
| INDEPENDENT CLAIMS (37 CFR 1.16(h)) | minus 3 = | * | X $ = | | | X $ = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | TOTAL | | | TOTAL | |

## APPLICATION AS AMENDED – PART II

| AMENDMENT | 11/22/2010 | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | SMALL ENTITY RATE ($) | SMALL ENTITY ADDITIONAL FEE ($) | OR | OTHER THAN SMALL ENTITY RATE ($) | OTHER THAN SMALL ENTITY ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total (37 CFR 1.16(i)) | * 35 | Minus | ** 40 | = 0 | X $ = | | OR | X $52= | 0 |
| | Independent (37 CFR 1.16(h)) | * 3 | Minus | ***3 | = 0 | X $ = | | OR | X $220= | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | 0 |

| AMENDMENT | | (Column 1) CLAIMS REMAINING AFTER AMENDMENT | | (Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR | (Column 3) PRESENT EXTRA | RATE ($) | ADDITIONAL FEE ($) | | RATE ($) | ADDITIONAL FEE ($) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total (37 CFR 1.16(i)) | * | Minus | ** | = | X $ = | | OR | X $ = | |
| | Independent (37 CFR 1.16(h)) | * | Minus | *** | = | X $ = | | OR | X $ = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | OR | | |
| | | | | | | TOTAL ADD'L FEE | | OR | TOTAL ADD'L FEE | |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/WANDA ANTHONY/

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15-MA-97 96 95

# Preface

*The road goes ever on and on.*
*– Bilbo Baggins*

As promised in the first edition of this book, C++ has been evolving to meet the needs of its users. This evolution has been guided by the experience of users of widely varying backgrounds working in a great range of application areas. The C++ user-community has grown a hundredfold during the six years since the first edition of this book; many lessons have been learned, and many techniques have been discovered and/or validated by experience. Some of these experiences are reflected here.

The primary aim of the language extensions made in the last six years has been to enhance C++ as a language for data abstraction and object-oriented programming in general and to enhance it as a tool for writing high-quality libraries of user-defined types in particular. A "high-quality library," is a library that provides a concept to a user in the form of one or more classes that are convenient, safe, and efficient to use. In this context, *safe* means that a class provides a specific type-safe interface between the users of the library and its providers; *efficient* means that use of the class does not impose significant overheads in run-time or space on the user compared with hand-written C code.

This book presents the complete C++ language. Chapters 1 through 10 give a tutorial introduction; Chapters 11 through 13 provide a discussion of design and software development issues; and, finally, the complete C++ reference manual is included. Naturally, the features added and resolutions made since the original edition are integral parts of the presentation. They include refined overloading resolution, memory management facilities, and access control mechanisms, type-safe linkage, `const` and `static` member functions, abstract classes, multiple inheritance, templates, and exception handling.

C++ is a general-purpose programming language; its core application domain is

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## 1.4 Support for Data Abstraction

The basic support for programming with data abstraction consists of facilities for defining a set of operations (functions and operators) for a type and for restricting the access to objects of the type to that set of operations. Once that is done, however, the programmer soon finds that language refinements are needed for convenient definition and use of the new types. Operator overloading is a good example of this.

### 1.4.1 Initialization and Cleanup

When the representation of a type is hidden, some mechanism must be provided for a user to initialize variables of that type. A simple solution is to require a user to call some function to initialize a variable before using it. For example:

```
class vector {
    // ...
public:
    void init(int size);    // call init() before
                            // the first use of a vector
    // ...
};

void f()
{
    vector v;
    // don't use v here
    v.init(10);
    // use v here
}
```

This is error prone and inelegant. A better solution is to allow the designer of a type to provide a distinguished function to do the initialization. Given such a function, allocation and initialization of a variable becomes a single operation (often called instantiation or construction) instead of two separate operations. Such an initialization function is called a constructor. A constructor is identified by having the same name as its class. Where construction of objects of a type is nontrivial, one often needs a complementary operation to clean up objects after their last use. In C++, such a cleanup function is called a destructor. A destructor is identified by having the same name as its class prefixed by ~ (the C++ complement operator). Consider:

```
class vector {
    int  sz;                        // number of elements
    int* v;                         // pointer to integers
public:
    vector(int);                    // constructor
    ~vector();                      // destructor
    int& operator[](int index);     // subscript operator
};
```



The `vector` constructor can be defined to check for errors and allocate space:

```
vector::vector(int s)
{
    if (s<=0) error("bad vector size");
    sz = s;
    v = new int[s]; // allocate an array of s integers
}
```

The `vector` destructor frees the storage used:

```
vector::~vector()
{
    delete[] v;     // deallocate the array
                    // pointed to by v
}
```

C++ does not require the implementation to reclaim storage allocated by `new` when it becomes unreferenced ("automatic garbage collection"). This is compensated for, however, by enabling a type to maintain its own storage management without requiring intervention by a user. This is a common use for the constructor/destructor mechanism, but many uses of this mechanism are unrelated to storage management; see, for example §9.4.

### 1.4.2 Assignment and Initialization

Controlling construction and destruction of objects is sufficient for many types, but not for all. It can also be necessary to control all copy operations. Consider class `vector`:

```
void f()
{
    vector v1(100);
    vector v2 = v1; // make a new vector v2 initialized to v1
    v1 = v2;        // assign v2 to v1
    // ...
}
```

It must be possible to define the meaning of the initialization of `v2` and the assignment to `v1`. For example:

```
class vector {
    int* v;
    int  sz;
public:
    // ...
    void operator=(const vector&);  // assignment
    vector(const vector&);          // initialization
};
```

specifies that user-defined operations should be used to interpret `vector` assignment

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with larger systems shows that over years successful systems evolve in this direction.

### 9.4.4 Exceptions and Constructors

Exceptions provide a solution to the problem of how to report errors from a constructor. Because a constructor does not return a separate value that a caller can test, the traditional (that is, non-exception-handling) alternatives are:

[1] Return an object in a bad state – and trust the user to test the state.

[2] Set a non-local variable indicating that the creation failed.

