4. The method as claimed in claim 1, wherein in the step (a), when the audio data is played, the database is constructed by using a background processing for reading the supplemental data stored in each audio data's location within the recording medium using the remaining period of time besides the period of time needed for transmitting a required data, and

wherein the step (b) is that searches the database stored in the memory of the play system and responds to the user's demand for playing by sort.

5. The method as claimed in claim 4, wherein when the field for organizing the file name or the directory name into the database for indicating and playing by sort is introduced and recorded, each field is sorted with specific symbol usable to the file name.

6. The method as claimed in claim 1, wherein in the step (b), when the user selects all or some files and creates a play list using the database constructed by the method used in one of claims 2 through 5, random play or continuous play is performed according to the play list.

7. The method as claimed in claim 6, wherein when the user creates the play list, the play system partially plays files in order, and when the user performs a specific input work during hearing while part of a specific file is played, the play list is constructed by a way to add the corresponding file into the play list.

Fig. 1

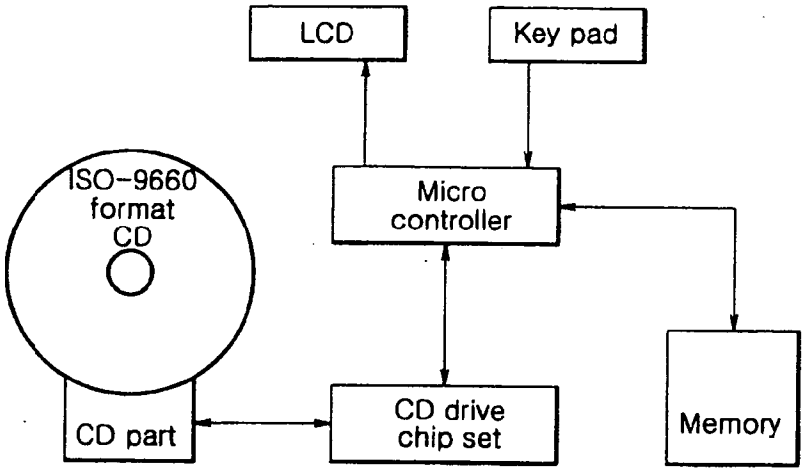


Fig. 2

Title of music	Singer	Genre	Sort number	Publication date	Album	Location
Music 1	A	23	1	1999	Album 1	/Jazz/A/Album1/Music1.mp3
Music 2	A	23	2	1999	Album 1	/Jazz/A/Album1/Music2.mp3
Music 3	B	10	1	1996	Album 2	/Pop/B/Album2/Music3.mp3
...	...	...	...	...	...	...

Fig. 3

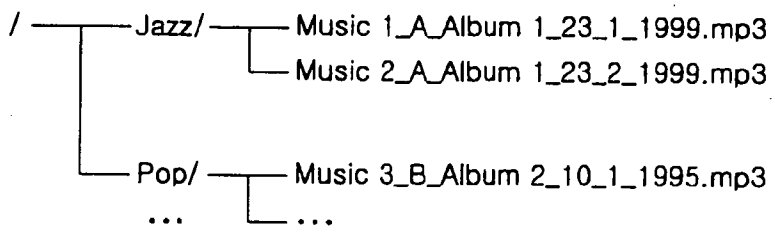
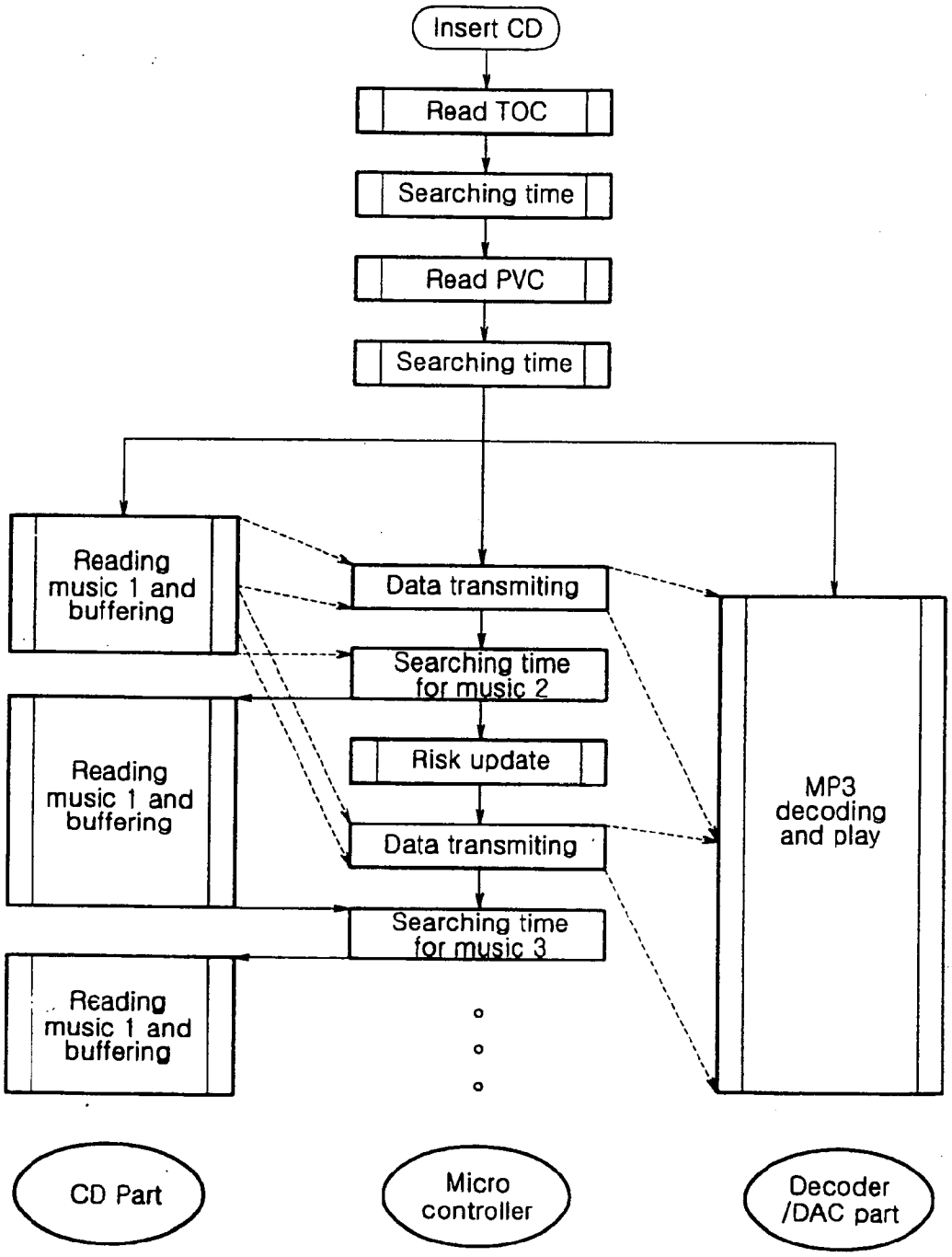


Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00144

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G11B 27/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)

IPC7 G11B 27/02 G11B 20/12 G11B 7/00 G11B 19/02 G06F 15/40 G06F 15/62

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched

Korean Patents and applications for inventions since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search trerms used)

WPI, PAJ "DATABASE" "AUDIO" "REPRODUCING" "SORTING"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 11 - 120675 A(ORASHION) 30 APRIL 1999, see the whole document	1 - 3, 6, 7
Y	KR 98 - 79403 A(SAMSUNG CORP.) 25 NOVEMBER 1998, Claim 1, 10, 14	1 - 7
A	US 5119353 A(SEIKO EPSON CORP.) 2 JUNE 1992, Claim 1 - 5	4, 5
A	EP 479535 A2(CANON) 8 APRIL 1992, Claim 1 - 9	4, 5

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevence
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevence; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 MAY 2000 (10.05.2000)	18 MAY 2000 (18.05.2000)

Name and mailing address of the ISA/KR	Authorized officer
Korean Industrial Property Office Government Complex-Taejon, Dunsan-dong, So-ku, Taejon Metropolitan City 302-701, Republic of Korea	KIM, In Han
Facsimile No. 82-42-472-7140	Telephone No. 82-42-481-5692

Form PCT/ISA/210 (second sheet) (July 1998)

US005616876A

United States Patent [19]

Cluts

[11] Patent Number: 5,616,876

[45] Date of Patent: Apr. 1, 1997

[54] **SYSTEM AND METHODS FOR SELECTING MUSIC ON THE BASIS OF SUBJECTIVE CONTENT**

[75] Inventor: **Jonathan C. Cluts**, Redmond, Wash.

[73] Assignee: **Microsoft Corporation**, Redmond, Wash.

[21] Appl. No.: **424,781**

[22] Filed: **Apr. 19, 1995**

[51] **Int. Cl.**[6] **G09B 15/06**; G09B 15/04; G10H 7/00

[52] **U.S. Cl.** ..... **84/609**; 84/477 R; 434/307 A

[58] **Field of Search** ..... 84/609–614, 601, 84/602, 634–638, 477 R, 478; 358/335; 273/433; 379/93, 96, 97, 100; 434/307 A

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More Like This, "Get More of What Your're Looking For", Lexis–Nexis, 1995.

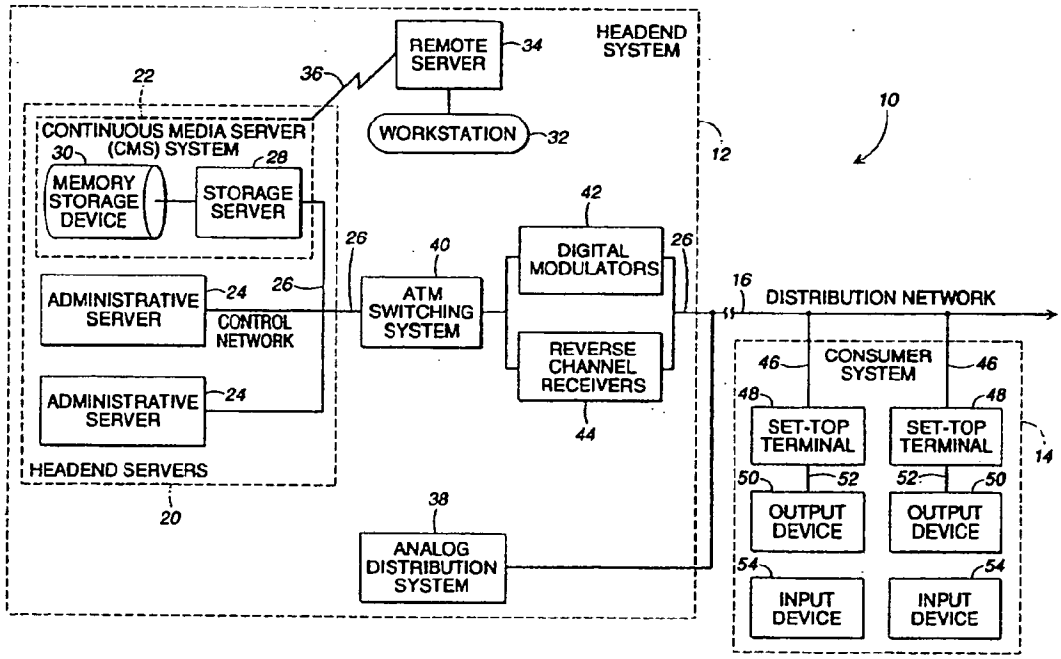
Primary Examiner—Stanley J. Witkowski

Attorney, Agent, or Firm—Jones & Askew

[57] **ABSTRACT**

An interactive network provides music to subscribers. A "more like" function allows a subscriber to use a seed song to identify other songs that are similar to the seed song, and to add the new songs to the current playlist. The similarity between songs is based on the subjective content of the songs, as reflected in style tables prepared by editors. The subscriber may control the closeness of the match by adjusting a style slider provided by the user interface. A style equalizer employs eight faders that indicate the predominant styles of the songs in the playlist. A subscriber may use the style equalizer to see what types of songs are included in the playlist, and to adjust the mix of songs that are played from the playlist.

45 Claims, 8 Drawing Sheets



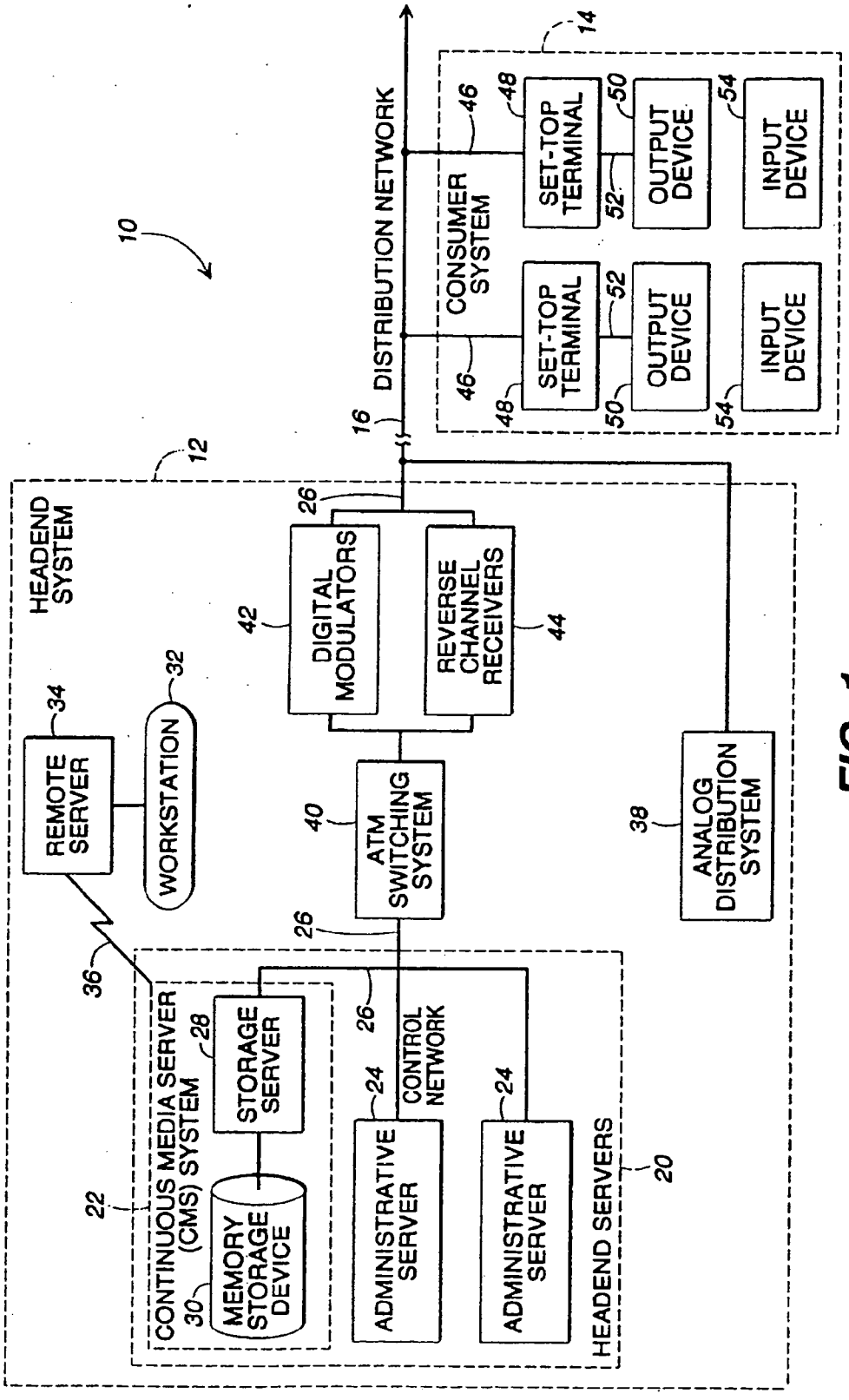


FIG. 1

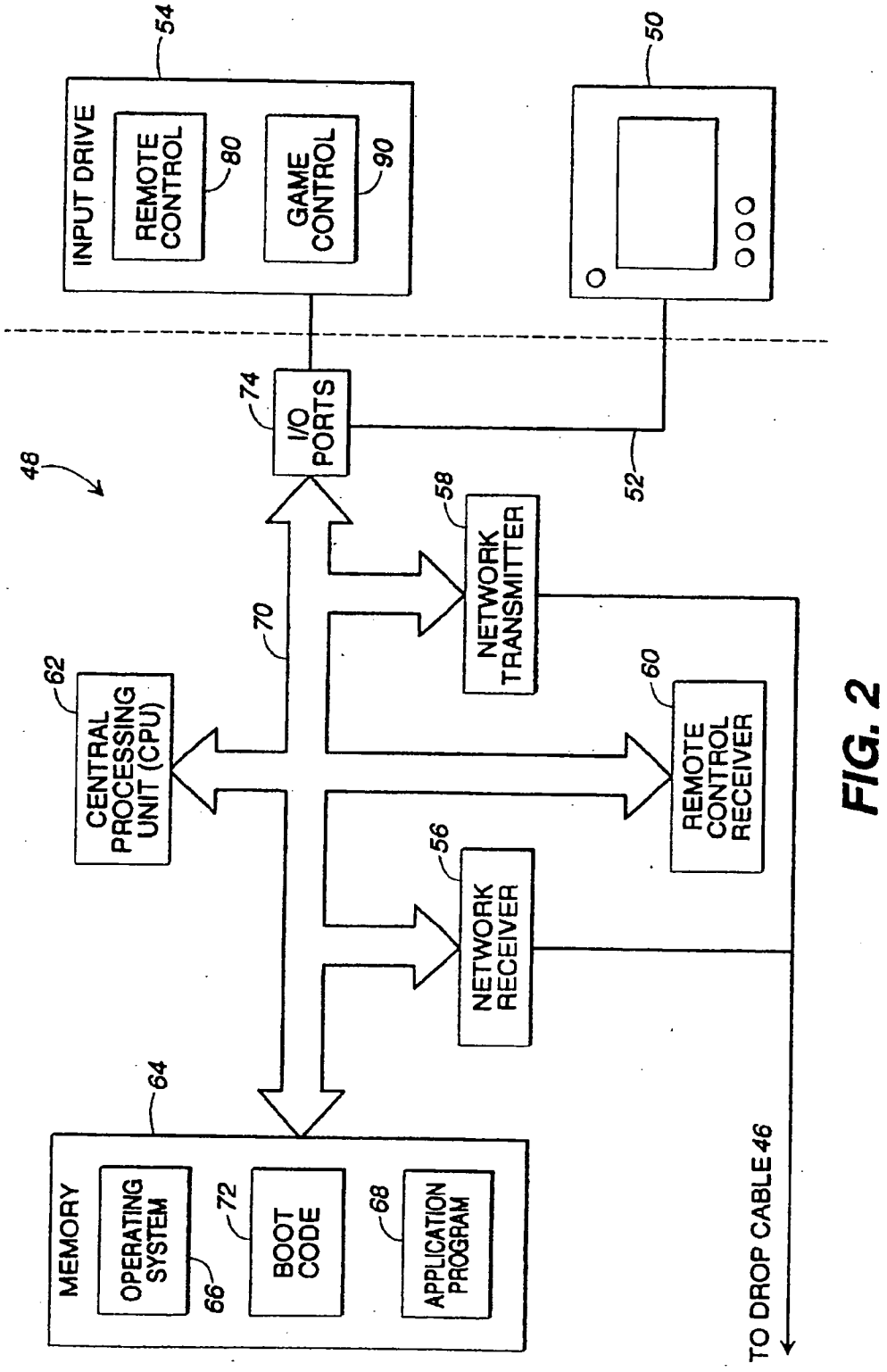


FIG. 2

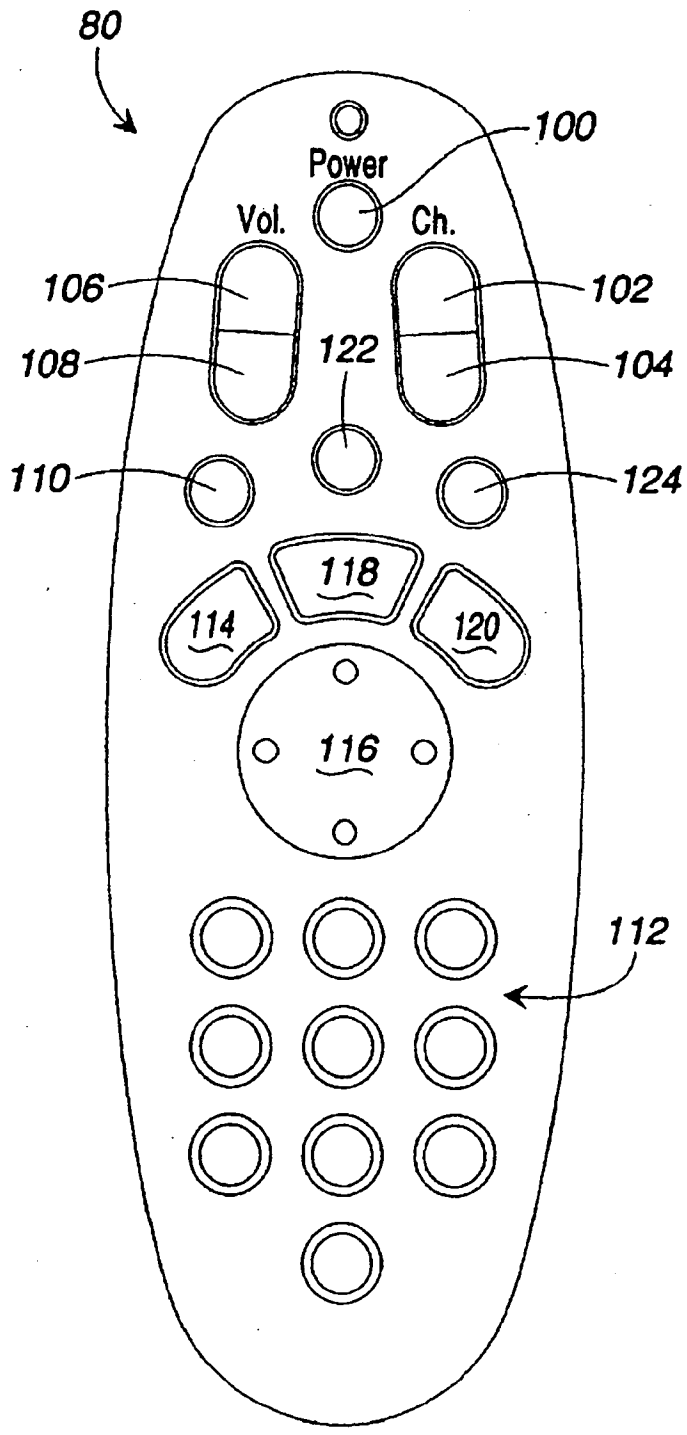


FIG. 3

CL 000299

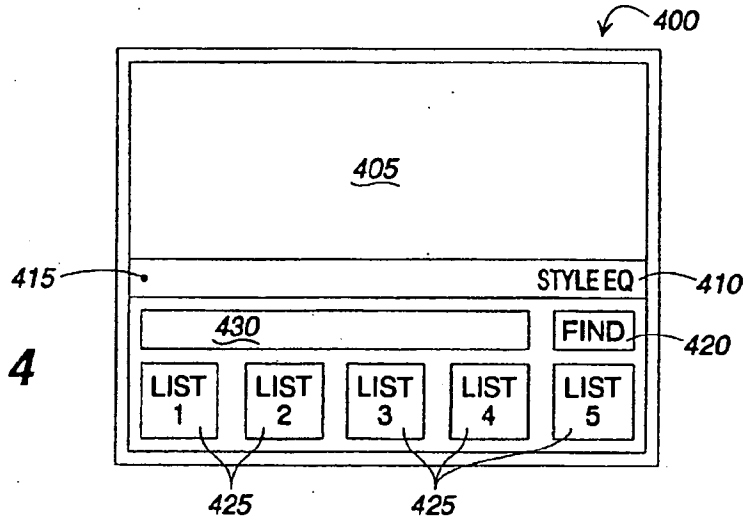


FIG. 4

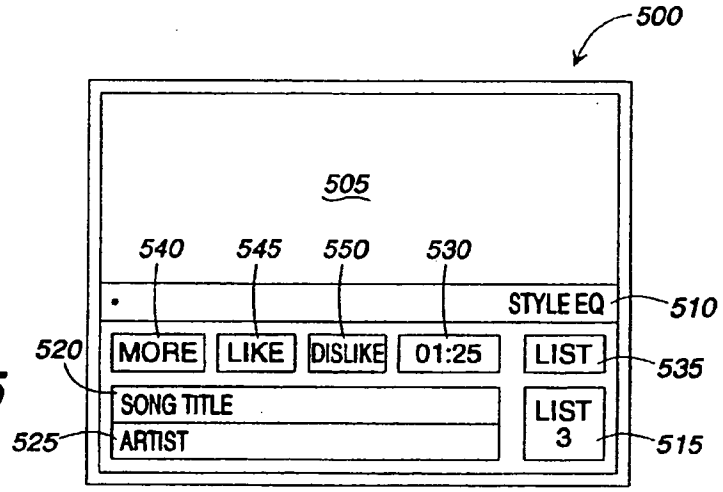


FIG. 5

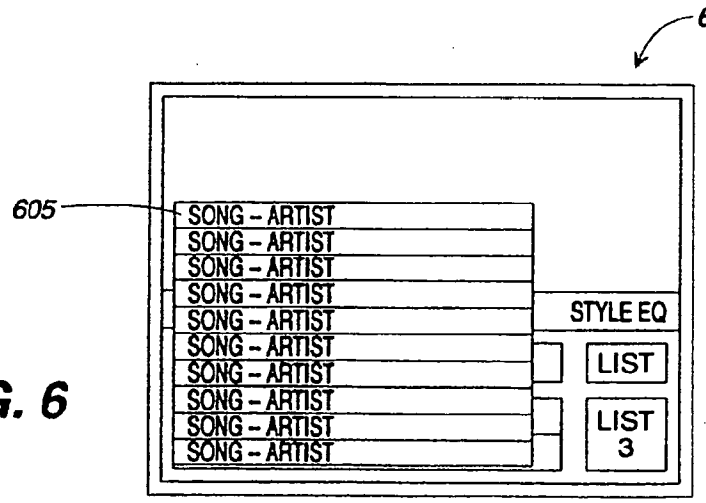


FIG. 6

CL 000300

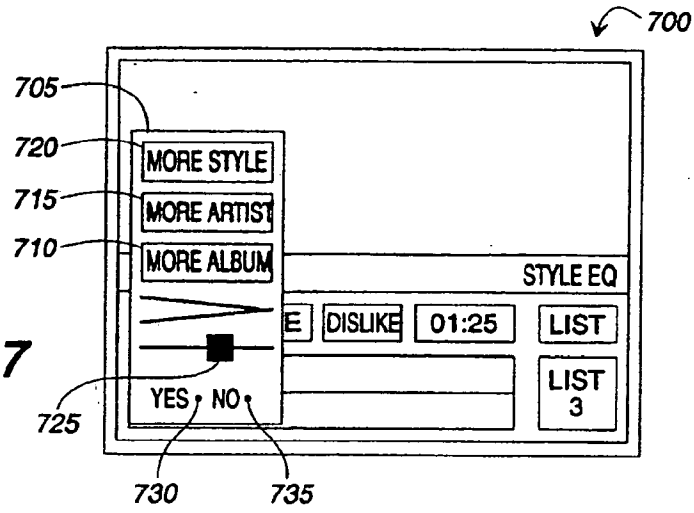


FIG. 7

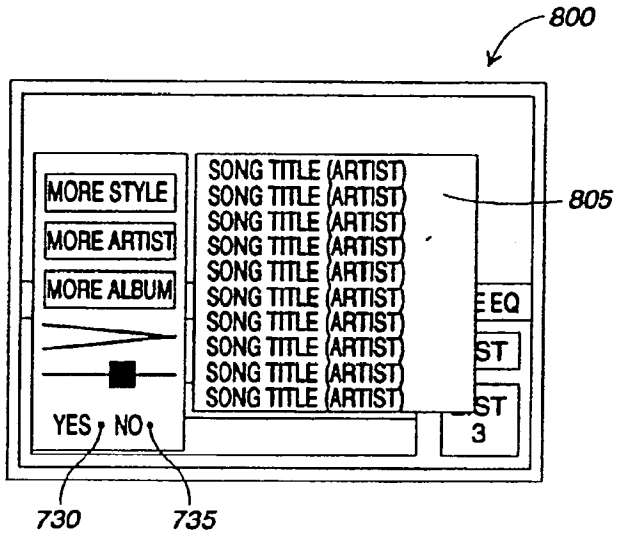


FIG. 8

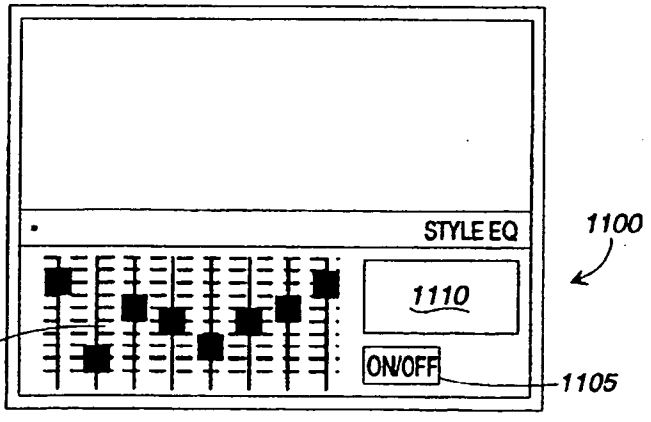


FIG. 11

CL 000301

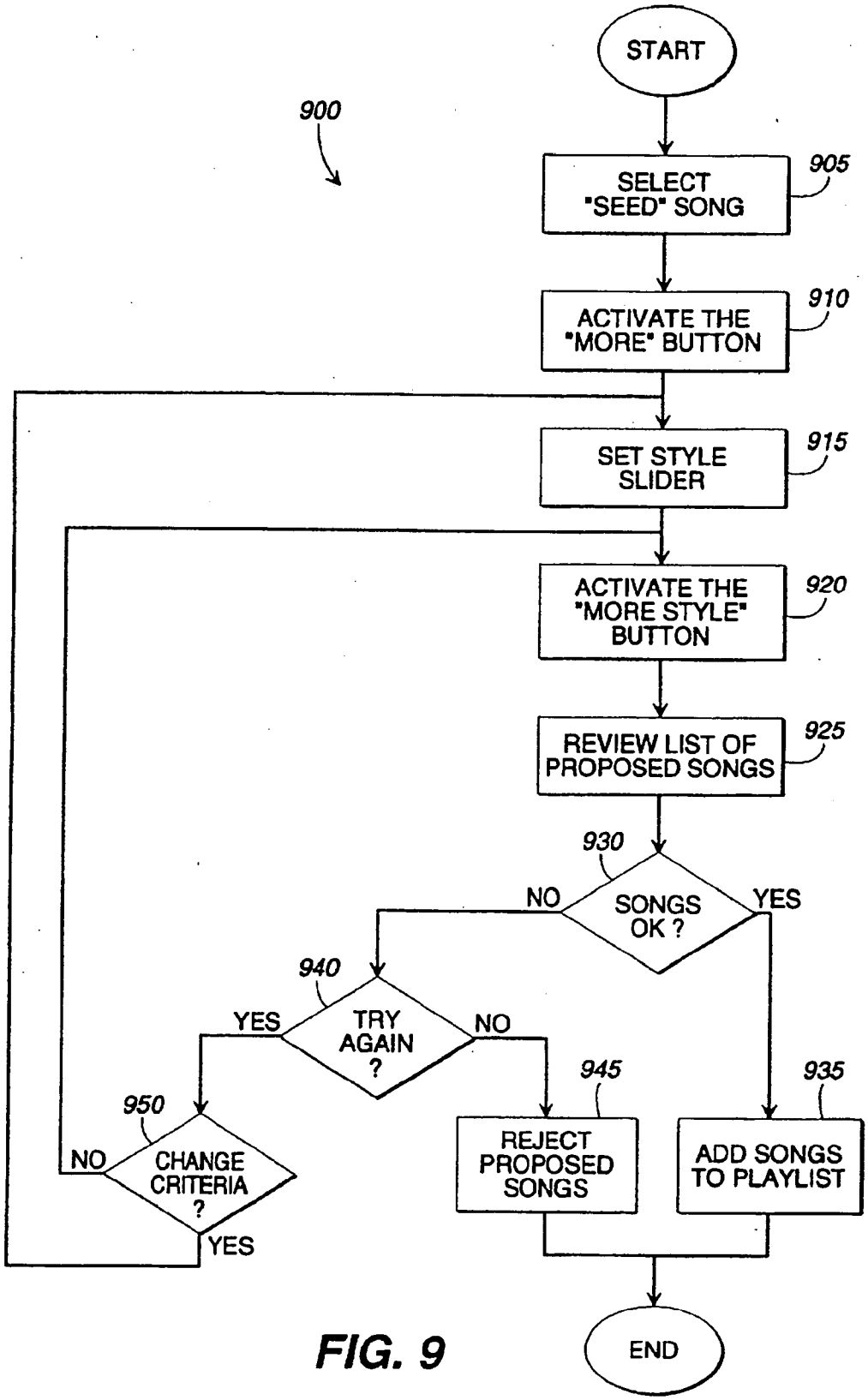


FIG. 9

CL 000302

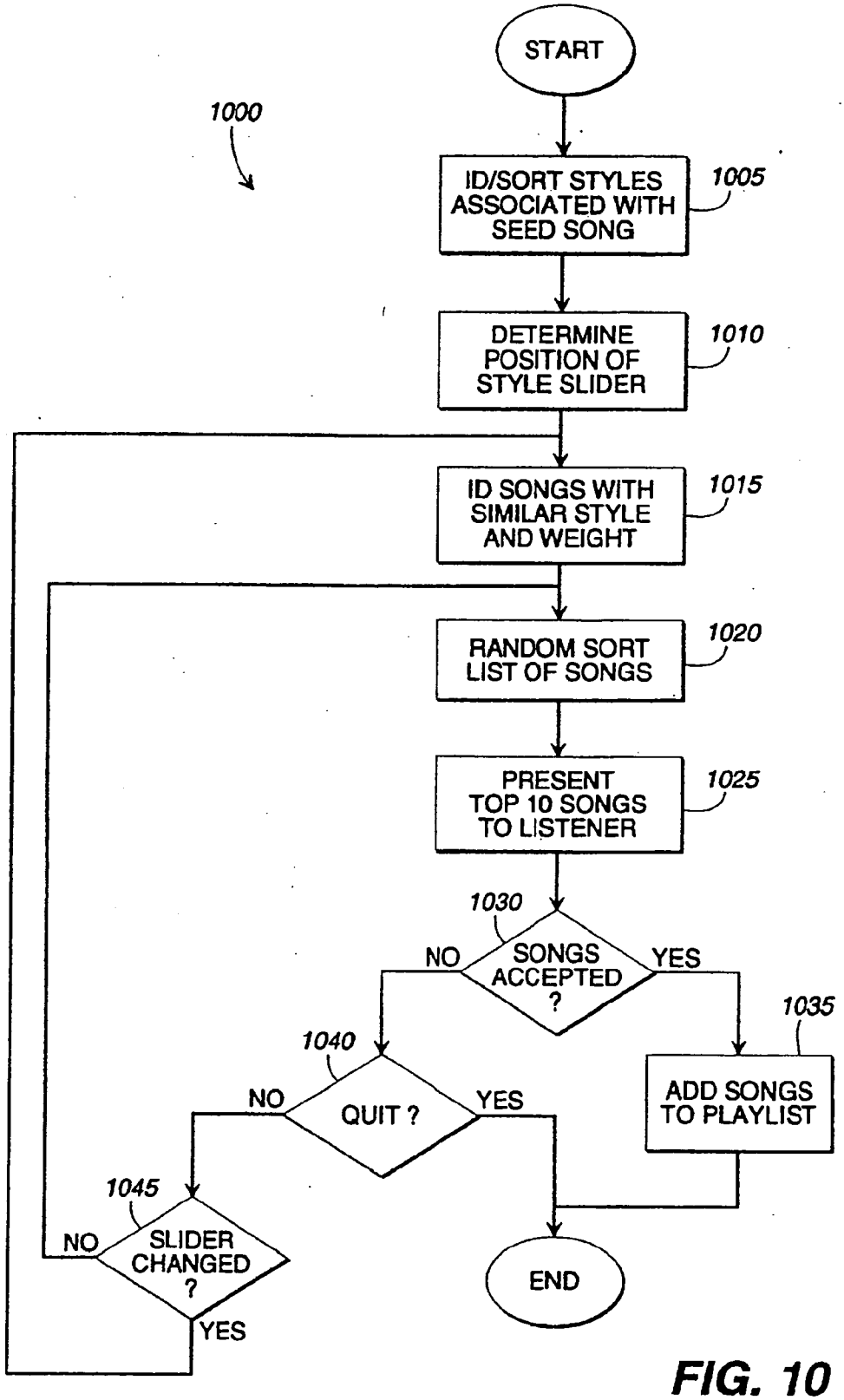


FIG. 10

CL 000303

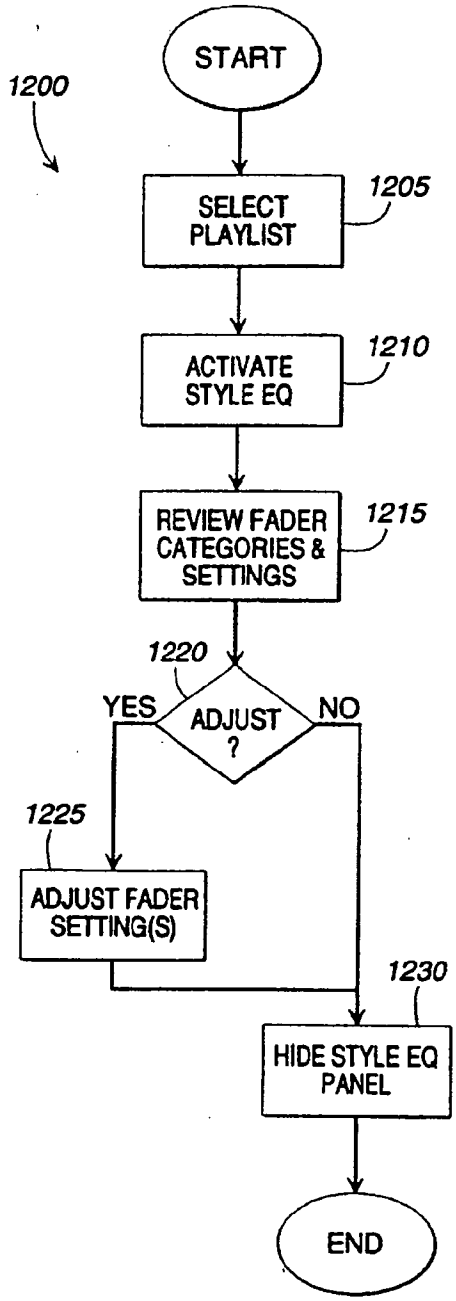


FIG. 12

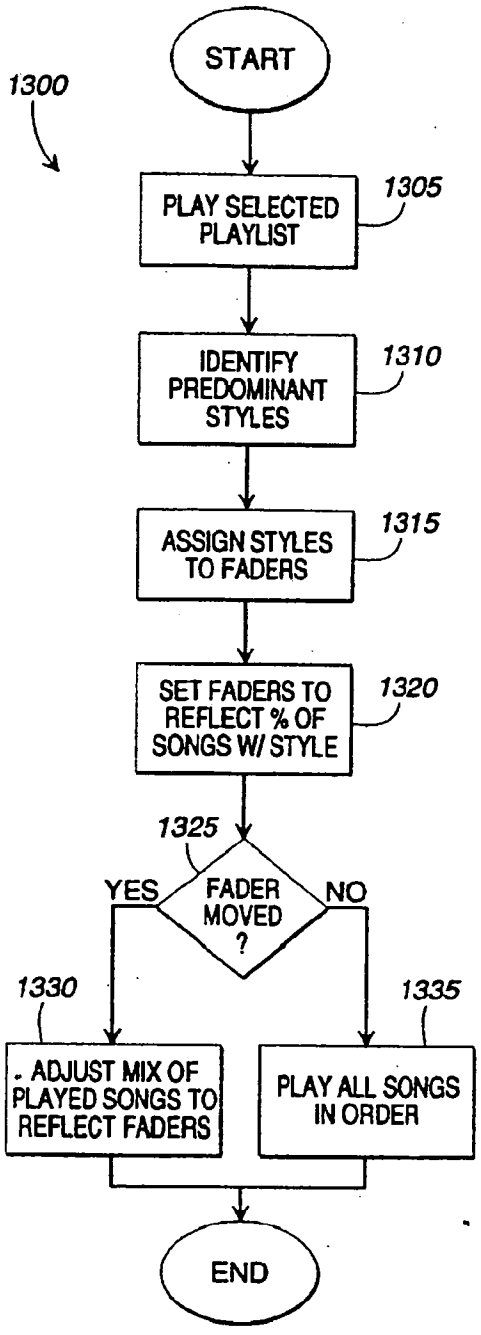


FIG. 13

CL 000304

SYSTEM AND METHODS FOR SELECTING MUSIC ON THE BASIS OF SUBJECTIVE CONTENT

TECHNICAL FIELD

The present invention relates to systems and methods for selecting and playing audio selections, and more particularly relates to methods for selecting and playing audio selections on the basis of their subjective content.

BACKGROUND OF THE INVENTION

The expansion and improvement of cable television systems (sometimes referred to as community antenna television or CATV systems) have made it possible for cable companies to provide a variety of programming services to subscribers. These services typically include a multitude of television channels that are viewed on the subscriber's television. Some cable companies also provide music channels that are connected to a subscriber's stereo system through a subscriber terminal.

Although CATV systems were originally designed to distribute television signals in the "downstream" direction only (i.e., from a central "headend" location to multiple subscriber locations, which is also known as the "forward" path), the advent of pay-per-view services and of other interactive television applications has fueled the development of bidirectional or "two-way" cable systems. These two-way cable systems also provide for the transmission of signals from the subscriber locations back to the headend via an "upstream" direction or a "reverse" path.

By upgrading conventional CATV systems to increase their bandwidth, cable service providers can use the additional channels gained by this wider bandwidth network to provide many new subscriber services. The ever-expanding deployment of fiber optic technology supports the implementation of an "interactive network" that allows a subscriber to obtain desirable services or programming at a time and date specified by the subscriber. Indeed, it is feasible that this interactive network will have sufficient bandwidth to supply hundreds of channels of programming information, thereby leading to an explosion of program options available to subscribers. Potential subscriber services supported by this interactive network include Movies on Demand (MOD) or Video on Demand (VOD), interactive music channels, interactive computing, shopping, entertainment, and other related services.

An interactive network makes it possible for subscribers to have immediate access to vast selections of music. For example, record companies may provide catalogs of their music for subscribers to listen to via an interactive network. Similarly, various publishers may compile playlists of various styles of music (e.g., Jazz, Classical, Top 40, etc.) that will be available to subscribers via an interactive network.

When music catalogs are available via an interactive network, a subscriber must have a way to select the music he or she would like to listen to. The computers that form a part of an interactive network facilitate selection by song title, artist, or album name. As in a record store, music may also be classified and searched by style (e.g., Jazz, Classical, Top 40, etc.). Thus, in an interactive network, it will be very simple for a subscriber to select a specific song.

However, unless a subscriber is familiar with a particular artist or song title, there is no simple way to identify other music that the subscriber may enjoy. Because of the subjective nature of such a decision, there is no simple way for a subscriber to identify additional music that is similar to a song he or she likes. This is a significant disadvantage in an environment where a large assortment of music is readily available.

When a listener browses published playlists, the playlists are typically described by a short title, such as Jazz, Classical, Top 40, Progressive Rock, etc. When a subscriber listens to such a playlist, there is no simple way for the subscriber to get a clearer idea of the specific types of music that are included in the playlist. Similarly, there is no simple way for a subscriber to alter the mix of the songs that are played back from the playlist.

In summary, there is no simple, effective way for a subscriber to identify and select music he or she is likely to enjoy on the basis of the music's subjective content and its similarity to a song the subscriber is familiar with. Furthermore, there is no way for a user to quickly assess the mix of music included in a playlist and to alter the mix of music played from the playlist.

Therefore, there is a need in the art for a system that allows a subscriber to pick a song he or she likes and to then identify additional songs that include similar subjective content. Likewise, there is a need in the art for a system that allows a user to perceive the content of a playlist and alter the mix of songs played from the playlist.

SUMMARY OF THE INVENTION

The present invention satisfies the above described needs by providing systems and methods for selecting and playing music based on its subjective content.

Generally described, the present invention provides a method for selecting programming information items in an interactive media distribution system that includes a server, a distribution network, an output device and an input device. The method includes storing on the server a plurality of programming information items and editorial data associated with the programming information items. An initial programming information items is played in response to a first input signal. In response to a second input signal, a list of proposed new programming information items is created on the basis of the editorial data associated with the initial programming information item and the plurality of programming information items. The list of proposed new programming information items is presented on the output device. The proposed new programming information items are then added to a playlist in response to a third input signal.

The present invention also provides a method for classifying and selecting programming information items having subjective content. A plurality of programming information items and editorial data associated with the programming information items are stored. The editorial data includes a plurality of categories and weightings associating each programming information item with the categories. An initial programming information item is selected in response to a first input signal. The setting of a matching closeness indicator is determined in response to a second input signal. The method determines matching categories for the initial programming entry. The matching categories include the categories whose weightings correspond to the position of the matching closeness indicator. The method determines matching programming information items based on the initial programming information item. The matching items include the matching categories with weightings corresponding to the setting of the matching closeness indicator. The matching items are presented to the user.

The present invention also provides a system for classifying and selecting programming information having subjective content. The system includes a data storage device containing a plurality of programming information items and editorial data associated with the programming information items, an output device for providing information to a user, an input device for receiving input from the user, and a computer associated with the data storage device. The computer is configured to play an initial programming information item in response to a first input signal. The computer creates a list of proposed new programming information items on the basis of the editorial data associated with the programming information items in response to a second input signal. The list of proposed new programming information items is presented on the output device. Finally, the proposed new programming information items are added to a playlist in response to a third input signal.

In another aspect, the present invention provides a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from the playlist. The method includes loading a playlist including a plurality of programming information items and loading editorial data associated with the programming information items. A predetermined number of indicators are displayed on the output device. Each of the indicators is associated with a category from the editorial data. The indicators are positioned to indicate the portion of the plurality of programming information items corresponding to each of the categories. At least one of the indicators is adjusted in response to an input signal from an input device. In response to the adjustment of one or more indicators, the method selects programming information items from the playlist such that the portions of the selected programming information items associated with each of the categories corresponds to the adjusted positions of the indicators.

It is therefore an object of the present invention to provide a system for classifying and selecting information having subjective content.

It is another object of the present invention to provide a method for the context based selection of subjective material.

It is another object of the present invention to provide a method for adding items having subjective content to a group of items having similar subjective content.

It is another object of the present invention to predict, based on a listener's current choice of music, the choices from an audio content database that are most like the current choice.

It is another object of the present invention to identify other music that is similar to the music a listener is listening to.

It is another object of the present invention to identify more music that is like a current musical selection.

It is another object of the present invention to identify other movies that are similar to a movie a viewer is watching.

It is another object of the present invention to display the types of music are in a playlist.

It is another object of the present invention to allow a user to alter the mix of music that is selected and played from a playlist.

It is another object of the present invention to select various types of programming on the basis of its subjective content.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates an interactive network system.

FIG. 2 illustrates a set top terminal, which forms a part of the interactive network system of FIG. 1.

FIG. 3 illustrates the preferred remote control unit for use with the set top terminal of FIG. 2.

FIG. 4 is illustrates the features of the initial screen display in the preferred audio on demand system.

FIG. 5 illustrates the features of the playlist screen display in the preferred audio on demand system.

FIG. 6 illustrates a list of songs provided in response to the find button on the playlist screen display of FIG. 5.

FIG. 7 illustrates the "more like" panel provided in response to the "more" button on the playlist screen display of FIG. 5.

FIG. 8 illustrates a list of songs provided by the "more like" function.

FIG. 9 is a flow diagram illustrating the steps taken by a subscriber when using the "more like" function.

FIG. 10 is a flow diagram illustrating the "more like" function as implemented in a program module running on the preferred interactive network.

FIG. 11 illustrates the features of the "style equalizer" screen display.

FIG. 12 is a flow diagram illustrating the steps taken by a subscriber when using the "style equalizer" function.

FIG. 13 is a flow diagram illustrating the "style equalizer" function as implemented in a program module running on the preferred interactive network.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment of the present invention is directed to systems and methods for selecting music on the basis of its subjective content, and is implemented in an interactive network system that can deliver a variety of services, including entertainment, information, and transaction services, to consumers via an interactive broadband network. The preferred system, which is referred to as the audio on demand system, allows a subscriber to listen to songs provided by the system. The subscriber may select songs on the basis of title, artist and album. The subscriber may also select playlists, which are predetermined collections of songs The audio on demand system provides a "more like" function that identifies more music that is like the subscriber's current selection. In addition, the system includes a "style equalizer" that allows a subscriber to see the predominant styles of music included in a playlist, and to adjust the mix of music played from the playlist.

Although the preferred embodiment will be generally described in the context of an interactive television system for delivering broadcast television programs, music, and related information, those skilled in the art will recognize that the present invention also can be used to support the delivery of other forms of programming information, including radio, broadcast print, audio, games, computer software, including program modules such as application programs and operating systems, and other combinations of audio, video and/or computer software. Accordingly, it will be understood that the terms "programming information" and "programming information items" generally include information transmitted electronically to entertain, instruct, edu-

cate, or inform the recipient, as well as program modules for supporting these services.

Turning first to the nomenclature of the specification, the detailed description which follows is represented largely in terms of processes and symbolic representations of operations by conventional computer components, including a central processing unit (CPU), memory storage devices for the CPU, and connected pixel-oriented display devices. These operations include the manipulation of data bits by the CPU and the maintenance of these bits within data structures resident in one or more of the memory storage devices. Such data structures impose a physical organization upon the collection of data bits stored within computer memory and represent specific electrical or magnetic elements. These symbolic representations are the means used by those skilled in the art of computer programming and computer construction to most effectively convey teachings and discoveries to others skilled in the art.

For the purposes of this discussion, a process is generally conceived to be a sequence of computer-executed steps leading to a desired result. These steps generally require physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical, magnetic, or optical signals capable of being stored, transferred, combined, compared, or otherwise manipulated. It is conventional for those skilled in the art to refer to these signals as bits, values, elements, symbols, characters, terms, numbers, records, files or the like. It should be kept in mind, however, that these and similar terms should be associated with appropriate physical quantities for computer operations, and that these terms are merely conventional labels applied to physical quantities that exist within and during operation of the computer.

It should also be understood that manipulations within the computer are often referred to in terms such as adding, comparing, moving, etc. which are often associated with manual operations performed by a human operator. It must be understood that no involvement of a human operator is necessary or even desirable in the present invention. The operations described herein are machine operations performed in conjunction with a human operator or user that interacts with the computer. The machines used for performing the operation of the present invention include general purpose digital computers or other similar computing devices.

In addition, it should be understood that the programs, processes, methods, etc. described herein are not related or limited to any particular computer or apparatus. Rather, various types of general purpose machines may be used with programs constructed in accordance with the teachings described herein. Similarly, it may prove advantageous to construct specialized apparatus to perform the method steps described herein by way of dedicated computer systems with hard-wired logic or programs stored in nonvolatile memory, such as read only memory.

Referring now the drawings, in which like numerals represent like elements throughout the several figures, the present invention and the preferred operating environments will be described.

THE OPERATING ENVIRONMENT

A typical CATV system for the delivery of television programming to subscribers comprises three main elements: a headend, a distribution system, and subscriber drops.

The "headend" is a signal reception and processing center that collects, organizes and distributes signals. The headend receives satellite-delivered video and audio programming, over-the-air broadcast television station signals, and network feeds delivered by terrestrial microwave and other communication systems. In addition, headends may inject local broadcast programming into the package of signals sent to subscribers, such as commercials and live programs created in a television studio.

The "distribution system" carries the signals from the headend to a number of distribution points in a community and, in turn, distributes the these signals to individual neighborhoods for delivery to subscribers. A modern distribution system typically comprises a combination of coaxial cable and optical fibers with trunk amplifiers periodically spaced to compensate for attenuation of the signals along the line.

"Subscriber drops" are taps in the distribution system that feed individual lines into subscribers' television sets or subscriber set-top terminals, often referred to as "subscriber premises equipment" or "customer premises equipment" ("CPE").

Referring to FIG. 1, an interactive network system **10** includes a headend system **12** for delivering programming information to and receiving instructions from a consumer system **14** via a "two-way" distribution network **16**. The headend system **12** is the control center for collecting, organizing, and distributing the signals for all interactive network operations and the source for all programming information. The distribution network **16** transports signals carrying programming information and instructions between the headend system **12** and the consumer system **14**. The distribution network **16** can include a world-wide public asynchronous transfer mode (ATM) compatible network with links to the Internet, third party service providers, and other wired and wireless communications networks. The consumer system **14** includes the equipment required for a consumer to receive programming information directly at his or her office or residence and to transmit requests and instructions to the headend system **12**.

The headend system **12** can include a set of headend servers **20**, including a continuous media server (CMS) system **22** and one or more administrative servers **24**, to support various network functions, and a control network **26** linking these headend servers. The headend servers **20** can execute program modules, including service and application program software, to support the transmission of programming information and the reception of requests for such programming information.

It will be appreciated that the headend servers **20** are not necessarily located in one physical location, but can be linked by wired and/or wireless communications paths supplied by the control network. The control network **26** can be a local area network, a wide area network, or a combination of both types of networks. For the preferred embodiment, the control network **26** is implemented as an ATM-based network for routing digital data between the headend servers **20** and the distribution network **16**.

The CMS system **22** is a server-based file storage and delivery system that can manage on-demand access to stored digitized data, such as audio and video. On-demand access of digitized data is a particularly desirable characteristic of the CMS system **22** because it allows the interactive network to support the on-demand delivery of various types of programming, such as music, movies, etc. The preferred CMS system **22** can supply digital data streams at a constant rate to numerous consumers of the consumer system **14**.

The CMS system **22** includes one or more storage servers **28**, which operate to retrieve and to transmit the digitized

data as required by clients of the CMS system, i.e., the equipment of the consumer system **14**. The digitized data, which typically comprises programming information, is maintained on one or more memory storage devices **30** connected to the storage servers **28**. Each memory storage device **30** can be implemented as a SCSI hard disk drive, an optical storage system, or any other similar mass storage media. By spreading the data management operations across a group of storage servers and memory storage devices, user load can be balanced with the limited disk, network, and input/output (I/O) resources of the headend system. This also supports fault tolerance by replicating digitized data within the CMS system **22** to survive the failure of a storage server or a memory storage device.

To support the tasks of updating or revising programming information stored on a memory storage device **30** of the CMS system **22**, a computer workstation **32** and a remote server **34** can be connected to the control network **26** via a communications link **36**. This communications link allows a program distributor or supplier, which typically operates at a location remote from the CMS system **22**, to transmit programming information for storage by one or more of the memory storage devices **30** and eventual distribution to consumers via the headend system **12**. The communications link **36** can be implemented by either a wireless or wired communications system. For example, the communications link **36** can be constructed as a microwave link or as a conventional telephone link.

The administrative servers **24** of the headend system **12** can support a variety of services and applications associated with the interactive network system **10**, including network security, monitoring, object storage, financial transactions, data management, and other administrative functions. The administrative servers **24** also handle the interactive service requests or instructions transmitted via the consumer system **14** by consumers. For an application involving a large base of consumers, an administrative server **24** is preferably dedicated to a particular service or function. For example, one or more servers can handle all consumer authorization requirements, whereas other servers can handle network management services, and so forth. These administrative servers preferably support the Simple Network Management Protocol (SNMP) to enable end-to-end network administration and monitoring.

The headend system **12** also can support the distribution of programming information and other services via an analog distribution system **38** that is coupled to the distribution network **16**. This distribution of analog formatted signals can be handled by a separate headend system associated with a community antenna television (CATV) system. The headend of the CATV system typically supports satellite-delivered video and audio programs, over-the-air broadcast television station signals, and broadcast network signal feeds delivered by microwave and other communications systems.

The distribution network **16** is a two-way communications network that connects the headend system **12** to various community distribution points of the consumer system **14** and, in turn, to individual neighborhood nodes for delivery to consumers of services supplied by the interactive network system **10**. The distribution network **16** comprises one or more downstream channels supporting transmissions from the headend system to the consumer system and one or more upstream channels for carrying transmissions from the consumer system to the headend system. This bidirectional communications network supports delivery of programming information via the headend system **12** to each consumer and the delivery of requests for programming information by a consumer to the headend system **12**. The distribution network **16** can be implemented by a microwave distribution system, a telephone system, coaxial cables, optical fibers, or any combination of these delivery systems. However, the preferred distribution network is implemented by a combination of hybrid optical fiber/coaxial cable (HFC) and optical fiber-to-the-curb (FTTC).

Those persons skilled in the art will appreciate that the programming information delivered over the distribution network **16** typically includes both video and audio signals. Programming information can be delivered in digital format, analog format, or a combination of both analog and digital formats. For the preferred embodiment, music-related programming is delivered as a stream of digital audio and video signals in a compressed digital data stream, which may include conventional MPEG-1 and MPEG-2 compressed video streams. Likewise, requests or instructions issued by consumers via the consumer system **14** are preferably formatted as digital signals.

The CMS system **22** and the administrative servers **24** are connected to the distribution network **16** via an ATM switching system **40**. The ATM switching system **40** supports network switching requirements for delivery by the headend system **12** of digital data streams carrying multimedia content and the handling of interactive service requests from consumers.

Because the interactive network **10** is a two-way communications system, the ATM switching system **40** preferably connects to the distribution network **16** via modulation/demodulation devices. The downstream channels of the distribution network **16** can be connected to the ATM switching system **40** via digital modulators **42**, whereas the reverse channels of the distribution network **16** are connected to reverse channel receivers **44**.

Each consumer within a neighborhood node of the consumer system **14** is connected to the distribution network **16** via a subscriber drop cable **46**, which is typically part of a local cable network administered by a multiple service operator (MSO). The drop cable **46** is typically a coaxial cable or optical fiber connected to a set-top terminal **48** or set-top box located at the consumer's location. This combination of the drop cable **46** and the set-top terminal **48** operates as a "tap" into the distribution network **16**, and allows the consumer to (1) receive program modules and programming information distributed by the headend system **12** and to (2) transmit requests or instructions to the headend system **12**. For example, the set-top terminal **48** can accept and convert signals carrying programming information to a format compatible for presentation by an output device **50**, such as a television or a computer system. This output device **50**, which can connected to the set-top terminal via a conductive path **52** such as coaxial cable, preferably includes a receiver and a display or monitor for receiving and displaying programs and program-related information. Those skilled in the art will understand that the output device **50** can be implemented as a combination of separate components, such as a receiver and a monitor, or as a single component, such as a conventional television or a general purpose computer system.

Selected operating functions of the set-top terminal **48** can be controlled by an input device **54** capable of supplying input data to the set-top terminal **48**. The input device **54** can be used to transmit command signals to the set-top terminal **48** and to input character-based data, such as text, for processing by the set-top terminal **48**. For example, the input

device 54 can be used to control the position of a display object presented by the output device or to enter text for conducting a service-related transaction supported by the interactive network 10. The input device 54 can be implemented as one or more devices for inputting data, including a hand held control, a keyboard, a mouse device, a game control, a joystick, a pen or stylus, a trackball, or a track pad.

For the preferred embodiment, the input device 54 is implemented as a hand held remote control unit capable of transmitting infrared signals carrying commands for controlling the operation of the set-top terminal 48. The remote control unit can include a directional keypad having distinct keys for allowing the user to control direction (up, down, left, right) and relative changes in volume or channel (increase or decrease), as well as absolute changes to channel value via a numeric key pad. The remote control unit and its functions are more fully described in conjunction with FIG. 3.

FIG. 2 illustrates the basic components of the set-top terminal 48. The primary components of the set-top terminal 48 include a network receiver 56, a network transmitter 58, a remote control receiver 60, a central processing unit (CPU) 62, and memory 64. These components are connected by a system bus 70, which can carry control, address, and data signals. The network receiver 56 conducts tuning operations for receiving a selected channel of the interactive network 10 and decoding operations for decoding compressed digitized data supplied via the interactive network 10. For example, the set-top terminal 48 can include MPEG decoding capability for converting the compressed digitized data into standard National Television Standard Committee (NTSC) video signals for reception by a conventional television. The network transmitter 58 transmits requests for programming information and related instructions for processing by the headend system 12. The network receiver 56 and the network transmitter 58 can be connected to the distribution network 16 via the drop cable 46. The remote control receiver 60, which is preferably implemented as an infrared receiving device, can decode signals carrying the commands issued by the input device 54, such as a remote control unit 80.

The CPU 62, which is connected to the network receiver and transmitter 56 and 58, as well as to the remote control receiver 60, controls the operations of the set-top terminal 48 and supports the rendering of graphical images that form a part of the user interface. The CPU 62 is typically implemented by at least one microprocessor, such as the model 80486 or the "PENTIUM" microprocessor, manufactured by Intel Corporation, Santa Clara, Calif. The CPU 62 communicates, by means of control, address, and data signals, with the remaining components of the set-top terminal 48 through the system bus 70. The CPU 62 operates in conjunction with the operating system 66 to retrieve, process, store, and display data. It will be appreciated that the processing functions of the CPU 62 may be divided among two or more microprocessors to support the presentation of a graphics-intensive user interface. For example, a microprocessor may be dedicated to control operations associated with the bi-directional communications with the headend system 12, whereas another microprocessor may be dedicated to the generation of graphics.

The memory 64, which is connected to the CPU 62, is useful for storing one or more program modules and data associated with set-top terminal operations. Program modules stored in the memory 64 can include operating system 66 and one or more application programs 68. The memory 64 can be implemented as a combination of dynamic memory, such as random access memory (RAM), and static memory, such as read only memory (ROM).

The operating system 66 comprises a set of computer programs that control the internal functions of the set-top terminal and support the execution of other program modules, including application programs 68. The preferred operating system 66 supports a graphics-based presentation of program-related information, including control items that visually represent control functions of the operating system and other program modules. A control item or control object is any visual image that can be manipulated by the user to perform an operation. The operating system 66 can receive and interpret input data supplied by the input device 54, as received by the remote control receiver 60. As described in more detail below, a user can "select" and "activate" (or launch) control items by the use of the input device 54 in a manner similar to the computer arts.

For the preferred set-top terminal 48, the memory includes a ROM containing at least a portion of program module representing "boot code" 72 for initializing the operations of the set-top terminal 48. Upon power-up of the set-top terminal 48, the boot code 72 initiates a request for the headend system 12 to download certain program modules, including the operating system 66 and one or more application programs 68. The program modules can be stored within the memory 64 of the set-top terminal 48. This downloading process allows the headend system 12 to easily update the program modules used in set-top terminals 48 throughout the interactive network 10. For example, the application programs 68 may be maintained within the set-top terminal 48 only during actual use of the features of these programs; otherwise, these application programs are maintained at the headend system 12. Thus, it will be appreciated that the preferred set-top terminal 48 relies heavily upon data storage mechanisms located at the headend system 12 rather than within the set-top terminal 48 itself.

The set-top terminal 48 can be connected to a peripheral device via input/output (I/O) ports 74. The I/O ports 74 support the connection of the system bus 70 to a connected peripheral device. For example, the output device 50 can be connected to the I/O ports 74 via a conductor 52. Likewise, an input device 54, such as a game control 90, can be connected to the I/O ports 74. In contrast to the remote control unit 80, which communicates with the remote control receiver 60 via a wireless communications link, other types of input devices 54 are typically connected to the I/O ports 74 via a cable. Nevertheless, those skilled in the art will appreciate that input devices 54 can communicate with the set-top terminal 48 by use of either wireless or wired communications links.

Generally, when a user first powers-up a set-top terminal 48, the set-top terminal 48 contacts the headend system 12 and requests the downloading of certain program modules, including the operating system 66. In response to loading these program modules, the set-top terminal 48 enters a stand-by mode to limit power consumption and awaits a command signal initiated by a user pressing a key or button on an input device 54, such as a remote control unit 80. In this stand-by mode, the set-top terminal can communicate with the headend system and can respond to administrative requests transmitted by the headend system 12. In the event that a user tunes to an interactive channel (such as the audio on demand service), the set-top terminal 48 changes modes and enters the active mode. In the active mode, the set-top terminal 48 communicates with the headend system 12 to process the instructions transmitted by the remote control

unit. For example, the set-top terminal **48** responds to a command requesting programming information by forwarding this instruction to the headend system **12** via the drop cable **46** and the distribution network **16**. The headend system **12** responds by retrieving selected programming information from the CMS system **22** and transmitting the selected programming information via the return path provided by the distribution network **16** and the drop cable **46**. The set-top terminal then supplies this programming information in the proper format for presentation by the display **50**.

FIG. **3** illustrates the preferred remote control unit **80**, which is used to transmit commands to the set-top terminal **48**. The remote control unit **80** includes a variety of keys that are common to remote control units for use with conventional television sets. These include power on/off **100**, channel up **102**, channel down **104**, volume up **106**, volume down **108**, mute **110**, and a 10 digit numeric keypad **112**.

The preferred remote control unit also includes keys that are specifically related to preferred interactive system. A menu button **114** is used to open and close on-screen menus. A directional control **116** is a rocker switch that is used to select specific control items by moving a cursor up, down, left or right. An action button **118** is used to activate a selected control item. A help key **120** is used to initiate on-screen help. An "A" button **122** and "B" button **124** are used to select specific options that are provided in some contexts.

The Preferred Systems and Methods for Selecting Music Based on Subject Content

Turning now to FIGS. **4–13**, the preferred systems and methods for selecting music based on subjective content will be described. The primary features of the present invention are a "more like" music search function and a "style equalizer" (style EQ). In addition, the preferred audio on demand system also provides a variety of ancillary features. These features allow a subscriber to find a specific song by artist and title or select a playlist, which is a collection of songs. Once a playlist is selected, the user may review the contents of the playlist and select another song in the playlist. While a song is playing, the listener may add the song to a playlist called "my favorites", or mark the song so that it is never played again. Each of these features is discussed in conjunction with its corresponding user interface and control objects.

FIGS. **4–6** illustrate general aspects of the user interface employed in the preferred embodiment of the present invention, which is referred to as the audio on demand system. FIGS. **7–10** include screen displays and flow charts associated with the "more like" function, which provides the subscriber with more songs that are like the current song. FIGS. **11–13** includes a screen display and flow charts associated with the style EQ function, which displays the styles associated with the current playlist and allows the subscriber to adjust the mix of songs played from the playlist.

The General User Interface

Before describing the preferred "more like" and "style EQ" functions in detail, it will be helpful to understand the basic features of the preferred audio on demand system and the user interface. This information is provided in conjunction with FIGS. **4–6**, which illustrate screen displays that appear on the subscriber's display or monitor. Each of the screen displays that form a part of the user interface provide information and control objects, which typically appear as buttons. The subscriber may select and activate the control objects using the directional control and action button on the remote control unit (FIG. **3**). An object is selected by moving the "focus" to the object. The focus is analogous to a cursor on a general purpose computer, and may be represented by a highlighted or colored frame or border that appears around a control object.

The audio on demand system relies on an audio content database, which includes all of the programming information items (e.g., songs) available on the system. The songs in the audio content database are obtained from various sources and are loaded on the continuous media servers that form a part of the headend system. In most cases, the operator of the system will arrange for record companies to provide their music catalogs. Those skilled in the art will appreciate that while the audio on demand system is capable of combining music catalogs from various sources into an integrated music resource, some music companies may prefer that their music not be mixed with music from other publishers. In this case, the system may make different music catalogs available on different channels on the interactive network.

FIGS. **4–6** illustrate the basic features of the audio on demand user interface. FIG. **4** illustrates the initial audio on demand screen display **400**, which appears when the subscriber selects the audio on demand system. The initial screen display **400** is divided into three (3) different regions or panels. The top region is a graphic display field **405**, which may be used to display graphic images associated with the audio on demand system. For example, the service provider may choose to display a service mark, trademark or other logo when an audio on demand channel is selected by the subscriber.

Immediately below the graphic display field **405** is the style EQ panel **410**. The style EQ panel **410** is used to select the style equalizer, which is described below. The style EQ panel **410** also includes a style EQ status indicator **415**, which indicates whether the style EQ feature is currently activated.

The bottom region of the screen display **400** is used to select individual songs or playlists. A find button **420** is provided in order to allow a subscriber to select a specific song. When the find button is activated, the screen displays bins that appear to be similar to those found in music stores. In these bins, artists are listed in alphabetical order. When the subscriber selects a particular artist, the names of the artist's albums appear in chronological order, and are followed by an alphabetical listing of the artist's songs. The subscriber may use this feature to select a particular song or album. If the user selects a song, that song is loaded into a new playlist. If the user selects an album, all of the songs from that album are loaded into a new playlist.

The screen display **400** also includes a plurality of playlist buttons **425**, which allow the subscriber to select a playlist. As described briefly above, a playlist is a collection of songs. Playlists may be generated in a variety of different ways. For example, various types of playlists may be provided by the service provider or other publishers. In addition, a subscriber may build a playlist one song at a time using the find button **420**. A subscriber may also communicate with the preferred interactive network via a personal computer. When connected in this manner, the subscriber may use the personal computer to create and name playlists, perform abstract music searches or queries, etc. Those skilled in the art will appreciate that the interface provided by a personal computer is much more efficient for these tasks than a cumber-

some on-screen interface that relies on input from a remote control unit. Those skilled in the art will also appreciate that playlists need not be limited to songs. Playlists can include collections of news stories, movies, and other types of programming information. The five playlist buttons **425** are similar to the preset buttons on car radio and indicate the subscriber's five favorite playlists.

The bottom portion of the screen display **400** includes an alphanumeric display **430**, which is used to provide some feedback when the subscriber selects one of the other control objects on the screen. For example, when the subscriber uses the remote control unit to move the focus to one of the playlist buttons, the alphanumeric display **430** indicates the name of the associated playlist. Likewise, when the find button has the focus, the alphanumeric display **430** displays an informative message such as "select a song".

FIGS. **5** and **6** illustrate the format of the screen displays **500** that are associated with individual playlists. The playlist screen display **500** appears after the subscriber has created a new playlist by using the find button **420** or selected an existing playlist using one of the playlist buttons **425** on the initial screen display **400** (FIG. **4**). Like the initial screen display **400**, the playlist screen display **500** includes a graphic display field **505** and a style EQ panel **510**. The graphic display panel **505** may be used to display general information associated with the playlist or information associated with the currently playing album or song.

The bottom portion of the playlist screen display **500** includes a playlist identification box **515**. If the playlist was selected by choosing one of the playlist buttons **425** on the initial screen display, the playlist identification box **515** will include the same name, logo or icon that appeared on the playlist button. In the preferred audio on demand system, if the playlist was selected by using the find button **420** on the initial screen display, the playlist identification box **515** will display an icon that resembles a compact disc. The compact disc icon is used to indicate a user preference playlist.

As mentioned above, a playlist is a collection of songs. When a playlist is selected, the audio on demand system begins to play the first song in the playlist. The name of the current song is displayed in a song title box **520**. The artist's name is displayed in an artist box **525**. A counter **530** displays the elapsed time of the current song.

The playlist screen display **500** also provides a list button **535**, which may be used to display a list of the songs that are included in the current playlist and to jump to another song in the playlist. FIG. **6** shows a screen display **600** with a pop-up list **605**, which is displayed when the subscriber activates the list button **535** on the playlist screen display **500**. Each entry in the list includes the title of the song and the artist. In the preferred audio on demand system, the list displays ten (10) of the songs in the current playlist. The subscriber may use the directional control on the remote control unit to scroll through all of the songs in the playlist. The subscriber may also select any of the songs in the playlist by using the directional control to highlight the desired song and pressing the action button (on the remote control unit, FIG. **3**). After the subscriber selects a song from the list **605**, the system returns to the playlist screen display **500**. At that point, the newly selected song begins to play, and the song's title and artist are displayed in the song title box **520** and artist box **525**, respectively.

The playlist screen display of FIG. **5** also includes a "more" button **540**, a "like" button **545**, and a "dislike" button **550**. The "more" button **540** is used to activate the "more like" music search function, which is described below. The subscriber may add the currently playing song to a playlist called "my favorites" by activating the "like" button **545** while a song is playing. If the user does not like the current song, the subscriber may activate the "dislike" button **550** while the song is playing. Once the subscriber indicates the song is disliked, the audio on demand system will never play that song again for the subscriber. This is true without regard to where the song is found. In the preferred audio on demand system, the only way for a subscriber to again listen to a song has been labeled as disliked is to select that specific song using the find button on the initial screen display (FIG. **4**).

The "More Like" Function

Generally described, the "more like" function of the present invention provides systems and methods for using a seed song (e.g., the current song) to add new songs to a playlist. This is accomplished on the basis of subjective style classifications and style weightings that are associated with the songs in the audio content database.

The "more like" function allows for the context based selection of subjective material. More particularly, the "more like" function allows a subscriber to locate additional songs on the basis of subjective decisions that have been made regarding the styles of the songs. In order to work properly, the subscriber must be able to predict the output of the "more like" function to some extent. In other words, the "more like" functions must find songs that most subscribers would agree are "similar" to the seed song.

Those skilled in the art will appreciate that it is subjective content that complicates the classification of information. Systems that classify only objective content are easily implemented. For example, songs are easily classified and identified by their title and artist. However, systems that accurately and predictably classify and search subjective content are more complex. In this sense, the present invention is applicable to any systems that classify and select programming information having subjective content. However, in the preferred system, the invention is described in the context of musical selections.

In the present invention, the subjective content associated with each song is embodied in style tables, which are tools for classifying each song's subjective content. Each song can be associated with any number of different styles. The editor that creates the style table must determine how important each style is to the description of each song. This is reflected by weighting each style as it pertains to each song. Thus, the process of creating a style table for an artist involves two steps: (1) creating the list of possible style categories; and (2) assigning weightings to each style category. Both of these steps are performed by the editor that creates the style table.

The "more like" function relies on two elements: a database and a method for searching and combining the songs in the audio content database. As mentioned above, the database takes the form of style tables that classify the style of each song. Although human beings work well as editors to provide the required editorial content, there are limits as to the number of categories that can be considered. For example, the operator of the audio on demand system may deem it acceptable to spend the time to classify the artists of the songs that are provided on the system. However, the system operator may not consider it feasible to classify each and every song on the system.

In the present system, these considerations are accommodated by allowing music to be classified by various levels (e.g., artist, album, song). The editor is responsible for choosing the particular level or levels that will be used in the system. This decision depends on the amount of editorial

time the editor is willing to spend and the specificity required for the desired outcome of the "more like" function. Although they require more editorial work, higher level style tables (e.g., album or song) allow the style tables to more accurately reflect the styles associated with each song or album. This is especially useful in the case of artists whose styles have varied over their career or from album to album.

In the preferred audio on demand system, the style tables are constructed at the artist level, which is the lowest level, or broadest area of categorization. This reduces the amount of editorial work required, while providing style information that can be broadly applied to all of the songs available on the system.

In the preferred system, the each song has a song identification (ID) number that uniquely identifies that song. Similarly, each artist is identified by a unique artist ID number. The digital audio data is stored on a continuous media server by song ID number. The associated administrative information is stored on an administrative server. The administrative information includes the style tables, information for each song (title, artist, album, etc.), and all of the other databases, graphics, text, etc. that are required by the audio on demand system. A playlist is created by creating a database that includes the song ID numbers of the songs that are included in the playlist.

In the preferred embodiment of the present invention, the style tables operate in the following manner. The audio on demand system operator creates an artist level default style table for all of the artists whose songs appear on the system. As mentioned above, the editor must determine which style categories to use and the weightings assigned to each artist. Therefore, the default style tables may include any number of style categories associated with any number of artists.

An example of a style table for the Beatles is shown below:

Artist: The Beatles

Style Category	Weight
1960s	1
1970s	1
British Invasion	7
Rock	5
Pop	5
Innovators	6

Although the audio on demand system provides default style tables for all of the artists whose songs appear on the system, playlist publishers may wish to provide their own style tables that categorize artists in a different manner. For example, the default style tables may include a single category for rap music. However, rap music aficionados may prefer to further classify rap music into more precise subcategories, such as New York City rap, Los Angeles Rap, Male Rap, Female Rap, etc.

The present invention allows playlist-specific style tables to be loaded into the system with each playlist. Therefore, playlist publishers may elect to use the default style tables, or may provide their own. Each playlist-specific style table may reclassify all of the artists whose music appears on the system, or only artists of particular interest. Thus, in the previous rap music example, a publisher of a rap music playlist may provide a style table that reclassifies those artists whose music appears in the rap playlist. In other words, a playlist publisher can recategorize the artists that are important to that publisher, and for which they want to make finer distinctions.

The method of searching for and matching the entries in the audio content database employs a qualitative scale of closeness, which is controlled by a matching closeness indicator. In the preferred system, the matching closeness indicator is a style slider, which is presented as part of the user interface. The qualitative scale of closeness determines the degree of similarity between the subjective content of the seed song and the songs that will be chosen by the "more like" function. Thus, the style slider allows the subscriber to determine the closeness of the match.

The advantage of the qualitative scale of closeness is that it purposely allows the subscriber to choose a very broad setting. Those skilled in the art will appreciate that many subscribers will want to expand their playlists to include new songs that are only somewhat similar to earlier entries. This provides a mechanism by which a subscriber may move his or her playlist in new directions instead of repeatedly narrowing the playlist. Likewise, this method of finding similar music is vastly superior to searching by artist name or song title.

The outcome of the "more like" function depends on the relationship between the number of styles in the style tables, the weighting scale, and the position of the style slider when the "more like" function is activated.

FIGS. **7** and **8** illustrate the screen displays associated with the "more like" music search function FIG. **7** illustrates the more like screen display **700**. A more like panel **705** appears when the subscriber activates the more button **540** on the playlist screen display **500** (FIG. **5**). The more like panel **705** includes several control objects. A more album button **710** instructs the audio on demand system to list the other songs from the album that includes the current song. A more artist button **715** instructs the system to list more songs by the artist that performed the current song. A yes button **730** and a no button **735** allow the subscriber to accept or reject the list of songs that are presented as the output of the "more album" and "more artist" functions. If the subscriber selects the yes button, the listed songs are added to the current playlist.

A more style button **720** allows the subscriber to locate more music that is like the current song. The more style button **720** operates in conjunction with a style slider **725**, which the subscriber sets to indicate the degree of closeness or similarity that is required in order for a song to match the current song. If the subscriber moves the style slider **725** all the way to the right, the "more like" function will produce songs with styles that are very similar to the current song. As the style slider **725** is moved to the left, the "more like" function with present the subscriber with a broader group of songs that are in some way similar to the current song. A yes button **730** and a no button **735** allow the subscriber to accept or reject the list of similar songs that are presented as the output of the "more like" function.

FIG. **8** is a screen display **800** that includes a list **805** of songs that are generated in response to the more style button. In the preferred system, ten similar songs are presented to the subscriber. If the subscriber likes the songs in the list, he or she can add the songs to current playlist by activating the yes button **730**. If the subscriber wants to see other songs based on the same matching criteria, he or she may activate the more style button while leaving the style slider in the same position. If the subscriber wants to see songs that are more or less similar than those in the current list, the subscriber may adjust the style slider and activate the more style button. Finally, if the subscriber decides not to add any songs to the current playlist, the subscriber may activate the no button **735**. Once the subscriber activates the yes or no

button, the list **805** and more like panel disappear, and the system displays the playlist screen display **500** (FIG. 5). The details of the "more like" engine are provided below.

FIG. **9** is a flow diagram that summarizes the steps carried out by a subscriber who is using the more button **540** to find more music. The method **900** begins at step **905** when the user selects a song to hear. This is accomplished by using the find button to select a specific song, or by selecting a playlist. Those skilled in the art will appreciate that the "more like" function uses the current song as a "seed song" and selects other songs that match the style criteria associated with the seed song.

At step **910** the subscriber activates the more button **540** on the playlist screen display **500** (FIG. 5). This causes the more like panel to appear. At step **915** the subscriber sets the style slider in order to determine the closeness of the match. When the style slider is moved to the right, the "more like" function finds songs whose style more strongly resembles the seed song. As the style slider is moved to the left, the "more like" function relaxes the degree of similarity that is required. The function of the style slider is described more completely below.

At step **920** the user activates the more style button **720** on the more like panel **705** (FIG. 7). When the subscriber activates the more style button, the audio on demand system carries out the process of identifying songs that have a style similar to the seed song. This process is described in detail below in connection with FIG. **10**. When the process is complete, the system displays a list of ten (10) songs for review by the subscriber. This list is reviewed by the subscriber at step **925**.

At step **930** the subscriber determines whether the songs included in the list should be added to the current playlist. If so, the subscriber activates the yes button on the more like panel, and the system adds the songs to the playlist (step **935**). If the subscriber decides not to add the songs to the playlist, the subscriber must decide whether to quit the more like function (step **940**). If so, the subscriber activates the no button and the more like panel is dismissed (step **945**).

At step **940** the subscriber may decide to try the more like function again and see a different list of songs. If this is the case, the subscriber determines whether to leave the style slider in the same place (step **950**). If so, the subscriber returns to step **920** and activates the more style button. This causes the system to display ten other songs from the group of songs that was generated earlier. If the subscriber decides to expand or narrow the matching criteria, the subscriber returns to step **915** and adjusts the style slider prior to activating the more style button.

FIG. **10** is a flow diagram illustrating the "more like" function of the present invention as implemented in a program module running on a headend server, which forms a part of the interactive network. The method **1000** begins at step **1005** after the user has selected a seed song and activated the more style button. At step **1005** the system uses the style tables to identify the style categories and weightings that are associated with the seed song. In the preferred embodiment, which implements only artist level style tables, this step involves identifying the style table that corresponds to the artist that performed the seed song. The style table data is then sorted by weighting in decreasing order.

At step **1010** the system determines the setting of the style slider. The style slider operates to indicate a percentage, which is applied to the sorted style table in the manner described below. The percentage associated with a particular style slider position depends on the granularity of the style slider. If the style slider has 11 positions, the positions would represent increments of 10% each (ranging from 0% to 100%). Thus, the rightmost position would indicate a 100% match was desired. If the style slider is in the center position, that would indicate a 50% was desired.

At step **1015** the system uses the seed song's style table and the position of the style slider to identify more songs that are like the seed song. In the preferred system, this step involves identifying other artists who have the same styles as the seed song artist at weights that are at least as high as the position of the style slider.

The following example will illustrate the operation of this step, and the relationship between the styles in the style table, the weighting scale, and the position of the style slider. Assume the style table weighting scale ranges from 1–10 and the style slider has 11 positions (at >0%, 10%, 20%, . . . , 80%, 90%, 100%). If the style slider is set at 100%, the system will determine which of the style categories associated with the seed song artist have weightings of 10 (which is 100% of the 1–10 scale). After these style categories are identified, the system will search for artists who have at least one of the same style categories at a weighting of 10. Those skilled in the art will appreciate that this process will yield artists whose style is very similar to the seed song artist.

If the style slider is set at 50%, the system will determine which of the style categories associated with the seed song artist have weightings of at least 5 (which is 50% of the 1–10 scale). After these style categories are identified, the system will search for artists who have at least one of the same style categories with a weighting of at least 5.

If the seed song is a Beatles song and the system uses the sample style table provided above, a style slider position of 50% would match artists who have the styles British Invasion, Innovators, Rock or Pop with a weighting of at least 5. Those skilled in the art will understand that the "more like" function is constrained by the style categories that are associated with the seed song artist. However, the matching weightings for those style categories are determined by the position of the style slider.

At this point, it should be appreciated that the style slider positions, which are determined by the system provider, work with any style table, regardless of the weighting scale used. For example, if a style table uses a weighting scale of 1–100, a style slider position of 60% will search for artists having the requisite styles with a weighting of at least 60. This allows playlist publishers and others to create compatible style tables using any size weighting scale.

After the matching artists are identified, the system compiles a list of the songs performed by those artists. In order to limit the number of songs that may be included in the group, the system can be designed to select only a predetermined number of songs by each artist.

At step **1020** the system performs a random sort of the songs that were identified in step **1015**. At step **1025** the system picks the first ten songs from the sorted group of songs and displays a list of those 10 songs to the subscriber. This is illustrated in FIG. **8**. In the preferred system, the style categories and weightings that are used in the search are not displayed to the subscriber.

At step **1030** the system determines whether the subscriber has accepted the songs by activating the yes button on the more like panel. If so, the method proceeds to step **1035**, the 10 songs in the list are added to the current playlist, and the method **1000** ends. Instead of adding all 10 songs to the playlist, an alternative user interface may be provided in order to allow the subscriber to specify which of the 10 listed songs should be added to the playlist.

If the subscriber does not activate the yes button, the method proceeds to step **1040** and determines if the sub-

scriber has activated the no button on the more like panel. If so, the method **1000** ends.

At step **1040** the system may determine that the subscriber has again activated the more style button. If this occurs, the system proceeds to step **1045** and determines the position of the style slider. If the position of the style slider is the same as before, the system returns to step **1020** and resorts the same group of songs. If the subscriber moved the style slider before reactivating the more style button, the system returns to step **1015** and identifies other songs that match the new criteria.

Although the preferred system only implements artist level style tables, the system could also implement album level style tables and song level style tables. Those skilled in the art will appreciate that using "low level" style tables (i.e., artist level) reduces the amount of editorial work required to classify the music available in the system. While requiring more editorial work, higher level style tables (e.g., album or song) allow the style tables to more accurately reflect the styles associated with songs or albums. This is advantageous because it can be used to take into account artists whose styles have varied over their career or from album to album.

If more than one level of style tables is provided, the system may be designed to implement an "aggregation function" in the process of step **1015**. Aggregation allows the system to combine one or more levels using any type of mathematical operator. For example, "adding" style levels leads to a tighter match between songs. "Multiplying" style levels results in a broader spread of songs that will match the seed song.

Although the "more like" function has been described as searching the entire audio content database, it is possible to limit the search material that is searched by the system. For example, instead of searching all published songs, the "more like" process may be used to search only new releases. This would allow a subscriber to use the "more like" function to add new music to a playlist. Those skilled in the art will understand that the source material in the audio content database may be selected or restricted in any number of ways, and that the data used to make such distinctions is maintained on the interactive network's administrative servers.

From the foregoing description of the "more like" function, those skilled in the art will appreciate that the present invention includes two means for providing context during the search. First, the style slider allows the subscriber to control the closeness of the matches provided by the "more like" function. Second, the present invention employs editorial data produced by the system operator and playlist publishers to classify the songs in the audio content database. Because new style tables may be loaded in with a playlist, the outcome of the "more like" function will vary depending on the nature of the style table and the editorial decisions made by the playlist publisher.

Finally, those skilled in the art will appreciate that the present invention provides distinct advantages over various other computer based processes that could be used to identify similar songs. For example, it is possible to implement a "more like" engine based on the computer analysis of rhythm, tempo, etc. However, such an approach would require relatively powerful computer processors, and would require that all of the songs in the audio content database be pre-analyzed. Furthermore, such a system may not be predictable, because most listeners would not equate jazz at 120 beats per minute with classical at 120 beats per minute.

The Style EQ Function

As described briefly above, the style EQ function addresses two distinct needs that arise in the interactive network environment. These problems arise because a subscriber typically selects a playlist on the basis of a very short title, and because playlists may include a relatively large number of songs. First, the style EQ allows the subscriber to get a clearer look at what types of music are included in the playlist. The system accomplishes this by displaying an indicator for each of the predominant styles in the playlist and setting the position of the indicators to reflect the relative portion of the playlist that includes that style. This allows the subscriber to see how much music of each style is present in the playlist. Second, the style EQ feature allows the subscriber to alter the mix of the songs that are played from the playlist by adjusting one or more of the indicators. Thus, if the subscriber does not care for one of the styles in the playlist, the subscriber can decrease the amount of that style that is played. Similarly, the subscriber can boost the styles of music that he or she enjoys, which acts as a filter and does not alter the actual content of the playlist. This allows a subscriber to listen to a playlist in a variety of different ways.

FIG. **11** illustrates the screen display associated with the style EQ function provided by the preferred audio on demand system. The style EQ screen display **1100** is displayed when the subscriber selects the style EQ function from the style EQ panel on the initial screen display **400** (FIG. 4) or the playlist screen display **500** (FIG. 5). The style EQ screen display **1100** covers the bottom portion of the display. The style EQ screen display includes an on/off button **1105**, an alphanumeric display **1110**, and a plurality of faders **1115**. The style EQ is turned on and off by activating the on/off button **1105**. The alphanumeric display **1110** provides information to the subscriber.

The preferred style EQ includes eight (8) indicators, or faders **1115**. Those skilled in the art will appreciate that the style EQ faders resemble a conventional graphic equalizer. However, instead of each fader being assigned to a frequency band, each fader is assigned to a particular style of music included in the playlist. This allows the faders to be used to give a subscriber a clearer picture of the types of music included in a playlist. For example, a playlist that includes rock music may simply be called "Rock". The style EQ faders may indicate that the playlist includes music that may be more specifically described as 1970s rock, 1980s rock, 1990s rock, soft rock, acid rock, heavy metal, etc.

When a playlist is loaded and the style EQ function is first turned on, the faders **1115** are positioned by the system to indicate the portion of the playlist that fits into the associated style category. The subscriber may get an idea of what is included in the playlist by using the remote control unit's directional control to highlight each of the faders. The display **1110** displays the name of the style associated with the highlighted fader.

The style EQ function also allows the subscriber to adjust the mix of songs that is played from the playlist. For example, if the subscriber dislikes acid rock and heavy metal, the subscriber can "attenuate" those styles by using the remote control unit to move those faders to their lowest position. Likewise, the subscriber can "boost" the amount of soft rock songs that are played by moving the fader upward. Those skilled in the art will appreciate that the style EQ function does not alter the content of the playlist. Instead, it merely adjusts the mix of songs that are played from the playlist. The details regarding the operation of the style EQ function and the assignment of style names to the faders are discussed below.

FIG. **12** is a flow diagram that summarizes the steps carried out by a subscriber who is using the style EQ

function. The method **1200** begins at step **1205** when the user selects a playlist. This is accomplished by using the playlist buttons on the initial screen display. After a playlist is selected the subscriber activates the style EQ screen display **900** (FIG. **9**) by activating the style EQ button on the playlist screen display (step **1210**). This causes the system to display the style EQ panel with the faders set to indicate the mix of songs included in the playlist.

At step **1215** the subscriber reviews the style labels associated with each fader and the proportion of songs that are described by that style. At step **1220** the, subscriber determines whether to adjust the sliders in order to alter the mix of music that is played from the playlist. If so, the subscriber uses the direction control on the remote control unit to adjust one or more faders up or down (step **1225**). The subscriber then proceeds to step **1230** and dismisses the style EQ panel. If at step **1220**, the subscriber decides not to adjust the faders, the subscriber proceeds to step **1230** and dismisses the style EQ panel.

FIG. **13** is a flow diagram illustrating the style EQ function of the present invention as implemented in a program module running on a headend server, which forms a part of the interactive network. The method **1300** begins at step **1305** by playing a playlist that has been selected by the subscriber.

At step **1310** the system identifies the predominant styles of music that are included in the playlist. Those skilled in the art will appreciate that this step may be accomplished in a variety of ways. In the preferred system, the style information used by the style EQ function is provided by the publisher of the playlist, and is loaded into the system when the playlist is selected. In this case, the playlist style data defines the style categories that will be associated with each of the faders and provides the initial settings for the faders.

In an alternative embodiment, the system may assign style categories to faders by reading the style tables (provided in conjunction with the "more like" function) and assigning the predominant style categories to the faders. The style tables would provide the information necessary to determine how many songs are associated with each style, and the relative portions of the playlist that are described by each of these styles.

Once the predominant styles have been identified, the system proceeds to step **1315** and assigns the styles to the faders. As described above, the style EQ function in the preferred system includes 8 faders. Those skilled in the art will appreciate that there are no inherent limitations on the number of faders (and associated styles) that can be used in conjunction with the style EQ function.

Those skilled in the art will appreciate that either method allows the fader labels to be determined by the music in each playlist. This avoids the problems that would arise if the system defined only a fixed number of style labels that could be assigned regardless of the types of music in a playlist. The present invention allows broad labels to be used for playlist containing a broad mix of styles and specific labels to be used for narrower playlists. For example, if a playlist included all of the music in the world, the fader labels would be broad categories, such as classical, jazz, country, rock, etc. Similarly, if a playlist includes only jazz music, the style EQ function will assign meaningful jazz related subcategories to the faders.

Defining the labels on the basis of the content of each playlist also ensures that each fader label represents music that is in fact included in the playlist. This avoids the problems of having a fader label without having any music to go with it. For example, it would be misleading is there is a standard label for jazz music, but a playlist does not include jazz music. This would lead to the subscriber thinking he can increase the amount of jazz music played from the playlist, when in fact the playlist includes no jazz music.

At step **1320** the system adjusts the position of the faders to reflect the relative portion of songs that are described by the style associated with each fader. This allows the subscriber to see about what portion of the playlist is represented by each style of music.

At step **1325** the system determines whether the subscriber has moved any of the fader from their original positions. If not, the method proceeds to step **1330** and plays all of the songs in the playlist in order.

If at step **1325** one or more of the faders have been moved, the system goes to step **1335** and adjusts the mix of the music that is played from the playlist. Those skilled in the art will appreciate that the style EQ feature does not alter the playlist by adding or removing songs. Instead it simply adjusts the mix of songs that are played from the playlist.

In the preferred system, the percentage of the songs that have each style is determined by the following equation:

$$\%\ \text{of style} = (\text{value of style}) / (\text{total values for all styles})$$

In this equation, the value of each style is determined by the position of the fader and the number of positions on each fader. For example, on the style EQ panel of FIG. **10**, each fader has 10 positions. If we refer to each of the faders as styles 1–8 (from left to right), the total values for all styles is 51 (which is the sum of 9 +3+7+6+4+6+7+9) out of a possible 80. In this example, the percentage of music with style 1 is $9/51 = 18\%$. Similarly, the percentage of music with style 2 is $3/51 = 6\%$.

Those skilled in the art will appreciate that an advantage of the style EQ feature is that moving a fader up or down leads to results that the user can understand. Furthermore, although the style EQ function has been described in the context of music playlist, those skilled in the art will appreciate that this aspect of the invention may be applied to many collections of material with subjective content. For example, the style EQ could be applied to a playlist that includes news stories, with faders labels such as national news, international news, business, sports, etc. This would allow subscribers to adjust the faders so that they hear more of the stories they are interested in, and less of the stories they are not interested in.

From the foregoing description, it will be appreciated that the present invention provides efficient systems and method for selecting and playing music based on its subjective content.

The foregoing methods of the present invention may conveniently be implemented in a program module that is based upon the flow charts in FIGS. **10** and **13**. No particular programming language has been indicated for carrying out the various procedures described above because it is considered that the operations, steps and procedures described above and illustrated in the accompanying drawings are sufficiently disclosed to permit one of ordinary skill in the art to practice the instant invention. Moreover, there are many computers and operating systems which may be used in practicing the instant invention and therefore no detailed computer program could be provided which would be applicable to these many different systems. Each user of a particular computer will be aware of the language and tools which are most useful for that user's needs and purposes.

The present invention has been described in relation to particular embodiments which are intended in all respects to

be illustrative rather than restrictive. For example, although the present invention has been described in the context of an interactive network system, those skilled in the art will understand that the principles of the present invention may be applied to, and embodied in, any type of interactive computing device, including general purpose computers, personal computer, notebook computers, etc.

Furthermore, the program modules described in conjunction with the preferred embodiment run on the headend server, which forms a part of the interactive system. Those skilled in the art will appreciate that the system may be configured so that various program modules run on the set top terminal. For example, data associated with the current playlist and its style EQ settings could be downloaded to the set top terminal in order to increase the processing speed.

Alternative embodiments will become apparent to those skilled in the art to which the present invention pertains without departing from its spirit and scope. Accordingly, the scope of the present invention is defined by the appended claims rather than the foregoing description.

What is claimed is:

1. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items from said media server comprising the steps of:

storing on said server a plurality of programming information items and editorial data associated with said programming information items;

playing, in response to a first input signal from said input device, an initial programming information item from said plurality of programming information items;

creating, in response to a second input signal from said input device, a list of proposed new programming information items on the basis of said editorial data associated with said initial programming information item and said plurality of programming information items;

presenting on said output device said list of said proposed new programming information items; and

adding, in response to a third input signal from said input device, said proposed new programming information items to a playlist.

2. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said editorial data comprises subjective content and weighting information associated with each of said programming information items, and wherein creating a list of proposed new programming information items comprises the steps of:

retrieving said editorial data associated with said initial programming information item;

identifying other programming information items having similar editorial data; and

selecting a predetermined number of said other programming information items having similar editorial data.

3. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said editorial data comprises subjective content and weighting information associated with the author of each of said programming information items, and wherein creating a list of proposed new programming information items comprises the steps of:

identifying the author of said initial programming information item;

retrieving the editorial data associated with said author;

identifying other authors having similar editorial data; and

selecting a predetermined number of programming information items by authors having similar editorial data.

4. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein creating a list of proposed new programming information items comprises the steps of:

determining the setting of a matching closeness indicator; and

selecting new programming information items by comparing said editorial data associated with said initial programming information item with said editorial data associated with said plurality of programming information items, said comparison being based on the setting of said matching closeness indicator.

5. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said interactive media distribution system comprises an interactive television system.

6. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said server is a continuous media server.

7. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said output device is a television monitor and said input device is a remote control unit.

8. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said programming information items comprise musical selections.

9. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said programming information items comprise movies.

10. In an interactive media distribution system including a media server, a distribution network, an output device and an input device, a method for selecting programming information items as recited in claim 1, wherein said programming information items comprise news stories.

11. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections from said server comprising the steps of:

storing on said server a plurality of musical selections and editorial data associated with said musical selections;

playing, in response to a first input signal from said input device, an initial musical selection from said plurality of musical selections;

creating, in response to a second input signal from said input device, a list of proposed new musical selections on the basis of said editorial data associated with said initial musical selection and said plurality of musical selections;

presenting on said output device said list of said proposed new musical selections; and

adding, in response to a third input signal from said input device, said proposed new musical selections to a playlist.

12. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said editorial data comprises subjective style and weighting information associated with each of said musical selections, and wherein creating a list of proposed new musical selections comprises the steps of:

retrieving said editorial data associated with said initial musical selection;

identifying other musical selections having similar editorial data; and

selecting a predetermined number of said other musical selections having similar editorial data.

13. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said editorial data comprises subjective style and weighting information associated with an album on which each of said musical selections was released, and wherein creating a list of proposed new musical selections comprises the steps of:

identifying the album on which said initial musical selection was released:

retrieving said editorial data associated with said album;

identifying other albums having similar editorial data; and

selecting a predetermined number of musical selections from said other albums having similar editorial data.

14. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said editorial data comprises subjective style and weighting information associated with the artist who performed each of said musical selections, and wherein creating a list of proposed new musical selections comprises the steps of:

identifying the artist who performed said initial musical selections;

retrieving the editorial data associated with said artist;

identifying other artists having similar editorial data; and

selecting a predetermined number of musical selections performed by artists having similar editorial data.

15. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein creating a list of proposed new musical selections comprises the steps of:

determining the setting of a matching closeness indicator; and

selecting new musical selections by comparing said editorial data associated with said initial musical selection with said editorial data associated with said plurality of musical selections, said comparison being based on the setting of said matching closeness indicator.

16. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said interactive music distribution system comprises an interactive television system.

17. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said server is a continuous media server.

18. In an interactive music distribution system including a server, a distribution network, an output device and an input device, a method for selecting musical selections as recited in claim 11, wherein said output device is a television monitor and said input device is a remote control unit.

19. A method for classifying and selecting programming information items having subjective content, comprising the steps of:

storing a plurality of programming information items;

storing editorial data associated with said programming information items, said editorial data including a plurality of categories and weightings associating each programming information item with said categories;

identifying, in response to a first input signal from an input device, an initial programming information item from said plurality of programming information items;

determining, in response to a second input signal from said input device, the setting of a matching closeness indicator;

determining matching categories for said initial programming entry, said matching categories including the categories whose weightings correspond to the position of the matching closeness indicator;

identifying matching programming information items, said matching programming information items including said matching categories with weightings corresponding to the setting of said matching closeness indicator; and

presenting said matching programming information items of a user.

20. A method for classifying and selecting programming information items having subjective content as recited in claim 19, wherein said matching closeness indicator is set in response to a third input signal from said input device.

21. A method for classifying and selecting programming information items having subjective content as recited in claim 19, wherein said programming information items comprise songs.

22. A method for classifying and selecting programming information items having subjective content as recited in claim 19, wherein said programming information items comprise news stories.

23. A method for classifying and selecting programming information items having subjective content as recited in claim 19, wherein said programming information items comprise movies.

24. A system for classifying and selecting programming information having subjective content, comprising:

a data storage device containing a plurality of programming information items and editorial data associated with said programming information items;

an output device for providing information to a user;

an input device for receiving input from said user; and

a computer associated with said data storage device, said computer being configured to:

play, in response to a first input signal from said input device, an initial programming information item from said plurality of programming information items,

create, in response to a second input signal from said input device, a list of proposed new programming information items on the basis of said editorial data associated with said programming information items,

present on said output device said list of proposed new programming information items, and

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add, in response to a third input signal from said input device, said proposed new programming information items to a playlist.

25. A system for classifying and selecting programming information as recited in claim 24, wherein said editorial data includes a plurality of style categories and weightings associated with each of said style categories.

26. A system for classifying and selecting programming information as recited in claim 25, wherein said proposed new programming information items and said initial programming selection include at least one identical style category.

27. A system for classifying and selecting programming information as recited in claim 24, wherein said programming information items comprise songs.

28. A system for classifying and selecting programming information as recited in claim 24, wherein said programming information items comprise new stories.

29. A system for classifying and selecting programming information as recited in claim 24, wherein said programming information items comprise movies.

30. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist, comprising the steps of:

loading a playlist including a plurality of programming information items;

loading editorial data associated with said plurality of programming information items;

displaying on said output device a predetermined number of indicators;

associating with each of said indicators a category from said editorial data, said indicators being positioned to indicate the portion of said plurality of programming information items corresponding to each of said categories;

adjusting, in response to an input signal from said input device, the position of at least one of said indicators;

selecting programming information items from said playlist such that the portions of said selected programming information items associated with each of said categories corresponds to the adjusted positions of said indicators; and

playing said selected programming information items on said output device.

31. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein associating a category with each of said indicators comprises the steps of:

determining the predominant categories of said categories; and

assigning said predominant categories to said indicators.

32. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 31, wherein determining the predominant categories comprises the steps of:

identifying the categories included in said editorial data; and

determining the number of programming information items associated with each of said categories.

33. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30; wherein selecting songs comprises the steps of:

determining a total number of positions associated with said indicators;

determining a number of positions associated with one of said indicators; and

dividing said number of positions by said total number of positions.

34. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, where;in said programming information items comprise songs.

35. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein said programming information items comprise news stories.

36. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein said programming information items comprise movies.

37. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein said server comprises a desktop computer and said output device comprises a display.

38. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein said input device is a remote control unit.

39. In an interactive system including a server, an output device, and an input device, a method for indicating the mix of programming information included in a playlist and adjusting the mix of programming information played from said playlist as recited in claim 30, wherein said video output device is a television monitor.

40. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist, comprising the steps of:

loading a playlist including a plurality of songs;

loading editorial data associated with said plurality of songs;

displaying on said video output device a predetermined number of indicators;

associating with each of said indicators a category from said editorial data;

setting the position of said indicators to indicate the portion of said plurality of songs corresponding to each of said categories;

adjusting, in response to an input signal from said input device, the position of at least one of said indicators;

selecting songs from said playlist such that the portions of said selected songs associated with each of said categories corresponds to the adjusted positions of said indicators; and

playing said selected songs on said audio output device.

41. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist as recited in claim 40, wherein associating a category with each of said indicators comprises the steps of:

determining the predominant categories of said categories; and

assigning said predominant categories to said indicators.

42. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist as recited in claim 41, wherein determining the predominant categories comprises the steps of:

identifying the categories included in said editorial data; and

determining the number of songs associated with each of said categories.

43. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist as recited in claim 40, wherein selecting songs comprises the steps of:

determining a total number of positions associated with said indicators;

determining a number of positions associated with one of said indicators: and

dividing said number of positions by said total number of positions.

44. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist as recited in claim 40, wherein said input device is a remote control unit.

45. In an interactive music system including a server, a video output device, an audio output device and an input device, a method for indicating the mix of songs included in a playlist and adjusting the mix of songs played from said playlist as recited in claim 40, wherein said video output device is a television monitor.

* * * * *

US005670730A

United States Patent [19]

Grewe et al.

[11] Patent Number: 5,670,730

[45] Date of Patent: Sep. 23, 1997

[54] **DATA PROTOCOL AND METHOD FOR SEGMENTING MEMORY FOR A MUSIC CHIP**

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[73] Assignee: **Lucent Technologies Inc.**, Murray Hill, N.J.

[21] Appl. No.: **447,321**

[22] Filed: **May 22, 1995**

[51] **Int. Cl.**[6] **G10H 1/26**

[52] **U.S. Cl.** **84/609**

[58] **Field of Search** ..... 84/601, 602, 609–614, 84/634–638, 477 R, 478; 369/49; 434/307 A, 308–313

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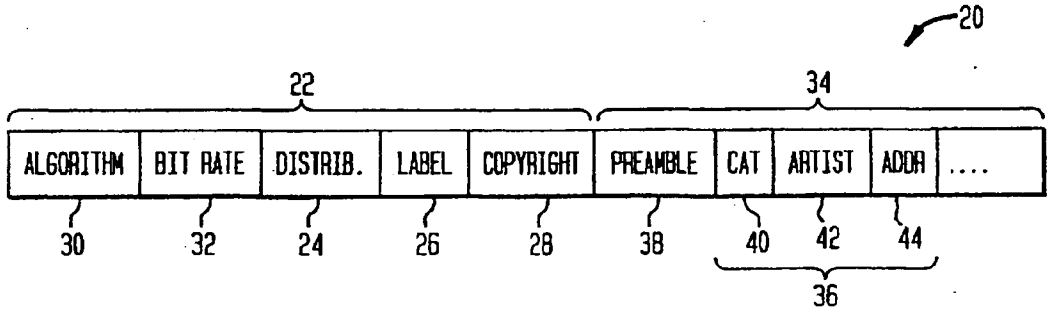
Primary Examiner—Stanley J. Witkowski

[57] **ABSTRACT**

A protocol for labeling various types of data contained in a music chip. The protocol includes a hierarchical arrangement of headers for storing information about selections on the chip and the method in which they were coded in the memory of the chip. A global header located at the very start of memory will specify information needed to successfully decode the content of the music chip. This will include, for example, the necessary bit rate, as well as information pertaining to a specific PAC (Perceptual Audio Coding) algorithm employed in recording audio on the chip. In addition to the global header, each chip will have a section of memory allocated to a table of contents. The table of contents will include information on play times, song titles, music category and artist. Individual track selections will be listed as part of the table of contents by individual headers. The individual header contains a music field to which a track belongs, for example, classical, jazz, country, rock, etc., an artist field, and an address field which pertains to the information for addressing each track selection. Information from the headers is self-registered or automatically downloaded when a chip is loaded into a player/juke box device. The concept of self-registering general information included within the headers allows a user to select by type of music, artist, etc. for music selections made over a period of time. In addition, the present invention provides a method for segmenting memory in an integrated circuit chip wherein the integrated circuit chip is adapted for use in an audio player and the memory has pre-recorded audio stored therein. The method includes the steps of storing in a global header parameters corresponding to encoding techniques used in storing the pre-recorded audio in memory and coding in at least one individual header data fields indicative of general description information for individual tracks of the pre-recorded audio.

35 Claims, 1 Drawing Sheet



CL 000320

FIG. 1

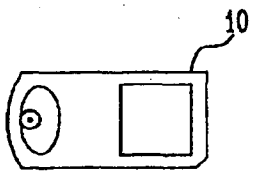


FIG. 2

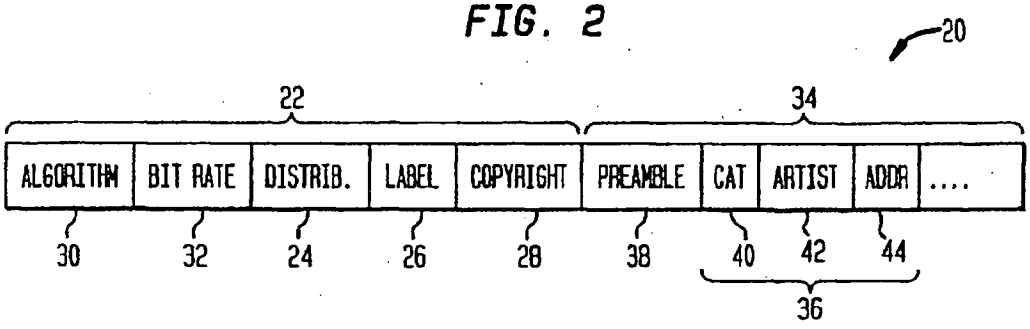


FIG. 3

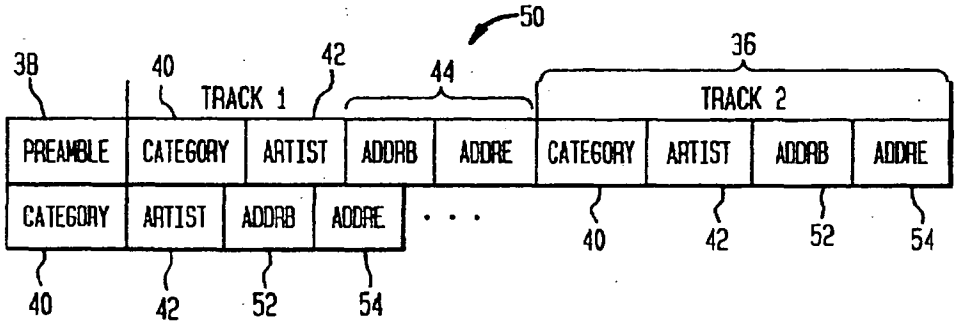
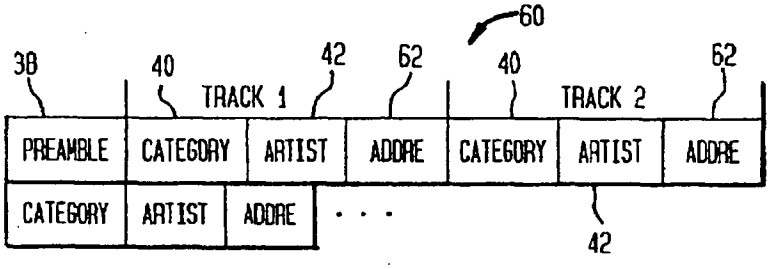


FIG. 4



CL 000321

DATA PROTOCOL AND METHOD FOR SEGMENTING MEMORY FOR A MUSIC CHIP

FIELD OF THE INVENTION

The present invention relates to a protocol for labeling various types of data contained in a music chip, and more particularly to a data protocol that contains a hierarchical arrangement of headers.

BACKGROUND OF THE INVENTION

A variety of recording media exist today for the storage of consumer directed pre-recorded music and other audio applications. These media include CD-ROM (Compact Disc Read Only Memory), DAT (Digital Audio Tape) and traditional magnetic cassette audio tape, just to name a few. Of the above technologies, the compact disc format has steadily increased in popularity and gained consumer approval due to the high sound quality of the digitally stored audio, as well as ease of use.

Compact discs and other formats, however, have some significant disadvantages. For one, compact discs do not normally include the ability to register the content of the information stored on disc prior to selection at the player. In other words, in order to gain any information regarding the contents of a particular music selection, that selection will first have to be manually selected at the player. In the alternative, some CD players may be manually programmed to play certain selections based upon user input. In either circumstance, however, there is no way to automatically search and play music by category, for example, by mist, music type, etc., unless a user has prior knowledge with regard to the selection. Such knowledge must include at a minimum the precise location of a selection on the recording medium, a way in which to direct the player apparatus to that location, and a searchable index keyed to the selection and the locations. Largely because of limitations in the recording medium, many of these functions cannot be accomplished cost effectively or efficiently. It is therefore an object of the present invention, to provide a storage format for pre-recorded music that is easily selectable by a user in regard to general content.

SUMMARY OF THE INVENTION

The present invention is a protocol for labeling various types of data contained in a music chip. The data protocol includes a hierarchical arrangement of headers for storing information about selections on the chip and the method in which they were coded in the memory of the chip. A global header located at the very start of memory will specify information needed to successfully decode the content of the music chip. This will include, for example, the necessary bit rate, as well as information pertaining to the specific encoding algorithm employed in recording audio on the chip.

In addition to the global header, each chip will have a section of memory allocated to a table of contents. The table of contents will include information on play times, song titles, music category and artist. Individual track selections will be listed as part of the table of contents by individual headers. The individual header contains a music category to which a track belongs, for example, classical, jazz, country, rock, etc., the artist, and information for addressing each track selection. Information from the headers is self-registered or automatically downloaded when a chip is loaded into a player/juke box device. The concept of self-registering general information included within the headers allows a user to make selections by type of music, mist, etc. which is to be played over a period of time.

BRIEF DESCRIPTION OF THE FIGURES

For a better understanding of the present invention, reference may be had to the following description of exemplary embodiments thereof; considered in conjunction with the accompanying drawings, in which:

FIG. 1 shows a top plan view of one preferred embodiment of a music chip used in connection with the present invention data protocol;

FIG. 2 shows one preferred embodiment of the present invention data protocol utilizing a hierarchical arrangement of headers;

FIG. 3 shows one preferred implementation of an addressing scheme contained within individual headers;

FIG. 4 shows another preferred implementation of an addressing scheme contained within the individual headers.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to FIG. 1, there is shown one preferred embodiment of a music chip **10**, for use with the present invention data protocol. The music chip **10** is essentially a memory component which is adapted to be received into an accompanying solid state audio player for playing music contained on the chip. The physical characteristics of the chip **10** are that of a device of approximately 2.5"×1.125"×0.25" and made of a rugged ABS plastic (acrylic butyl styrene) or other like material. The relatively modest sized music chip device will have significant advantages over compact discs and other media with regard to transportability and storage. Memory and interface circuitry of the music chip **10** are embedded within the package. The memory of the music chip **10** contains prerecorded music or other like audio material stored in a compressed digital format.

Referring to FIG, 2, there is shown one preferred representation for the present invention memory configuration and format of a data protocol **20** used with the music chip **10**. The data protocol **20** is essentially a standardized format for obtaining addressing and music selection information stored on the music chip **10**. Each music chip **10** is encoded with a global header **22** at a starting address of memory, presumably at address **0×0**. The global header **22** contains general information about selections on the chip and the method in which they were coded, among other things. More specifically, the global header **22** will contain the distributor of the music **24**, record label **26** and perhaps copyright information **28**. This information will be displayable (and/or audible) on a display device associated with the audio player. Also contained in the global header **22** will be parameter information that specifies the manner in which the music found on the music chip **10** was encoded, i.e., the specific encoding algorithm **30** employed.

The parameter information of the global header **22** is advantageously included because as compression technology evolves, it may be possible to encode more on a single chip using different algorithms, and almost certainly at different bit rates. Thus, rather than "freeze" the compression algorithm to its current quality using a specific bit rate, it will be more cost effective to generate a specific algorithm release for each chip. This would allow an album from a specific artist introduced today to use 128 Kbps while an album released at some future date from the same artist could utilize a different algorithm that would play at perhaps 32 Kbps with the same quality that the 128 Kbps piece has at present.

The global header 22, thus, will also specify the the necessary information pertaining to algorithm 30 and which can be a PAC (Perceptual Audio Coding) algorithm and bit rate 32 needed to successfully decode the contents of a music chip 10. By putting less than 12K of information, for example, into this particular section of the global header 22, the present invention avoids stranding the hardware associated with the music chip 10 to any particular software version. This versatility will allow the memory size for a given play length to be reduced over time, thus, providing a means to reduce the price per chip or increase margins.

As mentioned, the global header 22 contains information about the selections on the chip and the manner in which they were coded. This and other header information are accessed once upon power-up or insertion of the music chip into an associated audio player in order to determine the available track selection of the chip. Header information pertaining to each track is read subsequently in cueing up the chip and navigating between individual track selections.

In addition to the global header 22, each chip will have a section of memory therein allocated to what amounts to a table of contents 34. Track selections will be listed as part of this table of contents by individual headers 36. The table of contents 34 will include information on play times, song titles, music category and artist. The information contained in the table of contents 34 allows the chip contents to be self-registered, i.e., downloaded, upon insertion into an audio player/juke box device.

Referring once again to FIG. 2, an exemplary representation for the table of contents 34 including individual headers 36 is shown immediately following the global header 22. A preamble field 38 is shown preceding the individual headers 36, wherein the preamble may include play times and song titles as has been discussed. The preamble field 38 or global header 22 may also include other information as memory costs prove to be less restrictive. Examples of additional information which may be includable on the memory chip include graphics data corresponding to the prerecorded music, such as album artwork, and printed song lyrics, each of which may be viewed on a display device associated with the audio player. The display device may be a display window on the player or a display at a remotely viewable device, such as a remote control.

An individual header 36 is broken into sections and contains a category field 40, an artist field 42, and address field 44 for each track selection. The category field 40 designates a type of music associated with each individual track, for example, classical, jazz, country, rock, etc. The concept of storing specific track information within an individual header 36 allows a user to select music according to a categorized type of music, by artist, or combinations of both, as well as other criteria. For instance, a user may randomly select from the category of country western songs to be played over the course of an evening. On the other hand, the user could also request to hear songs from a specific mist, for example, Billy Joel.

The category field 40 (CAT) of the individual header 36 will correspond to a standardized numbering scheme for types of music. The category field 40 includes a fixed field of predetermined length having some reasonable limit—for example, a field of eight binary encoded bits corresponding to 256 possible categories. Examples of three letter abbreviations and corresponding category numbers for some standard music types are as follows: Classical (CLS=0); Country (CTY=1); Gospel (GOS=2); Jazz (JAZ=3); Popular (POP=4); Rap (RAP=5); Reggae (REG=6); Rhythm and Blues (RNB=7); and Rock (ROC=8). The list will, of course, be further developed to include various recognized music types.

The specification of bit assignments to each music type is intended to be standardized and periodically reviewed to accommodate new music types. Specification of the category field 40 and bit assignments therefor would most likely include input from music distributors, as well as the audio player hardware manufacturers.

Also included within the individual header 36 is the artist field 42, which may be encoded in one of two different ways. In a first technique, a unique bit assignment would be given to each recognized artist in a similar manner to the assignment of category field 40. This method, however, will necessitate an extremely large field in order to include an almost boundless list of musical artists. In addition, this coding technique will present a formidable challenge in keeping the artist encodings up to date as new artists emerge.

A second approach, which is perhaps more efficient, is to implement a procedure for abbreviating an artist's name and then encode each character of the abbreviation. As an example, an abbreviation for the artist Whitney Houston might be encoded as follows:

EX: Whitney Houston → WHOUST = 23/8/15/21/19/20
where alphabetic codes are represented as {$a = 1, b = 2, c = 3, \ldots, z = 26$}

Thus, each alphabetic character would be assigned a corresponding numeric code, wherein artist names would be abbreviated up to a predetermined number of characters. The intent here is not to convey an absolute representation of the artist's name, but to provide a field that can be scanned quickly to identify selections from a particular artist with low probability of falsely selecting a track from another artist.

This kind of encoding scheme, wherein the artist's name or identity is somehow abbreviated lends itself to arithmetic coding techniques used for text compression. Arithmetic coding, however, requires a global database of possible artists to get the highest efficiency in bit assignments and also results in non-uniform word fields. For this reason, arithmetic coding utilizing non-uniform word fields may be undesirable, since implementation thereof is contrary to the concept of fixed field widths. Non-arithmetically coded abbreviations, however, may be implementable utilizing a fixed field of sufficient length to accommodate abbreviations for any of the artists.

As mentioned, an address field 44 is included as another section of the individual header 36. Two possible encoding schemes are contemplated for the address field 44. Referring to FIG. 3, there is shown a first address encoding scheme 50 for indicating track addresses of a music selection. FIG. 3 shows the preamble field 38, as well as category and artist fields 40, 42. Addressing is accomplished by explicitly specifying a begin address (ADDRB) 52 and an end address (ADDRE) 54 for each track. These addresses are read from the individual header 36 information at the start of each track. Decoding of this first address encoding scheme 50 begins with ADDRB 52 and proceeds until ADDRE 54 is reached, at which time a new track is selected. The remainder of the memory in the music chip 10 following the global header 22 and individual header 36 information will contain the actual encoded music which is stored utilizing a suitable PAC (Perceptual Audio Coding) algorithm.

Referring to FIG. 4, a second address encoding scheme 60 is represented. As with the first approach shown in FIG. 3, the instant scheme utilizes the preamble field 38, and

includes an individual header 36 with category and artist field 40, 42, respectively. An end address 62 is specified following the artist field 42. The second address endcoding scheme 60 relies more heavily on predefined, fixed width header fields and eliminates the need to specify both begin and end addresses (only one of which is supplied). Advantageously, this is more efficient in terms of storage requirements and accessing time, since only one address need be accessed for each track. By utilizing fixed field widths, the encoded music data corresponding to Track 1 of a music chip is known to begin at the end of the complete header information, i.e., global header 22+ preamble field 38+ individual headers 36. Thus, the address field for Track 1 need only specify the end address 62, since the begin address is already known or implied. A begin address for subsequent tracks is computed as the end address 62 of the preceding track on the chip, plus one address location, i.e., one more than the end address of the preceding track.

If a random play feature of tracks is desired, this can be achieved by indexing to the address field of the appropriate header 36 of a preceding track and adding one to recover a begin address for the desired track. The address field for the last track on a music chip 10 will be encoded with an "End-of-ROM" indicator in order to signify that no music content exists beyond that selection.

It will of course be understood, that the address field of the present embodiment encoding scheme can also be equivalently encoded as the begin address of the next track, wherein the end address of the present track is implied. This approach is somewhat less intuitive than providing an end address 62, as previously discussed, in that the address information contained in a specific header does not explicitly pertain to the track in which it is encoded.

The present invention data protocol for a music chip 10 enables general information regarding specific music selections to be quickly and easily accessed. In a preferred embodiment of the invention, the headers, i.e., global and individual are encoded with fixed field widths to eliminate the need for explicitly numbering each track, The header information for a track, n, can then be accessed at the following address:

[global header width]+[(n−1)(individual header width)]

where n=Track 1, . . . , Track N.

By supplying general information regarding the contents of a music chip 10 within a hierarchical arrangement of global and individual headers, 22 and 36 respectively this general information can be easily downloaded to a jukebox or home player, wherein a user may access that information without having to manually program any hardware. Music selections are then easily accomplished on the basis of artist, type of music, or combinations of both, thus allowing for increased flexibility in the making of single or multiple music selections.

Of course a significant concern in the implementation of the present invention data protocol hierarchical header arrangement is the mount of memory space on the music chip 10 which is lost in providing space for the headers. At present the standard music chip 10 includes in excess of 20 M-bytes of Read Only Memory (ROM). Employing the encoding algorithm at present day processing speeds, this translates to approximately 45 minutes of usable playing time per chip. At an average of 3 minutes per track, a music chip can accommodate approximately 15 or more tracks. The memory required for storage of the 15 accompanying headers for each of the tracks is envisioned to be significantly less than 1% of the memory capacity of the music chip 10. Accordingly, the required memory space for storage of the header arrangement will not adversely affect the overall storage capacity of the music chip 10, and will at the same time provide enhanced selectivity for the user.

From the above, it should be understood that the embodiments described, in regard to the drawings, are merely exemplary and that a person skilled in the art may make variations and modifications to the shown embodiments without departing from the spirit and scope of the invention. All such variations and modifications are intended to be included within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A data format for use in an audio system wherein pre-recorded music is digitally encoded in memory of an integrated circuit music chip, and said music is decoded and reproduced by means of an associated audio player, said data format for storing information pertaining to the contents of said music chip, wherein individual tracks of audio are stored in designated locations in said music chip, said data format including:

first header having parameters stored therein for use by said audio player in decoding said digitally encoded music stored in said memory; and

at least one second header, said second header including selectable categorical information relating to said individual tracks of audio stored in said memory.

2. The data format of claim 1, wherein said first header includes a bit rate used for decoding said contents of said memory.

3. The data format of claim 1, wherein said first header specifies an algorithm used to encode said contents of said memory.

4. The data format of claim 1, wherein said second header includes a data field designating a category of music corresponding to one of said individual tracks of audio stored on said music chip.

5. The data format of claim 1, wherein said second header includes a data field having stored therein a code representative of an artist, said artist having a work included as a corresponding one of said individual tracks of audio.

6. The data format of claim 1, wherein said second header includes addressing information corresponding to said individual tracks of audio.