Exception handling allows the information that a construction failed to be transmitted out of the constructor. For example:

```
Vector::Vector(int sz)
{
    if (sz<0 || max<sz) throw Size();
    // ...
}
```

Code creating `Vectors` can now catch `Size` errors and hopefully do something sensible with them:

```
Vector* f(int i)
{
    Vector* p;
    try {
        p = new Vector(i);
    }
    catch(Vector::Size) {
        // deal with the bad size error
    }
    // ...
    return p;
}
```

The handler can then deal with the error in a suitable way. As ever, the error handler itself can use the standard set of fundamental techniques for error reporting and recovery. Each time an exception is passed along to a caller, the view of what went wrong changes. If suitable information is passed along in the exception, the amount of information available to deal with the problem increases. In other words, the fundamental aim of the error-handling techniques is to reliably and conveniently pass information about an error from the original point of detection to a point where there is sufficient information available to recover from the problem.

The "resource acquisition is initialization" technique is the safest and most elegant way of handling constructors that acquire more than one resource. In essence, the technique reduces the problem of handling many resources to repeated application of the (simple) technique for handling one resource.



## 9.5 Exceptions that are not Errors

If an exception is expected and caught so that it has no bad effects on the behavior of the program, then how can it be an error? Only because the programmer thinks of it as an error and of the exception handling mechanisms as a tool for handling errors. Alternatively, one might think of the exception handling mechanisms as simply another control structure. For example,

```
class message { /* ... */ };

class queue {
    // ...
    message* get(); // return 0 if queue empty
    // ...
};

void f1(queue& q)
{
    message* m = q.get();
    if (m == 0) {  // queue empty
        // ...
    }
    // use m
}
```

could be written as

```
class Empty { }; // exception type

class queue {
    // ...
    message* get(); // throw Empty if queue empty
    // ...
};

void f2(queue& q)
{
    try {
        message* m = q.get();
        // use m
    }
    catch (Empty) {  // queue empty
        // ...
    }
}
```

The exception handling version actually has some charm, so this is a good example of a case where it is not entirely clear what should be considered an error and what should not. If the queue is not supposed to be empty – if it is actually empty very rarely ("only one time in a thousand") – and the action taken is some kind of

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### 12.2.6 Use Relationships

Knowledge of what other classes a class uses and in which ways is often critical to express and understand a design. Such dependencies are supported only implicitly by C++. A class can use only names that have been declared (somewhere), but there is no place in the C++ source containing the full list of names used. Tools (or in the absence of suitable tools, careful reading) are necessary for extracting such information. The ways a class `X` can use another class `Y` can be classified in several ways. Here is one way:

- `X` uses the name `Y`
- `X` uses `Y`
  - `X` calls a `Y` member function
  - `X` reads a member of `Y`
  - `X` writes a member of `Y`
- `X` creates a `Y`
  - `X` allocates an `auto` or `static` variable of `Y`
  - `X` creates a `Y` using `new`
  - `X` takes the size of a `Y`

The reason that taking the size of an object is classified as creation is that it requires knowledge of the complete class declaration. Conversely, the reason naming `Y` is classified as a separate dependency is that just doing that – for example, in declaring a `Y*` or mentioning `Y` in the declaration of an external function – doesn't require access to the declaration of `Y` at all:

```
class Y;     // Y is the name of a class
Y* p;
extern Y f(const Y&);
```

The reason creation using `new` is mentioned separately from variable declaration is that it is possible to implement C++ so that creation of a `Y` using `new` does not require knowledge of the size of `Y`. This can be important to limit dependencies in a design and to minimize recompilation after a change.

C++ doesn't require the implementer of a class to specify in detail what other classes are used and how. One reason for this is that most significant classes depend on so many other classes that an abbreviation of the list of those classes, such as an `#include` directive, would be necessary for readability. Another is that the classification of such dependencies, and in particular the granularity of such dependencies, doesn't appear to be a programming language issue. Rather, exactly how *uses* dependencies are viewed depends on the purpose of the designer, programmer, or tool. Finally, what dependencies are interesting may also depend on details of the language implementation.

### 12.2.7 Relationships within a Class

Up until now I have talked primarily of classes; operations have been mentioned, but except for particular stages of the development process (e.g., §11.3.3.2) they have

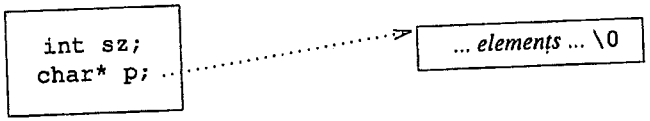


been considered strictly secondary; objects have hardly been mentioned at all. The reason for that is simple: In C++, the class, and not the function or the object, is the primary unit of system organization.

A class can conceal just about any implementation detail and just about any amount of dirt – and sometimes it has to. However, the objects of most classes do themselves have a regular structure and are manipulated in ways that are fairly easy to describe. An object of a class is a collection of other sub-objects (often called members), and many of these are pointers and references to other objects. Thus an object can be seen as the root of a tree of objects, and the objects involved can be seen as constituting an "object hierarchy" that is complementary to the class hierarchy as described in §12.2.4. For example, consider the string class from §7.6:

```
class String {
    int sz;
    char* p;
public:
    String(const char* q);
    ~String();
    // ...
};
```

A `String` object can be drawn as:




#### 12.2.7.1 Invariants

The value of the members and the objects referred to by members is called the state of the object (or simply its value). A major concern of a class design is to get an object into a well defined state (initialization), to maintain a well defined state as operations are performed, and finally to destroy the object gracefully. The property that makes the state of an object well defined is called an invariant.

Thus the purpose of initialization is to establish the invariant for an object. Each operation on a class can assume it will find the invariant true on entry and must leave the invariant true on exit. The destructor finally invalidates the invariant by destroying the object. For example, the constructor `String::String(const char*)` ensures that `p` points to an array of at least `sz` elements where `sz` has a reasonable value and where `v[sz-1]==0`. Every string operation must leave that assertion true.

Much of the skill in class design involves making the implementation of a class simple enough to make it possible to have a useful invariant that can be expressed simply. It is easy enough to state that every class needs an invariant; the hard part is

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```
for-init-statement
while ( expression-1 ) {
        statement
        expression-2 ;
}
```

except that a `continue` in *statement* will execute *expression-2* before re-evaluating *expression-1*. Thus the first statement specifies initialization for the loop; the first expression specifies a test, made before each iteration, such that the loop is exited when the expression becomes zero; the second expression often specifies incrementing that is done after each iteration. The first expression must have arithmetic or pointer type or a class type for which an unambiguous conversion to arithmetic or pointer type exists (§r.12.3).

Either or both of the expressions may be dropped. A missing *expression-1* makes the implied `while` clause equivalent to `while(1)`.

If the *for-init-statement* is a declaration, the scope of the names declared extends to the end of the block enclosing the *for-statement*.

### r.6.6 Jump Statements

Jump statements unconditionally transfer control.

```
jump-statement:
        break ;
        continue ;
        return expression_opt ;
        goto identifier ;
```

On exit from a scope (however accomplished), destructors (§r.12.4) are called for all constructed class objects in that scope that have not yet been destroyed. This applies to both explicitly declared objects and temporaries (§r.12.2). Declared objects are destroyed in reverse order of their construction.

It is illegal to transfer control into a *try-block* or a *handler* (§r.15.1).

#### r.6.6.1 The `break` Statement

The `break` statement may occur only in an *iteration-statement* or a `switch` statement and causes termination of the smallest enclosing *iteration-statement* or `switch` statement; control passes to the statement following the terminated statement, if any.

#### r.6.6.2 The `continue` Statement

The `continue` statement may occur only in an *iteration-statement* and causes control to pass to the loop-continuation portion of the smallest enclosing *iteration-statement*, that is, to the end of the loop. More precisely, in each of the statements



```
while (foo) {
  // ...
contin: ;
}
```

```
do {
  // ...
contin: ;
} while (foo);
```

```
for (;;) {
  // ...
contin: ;
}
```

a `continue` not contained in an enclosed iteration statement is equivalent to `goto contin`.

#### r.6.6.3 The `return` Statement

A function returns to its caller by the `return` statement.

A return statement without an expression can be used only in functions that do not return a value, that is, a function with the return value type `void`, a constructor (§r.12.1), or a destructor (§r.12.4). A return statement with an expression can be used only in functions returning a value; the value of the expression is returned to the caller of the function. If required, the expression is converted, as in an initialization, to the return type of the function in which it appears. This may involve the construction and copy of a temporary object (§r.12.2). Flowing off the end of a function is equivalent to a `return` with no value; this is illegal in a value-returning function.

#### r.6.6.4 The `goto` Statement

The `goto` statement unconditionally transfers control to the statement labeled by the identifier. The identifier must be a label (§r.6.1) located in the current function.

### r.6.7 Declaration Statement

A declaration statement introduces a new identifier into a block; it has the form

```
declaration-statement:
        declaration
```

If an identifier introduced by a declaration was previously declared in an outer block, the outer declaration is hidden for the remainder of the block, after which it resumes its force.

Any initializations of `auto` or `register` variables are done each time their *declaration-statement* is executed. Destruction of local variables declared in the block is done on exit from the block (§r.6.6). Destruction of `auto` variables defined in a loop is done once per iteration. For example, here the `Index j` is created and destroyed once each time round the `i` loop:

```
for (int i = 0; i<100; i++)
    for (Index j = 0; j<100; j++) {
        // ...
    }
```

Transfer out of a loop, out of a block, or back past an initialized `auto` variable involves the destruction of `auto` variables declared at the point transferred from but

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( **Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 10956070 |
| Filing Date | 2004-10-04 |
| First Named Inventor | Mai NGUYEN |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 10-531-US-P4 |

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|---|---|---|---|
| | 1 | "The C++ Programming Language - Second Edition", Bjarne Stroustrup, Addison-Wesley, ISBN 0-201-53992-6, 1991. | ☐ |

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| **EFS ID:** | 8982641 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 98804 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 10-531-US-P4 (cg235000) |
| **Receipt Date:** | 07-DEC-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 21:21:36 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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| Submitted with Payment | yes |
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|---|---|---|---|---|---|
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| **Warnings:** | | | | | |
| **Information:** | | | | | |
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| 2 | NPL Documents | C_-_Programming_Language_Ref.pdf | 861039<br>e8f15bd0590c63571cf313bb364effdfefdd90b9 | no | 5 |
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| 3 | Fee Worksheet (PTO-875) | fee-info.pdf | 30199<br>5c28c85a838f6d438a1e47faf146855dc3623e02 | no | 2 |
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# Electronic Patent Application Fee Transmittal

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|---|---|
| **Application Number:** | 10956070 |
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Filed as Large Entity

## Utility under 35 USC 111(a) Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
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| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
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| Attorney Docket Number | 10-531-US-P4 |

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

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| Signature | /Stephen M. Hertzler, Reg. No. 58,247/ | Date (YYYY-MM-DD) | 2010-12-07 |
| Name/Print | Stephen M. Hertzler | Registration Number | 58247 |

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 9101113 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 98804 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 10-531-US-P4 (cg235000) |
| **Receipt Date:** | 22-DEC-2010 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 21:35:49 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $140 |
| RAM confirmation Number | 8161 |
| Deposit Account | 501529 |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Terminal Disclaimer Filed | 10-531-US-P4_-_2010-12-22_-_Terminal_Disclaimer.pdf | 423633<br>6e8df6b6804f97d8c6221e4b992e3817396beafd | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (PTO-875) | fee-info.pdf | 30007<br>c5838dcad0748aa9e04bf1e0618597e713dffec2 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 453640 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | System and method for rights offering and granting using shared state variables |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Filer:** | Stephen M. Hertzler |
| **Attorney Docket Number:** | 10-531-US-P4 (cg235000) |

Filed as Large Entity

## Utility under 35 USC 111(a) Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Miscellaneous:** | | | | |
| Statutory or terminal disclaimer | 1814 | 1 | 140 | 140 |
| | | **Total in USD ($)** | | **140** |

PTO/SB/26 (08-08)
Approved for use through 09/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

| **TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT** | Docket Number (Optional) 10-531-US-P4 (235000) |
|---|---|

In re Application of: Mai NGUYEN, et al.

Application No.: 10/956,070

Filed: October 4, 2004

For: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

The owner*, CONTENTGUARD HOLDINGS, INC., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 7,774,279 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 58,247

// Stephen M. Hertzler //
Signature

2010-12-22
Date

Stephen M. Hertzler
Typed or printed name

202.414.9202
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (cg235000) | 8299 |

98804 7590 12/29/2010

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| **ART UNIT** | **PAPER NUMBER** |
| 3621 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 12/29/2010 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptoipinbox@reedsmith.com
mskaufman@reedsmith.com

| **Advisory Action Before the Filing of an Appeal Brief** | **Application No.** 10/956,070 | **Applicant(s)** NGUYEN ET AL. | |
|---|---|---|---|
| | **Examiner** EVENS J. AUGUSTIN | **Art Unit** 3621 | |

***--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

THE REPLY FILED 22 November 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires _____months from the mailing date of the final rejection.
   b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *2-8,10,14-20,22,27-33,35,40-42 and 49-59*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The above claims would be in condition for allowance after submission and approval of a Terminal Disclaimer over U.S. Patent No. 7,774,279.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/EVENS J. AUGUSTIN/
Primary Examiner, Art Unit 3621

| Application Number | Application/Control No. | Applicant(s)/Patent under Reexamination | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |

| Document Code - DISQ | Internal Document – DO NOT MAIL |
|---|---|

| TERMINAL DISCLAIMER | ☒ APPROVED | ☐ DISAPPROVED |
|---|---|---|
| Date Filed : 12/2210 | This patent is subject to a Terminal Disclaimer | |

| Approved/Disapproved by: |
|---|
| Janice Ford |

U.S. Patent and Trademark Office

PTO/SB/31 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# **NOTICE OF APPEAL** FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional)
10-531-US-P4 (CG235000)

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]
on _____

Signature _____

Typed or printed name _____

In re Application of
Michael RALEY, et al.

| Application Number | Filed |
|---|---|
| 10/956,070 | 10/04/2004 |

For SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

| Art Unit | Examiner |
|---|---|
| 3621 | AUGUSTIN, EVENS J |

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 540.00

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ _____

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 50-1529 .

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☑ attorney or agent of record.
Registration number 58,247.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34. _____

/Stephen M. Hertzler, Reg. no. 58,247/
Signature

Stephen M. Hertzler
Typed or printed name

202-414-9202
Telephone number

March 21, 2011
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

# Privacy Act Statement

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Filer:** | Stephen M. Hertzler |
| **Attorney Docket Number:** | 10-531-US-P4 (CG235000) |

Filed as Large Entity

## Utility under 35 USC 111(a) Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| Notice of appeal | 1401 | 1 | 540 | 540 |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| **Extension-of-Time:** | | | | |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| Extension - 3 months with $0 paid | 1253 | 1 | 1110 | 1110 |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **1650** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 9703718 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 98804 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 10-531-US-P4 (CG235000) |
| **Receipt Date:** | 21-MAR-2011 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 22:03:52 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $1650 |
| RAM confirmation Number | 7547 |
| Deposit Account | 501529 |
| Authorized User | |

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Notice of Appeal Filed | 10-531-US-P4_235000_-_2011-03-21_-_Notice_of_Appeal.pdf | 426088<br>1ba09471bb4999102b6fd7b78369827814 56a4c5 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (PTO-875) | fee-info.pdf | 32466<br>693eb46de6ff42b4561455f2b848c5f4cd68f f34 | no | 2 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| | | **Total Files Size (in bytes):** | 458554 | | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