7. The data format of claim 6, wherein said addressing information includes a begin and end address for each of said individual tracks of audio.

8. The data format of claim 6, wherein said second header includes data fields of fixed widths, and wherein said addressing information includes only an end address for each of said individual tracks of audio, whereby a corresponding begin address is implied.

9. The data format of claim 1, wherein said first header includes data pertaining to distribution of said pre-recorded music.

10. The data format of claim 5, wherein said code representative of said artist includes a binary coded abbreviation of said artist.

11. The data format of claim 4, wherein said category code includes a binary code corresponding to a specific music type.

12. The data format of claim 1, wherein said at least one second header includes a data field corresponding to song titles and play times.

13. The data format of claim 4, wherein said music categories are selected from the group consisting of Classical (CLS); Country (CTY); Gospel (GOS); Jazz (JAZ),

Popular (POP); Rap (RAP); Reggae (REG); Rhythm and Blues (RNB); and Rock (ROC).

14. The data format of claim 1, wherein information included in said first and second header is automatically downloadable from said music chip upon power-up.

15. The data format of claim 1, wherein said at least one second header follows said first header and said second header includes a data field designating a music category followed by a data field designating a musical artist followed by a data field designating addressing information for a corresponding one of said individual tracks of audio.

16. The data format of claim 15, wherein said addressing information includes a begin and end address for each of said individual tracks of audio.

17. The data format of claim 15, wherein said second header includes data fields of fixed widths, and wherein said addressing information includes only an end address for each of said individual tracks of audio, whereby a corresponding begin address is implied.

18. A data protocol for use in storing pre-recorded audio in memory of an integrated circuit chip, said integrated circuit chip being adapted for use with an audio player, said data protocol comprising:

global header having parameters stored therein corresponding to an encoding technique used for storing said pre-recorded audio in memory and used by said audio player in decoding said audio; and

at least one individual header having multiple data fields, said data fields including general description information about individual tracks of said pre-recorded audio.

19. The data protocol of claim 18, wherein said global header specifies a bit rate to be used in decoding said pre-recorded audio stored in memory.

20. The data protocol of claim 18, wherein said individual header includes a data field indicative of a music category for an associated track of audio.

21. The data protocol of claim 18, wherein said individual header includes a data field representative of an artist associated with said individual track.

22. The data protocol of claim 18, wherein said individual header includes addressing information for an associated one of said individual tracks.

23. The data protocol of claim 22, wherein said addressing information includes only an end address and wherein a begin address is implied.

24. The data protocol of claim 18, wherein said global header and said individual header are self-registered upon said integrated circuit chip being powered in said audio player.

25. The data protocol of claim 18, wherein said pre-recorded audio is encoded in memory immediately following said at least one individual header.

26. The data protocol of claim 18, wherein said at least one individual header follows said global header and said individual header includes a data field designating a music category followed by a data field designating a musical artist followed by a data field designating addressing information for a corresponding one of said individual tracks of audio.

27. The data protocol of claim 18, wherein said individual header includes a preamble including displayable information pertaining to song titles and play times therefor.

28. The data protocol of claim 18, wherein said individual header includes a preamble including displayable graphics relating to said prerecorded audio.

29. The data protocol of claim 18, wherein said individual header includes displayable song lyrics.

30. The data protocol of claim 26, wherein said global header includes a bit rate used for decoding said prerecorded music, along with displayable record label and copyright information.

31. A method of segmenting memory in an integrated circuit chip, said integrated circuit chip adapted for use in an audio player and said memory having pre-recorded audio stored therein, said method comprising the steps of:

storing in a global header parameters corresponding to encoding techniques used in storing said pre-recorded audio in memory; and

coding in at least one individual header data fields indicative of general description information for individual tracks of said pre-recorded audio.

32. The method of claim 31, further including the step of specifying in said global header a bit rate to be used in decoding said pre-recorded audio stored in memory.

33. The method of claim 31, wherein said individual header includes a data field indicative of a music category for an associated track of audio.

34. The method of claim 31, wherein said individual header includes a data field representative of an artist associated with one of said individual tracks.

35. The method of claim 31, wherein said individual header includes addressing information for an associated one of said individual tracks.

* * * * *

US005918303A

United States Patent [19]

Yamaura et al.

[11] Patent Number: 5,918,303

[45] Date of Patent: Jun. 29, 1999

[54] **PERFORMANCE SETTING DATA SELECTING APPARATUS**

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[73] Assignee: **Yamaha Corporation,** Japan

[21] Appl. No.: **08/978,464**

[22] Filed: **Nov. 25, 1997**

[30] **Foreign Application Priority Data**

Nov. 25, 1996 [JP] Japan 8-314037

[51] **Int. Cl.**[6] **G10H 1/06**; G10H 1/26; G10H 1/36

[52] **U.S. Cl.** ..... **84/609**; 84/610; 84/612; 84/622; 84/477 R; 434/307 A

[58] **Field of Search** ..... 84/609–614, 622–625, 84/634–638, 477 R, 478, DIG. 12, 601, 602; 434/307 A

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Primary Examiner—Stanley J. Witkowski
Attorney, Agent, or Firm—Rossi & Associates

[57] **ABSTRACT**

A performance setting data selecting apparatus including: a data storing unit for storing a plurality set of performance setting data; a table for storing a correspondence between each tune name of the plurality of tunes and each set of the performance setting data stored in the data storing unit suitable for playing a tune having the associated tune name; a designating unit for designating a tune name; and a unit for reading the performance setting data corresponding to the tune name designated by the designating unit from the data storing unit by referring to the table and setting the read performance setting data.

23 Claims, 13 Drawing Sheets

TUNE NUMBER (ABC ORDER)	TUNE NAME	ARTIST NUMBER	COM-POSER NUMBER	GENRE NUMBER	STYLE NUMBER	TONE COLOR NUMBER	TEMPO VALUE	HARMONY NUMBER
1	AAAA	35	5	22	10	1	150	2
2	AAAB	1	25	3	26	58	80	0
3	BBBB	18	32	11	10	36	110	4
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
400	ZZZZ	67	3	19	62	1	75	5

35 36 37 38

CL 000326

FIG.1

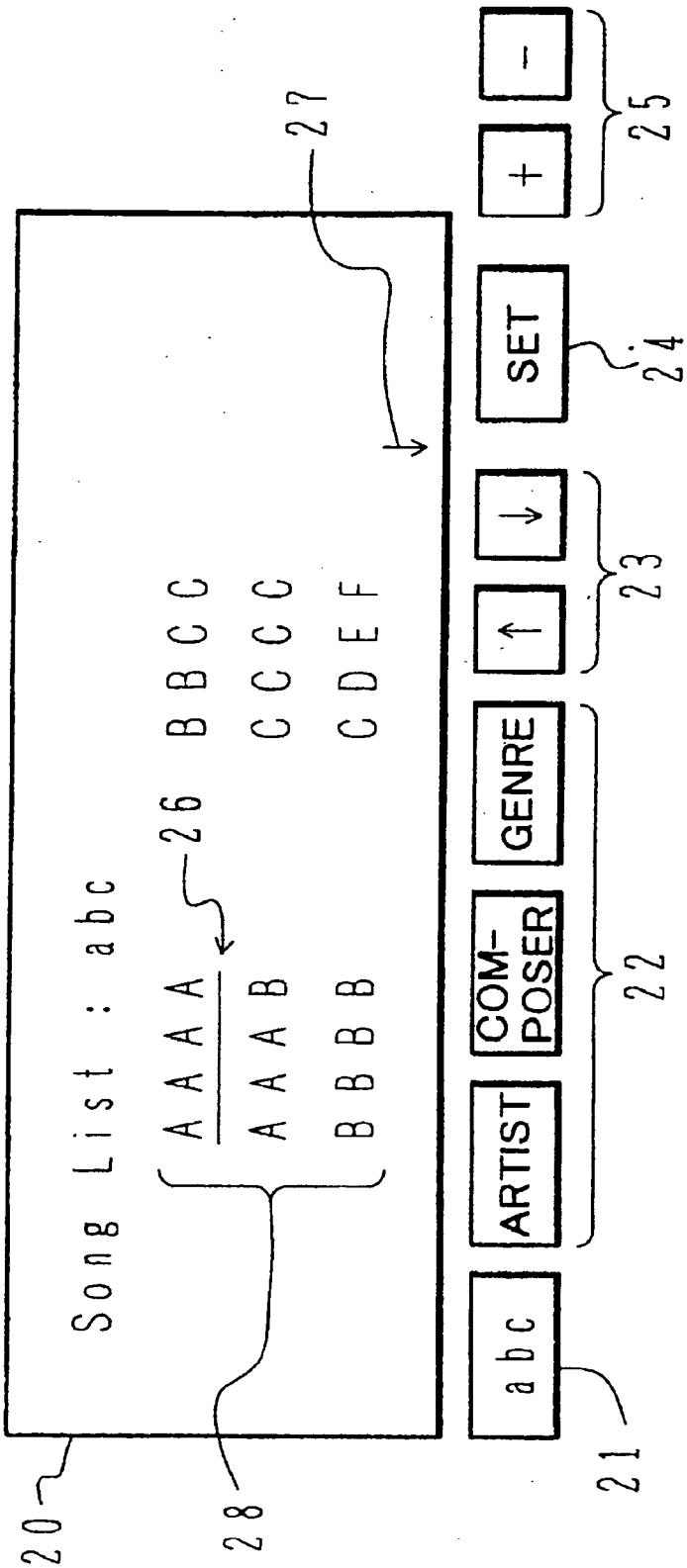


FIG.2

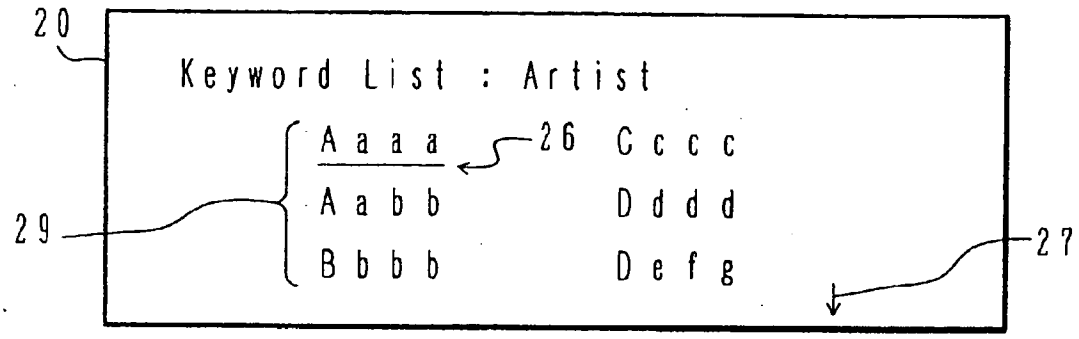


FIG.3

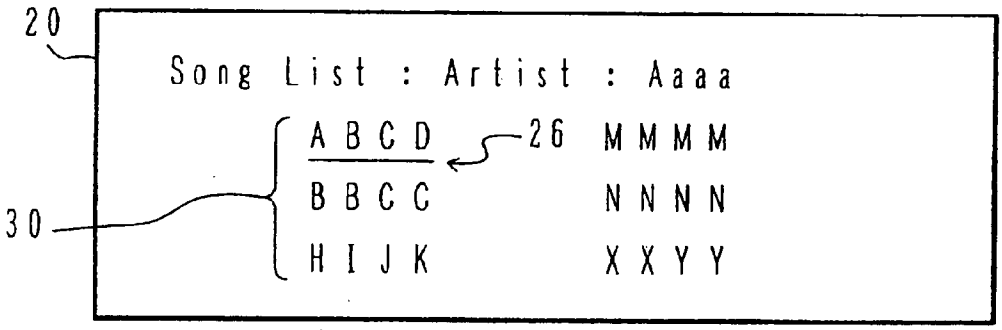
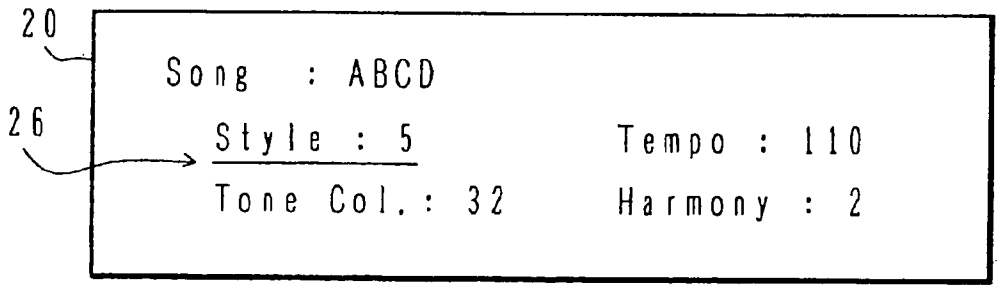


FIG.4



CL 000328

FIG.5

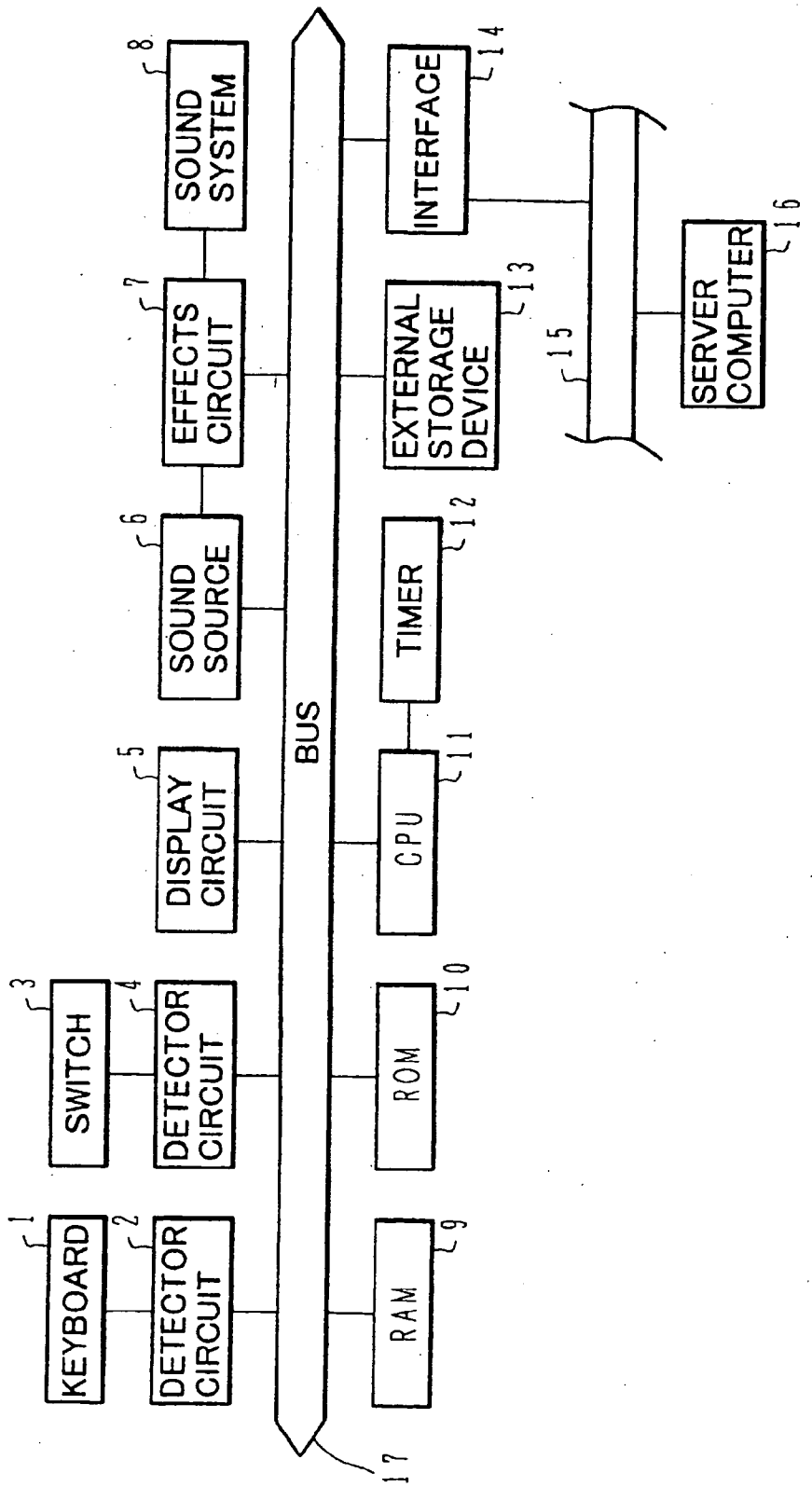


FIG.6

TUNE NUMBER (ABC ORDER)	TUNE NAME	ARTIST NUMBER	COM-POSER NUMBER	GENRE NUMBER	STYLE NUMBER	TONE COLOR NUMBER	TEMPO VALUE	HARMONY NUMBER
1	AAAA	35	5	22	10	1	150	2
2	AAAB	1	25	3	26	58	80	0
3	BBBB	18	32	11	10	36	110	4
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
400	ZZZZ	67	3	19	62	1	75	5

35 36 37 38

ARTIST NUMBER	ARTIST NAME
1	Aaaa
2	Aabb
3	Bbbb
---	---
80	Zzzz

FIG.7A

COMPOSER NUMBER	COMPOSER NAME
1	aaaa
2	aabb
3	bbaa
---	---
62	zzzz

FIG.7B

GENRE NUMBER	GENRE NAME
1	Rock
2	Pops
3	Dance
---	---
40	Enka

FIG.7C

FIG.8A

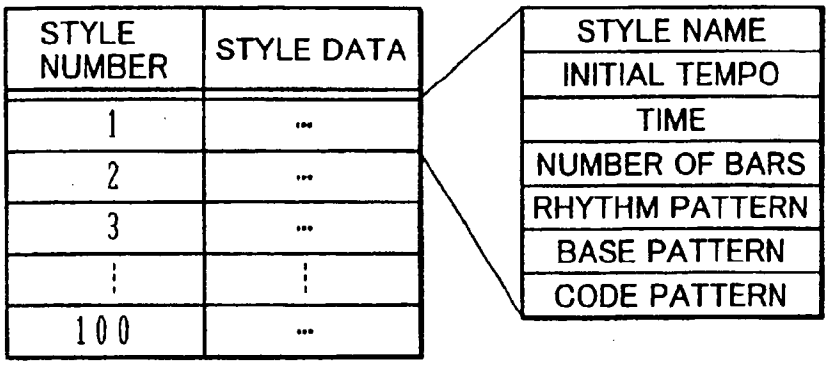


FIG.8B

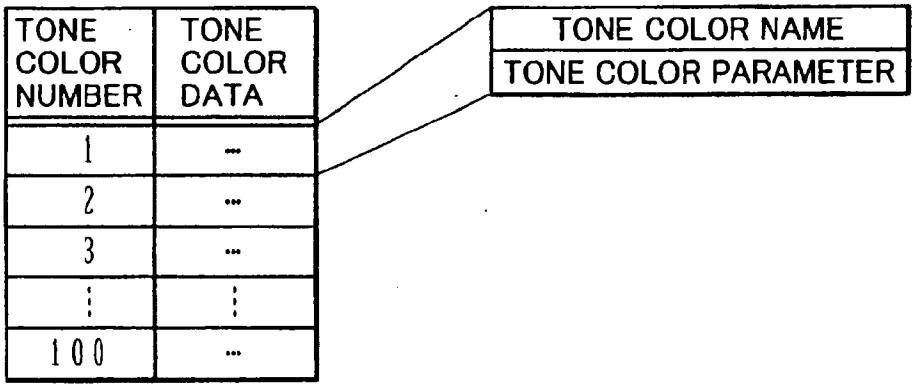
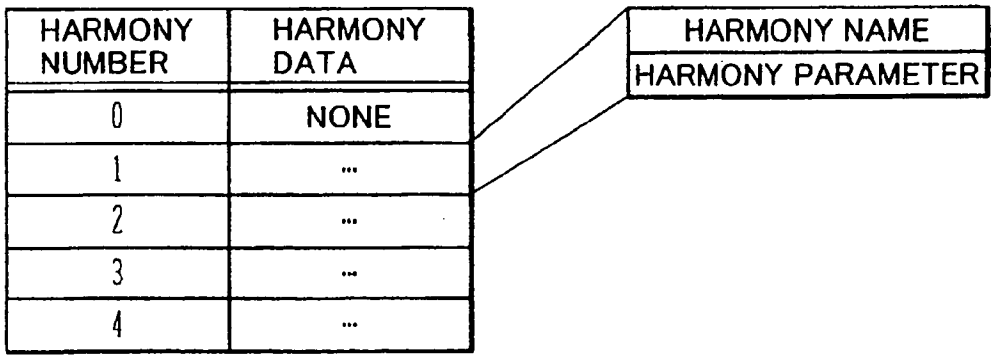


FIG.8C



CL 000332

FIG.9

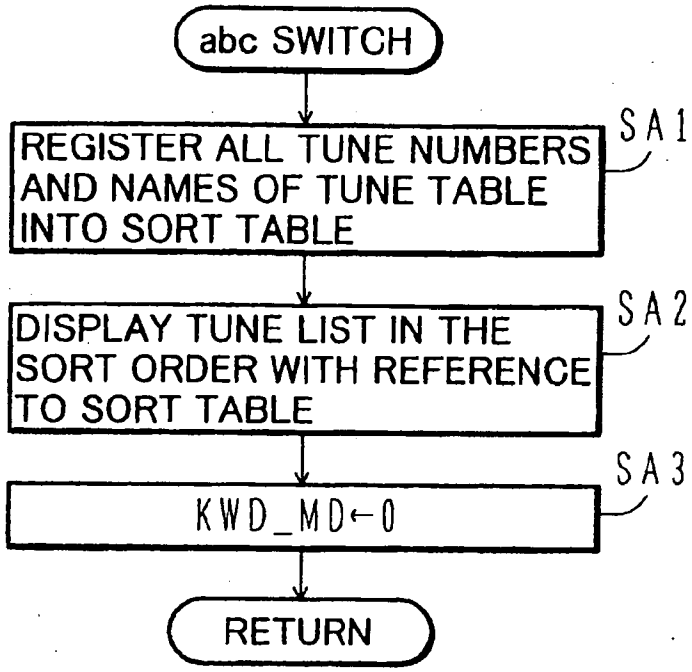


FIG.10

	SORT ORDER	TUNE NUMBER	TUNE NAME
P→	1	4	...
	2	16	...
	3	38	...
	⋮	⋮	⋮
	N	M	...

CL 000333

FIG.11

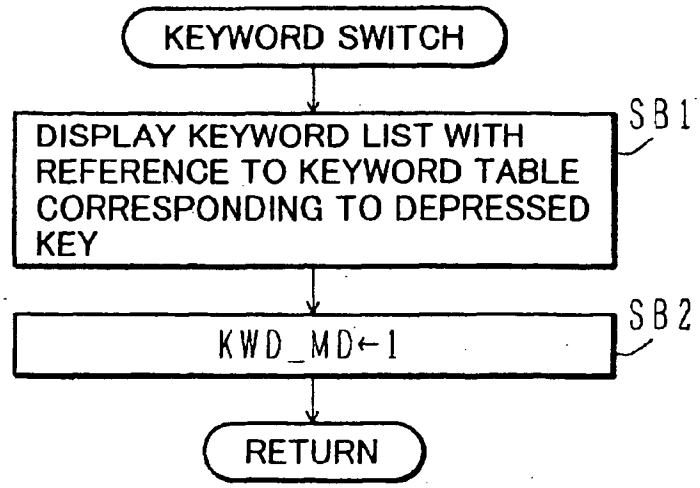
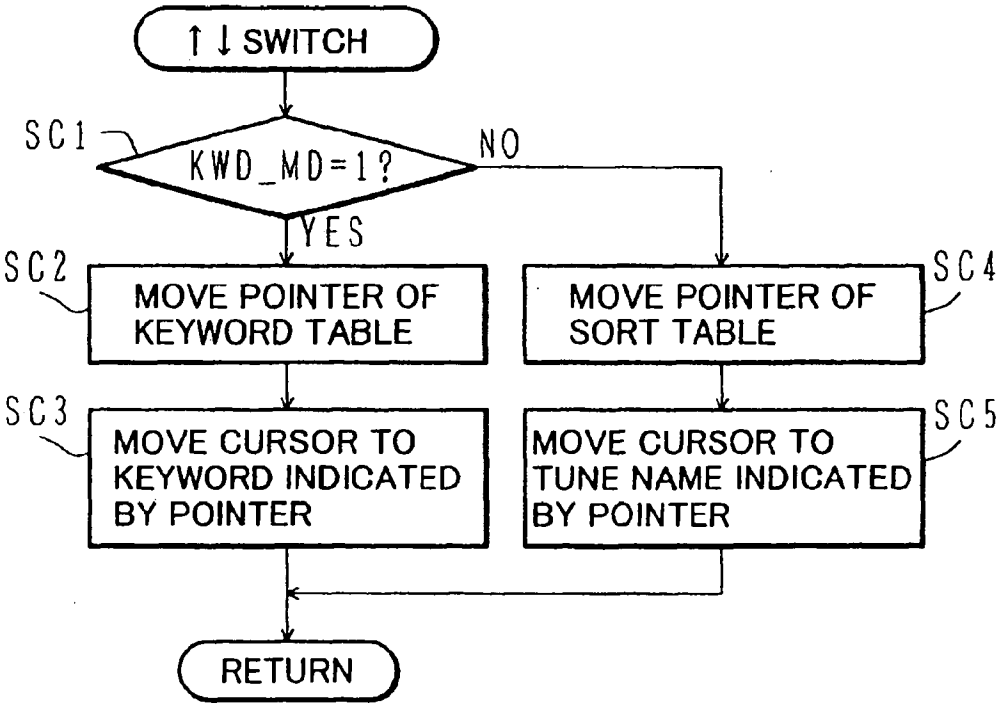
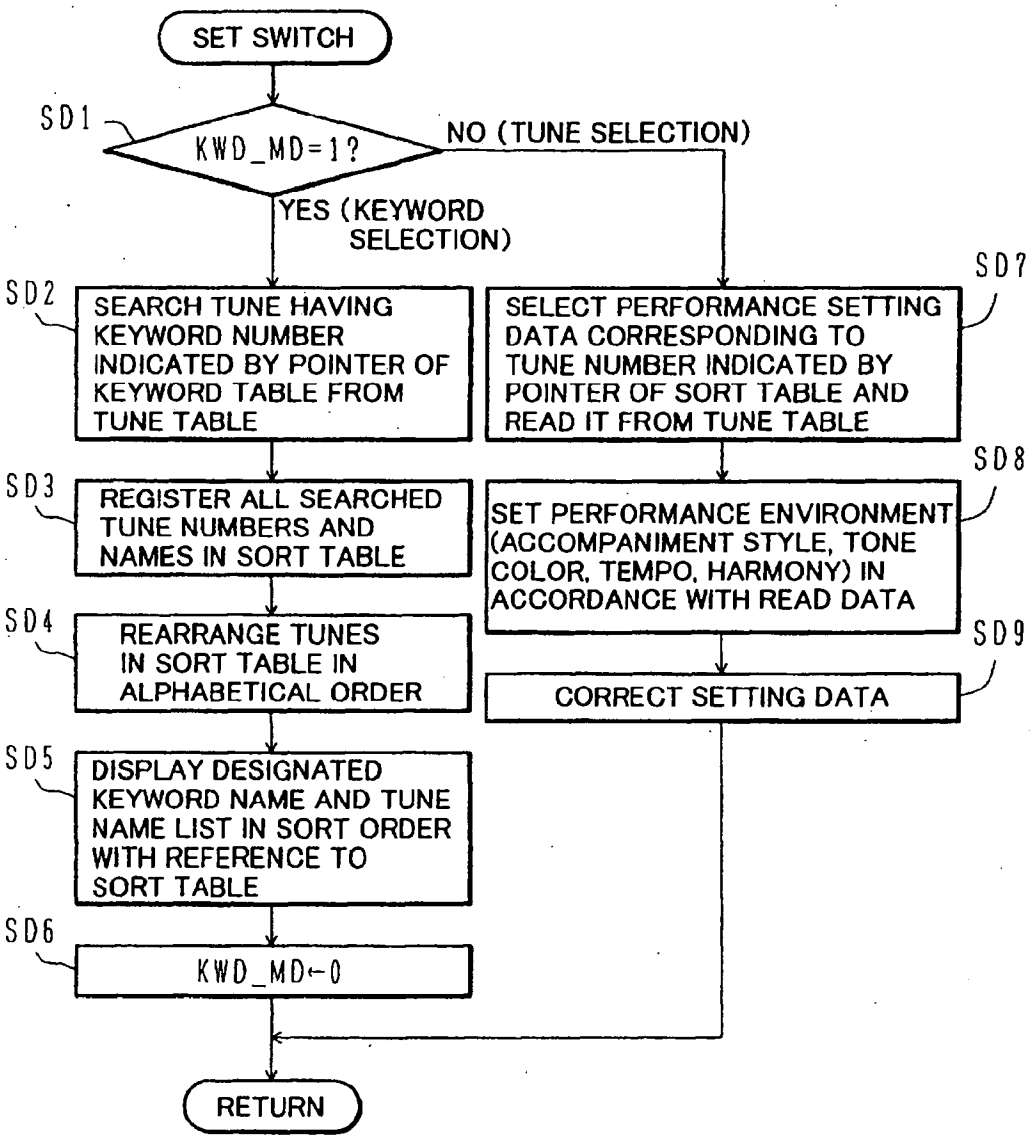


FIG.12



CL 000334

FIG.13



CL 000335

FIG.14

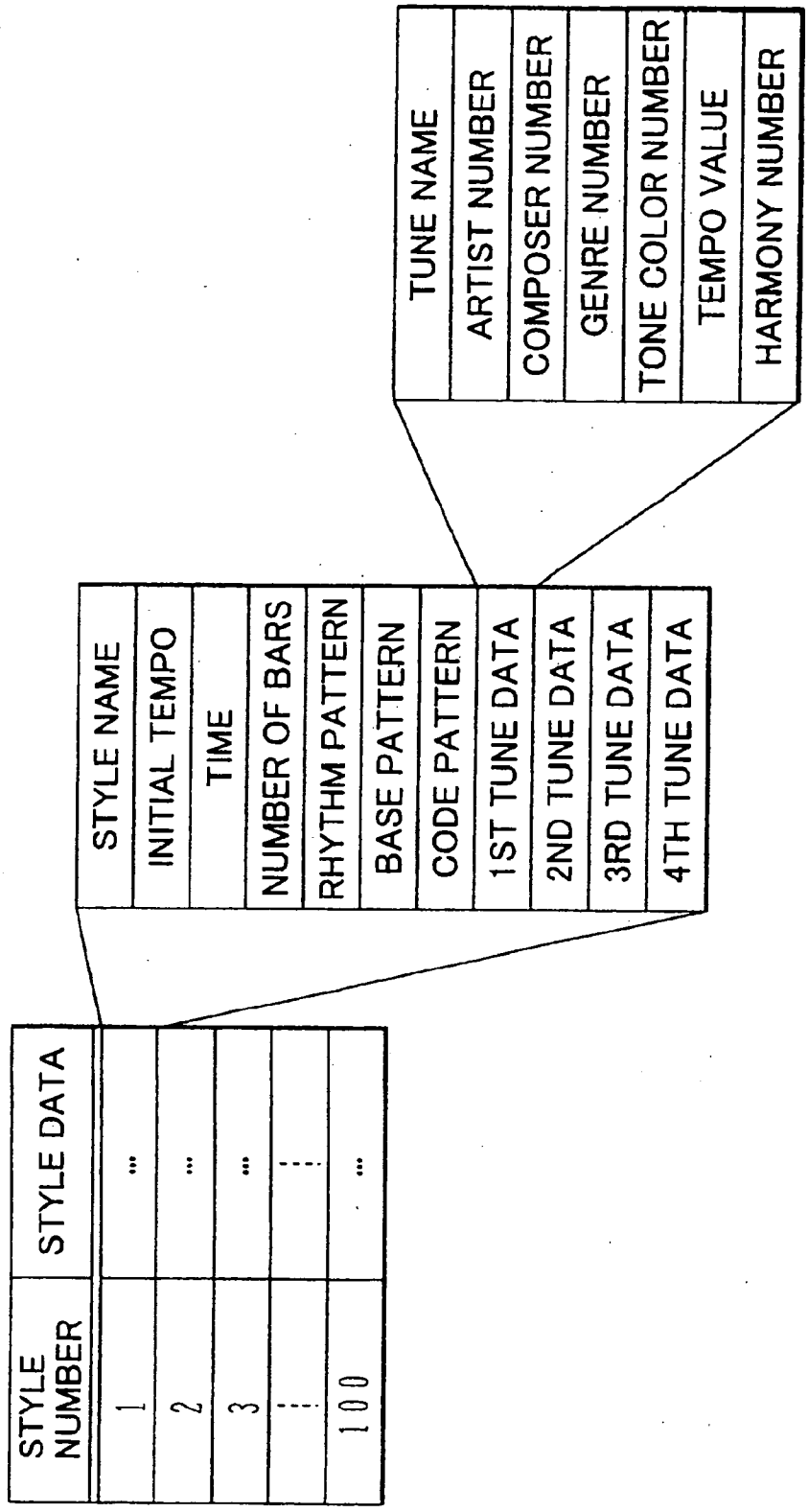


FIG.15

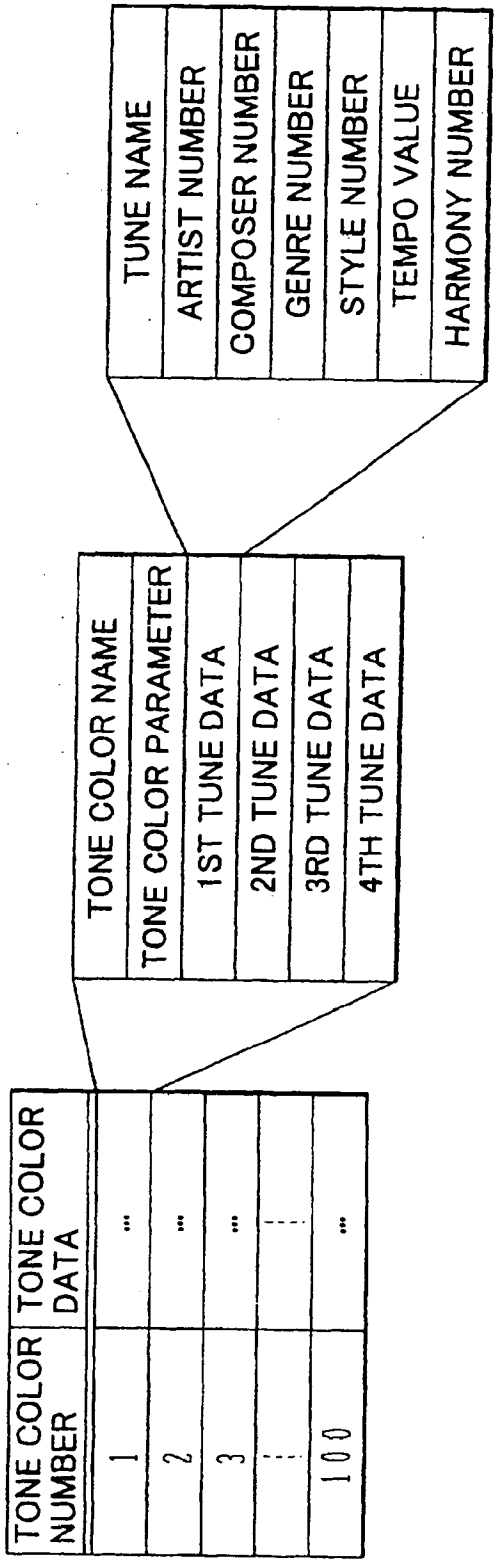
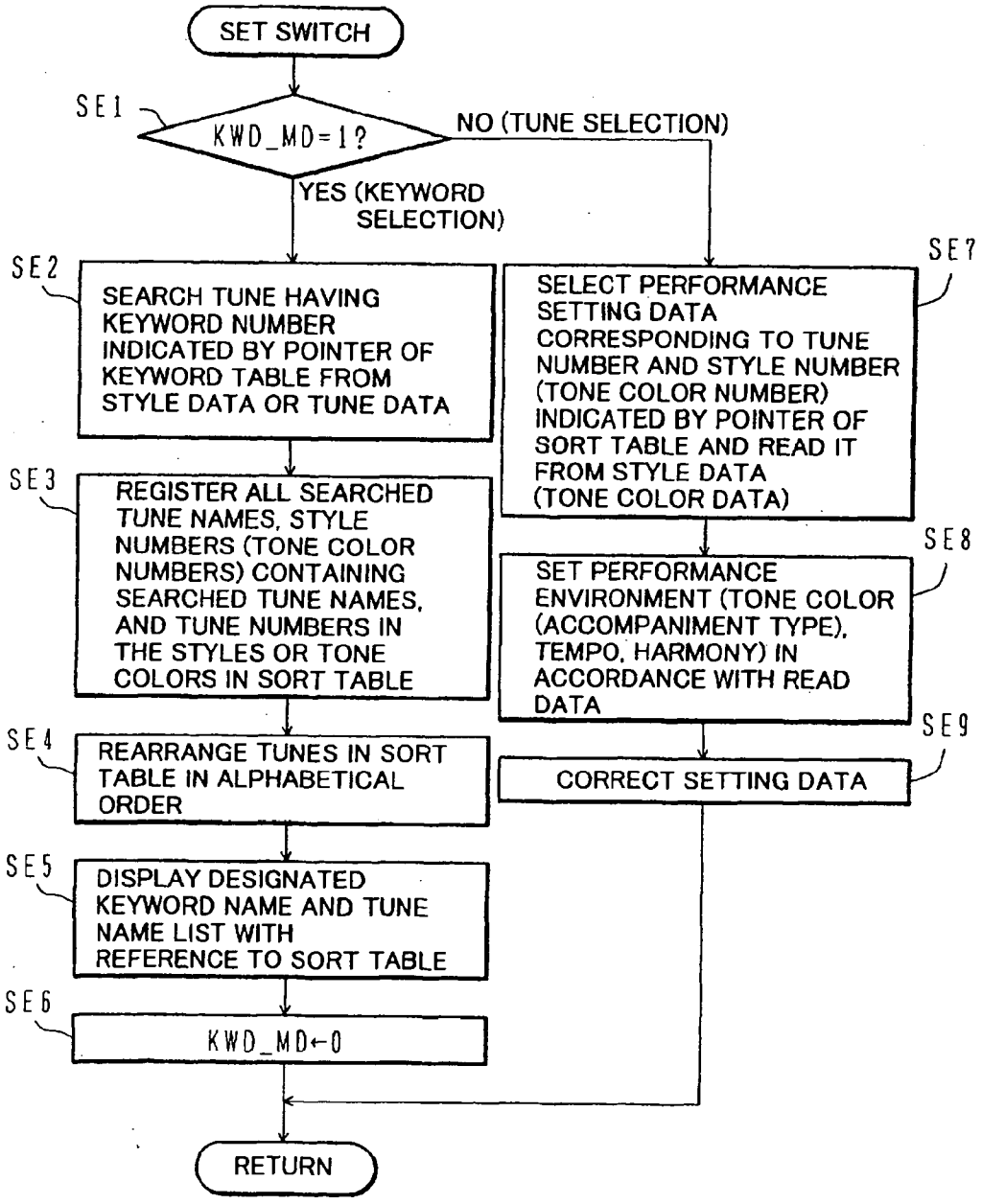


FIG.16



CL 000338

FIG.17

SORT ORDER	STYLE NUMBER	TUNE NUMBER IN STYLE	TUNE NAME
1	23	1	.....
2	5	3	.....
3	12	4	.....
⋮	⋮	⋮	⋮
N	68	2	.....

CL 000339

PERFORMANCE SETTING DATA SELECTING APPARATUS

This application is based on Japanese patent application No. 8-314037 filed on Nov. 25, 1996, the entire contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

a) Field of the Invention

The present invention relates to performance setting data selecting techniques, and more particularly to performance setting data selecting techniques which facilitate to select performance setting data necessary for the execution of tone color data or the like.

b) Description of the Related Art

A performance setting data selecting apparatus is used with, for example, an automatic accompaniment apparatus. A user can select performance setting data necessary for automatic accompaniment by using the performance setting data selecting apparatus. The performance setting data is, for example, a combination of accompaniment style, tone color, tempo, harmony and the like.

One of the methods of selecting performance setting data is a method called one touch setting (OTS). How one touch setting is used will be described.

(1) An accompaniment style is first selected. For example, [Pop Ballad Style] is selected.

(2) A switch [OTS] is depressed to select performance setting data. Upon depression of this switch, a list of four tune images matching the selected accompaniment style is displayed on a display device.

[Pop Ballad Style]

1. Richard's Solo
2. Classic Guitar
3. Orchestral Ballad
4. Piano Ballad

(3) One of the fours numbers displayed on the display device is selected with a switch.

(4) The performance setting data matching the tune of the selected number is automatically set. The automatically set performance setting data is the data other than the already set accompaniment style data, and may be melody tone color data, tempo data, harmony data and the like.

When a user plays a tune, it is possible to play only a melody line, while leaving accompaniment matching the melody line to an automatic accompaniment apparatus. In this case, the tune to be played by the user is already determined. Although it is difficult for an ordinary user to manually select each set of performance setting data matching the tune to be played, one touch setting can automatically set the performance setting data.

Even if a tune to be played is already determined, it is difficult to determine which accompaniment style and tune image are to be selected in order to set performance setting data matching the tune.

Further, with one touch setting, an accompaniment style is first selected and then a tune image is selected. Even if a suitable tune image can be known, it may happen that it is not certain which accompaniment style is to be selected in order to select the tune image.

Still further, since only an abstract title of a tune image to be selected is displayed after the accompaniment style is selected, it is difficult to image the final accompaniment.

Under the presence of such problems, even if an accompaniment style and tune image a user thinks proper are selected, the actual automatic accompaniment may not match the played tune.

Even if it is found that the actual automatic accompaniment does not match a tune, it is difficult for the user to find more suitable settings.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a performance setting data selecting apparatus, a performance setting data selecting method, and a medium storing programs for executing the method, capable of facilitating to select performance setting data matching a tune to be played.

According to one aspect of the present invention, there is provided a performance setting data selecting apparatus comprising: means for storing a correspondence between each of a plurality of tune names and performance setting data suitable for playing each tune; means for designating the tune name of each tune; and means for setting the performance setting data corresponding to the tune name of each tune designated by said designating means by reading the performance setting data from said storing means.

According to another aspect of the present invention, there is provided a performance setting data selecting apparatus comprising: data storing means for storing a plurality set of performance setting data; a table for storing a correspondence between each tune name of the plurality of tunes and each set of the performance setting data stored in said data storing means suitable for playing a tune having the associated tune name; means for designating a tune name; and means for reading the performance setting data corresponding to the tune name designated by said designating means from said data storing means by referring to said table and setting the read performance setting data.

By designating a tune name, a user can automatically set the performance setting data suitable for the performance of the tune having the designated tune name. Since a tune is easy to be imaged from the tune name, the performance setting data a user wishes to play can be set by designating the tune name.

According to another aspect of the present invention, there is provided a performance setting data selecting apparatus comprising: storing means for storing a plurality set of performance setting data and storing a correspondence between each tune name and each set of the performance setting data suitable for playing a tune having the associated tune name; means for designating the tune name of each tune; and means for setting the performance setting data corresponding to the tune name of each tune designated by said designating means by reading the performance setting data from said storing means.

The storing means stores the performance setting data, and also stores a correspondence between each tune name and each set of the performance setting data suitable for playing a tune having the associated tune name. It is therefore possible to easily add new performance setting data. By designating a tune name, a user can automatically set the performance setting data suitable for the performance of the tune having the designated tune name.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1 to 4 show a display screen which is used for selecting performance setting data by using a performance setting data selecting apparatus according to an embodiment of the invention.

FIG. 5 is a block diagram showing the structure of the performance setting data selecting apparatus of the embodiment.

FIG. 6 is a diagram showing the structure of a tune table.

FIGS. 7A to 7C are diagrams showing the structure of a keyword table, FIG. 7A shows the structure of an artist table, FIG. 7B shows the structure of a composer table, and FIG. 7C shows the structure of a genre table.

FIGS. 8A to 8C are diagrams showing the structure of performance setting data, FIG. 8A shows the structure of style data, FIG. 8B shows the structure of tone color data, and FIG. 8C shows the structure of harmony data.

FIG. 9 is a flow chart illustrating an operation to be executed by CPU when an abc switch is operated.

FIG. 10 is a diagram showing the structure of a sort table.

FIG. 11 is a flow chart illustrating an operation to be executed by CPU when a keyword switch is operated.

FIG. 12 is a flow chart illustrating an operation to be executed by CPU when a cursor switch is operated.

FIG. 13 is a flow chart illustrating an operation to be executed by CPU when a set switch is operated.

FIG. 14 is a diagram showing of the structure of other sets of style data.

FIG. 15 is a diagram showing of the structure of other sets of tone color data.

FIG. 16 is a flow chart illustrating another operation to be executed by CPU when a set switch is operated.

FIG. 17 shows the structure of another sort table.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 to 4 are diagrams illustrating a method of selecting performance setting data by using a performance setting data selecting apparatus according to an embodiment of the invention. The performance setting data setting apparatus of this embodiment can automatically select performance setting data matching a tune selected by a user. This selecting method is called hereinafter song image setting (abbreviated as SIS).

FIG. 1 shows a display screen 20 of the performance setting data selecting apparatus and operation switches 21, 22, 23, 24 and 25.

An abc switch 21 is used for displaying a tune list on the display screen. For example, when this switch 21 is depressed, the names 28 of six tunes are displayed on the display screen 20 in an alphabetical order (in the order of a, b, c, . . .) or in a Japanese syllabary order (in the order of a, i, u, e, o . . . (phonetic translation of Japanese phonemes)). For example, tune names 28 are displayed in the order of AAAA, AAAB, BBBB, BBCC, CCCC and CDEF.

An arrow 27 indicates that the next page continues. Only six tune names, for example, can be displayed on the display screen 20. If there are seven or more tune names, the arrow 27 is displayed to notify a user of the presence of other tune names still not displayed on this display screen. The tune names 28 are displayed on the display screen 20, for example, in two columns. AAAA, AAAB and BBBB are displayed on the left column, and BBCC, CCCC and CDEF are displayed on the right column.

A cursor 26 displayed on the display screen 20 can be moved by a user operating a cursor motion switch 23. As the cursor is moved down at the lowest position of the left column, the cursor moves to the highest position of the right column. Conversely, as the cursor is moved up at the highest position of the right column, the cursor moves to the lowest position of the left column. The succeeding tune names can be displayed on the display screen 20 by moving the cursor to the lowest position of the right column.

Next, a method of selecting a tune will be described. A user moves the cursor 26 to the position of a tune name 28 which the user wants to select, by operating the cursor motion switch 23. In the example shown in FIG. 1, the cursor 26 is at the position of the tune name AAAA. As the user depresses a set switch 24 in this state, performance setting data matching the tune name AAAA is automatically set. The details of the performance setting data will be later described.

In addition to the abc switch 21, cursor motion switch 23 and set switch 24, the apparatus is provided with a keyword switch 22 and a numerical value change switch 25. The keyword switch 22 includes an artist switch, a composer switch and a genre switch. By operating the keyword switch 22, a user can select one of the artist, composer and genre as a keyword.

In the following description, it is assumed that an artist is selected as the keyword. Similar operations are executed also when a composer or genre is selected as the keyword.

FIG. 2 shows a display screen in the case where an artist is selected as the keyword. In order to indicate that the artist was selected as the keyword, "Keyword List: Artist" is displayed on the upper area of the display screen 20. Although the operation switches same as those shown in FIG. 1 are actually displayed on the lower area of the display screen 20, they are omitted in FIGS. 2, 3 and 4.

By operating the keyword switch 22, an artist is selected as the keyword. A list of artists are displayed on the display screen 20 in the alphabetical order or in the Japanese syllabary order. For example, six artist names 29 are displayed on the display screen 20. The artist names 29 are displayed in the order of, for example, Aaaa, Aabb, Bbbb, Cccc, Dddd, and Defg. An artist is, for example, a player. An arrow 27 indicates that there are other artists still not displayed.

Next, a method of selecting an artist will be described. A user moves the cursor 26 to the position of an artist name 28 which the user wants to select, by operating the cursor motion switch 23. In the example shown in FIG. 2, the cursor 26 is at the position of the artist name Aaaa. As the user depresses the set switch 24 in this state, a list of names of tunes to be played by the artist is displayed on the display screen 20.

FIG. 3 shows a display screen 20 in the case where the artist name Aaaa is selected and the set switch 24 is depressed. In order to indicate that the artist name Aaaa was selected, "Artist: Aaaa" is displayed on the upper area of the display screen 20.

A list of names of tunes to be played by the selected artist Aaaa is displayed on the display screen 20 in the alphabetical order or in the Japanese syllabary order. For example, six tune names 30 are displayed on the display screen 20. The tune names 30 are displayed in the order of, for example, ABCD, BBCC, HIJK, MMMM, NNNN, and XXYY.

As shown in FIG. 1, when the abc switch 21 is operated, a list of all tunes is displayed. Since the number of tunes is very large, the keyword is used for reducing the number of tunes. For example, if an artist name Aaaa is selected as the keyword, a list of tunes belonging only to the artist Aaaa is displayed as shown in FIG. 3. By using the keyword, a user can find a desired tune name quickly and easily.

Next, with reference to FIG. 3, a method of selecting a tune will be described. A user moves the cursor 26 to the position of a tune name which the user wants to select, by operating the cursor motion switch 23. In the example shown in FIG. 3, the cursor 26 is at the position of the tune

name ABCD. As the user depresses the set switch 24 in this state, performance setting data matching the tune name ABCD is displayed.

FIG. 4 shows a display screen 20 in the case where the tune name ABCD is selected as illustrated in FIG. 3. In order to indicate that the tune name ABCD was selected, "Song: ABCD" is displayed on the upper area of the display screen 20.

The contents of the performance setting data matching the selected tune name are displayed on the display screen. For example, the settings that an accompaniment style is the fifth style (Style: 5), a melody tone color is the thirty second melody tone color (Tone Col: 32), a tempo is 110 (Tempo: 110), and a harmony is the second harmony (Harmony: 2) are displayed on the display screen 20.

A user can determine whether or not the contents of the displayed performance setting data are satisfactory. If satisfactory, the set switch 24 is depressed to set the performance setting data.

If any portion of the contents of the performance setting data is to be corrected, a user moves the cursor 26 to the position of the performance setting data to be corrected, by operating the cursor motion switch 23. Thereafter, the numeral value change switch 25 shown in FIG. 1 is operated to correct the numerical value of the performance setting data. Thereafter, the set switch 24 is depressed to set the corrected performance setting data. In the above manner, even if the user dislikes a portion of the contents of the performance setting data, the contents can be corrected to those the user likes.

FIG. 5 is a block diagram showing the structure of an electronic musical instrument having the performance setting data selecting apparatus of this embodiment.

A key depression detector circuit 2 detects a key operation (key depression, key release and the like) of a keyboard 1, and generates a note-on signal, a note-off signal, a key code and the like. A switch detector circuit 4 detects a switch operation of a switch 3 and generates a switch signal. The switch 3 includes the abc switch 21, keyword switch 22, cursor motion switch 23, set switch and numerical value change switch 25 shown in FIG. 1.

A bus 17 is connected to the key depression detector circuit 2 and switch detector circuit 4 as well as a display circuit 5, a sound source (tone generator) circuit 6, an effects circuit 7, a RAM 9, a ROM 10, a CPU 11, an external storage device 13, and a communication interface 14.

RAM 9 has a working area for CPU 11, including flags, buffers and the like. ROM 10 stores various parameters and computer programs. CPU 11 executes calculations and controls in accordance with computer programs stored in ROM 10.

A timer 12 is connected to CPU 11. CPU 11 is supplied with time information from the timer 12. The communication interface 14 includes a musical instrument digital interface (MIDI) and other communication network interfaces to be described later.

The external storage device 13 includes an interface via which it is connected to the bus 17. The external storage device 13 may be a floppy disk drive (FDD), a hard disk drive (HDD), a magnetooptic drive (M)), a compact disk—read only memory (CD-ROM) drive or the like.

In the external storage device 13 or ROM 10, a tune table (FIG. 6), keyword tables (FIGS. 7A to 7C), performance setting data (FIGS. 8A to 8C) are stored which tables are used for setting the performance setting data. The details thereof will be later given.

The performance setting data includes performance data such as accompaniment style data (accompaniment pattern data). If the performance data is stored in the external storage device 13, the performance data is loaded from the external storage device 13 into RAM 9 to reproduce the performance data. Other performance setting data is also loaded from the external storage device 13 into RAM 9.

CPU 11 reads the performance data stored in RAM 9 or ROM 10 and supplies musical tone parameters and effects parameters to the sound source circuit 6 and effects circuit 7. CPU 11 generates the musical tone parameters and effects parameters in accordance with a note-on signal and the like generated by the key depression detector circuit 2 and a switch signal generated by the switch detector circuit, and supplies the generated parameters to the sound source circuit 6 and effects circuit 7.

The sound source circuit 6 generates musical tone signals in accordance with supplied musical tone parameters. The effects circuit 7 assigns effects such as delay and reverb to a musical tone signal generated by the sound source circuit 6, in accordance with the supplied effects parameters. The sound system 8 includes a D/A converter and a speaker, converts the supplied digital musical tone signal into an analog musical tone signal and reproduces it.

The sound source circuit 6 may use any method including a waveform memory method, a frequency modulation method, a physical model method, a higher harmonics synthesis method, a formant synthesis method, and an analog synthesizer method with a voltage controlled oscillator (VCO), a voltage controlled filter (VCF) and a voltage controlled amplifier (VCA).

The sound source circuit 6 may be configured not only by using dedicated hardware but also by using a digital signal processor (DSP) and microprograms or by using a CPU and software programs.

A single sound source circuit may be used time divisionally to form a plurality of sound generating channels, or a single sound source circuit may be used independently for each of a plurality of sound generating channels.

Without storing computer programs and various data in ROM 10, they may be stored in a hard disk loaded in HDD which is one type of the external storage device 13. By reading computer programs or the like from a hard disk and loading them in RAM 9, CPU 11 can execute operations similar to the case where computer programs or the like are stored in ROM 10. With this arrangement, addition, version-up and the like of computer programs or the like become easy.

Computer programs and various data can be stored in CD-ROM (external storage device 13). Computer programs or the like can be copied from CD-ROM to a hard disk. It becomes easy therefore to perform installation and version-up of computer programs or the like.

The communication interface 14 is connected to a communication network 15 such as a local area network (LAN), Internet and a telephone network, and via this communication network 15 to a server computer 16. If computer programs or the like are not stored in HDD, they can be down-loaded from the server computer 16. The electronic musical instrument as a server computer transmits a command for requesting a down-load of computer programs or the like to the server computer 16 via the communication interface 14 and communication network 15. Upon reception of this command, the server computer 16 distributes the requested computer programs or the like to the electronic musical instrument via the communication network 15. The

electronic musical instrument receives the computer programs or the like via the communication interface **14** and stores them in HDD to thereby complete a down-load.

FIG. **6** shows the structure of a tune table stored in RAM or the like. The tune table stores a tune number **35**, a tune name **36**, a keyword **37**, and a set of performance setting data **38**, all being associated with each other. For example, the tune names **36** of 400 tunes are stored and each tune name **36** is assigned a specific tune number **35**. It is preferable that the tune names **36** are disposed in the alphabetical order or in the Japanese syllabary order, and in the ascending order of the tune numbers **35**.

The keyword **37** is constituted of an artist number, a composer number and a genre number. For example, the tune number No. 1 has a tune name AAAA, an artist number No. 35, a composer number No. 5, and a genre number No. 22. Each number is an identification number of the keyword. It is possible to search a tune name having a specific keyword by using the keyword **37**.

The performance setting data **38** is constituted of a style number, a tone color number, a tempo value and a harmony number. For example, if the tune number No. 1 (tune name AAAA) is selected, the style number is set to 10, the tone color number is set to 1, the tempo value is set to 150 and the harmony number is set to 2.

FIGS. 7A to 7C show the structure of the keyword table stored in RAM or the like.

FIG. 7A shows the structure of the artist table. The artist table stores an artist number and an artist name, both being associated with each other. The artist number corresponds to the artist number of the keyword **37** shown in FIG. **6**. For example, eighty artist names are stored in the artist table, each artist name being assigned a specific artist number. It is preferable that the artist names are disposed in the alphabetical order or in the Japanese syllabary order, and in the ascending order of the artist numbers.

FIG. 7B shows the structure of the composer table. The composer table stores a composer number and a composer name, both being associated with each other. The composer number corresponds to the composer number of the keyword **37** shown in FIG. **6**. For example, sixty two composer names are stored in the composer table. It is preferable that the composer names are disposed in the alphabetical order or in the Japanese syllabary order, and in the ascending order of the composer numbers.

FIG. 7C shows the structure of the genre table. The genre table stores a genre number and a genre name, both being associated with each other. The genre number corresponds to the genre number of the keyword **37** shown in FIG. **6**. For example, the genre name includes rock, pop, dance, and Japanese country song (Enka). It is preferable that the genre numbers are disposed in the order of higher user frequency or in a group containing similar genres.

FIGS. 8A to 8C show the structure of the performance setting data stored in RAM or the like.

FIG. 8A shows the structure of style data. Each set of style data is associated with a specific style number. The style number corresponds to the style number of the performance setting data **38** shown in FIG. **6**. For example, the style data includes a style name, an initial tempo, a time, the number of bars, a rhythm pattern, a base pattern, and a code (chord) pattern.

The initial tempo is different from the tempo value shown in FIG. **6**. The tempo value shown in FIG. **6** is a value set when a tune name is selected in the manner described earlier. The initial tempo shown in FIG. 8A is a tempo set not when a tune name is selected but when a style is singularly selected. Therefore, when a tune name is selected, the initial tempo is neglected and the tempo value shown in FIG. **6** is adopted.

The rhythm pattern, base pattern and code pattern each contain a plurality of pattern sections such as intro, main, fill-in and ending.

FIG. 8B shows the structure of tone color data. Each set of tone color data is associated with a specific tone color number. The tone color number corresponds to the tone color number of the performance setting data **38** shown in FIG. **6**. For example, the tone color data includes a tone color name and a tone color parameter.

FIG. 8C shows the structure of harmony data. Each set of harmony data is associated with a specific harmony number. The harmony number corresponds to the harmony number of the performance setting data **38** shown in FIG. **6**. The harmony number No. 0 does not have harmony data and harmony is not added. For example, it is better not to add harmony when a piano solo performance is played.

The harmony number No. 1 and following numbers have harmony data and add harmony. The harmony data includes a harmony name and a harmony parameter. Harmony parameters include information on how many musical tones having what degree are added to each melody tone to be played by a player, and information on the volume and reproducing timings of the musical tones.

FIG. **9** is a flow chart illustrating an operation to be executed by CPU when the abc switch is operated.

At Step SA1, all tune numbers and names in the tune table (FIG. **6**) are registered in a sort table. FIG. **10** shows the structure of the sort table. The sort table stores a sort order, a tune number and a tune name, all being associated with each other. The sort table shown in FIG. **10** shows an example wherein after a keyword search is performed, tune numbers and names are registered, and the contents thereof are not necessarily coincident with the contents of the sort table (correspondence between sort order and tune number) at this Step. For example, if four hundred tunes are registered in the tune table shown in FIG. **6**, all four hundred tune numbers and names are registered in the sort table.

If the tune names are disposed in the tune table shown in FIG. **6** in the alphabetical order or in the Japanese syllabary order, then the sort order and tune number having the same serial number are registered in the sort table when the abc switch is operated. However, if the tune names are not disposed in the tune table shown in FIG. **6** in the alphabetical order or in the Japanese syllabary order, the tune names are sorted in the alphabetical order or in the Japanese syllabary order and thereafter they are registered in the sort table. Therefore, even if the tune names are not disposed in the tune table shown in FIG. **6** in the alphabetical order or in the Japanese syllabary order, the tune names are disposed in the alpbabetical order or in the Japanese syllabary order.

At Step SA2, a list of tune names is displayed on the display device by referring to the sort table, the tune names being disposed in the sort order. The tune names are disposed on the display device in the alphabetical order or in the Japanese syllabary order (FIG. 1).

At Step SA3, a keyword mode flag KWD_MD is set to 0 to terminate the process for the abc switch. When the keyword mode flag KWD_MD takes 0, the mode is a tune selection mode, and when it takes 1, the mode is a key word selection mode.

FIG. **11** is a flow chart illustrating an operation to be executed by CPU when the keyword switch is operated.

At Step SB1, with reference to a keyword table (FIGS. 7A to 7C) corresponding to the operated switch, a keyword list is displayed on the display device (FIG. 2). If the keyword is an artist or a composer, the keywords are displayed in the alphabetical order or in the Japanese syllabary order, whereas if the keyword is a genre, they are displayed in the order of higher use frequency or in a group containing similar genres.

At Step SB2, the keyword mode flag KWD_MD is set to 1 to terminate the process for the keyword switch. When the flag KWD_MD is set to 1, the keyword selection mode is set.

FIG. 12 is a flow chart illustrating the operation to be executed by CPU when the cursor motion switch is operated.

At Step SC1, it is checked whether the flag KWD_MD is 1. If the flag KWD_MD is 0, it means the tune selection mode so that the flow advances to Step SC4 along a NO arrow.

At Step SC4, an address pointer of the sort table (FIG. 10) is moved. At the initial stage, the address pointer P is at the head of the table as shown in FIG. 10. For example, if a cursor up-direction switch is operated, the address pointer is decremented, whereas if a cursor down-direction switch is operated, the address pointer is incremented.

At Step SC5, the cursor is moved on the display screen to the tune name indicated by the address pointer of the sort table and displayed at this position. If necessary, the display screen is scrolled or the arrow 27 indicating a presence of other tunes is displayed. Thereafter, the process for the cursor motion switch is terminated.

If it is judged at Step SC1 that the flag KWD_MD is 1, it means that the mode is the keyword selection mode, and the flow advances to Step SC2 along a YES arrow. Namely, if the cursor motion switch is moved after the keyword switch is operated, the flow advances to Step SC2.

At Step SC2, an address pointer of the keyword table (FIGS. 7A to 7C) is moved. For example, if the cursor up-direction switch is operated, the address pointer is decremented, whereas if the cursor down-direction switch is operated, the address pointer is incremented.

At Step SC3, the cursor is moved on the display screen to the keyword indicated by the address pointer of the keyword table. If necessary, the display screen is scrolled or the arrow 27 indicating a presence of other keywords is displayed. Thereafter, the process for the cursor motion switch is terminated.