# NOTICE OF ALLOWANCE AND FEE(S) DUE

98804 7590 03/24/2011

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

| EXAMINER |
|---|
| AUGUSTIN, EVENS J |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3621 | |

DATE MAILED: 03/24/2011

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

TITLE OF INVENTION: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | NO | $1510 | $300 | $0 | $1810 | 06/24/2011 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

## PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail** **Mail Stop ISSUE FEE**
**Commissioner for Patents**
**P.O. Box 1450**
**Alexandria, Virginia 22313-1450**
**or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

98804 7590 03/24/2011

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|---|
| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

TITLE OF INVENTION: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | NO | $1510 | $300 | $0 | $1810 | 06/24/2011 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| AUGUSTIN, EVENS J | 3621 | 705-051000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Petitioner Apple Inc. - Exhibit 1006, p. 6676

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Address: COMMISSIONER FOR PATENTS
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

98804 7590 03/24/2011

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| **ART UNIT** | **PAPER NUMBER** |
| 3621 | |

DATE MAILED: 03/24/2011

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

| Notice of Allowability | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS J. AUGUSTIN | 3621 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--***

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/22/2010*.

2. ☒ The allowed claim(s) is/are *2-8,10,14-19,22,27-33,35,40-42 and 49-59*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 12/07/2010
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other *Entered amended claims filed on 11/22/2010*.

/EVENS J. AUGUSTIN/
Primary Examiner, Art Unit 3621

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

( **Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 10956070 |
| Filing Date | 2004-10-04 |
| First Named Inventor | Mai NGUYEN |
| Art Unit | 3621 |
| Examiner Name | Evens J. Augustin |
| Attorney Docket Number | 10-531-US-P4 |

**U.S.PATENTS**

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | | | | | |

If you wish to add additional U.S. Patent citation information please click the Add button.

**U.S.PATENT APPLICATION PUBLICATIONS**

| Examiner Initial* | Cite No | Publication Number | Kind Code[1] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|---|
| | 1 | | | | | |

If you wish to add additional U.S. Published Application citation information please click the Add button.

**FOREIGN PATENT DOCUMENTS**

| Examiner Initial* | Cite No | Foreign Document Number[3] | Country Code[2] i | Kind Code[4] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T[5] |
|---|---|---|---|---|---|---|---|---|
| | 1 | | | | | | | ☐ |

If you wish to add additional Foreign Patent Document citation information please click the Add button

**NON-PATENT LITERATURE DOCUMENTS**

| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T[5] |
|---|---|---|---|



ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /EA/

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( **Not for submission under 37 CFR 1.99)** | | |
|---|---|---|
| | Application Number | 10956070 |
| | Filing Date | 2004-10-04 |
| | First Named Inventor | Mai NGUYEN |
| | Art Unit | 3621 |
| | Examiner Name | Evens J. Augustin |
| | Attorney Docket Number | 10-531-US-P4 |

| | | | |
|---|---|---|---|
| | 1 | "The C++ Programming Language - Second Edition", Bjarne Stroustrup, Addison-Wesley, ISBN 0-201-53992-6, 1991. | ☐ |

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

| Examiner Signature | /Evens Augustin/ | Date Considered | 03/20/2011 |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.



ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /EA/

# Issue Classification

| Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|
| 10956070 | NGUYEN ET AL. |
| **Examiner** | **Art Unit** |
| EVENS J AUGUSTIN | 3621 |

| ORIGINAL | | INTERNATIONAL CLASSIFICATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CLASS | SUBCLASS | CLAIMED | | | | | NON-CLAIMED | | | | |
| 705 | 57 | H | 0 | 4 | L | 9 / 00 (2006.01.01) | H | 0 | 4 | L | 9 / 00 (2006.01.01) |

| CROSS REFERENCE(S) | | | | | |
|---|---|---|---|---|---|
| CLASS | SUBCLASS (ONE SUBCLASS PER BLOCK) | | | | |
| 705 | 51 | 53 | 59 | | |

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 40 | 17 | 14 | 33 | 31 | | | | | | | | | | |
| 2 | 2 | 18 | 15 | 34 | 32 | | | | | | | | | | |
| 3 | 3 | 19 | 16 | 35 | 33 | | | | | | | | | | |
| 4 | 4 | 20 | 17 | 36 | 51 | | | | | | | | | | |
| 5 | 5 | 21 | 18 | 37 | 54 | | | | | | | | | | |
| 6 | 6 | 22 | 19 | | | | | | | | | | | | |
| 7 | 7 | 23 | 20 | | | | | | | | | | | | |
| 8 | 8 | 24 | 22 | | | | | | | | | | | | |
| 9 | 10 | 25 | 50 | | | | | | | | | | | | |
| 10 | 49 | 26 | 53 | | | | | | | | | | | | |
| 11 | 52 | 27 | 59 | | | | | | | | | | | | |
| 12 | 55 | 28 | 42 | | | | | | | | | | | | |
| 13 | 56 | 29 | 27 | | | | | | | | | | | | |
| 14 | 57 | 30 | 28 | | | | | | | | | | | | |
| 15 | 58 | 31 | 29 | | | | | | | | | | | | |
| 16 | 41 | 32 | 30 | | | | | | | | | | | | |

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| NONE | | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 37 | |
| /EVENS J AUGUSTIN/<br>Primary Examiner.Art Unit 3621 | 03/20/2011 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 40 | 4 |

| Search Notes | Application/Control No. | Applicant(s)/Patent under Reexamination | |
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| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS J. AUGUSTIN | 3621 | |

| SEARCHED | | | |
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| Class | Subclass | Date | Examiner |
| 705 | 1 | 10/14/2005 | EA |
| 705 | 54 | 10/14/2005 | EA |
| 705 | 57 | 10/14/2005 | EA |
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| Class | Subclass | Date | Examiner |
| **75** | **57** | 11/20/2010 | **EA** |
| 705 | 53 | 11/20/2010 | EA |
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| SEARCH NOTES (INCLUDING SEARCH STRATEGY) | | |
|---|---|---|
| | DATE | EXMR |
| EAST: ((Digital near Right$1) near management) and (usage near right$1) and (Meta near2 right$1) and licens$ and | 10/14/2005 | EA |
| EAST(state near1 variable$1) | 10/14/2005 | EA |
| ("6226618").URPN. | 10/14/2005 | EA |
| See EAST Search | 3/18/2011 | EA |
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**Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)

2. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

3. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

4. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

5. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

6. (Previously Presented) The method of claim 40, wherein the state variable in the first or second license represents a collection of states.

7. (Previously Presented) The method of claim 40, further comprising:

generating in a third license, using a processor, one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

associating, using a processor, at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

8. (Previously Presented) The method of claim 40, further comprising a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

9. (Canceled)

10. (Previously Presented) The method of claim 40, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

11-13. (Canceled)

14. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other generated usage rights and meta-rights.

15. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

16. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

17. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

18. (Previously Presented) The system of claim 41, wherein the state variable in the first or second license represents a collection of states.

19. (Previously Presented) The system of claim 41, further comprising:

a processor for generating in a third license one or more rights from at least one of the usage right and the meta-right in the second license,

wherein the one or more rights in the third license includes at least one right that is shared among one or more users or devices;

a processor for associating at least one state variable with the at least one right that is shared in the third license,

wherein the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

20. (Previously Presented) The system of claim 41, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

21. (Canceled)

22. (Previously Presented) The system of claim 41, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

23-26. (Canceled)

27. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a state thereof for content usage or rights derivation from other

generated usage rights and meta-rights.

28. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license shares a state thereof for content usage or rights derivation with other generated usage rights and meta-rights.

29. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license inherits a remaining state for content usage or rights derivation from other generated usage rights and meta-rights.

30. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license is updated upon exercise of a right associated with the state variable.

31. (Previously Presented) The device of claim 42, wherein the state variable in the first or second license represents a collection of states.

32. (Previously Presented) The device of claim 42, wherein a third license includes one or more rights from at least one of the usage right and the meta-right in the second license,

the one or more rights in the third license includes at least one right that is shared among one or more users or devices,

at least one state variable is associated with the at least one right that is shared in the third license, and

the at least one state variable that is associated with the third license is based on the at least one state variable that is associated with the second license.

33. (Previously Presented) The device of claim 42, including a plurality of state variables that determine the state of the at least one right that is shared in the first or the second license.

34. (Canceled)

35. (Previously Presented) The device of claim 42, wherein the state variable in the second license is transferred from the at least one right in the first license and is associated with the right that is shared in the second license.

36-39. (Canceled)

40. (Currently Amended) A method for sharing rights adapted to be associated with an item, the method comprising:

specifying, in a first license, using a processor, at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

defining, via the at least one usage right, using a processor, a manner of use selected from a plurality of permitted manners of use for the item;

defining, via the at least one meta-right, using a processor, a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, wherein said at least one meta-right is enforceable by a repository and allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights;

associating, using a processor, at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

generating, in a second license, using a processor, one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

41. (Currently Amended) A system for sharing rights adapted to be associated with an item, the system comprising:

a processor for specifying in a first license at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices;

a processor for defining, via the at least one usage right, a manner of use selected from a plurality of permitted manners of use for the item;

a processor for defining, via the at least one meta-right, a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, wherein said at least one meta-right is enforceable by a repository and allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights;

a processor for associating at least one state variable with the at least one right in the first license, wherein the at least one state variable identifies a location where a state of rights is tracked;

a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices; and

a processor for associating at least one state variable with the at least one right that is shared in the second license, wherein the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

42. (Currently Amended) A device for sharing rights adapted to be associated with an item, the device comprising:

a repository for receiving a first license specifying at least one usage right and at least one meta-right for the item, wherein the usage right and the meta-right include at least one right that is shared among one or more users or devices, the least one usage right defines a manner of use selected from a plurality of permitted manners of use for the item, the at least one meta-right defines a manner of rights creation ~~derivation selected from a plurality of permitted manners of rights derivation~~ for the item, said at least one meta-right is enforceable by a repository and

allows said one or more users or devices to ~~transfer rights or to derive~~ create new rights, at least one state variable is associated with the at least one right in the first license and identifies a location where a state of rights is tracked; and

a processor for generating in a second license one or more rights based on the meta-right in the first license, wherein the one or more rights in the second license includes at least one right that is shared among one or more users or devices, at least one state variable is associated with the at least one right that is shared in the second license, and the at least one state variable that is associated with the second license is based on the at least one state variable that is associated with the first license.

43-48. (Canceled)

49. (Previously Presented) The method of claim 40, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

50. (Previously Presented) The system of claim 41, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

51. (Previously Presented) The device of claim 42, wherein the plurality of permitted manners of use for the item include copy, transfer, loan, play, print, delete, extract, embed, edit, authorize, install, and un-install the item.

52-54. (Canceled)

55. (Previously Presented) The method of claim 40, further comprising:

generating in a further license, using a processor, one or more rights based on the meta-right in the second license, wherein the one or more rights in the further license includes at least

one right that is shared among one or more users or devices; and

associating, using a processor, at least one state variable with the at least one right that is shared in the further license, wherein the at least one state variable that is associated with the further license is based on the at least one state variable that is associated with the second license.

56. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is the same as the at least one state variable that is associated with the first license, if the at least one state variable that is associated with the first license does not identify an unspecified location.

57. (Previously Presented) The method of claim 40, wherein the at least one state variable that is associated with the second license is assigned a new location identification, if the at least one state variable that is associated with the first license identifies an unspecified location.

58. (Previously Presented) The method of claim 40, wherein two or more of the specifying, defining, associating, and generating steps may be carried out using a single processor.

59. (Previously Presented) The system of claim 41, wherein a single processor may be used to carry out two or more of the specifying, defining, associating, and generating steps.

## EAST Search History

### EAST Search History (Prior Art)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | Time Stamp |
|---|---|---|---|---|---|---|
| L1 | 39 | (((Digital near Right$1) near2 manag$) or DRM) and (right$1) and (copy$ or copies) and licens$ and audio and mp3 and ((transfer$ or transmit$) with device$1) and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2011/03/20 23:15 |
| S1 | 1 | ("5715403").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:20 |
| S2 | 1 | ("5715403").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:24 |
| S3 | 0 | S2 and (usage near right $1) and (meta near2 right $1) and licens$ and state and variable | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:25 |