FIG. 13 is a flow chart illustrating the operation to be executed by CPU when the set switch is operated.

At Step SD1, it is checked whether the flag KWD_MD is 1. If the flag KWD_MD is 1, it means the keyword selection mode so that the flow advances to Step SD2 along a YES arrow. For example, if the cursor is positioned at a desired artist name or the like in the list displayed on the display screen and the set switch is operated, the flow advances to Step SD2.

At Step SD2, a tune having the keyword number indicated by the address pointer of the keyword table (FIGS. 7A to 7C) is searched from the tune table (FIG. 6). For example, if the artist number No. 1 is selected, a tune number and a tune name having the artist number No. 1 are searched.

At Step SD3, all searched tune numbers and tune names are registered in the sort table (FIG. 10). Since only the tune number and names having the same keyword are registered, the tune numbers are registered generally in a discontinuous order as shown in FIG. 10.

At Step SD4, the tune names in the sort table are rearranged in the alphabetical order or in the Japanese syllabary order. If the tune numbers are being disposed in the alphabetical order of tune names or in the Japanese syllabary order of tune names, the tune names may be sorted in the tune number order and registered in the sort table.

At Step SD5, the designated keyword name is displayed on the display screen. For example, "Artist: Aaaa" is displayed on the upper area of the display screen, as shown in FIG. 3. With reference to the sort table, a list 30 (FIG. 3) of tune names is displayed in the sort order (i.e., in the alphabetical order or in the Japanese syllabary order).

At Step SD6, the flag KWD_MD is set to 0 in order to change the keyword selection mode to the tune selection mode. Thereafter, the process for the set switch is terminated.

If it is judged at Step SD1 that the flag KWD_MD is 0, it means that the mode is the tune selection mode so that the flow advances to Step SD7 along a NO arrow. For example, if the cursor is moved to the position of a desired tune name among the tune names displayed on the display screen and the set switch is operated, the flow advances to Step SD7.

At Step SD7, the performance setting data 38 corresponding to the tune number indicated by the address pointer of the sort table is selected and read from the tune table (FIG. 6).

At Step SD8, the performance environment (such as accompaniment style, tone color, tempo and harmony) is set in accordance with the read performance setting data.

At Step SD9, if a user performs a correction of the performance setting data, the performance environment is set in accordance with the corrected performance setting data. If a user is not satisfied with the performance setting data read from the tune table, the user can correct the performance setting data by using the numerical value change switch (FIG. 4). Thereafter, the corrected performance setting data is set as descried above to terminate the process for the set switch.

FIG. 14 shows the structure of other sets of style data different from the style data shown in FIG. 8A.

The style data is associated with a style number. The style data includes a style name, an initial tempo, a time, the number of bars of a repetition pattern of accompaniment, a rhythm pattern, a base pattern, a code pattern, and tune data. For example, if there are four tunes corresponding to the style number No. 1, the style data contains first tune data, second tune data, third tune data and fourth tune data.

The tune data includes a tune name, an artist number, a composer number, a genre number, a tone color number, a tempo value, and a harmony number. A keyword search becomes possible by using the artist number, composer number and genre number. Setting the performance setting data such as a tone color number also becomes possible. Since the style data contains tune data, the tune table shown in FIG. 6 becomes unnecessary.

With the configuration that style data contains tune data, it becomes easy to supplement style data. If the style data shown in FIG. 8A is used in place of the style data shown in FIG. 14, it is not easy to supplement new style data. In this case, it is necessary not only to add new style data to the style data shown in FIG. 8A but also to correspondingly register the new style number in the tune table shown in FIG. 6. The operation, therefore, becomes complicated. In contrast, if the style data shown in FIG. 14 is used, it is sufficient if only new style data is added, and the other

portions are not necessary to be changed. The operation of adding new data is therefore easy. Style data to be later added may be supplied to users in the form of floppy disk or the like.

FIG. 15 shows the structure of other sets of tone color data different from the tone color data shown in FIG. 8B.

The tone color data is associated with a tone color number. The tone color data includes a tone color name, a tone color parameter, and tune data. For example, if there are four tunes corresponding to the tone color number No. 1, the tone color data contains first tune data, second tune data, third tune data and fourth tune data.

The tune data includes a tune name, an artist number, a composer number, a genre number, a style number, a tempo value, and a harmony number. A keyword search becomes possible by using the artist number and the like, and the tune table shown in FIG. 6 becomes unnecessary. With the configuration that tone color data contains tune data, it becomes easy to supplement tone color data.

FIG. 16 is a flow chart illustrating the operation to be executed by CPU when the style data shown in FIG. 14 or the tone color data shown in FIG. 15 is used and the set switch is operated. This flow chart is used as a substitution for the flow chart shown in FIG. 13.

At Step SE1, it is checked whether the flag KWD_MD is 1. If the flag KWD_MD is 1, it means the keyword selection mode so that the flow advances to Step SE2 along a YES arrow.

At Step SE2, a tune having the keyword number indicated by the address pointer of the keyword table (FIGS. 7A to 7C) is searched from the style data (FIG. 14) or tone color data (FIG. 15).

At Step SE3, all searched tune names, style (tone color) numbers containing the searched tune names, and tune numbers in the styles (tone colors) are registered in the sort table (FIG. 17). As shown in FIG. 17, the sort table stores the style numbers, tune numbers in the styles, and tune names, all being associated with each other.

At Step SE4, the tune names in the sort table are rearranged in the alphabetical order or in the Japanese syllabary order.

At Step SE5, the designated keyword name is displayed on the display screen. With reference to the sort table, a list 30 (FIG. 3) of tune names is displayed in the sort order (i.e., in the alphabetical order or in the Japanese syllabary order).

At Step SE6, the flag KWD_MD is set to 0 in order to change the keyword selection mode to the tune selection mode. Thereafter, the process for the set switch is terminated.

If it is judged at Step SE1 that the flag KWD_MD is 0, it means that the mode is the tune selection mode so that the flow advances to Step SE7 along a NO arrow.

At Step SE7, the performance setting data (excepting style number and tone color number) corresponding to the style number (tone color number) and tune number indicated by the address pointer of the sort table is selected and read from the style data (FIG. 14) or tone color data (FIG. 15).

At Step SE8, the performance environment (such as tone color (or accompaniment style), tempo and harmony) is set in accordance with the read performance setting data. In this case, the performance environment for the style number and tone color number is also set.

At Step SE9, if a user performs a correction of the performance setting data, the performance environment is set in accordance with the corrected performance setting data. Thereafter, the process for the set switch is terminated.

With the performance setting data selecting apparatus of this embodiment, the performance setting data matching a tune to be played can be easily set by selecting a tune name itself, and so-called song image setting is possible. A tune name can be selected easily and quickly by searching the tune name by using an artist, a composer, a genre or the like as a keyword.

If a tune to be played by a user is already determined, the performance setting data matching the tune can be automatically set upon selection of the tune name.

If a user can have particular images of a tune basing upon its tune name, the user can select the tune name easily without being embarrassed. Performance imaged by a user becomes likely to match the actually played performance.

The performance setting data may include: in addition to an accompaniment style and a tone color, chord progression data; intro pattern data; ending pattern data; effects data such as reverb; left hand chord designating mode (single finger, finger chord, full keyboard, and so on) data; volume data of a melody part, an accompaniment part or the like; and other data. The keyword may include other keywords in addition to an artist name, a composer and a genre.

The performance setting data selecting apparatus is not limited only to the form of an electronic musical instrument, but may be realized by a combination of a personal computer and application software. The application software stored in a recording medium such as a magnetic disk may be supplied to the personal computer or it may be supplied via a network to the personal computer.

The performance setting data selecting apparatus may be realized as an integrated part of an electronic musical instrument with built-in sound source and automatic performance units, or may be realized as a discrete part of such an electronic musical instrument interconnected by communication means such as MIDI and networks. The invention is not limited only to keyboard musical instruments, but may be applied to other instruments such as stringed musical instruments, wind musical instruments, and percussion musical instruments.

The present invention has been described in connection with the preferred embodiments. The invention is not limited only to the above embodiments. It is apparent that various modifications, improvements, combinations, and the like can be made by those skilled in the art.

What is claimed is:

1. A performance setting data selecting apparatus comprising:

means for storing a correspondence between each of a plurality of tune names and performance setting data suitable for playing each tune;

means for designating the tune name of each tune; and

means for setting the performance setting data corresponding to the tune name of each tune designated by said designating means by reading the performance setting data from said storing means.

2. A performance setting data selecting apparatus according to claim 1, wherein

said storing means comprises:

data storing means for storing a plurality set of performance setting data; and

a table for storing a correspondence between each tune name of the plurality of tunes and each set of the performance setting data stored in said data storing means suitable for playing a tune having the associated tune name, and

said designating means reads the performance setting data corresponding to the tune name designated by said designating means from said data storing means by referring to said table and setting the read performance setting data.

3. A performance setting data selecting apparatus according to claim 1, wherein

said storing means stores a plurality set of performance setting data and stores a correspondence, for each set of the performance setting data, between a tune name or names and each set of the performance setting data suitable for playing a tune having the associated tune name or names.

4. A performance setting data selecting apparatus according to claim 1, wherein the performance setting data includes at least one of an accompaniment style, a tone color, a tempo and a harmony.

5. A performance setting data selecting apparatus according to claim 1, wherein said setting means changes the performance setting data read from said storing means in accordance with a user instruction and sets the changed performance setting data.

6. A performance setting data selecting apparatus according to claim 1, further comprising means for displaying the tune names stored in said storing means on a display device.

7. A performance setting data selecting apparatus according to claim 6, wherein said displaying means sorts the tune names and displays the sorted tune names, in accordance with a predetermined rule.

8. A performance setting data selecting apparatus according to claim 6, wherein said displaying means displays only the tune names searched by keyword searching.

9. A performance setting data selecting apparatus according to claim 7, wherein said displaying means sorts the tune names in an alphabetical order and displays the sorted tune names.

10. A performance setting data selecting apparatus according to claim 8, wherein said displaying means performs a search by using at least one of an artist, a composer, and a genre as a keyword.

11. A performance setting data selecting apparatus according to claim 3, wherein said storing means stores the plurality set of performance setting data and the tune names, the performance setting data sets and the tune names being associated with each other.

12. A performance setting data selecting apparatus according to claim 6, wherein said displaying means displays the performance setting data read by said setting means from said storing means on the display device.

13. A performance setting data selecting apparatus according to claim 12, wherein said setting means changes the performance setting data displayed by said displaying means in accordance with a user instruction and sets the changed performance setting data.

14. A performance setting data selecting apparatus comprising:

memory which stores a plurality of performance setting data suitable for playing a plurality of tunes and respective correspondences between the plurality of performance setting data and the plurality of tunes;

designating device which designates one of the plurality of tunes;

controlling device which sets one of the plurality of performance setting data corresponding to the designated tune by reading out the one from the memory based on the correspondences,

wherein an automatic accompaniment of the designated tune is executed under the set performance setting data.

15. A performance setting data selecting method comprising the steps of:

(a) preparing means for storing a correspondence between each of a plurality of tune names and performance setting data suitable for playing each tune;

(b) designating the tune name of each tune; and

(c) setting the performance setting data corresponding to the tune name of each designated tune by reading the performance setting data from said storing means.

16. A medium storing a program to be executed by a computer, the program comprising the processes of:

(a) preparing means for storing a correspondence between each of a plurality of tune names and performance setting data suitable for playing each tune;

(b) designating the tune name of each tune; and

(c) setting the performance setting data corresponding to the tune name of each designated tune by reading the performance setting data from said storing means.

17. A medium according to claim 16, wherein

said storing means comprises:

data storing means for storing a plurality set of performance setting data; and

a table for storing a correspondence between each tune name of the plurality of tunes and each set of the performance setting data stored in said data storing means suitable for playing a tune having the associated tune name, and

said process (c) reads the performance setting data corresponding to the designated tune name from said data storing means by referring to said table and setting the read performance setting data.

18. A medium according to claim 16, wherein

said process (a) prepares the storing means for storing a plurality set of performance setting data and storing a correspondence, for each set of the performance setting data, between a tune name or names and each set of the performance setting data suitable for playing a tune having the associated tune name or names.

19. A medium according to claim 16, wherein the performance setting data includes at least one of an accompaniment style, a tone color, a tempo and a harmony.

20. A medium according to claim 16, wherein said process (c) changes the performance setting data read from said storing means in accordance with a user instruction and sets the changed performance setting data.

21. A medium according to claim 16, further comprising the process (d) of displaying the tune names stored in said storing means on a display device, before said process (b).

22. A medium according to claim 18, wherein said process (a) prepares the storing means for storing a correspondence between each set of the performance setting data and a plurality of tune names, after said process (b).

23. A medium according to claim 21, wherein said process (d) displays only the tune names searched by keyword searching.

* * * * *

CL 000346

US005969283A

United States Patent [19]

Looney et al.

[11] Patent Number: 5,969,283

[45] Date of Patent: Oct. 19, 1999

[54] MUSIC ORGANIZER AND ENTERTAINMENT CENTER

[75] Inventors: Brian M. Looney, Lexington, Mass.; Dale R. McMullin, Parker, Colo.; Joseph Pasciuto, Bellingham; Edward T. Doyle, Westford, both of Mass.

[73] Assignee: Looney Productions, LLC, Lexington, Mass.

[21] Appl. No.: 09/098,843

[22] Filed: Jun. 17, 1998

[51] Int. Cl.[6] G09B 5/00; G09B 15/04; H04L 9/00; G10H 1/46

[52] U.S. Cl. ..... 84/609; 84/639; 84/478; 84/633; 380/19; 380/25; 380/49; 380/53; 434/307 A

[58] Field of Search ..... 84/601, 602, 609–614, 84/633–640, 477 R, 478, DIG. 6; 434/307 R, 307 A; 380/19–21, 23–25, 30, 49, 50, 53

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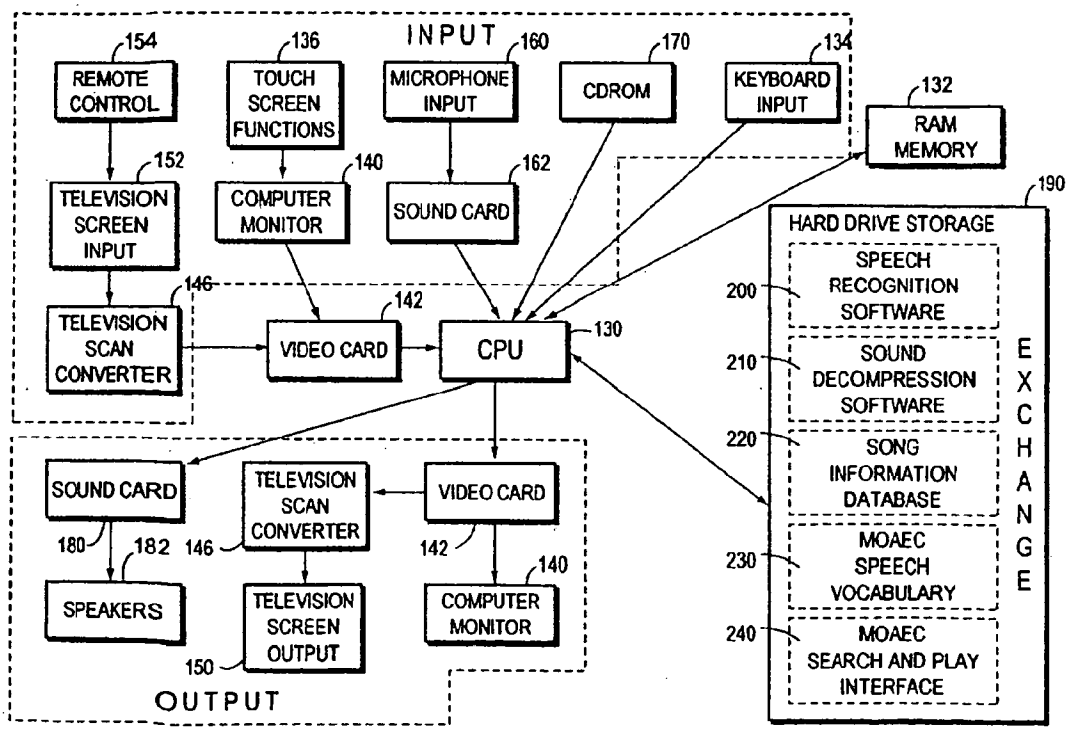
Primary Examiner—Stanley J. Witkowski
Attorney, Agent, or Firm—Cesari and McKenna LLP

[57] ABSTRACT

A music organizer and entertainment center provides a center having a microprocessor, sound card functions and high-volume data storage and retrieval units for playing back music according to a variety of predetermined categories. Music can be played back in random form or can be played back according to a particular pre-selected order. The categories are provided by service provider who delivers selected titles and/or songs to the end user. The songs are typically loaded using a custom CD-ROM provided from the service provider. The music is provided in- data-compressed form and is decompressed and processed through a sound card during playback. The categories can include a variety of parameters such as title, artists, date, speed, dance characteristics, subjective energy level and music style, such as easy-listening, upbeat, etc.

18 Claims, 27 Drawing Sheets



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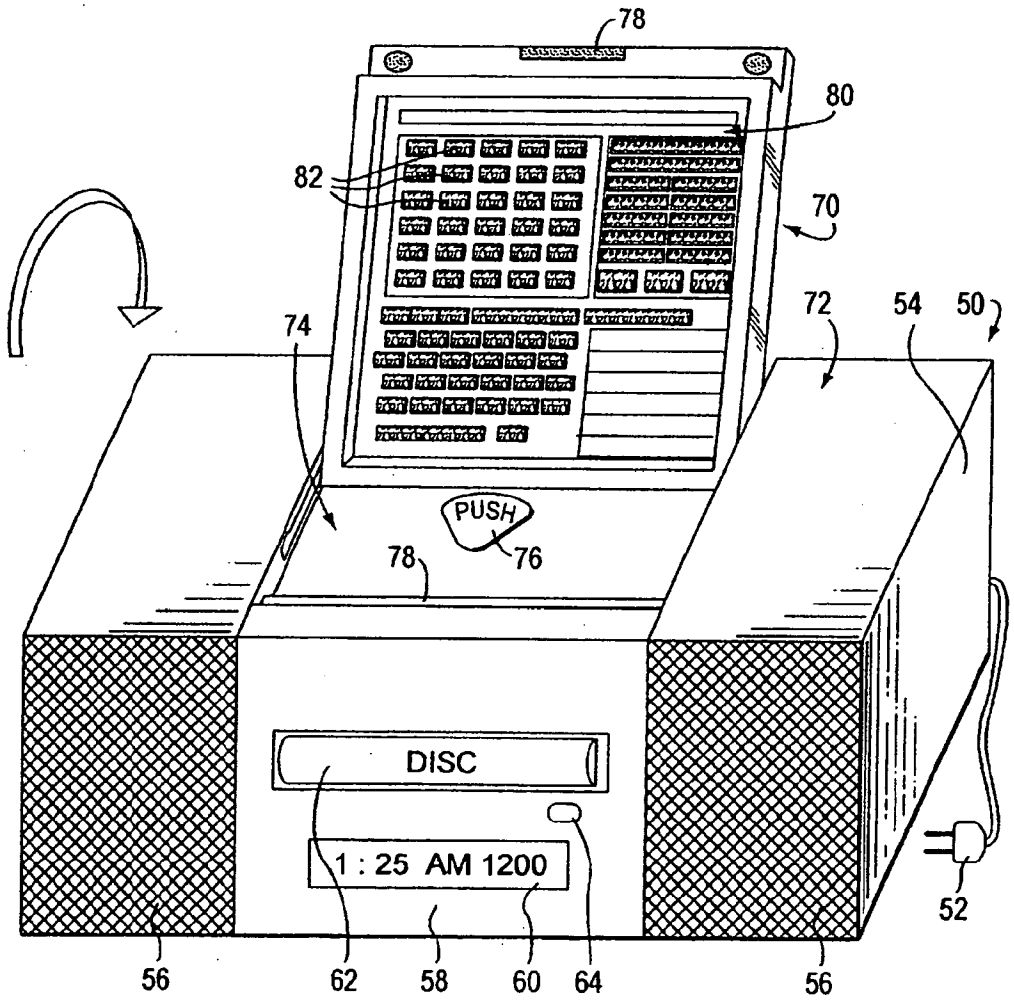

FIG. 1

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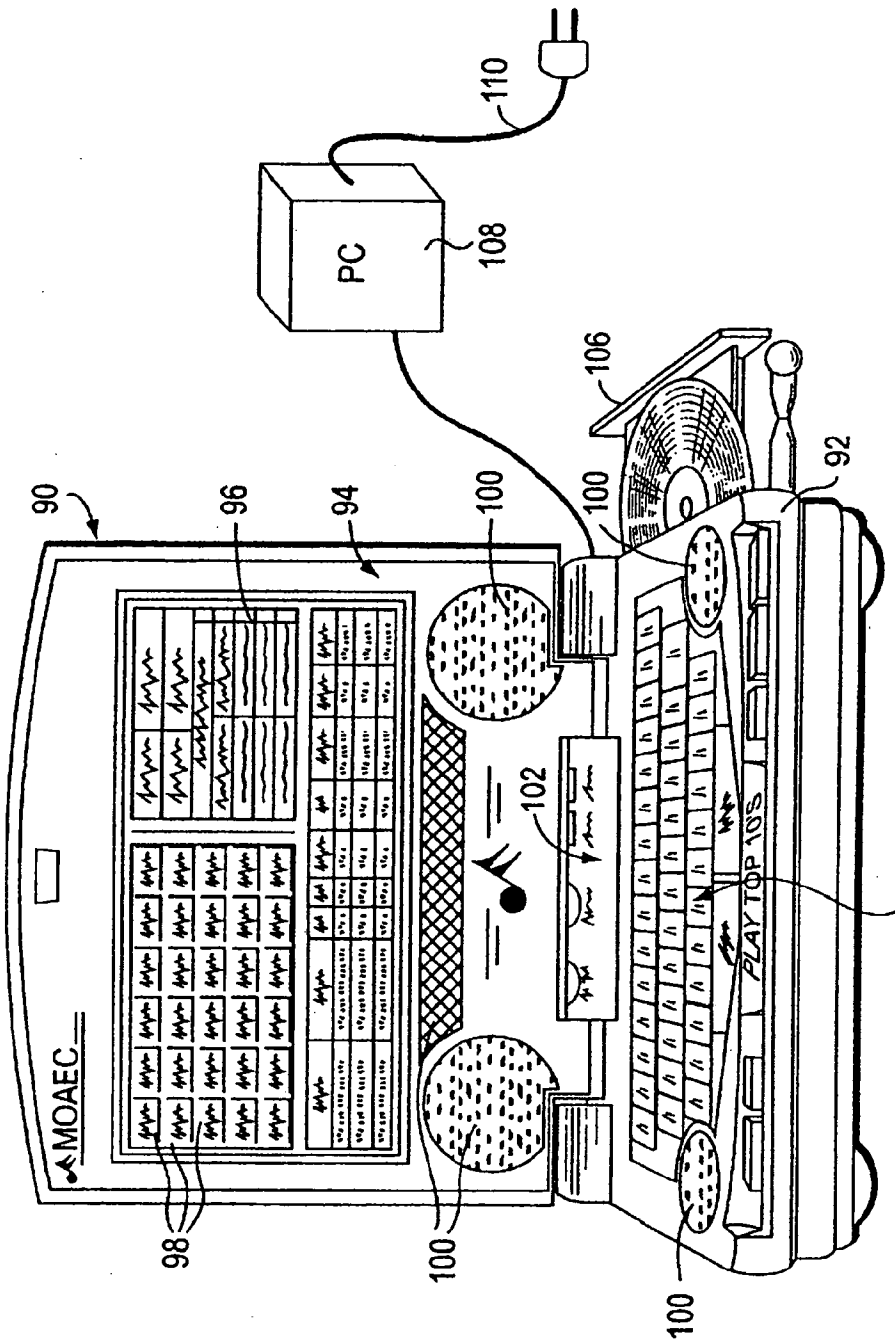

FIG. 2

CL 000349

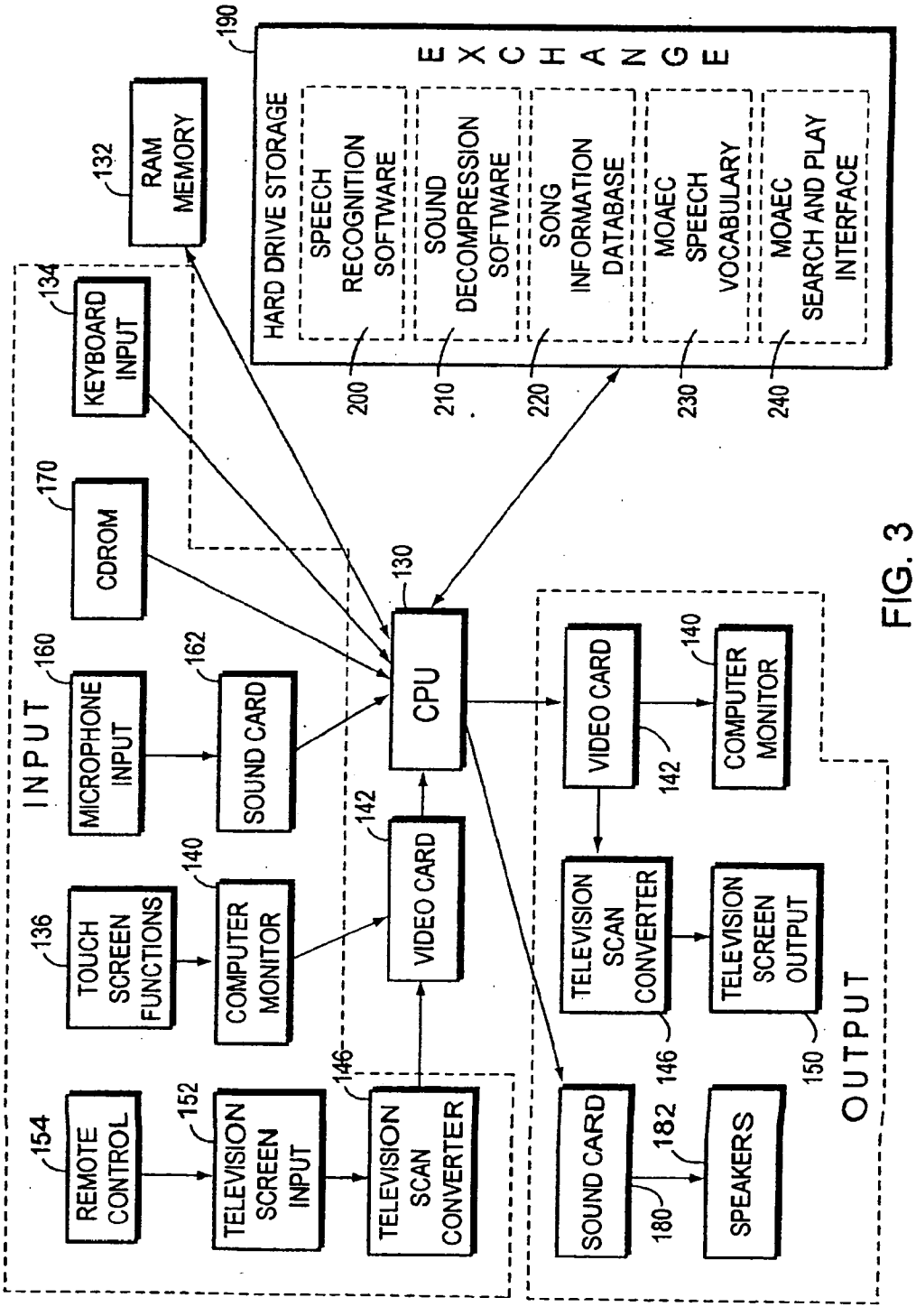

FIG. 3

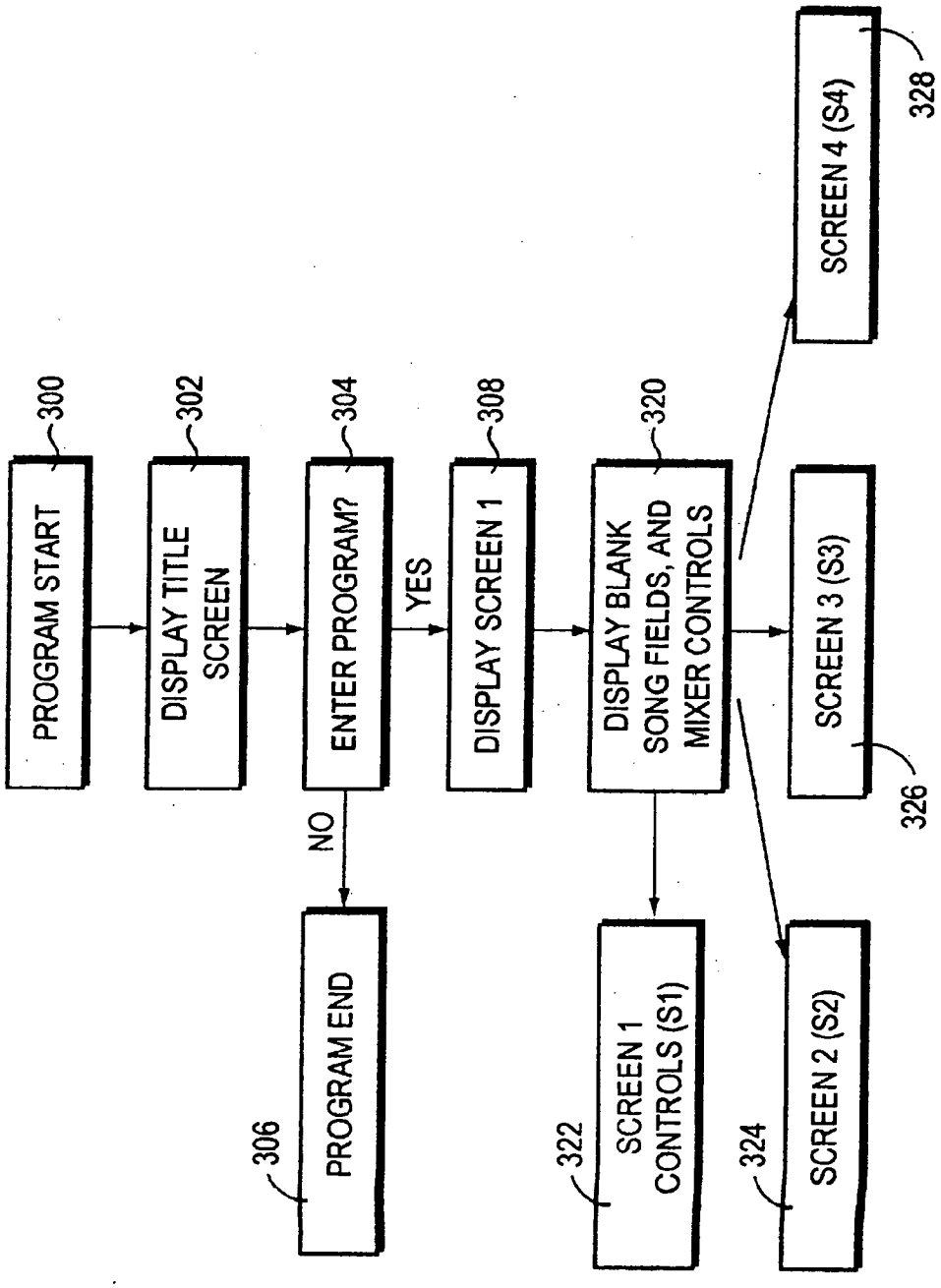

FIG. 4

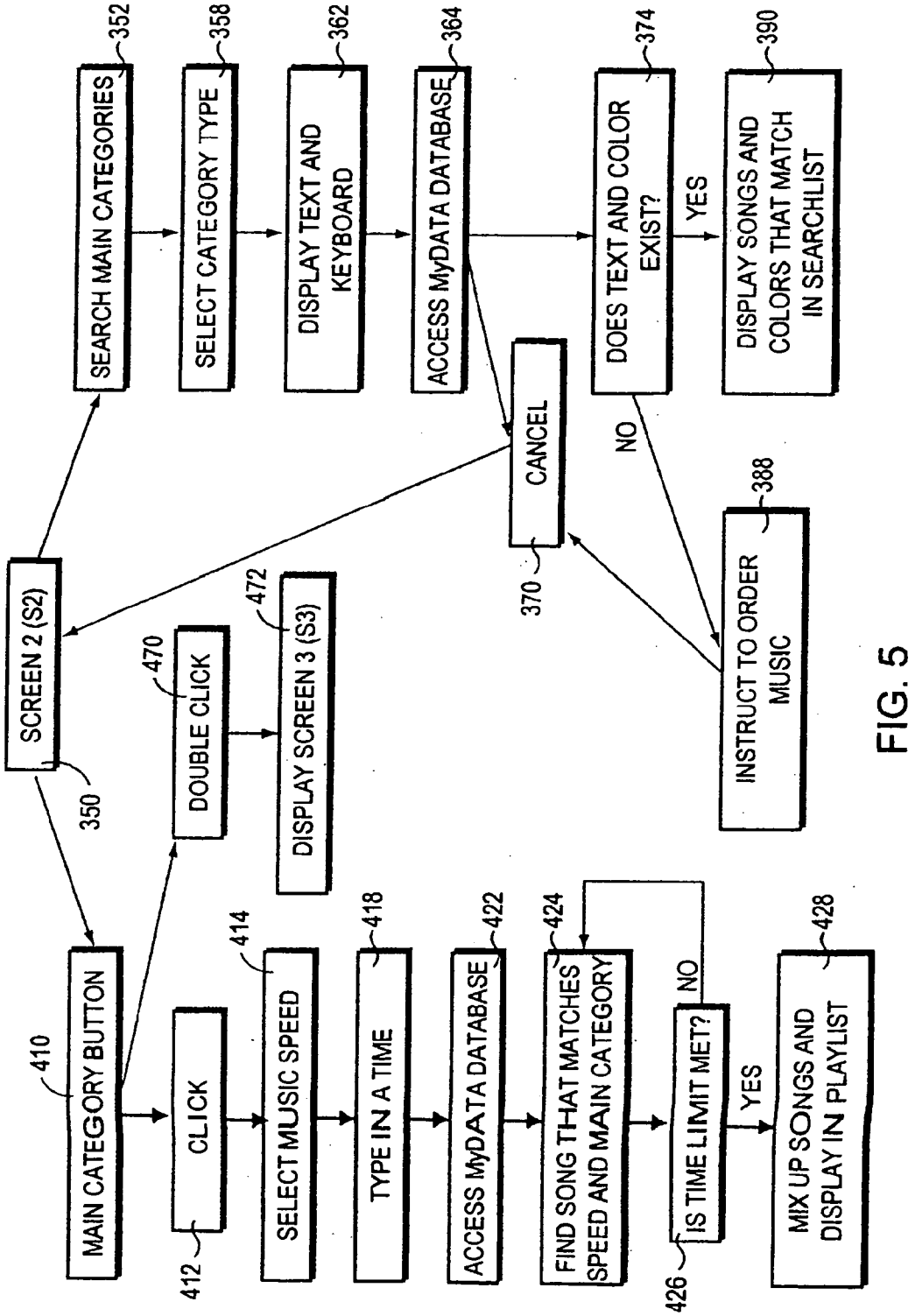

FIG. 5

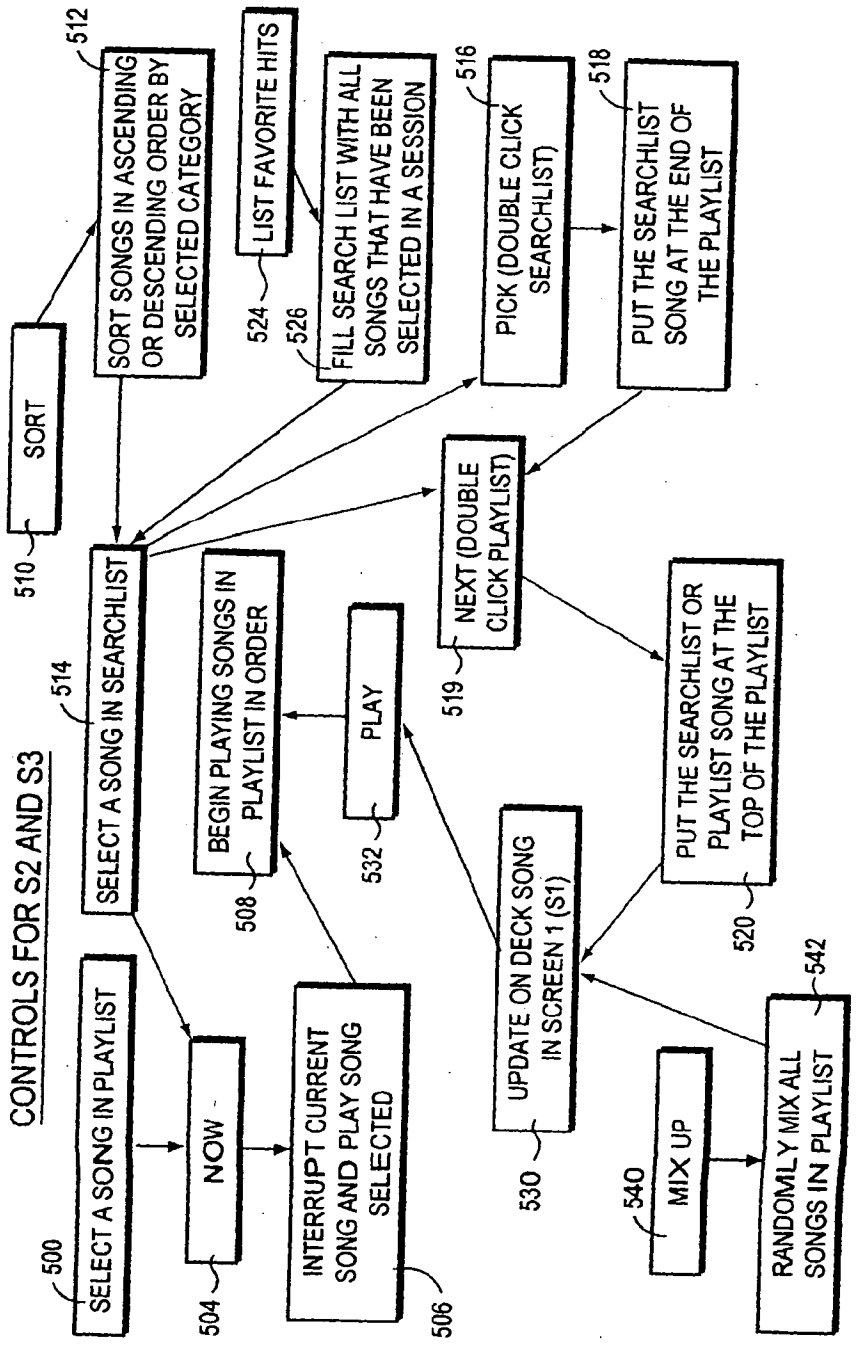

FIG. 6

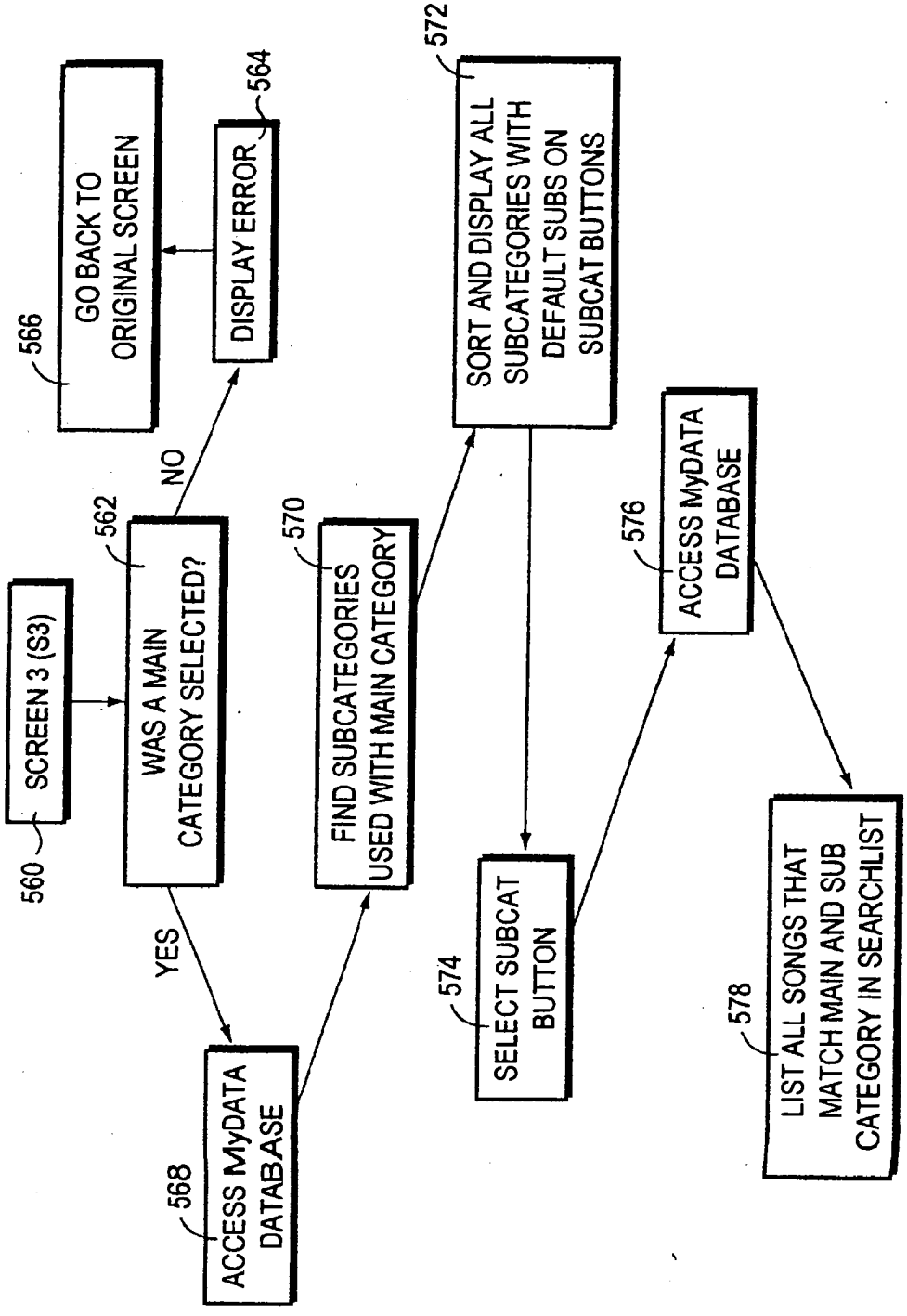

FIG. 7

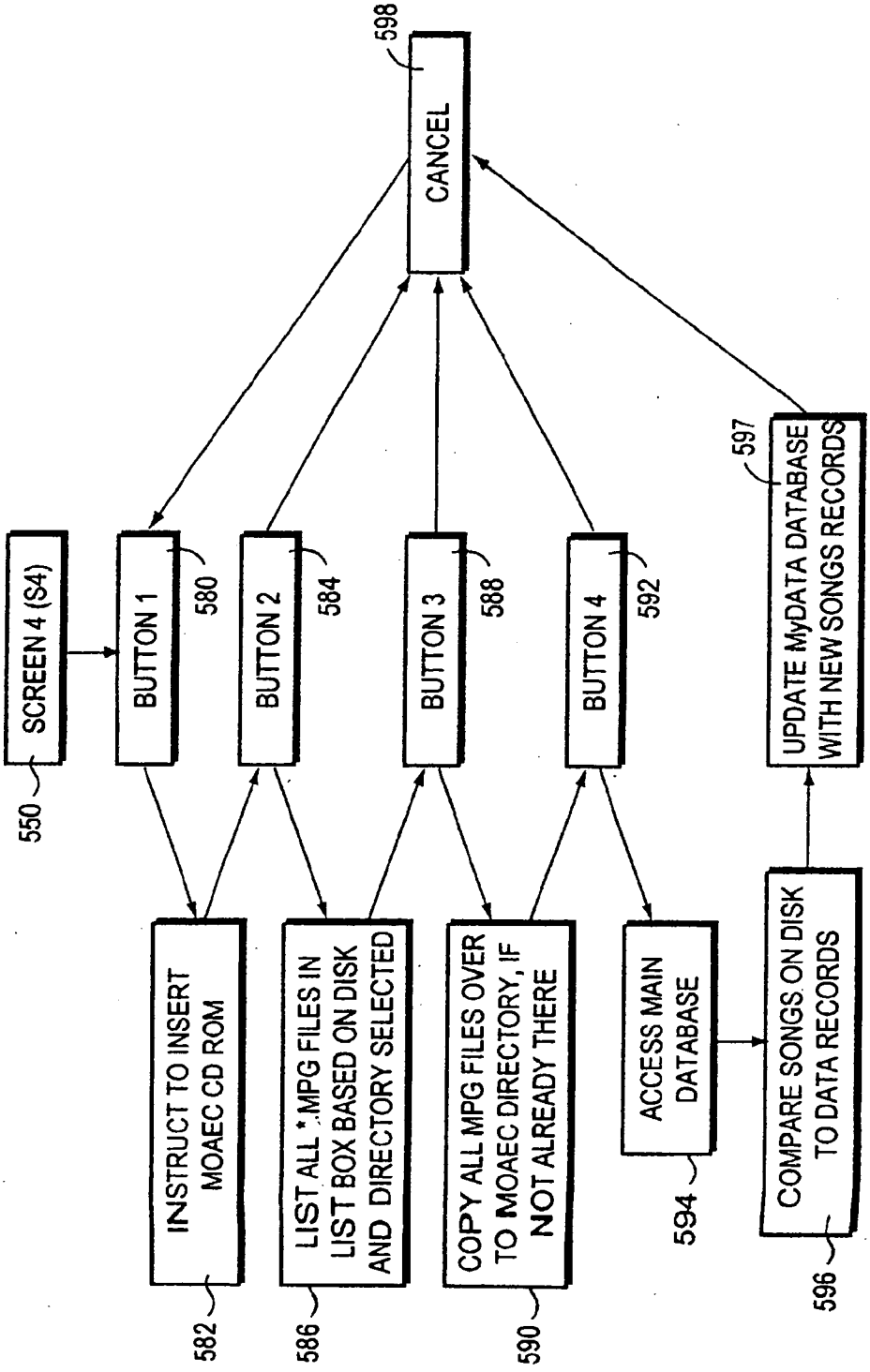

FIG. 8

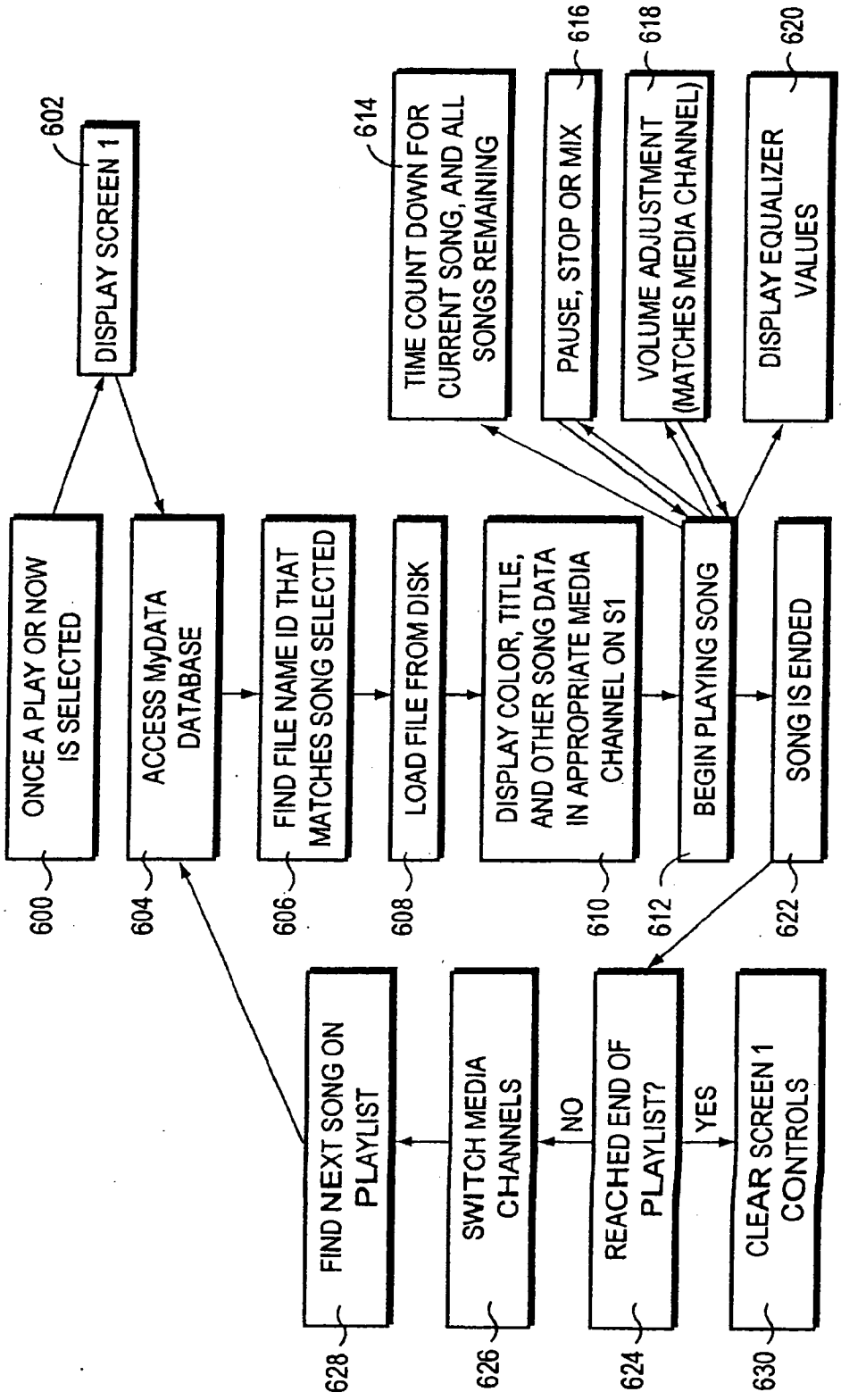

FIG. 9

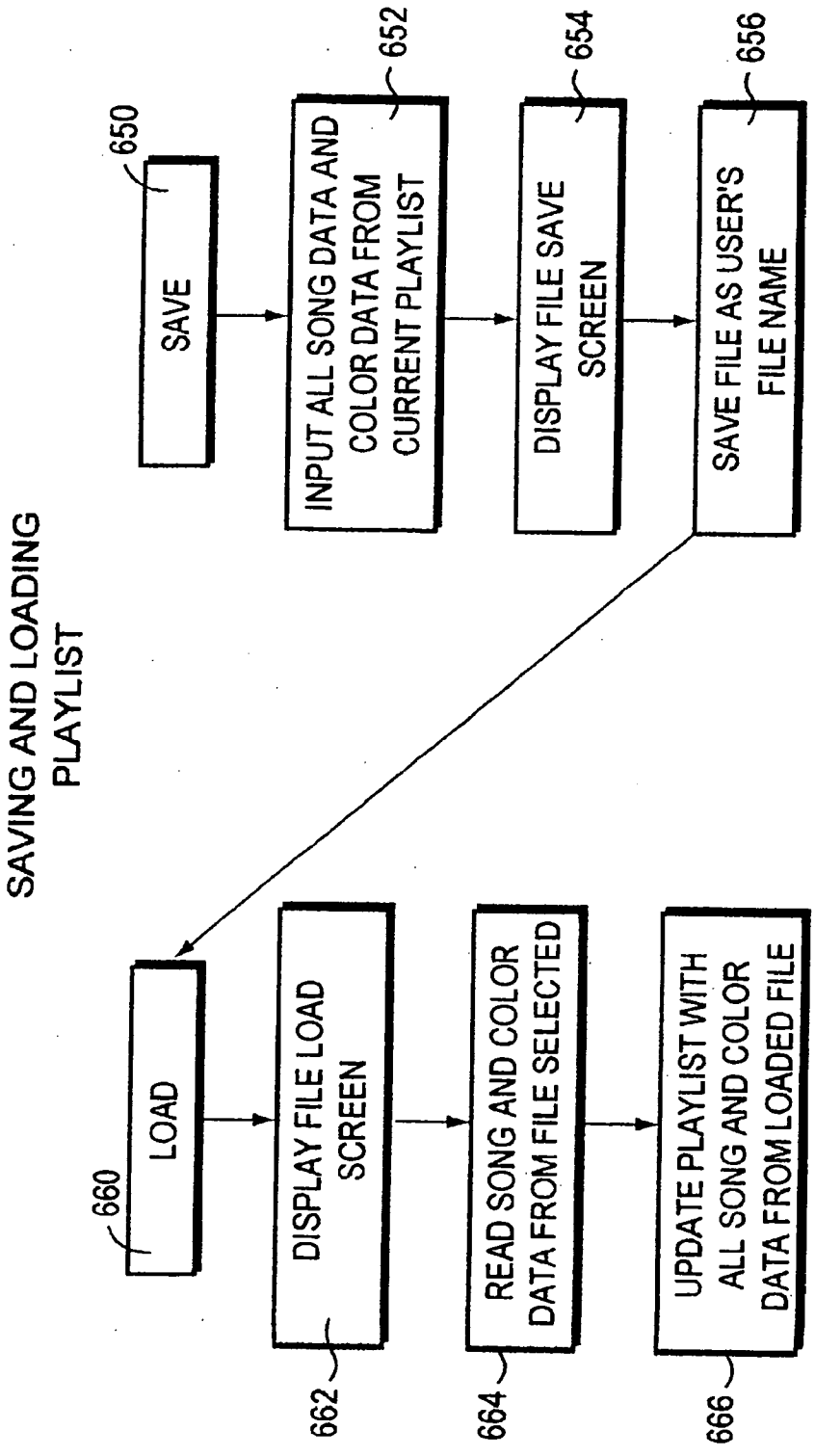

FIG. 10

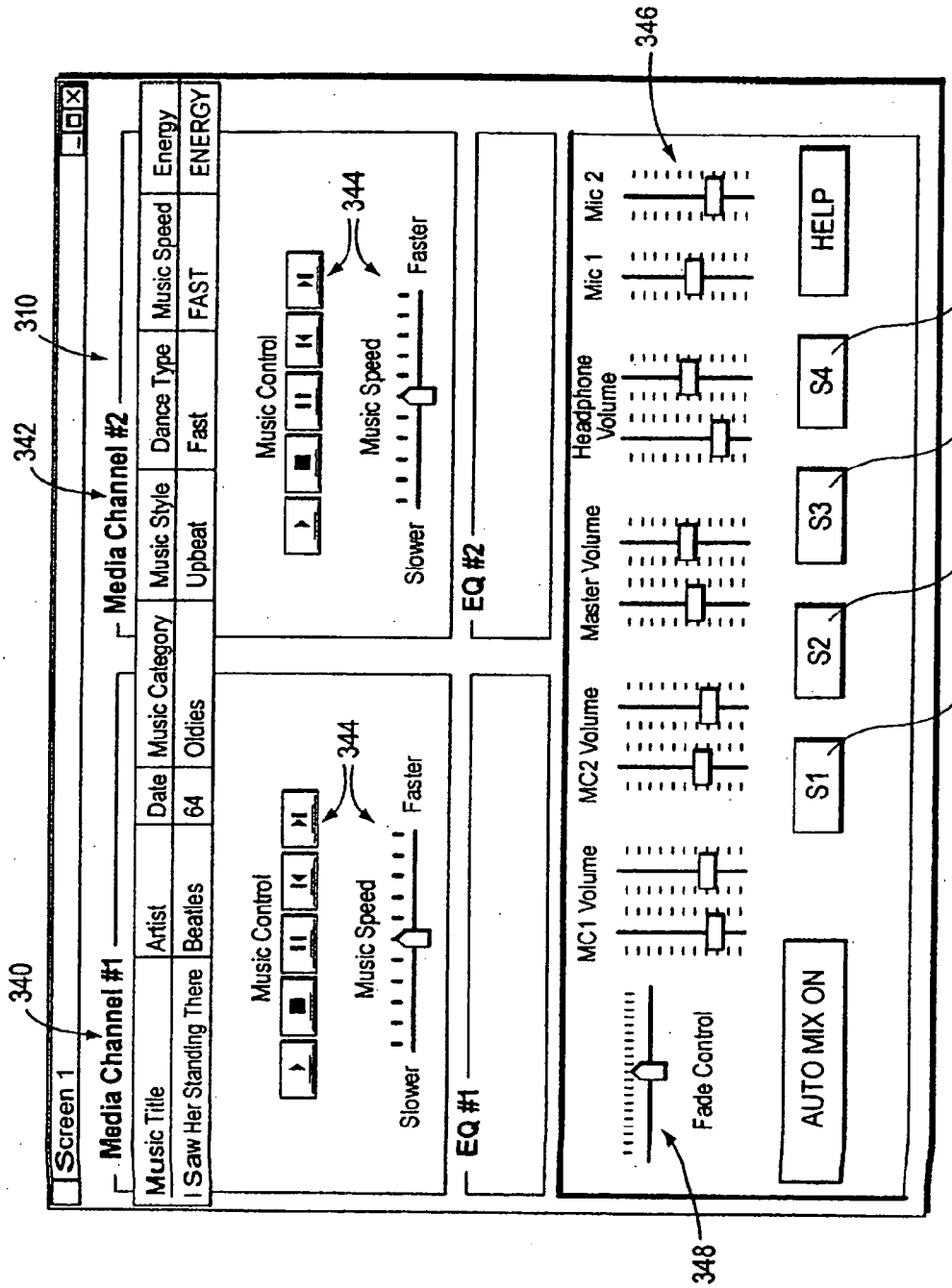

FIG. 11

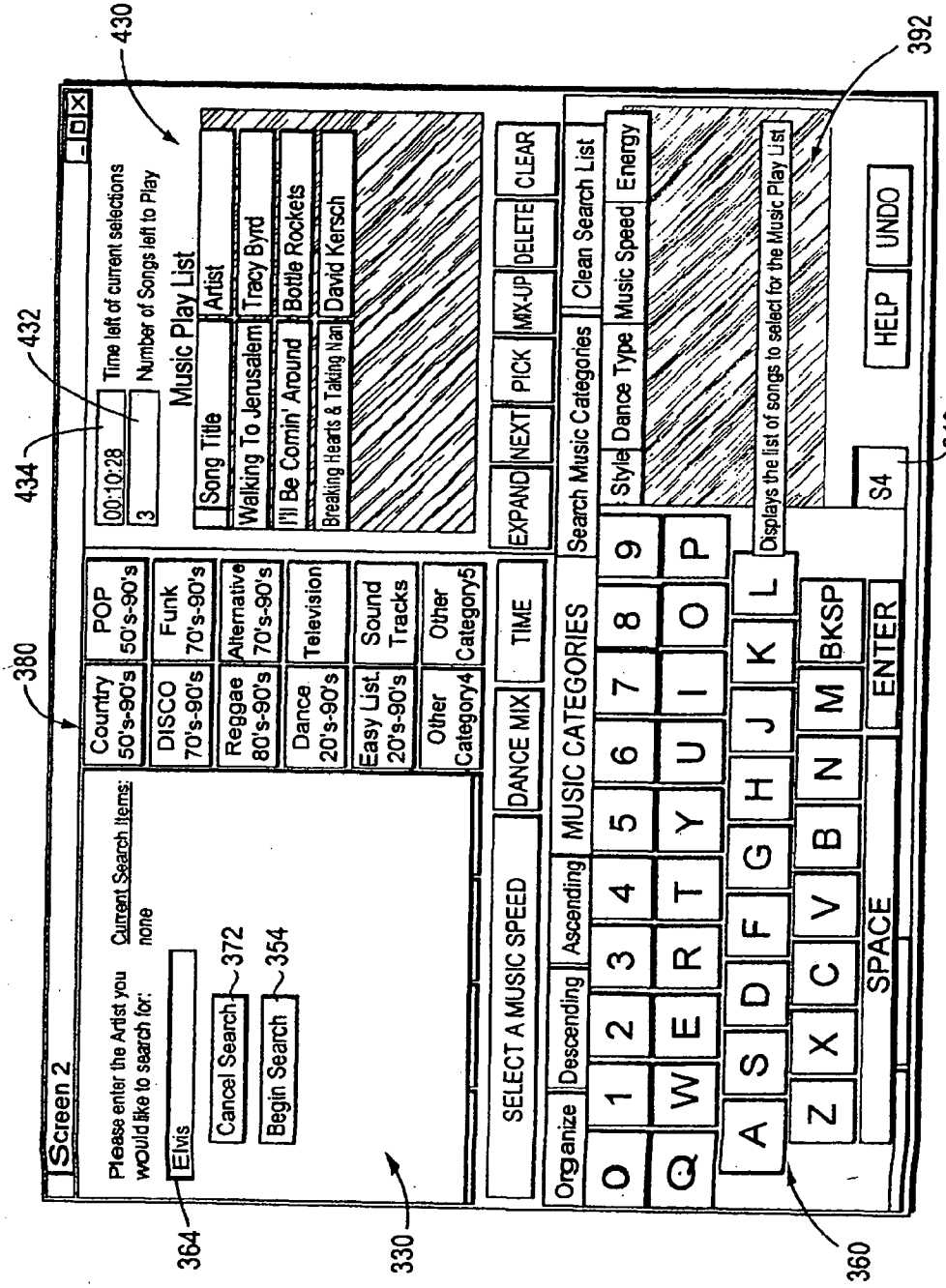

FIG. 12

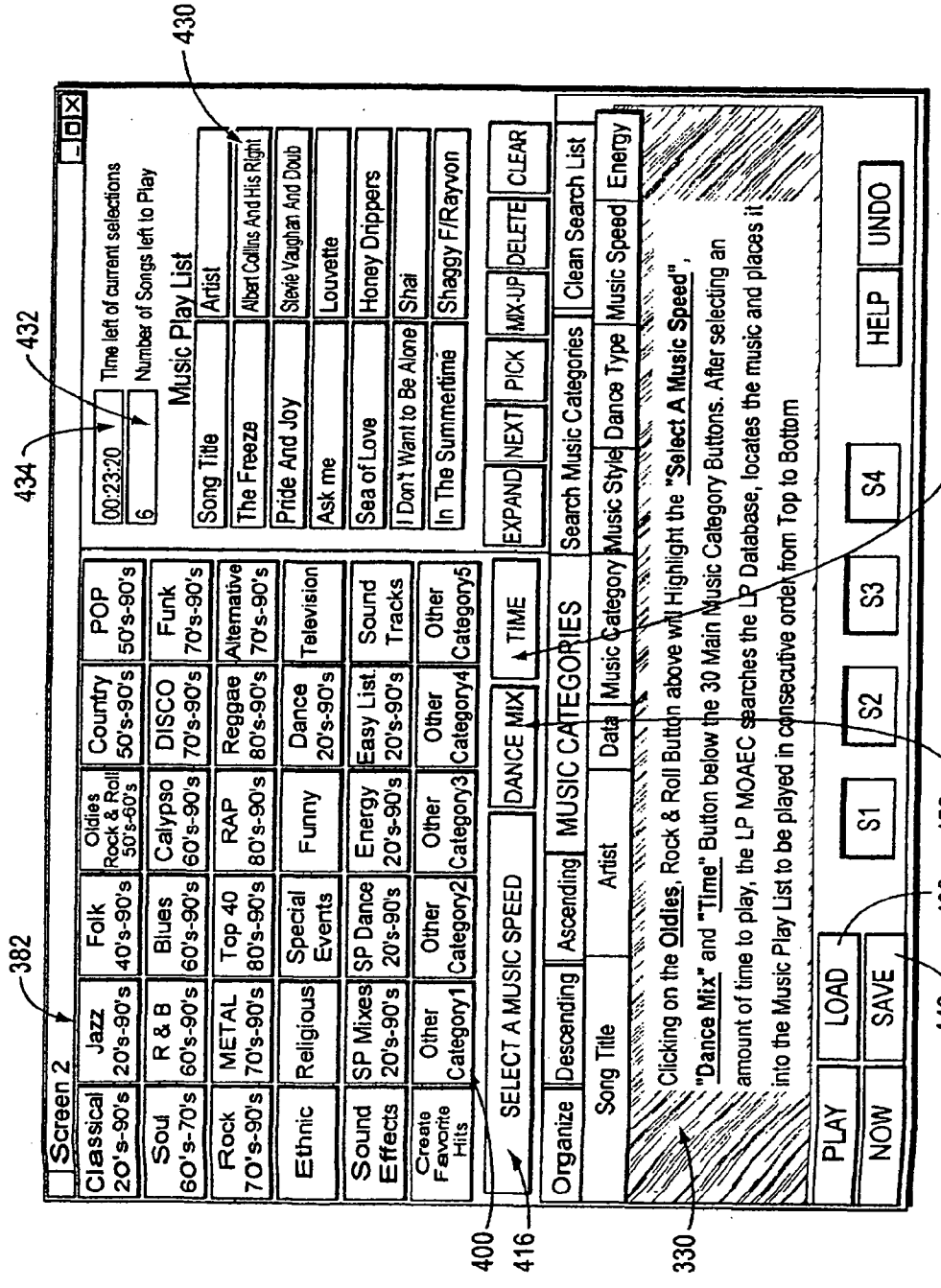

FIG. 13

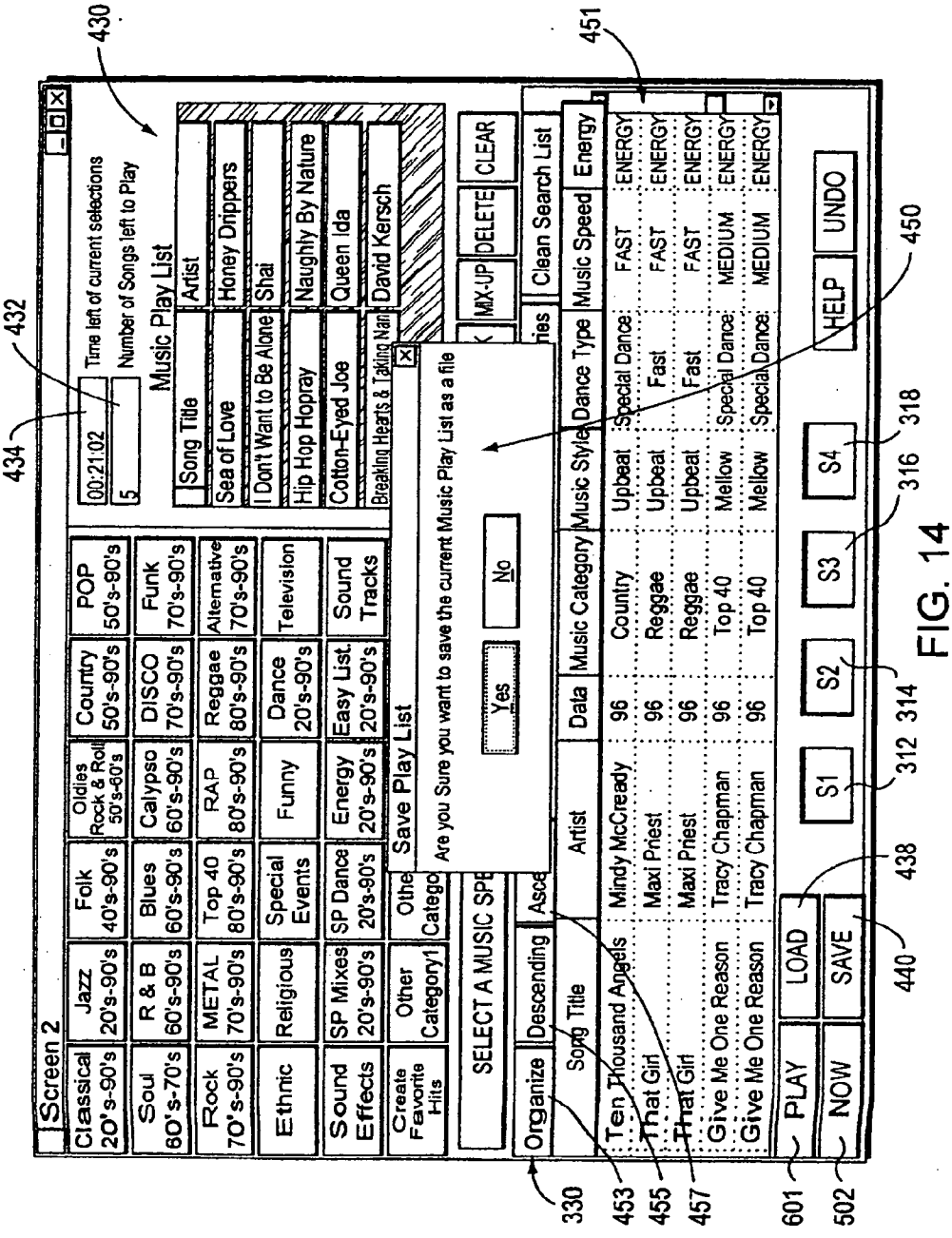

FIG. 14

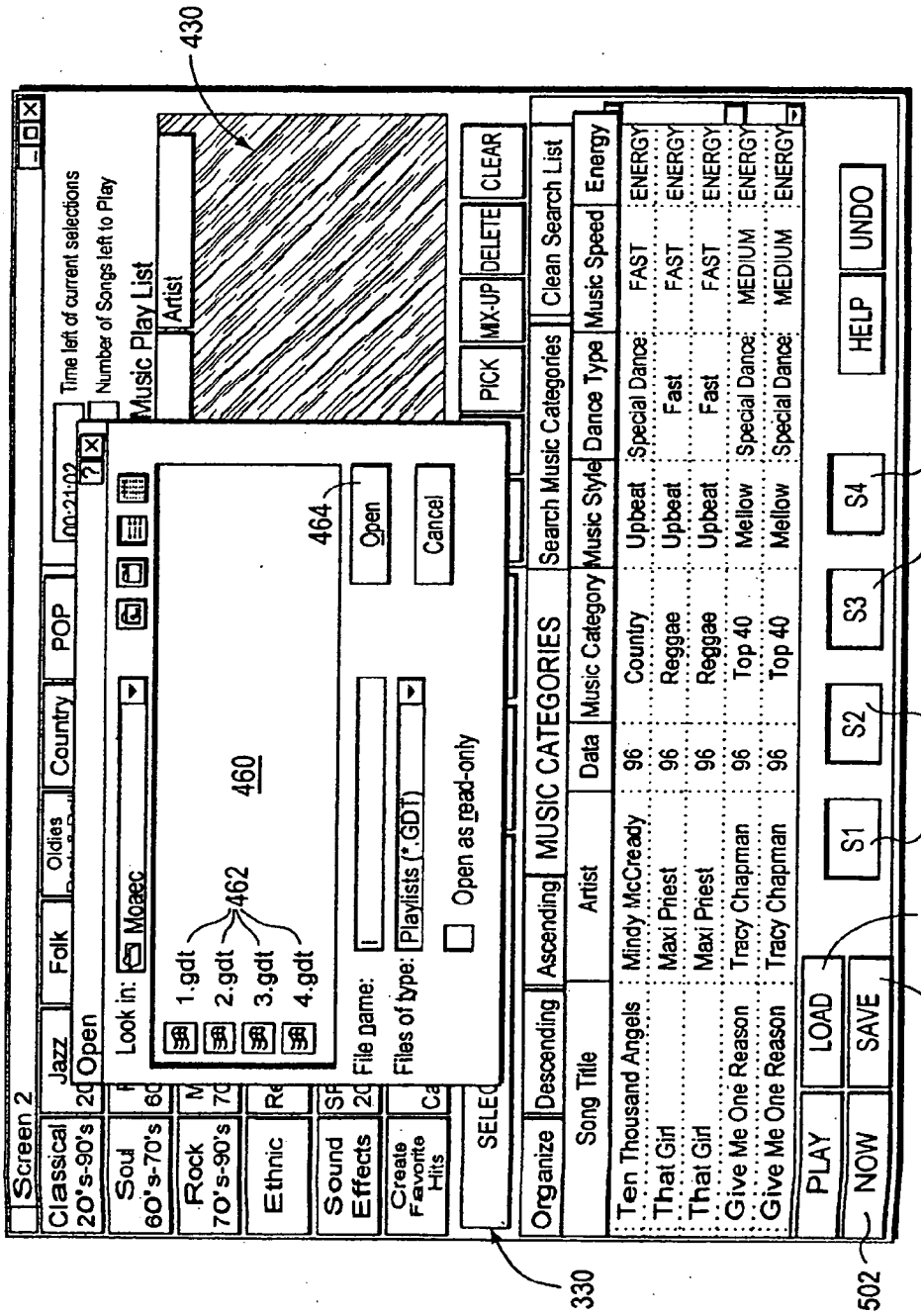

FIG. 15

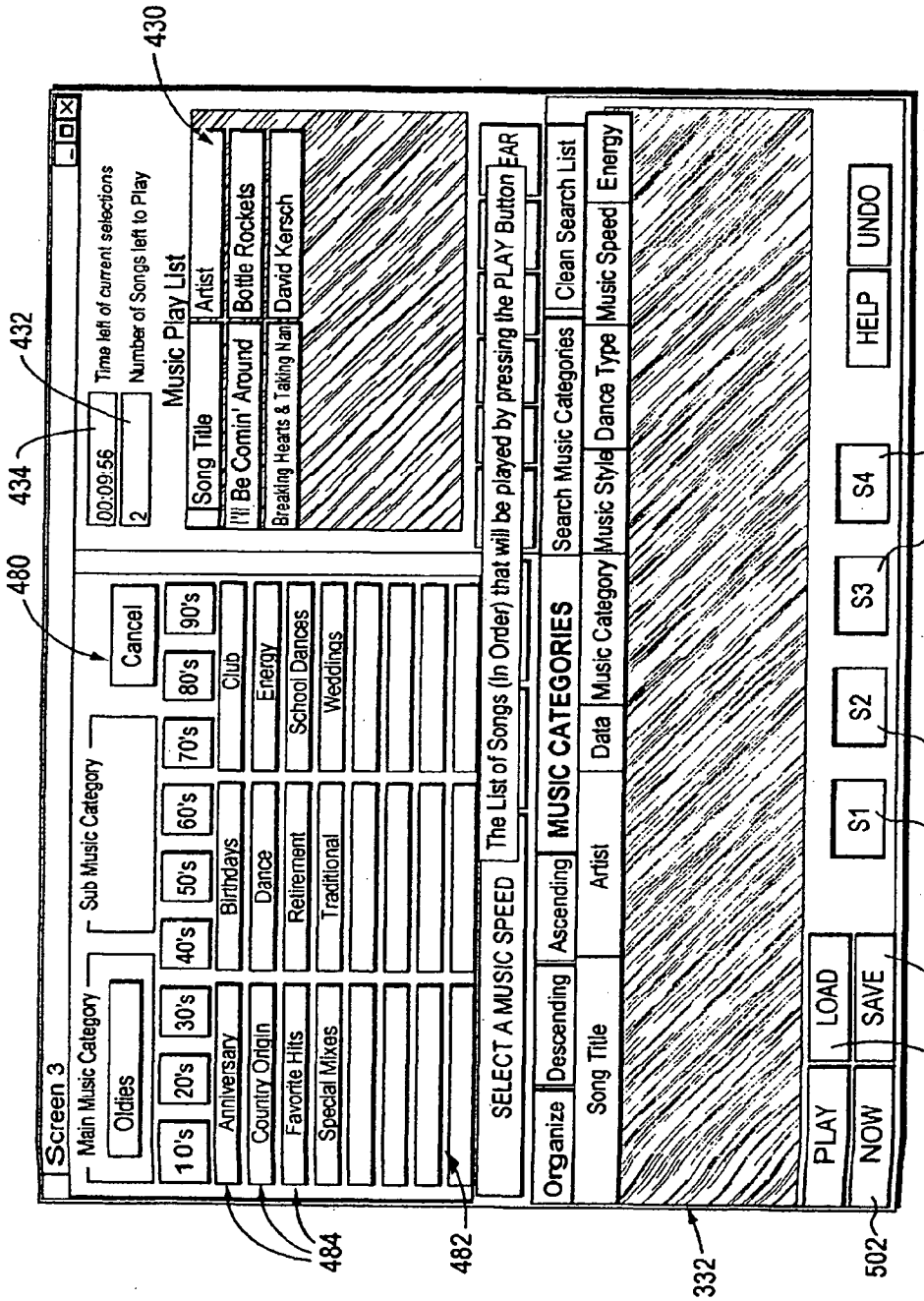

FIG. 16

FIG. 17

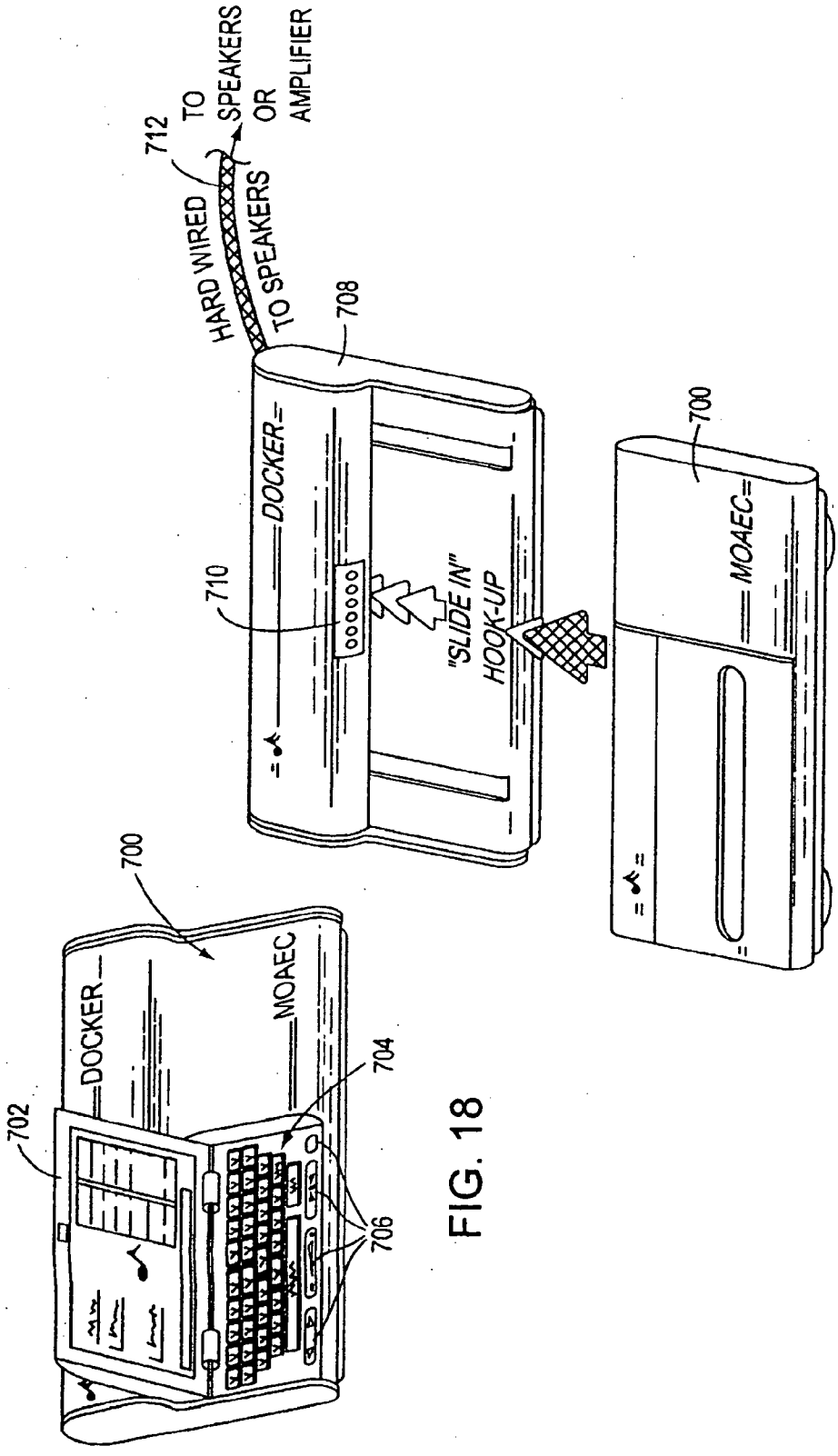

FIG. 19

FIG. 18

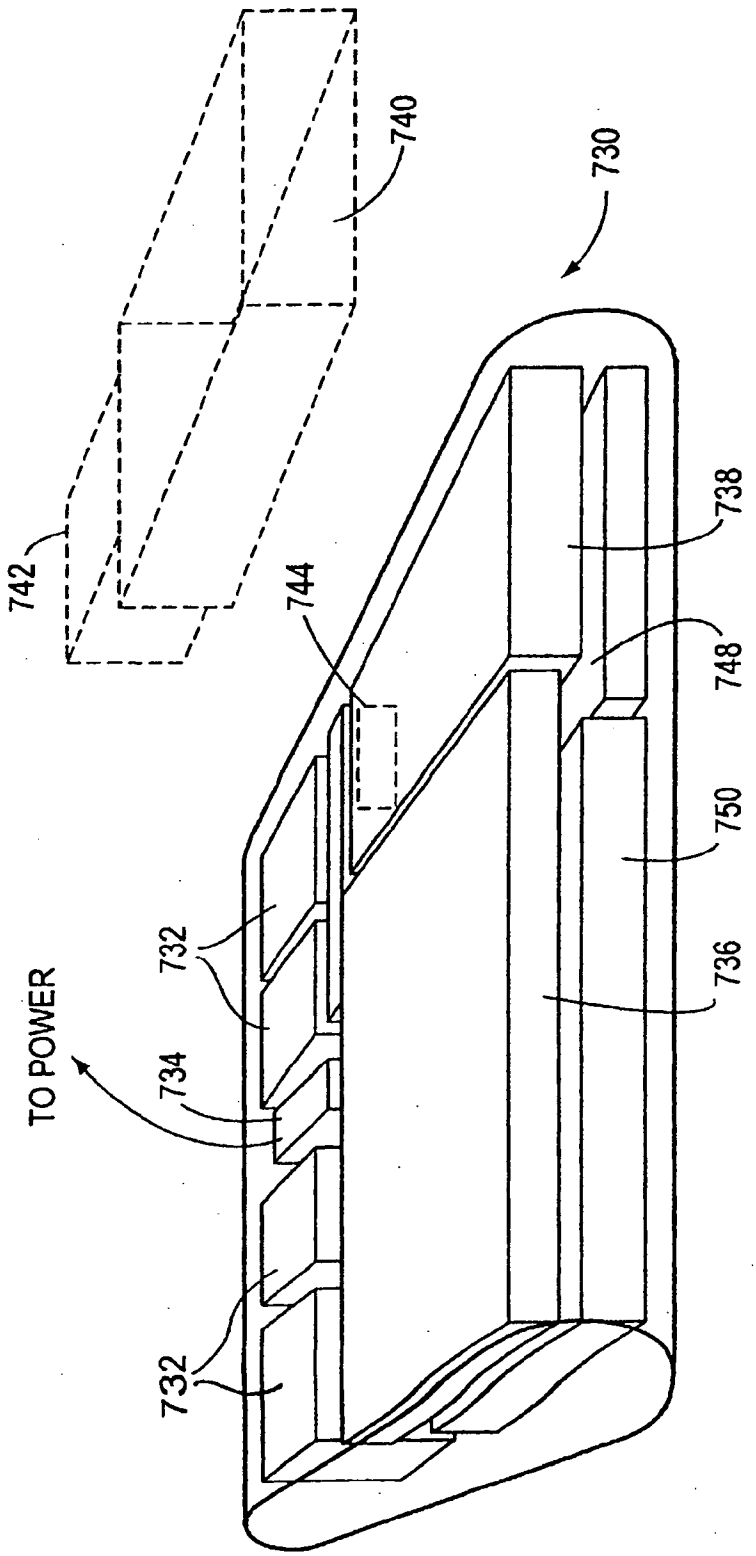

FIG. 20

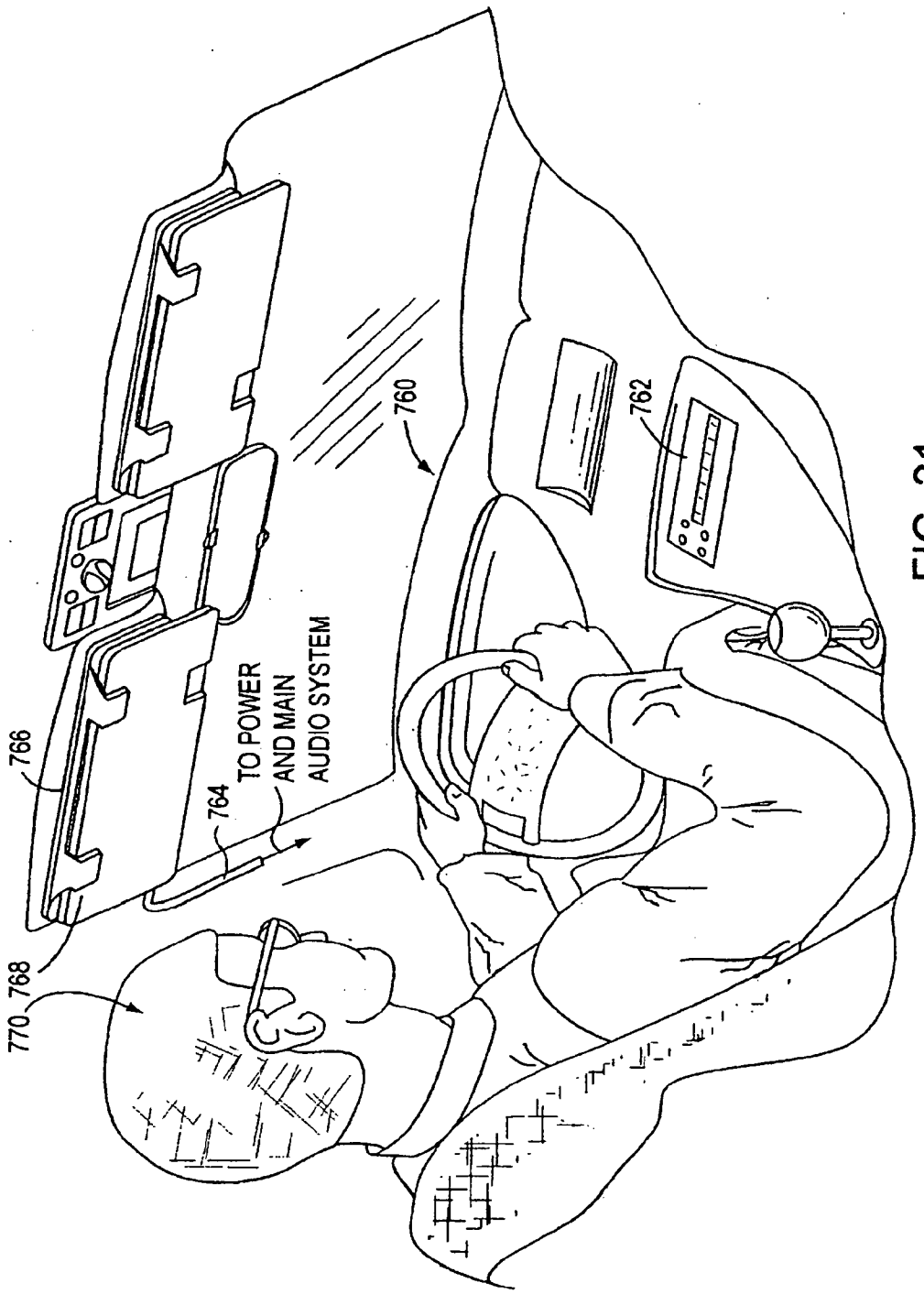

FIG. 21

CL 000367

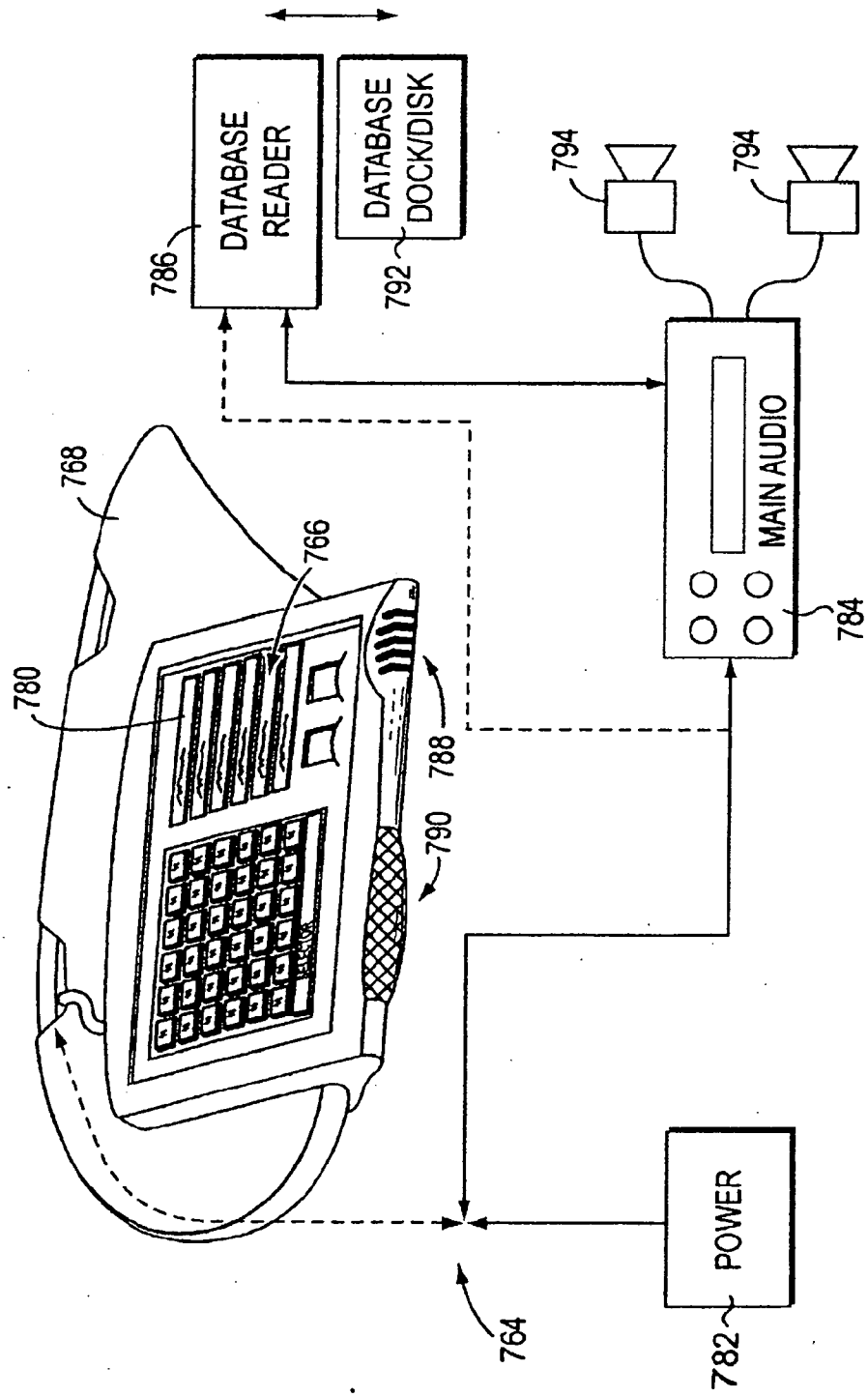
DATABASE READER
DATABASE DOCK/DISK
786
792
794
794
MAIN AUDIO
784
768
766
780
788
790
764
POWER
782

FIG. 22

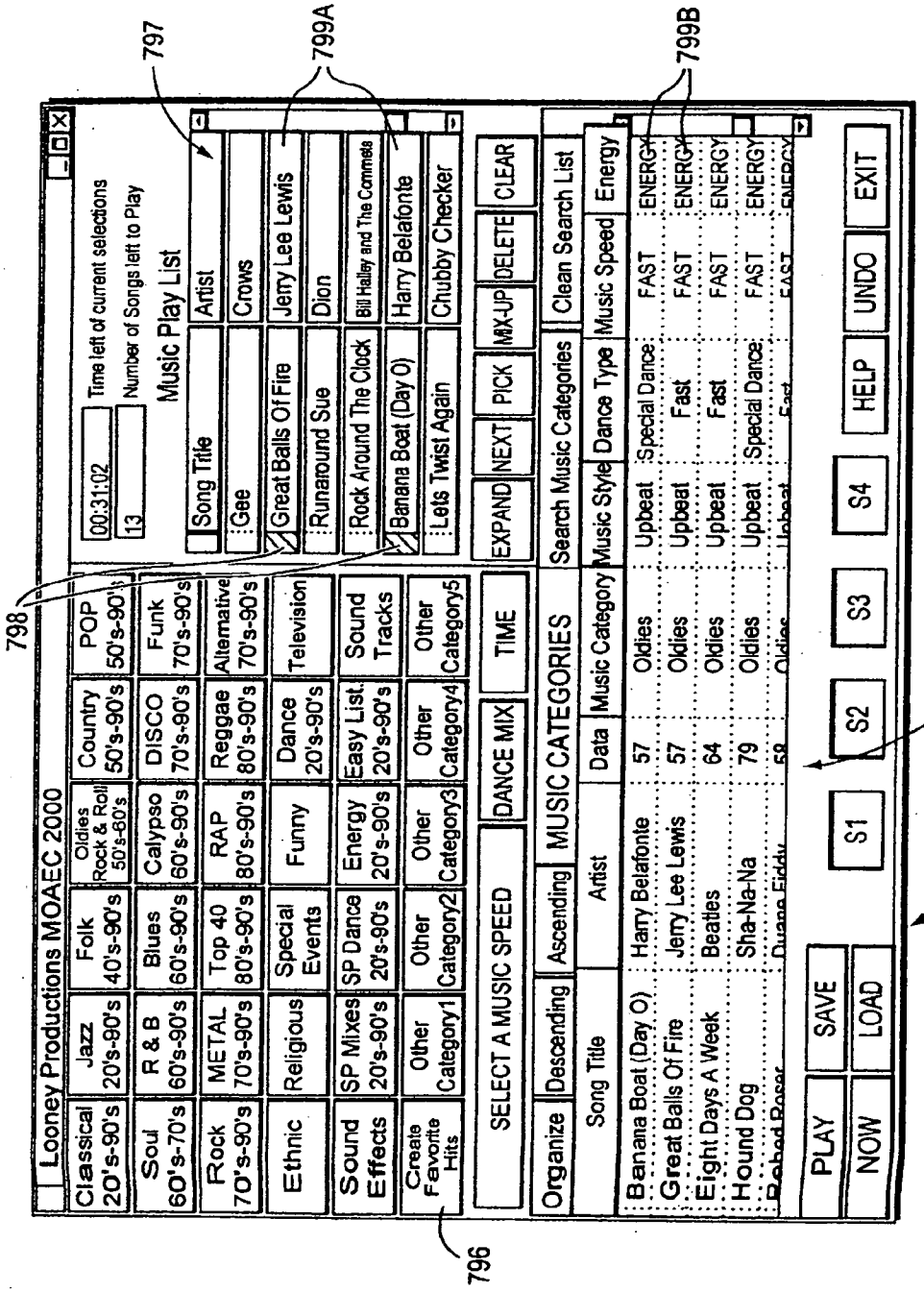

FIG. 23

FIG. 24

FIG. 25

FIG. 26

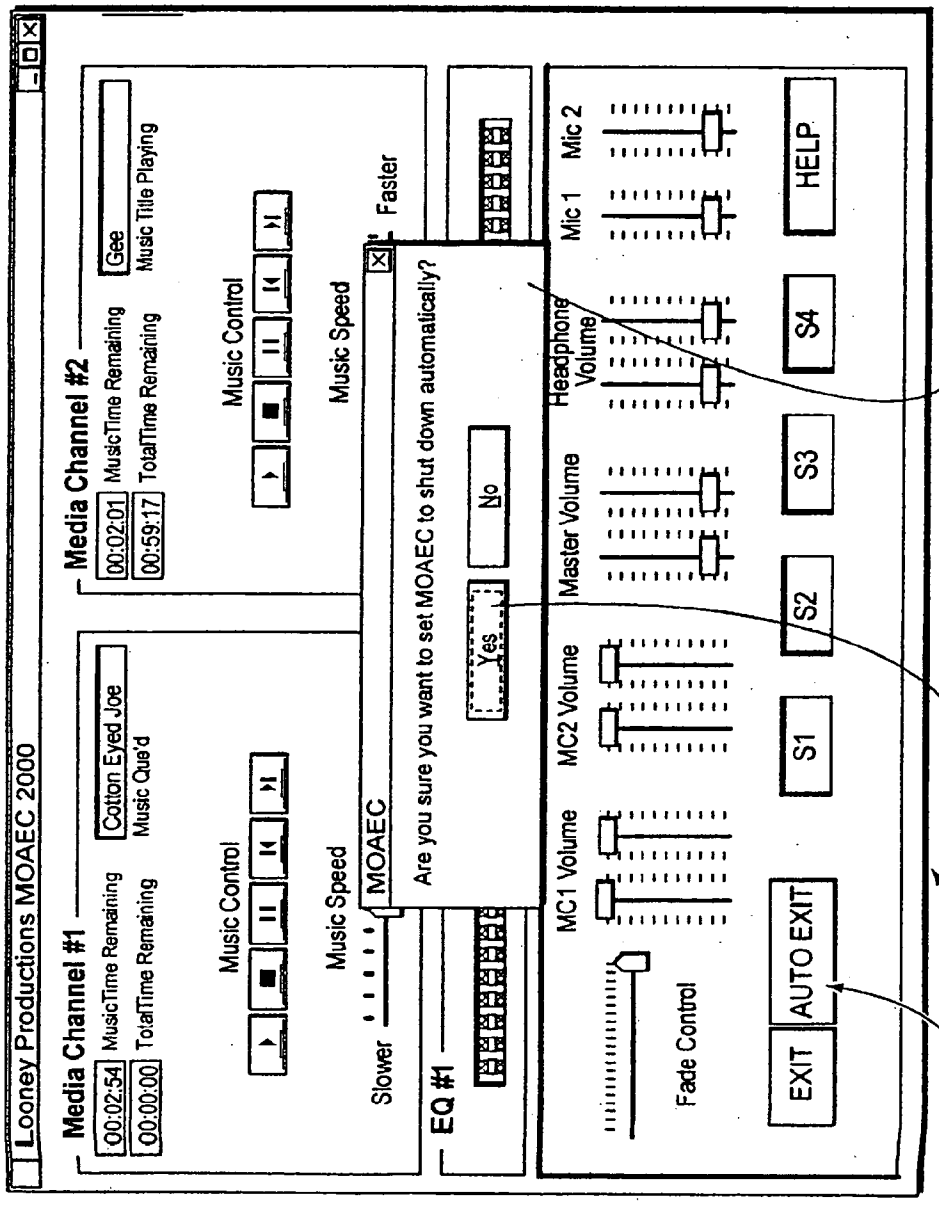

FIG. 27

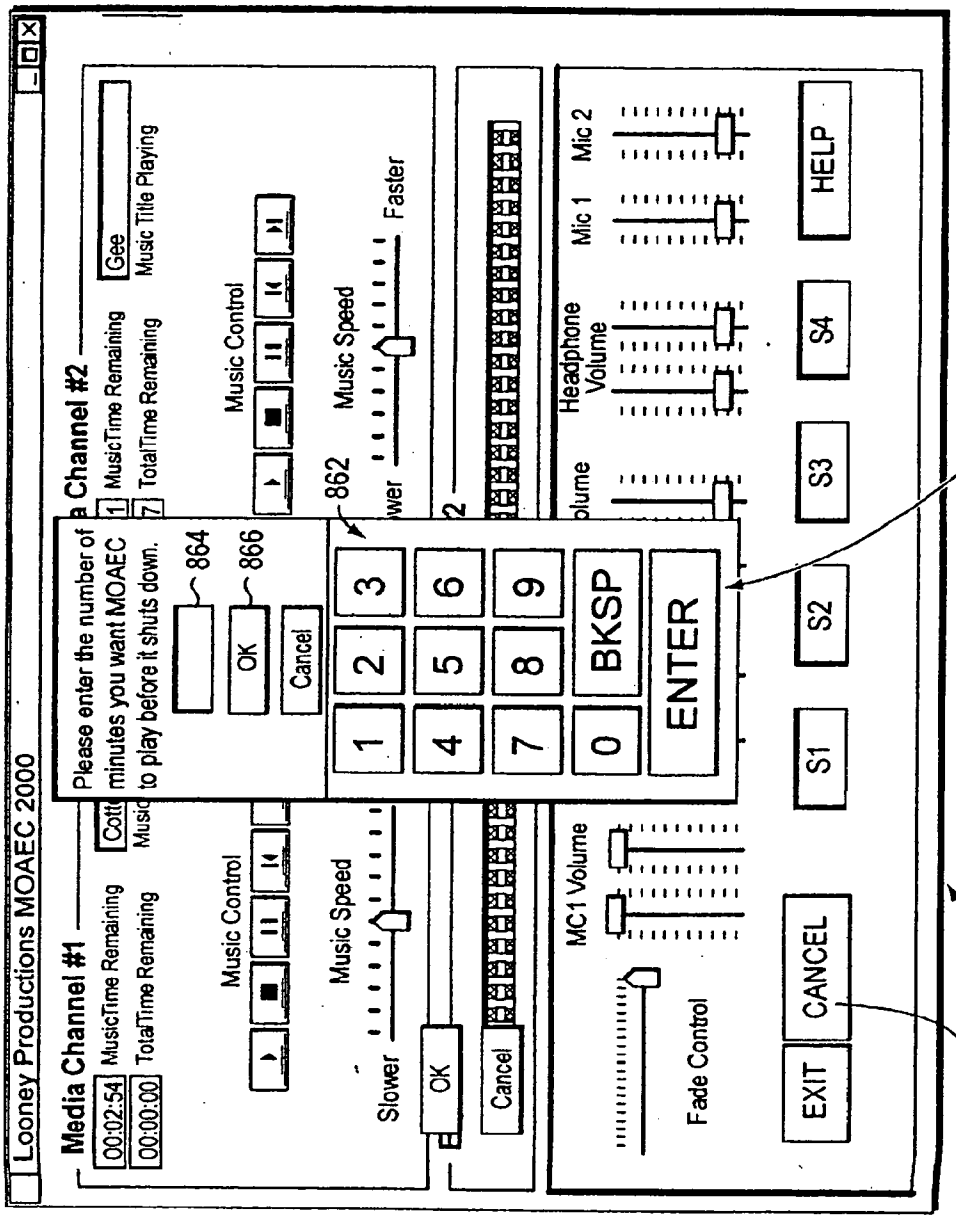

FIG. 28

MUSIC ORGANIZER AND ENTERTAINMENT CENTER

This application includes a Microfiche Appendix pursuant to 37 CFR 1.96(c) that contains a computer program listing of program commands in the commercially available Visual Basic language for implementing various functions of one embodiment of the center of the present invention described herein. The total number of microfiche and the total number of frames in the Microfiche Appendix are 2 and 103, respectively. A portion of the disclosure of this patent document or patent disclosure contains material, which is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all copyright rights whatsoever.

FIELD OF THE INVENTION

This invention relates to music recording and playback systems, and more particularly to a system that enables storage and playback of a wide range of individual music selections/songs according to a pre-programmed list of categories.

BACKGROUND OF THE INVENTION

The storage of music on digital media has presented a number of opportunities to miniaturize storage devices for music, thus enabling larger amounts of music to be stored in one place, and to radically alter the presentation of this music. In addition to the actual music sound data, new data related to certain characteristics of the music can now be overlaid in the storage media. This enables a listener to organize and playback music in a highly customized manner. It is no longer strictly necessary to store music in one format (e.g., a single disc or record) and playback individual selections from this disc or record according to a strict organization scheme. Likewise, advances in data compression and storage technology have enabled much larger quantities of digital data to be stored on magnetic disc and optical media than previously. The "Red Book" format common to music compact discs is somewhat inefficient due to its slow sample rate, and a much larger amount of data can be compressed on a standard data optical disc (CD-ROM), and decompressed and replayed using any number of readily available playback software routines.

In addition, most computers and data processing devices are now equipped with multimedia programs and advanced high-fidelity sound.

It is, therefore, an object of this invention to provide a music organizer and entertainment center that takes advantage of the latest advances in music data compression, storage and data processing capabilities. It is a further object of this invention to provide a user with the ability to fully customize playback of music according to a variety of parameters including categories of music. The graphical presentation of playback and storage controls should be easy to use and learn, and should take advantage of color and other visual aids.

SUMMARY OF THE INVENTION

This invention overcomes the disadvantages of the prior art by providing a music organizer and entertainment center that enables customized playback of music having a variety of predetermined categories that are provided, typically,

ahead of time by a service provider. Music is played back in any desired order based upon those categories from an onboard database that can include a large number of songs or titles.

The music organizer and entertainment center provides a center having a microprocessor, sound card functions and high-volume data storage and retrieval units for playing back music according to a variety of predetermined categories. Music can be played back in random form or can be played back according to a particular pre-selected order. The categories are provided by service provider who delivers selected titles and/or songs to the end user. The songs are typically loaded using a custom CD-ROM provided from the service provider. The music is provided in data-compressed form and is decompressed and processed through a sound card during playback. The categories can include a variety of parameters such as title, artists, date, speed, dance characteristics, energy level and music style.

The user selects between a variety of graphical user interface screens that are arranged on a display. The display can comprise a touch screen, or can include a variety of cursor-moving functions for operating different display "buttons" defined on the screen. Alternatively voice recognition software can be used to provide a voice operation capability to the user. Likewise, voice synthesis can be used to inform the user of various system operations.

The interface can be organized according to various music categories that each appear as buttons. Within each button can be contained sub-categories for further organization. All categories are cross indexed with categories that are predefined within various fields of the database, that stores the data for each song in an appropriate file having the various category flags appended thereto. Conventional database software such as Microsoft Access® can be used in forming the database for compressed music data and categories. The music is preferably compressed using MPEG3 and a standard sound card, typically having high-fidelity characteristics is used to playback the decompressed music. The music is stored in a hard drive or other high-volume storage medium on the system in compressed form. Compression of the music, as well as loading of appropriate category flags is accomplished at the service provider's facility based upon the user's orders. Orders can be taken and filled electronically, via the Internet. Alternatively, oral orders can be made, that are filled by preparing a CD-ROM containing the selected songs in compressed form. A master list can be contained on the database of the users' system. This master list can be used to select the various songs from the service provider; the CD-ROM can include updates to the master list that are loaded along with the songs.

The CD-ROM and/or individual songs can include a special code or identification that is keyed to the user's system's code. In this manner only the user's system can load the songs on its hard drive. A docking mechanism can be provided to all or part of the system to allow songs to be moved to different playback devices. In this manner the user can have a library of songs to playback in a variety of portable and fixed base units including vehicles.

One of the categories provided to selections can be ratings. Ratings are typically provided ahead of time by the service provider and are appended to the overall database of categories. The user has, in the center, a facility for blocking out any songs from being listed or searched that exceed a predetermined rating category. A password is used to control the block-out function. This password is initially entered by the user or is provided ahead of time by the service provider. It must be entered in order to control the block-out function.

The center can also be provided with an auto exit function. When an initial screen is called, the user can indicate how many minutes he or she wishes the center to playback songs. When that number of minutes has elapsed, the center automatically shuts off.

It is contemplated that with appropriate data storage techniques and playback facilities, the center can organize video and image data as well as music data. Particular video data compression and playback hardware and software are typically required for such playback.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects and advantages of the invention will become more clear with reference to the following detailed description, as illustrated by the drawings in which:

FIG. **1** is a perspective view of an exemplary music organizer and entertainment center according to an embodiment of this invention;

FIG. **2** is a perspective view of an exemplary music organizer and entertainment center designed for portability according to an alternate embodiment of this invention;

FIG. **3** is a schematic block diagram of the hardware architecture of an exemplary music organizer and entertainment center;

FIG. **4** is a schematic flow diagram illustrating a basic control data path for the music organizer and entertainment center of this invention;

FIG. **5** is a schematic flow diagram illustrating the use of a graphical user interface screen selected according to the flow diagram of FIG. **4**;

FIG. **6** is a schematic flow diagram showing the selection of a graphical user interface screen selected according to the flow diagram of FIG. **4**;

FIG. **7** is a schematic flow diagram showing the selection of a graphical user interface screen selected according to the flow diagram of FIG. **4**;

FIG. **8** is a schematic flow diagram of a graphical user interface screen selected according to the flow diagram of FIG. **4**;

FIG. **9** is a schematic flow diagram of the playback process using the graphical user interface screens selected according to the flow diagram in FIG. **4**;

FIG. **10** is a schematic flow diagram showing the saving and loading of play lists using the music organizer and entertainment center according to this invention;

FIG. **11** is a plan view of a first graphical user interface screen;

FIG. **12** is a plan view of a second graphical user interface screen;

FIG. **13** is a more-detailed plan view of the second graphical user interface screen of FIG. **12**;

FIG. **14** is a more-detailed plan view showing the saving of music play list selections using the graphical user interface screen of FIG. **12**;

FIG. **15** is a more-detailed plan showing the loading of a music play list using the graphical user interface screen of FIG. **12**;

FIG. **16** is a plan view of a third graphical user interface screen;

FIG. **17** is a plan view of a forth graphical user interface screen;

FIGS. **18** and **19** are perspective views of an exemplary music organizer and entertainment center according to an alternate embodiment of this invention utilizing a base unit and docking principle;

FIG. **20** is yet another alternate embodiment of a music organizer and entertainment center utilizing a docking principle for a main hard drive;

FIGS. **21** and **22** are perspective views of yet another exemplary music organizer and entertainment center for use in mobile environments including, for example, the docking element shown in FIG. **20**;

FIG. **23** is a plan view of the graphical user interface screen of FIG. **12** detailing a favorite hits function;

FIG. **24** is a plan view of the fourth graphical user interface screen showing a display of the service provider's available library;

FIG. **25** is a plan view of the graphical user interface screen of FIG. **24** showing the use of a rating category;

FIG. **26** is a plan view of the graphical user interface screen of FIG. **24** showing a password entry window for retrieving rated music;

FIG. **27** is a plan view of a modified first graphical user interface screen according to another embodiment of the invention, including an auto-exit function; and

FIG. **28** is a plan view of the graphical user interface screen of FIG. **27** showing a shut-down time control window.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

A generalized embodiment of a music organizer and entertainment center **50** is is detailed in FIG. **1**. For the purposes of this description the term "center" will be used to describe any of the music organizer and entertainment center systems described herein.

The center **50** is a stand-alone unit powered by household current using a conventional power cord **52**. The chassis **54** of the center includes at least two integral speakers **56** to provide stereo sound. A variety of horn-folding and acoustic enhancement techniques can be used to increase the performance of the speakers. Alternatively, separable speakers can be used, placed at remote locations in a room. The front panel **58** of the center can include a variety of knobs, switches and displays. In this embodiment, a basic LCD display **60** is shown and a retractable tray mechanism for receiving an optical data or music compact disc is also provided **62**. This tray **62** is conventional according to this embodiment, extending outwardly and retracting inwardly based upon a switch **64**. The transport mechanism and reading mechanism can be conventional. The center includes a flip-up type display **70** according to this embodiment. The display is located on the top **72** of the center and is retractable into a recess **74**. A large button **76** is provided to support the display **70** in an upright position. This button can be spring-loaded. When it is pushed downwardly, it allows the display to be adjusted into different position. A latch mechanism **78** can be provided to the display **70** and to the recess **74**. The latch mechanism allows the display to be locked into a close position, or, alternatively, released for deployment as shown. The display, itself, includes a screen **80** having any acceptable size, format and display technology. For example, a color active-matrix screen, such as that found in a laptop computer can be used. The pixel dimensions are generally comparable to those of a laptop computer display. The display itself includes a graphically user interface with a series of displayed graphical user interface "buttons" **82** that can be actuated using a touch-screen layer

applied to the display **80**. The touch-screen hardware and controller software are conventional and commercially available. Alternatively, a mouse or other cursor-moving mechanism, such as a track ball, can be provided to the chassis **54**.

With reference to FIG. **2**, an alternate embodiment of a center **90** is detailed. This is center comprises a laptop arrangement having a base **92** and a foldable display section **94**. This center can comprise, in essence, a modified laptop computer with all the basic components of a modern multimedia computer system. Certain personal computer components not specifically required for the purposes of this embodiment can be omitted. For example, a display **96** having buttons **98** as described above can be provided. A plurality of speakers **100** can also be provided representing base, midrange, tweeters, etc. Volume and screen display controls **102** can also be provided as well as a basic alphanumeric keyboard **104** of conventional design. A retracting compact disc tray and reader **106** can also be provided. An onboard battery (not shown) provides power while an AC/DC converter **108** recharges the unit based upon household current provided by a power cord **110**. Note that automotive DC current can also be used.

The generalized architecture of a center is further detailed in FIG. **3**, complete with optional components. The "heart" of the center is its central processing unit or CPU **130**. The CPU, in a preferred embodiment comprises a Pentium® II microprocessor having an operating speed of 266 MHz or greater available from Intel. The architecture of this microprocessor is well-known. It is adapted to accept inputs from a variety of hardware components. These hardware components are, themselves, commercially available and can be interfaced with the CPU **130** by those of ordinary skill. In summary, the components involved in a complete center will now be described.

A random access memory (RAM) **132** is provided to support the CPU **130**. This RAM typically provides twenty megabytes of storage or greater. A keyboard and/or cursor-moving mouse interface is also provided. The keyboard **134** can be omitted in certain embodiments where a touch-screen is used for all onboard functions. For example, the touch-screen, shown as a touch-screen interface **136**, and used in conjunction with the monitor screen **140**, can include a touch-keyboard thereon for entering alphanumeric characters. Where a monitor **140** is used, a video driver card **142** of conventional design is provided. A conventional television can also be utilized. Where a television screen is used for displaying data, a scan converter **146** can be provided. The scan converter **146** can be used for output **150** to the television screen and/or input **152** from, for example, a television remote control **154**. In this manner both input and output via a television and/or computer monitor can be accomplished. A microphone **160** and appropriate voice recognition card **162** can also be provided in conjunction with the CPU. Additionally, a CD-ROM, with appropriate driver card **170** can also be provided. For output, a sound card, available from a variety of commercial sources such as the Soundblaster® driver **180** can be employed and appropriate amplifiers and speakers **182** can be provided. The amplifiers and speakers are conventional and receive inputs from the sound card in the form, typically, of analog audio signals.

Input/output exchange of data is provided through a hard drive storage **190**, also of conventional design. As will be described further below, the hard drive storage interacts with the CPU **130** using onboard software. This software includes a speech recognition software block **200** a sound decompression software block **210**, a sound information database **220** the center's proprietary speech vocabulary **230** and the center's search and play interface **240**.

A significant feature of the center, to be described in greater detail below, is the organization of individual songs or selections according to specific categories, that are determined ahead of time, on a partially subjective basis, by the service provider. These categories are carried in a database, along with the raw digital music data, and allow the user to playback each of the individual selections based upon specific categories in a random or ordered manner. The use of categories for storage and playback empowers the user in an entirely new way. Songs can be chosen based upon a specific desire or mood that relates to categories such as music age, energy, speed, style, dance, or rating. Experienced listeners can enjoy new convenience in music playback. Newer listeners typically find their use of the center to be highly educational, as they quickly learn to associate certain types of categories with specific selections, artists and songs, and can enjoy the benefit of a full display of the song data via the center's screen.

With reference to the above-described architecture, the procedure by which individual songs become categorized and eventually made available for a user to playback according to particular categories will be described in summary:

1. Musical source material is first purchased or otherwise acquired by the service provider that services the music organizer and entertainment center of this invention. This music is typically obtained in standard Red Book compact disc format on individual music albums and singles.
2. A standard compact disc player, DAT or other audio playback medium is used by the service provider in conjunction with a main computer having a large database. A hard drive rated at five gigabytes or larger is used in conjunction with the database.
3. Music is played by the playback device into a data compression card commercially available from, for example, Dialog Four™. This data compression card compresses the music into the commercially available MPEG3 format. A CPU, similar to that shown in FIG. **3** stores the music in the hard drive of the service provider in compressed form. Individual songs are each given their own file identifier for later processing.
4. Compressed music is subsequently catalogued using a conventional database program such as Microsoft Access® 2.0 in this embodiment. The following categories, among others can be used in conjunction with the database program to catalog each individual musical selection-song title, artist, date, main music category, sub-main music category, special music category, sub-music category, music style, dance type, music speed and a subjective music "energy level" determined by the service provider. These categories are used subsequently by the center's operating system as described below. All categories are stored in the service provider's hard drive for subsequent retrieval.
5. A master list of available music, in the form of individual selections or songs, is complied by the service provider. Individual customers or subscribers are solicited to select songs or groups of songs or selections from a service

provider. According to a preferred embodiment, the selected songs are copied from the service provider hard drive to a writable data compact disc in MPEG3 compressed format. The center operating system software and Access® 2.0 database program available from Microsoft, Inc. of Redmond, Wash. can also be loaded unto this compact disc when the playback device does not already contain these software packages.

The package of data compressed songs and other software if applicable, is tagged with a distinct serial number or other identifier and/or format that matches a pre-loaded serial number or format in the subscriber's particular center. This serial number or format has been pre-loaded in the center from software made available by the service provider. For example, a commercially private or public key encryption algorithm can be provided to the subscriber. The data in the compact disc includes an appropriate encryption key that matches one already present in the center. Compressed data can be decrypted and "unlock" based upon a match between the key provided by the service provider and the key provided by the center. In any case, a technique for locking information so that only a desired center can read the information and, hence, play the songs, is provided. This prevents copyright infringement and unauthorized playback of songs by other units that have not paid appropriate license fees for receiving the music.

6. As noted above, a formatted, data-compressed disc is provided to the subscriber via a physical transfer of the disc. In other words, the disc is mailed or otherwise delivered to the subscriber. It should be noted that, while an optical disc is the preferred form of data transfer according to an embodiment of this invention, another form of storage media such as tape, circuit chips, removable hard drive, or any other acceptable high-volume data storage can be used to transfer song data. Likewise, the formatted compressed data can be transferred via a radio or telephone network link, assuming that appropriately wide bandwidths is available to enable the transfer to occur in a sufficiently short period of time. All these techniques of transferring formatted, compressed, customized song data are expressly contemplated according to this invention. It is desired primarily that the data include various categories as described above with reference to step 4.

When the subscriber receives the customized song data on the disc or other medium, the customer installs the disc in his or her center by following conventional installation and instructions provided with the disc. As noted, the center either includes well known CD-ROM installer routines, such as those found in popular Windows(operating system available from Microsoft or, alternatively, specialized installation software is included with the disc transferred from the service provider. All data on the disc is typically transferred into the high-volume hard drive or other storage media provided with the center. The song data, therefore, resides in the center formatted in the Access® 2.0 database as described above. The categories appended to each song as part of the database program also reside in the center's hard drive at this time.

7. The center's software loads data related to individual song selections and categories into appropriate database locations.
8. The center polls data in the downloaded disc to determine whether the appropriate identification code and/or serial number, matching that of the center is present. If not, then the downloading process in terminated, and the user is advised to contact the service provider.
9. If downloading of song data is completed successfully, then the data becomes resident on the center's disc drive or other high-volume random access memory storage unit. New songs are appended to a list that contains any previous songs. This information is displayed in a manner to be described further below.
10. The CD-ROM is subsequently removed from the center and stored for backup purposes. At this time, the user can select various songs downloaded in the previous steps using various graphical user interface and/or voice commands to be described further below.
11. Upon playback, song data is decompressed from its stored format using MPEG3 data compression. The decompressed song data is then played in a standard "wave" format using, for example, Winplay 3® available from Microsoft, or another data-to-sound software procedure. It is contemplated that the software procedure be compatible with an appropriate sound card, as described above. Speakers and an amplifier are used to deliver music to the user, as also described above.

Reference will now be made to the flow diagrams illustrated in FIGS. 4–10, and corresponding graphical user interface display screen illustrations will also be referenced. These display screens are shown in FIGS. 11–17.

Referring first to FIG. 4, the user initializes the program in a program start step 300. A title screen, not shown, is displayed 302. Any acceptable title screen can be used. The title screen prompts the user to enter the program in step 304. If the user does not desire to enter the program, it ends in step 306. If the user enters the program, then Screen1 is entered in step 308. Screen1 is shown in the display 310 in FIG. 11. Note that the various screens, entitled Screen1, Screen2, Screen3 and Screen4 are denoted respectively by buttons S1 (312), S2 (314), S3 (316) and S4 (318). These buttons appear on the bottom of all display screens used herein so that a user can quickly select between different control screens. The blank control fields are displayed in step 320. Based upon these fields, a user selects between Screen1 controls in step 322, Screen2 controls in step 324, Screen3 controls in step 326 and Screen4 controls in step 328.

Note that the Screen2 display 330 is shown in FIGS. 12, 13, 14 and 15. Likewise, Screen3 displays 332 are shown in FIG. 16 and Screen4 displays 336 are shown in FIG. 17. These screen displays will be described further below.

With reference to Screen1, as shown in FIG. 11, various media channels for playing back music can be established. In this example, Channel1 340 and Channel2 342 are provided. Each channel includes an individual set of speed and playback buttons 344 having conventional control symbols allowing, for example, play, stop, pause, forward and reverse. Additional controls 346 can also be provided for the channels and can be used, for example, for specialized functions such as mixing of songs and overriding of songs using, for example, external microphone inputs. Note that, in particular, a fade control 348 is provided.

FIG. 5 details user operations utilizing Screen2 after branching from step 350. Screen2 is shown generally in FIG. 12, as noted above. By branching to the searching step 352, a user can search the main categories of music recognized by the system. The begin search button 354 (FIG. 12) controls the searching of main categories. As noted, a variety of categories such as artists, as shown in FIG. 12, can be searched. The selection of an appropriate category is noted in block 358. Various text can be entered using a keyboard 360 (FIG. 12) according to the block 362. The particular

element being searched as shown in the window **364** causes the system program to access a main song database entitled MyData in block **364**. The request can be canceled in block **370**, which causes a branching back to the initial screen block **350**. The button **372** enables cancellation.

If no cancellation occurs, then block **374** determines whether the requested category and text within the category exists. In addition, categories and information can be characterized according to a variety of colors, as displayed in the partial window of categories **380** and the more complete window, as shown in FIG. **13** as window **382**. If the particular category and/or text does not exists, then block **388** notes its absence and suggests ordering the desired music. This block then branches to the cancellation block **370**. Conversely, if the particular categories and/or text exists, then the appropriately organized songs are displayed according to block **390** in the window **392**.

Screen2 acts generally, as a main control screen for searching and playing any selections within the center. The illustrated window **382** in FIG. **13** shows some of the possible categories that can be organized by the service provider and cross-referenced within the database with respect to each individual selection. "Other category" buttons **400** are provided for future expansion. If one of the main category buttons in the window **382** is selected, as shown in block **410**, then the routine determines whether a single or double "click" of the user interface has occurred. If a single click occurs as shown in block **412**, then the system prompts the user to select a music "speed" in block **414** according to screen button **416**. The user is then prompted to input an appropriate time duration within which music will be played in block **418** based upon button **420**. Given these parameters, the system accesses the database in step **422** to determine music matching, the selected criteria for time and category. Songs are entered in a play list according to the categories based upon blocks **424**, **426** and **428**. In particular, according to block **428**, the songs can be randomized after the time and category criteria have been met to provide a "disc-jockey" type playback which is somewhat arbitrary. The play list for the given time is detailed in window **430**. The number of songs in the play list currently remaining as shown in window **432** and the time remaining is shown in window **434**. Time values are based upon pre-entered time values provided by the service provider in the original database. Like other criteria, time of a song can be determined as an individual criteria. Conversely, the time of song can be measured based upon the size of the data file and upon other criteria well known to those of ordinary skill.

At any time, a portion of the current search list **451** is displayed, showing the various depicted categories such as title, artist, publication date, music category music style, dance type, music speed and energy in row-and-column form. The search list represents the selections located by pressing one or more category buttons. Songs from the search list can be appended to the end of the play list **430** by, for example clicking on their entry in the search list **451**.

Once a selected play list is created, the user has the option to load and/or save the play list using respective buttons **438** and **440**. If the save button **440** is pressed, then a confirmation window **450** is displayed as shown in FIG. **14**. This particular play list is assigned a name and can be replayed at any give time by calling up the particular play list from a menu.

A set of buttons of particular interest are used to organize the search list **451** so that the song titles therein are displayed in a desired manner. The organize button **453** allows displays to be refined. In particular, by pressing either ascending or descending buttons **455** and **457**, respectively, the search results can be displayed in corresponding order.

Another button of interest as detailed in FIG. **13** is the "dance mix" button **452**. This button is a default selection button that selects and searches for dance music having a particular speed. In a preferred embodiment, this function specifically selects, at random, from the MyData database three dance category songs with a fast speed category followed by two dance category songs having a slow speed category. These songs, the order three fast and then two slow are placed in the music play list for playback at the earliest available time.

FIG. **15** shows a file listing window **460** having a four separate play list files **462** that can be selected. The selected play list file **462** can be transferred to the main music play list window **430** by pressing the open button **464** within the window **460**.