| S4 | 0 | S2 and (usage with right $1) and (meta with right $1) and licens$ and state $1 and variable$1 | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:23 |
| S5 | 0 | S2 and (usage with right $1) and (meta) and licens $ and state$1 and variable $1 | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:23 |
| S6 | 0 | S2 and (usage with right $1) and (meta) and licens $ | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:24 |
| S7 | 0 | S2 and right$1 and (meta) and licens$ | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:24 |



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| S8 | 1 | S2 and (usage near right $1) | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:25 |
| S9 | 0 | S2 and (usage near right $1) and meta | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:25 |
| S10 | 1 | S2 and (usage near right $1) and licens$3 | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:25 |
| S11 | 1 | S2 and (usage near right $1) and licens$3 and state $1 and variable$1 | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2005/10/15 12:26 |
| S12 | 1 | ("6233684").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:29 |
| S13 | 1 | ("5629980").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:30 |
| S14 | 15 | ((Digital near Right$1) near management) and (usage near right$1) and (Meta near2 right$1) and licens$ and (state near1 variable$1) | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 10:52 |
| S15 | 1 | ("20030009423").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:49 |
| S16 | 1 | ("6226618").PN. | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | OFF | 2005/10/15 12:49 |
| S17 | 61 | ("6226618").URPN. | USPAT | OR | ON | 2005/10/15 14:38 |
| S18 | 10 | S17 and (usage near right $1) and licens$3 | USPAT | OR | ON | 2005/10/15 14:39 |



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|---|---|---|---|---|---|---|
| S19 | 45732 | cargo | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:39 |
| S20 | 558 | cargo and import$ and export$ | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:40 |
| S21 | 196 | cargo and import$ and export$ and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:40 |
| S22 | 0 | cargo and import$ and export$ and inpect$ and database and server and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:42 |
| S23 | 0 | cargo and import$ and export$ and inpect$ and server and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:41 |
| S24 | 16 | cargo and import$ and export$ and inspect$ and database and server and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:42 |
| S25 | 14 | cargo and import$ and export$ and inspect$ and database and server and customs and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:42 |
| S26 | 4 | cargo and import$ and export$ and inspect$ and database and server and customs and (bar near code) and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:43 |
| S27 | 8 | cargo and import$ and export$ and inspect$ and database and server and customs and scan$ and @ad<"20010817" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/04/11 15:44 |
| S28 | 11 | ("4430568" \| "5065418" \| "5153842" \| "5638420" \| "5692028" \| "5764683" \| "5838759" \| "5991399" \| "6026177" \| "6085253" \| "6085976").PN. | US-PGPUB; USPAT; USOCR | OR | ON | 2006/04/11 15:47 |


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|---|---|---|---|---|---|---|
| S29 | 8 | ("6370222").URPN. | USPAT | OR | ON | 2006/04/11 15:48 |
| S30 | 266 | ((Digital near Right$1) near management) and (usage near right$1) and devices and (copy$ or copies) and licens$ | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:00 |
| S31 | 44 | ((Digital near Right$1) near management) and (usage near right$1) and devices and (copy$ or copies) and licens$ and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:01 |
| S32 | 120 | ((Digital near Right$1) near management) and (right$1) and devices and (copy$ or copies) and licens$ and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:04 |
| S33 | 36 | ((Digital near Right$1) near management) and (right$1) and devices and (copy$ or copies) and licens$ and audio and mp3 and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:16 |
| S34 | 35 | ((Digital near Right$1) near2 manag$) and (right $1) and devices and (copy $ or copies) and licens$ and audio and mp3 and transfer$ and transmit$ and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:17 |
| S35 | 30 | ((Digital near Right$1) near2 manag$) and (right $1) and (copy$ or copies) and licens$ and audio and mp3 and ((transfer$ or transmit$) with device$1) and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:21 |
| S37 | 73 | (((Digital near Right$1) near2 manag$) or DRM) and (right$1) and (copy$ or copies) and licens$ and content and ((transfer$ or transmit$) with device$1) and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:33 |



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| S38 | 9 | (((Digital near Right$1) near2 manag$) or DRM) and (right$1) and (copy$ or copies) and licens$ and content and (((transfer$ or transmit$) with device $1) with between) and @ad<"20010531" | US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB | OR | ON | 2006/11/25 11:34 |

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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
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| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.




Petitioner Apple Inc. - Exhibit 1006, p. 6699

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

98804 7590 04/07/2011

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

| EXAMINER | |
|---|---|
| AUGUSTIN, EVENS J | |
| **ART UNIT** | **PAPER NUMBER** |
| 3621 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 04/07/2011 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptoipinbox@reedsmith.com
mskaufman@reedsmith.com

| Notice of Allowability | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/956,070 | NGUYEN ET AL. | |
| | Examiner | Art Unit | |
| | EVENS AUGUSTIN | 3621 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--***

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/22/2010*.

2. ☒ The allowed claim(s) is/are *2-8,10,14-20,22,27-33,35,40-42 and 49-59*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/EVENS J. AUGUSTIN/
Primary Examiner, Art Unit 3621

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| APPLICATION NO./ CONTROL NO. | FILING DATE | FIRST NAMED INVENTOR / PATENT IN REEXAMINATION | ATTORNEY DOCKET NO. |
|---|---|---|---|
| 10956070 (CG235000) | 10/4/2004 | NGUYEN ET AL. | 10-531-US-P4 |

Reed Smith LLP
P.O. Box 488
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| EXAMINER |
|---|
| EVENS AUGUSTIN |

| ART UNIT | PAPER |
|---|---|
| 3621 | 20110404 |

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**Commissioner for Patents**

Claim 20 in the Notice Allowability mailed on March 24, 2011 omitted claim 20. Claim 20 is now reflected in the Notice of Allowability. It is in the Examiner's opinion that no further action is necessary at this time.

# Issue Classification

| Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|
| 10956070 | NGUYEN ET AL. |
| **Examiner** | **Art Unit** |
| EVENS J AUGUSTIN | 3621 |

| ORIGINAL | | INTERNATIONAL CLASSIFICATION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CLASS | SUBCLASS | CLAIMED | | | | | NON-CLAIMED | | | | |
| | | H | 0 | 4 | L | 9 / 00 (2006.01.01) | H | 0 | 4 | L | 9 / 00 (2006.01.01) |
| 705 | 57 | | | | | | | | | | |

| CROSS REFERENCE(S) | | | | | |
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| CLASS | SUBCLASS (ONE SUBCLASS PER BLOCK) | | | | |
| 705 | 51 | 53 | 59 | | |
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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| NONE | | **Total Claims Allowed:** | |
| (Assistant Examiner) | (Date) | 35 | |
| /EVENS J AUGUSTIN/<br>Primary Examiner.Art Unit 3621 | 03/20/2011 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 40 | 4 |

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|---|---|---|---|
| 10/956,070 (CG235000) | 04 October 2004 | NGUYEN ET AL. | 10-531-US-P4 |

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|---|
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| ART UNIT | PAPER |
|---|---|
| 3621 | 20110523 |

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The issue classification page has been changed to reflect proper claim numbering.