Before discussing the system procedure further, it is noted that pressing the category button as detailed in step **410** (FIG. **5**) twice (e.g., "double click") as shown in block **470**, causes the particular category button to display Screen3 **480** (FIG. **16**). The display of Screen3 is detailed in block **472**. Screen3 provides a window **482** with subcategories that fall under a particular music category. The sub-categories are listed as individual buttons **484**. These categories can comprise a variety of parameters such as time frame, special occasions, type of music, etc. In addition, the basic categories such as speed or "energy" can be included as subcategories under a particular category.

Further reference is made to FIG. **6**. The controls for screens **2** and **3** will be described first, in further detail. When a particular song in a play list is selected by, for example, highlighting a song with the cursor as detailed in block **500**, the song can be played immediately by pushing the Now button **502** as detailed generally in block **504**. Any current song being played is interrupted in block **506** and the selected song is played instead. Subsequently, the play list begins playing songs in the prior order in block **508**. Conversely, if the sort command is given in block **510**, then songs are sorted in ascending or descending order according to a selected category in block **512**. A song in the search list is selected in block **514**. The song selected can be played according to the Now block **504**. Alternatively, the pick block **516** can be used to put the searched song at the end of a given play list as shown in block **518**. If the play list song is "clicked" twice as shown in block **519** then the search list song selected is placed to the top of the play list in block **520**. In addition, a listing of favorite hits/selections can be requested by the user in block **524**. This causes the search list to be filled that have been pre-selected in block **526** and a song from the search list is selected in block **514**. Block **514** then branches to the now block **504** and continues as described.

Referring again to block **520**, if a song is placed at the top of the play list the song is updated in Screen1 in block **530**. The song is then played based upon the play block **532**. If the mix up command is entered by the user in block **540**, then songs in the play list are randomly mixed in block **542** and Screen1 is updated in block **530**. As described above, the play command **532** causes songs to be played in the play list order selected in block **508**.

The selection of Screen3, shown in block 560, then the system determines whether a main category was selected in block 562. If not, then an error message is displayed in block 564 and the original screen is re-displayed in block 566. If a main category is selected in block 562, then the system accesses the MyData database of songs and categories in block 568. Any appropriate sub-categories are listed based upon that particular main category in block 570. Sub-categories are sorted and displayed on appropriate default sub-category buttons 572 shown in the window 482 in FIG. 16. The user can select appropriate sub-category buttons by "clicking" on them as shown in block 574. The MyData database is accessed in block 576 based upon the selected sub-categories and all songs that match the main and sub-category selections are listed in block 578. This listing is shown in the search window 332. Note that the search window 332 displays various category information such as title, artist, date, music category, music is style, dance type, music speed and energy. Of course, this can also be included as desired by the service provider who originally formats such categories. In addition, custom category information can be included based upon the user's desires.

FIG. 8 relates to the selection of Screen4 as shown in block 550. Screen4 is also illustrated generally as the display 336 in FIG. 17. The display is organized to display all songs within the user's library and the broader service provider's library. The display 336 includes columns showing data test status 552, song identification number 554, disc number (e.g., the disc on the service provider on which the song resides 556) the catalog song number 558, the title 590, the artist 592, the music style 594, the dance type, if any, 596, the speed 598, the time in seconds 570, the energy level, if any, 572 and any other appropriate category.

The entire library of the service provider can be provided in this format to the users, so that the user can select the songs that it wishes to order at later times. A series of buttons can be provided within Screen4. The first button, Button1, shown in block 580 instructs the user to insert an appropriate CD-ROM containing music and category data in block 582. The user is then prompted to use Button2, shown in block 584. This button lists all compressed data files based on the particular disc and directory selected in block 586. The user is then prompted by Button3 in block 588. Activating this button causes the copying of all compressed files from the disc over to the directory if these files are not already present in block 560. The user is then prompted by Button4 in block 562. Activating this button accesses the main database in block 564. Songs on the CD-ROM are compared to the data records within the center in block 566. The MyData database is updated with new songs in block 567. At any time, the canceled button can be pressed as shown in block 598, which returns to the Button1 prompt of block 580.

Reference is now made to FIG. 9. If a Play (see button 601, FIG. 14) or Now button on the screen is selected in block 600, Screen1 is displayed showing the various playback controls in block 602. The MyData database is accessed in block 604. The file MID that matches the selected song is searched for by the system in block 606. The file is loaded from the disc in block 608. Again, this file is retrieved from the disc in MPEG3 data compressed format. A particular color for the song, which may correspond to a given set of categories, as well as a title and other data are provided to one of the media channels in Screen1 in block 610. The song begins playing in block 612 as soon as the data is ready. A time countdown for the song is initiated using known techniques in block 614. If a pause, stop or mixed command is received in block 616 then these steps, is described above, are carried out. In particular, a pause or stop ends playing of the song either temporarily (e.g., until pause is pressed again) or permanently, in case of a stop command.

Volume adjustment and other equalizer values can be provided according to block 618 and 620. These act upon the playback of a song using known techniques. When the particular song has ended in blocks 622 the system checks whether it has reached the end of the current play list in block 624 if not, media channels are switched in block 626 and the next song on the play list is located in block 628. This song information is transferred back to block 604 and the name of that new song is located in block 606. The process continues as described above.

If the end of the play list is reached in block 624, then Screen1 controls are cleared in block 630. The system awaits further instructions at this time.

FIG. 10 describes the saving and loading of play list in more detail. If a save command is initiated by the user in block 650, then all song data and associated colored data for the display from the current play list is collected 652. The file save window is placed on the screen in block 654. The user can select an appropriate file name for saving the particular play list file in block 656. Again, the display for this procedure is detailed in FIG. 14

If a load command is entered by a user as shown in block 660, then the file load window is displayed in block 662. The display for this window in shown in FIG. 15.

Song and color data are read from the selected file in block 664 and the current play list is updated and/or replaced with all song in color data from the loaded file in block 666.

It is specifically noted that category information is provided by the service provider appended to each song in the database. The accessing of songs having such data appended thereto occurs according to applicant's unique graphical user interface based upon provider categories. The association of various database identifiers to each song is implemented using conventional database programs such as the above-described Microsoft Access® 2.0. The association of category objects to song data should be conventional to those of ordinary skill. The storage of MPEG3 data compressed song files is accomplished in the same manner as other data stored as files in a database. The Microfiche Appendix included in the subject application pursuant to 37 CFR 1.96(c) contains a listing of program commands in the commercially available Visual Basic language for implementing various functions of the center according to this embodiment.

Using the hardware and software elements described above, FIGS. 18 and 19 detail a docking mechanism in which music is stored on a hard drive or other electronic medium in a main data handling unit 700 with a flip-up display 702 and associated keyboard 704 that can include playback controls 706 (e.g., play, stop, pause, forward and reverse). The unit 700 can be "docked" to a base unit 708 that includes a connector 710 for interfacing with an associated connector in the unit 700. A cable 712 can interconnect the base unit 708 with appropriate speakers or amplifiers. The unit 700, hence, can include the music data for the system and can be moved from location to location so that there is no need to purchase additional playback units to play music provided from the service provider with the particular code.

FIG. 20 illustrates and alternate embodiment for docking unit in which a base unit 730 includes speakers 732, a power coupling 734, a flip-up display 736 and a removable memory storage device, such as a compact hard drive 738. The hard drive is shown removed in phantom 740. A connector 742 can interface with an associated connector (shown. in phantom) 744 on the base unit. The hard drive, itself, it moved from base unit to base unit so that, again, there is need to purchase music only once, and that music is identified to a particular hard drive. The base unit can also include a CD-ROM shelf 748 for reading music during the original loading process. In certain remote units, the CD-ROM may be omitted, since all music is contained on the hard drive and loading of music is accomplished with the base unit 730. A mother board 750 controls the operations of the unit.

FIGS. 21 and 22 illustrate a mobile playback system according to this invention. The above described docking units in FIGS. 19 and 20 can be utilized in conjunction with this unit. In other words, an entire hard drive or unit can be interfaced with an onboard automotive base unit to enable music in the hard drive or docking unit to be played within a car or other vehicle. In this embodiment, the automotive interior 760 is provided with a main audio system 762. Various cords 764 interconnect the main system to a contact display unit 766 that, in this embodiment, is located on the sun visor 768 where the driver 770 can easily access it. It is contemplated that the display unit can be located at any acceptable location. Alternatively, the unit can be entirely operated by voice commands, with no display unit, and instead, a voice response system implementing conventional voice-generating software. With further reference to FIG. 22, the sun visor 768 is lowered to reveal the display 766 having a screen 780. The wires 764 interconnect the display with a power source 782, that can be part of the main audio systems 784 or can be separate. The wires also connect the display 780 with the main audio system 784, or alternatively, can be routed directly to the vehicle's onboard database reader 786. The database reader is any microprocessor-based system as described above. It can be exclusively a disc drive or other high-volume data reader or can include many of the processing functions performed by the center. Alternatively the processor functions can be performed within the display 766. The display 766 includes a microphone 788 for voice activation. As described above, conventional voice-recognition software can be used in conjunction with the center. A hand grip 790 is provided for moving the display to an acceptable position. The database reader interfaces with an onboard docking unit or disc 792, as described above. This can be removed when not in use for placement in another database reader, such as the base unit 730 shown in FIG. 20. Music is routed from the database reader 786 or the display 766 depending upon where the microprocessor are located, back to the main audio unit 784 where amplification occurs. The music is played back on appropriate speakers 794.

Reference is now made to additional features that can be implemented according to certain embodiments of the invention. FIG. 23 details a favorite hits function that can be applied to Screen2. The display 795 includes a favorite hits category creation button 796. Favorite hits, when identified by a user on the current play list 797 can be flagged by "clicking" on the individual titles. A colored flag 798 appears next to flagged songs. Unflagging can involve a second click on a flagged song or a separate delete button on the screen. The flagged songs 799A appear as top selections 799B on the current search music categories list 803. By clicking on the create favorite hits button 796, these favorites can be saved, so that they always appear at the top of the search categories list 803. In this manner, they can be retrieved to place on the play list within seconds. Again, any song on the search categories list 803 can be transferred to the play list for playback in a desired order (typically first-in-first-out) by simply clicking or-double clicking on the specific search list song entry.

FIGS. 24, 25 and 26 detail an alternate view of Screen4, as discussed above. The display 800 includes an overall listing of the selections available from the service provider. A list of over one hundred thousand titles can be included in the MyData database, as selections are delivered from the service provider. The category fields described above are provided for each title 801—namely, artist 802, date of publication 804, specific music category 806 (e.g. "rock," "jazz," "alternative," etc.), music style 808, dance type 810, music speed 812 and energy 814. In addition, an ownership column 816 is provided that indicates whether the music data accompanying the title is present in the users own database. If so, the entry states "yes," otherwise a "no" indication is provided to the column 816 next to the particular title. In addition a rating column 818 is now is provided with an appropriate entry field in the database. In this example songs that the service provider may not think are suitable for certain listeners due to content are appended with a rating, as appropriate. In this example, all songs not rates are acceptable to all. A specific rating letter such as "G" can also be placed next to such songs in the column 818. Higher rated songs can include the rating letter PG, or stronger rating letter R, on their particular title row. The depicted ratings are exemplary only. The actual song titles shown should not be taken to have these actual ratings. The music selection list of Screen2 would also display ratings when they are used. Note that a variety of levels of rating and rating criteria can be used. In general such ratings are defined and appended to individual songs be the service provider.

FIG. 25 illustrates the activation of Screen4's rating button 820. This button calls a window 822 that prompts the blocking of R and/or PG-rated songs. In this manner, higher rated song titles cannot be viewed or played. This function is enable and disabled using a password that is entered after striking the password button 824 in the window 822. This button calls a password-entry window 826, detailed in FIG. 26. Once an initial password is entered, it must be reentered to change the rating blocking function or to change the password itself.

FIGS. 27 and 28, finally, illustrate an auto-exit option appended to the display 850 of Screen1 in this embodiment. An auto-exit button 852 can be clicked to call an automatic shut-down window 854. By clicking a "yes" button 856 in this window, the center calls another window (FIG. 28) with an auto-shutdown keyboard 860. The window 860 includes a numeric keyboard 862 for entering shutdown time in minutes. A time box 864 indicates the selected time. Press-

ing the "OK" button **866** causes the shutdown time to be acted upon. Playback will occur until the time has been elapsed. At any time, the cancel button **870** can be activated to cause the shutdown routine to cease and/or the window **860** to be removed from Screen1.

The architecture and database storage techniques, as well as the various graphical user interface functions described above can be readily adapted to handle images and full motion video as well. The primary addition to the above-described embodiments would be a screen capable of playing back video of appropriate size interconnected to the center's processor by an appropriate video driver card that is typically commercially available. In addition, appropriate data compression/decompression routines applicable to full motion video and/or images is desirable. In substance, the data for video packages is stored with various categories similar to or the same as those applicable to music described above. The graphical user interface is organized identically, as is control and manipulation of playback. In the case of music videos, most or all of the same categories as music can be used, with the addition, perhaps of certain video-specific categories.

A sufficiently large hard-drive can be used to store a large database of movies and/or other video data. Where storage is problematic, one example contemplates that the center's processor can interface with a commercially available, multi-disc CD-ROM or DVD (Digital Versatile/Video Disc) drive. The drive is interfaced to the processor using commercially available interface hardware. The raw video data can be retrieved as needed from the play-ready optical discs according to a request by the user entered via the MyData database which carries the underlying video category data associated with each video title in its list. Any titles not currently held in the optical unit, can trigger a load-optical-disc message, prompting the user to load-in the optical disc containing the desired date. Of course, this is only one example of a system that handles video data using the underlying interface and organizational structure of the present invention.

Note that the graphical user interface herein has been described in terms of its primary functions. Any buttons on the display screens detailed herein not expressly described can be assumed to perform functions that are straightforward, and particularly noted on the buttons themselves, such as "OK" and "Cancel." All functions not specifically described should be clear to those of ordinary skill.

The foregoing has been a detailed description of a preferred embodiment of the invention. Various modifications and additions can be made without departing from the spirit and scope of this invention. For example, a variety of colors can be used for different keys and buttons, categories can be identified based on certain colors. Voice recognition and voice-playback functions can be provided to any of the embodiments described herein. Various interface devices can be used, such as touch screens, light pens and alike. In addition, the database, data compression and playback systems and software described herein can be substituted for any other acceptable system or software. The particular layout the graphical displays and content of various buttons in the display can also be varied. Again, it is expressly contemplated that particular category buttons on Screen2 are displayed in different colors, and that specific colors can be used to highlight certain windows or underlying selections in a display, as well as the status of various functions. Accordingly, this description is meant to be taken only by way of example and not to otherwise limit the scope of the invention.

APPENDIX

MOAEC CODE
Updated 6/2/98
Author: Dale McMullin
Media: Microsoft Visual Basic V.5.0
Total Lines: 5,245

```
"Recorder.frm"
Sub UpdateList()
Dim i As Integer, final As Integer
Dim color As Long
Dim songdata(9) As Variant
On Error GoTo Stoploop
  MusicListing.Rows = 1
  Screen2.Data1.DatabaseName = App.Path & "\music.mdb"
  Screen2.Data2.DatabaseName = App.Path & "\music.mdb"
  Screen2.Data3.DatabaseName = App.Path & "\mydata.mdb"
  Screen2.Data3.RecordSource = "LP Complete Music Guide"
  Screen2.Data1.Refresh
  Screen2.Data2.Refresh
  Screen2.Data1.Recordset.MoveLast
  Screen2.Data1.Recordset.MoveFirst
  final = Screen2.Data1.Recordset.RecordCount
  Do While Not Screen2.Data1.Recordset.EOF And StoplistingList = False
LoopTop:
  DoEvents
    If PauseList = True Then NewPauseStartTime = Timer() - TimeSoFar
    MousePointer = 11
    Screen2.Data3.RecordSource = "LP Complete Music Guide"
    Screen2.Data1.Recordset.MoveNext
    i = Screen2.Data1.Recordset.AbsolutePosition
    If i < 0 Or StoplistingList = True Then Exit Do
    songdata(1) = Screen2.Data1.Recordset.Fields("Title")
    Screen2.Data3.Refresh
    Screen2.Data3.Recordset.FindFirst "Title = '" & songdata(1) & "'"
    If Screen2.Data3.Recordset.NoMatch Then
      songdata(9) = "no"
      If DisplayLibrary = False Then GoTo LoopTop
    Else
      songdata(9) = "yes"
    End If
    songdata(2) = Screen2.Data1.Recordset.Fields("artist")
    songdata(3) = Screen2.Data1.Recordset.Fields("date")
    songdata(4) = Screen2.Data1.Recordset.Fields("main1")
    songdata(5) = Screen2.Data1.Recordset.Fields("Mstyle")
    songdata(6) = Screen2.Data1.Recordset.Fields("Dtype")
    songdata(7) = Screen2.Data1.Recordset.Fields("Speed")
    songdata(8) = Screen2.Data1.Recordset.Fields("Energy")
    Screen2.Data2.RecordSource = "Music Colors"
    Screen2.Data2.Refresh
    Screen2.Data2.Recordset.FindFirst "Main1 = '" & songdata(4) & "'"
    color = Val(Screen2.Data2.Recordset.Fields("colorID"))
    For X = 4 To 8
      DoEvents
      Screen2.Data2.RecordSource = X
```

```
        Screen2.Data2.Refresh
        Screen2.Data2.Recordset.FindFirst "tag = '" & songdata(X) & "'"
        songdata(X) = Screen2.Data2.Recordset.Fields("Label")
      Next X
      If DisplayLibrary = True Or (DisplayLibrary = False And songdata(9) = "yes") Then
        MusicListing.AddItem songdata(9) & Chr(9) & songdata(1) & Chr(9) & songdata(2) & Chr(9) & songdata(3) & Chr(9) &
songdata(4) & Chr(9) & songdata(5) & Chr(9) & songdata(6) & Chr(9) & songdata(7) & Chr(9) & songdata(8)

        MusicListing.row = MusicListing.Rows - 1

        For j = 0 To 9
          MusicListing.Col = j
          MusicListing.CellBackColor = color
        Next j
        MusicListing.Col = 0
      End If

    If StoplistingList = True Then GoTo Stoploop
    DoEvents
    Loop
Stoploop:
    If Screen1.wp.LinkMode <> LINK_NONE And PauseList = True Then
      Screen1.wp.LinkExecute "pause"
      PauseList = False
    End If
    MousePointer = 0
    Screen2.Data1.DatabaseName = App.Path & "\mydata.mdb"
    Screen2.Data2.DatabaseName = App.Path & "\mydata.mdb"
    Screen2.Data3.DatabaseName = App.Path & "\mydata.mdb"
    Screen2.Data1.RecordSource = "LP Complete Music Guide"
    Screen2.Data2.RecordSource = "LP Complete Music Guide"
    Screen2.Data3.RecordSource = "Music Colors"
    Exit Sub
End Sub

Private Sub ClearList_Click()
    MusicListing.Rows = 1
    StoplistingList = True
    If RatingBox.Visible = True Then RatingBox.Visible = False

End Sub

Private Sub ExitSystem_Click()
    response = MsgBox("Are you sure you want to exit the system?", 4)
    If response = vbNo Then
      Exit Sub
    Else
      ExitButtonPushed = True
      EndItAll
    End If
End Sub

Private Sub Form_Activate()
```

```
    If MusicListing.Rows > 2 Or Screen.ActiveForm.Name <> "Recorder" Then Exit Sub
    If FirstLibrary = True Then
       answer = MsgBox("Are you sure you want to create the Library?" & Chr(13) & "Any music playing will be automatically
paused.", 4)
       If answer = vbNo Then Exit Sub
       If SongPlaying = True And Screen1.wp.LinkMode <> LINK_NONE Then
          Screen1.wp.LinkExecute "pause"
          PauseList = True
       End If

       Load choices
       choices.Show 1

    End If
       If CancelLibrary = True Then
          CancelLibrary = False
          Screen2.Show
          Screen2.SetFocus
          Exit Sub
       Else
          FirstLibrary = False
       End If
       UpdateList


End Sub

Private Sub Form_Load()
   Recorder.WindowState = 2
   FirstLibrary = True
   StoplistingList = False
   RatingBlock = "none"
   RatingOption(0).Value = True
   password = "MOAEC"
End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
  Dim Msg ' Declare variable.

  If ExitButtonPushed = False Then
     Msg = "Do you really want to exit the application?"
  Else
     ExitButtonPushed = True
     EndItAll
  End If

End Sub

Private Sub Form_Resize()
  On Error Resume Next
  If WindowState = 2 Then
     For X = 1 To 3
```

```
      ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
    Next X
    For X = 0 To 3
      ScreenShow(X).Top = Screen.Height - 1155
    Next X
    MusicListing.Height = Screen.Height - 2300
  Else

    For X = 1 To 3
      ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
    Next X
    For X = 0 To 3
      ScreenShow(X).Top = Recorder.Height - 1155
    Next X
    MusicListing.Height = Recorder.Height - 2300
  End If
  Title.Left = (Recorder.Width / 2) - 3500
  ExitSystem.Top = ScreenShow(0).Top
  SearchAgain.Top = ScreenShow(0).Top
  Rating.Top = ScreenShow(0).Top
  SearchAgain.Height = ExitSystem.Height
  MusicListing.Left = (Recorder.Width / 2) - (MusicListing.Width / 2)
  StopListUpdate.Top = ScreenShow(0).Top
  StopListUpdate.Left = Recorder.Width - 1560
  ClearList.Top = ScreenShow(0).Top
  ClearList.Left = StopListUpdate.Left - 1815
End Sub

Private Sub Form_Unload(Cancel As Integer)
  EndItAll
End Sub

Private Sub MusicListing_Click()
  If RatingBox.Visible = True Then RatingBox.Visible = False
  MusicListing.SelectionMode = flexSelectionFree
  MusicListing.Sort = 1

End Sub

Private Sub MusicListing_DblClick()
  If RatingBox.Visible = True Then RatingBox.Visible = False
  MusicListing.SelectionMode = flexSelectionFree
  MusicListing.Sort = 1

End Sub

Private Sub Rating_Click()
  Dim answer As String
  answer = InputBox("Please enter your password.")
  If answer <> password Then
    MsgBox "The password was incorrect."
    Exit Sub
  Else
    RatingBox.Visible = True
```

```
    End If

End Sub

Private Sub RatingCancel_Click()
    RatingBox.Visible = False
    If RatingBlock = "none" Then
        RatingOption(0).Value = True
    ElseIf RatingBlock = "PG" Then
        RatingOption(1).Value = True
    ElseIf RatingBlock = "R" Then
        RatingOption(2).Value = True
    End If
End Sub

Private Sub RatingOK_Click()
    Dim message As String
    RatingBlock = RatingTemp
    If RatingBlock = "none" Then
        message = "No music "
    ElseIf RatingBlock = "PG" Then
        message = "PG and R rated music "
    ElseIf RatingBlock = "R" Then
        message = "R rated music "
    End If
    RatingBox.Visible = False
    MsgBox (message & "will be blocked from search, display, and play.")
End Sub

Private Sub RatingOption_Click(Index As Integer)
    If RatingOption(0).Value = True Then
        RatingTemp = "none"
    ElseIf RatingOption(1).Value = True Then
        RatingTemp = "PG"
    ElseIf RatingOption(2).Value = True Then
        RatingTemp = "R"
    Else
        RatingTemp = "none"
    End If
End Sub

Private Sub RatingPassword_Click()
    NewPassword1 = InputBox("Please type your new password.")
        If NewPassword1 = "" Then Exit Sub
    NewPassword2 = InputBox("Please confirm you new password.")
        If NewPassword2 = "" Then Exit Sub
    If NewPassword2 = NewPassword1 Then
        password = NewPassword1
        MsgBox "Password changed successfully."
    Else
        MsgBox "Error entering new password."
    End If
End Sub
```

```
Private Sub ScreenShow_Click(Index As Integer)

Dim i As Integer
On Error Resume Next
If RatingBox.Visible = True Then RatingBox.Visible = False
If (SelCat1 = "" And Index = 2) Then
   MsgBox ("Please select a main category from screen 2 before viewing this screen !!!")
   Exit Sub
End If

For i = 0 To 3
   Screen2.ScreenShow(i).BackColor = &H8000000F
   ScreenShow(i).BackColor = &H8000000F
   ScreenShow(i).ForeColor = &H80000012
Next i

Select Case Index
   Case 0
      Screen2.DD.Group = "Screen1"
      Screen2.Hide
      Screen2.cat1screen.Visible = True
      Screen2.cat2screen.Visible = False
      Screen2.FavHitsScrn.Visible = False
      For i = 0 To 4
         Screen1.ScreenShow(i).BackColor = &H8000000F
         Screen1.ScreenShow(Index).ForeColor = &H80000012
      Next i
      Screen1.ScreenShow(Index).BackColor = &HC0&
      Screen1.ScreenShow(Index).ForeColor = &H8000000E
      Screen1.Show
      If Screen1.WindowState <> 2 Then Screen1.WindowState = 2
      Exit Sub
   Case 1
      Screen2.DD.Group = "Screen2"
      Screen2.cat1screen.Visible = True
      Screen2.cat2screen.Visible = False
      Screen2.FavHitsScrn.Visible = False
      For i = 0 To 4
         Screen2.ScreenShow(i).BackColor = &H8000000F
         Screen2.ScreenShow(Index).ForeColor = &H80000012
      Next i
      Screen2.ScreenShow(Index).BackColor = &HC0&
      Screen2.ScreenShow(Index).ForeColor = &H8000000E
      Screen2.Show
      If Screen2.WindowState <> 2 Then Screen2.WindowState = 2
      Exit Sub
   Case 2
      Screen2.DD.Group = "Screen2"
      SelCat1 = MemCat
      Screen2.cat1screen.Visible = False
      Screen2.cat2screen.Visible = True
      Screen2.FavHitsScrn.Visible = False
      For i = 0 To 4
         Screen2.ScreenShow(i).BackColor = &H8000000F
```

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```
        Screen2.ScreenShow(Index).ForeColor = &H80000012
      Next i
      Screen2.ScreenShow(Index).BackColor = &HC0&
      Screen2.ScreenShow(Index).ForeColor = &H8000000E
      Screen2.Show
      If Screen2.WindowState <> 2 Then Screen2.WindowState = 2
      Exit Sub
    Case 3
      Screen2.DD.Group = "Screen4"
      Recorder.ScreenShow(Index).BackColor = &HC0&
      Recorder.ScreenShow(Index).ForeColor = &H8000000E
      Screen1.Hide
      Screen2.Hide
      Recorder.Show
          If Recorder.WindowState <> 2 Then Recorder.WindowState = 2

      Recorder.Refresh
      Screen2.cat1screen.Visible = True
      Screen2.cat2screen.Visible = False
      Screen2.FavHitsScrn.Visible = False


  End Select
  End Sub

  Private Sub SearchAgain_Click()
   response = MsgBox("Are you sure you want to Reset the Library Display?" & Chr(13) & "Any music playing will be automatically
  paused.", 4)
    If response = vbNo Then
      Exit Sub
    Else
      If RatingBox.Visible = True Then RatingBox.Visible = False
      If SongPlaying = True And Screen1.wp.LinkMode <> LINK_NONE Then
        Screen1.wp.LinkExecute "pause"
        PauseList = True

      End If
      Load choices
      choices.Show 1
      If CancelLibrary = True Then
        CancelLibrary = False
        Screen2.Show
        Screen2.SetFocus
        Exit Sub

      End If
      StoplistingList = False
      UpdateList
    End If
  End Sub

  Private Sub StopListUpdate_Click()
    StoplistingList = True
    If RatingBox.Visible = True Then RatingBox.Visible = False
```


CL 000389

```
    If Screen1.wp.LinkMode <> LINK_NONE And PauseList = True Then
      Screen1.wp.LinkExecute "pause"
      PauseList = False
    End If

End Sub

"Loader.frm"
Private Sub Form_Activate()
    Dim ftime, wtime As Integer

    Loader.Refresh
    MousePointer = 11
    ftime = Timer()
    wtime = 0
    App.HelpFile = App.Path & "\mohelp.hlp"
    Load titlefrm
    titlefrm.Animation1.AutoPlay = True
    titlefrm.Animation2.AutoPlay = True
    titlefrm.Animation1.Open App.Path & "\cd1a.avi"
    titlefrm.Animation2.Open App.Path & "\cd1b.avi"
    titlefrm.Animation1.Play
    titlefrm.Animation2.Play
    titlefrm.MMControl1.fileName = App.Path & "\Intro.wav"
    Call titlefrm.Main

    touchscreen = True

    Do While wtime < 10
      wtime = Timer() - ftime
      DoEvents
    Loop
      titlefrm.Show
      Loader.Hide
      MousePointer = 0
      Unload Loader
End Sub

"choices.frm"
Private Sub Form_Load()
    DisplayLibrary = False

End Sub

Private Sub OKButton_Click(Index As Integer)

    If Index = 1 Then
      CancelLibrary = True
    End If
    Unload choices
End Sub

Private Sub Option1_Click()
    DisplayLibrary = False
```

```
  Recorder.Title.Caption = "    Current Music You Own"
End Sub

Private Sub Option2_Click()
  DisplayLibrary = True
    Recorder.Title.Caption = "The Complete MOAEC Music Library"
End Sub

"Screen1.frm"
Private Declare Function mciSendCommandA Lib "WinMM" _
    (ByVal wDeviceID As Long, ByVal message As Long, _
    ByVal dwParam1 As Long, dwParam2 As Any) As Long

  Private Declare Function mciSendStringA Lib "WinMM" _
    (ByVal mciCommand As String, ByVal returnStr As String, _
    ByVal returnLength As Integer, ByVal callBack As Integer) As Long

Private Declare Function GetProfileString Lib "kernel32" _
Alias "GetProfileStringA" (By Val lpAppName As String, _
ByVal lpKeyName As String, ByVal lpDefault As String, _
ByVal lpReturnedString As String, By Val nSize As Long) As Long

Const MCI_OPEN = &H803
Const MCI_CLOSE = &H804
Const MCI_PLAY = &H806
Const MCI_OPEN_TYPE = &H2000&
Const MCI_OPEN_ELEMENT = &H200&
Const MCI_WAIT = &H2&

Private Type MCI_WAVE_OPEN_PARMS
    dwCallback As Long
    wDeviceID As Long
    lpstrDeviceType As String
    lpstrElementName As String
    lpstrAlias As String
    dwBufferSeconds As Long
  End Type

  Private Type MCI_PLAY_PARMS
    dwCallback As Long
    dwFrom As Long
    dwTo As Long
  End Type

Private Function StartApp(appname As String) As Long
On Error Resume Next

  StartApp = (Shell(appname))
  DoEvents
```

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```
  If StartApp = 0 Then
    MsgBox "Couldn't start " & appname
    'StartApp = 0
    'End
  End If
End Function
Private Function CreateLink() As Integer


  On Error Resume Next

  'set DDE parameter
  wp.LinkMode = NONE
  wp.LinkItem = ""

  wp.LinkTopic = "WinPlay3 audio"
  wp.LinkMode = LINK_MANUAL
  tmp = Err

  If (tmp = 0) Then
    WinPlayConnected = 1
  Else
    WinPlayConnected = 0
  End If

  CreateLink = tmp

End Function

Sub AdjustVolume(SliderNum As Integer)

  Dim newvolume As Long
  Dim first As Integer
  Dim other As Integer
  Dim leftVol As Long
  Dim RightVol As Long
  Dim fadevalue As Variant

If ((SliderNum = 0 Or SliderNum = 1) And channel = 1) Or ((SliderNum = 2 Or SliderNum = 3) And channel = 2) Then
If (channel = 1 And mixerbar.Value < 0) Or (channel = 2 And mixerbar.Value > 0) Then
    fadevalue = Abs(mixerbar.Value) / 100
    If fadevalue < 0.5 Then fadevalue = 0
End If
If SliderNum = 0 Or SliderNum = 1 Then
    first = 1
    other = 0
ElseIf SliderNum = 2 Or SliderNum = 3 Then
    first = 3
    other = 2
End If

If SliderNum = first Or SliderNum = other Then
```


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```
    Text2.Text = oldvolume
    leftVol = CLng(Val("&H" & Hex(volumesldr(other).Value)) - 1)
    RightVol = CLng(Val("&H" & Hex(fadevalue * (65535 - volumesldr(first).Value)) & Hex(fadevalue * (65535 -
volumesldr(other).Value))))
    newvolume = RightVol
    Call waveOutSetVolume(VolumeID, newvolume)
End If
End If
End Sub


  Sub Playwave(WaveFile As Variant, songlength As Double)
    Dim Ltime As Long
    Dim Y As Long
    'Dim X As Long
    Dim errorCode As Integer
    Dim returnStr As Integer
    Dim errorStr As String * 255
    Dim MaxMsecs As Double
    Dim volumecode As Long
    Dim pitch As Long
    Dim mixinc As Integer
    Dim count As Double
    Dim PiggyBack As Double
    Dim checker As Integer

    On Error GoTo errorhandler

    play(channel).Enabled = True
    pause(channel).Enabled = True
    Screen1.stop(channel).Enabled = True
    Screen1.stop(OtherChannel).Enabled = False
    wp.LinkExecute "set PlayList " & WaveFile
    Ltime = Timer()
    X = 0
    Do While X < 5
      X = Timer() - Ltime
    Loop
    wp.LinkExecute "play"
    StopList = False
    If channel = 1 Then other = 0
    If channel = 2 Then other = 3

    PlayLab(channel).Visible = True
    Quelab(channel).Visible = False
    If channel = 1 Then mixerbar.Value = -100
    If channel = 2 Then mixerbar.Value = 100
    NewPauseStartTime = Timer()
    X = 0
    Do While X < TimeSerial(0, 0, songlength)
      DoEvents
      If Timer() > AutoExitTime - 30 And Timer() < AutoExitTime - 27 And AutoExitEvent = True Then
        MsgBox ("MOAEC WILL SHUT DOWN IN 30 SECONDS !!!" & Chr(13) & "    Press CANCEL to prevent auto exit.")
      End If
```


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```
    If Timer() > AutoExitTime And AutoExitEvent = True Then
      'SendKeys "{enter}"
      EndItAll
      'Call ExitWindows(&H0, &H0)
    End If
    If PauseList = True Then
      NewPauseStartTime = Timer() - TimeSoFar
    End If
    If PauseList = False Then
      nexttrack(1).Enabled = True
      prevtrack(1).Enabled = True
      nexttrack(2).Enabled = True
      prevtrack(2).Enabled = True
      TimeSoFar = Timer() - NewPauseStartTime
      Let X = TimeSerial(0, 0, (TimeSoFar))
      TimeElapsed(channel).Text = Format(TimeSerial(0, 0, SongsTime + songlength) - X, "hh:mm:ss")
      Text1(channel).Text = Format(TimeSerial(0, 0, songlength) - X, "hh:mm:ss")
      Screen2.timebox.Text = Format(TimeSerial(0, 0, SongsTime + songlength) - X, "hh:mm:ss")
    End If

    If StopList = True Then
      X = TimeSerial(0, 0, 0)
      NewPauseStartTime = Timer()
      If PrevTrackVar = True Then
        PrevTrackVar = False
        StopList = False
        wp.LinkExecute "play"
      End If
    End If
    If NextTrackVar = True Then
      X = TimeSerial(0, 0, songlength)
      NextTrackVar = False
    End If

  Loop

  PlayLab(channel).Visible = False
  Quelab(channel).Visible = True

 Exit Sub
errorhandler:
 MsgBox ("Sorry....There was a problem playing this music selection.")
End Sub


Private Sub eject_Click()
 Dim files As String
 Dim n As Integer

 If wp.LinkMode <> LINK_NONE Then
  On Error Resume Next
  fileopendlg.Action = 1
 End If
```

```
End Sub


Private Sub Command1_Click()
 If wp.LinkMode <> LINK_NONE Then
   wp.LinkExecute "dialog options output"
 End If
End Sub

Private Sub AutoExit_Click()


   On Error GoTo endsub
   If AutoExit.Caption = "CANCEL" Then
      response = MsgBox("Are you sure you want to cancel auto shutdown?", 4)
      If response = vbNo Then
         Exit Sub
      Else

         AutoExitEvent = False
         AutoExit.Caption = "AUTO EXIT"
      End If
   Else
      If SongPlaying = False Then Exit Sub
      response = MsgBox("Are you sure you want to set MOAEC to shut down automatically?", 4)
      If response = vbNo Then
         Exit Sub
      Else
         AutoExit.Caption = "CANCEL"
         TimeFrame.Visible = True
         keyboard.Visible = True
         TimeInput.SetFocus
      End If
   End If
endsub:
End Sub

Private Sub backup_Click()
If TimeInput.Visible = True Then

   TimeInput.SetFocus
   SendKeys "{end}"
   SendKeys "{backspace}"
   SendKeys "{tab}"
End If
End Sub

Private Sub CurrentSongExpanded_Click(Index As Integer)
   CurrentSongExpanded(Index).Visible = False
End Sub

Private Sub cursong_click(Index As Integer)
```

```
    CurrentSongExpanded(Index).Visible = True
End Sub

Private Sub ENTERKEY_Click()
If TimeInput.Visible = True Then

  TimeOK.SetFocus
  SendKeys "{enter}"
End If
End Sub

Private Sub ExitSystem_Click()
  response = MsgBox("Are you sure you want to exit the system?", 4)
  If response = vbNo Then
    Exit Sub
  Else
    ExitButtonPushed = True
    EndItAll
  End If
End Sub

Private Sub Form_GotFocus()
  On Error Resume Next
  Screen2.DD.Group = "Screen1"
End Sub

Public Sub Form_Load()
  Dim oldvolume As Long
  Dim oldrate As Long
Dim newvolume As Long
 Dim VolumePoint As Long
Dim volumeID As Long
Dim volumecode As Long

 Dim tmp As String * 256
 Dim WinPlay3Name As String
Dim n As Integer
  StoplistingList = True
  Screen1.WindowState = 2
  automix = True
  NextTrackVar = False
  AutoExitEvent = False
  volinc(0) = Master(0).Value
  volinc(1) = Master(1).Value
' Open DDE connection with WinPlay3
If CreateLink() <> NONE Then

  ' get path to winplay3 from win.ini
  n = GetProfileString("WinPlay3", "ProgramFile", "WinPlay3.Exe", tmp, 256)
  WinPlay3Name = Left$(tmp, n)
  If StartApp(WinPlay3Name & " /DDE") Then
    Select Case CreateLink()
     Case 0
      ' dde server started
```

```
    Case NO_APP_RESPONDED
      MsgBox "Sorry, still can't connect."
    End Select
  End If

End If


  Call waveOutGetID(VolumeHandle, VolumeID)
  Call waveOutGetVolume(VolumeID, oldvolume)

  PlaySpeed(0).Value = oldvolume
  PlaySpeed(1).Value = oldvolume

  Master(0).Value = 49000
  Master(1).Value = 49000
  volumesldr(8).Value = 49000
  volumesldr(9).Value = 49000
  For i = 4 To 5
    volumesldr(i).Value = 49000
  Next i
  For i = 0 To 3
    volumesldr(i).Value = 49000
  Next i
  mixerbar.Value = 100
  Call waveOutSetVolume(VolumeID, CLng(Val("&H" & Hex(16000) & Hex(16000))))
  PlaySpeed(0).Value = 5
  PlaySpeed(1).Value = 5

End Sub



Private Sub Form_Resize()
  On Error Resume Next
  If WindowState = 2 Then
    For X = 1 To 4
      ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
    Next X
    For X = 0 To 4
      ScreenShow(X).Top = Screen.Height - 1155
    Next X
    ExitSystem.Top = Screen.Height - 1155
    Label10.Top = Screen.Height - 1155

  Else
    For X = 1 To 4
      ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
    Next X
    For X = 0 To 4
      ScreenShow(X).Top = Screen1.Height - 1155
    Next X
    ExitSystem.Top = Screen1.Height - 1155
    Label10.Top = Screen1.Height - 1155
```

```
End If
Label10.Left = Screen1.Width - 1455
ExitSystem.Left = 120
Channel1(1).Left = (Screen1.Width / 2) + 8
Channel1(5).Left = (Screen1.Width / 2) + 8
Picture1.Width = Screen1.Width - 460
Picture1.Top = Screen1.Height - 3255
For X = 0 To 3
   Channel1(X).Width = (Screen1.Width / 2) - 353
Next X
For X = 0 To 1
   PlaySpeed(X).Left = (Channel1(0).Width / 2) - 1200
Next X
Label3(0).Left = PlaySpeed(0).Left + 720
Label3(1).Left = PlaySpeed(0).Left - 600
Label3(3).Left = PlaySpeed(0).Left + 720
Label3(4).Left = PlaySpeed(0).Left - 600
Label3(2).Left = PlaySpeed(0).Left + 2520
Label3(5).Left = PlaySpeed(0).Left + 2520
Label4(0).Left = PlaySpeed(0).Left + 720
Label4(1).Left = PlaySpeed(0).Left - 720



For X = 1 To 2
   play(X).Left = ((Channel1(0).Width / 2) - 1425)
   Screen1.stop(X).Left = ((Channel1(0).Width / 2) - 1425) - 570
   pause(X).Left = ((Channel1(0).Width / 2) - 1425) + 1140
   prevtrack(X).Left = ((Channel1(0).Width / 2) - 1425) - 1710
   nexttrack(X).Left = ((Channel1(0).Width / 2) - 1425) + 2280
   cursong(X).Left = Channel1(1).Width - 2175
   Quelab(X).Left = cursong(1).Left
   PlayLab(X).Left = cursong(1).Left
Next X
For X = 2 To 3
   Channel1(X).Height = Screen1.Height - Channel1(0).Height - Picture1.Height - 1600
Next X
volumesldr(0).Left = 0.209 * Picture1.Width
volumesldr(1).Left = 0.267 * Picture1.Width
volumesldr(2).Left = 0.36 * Picture1.Width
volumesldr(3).Left = 0.418 * Picture1.Width
volumesldr(4).Left = 0.6734 * Picture1.Width
volumesldr(5).Left = 0.7315 * Picture1.Width
volumesldr(8).Left = 0.8128 * Picture1.Width
volumesldr(9).Left = 0.894 * Picture1.Width
Master(0).Left = 0.5225 * Picture1.Width
Master(1).Left = 0.5806 * Picture1.Width
Label1(1).Left = volumesldr(0).Left + 120
Label1(2).Left = volumesldr(2).Left + 120
Label1(4).Left = volumesldr(4).Left + 120
Label1(5).Left = volumesldr(8).Left - 120
Label1(6).Left = volumesldr(9).Left - 120
Label1(3).Left = Master(0).Left - 120
```

```
    AutoExit.Top = ExitSystem.Top
    For X = 1 To 2
      CurrentSongExpanded(X).Left = (Screen1.Width / 2) - 5408
    Next X
    EQ1(0).Top = (Channel1(2).Height / 2) - 100
    EQ1(1).Top = (Channel1(2).Height / 2) - 100
    EQ1(0).Left = (Channel1(2).Width / 2) - 2280
    EQ1(1).Left = (Channel1(2).Width / 2) - 2280
End Sub

Private Sub Form_Unload(Cancel As Integer)
    If wp.LinkMode <> LINK_NONE Then
    wp.LinkExecute "stop"
    wp.LinkExecute "exit"
    End If
    WinPlay3Connected = 0
    wp.LinkMode = LINK_NONE

    EndItAll

End Sub

Private Sub Label10_Click()
    SendKeys "{F1}"
End Sub

Private Sub Letters_Click(Index As Integer)
    'type the letter pressed in the text field
If TimeInput.Visible = True Then
    TimeInput.SetFocus
    SendKeys LCase(Letters(Index).Caption)
    SendKeys "{tab}"
End If

End Sub

Private Sub Master_Click(Index As Integer)

volinc(0) = Master(0).Value
volinc(1) = Master(1).Value

End Sub

Private Sub Master_Scroll(Index As Integer)

Dim volinc2(2) As Long
volinc2(Index) = Master(Index).Value - volinc(Index)

Select Case Index
Case 0
  volumesldr(0).Value = OrigVol(0) - volinc2(0)
  volumesldr(2).Value = OrigVol(2) - volinc2(0)
  volumesldr(4).Value = OrigVol(4) + volinc2(0)
```

```
  Case 1
    volumesldr(1).Value = OrigVol(1) + volinc2(1)
    volumesldr(3).Value = OrigVol(3) + volinc2(1)
    volumesldr(5).Value = OrigVol(5) + volinc2(1)

  End Select
  volinc(Index) = Master(Index).Value

  End Sub


  Private Sub mixerbar_Change()

    If (mixerbar.Value <= 0 And channel = 1) Then
      AdjustVolume (1)
    ElseIf (mixerbar.Value >= 0 And channel = 2) Then
      AdjustVolume (2)
    End If

  End Sub

  Private Sub mixerbar_Scroll()


    If (mixerbar.Value <= 0 And channel = 1) Then
      AdjustVolume (1)
    ElseIf (mixerbar.Value >= 0 And channel = 2) Then
      AdjustVolume (2)
    End If

  End Sub

  Private Sub MixFade_Click()
    If MixFade.Caption = "AUTO MIX OFF" Then
      MixFade.Caption = "AUTO MIX ON"
      automix = True
    Else
      MixFade.Caption = "AUTO MIX OFF"
      automix = False
    End If
  End Sub

  Private Sub nexttrack_Click(Index As Integer)
  If Index = channel Then
    If wp.LinkMode <> LINK_NONE Then
      response = MsgBox("Are you sure you want to skip to the next song?", 4)
      If response = vbNo Then
        Exit Sub
      Else
        NextTrackVar = True
      End If
    End If
  End If
  End Sub
```

```
Private Sub pause_Click(Index As Integer)
If channel = Index Then
If StoplistingList = False Then
  MsgBox ("Your library is still updating!" & Chr(13) & "Please switch to Screen 4 to resume play.")
  Exit Sub
End If
If wp.LinkMode <> LINK_NONE Then
  wp.LinkExecute "pause"
  If PauseList = True Then
    PauseList = False
  Else
    PauseList = True
  End If
 End If
End If
End Sub

Private Sub play_Click(Index As Integer)

If wp.LinkMode <> LINK_NONE Then
If Index = OtherChannel And StopList = True Then
  NextTrackVar = True
ElseIf Index = channel Then
  PauseList = False
  wp.LinkExecute "play"
  StopList = False
 End If
End If
End Sub

Private Sub PlaySpeed_Scroll(Index As Integer)
Dim oldrate As Long
Dim volumecode As Long
Dim newrate As Long


End Sub

Private Sub RestartMus_Click()
Dim SoundCom As Long

SoundCom = waveOutRestart(VolumeID)
Text2.Text = SoundCom

End Sub

Private Sub prevtrack_Click(Index As Integer)
If channel = Index Then
  If wp.LinkMode <> LINK_NONE Then
    wp.LinkExecute "stop"
    StopList = True
    PauseList = False
    PrevTrackVar = True
```


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```
    End If
  End If
End Sub


Private Sub ScreenShow_Click(Index As Integer)
Dim i As Integer
On Error Resume Next
If (SelCat1 = "" And Index = 2) Then
   MsgBox ("Please select a main category from screen 2 before viewing this screen !!!")
   Exit Sub
End If
   Screen2.Category(1).Visible = False
   cat1count = 0
   'disable speed buttons since switching to screen 3
   For i = 0 To Screen2.SongSpeed.count - 1
      Screen2.SongSpeed(i).Enabled = False
      Screen2.SongSpeed(i).BackColor = &H8000000F
   Next i
   Screen2.Mix.Enabled = False
   Screen2.PlayTime.Enabled = False
   Screen2.Mix.BackColor = &H8000000F
   Screen2.PlayTime.BackColor = &H8000000F
For i = 0 To 4
   Screen2.ScreenShow(i).BackColor = &H8000000F
   ScreenShow(i).BackColor = &H8000000F
   ScreenShow(i).ForeColor = &H80000012
Next i

Select Case Index
   Case 0

      Screen2.DD.Group = "Screen1"
      Screen2.Hide
      Screen2.cat2screen.Visible = False
      Screen2.FavHitsScrn.Visible = False
      Exit Sub
   Case 1
      Screen2.DD.Group = "Screen2"
      Screen2.cat2screen.Visible = False
      Screen2.FavHitsScrn.Visible = False
     For i = 0 To 4
        Screen2.ScreenShow(i).BackColor = &H8000000F
        Screen2.ScreenShow(Index).ForeColor = &H80000012
      Next i
      Screen2.ScreenShow(Index).BackColor = &HC0&
      Screen2.ScreenShow(Index).ForeColor = &H8000000E
      Screen2.Show
          If Screen2.WindowState <> 2 Then Screen2.WindowState = 2
      Exit Sub
   Case 2
     If IsDDWinRunning() Then Screen2.DD.Group = "Screen2"
```


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```
    SelCat1 = MemCat
    Screen2.cat2screen.Visible = True
    Screen2.FavHitsScrn.Visible = False
    For i = 0 To 4
      Screen2.ScreenShow(i).BackColor = &H8000000F
      Screen2.ScreenShow(Index).ForeColor = &H80000012
    Next i
    Screen2.ScreenShow(Index).BackColor = &HC0&
    Screen2.ScreenShow(Index).ForeColor = &H8000000E
    Screen2.Show
        If Screen2.WindowState <> 2 Then Screen2.WindowState = 2

    Exit Sub
  Case 3
    Screen2.DD.Group = "Screen4"
    Recorder.ScreenShow(Index).BackColor = &HC0&
    Recorder.ScreenShow(Index).ForeColor = &H8000000E
    Screen1.Hide
    Screen2.Hide
    Recorder.Show
        If Recorder.WindowState <> 2 Then Recorder.WindowState = 2

    Recorder.Refresh
    Screen2.cat2screen.Visible = False
    Screen2.FavHitsScrn.Visible = False

End Select

'make the button pressed the right color


End Sub

Private Sub stop_Click(Index As Integer)
  If channel = Index Then
   If wp.LinkMode <> LINK_NONE Then
   wp.LinkExecute "stop"
    StopList = True
   play(OtherChannel).Enabled = True
  End If
  End If
End Sub

Private Sub undo_Click()

End Sub

Private Sub TimeCancel_Click()
  TimeFrame.Visible = False
  keyboard.Visible = False
End Sub

Private Sub TimeOK_Click()
  Dim Timer1 As Long
```

```
    Dim timer2 As Long
    On Error GoTo endsub
    If Val(TimeInput.Text) <> 0 Then
      AutoExitStart = Timer()
      AutoExitTime = AutoExitStart + (Val(TimeInput.Text) * 60)
      AutoExitEvent = True
    End If
    TimeFrame.Visible = False
    keyboard.Visible = False

endsub:
End Sub

Private Sub volumesldr_Change(Index As Integer)
AdjustVolume (Index)
OrigVol(Index) = volumesldr(Index).Value

End Sub

Private Sub volumesldr_Scroll(Index As Integer)
    On Error Resume Next
    AdjustVolume (Index)

End Sub
Private Sub wp_LinkClose()
If WinPlayConnected <> 0 Then

End If
wp.LinkMode = LINK_NONE
End Sub

Private Sub wp_LinkError(LinkErr As Integer)
MsgBox ("Link error")
End Sub


'screen2.frm"

Sub DD_SpeechRecognized(Word As String, WordValue As String)
    Dim CurControl As Control
    Dim VoiceFlag As Boolean
    Dim SavedName As String

    On Error GoTo errorhandler


    If Word = "[classical]" Then Category1(0).SetFocus
    If Word = "[jazz]" Then Category1(1).SetFocus
    If Word = "[folk]" Then Category1(2).SetFocus
    If Word = "[oldies]" Then Category1(3).SetFocus
    If Word = "[country]" Then Category1(4).SetFocus
    If Word = "[pop]" Then Category1(5).SetFocus
    If Word = "[soul]" Then Category1(6).SetFocus
    If Word = "[R and B]" Then Category1(7).SetFocus
```


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```
If Word = "[blues]" Then Category1(8).SetFocus
If Word = "[calypso]" Then Category1(9).SetFocus
If Word = "[disco]" Then Category1(10).SetFocus
If Word = "[funk]" Then Category1(11).SetFocus
If Word = "[rock]" Then Category1(12).SetFocus
If Word = "[metal]" Then Category1(13).SetFocus
If Word = "[top 40]" Then Category1(14).SetFocus
If Word = "[rap]" Then Category1(15).SetFocus
If Word = "[reggae]" Then Category1(16).SetFocus
If Word = "[alternative]" Then Category1(17).SetFocus
If Word = "[ethnic]" Then Category1(18).SetFocus
If Word = "[religion]" Then Category1(19).SetFocus
If Word = "[special events]" Then Category1(20).SetFocus
If Word = "[funny]" Then Category1(21).SetFocus
If Word = "[easy listening]" Then Category1(22).SetFocus
If Word = "[favorite hits]" Then Category1(23).SetFocus
If Word = "[special dance]" Then Category1(24).SetFocus
If Word = "[special mixes]" Then Category1(25).SetFocus
If Word = "[dance]" Then Category1(26).SetFocus
If Word = "[energy]" Then Category1(27).SetFocus
If Word = "[sound effects]" Then Category1(28).SetFocus
If Word = "[sound tracks]" Then Category1(29).SetFocus
If Word = "[television]" Then Category1(30).SetFocus

If Word = "[Dance Mix]" Then Mix.SetFocus
If Word = "[Clear]" Then ClrSrch.SetFocus
If Word = "[Undo]" Then undo.SetFocus

If Word = "[Search List]" Then searchlist.SetFocus
If Word = "[Play List]" Then Playlist(0).SetFocus
If Word = "[Search]" Then search.SetFocus
If Word = "[Expand]" And ExpandList.Caption = "EXPAND" Then
   ExpandList.SetFocus
ElseIf Word = "[Shrink]" And ExpandList.Caption = "SHRINK" Then
   ExpandList.SetFocus
End If

If Word = "[Load]" Then LoadPlay.SetFocus
If Word = "[Save]" Then SavePlay.SetFocus
If Word = "[Next]" Then AddList(0).SetFocus
If Word = "[Pick]" Then AddList(1).SetFocus
If Word = "[Delete]" Then delete.SetFocus

If Word = "[Title]" Then SearchCat(1).SetFocus
If Word = "[Artist]" Then SearchCat(2).SetFocus
If Word = "[Date]" Then SearchCat(3).SetFocus
If Word = "[Song Category]" Then SearchCat(4).SetFocus
If Word = "[Dance Type]" Then SearchCat(6).SetFocus
If Word = "[Music Style]" Then SearchCat(5).SetFocus
If Word = "[Speed]" And SearchCat(1).Enabled = True Then SearchCat(7).SetFocus
If Word = "[Energy]" Then SearchCat(8).SetFocus

If Word = "[Speed]" And AllSpeeds.Enabled = True Then AllSpeeds.SetFocus
If Word = "[Fast]" And SongSpeed(0).Enabled = True Then SongSpeed(0).SetFocus
```

```
    'If Word = "[Fast]" Then SongSpeed(0).SetFocus
    If Word = "[Medium]" And SongSpeed(1).Enabled = True Then SongSpeed(1).SetFocus
    If Word = "[Slow]" And SongSpeed(2).Enabled = True Then SongSpeed(2).SetFocus
    If Word = "[Time]" And PlayTime.Enabled = True Then PlayTime.SetFocus
    If Word = "[30]" Then
       TimeInput.SetFocus
       TimeInput.Text = 30
    End If
    If Word = "[OK]" And timebox.Visible = True Then TimeOK.SetFocus
    If Word = "[Begin Search]" And SearchScreen.Visible = True Then BeginSearch.SetFocus
    If Word = "[Cancel]" And timebox.Visible = True Then TimeCancel.SetFocus
    If Word = "[Cancel]" And SearchScreen.Visible = True Then Cancel.SetFocus
    If Word = "[Cancel]" And cat2screen.Visible = True Then CancelSubScreen.SetFocus
    'If word = "[minutes]" Then Text2.SetFocus
    If Word = "[Play]" Then PlayButton.SetFocus
    If Word = "[Now]" Then Now.SetFocus

    'If word = "[screen 1]" Then ScreenShow(0).SetFocus
    'If word = "[screen 2]" Then ScreenShow(1).SetFocus
    'If word = "[screen 3]" Then ScreenShow(2).SetFocus
    'If word = "[screen 4]" Then ScreenShow(3).SetFocus
    SendKeys " "

errorhandler:
    Exit Sub
End Sub
Sub GrayOut()
    'disable and gray out speed, mix, and time buttons
    Mix.Enabled = False
    AllSpeeds.Visible = True
    AllSpeeds.Enabled = False
    PlayTime.Enabled = False
    Mix.BackColor = &H8000000F
    AllSpeeds.BackColor = &H8000000F
    PlayTime.BackColor = &H8000000F
    For i = 0 To SongSpeed.count - 1
       SongSpeed(i).Enabled = False
       SongSpeed(i).BackColor = &H8000000F
    Next i
End Sub
Sub LoadNewSong(Songfile As String)
    Dim memHandle As Long
    Dim memPointer As Long
    Dim fileName As String
    Dim retValue As Long
    Dim nBytes As Long
    Dim fileSize As Long

    Dim origStr As String
    Dim strSize As Long
    Dim textStr As String


    On Error GoTo noFilename
```

```
    fileName = Songfile
    FilePointer = CreateFile(fileName, GENERIC_READ Or GENERIC_WRITE, 0&, 0&, OPEN_EXISTING,
  FILE_ATTRIBUTE_NORMAL, 0&)
    fileSize = GetFileSize(FilePointer, 0)
    memHandle = GlobalAlloc(GMEM_MOVEABLE Or GMEM_ZEROINIT, fileSize)
    memPointer = GlobalLock(memHandle)
    retValue = ReadFile(FilePointer, ByVal memPointer, fileSize, nBytes, 0&)

    Call Screen1.Playwave(fileName, songlength)
    CloseHandle (FilePointer)
    GlobalUnlock (memHandle)
    GlobalFree (memHandle)
    Exit Sub

noFilename:

End Sub
Sub StartPlay(row As Integer, list As Integer)
Dim song, songlength2 As String
Dim i, j As Integer
Dim CurControl As MSFlexGrid
'Dim OtherChannel As Integer
On Error GoTo errorhandler

If list = 1 Then

  Set CurControl = searchlist

ElseIf list = 2 Then

  Set CurControl = Playlist(0)

End If
StopList = False
If (CurControl.Name = Playlist(0).Name And Playlist(0).Rows > 1) Or CurControl.Name = searchlist.Name Then
If SongPlaying = True Then
    answer = MsgBox("Are you sure you want to interrupt the current song ?", 4, "Interrupt Song Playing")
    If answer = vbNo Then
      Exit Sub
    Else
      If channel = 1 Then
        channel = 2
        OtherChannel = 1
      ElseIf channel = 2 Then
        channel = 1
        OtherChannel = 2
      End If

    End If
  End If

  Mix.Enabled = False
  'switch to s1
  Screen1.Show
```

```
    Screen1.Refresh
    Screen2.Hide


    If Playlist(0).Rows > 1 Then
      Playlist(0).Col = 1
      Playlist(1).Col = 1
      Playlist(0).ColSel = 2
      Playlist(1).ColSel = 8
    End If
  'build the songlist array from the play list

  'find the song from the play list

  'disable mix button
  If CurControl.Name = searchlist.Name Then
  If searchlist.RowSel > 0 Then
    searchlist.BackColorSel = searchlist.CellBackColor
    searchlist.ForeColorSel = searchlist.CellForeColor
    For i = 0 To 8
      selsong(i) = searchlist.TextMatrix(searchlist.row, i)

    Next i
    Playlist(0).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2)
    Playlist(1).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2)

    'Add a song to the total to be played
    NumSongs.Text = PlaySongs

    'Add the song time to the play time box
  End If
  End If
  'begin playing song list
  Do Until Playlist(0).Rows < 2
    undo.Enabled = False
    For j = 0 To 4
        ScreenShow(j).BackColor = &H8000000F
        ScreenShow(j).ForeColor = &H80000012
        Screen1.ScreenShow(j).BackColor = &H8000000F
        Screen1.ScreenShow(j).ForeColor = &H80000012
      Next j
      Screen1.ScreenShow(0).BackColor = &HC0&
      Screen1.ScreenShow(0).ForeColor = &H8000000E

  Screen1.Refresh


  If Playlist(0).Rows > 1 Then
    CurControl.row = row
    If channel = 1 Then OtherChannel = 2
    If channel = 2 Then OtherChannel = 1
    Screen1.PlayLab(OtherChannel).Visible = False
  Screen1.Quelab(OtherChannel).Visible = True
  'find the first song to be played
```

```
'if the song was already on deck then play it
    Data1.Refresh
    Data1.Recordset.MoveLast
    Data1.Recordset.MoveFirst
    Data1.Recordset.FindFirst "Title = '" & CurControl.TextMatrix(row, 1) & "' and Artist = '" & CurControl.TextMatrix(row, 2) &
'

     If IsNull(Data1.Recordset.Fields("ID")) Then
       MsgBox ("There was a problem finding your song file on disk.")

     Else
       songlist = "c:\Progra~1\moaec\895.mpg"
       'songlist = "C:\Progra~1\moaec\" & Data1.Recordset.Fields("ID") & ".mpg"
       'songlist = "c:\windows\media\tada.wav"
       songlist = "c:\" & Data1.Recordset.Fields("ID") & ".mpg"

     End If

     songlength = Val(CurControl.TextMatrix(row, 0)) - 2
     Screen1.cursong(channel).Text = CurControl.TextMatrix(row, 1)
     CurControl.Col = 1
     Screen1.cursong(channel).BackColor = CurControl.CellBackColor
     Screen1.Text1(channel).Text = Format(TimeSerial(0, 0, songlength), "hh:mm:ss")
     If CurControl.Name = Playlist(0).Name Then
       For X = 0 To 8
         Screen1.CurrentSongExpanded(channel).TextMatrix(1, X) = Playlist(1).TextMatrix(row, X)
         Screen1.CurrentSongExpanded(channel).CellBackColor = Playlist(1).CellBackColor
         Screen1.CurrentSongExpanded(channel).BackColorSel = Playlist(1).CellBackColor
         Screen1.CurrentSongExpanded(channel).ForeColorSel = Playlist(1).CellForeColor

       Next X
     Else
       For X = 0 To 8
         Screen1.CurrentSongExpanded(channel).TextMatrix(1, X) = CurControl.TextMatrix(row, X)
         Screen1.CurrentSongExpanded(channel).CellBackColor = CurControl.CellBackColor
         Screen1.CurrentSongExpanded(channel).BackColorSel = CurControl.CellBackColor
         Screen1.CurrentSongExpanded(channel).ForeColorSel = CurControl.CellForeColor
       Next X
     End If
     Data1.Recordset.Close
  If (CurControl.Name = Playlist(0).Name And Playlist(0).Rows > 2) Or CurControl.Name = searchlist.Name Then
     If (CurControl.Name = Playlist(0).Name And row <> 1) Or CurControl.Name = searchlist.Name Then
       Playlist(0).row = 1
       Playlist(1).row = 1
     Else
       Playlist(0).row = 2
       Playlist(1).row = 2
     End If
       songlength2 = Val(Playlist(0).TextMatrix(Playlist(0).row, 0))
       Screen1.cursong(OtherChannel).Text = Playlist(0).TextMatrix(Playlist(0).row, 1)
       Playlist(0).Col = 1
       Screen1.cursong(OtherChannel).BackColor = Playlist(0).CellBackColor
       Screen1.Text1(OtherChannel).Text = Format(TimeSerial(0, 0, songlength2), "hh:mm:ss")
       Screen1.TimeElapsed(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
```

```
        For X = 0 To 8
            Screen1.CurrentSongExpanded(OtherChannel).TextMatrix(1, X) = Playlist(1).TextMatrix(Playlist(0).row, X)
            Screen1.CurrentSongExpanded(OtherChannel).CellBackColor = Playlist(1).CellBackColor
            Screen1.CurrentSongExpanded(OtherChannel).BackColorSel = Playlist(1).CellBackColor
            Screen1.CurrentSongExpanded(OtherChannel).ForeColorSel = Playlist(1).CellForeColor
        Next X

    Else
        songlist2 = ""
        Screen1.cursong(OtherChannel).Text = ""
        Screen1.cursong(OtherChannel).BackColor = &H80000009
        Screen1.Text1(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
        Screen1.TimeElapsed(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
    End If


    If CurControl.Name = searchlist.Name Then SongsTime = SongsTime + CLng(Val(CurControl.TextMatrix(row, 0)))
    SongsTime = SongsTime - CLng(Val(CurControl.TextMatrix(row, 0)))
    timebox.Text = Format(TimeSerial(0, 0, CLng(SongsTime)), "hh:mm:ss")


    If Playlist(0).Rows > 2 Then
      If CurControl.Name = Playlist(0).Name And row <> 1 Then
        Playlist(0).row = row
        Playlist(1).row = row
      ElseIf CurControl.Name = searchlist.Name Then
        Playlist(0).row = Playlist(0).Rows - 1
        Playlist(1).row = Playlist(0).Rows - 1
      Else
        Playlist(0).row = 1
        Playlist(1).row = 1

      End If
      Playlist(1).RemoveItem (Playlist(0).row)
      Playlist(0).RemoveItem (Playlist(0).row)
    Else
      Playlist(0).Clear
      Playlist(1).Clear
      Playlist(0).Rows = 1
      Playlist(1).Rows = 1
      Playlist(0).Col = 1
      Playlist(1).Col = 1
      Playlist(0).ColSel = 2
      Playlist(1).ColSel = 8
      Playlist(0).CellBackColor = Playlist(0).BackColorFixed
      Call FormatHeaders
    End If
    If CurControl.Name = searchlist.Name Then PlaySongs = PlaySongs + 1
    PlaySongs = PlaySongs - 1
    NumSongs.Text = PlaySongs
    Playlist(0).Col = 1
    Playlist(1).Col = 1
    Playlist(0).ColSel = 2
    Playlist(1).ColSel = 8
```


CL 000410

```
    Playlist(0).BackColorSel = Playlist(0).CellBackColor
    Playlist(0).ForeColorSel = Playlist(0).CellForeColor
    Playlist(1).BackColorSel = Playlist(0).CellBackColor
    Playlist(1).ForeColorSel = Playlist(0).CellForeColor
    SongPlaying = True
    Call Screen1.Playwave(songlist, songlength)
    If CurControl.Name = searchlist.Name Then Set CurControl = Playlist(0)
    row = 1

    If channel = 1 Then
        channel = 2
        OtherChannel = 1
      Else
        channel = 1
        OtherChannel = 2
      End If
    SongPlaying = False

  End If
  Loop
  Else
    StopList = True
  End If

clearall:
  SongsTime = 0
        Playlist(0).Col = 1
        Playlist(1).Col = 1
        Playlist(0).ColSel = 2
        Playlist(1).ColSel = 8
        timebox.Text = Format(TimeSerial(0, 0, CLng(SongsTime)), "hh:mm:ss")
        Playlist(0).Clear
        Playlist(0).Rows = 1
        Call FormatHeaders
        Playlist(0).BackColorSel = Playlist(0).BackColorFixed
        Playlist(0).ForeColorSel = Playlist(0).ForeColorFixed
        Playlist(1).Clear
        Playlist(1).Rows = 1
        Playlist(1).BackColorSel = Playlist(1).BackColorFixed
        Playlist(1).ForeColorSel = Playlist(1).ForeColorFixed
        searchlist.BackColorSel = &H80000008
        searchlist.ForeColorSel = &H8000000E
        PlaySongs = 0
        NumSongs.Text = "0"
        Screen1.cursong(channel).Text = ""
        Screen1.cursong(channel).BackColor = &H80000009

        Screen1.Text1(channel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
        Screen1.TimeElapsed(channel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
        Screen1.cursong(OtherChannel).Text = ""
        Screen1.cursong(OtherChannel).BackColor = &H80000009

        Screen1.Text1(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
        Screen1.TimeElapsed(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
```


CL 000411

```
        Now.Enabled = False
        PlayButton.Enabled = False
        Now.BackColor = &H8000000F
        PlayButton.BackColor = &H8000000F

Exit Sub

errorhandler:

  MsgBox "There was a problem finding your selected song file."
  SongPlaying = False


End Sub
Sub RestoreSearchList()
  CurRow2 = 1
  CurRow1 = 1
  CurCol = 0
  undo.Enabled = False
    'clear the playlists
    SearchSongs = 0

    searchlist.AllowBigSelection = True

    searchlist.Rows = numRows

    If numRows = 0 Then
      ClearSearchList
      ClrSrch.Enabled = False
    Else
      ClrSrch.Enabled = True
      searchlist.row = 1
    searchlist.Col = 0
    searchlist.RowSel = numRows - 1

    searchlist.ColSel = 8
    searchlist.Clip = allCells1

    For i = 1 To numRows - 1
      searchlist.row = i
      For k = 0 To 8
        searchlist.Col = k
        searchlist.CellBackColor = FileColors(i)
      Next k
      SearchSongs = SearchSongs + 1
    Next i
    searchlist.AllowBigSelection = False

    searchlist.row = 1

    searchlist.Col = 0

    delete.Enabled = True
    End If
```

```
    Exit Sub

End Sub
Sub RestorePlayList()
  If numRows = 0 Then
    ClearPlayList
  Else
    CurRow2 = 1
    CurRow1 = 1
    CurCol = 0
    undo.Enabled = False
    'clear the playlists
    PlaySongs = 0
    SongsTime = 0
    NumSongs.Text = 0
    timebox.Text = Format(TimeSerial(0, 0, CLng(SongsTime)), "hh:mm:ss")
    SinglePlayTime.Text = "00:00:00"
    Playlist(0).AllowBigSelection = True
    Playlist(1).AllowBigSelection = True
    Playlist(0).Rows = numRows
    Playlist(0).row = 1
    Playlist(0).Col = 0
    Playlist(0).RowSel = numRows - 1
    Playlist(0).ColSel = 2
    Playlist(1).Rows = numRows
    Playlist(1).row = 1
    Playlist(1).Col = 0
    Playlist(1).RowSel = numRows - 1
    Playlist(1).ColSel = 8
    Playlist(0).Clip = allCells1
    Playlist(1).Clip = allCells2
    For i = 1 To numRows - 1
      Playlist(0).row = i
      For j = 0 To 2
        Playlist(0).Col = j
        Playlist(0).CellBackColor = FileColors(i)
      Next j
      Playlist(1).row = i
      For k = 0 To 8
        Playlist(1).Col = k
        Playlist(1).CellBackColor = FileColors(i)
      Next k
      SongsTime = SongsTime + CLng(Val(Playlist(0).TextMatrix(i, 0)))
      timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
      PlaySongs = PlaySongs + 1
      NumSongs.Text = PlaySongs
    Next i
    Playlist(0).AllowBigSelection = False
    Playlist(1).AllowBigSelection = False
    Playlist(0).row = 1
    Playlist(1).row = 1
    Playlist(0).Col = 0
    Playlist(1).Col = 0
    ExpandList.Enabled = True
```

```
    delete.Enabled = True
    Command1.Enabled = True
    Now.Enabled = True
    Now.BackColor = &HFF&
    PlayButton.Enabled = True
    PlayButton.BackColor = &HFF8080
    RndMix.Enabled = True
    SavePlay.Enabled = True
    Call CheckOnDeck
    End If
    Exit Sub


End Sub
Sub SaveSearchList()

  CurRow1 = searchlist.row
  CurCol = 0
  undo.Enabled = True
On Error GoTo errorhandler

    searchlist.AllowBigSelection = True
    searchlist.row = 1
    searchlist.Col = 0
    searchlist.RowSel = searchlist.Rows - 1
    searchlist.ColSel = 8
    allCells1 = searchlist.Clip

    numRows = searchlist.Rows
    ReDim FileColors(searchlist.Rows - 1)
    For i = 1 To searchlist.Rows - 1
      searchlist.row = i
      FileColors(i) = searchlist.CellBackColor
      'Write #FileNum, FileColors(i)
    Next i
    searchlist.AllowBigSelection = False
    searchlist.row = CurRow1
    searchlist.Col = 0

    Exit Sub

errorhandler:
Exit Sub
End Sub
Sub SavePlayList()

  CurRow2 = Playlist(1).row
  CurRow1 = Playlist(0).row
  CurCol = 0
  undo.Enabled = True
On Error GoTo errorhandler

    Playlist(0).AllowBigSelection = True
    Playlist(0).row = 1
```

```
    Playlist(0).Col = 0
    Playlist(0).RowSel = Playlist(0).Rows - 1
    Playlist(0).ColSel = 2
    allCells1 = Playlist(0).Clip
    Playlist(1).AllowBigSelection = True
    Playlist(1).row = 1
    Playlist(1).Col = 0
    Playlist(1).RowSel = Playlist(1).Rows - 1
    Playlist(1).ColSel = 8
    allCells2 = Playlist(1).Clip
    numRows = Playlist(0).Rows
    ReDim FileColors(Playlist(0).Rows + 1)
    For i = 1 To Playlist(0).Rows - 1
      Playlist(0).row = i
      FileColors(i) = Playlist(0).CellBackColor
      'Write #FileNum, FileColors(i)
    Next i
    Playlist(1).AllowBigSelection = False
    Playlist(0).AllowBigSelection = False
    Playlist(0).row = CurRow1
    Playlist(1).row = CurRow2
    Playlist(0).Col = 1
    Playlist(1).Col = 1
    Exit Sub


errorhandler:
Exit Sub
End Sub

Sub ListFavHits()
 If PlayedSongs(1, 1, 1) <> "" Then
      Organize.Enabled = True
      For z = 1 To zed
        searchlist.AddItem PlayedSongs(1, z, 0) & Chr(9) & PlayedSongs(1, z, 1) & Chr(9) & PlayedSongs(1, z, 2) & Chr(9) &
PlayedSongs(1, z, 3) & Chr(9) & PlayedSongs(1, z, 4) & Chr(9) & PlayedSongs(1, z, 5) & Chr(9) & PlayedSongs(1, z, 6) & Chr(9) &
PlayedSongs(1, z, 7) & Chr(9) & PlayedSongs(1, z, 8)
        SearchSongs = SearchSongs + 1
        searchlist.row = SearchSongs
        For X = 0 To 8
          searchlist.Col = X
          searchlist.CellBackColor = PlayedSongs(1, z, 9)
        Next X
        ClrSrch.Enabled = True
        searchlist.BackColorSel = searchlist.CellBackColor
      Next z
    Else

      MsgBox ("Sorry...You have no song selections defined as favorite hits.")
    End If
End Sub
Sub ClearPlayList()
  Dim i As Integer
  'reset the song variables
```

```
    SongsTime = 0
    PlaySongs = 0
    'clear the fields associated with song count and time
    timebox.Text = Format(TimeSerial(0, 0, CLng(SongsTime)), "hh:mm:ss")
    SinglePlayTime.Text = "00:00:00"
    NumSongs.Text = "0"
    'purge the contents of the playlist
    For i = 0 To i
       Playlist(i).Clear
       Playlist(i).Rows = 1
       Playlist(i).BackColorSel = Playlist(0).BackColorFixed
       Playlist(i).ForeColorSel = Playlist(0).ForeColorFixed
    Next i
    'reset column widths and make the smallest list visible
    Call FormatHeaders
    Playlist(0).Visible = True
    Playlist(1).Visible = False
    'reset the buttons
    SavePlay.Enabled = False
    RndMix.Enabled = False
    Mix.Enabled = False
    Now.Enabled = False
    Now.BackColor = &H8000000F
    PlayButton.BackColor = &H8000000F
    PlayButton.Enabled = False
    AddList(0).Enabled = False
    Command1.Enabled = False
    ExpandList.Enabled = False
    'reset button colors and return selection to searchlist
    Now.BackColor = &H8000000F
    Mix.BackColor = &H8000000F
    searchlist.BackColorSel = &H80000008
    searchlist.ForeColorSel = &H8000000E
End Sub
Sub ClearSearchList()
    Dim i As Integer
    'reset caption of main search button and text fields
    search.Caption = "Search Music Categories"

    For i = 0 To 9
       csearch(i).Caption = ""
    Next i
    'remove all rows of the list
    searchlist.Clear
    searchlist.Rows = 1
    Call FormatHeaders
    'reset the searchlist colors
    searchlist.BackColorSel = searchlist.BackColorFixed
    searchlist.ForeColorSel = searchlist.ForeColorFixed
    searchlist.BackColor = &H8000000E
    'reset the main search flag and flag label
    csearch(0).Caption = "none"
    searchflag = 0
    'reset searchlist variables and reset buttons
```

```
    SearchSongs = 0
    AddList(0).Enabled = False
    AddList(1).Enabled = False
    ClrSrch.Enabled = False
    Organize.Enabled = False
    Now.Enabled = False
    Now.BackColor = &H8000000F
End Sub
Sub DeletePlay(RowNum As Integer)
    If Playlist(0).Rows <= 2 Then
        Playlist(1).row = 1
        For i = 0 To 8
          UndoText(i) = Playlist(1).TextMatrix(1, i)
        Next i
        ClearPlayList

      Else

        PlaySongs = PlaySongs - 1
        SongsTime = SongsTime - CLng(Val(Playlist(0).TextMatrix(RowNum, 0)))
        timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
        NumSongs.Text = PlaySongs
        Playlist(0).RemoveItem RowNum
        Playlist(1).RemoveItem RowNum

      End If
End Sub

Sub ExpandListButs()
    On Error Resume Next
    Dim X As Integer
    Dim ButWidth(9) As Integer
    Dim ButLeft(8) As Integer
    ButWidth(1) = 2450
    ButWidth(2) = 1960
    ButWidth(3) = 690
    ButWidth(4) = 1650
    ButWidth(5) = 1000
    ButWidth(6) = 1450
    ButWidth(7) = 1150
    ButWidth(8) = 1080
    ButLeft(2) = 4410
    ButLeft(3) = 5100
    ButLeft(4) = 6750
    ButLeft(5) = 7750
    ButLeft(6) = 9180
    ButLeft(7) = 10330
    ButLeft(8) = 11410

    For X = 1 To 8
      SearchCat(X).Width = ButWidth(X) + (HeadExpand * 44.5)
    Next X
    For X = 2 To 8
      SearchCat(X).Left = SearchCat(X - 1).Left + SearchCat(X - 1).Width - 15
```

```
    Next X
End Sub
Sub FormatHeaders()
  'Expands the headers of the spreadsheets to match screen width
    On Error Resume Next
    Playlist(0).FormatString = "|<Song Title                    " & Space(5 * HeadExpand) & "|<Artist                    " &
Space(5 * HeadExpand)
    Playlist(1).FormatString = "|<Song Title                    " & Space(HeadExpand) & "|<Artist                    " &
Space(HeadExpand) & "|^Date    " & Space(HeadExpand) & "|^Music Category      " & Space(HeadExpand) & "|^Music Style  "
& Space(HeadExpand) & "|^Dance Type      " & Space(HeadExpand) & "|^Music Speed   " & Space(HeadExpand) & "|^Energy
" & Space(HeadExpand)
    searchlist.FormatString = "|<Song Title                    " & Space(HeadExpand) & "|<Artist                    " &
Space(HeadExpand) & "|^Date    " & Space(HeadExpand) & "|^Music Category      " & Space(HeadExpand) & "|^Music Style  "
& Space(HeadExpand) & "|^Dance Type      " & Space(HeadExpand) & "|^Music Speed   " & Space(HeadExpand) & "|^Energy
" & Space(HeadExpand)
End Sub
Sub CheckSub(checker As String)
    If checker = "Sub1" Then
        SubCol = "Sub2"
        SubCount = 0
    ElseIf checker = "Sub2" Then
        SubCol = "Sub3"
    ElseIf checker = "Sub3" Then
        SubCol = "Sub4"
    ElseIf checker = "Sub4" Then
        SubCol = "Sub5"
    ElseIf checker = "Sub5" Then
        SubCol = "Sub6"
    ElseIf checker = "Sub6" Then
        SubCol = "Sub7"
    ElseIf checker = "Sub7" Then
        SubCol = "Sub8"
    ElseIf checker = "Sub8" Then
        SubCol = "Sub9"
    ElseIf checker = "Sub9" Then
        SubCol = "Sub10"
    ElseIf checker = "Sub10" Then
        SubCol = "Sub11"
    ElseIf checker = "Sub11" Then
        SubCol = "Sub1"

    End If
    SubCount = SubCount - 1
End Sub

'Option Compare Text
Sub CheckMain(checker2 As String)
    If checker2 = "Main" Then
        Cat1 = "Main1"
    ElseIf checker2 = "Main1" Then
        Cat1 = "Main2"
        MainCount = 0
    ElseIf checker2 = "Main2" Then
        Cat1 = "Main3"
```

```
    ElseIf checker2 = "Main3" Then
      Cat1 = "Main4"
    ElseIf checker2 = "Main4" Then
      Cat1 = "Main5"
    ElseIf checker2 = "Main5" Then
      Cat1 = "Main6"
    ElseIf checker2 = "Main6" Then
      Cat1 = "Main7"
    ElseIf checker2 = "Main7" Then
      Cat1 = "Main8"
    ElseIf checker2 = "Main8" Then
      Cat1 = "Main1"

    End If
    MainCount = MainCount - 1
End Sub
Sub CheckOnDeck()
Dim songlist2 As String
Dim songlength2 As Integer
On Error GoTo errorhandler
If Playlist(0).Rows > 1 Then

      songlength2 = Val(Playlist(0).TextMatrix(1, 0))

      Playlist(0).row = 1
      Playlist(1).row = 1
      Playlist(0).BackColorSel = Playlist(0).CellBackColor
      Playlist(0).ForeColorSel = Playlist(0).CellForeColor
      Playlist(1).BackColorSel = Playlist(1).CellBackColor
      Playlist(1).ForeColorSel = Playlist(1).CellForeColor

      Screen1.cursong(OtherChannel).Text = Playlist(0).TextMatrix(1, 1)
      Screen1.cursong(OtherChannel).BackColor = Playlist(0).CellBackColor
      Screen1.Text1(OtherChannel).Text = Format(TimeSerial(0, 0, songlength2), "hh:mm:ss")
      Screen1.TimeElapsed(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
      For X = 0 To 8
        Screen1.CurrentSongExpanded(OtherChannel).TextMatrix(1, X) = Playlist(1).TextMatrix(1, X)
        Screen1.CurrentSongExpanded(OtherChannel).CellBackColor = Playlist(1).CellBackColor
        Screen1.CurrentSongExpanded(OtherChannel).BackColorSel = Playlist(1).CellBackColor
        Screen1.CurrentSongExpanded(OtherChannel).ForeColorSel = Playlist(1).CellForeColor

      Next X
      Data1.Recordset.Close
    Else
      Screen1.cursong(OtherChannel).Text = ""
      Screen1.cursong(OtherChannel).BackColor = &H80000009
      Screen1.Text1(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
      Screen1.TimeElapsed(OtherChannel).Text = Format(TimeSerial(0, 0, 0), "hh:mm:ss")
    End If
    Screen1.PlayLab(OtherChannel).Visible = False
    Screen1.Quelab(OtherChannel).Visible = True
    Exit Sub

errorhandler:
```

```
    Exit Sub

End Sub

Private Sub AllSpeeds_Click()
  AllSpeeds.Visible = False
  AllSpeeds.Enabled = False
End Sub

Private Sub CancelSubScreen_Click()
  CancelSearch = True
End Sub

Private Sub ENTERKEY_Click()
  If searchfield.Visible = True Then
  BeginSearch.SetFocus
  'SendKeys "{end}"
  SendKeys "{enter}"
Else
  TimeOK.SetFocus
  SendKeys "{enter}"
End If

End Sub

Private Sub ExitSystem_Click()
  response = MsgBox("Are you sure you want to exit the system?", 4)
  If response = vbNo Then
    Exit Sub
  Else
    ExitButtonPushed = True
    EndItAll
  End If
End Sub

Private Sub Form_GotFocus()
  On Error Resume Next
  Screen2.DD.Group = "Screen2"
End Sub

Private Sub Form_QueryUnload(Cancel As Integer, UnloadMode As Integer)
  Dim Msg ' Declare variable.
  If ExitButtonPushed = False Then

    Msg = "Do you really want to exit the application?"

  Else
    EndItAll
    ExitButtonPushed = True
  End If

End Sub

Private Sub Form_Resize()
```

```
If WindowState = 2 Then
   Screen1.WindowState = 2
   Recorder.WindowState = 2
   HeadExpand = 0
   Call FormatHeaders
   Call ExpandListButs
   HeadExpand = (Screen2.Width - 11565) / 443
   Call FormatHeaders
   Call ExpandListButs
   If ExpandList.Caption = "EXPAND" Then
      Picture1.Left = 6720
      Picture1.Width = Screen.Width - 6830
      SinglePlayTime.Left = Screen.Width + 100
      Label5.Left = Screen.Width + 100
      Label1.Left = 1440
   Else
      Picture1.Left = 0
      Picture1.Width = Screen2.Width - 195
      Playlist(1).Left = 0
      SinglePlayTime.Left = 4800
      Label5.Left = 6240
      Label1.Left = 0.41 * Picture1.Width
   End If
   Picture1.Top = 0

   Picture4.Height = Screen.Height - 6290
   Picture4.Width = Screen2.Width - 195
   searchlist.Width = Picture4.Width - 100
   searchlist.Height = Picture4.Height - 600
   For X = 0 To 4
      ScreenShow(X).Top = Screen.Height - 1155
   Next X
   undo.Top = Screen.Height - 1155
   Help.Top = Screen.Height - 1155
   SavePlay.Top = Screen.Height - 1490
   PlayButton.Top = Screen.Height - 1490
   LoadPlay.Top = Screen.Height - 995
   Now.Top = Screen.Height - 995

   ScreenShow(0).Left = 0.311 * Screen.Width
   For X = 1 To 4
      ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
   Next X
   undo.Left = Screen.Width - 2025
   Help.Left = Screen.Width - 2985
   Label2.Left = 0.4 * Screen.Width
   search.Left = Screen.Width - 4575
   ClrSrch.Left = Screen.Width - 2175
   Playlist(0).Width = Picture1.Width - 240
   Playlist(1).Width = Screen.Width

Else
   HeadExpand = 0
   maxed = True
```

```
        Call FormatHeaders
        Call ExpandListButs
        HeadExpand = (Screen2.Width - 11565) / 340
        Call ExpandListButs
        Call FormatHeaders
        If ExpandList.Caption = "EXPAND" Then
           Picture1.Left = 6720
           Picture1.Width = 4815
           Playlist(1).Left = 120
           Playlist(0).Left = 120
           Label1.Left = 1440
        Else
           Picture1.Left = 0
           Picture1.Width = 11535
           Playlist(1).Left = 0
           Playlist(0).Left = 0
           Label1.Left = 4200
        End If
        SinglePlayTime.Left = 4800
        Label5.Left = 6240
        Picture1.Top = 0
        Picture4.Height = 2775
        Picture4.Width = 11535
        searchlist.Width = 11435
        searchlist.Top = 480
        searchlist.Height = 2175
        For X = 0 To 4
           ScreenShow(X).Top = 7800
        Next X
        undo.Top = 7800
        Help.Top = 7800
        LoadPlay.Top = 7560
        Now.Top = 8040
        SavePlay.Top = 8040
        PlayButton.Top = 7560
        Label2.Left = 4080
        ScreenShow(0).Left = 3600
        For X = 1 To 4
           ScreenShow(X).Left = ScreenShow(X - 1).Left + 1200
        Next X
        undo.Left = 9540
        Help.Left = 8580
        search.Left = 6840
        ClrSrch.Left = 9240
        Playlist(0).Width = Picture1.Width - 240
        Playlist(1).Width = 11535
     End If
     ExitSystem.Left = undo.Left + 975
     ExitSystem.Top = undo.Top
End Sub
Private Sub AddList_Click(Index As Integer)
Dim i As Integer
Dim j As Integer
Dim oldcolor, oldcolor2, oldcolor3 As Long
```

```
Dim oldtime As Integer
On Error GoTo errorhandler
delete.Enabled = True
ExpandList.Enabled = True
SavePlay.Enabled = True
Command1.Enabled = True
RndMix.Enabled = True
If IsNull(channel) Then
   channel = 1
   OtherChannel = 2
End If
MousePointer = 11
'select the text from the search list
Now.BackColor = &HFF&
Now.Enabled = True
PlayButton.Enabled = True
PlayBunon.BackColor = &HFF8080
undo.Enabled = True
   UndoEvent = 0
   If Playlist(0).Rows = 1 Then
      numRows = 0
   Else
      SavePlayList
   End If
If searchlist.Rows >= 1 Then

   'if the PICK bunon is pushed
   If Index = 1 Then
      If SelList = 1 Then
         PlaySongs = PlaySongs + 1
         zed = zed + 1
         For i = 0 To 8
            selsong(i) = searchlist.TextMatrix(searchlist.row, i)
            PlayedSongs(1, zed, i) = searchlist.TextMatrix(searchlist.row, i)

         Next i
         PlayedSongs(1, zed, 9) = searchlist.CellBackColor
         Playlist(0).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2)
         Playlist(1).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2) & Chr(9) & selsong(3) & Chr(9) &
selsong(4) & Chr(9) & selsong(5) & Chr(9) & selsong(6) & Chr(9) & selsong(7) & Chr(9) & selsong(8)
         'add a song to the total to be played

         NumSongs.Text = PlaySongs
         Playlist(0).row = Playlist(0).Rows - 1
         Playlist(1).row = Playlist(1).Rows - 1
         'add the song time to the play time box
         SongsTime = SongsTime + CLng(Val(searchlist.TextMatrix(searchlist.row, 0)))
         timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
         For z = 0 To 2
            Playlist(0).Col = z
            Playlist(0).CellBackColor = searchlist.CellBackColor
            Playlist(0).BackColorSel = searchlist.CellBackColor
            Playlist(0).ForeColorSel = searchlist.CellForeColor
         Next z
```

```
    For z = 0 To 8
      Playlist(1).Col = z
      Playlist(1).CellBackColor = searchlist.CellBackColor
      Playlist(1).BackColorSel = searchlist.CellBackColor
      Playlist(1).ForeColorSel = searchlist.CellForeColor
    Next z
  End If
  'if the NEXT button is pushed
ElseIf Index = 0 Then

  'if the searchlist is selected
  If SelList = 1 Then
    zed = zed + 1
    For i = 0 To 8
      selsong(i) = searchlist.TextMatrix(searchlist.row, i)
      PlayedSongs(1, zed, i) = searchlist.TextMatrix(searchlist.row, i)
    Next i
    PlayedSongs(1, zed, 9) = searchlist.CellBackColor
    'if the is only one row in the playlist (fixed top)
    If Playlist(0).Rows = 1 Then
      Playlist(0).Rows = Playlist(0).Rows + 1
      Playlist(1).Rows = Playlist(1).Rows + 1
      NumSongs.Text = PlaySongs
      time = CLng(Val(searchlist.TextMatrix(searchlist.row, 0)))
      SongsTime = SongsTime + CLng(Val(searchlist.TextMatrix(searchlist.row, 0)))
      timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
      For j = 0 To 2
        Playlist(0).TextMatrix(1, j) = selsong(j)
        Playlist(0).row = 1
        Playlist(0).Col = j
        Playlist(0).CellBackColor = searchlist.CellBackColor
        Playlist(0).BackColorSel = searchlist.CellBackColor
        Playlist(0).ForeColorSel = searchlist.CellForeColor
      Next j
      For j = 0 To 8
        Playlist(1).TextMatrix(1, j) = selsong(j)
        Playlist(1).row = 1
        Playlist(1).Col = j
        Playlist(1).CellBackColor = searchlist.CellBackColor
        Playlist(1).BackColorSel = searchlist.CellBackColor
        Playlist(1).ForeColorSel = searchlist.CellForeColor
      Next j
    Else
      'if the is more than one row in the playlist
      Playlist(0).Rows = Playlist(0).Rows + 1
      Playlist(1).Rows = Playlist(1).Rows + 1
      PlaySongs = PlaySongs + 1
      NumSongs.Text = PlaySongs

      For i = Playlist(0).Rows - 2 To 1 Step -1
        For X = 0 To 1
          Playlist(X).row = i
          oldcolor = Playlist(X).CellBackColor
          Playlist(X).RowPosition(i) = i + 1
```

```
            Playlist(X).row = i + 1
        Next X
        For j = 0 To 2
            Playlist(0).Col = j
            'change color
            Playlist(0).CellBackColor = oldcolor
            Playlist(0).BackColorSel = searchlist.CellBackColor
            Playlist(0).ForeColorSel = searchlist.CellForeColor
        Next j
        For j = 0 To 8
          Playlist(1).Col = j
            'change color
            Playlist(1).CellBackColor = oldcolor
            Playlist(1).BackColorSel = searchlist.CellBackColor
            Playlist(1).ForeColorSel = searchlist.CellForeColor
        Next j

      Next i
      For i = 0 To 8
        selsong(i) = searchlist.TextMatrix(searchlist.row, i)
      Next i
      For j = 0 To 2
        Playlist(0).TextMatrix(1, j) = selsong(j)
        Playlist(0).row = 1
        Playlist(0).Col = j
        Playlist(0).CellBackColor = searchlist.CellBackColor
        Playlist(0).BackColorSel = searchlist.CellBackColor
        Playlist(0).ForeColorSel = searchlist.CellForeColor
      Next j
      For j = 0 To 8
        Playlist(1).TextMatrix(1, j) = selsong(j)
        Playlist(1).row = 1
        Playlist(1).Col = j
        Playlist(1).CellBackColor = searchlist.CellBackColor
        Playlist(1).BackColorSel = searchlist.CellBackColor
        Playlist(1).ForeColorSel = searchlist.CellForeColor
      Next j
      SongsTime = SongsTime - CLng(Val(searchlist.TextMatrix(searchlist.row, 0)))
      timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
    End If
Else
  'if the playlist is selected then just move the song to the top
  If Playlist(0).Rows = 1 Then
    MsgBox "the Song you want to move is already next!"

  Else

    X = Playlist(0).row
    For Y = 0 To 8
      selsong(Y) = Playlist(1).TextMatrix(X, Y)
    Next Y
    oldcolor2 = Playlist(0).CellBackColor
    oldcolor3 = Playlist(0).CellForeColor
```

```
            For i = X - 1 To 1 Step -1
              Playlist(0).row = i
              Playlist(1).row = i
              oldcolor = Playlist(0).CellBackColor
              For j = 0 To 2
                Playlist(0).TextMatrix(i + 1, j) = Playlist(0).TextMatrix(i, j)
                Playlist(0).row = i + 1
                Playlist(0).Col = j
                'change color
                Playlist(0).CellBackColor = oldcolor
                Next j
              For j = 0 To 8
                Playlist(1).TextMatrix(i + 1, j) = Playlist(1).TextMatrix(i, j)
                Playlist(1).row = i + 1
                Playlist(1).Col = j
                'change color
                Playlist(1).CellBackColor = oldcolor
              Next j
            Next i
            For j = 0 To 2
              Playlist(0).TextMatrix(1, j) = selsong(j)
              Playlist(0).row = 1
              Playlist(0).Col = j
              Playlist(0).CellBackColor = oldcolor2
              Playlist(0).BackColorSel = oldcolor2
              Playlist(0).ForeColorSel = oldcolor3
            Next j
            For j = 0 To 8
              Playlist(1).TextMatrix(1, j) = selsong(j)
              Playlist(1).row = 1
              Playlist(1).Col = j
              Playlist(1).CellBackColor = oldcolor2
              Playlist(1).BackColorSel = oldcolor2
              Playlist(1).ForeColorSel = oldcolor3
            Next j
          End If
        End If
        'searchlist.Removeltem searchlist.RowPosition
      End If
    End If
    MousePointer = 0
    UndoRow = Playlist(0).row
    Call CheckOnDeck
    Exit Sub

errorhandler:
    MsgBox ("Sorry, there was a problem with the song data...unable to add to playlist")
    MousePointer = 0
End Sub

Private Sub backup_Click()
If searchfield.Visible = True Then
    searchfield.SetFocus
    SendKeys "{end}"
```

```
    SendKeys "{backspace}"
    SendKeys "{tab}"
  Else
    TimeInput.SetFocus
    SendKeys "{end}"
    SendKeys "{backspace}"
    SendKeys "{tab}"
  End If
  End Sub

  Private Sub BeginSearch_Click()
  'loop to search the Access database
  Dim position, final As Long
  Dim flag As Boolean
  Dim selection As String
  Dim Mcat1 As String
  Dim string2 As String * 255
  Dim SelTag As String
  Dim tempfield(9) As String
  Dim finalfield(10) As String
  'SaveSearchList
  On Error GoTo errorhandler
  keyboard.Visible = False
  delete.Enabled = False
  AddList(1).Enabled = False
  AddList(0).Enabled = False
  CancelSearch = False
  If searchflag >= 10 Then
      MsgBox "Sorry, you have already narrowed your search to ten categories !!!"
      MousePointer = 0

      searchfield.Text = ""
      search.Enabled = True
      For i = 1 To 8
        SearchCat(i).Enabled = False
      Next i
      AddList(0).Enabled = True
      AddList(1).Enabled = True
      ClrSrch.Enabled = True
      Organize.Enabled = True
      Exit Sub
  End If
    UndoEvent = 1
    SaveSearchList
    undo.Enabled = True
    flag = True
    SearchCats(0, searchflag) = colnum
    SearchCats(1, searchflag) = searchfield.Text
    csearch(searchflag).Caption = searchfield.Text
    MousePointer = 11
    'search data base for first search
    If searchflag = 0 Then
      selection = "*" & Trim(searchfield.Text) & "*"
      If colnum >= 4 Then
```


CL 000427

```
        Data2.RecordSource = Trim(Str(colnum))
        Data2.Refresh
        Data3.Refresh
        Data2.Recordset.MoveLast
        Data3.Recordset.MoveLast
        Data2.Recordset.MoveFirst
        Data3.Recordset.MoveFirst
        Data2.Recordset.FindFirst "Label LIKE " & selection
        If Data2.Recordset.NoMatch Then
          MsgBox ("Sorry...Could not find that entry.")
          flag = False

        Else
          SelTag = Data2.Recordset.Fields("Tag")
          selection = "'" & SelTag & "'"
        End If
      End If

MainLoop:
    DoEvents
    Data1.RecordSource = "LP Complete Music Guide"
    Data1.Refresh
    Data2.Refresh
    Data3.Refresh
    Data1.Recordset.MoveLast
    Data3.Recordset.MoveLast
    Data1.Recordset.MoveFirst
    Data3.Recordset.MoveFirst

    Data1.Recordset.FindLast Cat1 & " LIKE " & selection
    If Data1.Recordset.NoMatch Then flag = False
    final = Data1.Recordset.AbsolutePosition
    Data1.Recordset.MoveFirst
    If flag = True Then
    SearchSongs = searchlist.Rows - 1
    Do Until position = final
      DoEvents
      Data1.Recordset.FindNext Cat1 & " LIKE " & selection
      If Data1.Recordset.NoMatch Then

        position = Data1.Recordset.AbsolutePosition

      Else
        position = Data1.Recordset.AbsolutePosition
        'assign song color to tracking array
        Data3.Recordset.MoveFirst
        If IsNull(Data1.Recordset.Fields("Main1")) Then
          Mcat1 = "none found"
          MnCatColor(SearchSongs) = &H80000005
        Else
          Mcat1 = Data1.Recordset.Fields("Main1")
          Data3.Recordset.FindFirst "Main1 = '" & Mcat1 & "'"
          MnCatColor(SearchSongs) = Val(Data3.Recordset.Fields("colorID"))
        End If
```

```
'find the abbreviations for each category
finalfield(9) = Val(Data3.Recordset.Fields("colorID"))
If IsNull(Data1.Recordset.Fields("time")) Then
   finalfield(0) = 300
Else
   finalfield(0) = Data1.Recordset.Fields("time")
End If
If IsNull(Data1.Recordset.Fields("Title")) Then
   finalfield(1) = "NL"
Else
   finalfield(1) = Data1.Recordset.Fields("Title")
End If
If IsNull(Data1.Recordset.Fields("Artist")) Then
   finalfield(2) = "NL"
Else
   finalfield(2) = Data1.Recordset.Fields("Artist")
End If
If IsNull(Data1.Recordset.Fields("Date")) Then
  finalfield(3) = "NL"
Else
  finalfield(3) = Data1.Recordset.Fields("Date")
End If
If IsNull(Data1.Recordset.Fields("Main1")) Then
   tempfield(4) = "NL"
Else
   tempfield(4) = Data1.Recordset.Fields("Main1")
End If
If IsNull(Data1.Recordset.Fields("Mstyle")) Then
   tempfield(5) = "NL"
Else
   tempfield(5) = Data1.Recordset.Fields("Mstyle")
End If
If IsNull(Data1.Recordset.Fields("Dtype")) Then
   tempfield(6) = "NL"
Else
   tempfield(6) = Data1.Recordset.Fields("Dtype")
End If
If IsNull(Data1.Recordset.Fields("Speed")) Then
   tempfield(7) = "NL"
Else
   tempfield(7) = Data1.Recordset.Fields("Speed")
End If
If IsNull(Data1.Recordset.Fields("Energy")) Then
   tempfield(8) = ""
Else
   tempfield(8) = Data1.Recordset.Fields("Energy")
End If
   For X = 4 To 8
   Data2.RecordSource = X
   Data2.Refresh
   Data2.Recordset.MoveLast
   Data2.Recordset.MoveFirst
   Data2.Recordset.FindFirst "Tag = '" & tempfield(X) & "'"
   finalfield(X) = Data2.Recordset.Fields("Label")
```

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```
            Next X
            searchlist.AddItem finalfield(0) & Chr(9) & finalfield(1) & Chr(9) & finalfield(2) & Chr(9) & finalfield(3) & Chr(9) &
finalfield(4) & Chr(9) & finalfield(5) & Chr(9) & finalfield(6) & Chr(9) & finalfield(7) & Chr(9) & finalfield(8)
            If IsNull(finalfield(0)) Then
              searchlist.TextMatrix(searchlist.row, 0) = 300
            End If

            searchlist.row = SearchSongs + 1
            For z = 0 To 8
              searchlist.Col = z
              searchlist.CellBackColor = MnCatColor(SearchSongs)
            Next z
            searchlist.BackColorSel = MnCatColor(SearchSongs)
            searchlist.ForeColorSel = searchlist.ForeColor
            SearchSongs = SearchSongs + 1
            search.Caption = "Narrow Search Results"
            searchflag = 1

          End If
          'move to the next data row in data base
          If CancelSearch = True Then
            Data1.Recordset.Close
            Data2.Recordset.Close
            Data3.Recordset.Close
            MousePointer = 0
            SearchScreen.Visible = False
            searchfield.Text = ""
            search.Enabled = True
            For i = 1 To 8
              SearchCat(i).Enabled = False
            Next i
            AddList(0).Enabled = True
            AddList(1).Enabled = True
            ClrSrch.Enabled = True
            Organize.Enabled = True
            Exit Sub
          End If
        Loop
        If colnum = 4 Then
          Call CheckMain(Cat1)
          If MainCount < 8 Then GoTo MainLoop
        End If
        MainCount = 0

        End If
        If SearchSongs > 0 Then flag = True
stoppoint:
        If flag = False Then
          MsgBox "Your entry was either mispelled or is not found in your current Music Library, Please go to Screen 4 and review and
select music from the LP MOAEC Music Library."
          MousePointer = 0
          Data1.Recordset.Close
          Data2.Recordset.Close
```

```
        Data3.Recordset.Close
        keyboard.Visible = True
        searchfield.Text = ""
        searchfield.SetFocus
        Exit Sub
      End If
      Data1.Recordset.Close
      Data2.Recordset.Close
      Data3.Recordset.Close


    ElseIf searchflag < 10 And searchflag <> 0 Then
      'if searchlist is already full, narrow the field

        For j = 1 To searchflag
        i = 1
        Do While i <= searchlist.Rows - 1
        If searchlist.Rows <= 2 Then Exit Do
          If SearchCats(0, j) <> 9 Then
            result = InStr(1, searchlist.TextMatrix(i, SearchCats(0, j)), SearchCats(1, j), 1)
            If result = 0 Then
              searchlist.row = i
              searchlist.RemoveItem searchlist.row
              SearchSongs = SearchSongs - 1

            Else
              i = i - 1
            End If
          ElseIf SearchCats(0, j) = 9 Then
            result = InStr(1, searchlist.TextMatrix(i, SearchCats(0, j)), SearchCats(1, j), 1)
            If result = 0 Then
              searchlist.row = i
              searchlist.RemoveItem searchlist.row
              SearchSongs = SearchSongs - 1

            Else
              i = i - 1
            End If
          End If

        Loop
        Next j
        searchflag = searchflag + 1

    End If

  'once the search is complete, hide the screen

  MousePointer = 0
  SearchScreen.Visible = False
  searchfield.Text = ""
  search.Enabled = True
    For i = 1 To 8
      SearchCat(i).Enabled = False
```

```
    Next i
  AddList(0).Enabled = True
  AddList(1).Enabled = True
  ClrSrch.Enabled = True
  Organize.Enabled = True
  Exit Sub

  errorhandler:
    MsgBox "Sorry. There was an error accessing music database." & Chr(13) & "Please make sure the database is properly installed
  or" & Chr(13) & "contact Looney Productions."
    MousePointer = 0

  SearchScreen.Visible = False
  searchfield.Text = ""
  search.Enabled = True
    For i = 1 To 8
      SearchCat(i).Enabled = False
    Next i
  AddList(0).Enabled = True
  AddList(1).Enabled = True
  ClrSrch.Enabled = True
  Organize.Enabled = True
  Exit Sub
  End Sub

  Private Sub Cancel_Click()
    keyboard.Visible = False
    SearchScreen.Visible = False
    searchfield.Text = ""
    search.Enabled = True
    For i = 1 To 8
      SearchCat(i).Enabled = False
    Next i
    CancelSearch = True
  End Sub

  Private Sub Category1_Click(Index As Integer)
  Dim i As Integer
  Dim j As Integer
  Dim flag As Boolean
  Dim TempCat, TempCat2 As String
  Dim c As Integer

  Mix.BackColor = &H8000000F
  PlayTime.BackColor = &H8000000F
  Mix.BackColor = &H8000000F
  For i = 0 To 3
    SongSpeed(i).BackColor = &H8000000F
    AllSpeeds.BackColor = &H8000000F


  Next i

  For i = 0 To 2
```

```
    csearch(i).Caption = ""
  Next i
  csearch(0).Caption = "none"
  searchflag = 0
  SelList = 0
  SelCat1 = Category1(Index).Tag
  If Index = 24 Then
    Cat1 = "Dtype"
  ElseIf Index = 25 Then
    Cat1 = "Main1"
  Else
    Cat1 = "Main1"
  End If
  SubCol = "Sub1"
  'if clicked twice, goto category 2 screen and clear time options
  If Index = 23 Then
    Call ListFavHits
    Exit Sub
  End If
  If (cat1count = 1) And (Index = cliktrak) Then
    Call titlefrm.Main
    CatColor = Category1(Index).BackColor

    Category(0).BackColor = CatColor
    Category(1).BackColor = CatColor
    Category(0).Caption = Category1(Index).Tag
    FavHitsLab1.Caption = Category1(Index).Tag
    FavHitsLab1.BackColor = CatColor
    FavHitsLab2.BackColor = CatColor
    Category(1).Visible = False
    cat1count = 0
    For X = 0 To 23
      Category2(X).Caption = ""
      Category2(X).BackColor = &H8000000F
      i = i - 1
    Next X
    'disable speed buttons since switching to screen 3
    For i = 0 To SongSpeed.count - 1
      AllSpeeds.Enabled = False
      SongSpeed(i).Enabled = False
      SongSpeed(i).BackColor = &H8000000F
      AllSpeeds.BackColor = &H8000000F

    Next i
    For i = 0 To 5
      FavHits(i).BackColor = CatColor
    Next i
    Mix.Enabled = False
    PlayTime.Enabled = False
    Mix.BackColor = &H8000000F
    PlayTime.BackColor = &H8000000F
    'change screen lights to screen 3 red
    For i = 0 To 4
      Screen2.ScreenShow(i).BackColor = &H8000000F
```


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```
    Screen2.ScreenShow(i).ForeColor = &H80000012
  Next i
  If Index <> 23 Then
    Screen2.ScreenShow(2).BackColor = &HC0&
    Screen2.ScreenShow(2).ForeColor = &H8000000E
    cat1screen.Visible = False
    FavHitsScrn.Visible = False
    cat2screen.Visible = True
  End If
  For i = 0 To 8
    searchdate(i).BackColor = CatColor
  Next i
  'Make sure the static categories match the button
  If Index = 20 Then
    subcatcount = 9
    subcattotal = 9
    FinalCats(7) = StaticCats(9)
    FinalCats(8) = StaticCats(10)
    FinalCats(9) = StaticCats(11)
  ElseIf Index = 18 Then
    subcatcount = 8
    subcattotal = 8
    FinalCats(7) = StaticCats(8)
    FinalCats(8) = StaticCats(11)
  ElseIf Index = 1 Then
    subcatcount = 7
    subcattotal = 7
    FinalCats(7) = StaticCats(7)
  Else
    subcatcount = 6
    subcattotal = 6
  End If
  'make the temporary subcats array with tags
  For X = 1 To subcattotal
  DoEvents
  If CancelSearch = True Then GoTo stopme
    Data2.RecordSource = "Subs"
      Data2.Refresh
      Data3.Refresh
      Data2.Recordset.MoveLast
      Data3.Recordset.MoveLast
      Data2.Recordset.MoveFirst
      Data3.Recordset.MoveFirst
      Data2.Recordset.FindFirst "Label = " & FinalCats(X) & ""
      If Data2.Recordset.NoMatch Then
        flag = True

      Else
        SubCats(X) = Data2.Recordset.Fields("Tag")

      End If
Next X
```

```
'FIND THE SONG CATEGORY TAG THAT MATCHES THE BUTTON
For X = 1 To subcattotal
DoEvents
If CancelSearch = True Then GoTo stopme
  If SelCat1 = "Energy" Then
    SelCat1 = "EN"
  Else
    Data2.RecordSource = 4
    Data2.Refresh
    Data3.Refresh
    Data2.Recordset.MoveLast
    Data3.Recordset.MoveLast
    Data2.Recordset.MoveFirst
    Data3.Recordset.MoveFirst
    Data2.Recordset.FindFirst "Label = '" & SelCat1 & "'"
    If Data2.Recordset.NoMatch Then
      flag = True

    Else
      SelTag = Data2.Recordset.Fields("Tag")
      SelCat1 = SelTag
      MemCat = SelTag
    End If
  End If
Next X

'fill secondary category buttons with text from data
MainSubLoop:
  DoEvents
  If CancelSearch = True Then GoTo stopme
  Data1.Refresh
  Data1.Recordset.MoveLast
  Data1.Recordset.MoveFirst
  MousePointer = 11
LoopReset:

  i = 0
    For j = 1 To Data1.Recordset.RecordCount
      'if cat1 matches the first button, type cat2 in the screen3 buttons

      'that is if cat2 is not blank
      If UCase(Data1.Recordset.Fields("Main1")) = UCase(Trim(SelCat1)) And (Data1.Recordset.Fields(SubCol) <> "") Then
        If IsNull(Data1.Recordset.Fields(SubCol)) Then
          j = j + 1
          GoTo LoopReset
        End If
        'and if it isn't already on a button
        flag = False
        'find new subcategories not default from database
          subcatcount = subcattotal
          For I = 1 To subcatcount
            If Data1.Recordset.Fields(SubCol) = SubCats(I) Then
              flag = True
            End If
```


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```
        Next I
        If flag = False Then
          SubCats(subcatcount + 1) = Data1.Recordset.Fields(SubCol)
          subcattotal = subcattotal + 1

        End If
      End If
  Data1.Recordset.MoveNext
  Next j

  Call CheckSub(SubCol)
  If SubCount < 11 Then GoTo MainSubLoop
  SubCount = 0
  For X = 1 To subcattotal
    Data2.RecordSource = "Subs"
    Data2.Refresh
    Data3.Refresh
    Data2.Recordset.MoveLast
    Data3.Recordset.MoveLast
    Data2.Recordset.MoveFirst
    Data3.Recordset.MoveFirst
    Data2.Recordset.FindFirst "Tag = '" & SubCats(X) & "'"

  Next X
  'sort subcats array
  For t = subcattotal To 1 Step -1
    DoEvents
    If CancelSearch = True Then GoTo stopme
    TempCat = FinalCats(t - 1)
    TempCat2 = SubCats(t - 1)
    c = StrComp(TempCat, FinalCats(t),
      If c = 1 Then
        FinalCats(t - 1) = FinalCats(t)
        SubCats(t - 1) = SubCats(t)
        FinalCats(t) = TempCat
        SubCats(t) = TempCat2
        t = subcattotal - 1
      End If
  Next t

  'fill buttons with the finalcats array
  For X = 0 To subcattotal - 1
    Category2(X).Caption = FinalCats(X - 1)
    Category2(X).BackColor = Category1(Index).BackColor
    j = j + 1
  Next X


  'make the last of the buttons (if any) blank
  Do While i <= 25
    Category2(i).Caption = " "
    Category2(i).BackColor = &H8000000F
    i = i - 1
```

```
    Loop
stopme:

    Data2.Recordset.Close
    Data3.Recordset.Close
    cat1screen.Visible = False
    cat2screen.Visible = True
    MousePointer = 0
    'reset color of speed buttons
    CancelSearch = False
    Exit Sub
End If

'otherwise assign button caption to primary category variable
cliktrak = Index
'enable speed selection buttons
CatColor = Category1(Index).BackColor
PlayTime.BackColor = CatColor
PlayTime.Enabled = True
Mix.Enabled = True
Mix.BackColor = CatColor
  For i = 0 To SongSpeed.count - 1
    AllSpeeds.Enabled = True
    SongSpeed(i).Enabled = True
    SongSpeed(i).BackColor = CatColor
    AllSpeeds.BackColor = CatColor
  Next i
  cat1count = 1
End Sub

Private Sub Category2_Click(Index As Integer)
  Dim flag As Boolean
  Dim i As Integer
  Dim tempfield(9) As String
  Dim finalfield(10) As String

  If Category2(Index).Caption = ButMem Then
    MsgBox ("You just picked that button...Please pick another.")
    Exit Sub
  End If
  ButMem = Category2(Index).Caption

  Cat1 = "Main1"
  flag = False
  Category(1).Caption = Category2(Index).Caption
  Category(1).Visible = True

  If Category2(Index).Caption = "Favorite Hits" Then
    ListFavHits
    Exit Sub
  End If
  If Category2(Index).Caption = "ENERGY" Then SubCol = "Energy"
  'fill search screen with selections from the categories
  MousePointer = 11
```

```
    If SelCat1 = "SPMIX" Or SelCat1 = "Special Mixes" Then
        Cat1 = "Main3"
        SelCat1 = "SPMIX"

    ElseIf SelCat1 = "EN" Or SelCat1 = "Energy" Then
        Cat1 = "Main2"
        SelCat1 = "EN"
    ElseIf SelCat1 = "EL" Or SelCat1 = "Easy Listening" Then
        Cat1 = "Mstyle"
        SelCat1 = "EL"
    ElseIf SelCat1 = "Special Dance" Or SelCat1 = "SPD" Then
        Cat1 = "Dtype"
        SelCat1 = "SPD"
    End If
MainLoop:
    DoEvents
    Data1.Refresh
    Data3.Refresh
    Data1.Recordset.MoveLast
    Data3.Recordset.MoveLast
    Data1.Recordset.MoveFirst
    Data3.Recordset.MoveFirst

  For i = 1 To Data1.Recordset.RecordCount

    'if the data base field matches search criteria, write it to the searchlist
    If UCase(Data1.Recordset.Fields(Cat1)) = SelCat1 And UCase(Data1.Recordset.Fields(SubCol)) = UCase(Trim(SubCats(Index
- 1))) Then
        Data3.Recordset.MoveFirst
        If IsNull(Data1.Recordset.Fields("Main1")) Then
          Mcat1 = "none listed"
          MnCatColor(SearchSongs) = &H80000005
        Else
          Mcat1 = Data1.Recordset.Fields("Main1")
          Data3.Recordset.FindFirst "Main1 = '" & Mcat1 & "'"
          MnCatColor(SearchSongs) = Val(Data3.Recordset.Fields("colorID"))
          finalfield(9) = Val(Data3.Recordset.Fields("colorID"))
          If IsNull(Data1.Recordset.Fields("time")) Then
            finalfield(0) = 300
          Else
            finalfield(0) = Data1.Recordset.Fields("time")
          End If
          If IsNull(Data1.Recordset.Fields("Title")) Then
            finalfield(1) = "NL"
          Else
            finalfield(1) = Data1.Recordset.Fields("Title")
          End If
          If IsNull(Data1.Recordset.Fields("Artist")) Then
            finalfield(2) = "NL"
          Else
            finalfield(2) = Data1.Recordset.Fields("Artist")
          End If
          If IsNull(Data1.Recordset.Fields("Date")) Then
            finalfield(3) = "NL"
```


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```
            Else
              finalfield(3) = Data1.Recordset.Fields("Date")
            End If
            If IsNull(Data1.Recordset.Fields("Main1")) Then
              tempfield(4) = "NL"
            Else
              tempfield(4) = Data1.Recordset.Fields("Main1")
            End If
            If IsNull(Data1.Recordset.Fields("Mstyle")) Then
              tempfield(5) = "NL"
            Else
              tempfield(5) = Data1.Recordset.Fields("Mstyle")
            End If
            If IsNull(Data1.Recordset.Fields("Dtype")) Then
              tempfield(6) = "NL"
            Else
              tempfield(6) = Data1.Recordset.Fields("Dtype")
            End If
            If IsNull(Data1.Recordset.Fields("Speed")) Then
              tempfield(7) = "NL"
            Else
              tempfield(7) = Data1.Recordset.Fields("Speed")
            End If
            If IsNull(Data1.Recordset.Fields("Energy")) Then
              tempfield(8) = ""
            Else
              tempfield(8) = Data1.Recordset.Fields("Energy")
            End If
              For X = 4 To 8
              Data2.RecordSource = X
              Data2.Refresh
              Data2.Recordset.MoveLast
              Data2.Recordset.MoveFirst
              Data2.Recordset.FindFirst "Tag = '" & tempfield(X) & "'"
              finalfield(X) = Data2.Recordset.Fields("Label")
              Data2.Recordset.Close
            Next X
            searchlist.AddItem finalfield(0) & Chr(9) & finalfield(1) & Chr(9) & finalfield(2) & Chr(9) & finalfield(3) & Chr(9) &
finalfield(4) & Chr(9) & finalfield(5) & Chr(9) & finalfield(6) & Chr(9) & finalfield(7) & Chr(9) & finalfield(8)
          Stime(searchlist.row) = Data1.Recordset.Fields("time")
          flag = True
          SearchSongs = SearchSongs + 1
          search.Caption = "Narrow Search Results"
          searchflag = 1
          End If

            searchlist.row = SearchSongs
            For z = 0 To 8
              searchlist.Col = z
              searchlist.CellBackColor = finalfield(9)
            Next z
            searchlist.BackColorSel = finalfield(9)
            searchlist.ForeColorSel = searchlist.ForeColor
```


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```
        End If

        'move to the next data row in data base
        Data1.Recordset.MoveNext
      Next i
      If Category2(Index).Caption <> "ENERGY" Then
        Call CheckSub(SubCol)
        If SubCount < 11 Then GoTo MainLoop
      End If
      SubCount = 0
      SubCol = "Sub1"
      Data1.Recordset.Close
      Data3.Recordset.Close
      MousePointer = 0
      AddList(0).Enabled = True
      AddList(1).Enabled = True
      ClrSrch.Enabled = True
      Organize.Enabled = True
      If flag = False Then
        MsgBox "No matches were found for your search.  Please try again."
        Exit Sub
      End If

    End Sub

    Private Sub ClrSrch_Click()

    'clear all items off the search list
      UndoEvent = 1
      SaveSearchList
      Call ClearSearchList

    End Sub

    Public Sub Command1_Click()
    Dim answer As Variant
    answer = MsgBox("Are you sure you want to delete the current play list?", 4, "Clear Play List")
    If answer = vbNo Then
      Exit Sub
    Else
      UndoEvent = 0
      SavePlayList
      ClearPlayList
      RndMix.Enabled = False
      If maxed = True Then
        Picture1.Left = 6720
        Picture1.Width = Screen2.Width - 6830
        SinglePlayTime.Left = Screen.Width - 100
        Label5.Left = Screen.Width - 100
        Label1.Left = 1440

      Else
        Picture1.Width = 4695
        Picture1.Left = 6720
```

```
    SinglePlayTime.Left = 4680
    Label5.Left = 6240
    Label1.Left = 1440

  End If
    ExpandList.Left = 120
    ExpandList.Caption = "EXPAND"
    AddList(0).Left = 1020
    AddList(1).Left = 1730
    RndMix.Left = 2430
    delete.Left = 3070
    Command1.Left = 3840

    Playlist(0).Width = Picture1.Width - 240
    Playlist(0).Left = 120
    Playlist(1).Visible = False
  End If
  call screen.Visible = True
  Call CheckOnDeck

End Sub

Private Sub DataCreate_Click()
'user creates his own song lists and databases
'show a new form
End Sub

Private Sub datalock_Click()
Dim password As String

  password = InputBox("Please enter the database access password:")
  Datalocked = False
End Sub

Private Sub delete_Click()
Dim answer As String
On Error GoTo errorhandler
If SongSelected = False Then
  MsgBox ("No song has been selected for deletion!!!")
  Exit Sub
End If
answer = MsgBox("Are you sure you want to delete the selected song?", 4, "Remove Song")
If answer = vbYes Then

  If SelList = 2 Then
    UndoEvent = 0
    SavePlayList
    For j = 0 To 8
      UndoText(i) = Playlist(1).TextMatrix(1, i)
    Next i
    If ExpandList.Caption = "EXPAND" Then
      Playlist(1).row = Playlist(0).row
      UndoRow = Playlist(0).row
      For i = 0 To 8
```

```
            UndoText(i) = Playlist(1).TextMatrix(Playlist(0).row, i)
          Next i
          Call DeletePlay(Playlist(0).row)
        Else
          Playlist(0).row = Playlist(1).row
          UndoRow = Playlist(1).row
          For i = 0 To 8
            UndoText(i) = Playlist(1).TextMatrix(Playlist(0).row, i)
          Next i
          Call DeletePlay(Playlist(1).row)
        End If

      SongSelected = False
    ElseIf SelList = 1 Then
      UndoEvent = 1
      SaveSearchList
      If searchlist.Rows <= 2 Then
        search.Caption = "Search Music Categories"
        For i = 0 To 2
          csearch(i).Caption = ""
        Next i
        searchlist.Rows = 1
        Call FormatHeaders
        searchlist.BackColorSel = searchlist.BackColorFixed
            searchlist.ForeColorSel = searchlist.ForeColorFixed
        csearch(0).Caption = "none"

        SearchSongs = 0
        searchflag = 0
        searchlist.Clear
        searchlist.BackColor = &H8000000E
        searchlist.Rows = 1
        AddList(0).Enabled = False
        AddList(1).Enabled = False
        ClrSrch.Enabled = False
        Organize.Enabled = False
      Else
        UndoEvent = 1
        X = searchlist.row
        'For i = x To searchlist.Rows - 1
        '  Stime(i) = Stime(i + 1)
        'Next i
        For i = 0 To 8
          UndoText(i) = searchlist.TextMatrix(X, i)
        Next i
        searchlist.RemoveItem searchlist.row
        SearchSongs = SearchSongs - 1
      End If
    End If
    Call CheckOnDeck
    undo.Enabled = True
    SongSelected = False
    Exit Sub
ElseIf answer = vbNo Then
```


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```
    Exit Sub
End If

errorhandler:
    Now.BackColor = &H8000000F
    Now.Enabled = False
    PlayButton.Enabled = False
    PlayButton.BackColor = &H8000000F
    MsgBox "You have no songs to delete!"
    delete.Enabled = False
End Sub


Private Sub ExpandList_Click()
    'expand the playlist to display all information

    If ExpandList.Caption = "EXPAND" Then
        catlscreen.Visible = False
        Playlist(1).Visible = True
        ExpandList.Caption = "SHRINK"
        If maxed = True Then
            Picture1.Left = 0
            Picture1.Width = Screen2.Width - 195
            SinglePlayTime.Left = 4680
            Label5.Left = 6240
            Playlist(0).Left = 0
            Playlist(1).Left = 0
            Label1.Left = 0.41 * Picture1.Width
        Else
            Picture1.Width = 11550
            Picture1.Left = 0
            SinglePlayTime.Left = 4680
            Label5.Left = 6240
            Playlist(0).Left = 0
            Playlist(1).Left = 0
            Label1.Left = 4200
        End If

        ExpandList.Left = 120 - 6720
        AddList(0).Left = 1020 - 6720
        AddList(1).Left = 1730 - 6720
        RndMix.Left = 2430 - 6720
        delete.Left = 3070 - 6720
        Command1.Left = 3840 - 6720
        Playlist(1).RowSel = Playlist(0).RowSel


    Else
        If maxed = True Then
            Picture1.Left = 6720
            Picture1.Width = Screen.Width - 6830
            SinglePlayTime.Left = Screen.Width - 100
            Label5.Left = Screen.Width + 100
```