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Primary Examiner, Art Unit 3621

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 7 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai **NGUYEN**, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number - Kind Code[2] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 10

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai **NGUYEN**, *et al.* |
| Art Unit | 3621 |
| Examiner Name | Not Yet Assigned |
| Attorney Docket Number | 111325-235000 |

## U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number - Kind Code[2] *(if known)* | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 2 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document: Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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Change(s) applied to document.
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

TITLE OF INVENTION: SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | NO | $1510 | $300 | $0 | $1810 | 06/24/2011 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| AUGUSTIN, EVENS J | 3621 | 705-051000 |

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- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
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2. For printing on the patent front page, list
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1 Reed Smith LLP
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(B) RESIDENCE: (CITY and STATE OR COUNTRY): Wilmington, Delaware

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

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Typed or printed name Stephen M. Hertzler Registration No. 58,247

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# Electronic Patent Application Fee Transmittal

| | |
|---|---|
| **Application Number:** | 10956070 |
| **Filing Date:** | 04-Oct-2004 |
| **Title of Invention:** | SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Filer:** | Stephen M. Hertzler |
| **Attorney Docket Number:** | 10-531-US-P4 (CG235000) |

Filed as Large Entity

## Utility under 35 USC 111(a) Filing Fees

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Basic Filing:** | | | | |
| **Pages:** | | | | |
| **Claims:** | | | | |
| **Miscellaneous-Filing:** | | | | |
| **Petition:** | | | | |
| **Patent-Appeals-and-Interference:** | | | | |
| **Post-Allowance-and-Post-Issuance:** | | | | |
| Utility Appl issue fee | 1501 | 1 | 1510 | 1510 |
| Publ. Fee- early, voluntary, or normal | 1504 | 1 | 300 | 300 |

| Description | Fee Code | Quantity | Amount | Sub-Total in USD($) |
|---|---|---|---|---|
| **Extension-of-Time:** | | | | |
| **Miscellaneous:** | | | | |
| | | | **Total in USD ($)** | **1810** |

# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 10370077 |
| **Application Number:** | 10956070 |
| **International Application Number:** | |
| **Confirmation Number:** | 8299 |
| **Title of Invention:** | SYSTEM AND METHOD FOR RIGHTS OFFERING AND GRANTING USING SHARED STATE VARIABLES |
| **First Named Inventor/Applicant Name:** | Mai Nguyen |
| **Customer Number:** | 98804 |
| **Filer:** | Stephen M. Hertzler |
| **Filer Authorized By:** | |
| **Attorney Docket Number:** | 10-531-US-P4 (CG235000) |
| **Receipt Date:** | 24-JUN-2011 |
| **Filing Date:** | 04-OCT-2004 |
| **Time Stamp:** | 14:28:18 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

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| Submitted with Payment | yes |
| Payment Type | Deposit Account |
| Payment was successfully received in RAM | $1810 |
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| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Issue Fee Payment (PTO-85B) | 10-531-US-P4_-_2011-06-24_-_Issue_Fee_Payment.pdf | 475648<br>07262151f597ea4156372fc60d8325cbcf3b5818 | no | 1 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 2 | Fee Worksheet (SB06) | fee-info.pdf | 32163<br>dbad5916daa15ce19ba23dc11e885e3100188ace | no | 2 |
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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| Examiner Signature | | Date Considered | |
|---|---|---|---|

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Sheet 2 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

**U.S. PATENT DOCUMENTS**

| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.A./

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

| Sheet | 3 | of | 9 |
|---|---|---|---|

| *Complete if Known* | |
|---|---|
| **Application Number** | 10/956,070 |
| **Filing Date** | October 4, 2004 |
| **First Named Inventor** | Mai Nguyen et al. |
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| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| Examiner Initials* | Cite No.[1] | U.S. Patent Document Number – Kind Code[2] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
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| | | | | | |

| Examiner Signature | | Date Considered | |
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| Sheet | 4 | of | 9 |
|---|---|---|---|

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| Application Number | 10/956,070 |
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| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 5 of 9

| *Complete if Known* | |
|---|---|
| **Application Number** | 10/956,070 |
| **Filing Date** | October 4, 2004 |
| **First Named Inventor** | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| Examiner Initials* | Cite No.[1] | Foreign Patent Document: Country Code[3] Number[4] | Foreign Patent Document: Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
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Petitioner Apple Inc. - Exhibit 1006, p. 6718

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 6 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

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| Examiner Initials* | Cite No.[1] | Foreign Patent Document: Country Code[3] Number[4] Kind Code[5] (if known) | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T[6] |
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|---|---|---|---|---|---|
| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(use as many sheets as necessary)* | | | | **Application Number** | 10/956,070 |
| | | | | **Filing Date** | October 4, 2004 |
| | | | | **First Named Inventor** | Mai Nguyen et al. |
| | | | | Art Unit | 3621 |
| | | | | Examiner Name | Augustin, Evens J. |
| Sheet | 7 | of | 9 | Attorney Docket Number | 111325/235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
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| Examiner Initials* | Cite No.[1] | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T[2] |
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Sheet 8 of 9

| *Complete if Known* | |
|---|---|
| Application Number | 10/956,070 |
| Filing Date | October 4, 2004 |
| First Named Inventor | Mai Nguyen et al. |
| Art Unit | 3621 |
| Examiner Name | Augustin, Evens J. |
| Attorney Docket Number | 111325/235000 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
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| | | | | **Filing Date** | October 4, 2004 |
| | | | | **First Named Inventor** | Mai Nguyen et al. |
| | | | | Art Unit | 3621 |
| | | | | Examiner Name | Augustin, Evens J. |
| Sheet | 9 | of | 9 | Attorney Docket Number | 111325/235000 |

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| *Examiner Signature | /Evens Augustin/ | Date Considered | 07/12/2011 |
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/956,070 | 10/04/2004 | Mai Nguyen | 10-531-US-P4 (CG235000) | 8299 |

98804 7590 07/18/2011

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Pittsburgh, PA 15230

| EXAMINER | |
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| AUGUSTIN, EVENS J | |
| ART UNIT | PAPER NUMBER |
| 3621 | |

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|---|---|---|---|
| 10/956,070 (CG235000) | 04 October 2004 | NGUYEN ET AL. | 10-531-US-P4 |

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| EXAMINER |
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| EVENS J. AUGUSTIN |

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Primary Examiner, Art Unit 3621

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# ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 278 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Mai Nguyen, Buena Park, CA;
Xin Wang, Torrance, CA;
Eddie J. Chen, Rancho Palos Verdes, CA;
Bijan Tadayon, Germantown, MD;