```
        Else
          Picture1.Width = 4815
          Picture1.Left = 6720
          SinglePlayTime.Left = 4800
          Label5.Left = 6500

        End If
        Playlist(0).Left = 120
        Playlist(1).Left = 120
        catlscreen.Visible = True
        Playlist(1).Visible = False
        ExpandList.Caption = "EXPAND"
        ExpandList.Left = 120
        AddList(0).Left = 1020
        AddList(1).Left = 1730
        RndMix.Left = 2430
        delete.Left = 3070
        Command1.Left = 3840
        Playlist(0).RowSel = Playlist(1).RowSel
        Label1.Left = 1440
      End If

      AddList(0).Enabled = False
      AddList(1).Enabled = False
    End Sub

    Private Sub FavHits_Click(Index As Integer)
      ButMem = FavHits(Index).Caption
      FavHitsFrm2.Visible = True
      FavHitsLab2.Visible = True
      FavHitsLab2.BackColor = FavHitsLab1.BackColor
      FavHitsLab2.Caption = FavHits(Index).Caption
      If PlayedSongs(1, 1, 1) <> "" Then
      Organize.Enabled = True
      For z = 1 To zed

        searchlist.AddItem PlayedSongs(1, z, 0) & Chr(9) & PlayedSongs(1, z, 1) & Chr(9) & PlayedSongs(1, z, 2) & Chr(9) &
    PlayedSongs(1, z, 3) & Chr(9) & PlayedSongs(1, z, 4) & Chr(9) & PlayedSongs(1, z, 5) & Chr(9) & PlayedSongs(1, z, 6) & Chr(9) &
    PlayedSongs(1, z, 7) & Chr(9) & PlayedSongs(1, z, 8)
        SearchSongs = SearchSongs + 1
        searchlist.row = SearchSongs
        For X = 0 To 8
          searchlist.Col = X
          searchlist.CellBackColor = PlayedSongs(1, z, 9)
        Next X

        ClrSrch.Enabled = True
      Next z
      Else

      MsgBox ("Sorry...You have no song selections defined as favorite hits.")
      End If
    End Sub
```

```
Private Sub Form_Load()
Dim i As Integer
Dim running As Boolean
   Screen2.WindowState = 2
   maxed = True
   Data1.DatabaseName = App.Path & "\mydata.mdb"
   Data2.DatabaseName = App.Path & "\mydata.mdb"
   Data3.DatabaseName = App.Path & "\mydata.mdb"
   For i = 0 To 9
     csearch(i).Caption = ""
   Next i
   zed = 0
   Speed = ""
   channel = 1
   SearchSongs = 0
   PlaySongs = 0
   Speed = "Any"
   Datalocked = True
   SongSelected = False
   ScreenShow(1).BackColor = &HC0&
   'assign buttons to color array for reference
   For i = 0 To 35
     MnCatColor(i) = Category1(i).BackColor
   Next i
If VoiceActivation = True Then
   If Not IsDDWinRunning() Then
     running = StartDDWin()
     If Not running Then
       MsgBox "Could not start dragon dictate", vbExclamation
       End
     End If
   End If
   DD.Attach = True
   If FindVocabulary("Moaec") And Not FindGroup("Moaec", "ver1.0") Then
     On Error GoTo VocabAdd
     DeleteVocabulary ("Moaec")
   End If
VocabAdd:
   If Not FindVocabulary("Moaec") Then
     AddVocabulary "Moaec"
     Call AddGroup("Moaec", "ver1.0")
     Call AddGroup("Moaec", "Screen1")
     Call AddGroup("Moaec", "Screen2")
   Call AddGroup("Moaec", "Screen3")
   Call AddGroup("Moaec", "Screen4")
   Call AddWord("Moaec", "Screen2", "[classical]", "")
   Call AddWord("Moaec", "Screen2", "[jazz]", "")
   Call AddWord("Moaec", "Screen2", "[folk]", "")
   Call AddWord("Moaec", "Screen2", "[oldies]", "")
   Call AddWord("Moaec", "Screen2", "[country]", "")
   Call AddWord("Moaec", "Screen2", "[pop]", "")
   Call AddWord("Moaec", "Screen2", "[soul]", "")
   Call AddWord("Moaec", "Screen2", "[R and B]", "")
```

```
Call AddWord("Moaec", "Screen2", "[blues]", "")
Call AddWord("Moaec", "Screen2", "[calypso]", "")
Call AddWord("Moaec", "Screen2", "[disco]", "")
Call AddWord("Moaec", "Screen2", "[funk]", "")
Call AddWord("Moaec", "Screen2", "[rock]", "")
Call AddWord("Moaec", "Screen2", "[metal]", "")
Call AddWord("Moaec", "Screen2", "[top 40]", "")
Call AddWord("Moaec", "Screen2", "[rap]", "")
Call AddWord("Moaec", "Screen2", "[reggae]", "")
Call AddWord("Moaec", "Screen2", "[alternative]", "")
Call AddWord("Moaec", "Screen2", "[ethnic]", "")
Call AddWord("Moaec", "Screen2", "[religion]", "")
Call AddWord("Moaec", "Screen2", "[special events]", "")
Call AddWord("Moaec", "Screen2", "[funny]", "")
Call AddWord("Moaec", "Screen2", "[easy listening]", "")
Call AddWord("Moaec", "Screen2", "[favorite hits]", "")
Call AddWord("Moaec", "Screen2", "[special dance]", "")
Call AddWord("Moaec", "Screen2", "[special mixes]", "")
Call AddWord("Moaec", "Screen2", "[dance]", "")
Call AddWord("Moaec", "Screen2", "[energy]", "")
Call AddWord("Moaec", "Screen2", "[sound effects]", "")
Call AddWord("Moaec", "Screen2", "[sound tracks]", "")
Call AddWord("Moaec", "Screen2", "[television]", "")

Call AddWord("Moaec", "Screen2", "[Dance Mix]", "")
Call AddWord("Moaec", "Screen2", "[Clear]", "")
Call AddWord("Moaec", "Screen2", "[Undo]", "")

Call AddWord("Moaec", "Screen2", "[Search List]", "")
Call AddWord("Moaec", "Screen2", "[Play List]", "")
Call AddWord("Moaec", "Screen2", "[Search]", "")
Call AddWord("Moaec", "Screen2", "[Expand]", "")

Call AddWord("Moaec", "Screen2", "[Shrink]", "")

Call AddWord("Moaec", "Screen2", "[Load]", "")
Call AddWord("Moaec", "Screen2", "[Save]", "")
Call AddWord("Moaec", "Screen2", "[Next]", "")
Call AddWord("Moaec", "Screen2", "[Pick]", "")
Call AddWord("Moaec", "Screen2", "[Delete]", "")

Call AddWord("Moaec", "Screen2", "[Title]", "")
Call AddWord("Moaec", "Screen2", "[Artist]", "")
Call AddWord("Moaec", "Screen2", "[Date]", "")
Call AddWord("Moaec", "Screen2", "[Song Category]", "")
Call AddWord("Moaec", "Screen2", "[Dance Type]", "")
Call AddWord("Moaec", "Screen2", "[Music Style]", "")
Call AddWord("Moaec", "Screen2", "[Speed]", "")
Call AddWord("Moaec", "Screen2", "[Energy]", "")

Call AddWord("Moaec", "Screen2", "[Speed]", "")
Call AddWord("Moaec", "Screen2", "[Fast]", "")
Call AddWord("Moaec", "Screen2", "[Medium]", "")
Call AddWord("Moaec", "Screen2", "[Slow]", "")
```

```
    Call AddWord("Moaec", "Screen2", "[Time]", "")

    Call AddWord("Moaec", "Screen2", "[OK]", "")
    Call AddWord("Moaec", "Screen2", "[Begin Search]", "")
     Call AddWord("Moaec", "Screen2", "[Cancel]", "")
    Call AddWord("Moaec", "Screen2", "[Cancel]", "")
    Call AddWord("Moaec", "Screen2", "[Cancel]", "")
    Call AddWord("Moaec", "Screen2", "[minutes]", "")
    Call AddWord("Moaec", "Screen2", "[Play]", "")
     Call AddWord("Moaec", "Screen2", "[Now]", "")

    Call AddWord("Moaec", "Screen2", "[screen 1]", "")
     Call AddWord("Moaec", "Screen2", "[screen 2]", "")
     Call AddWord("Moaec", "Screen2", "[screen 3]", "")
     Call AddWord("Moaec", "Screen2", "[screen 4]", "")
    End If
    DD.Vocabulary = "Moaec"
    DD.Group = "Screen2"
  End If
  End Sub

  Private Sub Form_Unload(Cancel As Integer)

    EndItAll
    End
  End Sub

  Private Sub Help_Click()
    SendKeys "{F1}"
  End Sub

  Private Sub Letters_Click(Index As Integer)
  'type the letter pressed in the text field
  If searchfield.Visible = True Then
    searchfield.SetFocus
    SendKeys LCase(Letters(Index).Caption)
    SendKeys "{tab}"
  Else
    TimeInput.SetFocus
    SendKeys LCase(Letters(Index).Caption)
    SendKeys "{tab}"
  End If

  End Sub


  Private Sub LoadPlay_Click()
  Dim allCells1, allCells2 As String
  Dim FileNum As Integer
  Dim CurRow1, CurRow2, CurCol As Integer
  Dim FileColors() As Variant
  On Error GoTo errorhandler
  GrayOut
```


CL 000447

```
If Playlist(0).Rows > 1 Then
  CurRow2 = Playlist(1).row
  CurRow1 = Playlist(0).row
  CurCol = 0
End If
  response = MsgBox("Are you sure you want to replace the current Music Playlist?", 4, "Load Play List")
  If response = vbNo Then
    Exit Sub
  ElseIf response = vbYes Then
    'clear the playlists
    CommonDialog1.DefaultExt = "GDT"
    CommonDialog1.ShowOpen
    FileNum = FreeFile
    Open CommonDialog1.fileName For Input As #FileNum
    Input #FileNum, numRows
    ReDim FileColors(numRows + 1)
    Input #FileNum, allCells1
    Input #FileNum, allCells2
    ClearPlayList
    PlaySongs = 0
    SongsTime = 0
    NumSongs.Text = 0
    timebox.Text = Format(TimeSerial(0, 0, CLng(SongsTime)), "hh:mm:ss")
    SinglePlayTime.Text = "00:00:00"
    Playlist(0).AllowBigSelection = True
    Playlist(1).AllowBigSelection = True
    Playlist(0).Rows = numRows
    Playlist(0).row = 1
    Playlist(0).Col = 0
    Playlist(0).RowSel = numRows - 1
    Playlist(0).ColSel = 2
    Playlist(1).Rows = numRows
    Playlist(1).row = 1
    Playlist(1).Col = 0
    Playlist(1).RowSel = numRows - 1
    Playlist(1).ColSel = 8
    Playlist(0).Clip = allCells1
    Playlist(1).Clip = allCells2
    For i = 1 To numRows - 1
      Input #FileNum, FileColors(i)
      Playlist(0).row = i
      For j = 0 To 2
        Playlist(0).Col = j
        Playlist(0).CellBackColor = FileColors(i)
      Next j
      Playlist(1).row = i
      For k = 0 To 8
        Playlist(1).Col = k
        Playlist(1).CellBackColor = FileColors(i)
      Next k
      SongsTime = SongsTime + CLng(Val(Playlist(0).TextMatrix(i, 0)))
      timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
      PlaySongs = PlaySongs + 1
      NumSongs.Text = PlaySongs
```

```
        Next i

        Close #FileNum
        Playlist(0).AllowBigSelection = False
        Playlist(1).AllowBigSelection = False
        Playlist(0).row = CurRow1
        Playlist(1).row = CurRow2
        Playlist(0).Col = 0
        Playlist(1).Col = 0
        ExpandList.Enabled = True
        delete.Enabled = True
        Command1.Enabled = True
        RndMix.Enabled = True
        Now.Enabled = True
        Now.BackColor = &HFF&
        PlayButton.Enabled = True
        PlayButton.BackColor = &HFF8080
        SavePlay.Enabled = True
        If SongPlaying = True Then
          Call CheckOnDeck
        End If
        CommonDialog1.fileName = ""
        Exit Sub
      End If

errorhandler:
    If Err.Number = cdlCancel Then
      CommonDialog1.fileName = ""
      Exit Sub
    End If
    MsgBox "Unknown error while loading file " & CommonDialog1.fileName


End Sub

Private Sub Mix_Click()
Dim RanPlace, RanPlace2 As Integer
Dim TempTime, TempTime2 As integer
Dim MixCount As Integer
Dim TestSpeed As String
Dim LoopStop As Boolean
Dim slowcount, midcount, fastcount As Boolean
Dim FirstMedCount, medcount As Integer
'mix up the selected song list by categories
Mix.Enabled = False
If Playlist(0).Rows > 1 Then
  Playlist(0).Col = 0
  Playlist(1).Col = 0
  Playlist(0).ColSel = 2
  Playlist(1).ColSel = 8
End If
If SelList = 2 And Playlist(0).Rows > 1 Then

  MixCount = 0
```

```
medcount = 0
'disable once clicked
Mix.Enabled = False
Mix.BackColor = &H8000000F
AddList(0).Enabled = False
AddList(1).Enabled = False
FastSpeed = "FAST"
MidSpeed = "MEDIUM"
SlowSpeed = "SLOW"
fastcount = False
midcount = False
slowcount = False
For i = 1 To Playlist(0).Rows - 1
  TestSpeed = Playlist(1).TextMatrix(i, 7)
  If TestSpeed = "FAST" Then
    fastcount = True
  ElseIf TestSpeed = "MEDIUM" Then
    midcount = True
  ElseIf TestSpeed = "SLOW" Then
    slowcount = True
  End If
Next i
  If slowcount = False Then
    If midcount = False Then
      MidSpeed = "FAST"
      SlowSpeed = "FAST"
    ElseIf fastcount = False Then
      FastSpeed = "MEDIUM"
      MidSpeed = "MEDIUM"
      SlowSpeed = "MEDIUM"
    Else
      FastSpeed = "FAST"
      MidSpeed = "FAST"
      SlowSpeed = "MEDIUM"
    End If
  ElseIf midcount = False Then
    If fastcount = False Then
      FastSpeed = "SLOW"
      MidSpeed = "SLOW"
    End If
  ElseIf fastcount = False Then
    If slowcount = False Then
      FastSpeed = "MEDIUM"
      SlowSpeed = "MEDIUM"
    End If
  End If


For i = 1 To Playlist(0).Rows - 1
  TestSpeed = Playlist(1).TextMatrix(i, 7)
  If TestSpeed = MidSpeed Then
    medcount = medcount + 1
  End If
Next i
```

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```
    Do Until LoopStop = True
    i = 1
    MixCount = 0
    LoopStop = True

    For i = 1 To Playlist(0).Rows - 1
      If MixCount > 4 Then MixCount = 0
      Playlist(1).row = i
      TestSpeed = Playlist(1).TextMatrix(i, 7)
        If TestSpeed = FastSpeed And MixCount < 3 Then
          MixCount = MixCount + 1
        ElseIf TestSpeed = SlowSpeed And MixCount >= 3 Then
          MixCount = MixCount + 1
        Else
          Playlist(0).RowPosition(i) = Playlist(0).Rows - 1
          Playlist(1).RowPosition(i) = Playlist(1).Rows - 1
          medcount = medcount + 1
          LoopStop = False
        End If
        If i >= Playlist(1).Rows - medcount Then
          LoopStop = True
        End If


    Next i
  Loop
    For j = 0 To 1
      Playlist(j).row = 1
      Playlist(j).BackColorSel = Playlist(j).CellBackColor
      Playlist(j).ForeColorSel = Playlist(j).CellForeColor
    Next j
    delete.Enabled = False
  Else
    Speed = "MIXED"
    Mix.Enabled = False
    Mix.BackColor = &H8000000F
    For i = 0 To 3
      SongSpeed(i).BackColor = &H8000000F
      SongSpeed(i).Enabled = False
      AllSpeeds.BackColor = &H8000000F
      AllSpeeds.Enabled = False
    Next i
  End If
  If SongPlaying = True Then
    Call CheckOnDeck
  End If
  End Sub

  Private Sub Now_Click()

  Dim CurControl As Integer
```

```
If SelList = 1 Then CurControl = searchlist.row
If SelList = 2 Then CurControl = Playlist(0).row

Call StartPlay(CurControl, SelList)


End Sub

Private Sub Organize_Click()
  'enable the sorting buttons
  sortstat = True
  search.Enabled = False
  For i = 1 To 8
    SearchCat(i).Enabled = True
  Next i
End Sub

Private Sub OrgLst_Click(Index As Integer)
'sort the searchlist by category
  OrgLst(0).Enabled = False
  OrgLst(1).Enabled = False
  Organize.Enabled = True
  search.Enabled = True
  sortstat = False
  searchlist.Sort = Index + 1
  For i = 1 To 8
    SearchCat(i).Enabled = False
  Next i
End Sub

Private Sub PlayButton_Click()

  Call StartPlay(1, 2)

End Sub

Private Sub Playlist_Click(Index As Integer)
If Playlist(Index).Rows > 1 Then
SelList = 2
SongSelected = True
If Playlist(0).Rows = 1 Then Exit Sub
SinglePlayTime.Text = Format(TimeSerial(0, 0, Val(Playlist(Index).TextMatrix(Playlist(Index).row, 0))), "hh:mm:ss")
AddList(1).Enabled = False
AddList(0).Enabled = True

If Index = 0 Then
  Playlist(1).row = Playlist(0).row
  Playlist(1).Col = Playlist(0).Col
End If
If Playlist(1).Col = 0 And Playlist(1).CellBackColor <> &HC0& Then ' if the song is flagged add it to the top of the favhits list
  Playlist(0).SelectionMode = flexSelectionFree
  Playlist(1).SelectionMode = flexSelectionFree
  Playlist(0).CellBackColor = &H80000008
```

```
    For i = 1 To zed
      If PlayedSongs(1, i, 1) = Playlist(Index).TextMatrix(Playlist(Index).row, 1) Then
        FavHitsFinder = i
      End If
    Next i
    For i = (FavHitsFinder - 1) To 1 Step -1
      For j = 0 To 9
        PlayedSongs(1, i + 1, j) = PlayedSongs(1, i, j)
      Next j
    Next i
    Playlist(0).Col = 1
    Playlist(0).BackColorSel = Playlist(0).CellBackColor
    Playlist(0).ForeColorSel = Playlist(0).CellForeColor
    Playlist(1).Col = 1
    Playlist(1).BackColorSel = Playlist(1).CellBackColor
    Playlist(1).ForeColorSel = Playlist(1).CellForeColor
    For i = 0 To 8
      selsong(i) = Playlist(1).TextMatrix(Playlist(1).row, i)
      PlayedSongs(1, 1, i) = Playlist(1).TextMatrix(Playlist(1).row, i)
    Next i
    Playlist(1).Col = 1
    Playlist(0).Col = 1
    PlayedSongs(1, 1, 9) = Playlist(1).CellBackColor
  Else
    Playlist(Index).SetFocus
    delete.Enabled = True
    Playlist(0).Col = 1
    Playlist(0).ColSel = 2
    Playlist(1).Col = 1
    Playlist(1).ColSel = 8
    For i = 0 To 1
      Playlist(i).BackColorSel = &H80000008
      Playlist(i).ForeColorSel = &H8000000E
    Next i
    If Index = 1 Then
      Playlist(0).row = Playlist(1).row
      'Playlist(0).RowSel = Playlist(1).RowSel
      Playlist(0).Col = 1
      Playlist(0).ColSel = 2
    Else
      Playlist(1).row = Playlist(0).row
      'Playlist(1).RowSel = Playlist(0).RowSel
      Playlist(1).Col = 1
      Playlist(1).ColSel = 8
    End If
    Now.Enabled = True
    Now.BackColor = &HFF&
    If searchlist.Rows = 1 Then
      Exit Sub
    End If
    searchlist.BackColorSel = searchlist.CellBackColor
    searchlist.ForeColorSel = searchlist.CellForeColor

  End If
```

```
End If
End Sub

Private Sub Playlist_DblClick(Index As Integer)
Dim X As Integer
If Index = 0 Then
  Playlist(1).row = Playlist(0).row
  Playlist(1).Col = Playlist(0).Col

End If
If Playlist(1).Rows > 1 And Playlist(1).Col <> 0 Then
If Index = 1 Then
  Playlist(0).row = Playlist(1).row

End If

If Playlist(0).row = 1 Then
  MsgBox "the Song you want to move is already next!"

Else

    X = Playlist(0).row
    For Y = 0 To 8
      selsong(Y) = Playlist(1).TextMatrix(X, Y)
    Next Y
    oldcolor2 = Playlist(0).CellBackColor
    oldcolor3 = Playlist(0).CellForeColor
    undo.Enabled = True
    UndoEvent = 0
    SavePlayList
    For i = X - 1 To 1 Step -1
      Playlist(0).row = i
      Playlist(1).row = i
      oldcolor = Playlist(0).CellBackColor
      For j = 0 To 2
        Playlist(0).TextMatrix(i + 1, j) = Playlist(0).TextMatrix(i, j)
        Playlist(0).row = i + 1
        Playlist(0).Col = j
        'change color
        Playlist(0).CellBackColor = oldcolor
      Next j
      For j = 0 To 8
        Playlist(1).TextMatrix(i + 1, j) = Playlist(1).TextMatrix(i, j)
        Playlist(1).row = i + 1
        Playlist(1).Col = j
        'change color
        Playlist(1).CellBackColor = oldcolor
      Next j
    Next i
    For j = 0 To 2
      Playlist(0).TextMatrix(1, j) = selsong(j)
      Playlist(0).row = 1
      Playlist(0).Col = j
      Playlist(0).CellBackColor = oldcolor2
```

```
            Playlist(0).BackColorSel = oldcolor2
            Playlist(0).ForeColorSel = oldcolor3
          Next j
          For j = 0 To 8
            Playlist(1).TextMatrix(1, j) = selsong(j)
            Playlist(1).row = 1
            Playlist(1).Col = j
            Playlist(1).CellBackColor = oldcolor2
            Playlist(1).BackColorSel = oldcolor2
            Playlist(1).ForeColorSel = oldcolor3
          Next j
        End If
        Playlist(0).SelectionMode = flexSelectionFree
        Playlist(1).SelectionMode = flexSelectionFree
        Call CheckOnDeck
    End If
End Sub

Private Sub Playlist_Scroll(Index As Integer)
    'make the playlists scroll equally
    Select Case Index
    Case 0
        Playlist(1).TopRow = Playlist(0).TopRow
    Case 1
        Playlist(0).TopRow = Playlist(1).TopRow
    End Select
End Sub

Private Sub PlayTime_Click()
Dim boxcaption As String
On Error GoTo errorhandler
'show the keyboard
TimeFrame.Visible = True
keyboard.Visible = True
AllSpeeds.Visible = True
GrayOut
'pop up the time selection query box
    CurScreen = "Time"
    If Speed <> "Any" Then
        boxcaption = "Please enter the number of minutes you would like " & Speed & " " & SelCat1 & " " & "music to play:"
    Else
        boxcaption = "Please enter the number of minutes you would like " & SelCat1 & " music to play:"
    End If
    TimeLabel.Caption = boxcaption
    TimeInput.SetFocus
Exit Sub
'write the variables to the play boxes with colors
'disable button once clicked

errorhandler:
    MsgBox "You did not enter a valid time."
    Exit Sub

End Sub
```

```
Private Sub RndMix_Click()
  Dim color As Long
  If Playlist(0).Rows > 1 Then
  Randomize
  Playlist(0).SelectionMode = flexSelectionFree
  For i = 1 To Playlist(0).Rows - 1
      k = Rnd()
      Y = Int(Playlist(0).Rows * k)
      If Y <> 0 Then
        Playlist(0).RowPosition(i) = Y
        Playlist(1).RowPosition(i) = Y
      End If

  Next i
  Playlist(0).row = 1
  Playlist(1).row = 1
  Playlist(0).Col = 1
  Playlist(1).Col = 1
  Playlist(0).BackColorSel = Playlist(0).CellBackColor
  Playlist(1).BackColorSel = Playlist(0).CellBackColor
  CheckOnDeck
  End If
End Sub

Private Sub SavePlay_Click()
Dim allCells1, allCells2, colors As String
Dim FileNum, numRows As Integer
Dim CurRow1, CurRow2, CurCol As Integer
Dim FileColors() As Variant

CurRow2 = Playlist(1).row
CurRow1 = Playlist(0).row
CurCol = 0
On Error GoTo errorhandler
  response = MsgBox("Are you Sure you want to save the current Music Play List as a file", 4, "Save Play List")
  If response = vbNo Then
    Exit Sub
  ElseIf response = vbYes Then
    GrayOut
    CommonDialog1.DefaultExt = "GDT"

    CommonDialog1.ShowSave
    Playlist(0).AllowBigSelection = True
    Playlist(0).row = 1
    Playlist(0).Col = 0
    Playlist(0).RowSel = Playlist(0).Rows - 1
    Playlist(0).ColSel = 2
    allCells1 = Playlist(0).Clip
    Playlist(1).AllowBigSelection = True
    Playlist(1).row = 1
    Playlist(1).Col = 0
    Playlist(1).RowSel = Playlist(1).Rows - 1
    Playlist(1).ColSel = 8
```

```
    allCells2 = Playlist(1).Clip
    numRows = Playlist(0).Rows
    ReDim FileColors(Playlist(0).Rows - 1)
    FileNum = FreeFile
    Open CommonDialog1.fileName For Output As #FileNum
    Write #FileNum, numRows
    Write #FileNum, allCells1
    Write #FileNum, allCells2
    For i = 1 To Playlist(0).Rows - 1
      Playlist(0).row = i
      FileColors(i) = Playlist(0).CellBackColor
      Write #FileNum, FileColors(i)
    Next i

    Close #FileNum
    Playlist(1).AllowBigSelection = False
    Playlist(0).AllowBigSelection = False
    Playlist(0).row = CurRow1
    Playlist(1).row = CurRow2
    Playlist(0).Col = 0
    Playlist(1).Col = 0
    Exit Sub
  End If

  errorhandler:
    If Err.Number = cdlCancel Then Exit Sub
    MsgBox "Unknow error while saving file " & CommonDialog1.fileName

  End Sub

  Private Sub ScreenShow_Click(Index As Integer)
  Dim i As Integer
  On Error Resume Next
  If (SelCat1 = "" And Index > 2) Then
    MsgBox ("Please select a main category from screen 2 before viewing this screen !!!")
    Exit Sub
  End If
    Category(1).Visible = False
    cat1count = 0
    'disable speed buttons since switching to screen 3
    For i = 0 To SongSpeed.count - 1
      AllSpeeds.Enabled = False
      SongSpeed(i).Enabled = False
      SongSpeed(i).BackColor = &H8000000F
      AllSpeeds.BackColor = &H8000000F
    Next i
    Mix.Enabled = False
    PlayTime.Enabled = False
    Mix.BackColor = &H8000000F
    PlayTime.BackColor = &H8000000F
  For i = 0 To 4
    Screen1.ScreenShow(i).BackColor = &H8000000F
    ScreenShow(i).BackColor = &H8000000F
    ScreenShow(i).ForeColor = &H80000012
```

```
Next i
If Index <> 0 And Index <> 3 Then
  ScreenShow(Index).BackColor = &HC0&
  ScreenShow(Index).ForeColor = &H8000000E
End If
Select Case Index
  Case 0

    On Error Resume Next
    Screen2.DD.Group = "Screen1"
    Screen1.Show
        If Screen1.WindowState <> 2 Then Screen1.WindowState = 2

    Screen2.Hide
    cat1screen.Visible = True
    cat2screen.Visible = False
    For i = 0 To 4
      Screen1.ScreenShow(i).BackColor = &H8000000F
      Screen1.ScreenShow(i).ForeColor = &H80000012
    Next i
    Screen1.ScreenShow(Index).BackColor = &HC0&
    Screen1.ScreenShow(Index).ForeColor = &H8000000E
    Exit Sub
  Case 1
    Screen2.DD.Group = "Screen2"
    Screen1.Hide
    Screen2.Show
        If Screen2.WindowState <> 2 Then Screen2.WindowState = 2

    cat1screen.Visible = True
    cat2screen.Visible = False
    FavHitsScrn.Visible = False
  Case 2
    Screen2.DD.Group = "Screen2"
    SelCat1 = MemCat
    Screen1.Hide
    Screen2.Show
    If Screen2.WindowState <> 2 Then Screen2.WindowState = 2
    cat1screen.Visible = False
    cat2screen.Visible = True
    FavHitsScrn.Visible = False
  Case 3
    Screen2.DD.Group = "Screen4"
    Recorder.ScreenShow(Index).BackColor = &HC0&
    Recorder.ScreenShow(Index).ForeColor = &H8000000E
    Screen1.Hide
    Screen2.Hide
    Recorder.Show
        If Recorder.WindowState <> 2 Then Recorder.WindowState = 2

    Recorder.Refresh
    cat1screen.Visible = True
    cat2screen.Visible = False
    FavHitsScrn.Visible = False
```


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```
End Select

'make the button pressed the right color


End Sub

Private Sub search_Click()
  search.Enabled = False
  GrayOut
  For i = 1 To 8
    SearchCat(i).Enabled = True
  Next i
End Sub

Private Sub SearchCat_Click(Index As Integer)
Dim QuestCat As String
If sortstat = False Then
  'assign the search button caption to the primary search variable

  colnum = Index
  keyboard.Visible = True
  Cat1 = SearchCat(Index).Tag
  QuestCat = SearchCat(Index).Caption
  CurScreen = "SearchCat"
  'Load search screen to begin search

  SearchScreen.Visible = True
    SearchQuiry.Caption = "Please enter the " & QuestCat & " you would like to search for:"
    searchfield.SetFocus
Else
  searchlist.Col = Index
  For i = 1 To 8
    SearchCat(i).Enabled = False
  Next i
  OrgLst(6).Enabled = True
  OrgLst(11).Enabled = True
  Organize.Enabled = False
End If

End Sub

Private Sub searchdate_Click(Index As Integer)
Dim finalfield(10) As String
Dim tempfield(9) As String
If searchdate(Index).Caption = ButMem Then
    MsgBox ("You just picked that button...Please pick another.")
    Exit Sub
  End If
  ButMem = searchdate(Index).Caption

Cat1 = "Main1"
AddList(0).Enabled = True
```

```
AddList(1).Enabled = True
ClrSrch.Enabled = True
Organize.Enabled = True
    Category(1).Caption = searchdate(Index).Caption
    Category(1).Visible = True
    'fill search screen with selections from the categories
    MousePointer = 11
    SearchSongs = searchlist.Rows - 1
    Data1.Refresh
    Data3.Refresh
    Data1.Recordset.MoveLast
    Data1.Recordset.MoveFirst
    Data3.Recordset.MoveLast
    Data3.Recordset.MoveFirst
    If SelCat1 = "SPMIX" Or SelCat1 = "Special Mixes" Then
      Cat1 = "Main3"
      SelCat1 = "SPMIX"

    ElseIf SelCat1 = "EN" Or SelCat1 = "Energy" Then
      Cat1 = "Main2"
      SelCat1 = "EN"
    ElseIf SelCat1 = "EL" Or SelCat1 = "Easy Listening" Then
      Cat1 = "Mstyle"
      SelCat1 = "EL"
    ElseIf SelCat1 = "Special Dance" Or SelCat1 = "SPD" Then
      Cat1 = "Dtype"
      SelCat1 = "SPD"
    End If
    For i = 1 To Data1.Recordset.RecordCount
      DoEvents
      'if the data base field matches search criteria, write it to the searchlist
      If UCase(Data1.Recordset.Fields(Cat1)) = UCase(Trim(SelCat1)) And Data1.Recordset.Fields("date") >=
searchdate(Index).Tag And Data1.Recordset.Fields("date") <= (searchdate(Index).Tag + 9) Then
        Data3.Recordset.MoveFirst
      If IsNull(Data1.Recordset.Fields("Main1")) Then
        Mcat1 = "none listed"
        MnCatColor(SearchSongs) = &H80000005
      Else
        Mcat1 = Data1.Recordset.Fields("Main1")
        Data3.Recordset.FindFirst "Main1 = '" & Mcat1 & "'"
        MnCatColor(SearchSongs) = Val(Data3.Recordset.Fields("colorID"))
        finalfield(9) = Val(Data3.Recordset.Fields("colorID"))
        End If
        If IsNull(Data1.Recordset.Fields("time")) Then
          finalfield(0) = 300
        Else
          finalfield(0) = Data1.Recordset.Fields("time")
        End If
        If IsNull(Data1.Recordset.Fields("Title")) Then
          finalfield(1) = "NL"
        Else
          finalfield(1) = Data1.Recordset.Fields("Title")
        End If
        If IsNull(Data1.Recordset.Fields("Artist")) Then
```

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```
            finalfield(2) = "NL"
          Else
            finalfield(2) = Data1.Recordset.Fields("Artist")
          End If
          If IsNull(Data1.Recordset.Fields("Date")) Then
            finalfield(3) = "NL"
          Else
            finalfield(3) = Data1.Recordset.Fields("Date")
          End If
          If IsNull(Data1.Recordset.Fields("Main1")) Then
            tempfield(4) = "NL"
          Else
            tempfield(4) = Data1.Recordset.Fields("Main1")
          End If
          If IsNull(Data1.Recordset.Fields("Mstyle")) Then
            tempfield(5) = "NL"
          Else
            tempfield(5) = Data1.Recordset.Fields("Mstyle")
          End If
          If IsNull(Data1.Recordset.Fields("Dtype")) Then
            tempfield(6) = "NL"
          Else
            tempfield(6) = Data1.Recordset.Fields("Dtype")
          End If
          If IsNull(Data1.Recordset.Fields("Speed")) Then
            tempfield(7) = "NL"
          Else
            tempfield(7) = Data1.Recordset.Fields("Speed")
          End If
          If IsNull(Data1.Recordset.Fields("Energy")) Then
            tempfield(8) = ""
          Else
            tempfield(8) = Data1.Recordset.Fields("Energy")
          End If
          For X = 4 To 8
            Data2.RecordSource = X
            Data2.Refresh
            Data2.Recordset.MoveLast
            Data2.Recordset.MoveFirst
            Data2.Recordset.FindFirst "Tag = '" & tempfield(X) & "'"
            finalfield(X) = Data2.Recordset.Fields("Label")
            Data2.Recordset.Close
          Next X
          searchlist.AddItem finalfield(0) & Chr(9) & finalfield(1) & Chr(9) & finalfield(2) & Chr(9) & finalfield(3) & Chr(9) &
finalfield(4) & Chr(9) & finalfield(5) & Chr(9) & finalfield(6) & Chr(9) & finalfield(7) & Chr(9) & finalfield(8)
          SearchSongs = SearchSongs - 1
          Data3.Recordset.MoveFirst

          searchlist.row = SearchSongs
          For z = 0 To 8
            searchlist.Col = z
            searchlist.CellBackColor = finalfield(9)
          Next z
          searchlist.BackColorSel = finalfield(9)
```


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```
        searchlist.ForeColorSel = searchlist.ForeColor
        search.Caption = "Narrow Search Results"
        searchflag = 1
      End If
      flag = True
      'move to the next data row in data base
      Data1.Recordset.MoveNext
    Next i
    Data1.Recordset.Close
    Data3.Recordset.Close


    MousePointer = 0

End Sub

Private Sub searchfield_Change()
  'SendKeys "{tab}"
End Sub

Private Sub searchlist_Click()
If searchlist.RowSel > 0 Then
Now.BackColor = &HFF&
Now.Enabled = True
SelList = 1
SongSelected = True
If searchlist.Rows = 1 Then Exit Sub
FavHitsLab1.BackColor = searchlist.CellBackColor
FavHitsLab2.BackColor = searchlist.CellBackColor
For i = 0 To 5
  FavHits(i).BackColor = searchlist.CellBackColor
Next i
If searchlist.Col = 0 And searchlist.CellBackColor <> &HC0& Then ' if the song is flagged add it to the top of the favhits list
  searchlist.SelectionMode = flexSelectionFree
  searchlist.CellBackColor = &H80000008
  For i = 1 To zed
    If PlayedSongs(1, i, 1) = searchlist.TextMatrix(searchlist.row, 1) Then
      FavHitsFinder = i
    End If
  Next i
  If FavHitsFinder = zed Then FavHitsFinder = FavHitsFinder + 1
  For i = (FavHitsFinder - 1) To 1 Step -1
    For j = 0 To 9
      PlayedSongs(1, i + 1, j) = PlayedSongs(1, i, j)
    Next j
  Next i
  searchlist.Col = 1
  searchlist.BackColorSel = searchlist.CellBackColor
  searchlist.ForeColorSel = searchlist.CellForeColor
  For i = 0 To 8
    selsong(i) = searchlist.TextMatrix(searchlist.row, i)
    PlayedSongs(1, 1, i) = searchlist.TextMatrix(searchlist.row, i)
  Next i
  searchlist.Col = 1
```

```
    PlayedSongs(1, 1, 9) = searchlist.CellBackColor
  Else
    searchlist.SetFocus
    AddList(0).Enabled = True
    AddList(1).Enabled = True
    delete.Enabled = True
    searchlist.Col = 1
    searchlist.ColSel = 8
    searchlist.BackColorSel = &H80000008
    searchlist.ForeColorSel = &H8000000E

    If Playlist(0).Rows > 1 Then
      Playlist(0).BackColorSel = Playlist(0).CellBackColor
      Playlist(0).ForeColorSel = Playlist(0).CellForeColor
      Playlist(1).BackColorSel = Playlist(1).CellBackColor
      Playlist(1).ForeColorSel = Playlist(1).CellForeColor
    End If
  End If
  End If
  End Sub

  Private Sub searchlist_DblClick()
  Dim flag As Boolean
  flag = False
  undo.Enabled = True
  UndoEvent = 0
  If Playlist(0).Rows = 1 Then
    numRows = 0
  Else
    SavePlayList
  End If


  If searchlist.Rows > 1 And searchlist.Col <> 0 Then

    FavHitsLab1.BackColor = searchlist.CellBackColor
    For i = 0 To 5
      FavHits(i).BackColor = searchlist.CellBackColor
    Next i
    PlaySongs = PlaySongs + 1

    For i = 1 To zed
      If searchlist.TextMatrix(searchlist.row, 1) = PlayedSongs(1, i, 1) Then
        flag = True
      End If
    Next i
    If flag = False Then
      zed = zed + 1
      For i = 0 To 8
        PlayedSongs(1, zed, i) = searchlist.TextMatrix(searchlist.row, i)
      Next i
      PlayedSongs(1, zed, 9) = searchlist.CellBackColor
    End If
    For i = 0 To 8
```

```
        selsong(i) = searchlist.TextMatrix(searchlist.row, i)
      Next i
      Playlist(0).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2)
      Playlist(1).AddItem selsong(0) & Chr(9) & selsong(1) & Chr(9) & selsong(2) & Chr(9) & selsong(3) & Chr(9) & selsong(4) &
    Chr(9) & selsong(5) & Chr(9) & selsong(6) & Chr(9) & selsong(7) & Chr(9) & selsong(8)
      'add a song to the total to be played

      NumSongs.Text = PlaySongs
      Playlist(1).row = Playlist(1).Rows - 1
      Playlist(0).row = Playlist(0).Rows - 1
      'add the song time to the play time box
      SongsTime = SongsTime + CLng(Val(searchlist.TextMatrix(searchlist.row, 0)))
      timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
      For z = 0 To 2
        Playlist(0).Col = z
        Playlist(0).CellBackColor = searchlist.CellBackColor
        Playlist(0).BackColorSel = searchlist.CellBackColor
        Playlist(0).ForeColorSel = searchlist.CellForeColor
      Next z
      For z = 0 To 8
        Playlist(1).Col = z
        Playlist(1).CellBackColor = searchlist.CellBackColor
        Playlist(1).BackColorSel = searchlist.CellBackColor
        Playlist(1).ForeColorSel = searchlist.CellForeColor
      Next z
    If Playlist(0).row = 1 Then CheckOnDeck
    delete.Enabled = True
    RndMix.Enabled = True
    ExpandList.Enabled = True
    SavePlay.Enabled = True
    Command1.Enabled = True
    If IsNull(channel) Then
      channel = 1
      OtherChannel = 2
    End If
    Now.BackColor = &HFF&
    Now.Enabled = True
    PlayButton.Enabled = True
    PlayButton.BackColor = &HFF8080
    End If

    End Sub

    Private Sub searchlist_MouseMove(Button As Integer, Shift As Integer, X As Single, Y As Single)
    Dim ScrollWidth As Integer
    Dim ButtonWidth As Integer
    ButtonWidth = 1080
    ScrollWidth = 400
      If (X > searchlist.Width - ScrollWidth) And (searchlist.Height / searchlist.RowHeightMin < searchlist.Rows) Then
        SearchCat(8).Width = ButtonWidth - ScrollWidth + 200 + (HeadExpand * 44)
      Else
        SearchCat(8).Width = ButtonWidth + (HeadExpand * 44)
      End If
    End Sub
```

```
Private Sub SongSpeed_Click(Index As Integer)
'select speed category
Speed = SongSpeed(Index).Caption
'disable speed buttons
For i = 0 To SongSpeed.count - 1
   AllSpeeds.Visible = True
   AllSpeeds.Enabled = False
   SongSpeed(i).Enabled = False
   SongSpeed(i).BackColor = &H8000000F
   AllSpeeds.BackColor = &H8000000F
Next i

'enable time selection buttons
   Mix.Enabled = False
   Mix.BackColor = &H8000000F
   PlayTime.Enabled = True
   PlayTime.BackColor = CatColor
   catlcount = 0
End Sub

Private Sub spacebar_Click()

If searchfield.Visible = True Then
   searchfield.SetFocus
   searchfield.Text = searchfield.Text + " "
   SendKeys "{end}"
   SendKeys "{tab}"
Else
   TimeInput.SetFocus
   TimeInput.Text = TimeInput.Text + " "
   SendKeys "{end}"
   SendKeys "{tab}"
End If
End Sub

Private Sub Text1_Change()

End Sub

Private Sub TimeCancel_Click()
   TimeFrame.Visible = False
   keyboard.Visible = False
   CancelSearch = True
End Sub

Private Sub TimeInput_Change()
   'SendKeys "{tab}"
End Sub

Private Sub TimeOK_Click()
Dim TempTime, TotalTime, TimeCount As Long
Dim selection, Mcat1 As String
Dim timearray(3000, 10) As Variant
```

```
Dim MixCount As Integer
Dim tempfield(9) As String
Dim position As Integer
Dim rndcount As Integer
On Error GoTo errorhandler
MousePointer = 11
searchflag = 0
catlcount = 0
FastSpeed = "FAST"
SlowSpeed = "SLOW"
MidSpeed = "MEDIUM"
CancelSearch = False
For i = 0 To 3
  SongSpeed(i).Enabled = False
  SongSpeed(i).BackColor = &H8000000F
  AllSpeeds.BackColor = &H8000000F
  AllSpeeds.Enabled = False
Next i
MixCount = 0
flag = True
i = 0
keyboard.Visible = False
  If TimeInput.Text <> "" Then
    TotalTime = CLng(Val(TimeInput.Text) * 60)
    PlayTime.Enabled = False
    PlayTime.BackColor = &H8000000F
    Mix.BackColor = &H8000000F
    'search the database for songs until the time is up
    Data1.Refresh
    Data3.Refresh
    'FIND THE SONG CATEGORY TAG THAT MATCHES THE BUTTON
    If Cat1 = "Dtype" Then
      Data2.RecordSource = 6


    Else
      Data2.RecordSource = 4
    End If
      Data2.Refresh
      Data3.Refresh
      Data2.Recordset.MoveLast
      Data3.Recordset.MoveLast
      Data2.Recordset.MoveFirst
      Data3.Recordset.MoveFirst
      Data2.Recordset.FindFirst "Label = '" & SelCat1 & "'"
        SelTag = Data2.Recordset.Fields("Tag")
        SelCat1 = SelTag
        If SelCat1 = "SPMIX" Then
          Cat1 = "Main3"
          MainCount = 4
        ElseIf SelCat1 = "EN" Then
          Cat1 = "Main2"
          MainCount = 3
        ElseIf SelCat1 = "EL" Then
```


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```
            Cat1 = "Mstyle"
          End If

        If Speed <> "MIXED" And Speed <> "Any" Then
          Data2.RecordSource = 7
          Data2.Refresh
          Data2.Recordset.MoveFirst
          Data3.Recordset.MoveFirst
          Data2.Recordset.FindFirst "Label LIKE '*" & Speed & "*'"
          SelTag = Data2.Recordset.Fields("Tag")
          Speed = SelTag
        End If
        Data1.Refresh
        Data1.Recordset.MoveLast
        Data1.Recordset.MoveFirst
        Data1.Recordset.FindFirst Cat1 & " like '" & SelCat1 & "' and Speed = 'S'"
        If Data1.Recordset.NoMatch Then
          Data1.Refresh
          Data1.Recordset.MoveLast
          Data1.Recordset.MoveFirst
          Data1.Recordset.FindFirst Cat1 & " like '" & SelCat1 & "' and Speed = 'M'"
          If Data1.Recordset.NoMatch Then
            SlowSpeed = "FAST"
            MidSpeed = "FAST"
          Else
            SlowSpeed = "MEDIUM"
            MidSpeed = "FAST"
          End If
        End If
        undo.Enabled = True
      UndoEvent = 0
      If Playlist(0).Rows = 1 Then
        numRows = 0
      Else
        SavePlayList
      End If
MainLoop:
      DoEvents
      position = 0
      Data1.Recordset.MoveLast
      Data3.Recordset.MoveLast
      Data1.Recordset.MoveFirst
      Data3.Recordset.MoveFirst
      If Speed <> "Any" And Speed <> "MIXED" Then
        Data1.Recordset.FindLast Cat1 & " like '" & SelCat1 & "' and Speed = '" & Speed & "'"
      Else
        Data1.Recordset.FindLast Cat1 & " LIKE '" & SelCat1 & "'"
      End If
      If Data1.Recordset.NoMatch Then flag = False
      final = Data1.Recordset.AbsolutePosition
      Data1.Recordset.MoveFirst
If flag = True Then

    Do Until position = final
```


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```
DoEvents
If Speed <> "Any" And Speed <> "MIXED" Then
  Data1.Recordset.FindNext Cat1 & " LIKE '" & SelCat1 & "' and Speed = '" & Speed & "'"
Else

  Data1.Recordset.FindNext Cat1 & " LIKE '" & SelCat1 & "'"
End If
  If IsNull(Data1.Recordset.Fields("time")) Then
    timearray(i, 0) = 300
  Else
    timearray(i, 0) = Data1.Recordset.Fields("time")
  End If
  If IsNull(Data1.Recordset.Fields("Title")) Then
    timearray(i, 1) = "NL"
  Else
    timearray(i, 1) = Data1.Recordset.Fields("Title")
  End If
  If IsNull(Data1.Recordset.Fields("Artist")) Then
    timearray(i, 2) = "NL"
  Else
    timearray(i, 2) = Data1.Recordset.Fields("Artist")
  End If
  If IsNull(Data1.Recordset.Fields("Date")) Then
    timearray(i, 3) = "NL"
  Else
    timearray(i, 3) = Data1.Recordset.Fields("Date")
  End If
  If IsNull(Data1.Recordset.Fields("Main1")) Then
    tempfield(4) = "NL"
  Else
    tempfield(4) = Data1.Recordset.Fields("Main1")
  End If
  If IsNull(Data1.Recordset.Fields("Mstyle")) Then
    tempfield(5) = "NL"
  Else
    tempfield(5) = Data1.Recordset.Fields("Mstyle")
  End If
  If IsNull(Data1.Recordset.Fields("Dtype")) Then
    tempfield(6) = "NL"
  Else
    tempfield(6) = Data1.Recordset.Fields("Dtype")
  End If
  If IsNull(Data1.Recordset.Fields("Speed")) Then
    tempfield(7) = "NL"
  Else
    tempfield(7) = Data1.Recordset.Fields("Speed")
  End If
  If IsNull(Data1.Recordset.Fields("Energy")) Then
    tempfield(8) = ""
  Else
    tempfield(8) = Data1.Recordset.Fields("Energy")
  End If
  For X = 4 To 8
    Data2.RecordSource = X
```

```
            Data2.Refresh
            Data2.Recordset.MoveLast
            Data2.Recordset.MoveFirst
            Data2.Recordset.FindFirst "Tag = '" & tempfield(X) & "'"
            timearray(i, X) = Data2.Recordset.Fields("Label")

          Next X 'ReDim timearray(i, 10)
          position = Data1.Recordset.AbsolutePosition
          'assign song color to tracking array
          Data3.Recordset.MoveFirst
          Mcat1 = Data1.Recordset.Fields("Main1")
          Data3.Recordset.FindFirst "Main1 = '" & Mcat1 & "'"
          timearray(i, 9) = Val(Data3.Recordset.Fields("colorID"))
          i = i + 1
          If CancelSearch = True Then
          MousePointer = 0
           Data1.Recordset.Close
           Data2.Recordset.Close
           Data3.Recordset.Close
           SavePlay.Enabled = False
           TimeFrame.Visible = False
          Speed = "Any"
          TimeInput.Text = ""
          Exit Sub
        End If
      Loop
    End If
    If SelCat1 = "SPMIX" Then
      Call CheckMain(Cat1)
      If MainCount < 8 Then GoTo MainLoop
    End If
    MainCount = 0


      Data1.Recordset.Close
      Data2.Recordset.Close
      Data3.Recordset.Close

    If IsEmpty(timearray(0, 1)) Then
    '= "" Then
        MsgBox "You do not have enough Music downloaded in the LP MOAEC Database to fill your request.  Please Go To Screen
4 and Select the Button, Music Available to Download and place your orders with Looney Productions at T# 781-863-2203."
        Speed = "Any"
        MousePointer = 0
        TimeFrame.Visible = False
        TimeInput.Text = ""
        Exit Sub
    ElseIf Speed = "MIXED" And i < 4 Then
        MsgBox "Sorry, there are not enough speed variations to mix that style.  Please try again."
        MousePointer = 0
        TimeFrame.Visible = False
        Speed = "Any"
        TimeInput.Text = ""
        Exit Sub
```


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```
Else
  Now.Enabled = True
  Now.BackColor = &HFF&
  PlayButton.Enabled = True
  PlayButton.BackColor = &HFF8080

  SavePlay.Enabled = True
  Command1.Enabled = True
  Now.BackColor = &HFF&
  TimeFrame.Visible = False
  RndMix.Enabled = True
  rndcount = 0
  loopcount = 0
  Randomize
  Do While TimeCount < TotalTime
   DoEvents
     'select random song selections from the song array and add them to the play list

LoopReset:


     k = Rnd()
     Y = Int(i * k)
     AlreadyChosen = False
     If timearray(Y, 0) <> "" Then

       If IsNull(timearray(Y, 1)) Then GoTo LoopReset
       If Speed = "MIXED" Then
         If MixCount > 4 Then MixCount = 0
         If loopcount > 500 Then GoTo DEFAULT
         If (timearray(Y, 7) = FastSpeed And MixCount < 3) Or (timearray(Y, 7) = SlowSpeed And MixCount >= 3) Then

           If rndcount > 0 Then
             For j = 0 To rndcount
               If RndSongsCount(j) = timearray(Y, 1) Then
                 AlreadyChosen = True
               End If
             Next j
           End If
           If AlreadyChosen = False Then
             Playlist(0).AddItem timearray(Y, 0) & Chr(9) & timearray(Y, 1) & Chr(9) & timearray(Y, 2)
             Playlist(1).AddItem timearray(Y, 0) & Chr(9) & timearray(Y, 1) & Chr(9) & timearray(Y, 2) & Chr(9) &
timearray(Y, 3) & Chr(9) & timearray(Y, 4) & Chr(9) & timearray(Y, 5) & Chr(9) & timearray(Y, 6) & Chr(9) & timearray(Y, 7) &
Chr(9) & timearray(Y, 8)
             RndSongsCount(rndcount) = timearray(Y, 1)
             loopcount = 0
             PlaySongs = PlaySongs + 1
             rndcount = rndcount + 1
             MixCount = MixCount + 1
           Else
             loopcount = loopcount + 1
             GoTo LoopReset
```

```
            End If
          Else
            loopcount = loopcount + 1
            GoTo LoopReset

          End If

        Else
DEFAULT:      If rndcount > 0 Then
            For j = 0 To rndcount
              If RndSongsCount(j) = timearray(Y, 1) Then
                AlreadyChosen = True
              End If
            Next j
          End If
          If AlreadyChosen = False Then
            Playlist(0).AddItem timearray(Y, 0) & Chr(9) & timearray(Y, 1) & Chr(9) & timearray(Y, 2)
            Playlist(1).AddItem timearray(Y, 0) & Chr(9) & timearray(Y, 1) & Chr(9) & timearray(Y, 2) & Chr(9) & timearray(Y,
3) & Chr(9) & timearray(Y, 4) & Chr(9) & timearray(Y, 5) & Chr(9) & timearray(Y, 6) & Chr(9) & timearray(Y, 7) & Chr(9) &
timearray(Y, 8)
            RndSongsCount(rndcount) = timearray(Y, 1)
            PlaySongs = PlaySongs - 1
            rndcount = rndcount - 1
          End If

        End If


        If Playlist(0).Rows > 1 And AlreadyChosen = False Then
          loopcount = 0
          NumSongs.Text = PlaySongs
          Playlist(0).row = Playlist(0).Rows - 1
          Playlist(1).row = Playlist(1).Rows - 1
            For z = 0 To 2
              Playlist(0).Col = z
              Playlist(0).CellBackColor = timearray(Y, 9)
              Playlist(0).BackColorSel = timearray(Y, 9)
              Playlist(0).ForeColorSel = Playlist(0).CellForeColor
            Next z
            For z = 0 To 8
              Playlist(1).Col = z
              Playlist(1).CellBackColor = timearray(Y, 9)
              Playlist(1).BackColorSel = timearray(Y, 9)
              Playlist(1).ForeColorSel = Playlist(1).CellForeColor
            Next z
          TempTime = CLng(timearray(Y, 0))
          SongsTime = SongsTime + TempTime
          timebox.Text = Format(TimeSerial(0, 0, SongsTime), "hh:mm:ss")
          TimeCount = TimeCount + TempTime
          zed = zed + 1
          For j = 0 To 8
            'selsong(j) = Playlist(1).TextMatrix(Playlist(1).Row, j)
            PlayedSongs(1, zed, j) = Playlist(1).TextMatrix(Playlist(1).row, j)
```

```
            Next j
            PlayedSongs(1, zed, 9) = Playlist(1).CellBackColor
          Else
            loopcount = loopcount + 1
            If loopcount > 100 Then
              MsgBox ("Sorry, there were not enough different music titles to fill your time request.  Please try another category as
well.")
              Exit Do
            End If
          End If


        End If
      Loop
      End If


      Speed = "Any"
      TimeInput.Text = ""
      AddList(0).Enabled = True
      ExpandList.Enabled = True
      delete.Enabled = True
      MousePointer = 0

      End If

    Call CheckOnDeck

    Exit Sub

errorhandler:
      Speed = "Any"
      TimeInput.Text = ""
      AddList(0).Enabled = True
      ExpandList.Enabled = True
      delete.Enabled = True
      MousePointer = 0

    Exit Sub
End Sub

Private Sub undo_Click()
On Error GoTo errorhandler

Select Case UndoEvent
  Case 0
    Call RestorePlayList

  Case 1
    Call RestoreSearchList


  End Select
```

```
undo.Enabled = False
Exit Sub

errorhandler:
  MsgBox ("Sorry....Nothing to undo.")
  undo.Enabled = False
End Sub

"titlefrm.frm"
Sub Main()
'allocate initial subcategories
  FinalCats(1) = "Dance"
  FinalCats(2) = "ENERGY"
  FinalCats(3) = "Favorite Hits"
  FinalCats(4) = "Traditional"
  FinalCats(5) = "Special Mixes"
  FinalCats(6) = "Club"
  StaticCats(7) = "Big Band"
  StaticCats(8) = "Spanish"
  StaticCats(9) = "Halloween"
  StaticCats(10) = "School Dances"
  StaticCats(11) = "Italian"
  subcatcount = 6
  subcattotal = 6
  CatColor = &H8000000E
  CancelSearch = False
  channel = 1
  cued(1) = False
  cued(2) = False
  ExitButtonPushed = False
  Speed = "Any"


End Sub

Private Sub Animation2_Click()
'enters the system if clicked
titlefrm.Hide
Unload titlefrm
Unload Loader
Animation1.Close
Animation2.Close
Screen1.Show
End Sub

Private Sub EnterSystem_Click(Index As Integer)
'button click to enter the system
If Index = 0 Then
  VoiceActivation = True
ElseIf Index = 1 Then
  VoiceActivation = False
End If
```

```
titlefrm.Hide
Unload titlefrm
Unload Loader
Animation1.Close
Animation2.Close
Load Screen1
Load Screen2
Screen1.Show
End Sub

Private Sub ExitSystem_Click()
Dim response As String
'exit option
response = MsgBox("Are you sure you want to exit?", 4, "Exit System")
  If response = vbNo Then
    Exit Sub
  Else

    Animation1.Close
    Animation2.Close
    EndItAll
    End
  End If
  End

End Sub



Private Sub Form_Activate()
  Dim WaitTime, ftime As Integer
  titlefrm.Refresh
  Call waveOutSetVolume(0, &HFFFFFFFF)
  MMControl1.Command = "stop"
  MMControl1.Command = "reset"
  MMControl1.Command = "play"
  WaitTime = Timer()
  ftime = Timer() - WaitTime

  Do While ftime <= 2
    DoEvents
    ftime = Timer() - WaitTime
  Loop
  Animation2.Visible = True
  Animation1.Visible = False

  'play the theme music
  Do While ftime <= 5
    'wait 9 seconds and then display title
    ftime = Timer() - WaitTime
    DoEvents

    If ftime >= 3 Then
      Title1(0).Visible = True
```

```
        Title1(1).Visible = True
      End If
    Loop
    'play the welcome sound file
    EnterSystem(0).Visible = True
    EnterSystem(1).Visible = True
    ExitSystem.Visible = True


End Sub

Private Sub Form_Load()
  MMControl1.Command = "open"
  titlefrm.WindowState = 2
End Sub

Private Sub Form_Resize()
Dim ScreenHeight As Integer
Dim ScreenWidth As Integer

ScreenHeight = (titlefrm.Height / 2)
ScreenWidth = (titlefrm.Width / 2)
   Title1(0).Width = titlefrm.Width - 105
   Title1(1).Width = titlefrm.Width - 105
   Animation1.Top = ScreenHeight - 1087
   Animation1.Left = ScreenWidth - 1087
   Animation2.Top = ScreenHeight - 1087
   Animation2.Left = ScreenWidth - 1087
   EnterSystem(1).Top = titlefrm.Height - 2880
   EnterSystem(0).Top = EnterSystem(1).Top + 600
   ExitSystem.Top = EnterSystem(1).Top + 1200
   EnterSystem(1).Left = ScreenWidth - 1207
   EnterSystem(0).Left = EnterSystem(1).Left
   ExitSystem.Left = EnterSystem(1).Left

End Sub

Private Sub Form_Unload(Cancel As Integer)
  Animation1.Close
  Animation2.Close
  MMControl1.Command = "stop"
  MMControl1.Command = "close"

End Sub


"Module 1"
Option Explicit
Global Const NONE = 0

'Clipboard formats
Global Const CF_LINK = &HBF00
Global Const CF_TEXT = 1
Global Const CF_BITMAP = 2
```


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```
Global Const CF_METAFILE = 3
Global Const CF_DIB = 8

Global Const MODAL = 1

' ErrNum (LinkError)
Global Const WRONG_FORMAT = 1
Global Const DDE_SOURCE_CLOSED = 6
Global Const TOO_MANY_LINKS = 7
Global Const DATA_TRANSFER_FAILED = 8

' MousePointer
Global Const DEFAULT = 0
Global Const HOURGLASS = 11

' LinkMode (forms and controls)
Global Const LINK_NONE = 0
Global Const LINK_SOURCE = 1
Global Const LINK_AUTOMATIC = 1
Global Const LINK_MANUAL = 2

' Run time errors
Global Const NO_APP_RESPONDED = 282
Global Const DDE_REFUSED = 285

' Button parameter masks
Global Const LEFT_BUTTON = 1
Global Const RIGHT_BUTTON = 2

Global Const MB_YESNO = 4
Global Const MB_ICONQUESTION = 32
Global Const IDYES = 6

Global Const REP_LIGHT = "1 - Light"
Global Const REP_NORMAL = "2 - Normal"
Global Const REP_INTENSE = "3 - Intense"

"Module2"

Global Const SEL_DEFAULT = "0 - Default"
Global Const SEL_MINIMAL = "1 - Minimal"
Global Const SEL_AUTOMATIC = "2 - Automatic"
Global Const SEL_ALLWORDS = "3 - All Words"

"Musicdat"


'constants
Public Const WAVECAPS_LRVOLUME = &H8       ' separate left-right volume control
Public Const WAVECAPS_PITCH = &H1          ' supports pitch control
Public Const WAVECAPS_PLAYBACKRATE = &H2   ' supports playback rate control
Public Const WAVECAPS_VOLUME = &H4         ' supports volume control
Public Const WAVE_FORMAT_1S16 = &H8        ' 11.025 kHz, Stereo, 16-bit
Public Const WAVE_GOING = &H3
```


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```
Public Const GMEM_MOVEABLE = &H2
Public Const GMEM_ZEROINIT = &H40
Public Const GENERIC_READ = &H80000000
Public Const GENERIC_WRITE = &H40000000
Public Const OPEN_EXISTING = 3
Public Const FILE_ATTRIBUTE_NORMAL = &H80
Public Const CREATE_NEW = 1
Public Const CREAT_ALWAYS = 2

'global variables
Public Cat1 As String
Public MemCat As String
Public SubCol As String
Public maxed As Boolean
Public SelCat1 As String
Public Cat2 As String
Public ScreenIndex As Integer
Public letter As String
Public Speed As String
Public catIcount As Integer
Public CurScreen As String
Public SongsTime As Long, time As Long
Public selsong(8) As String
Public Datalocked As Boolean
Public touchscreen As Boolean
Public cliktrak As Integer
Public songlist As Variant, songlist2 As Variant
Public songlength As Double
Public sortstat As Boolean
Public SelList As Integer
Public CatColor As Variant
Public MinDate(36) As Integer
Public MaxDate(36) As Integer
Public SearchCats(2, 10) As Variant
Public searchflag As Integer
Public colnum As Integer
Public SearchSongs As Integer, PlaySongs As Integer
Public MnCatColor(3000) As Variant
Public subcatcount As Integer, subcattotal As Integer
Public Stime(3000) As String, Ptime(3000), RndSongsCount(3000) As String
Public SubCats(100) As String, FinalCats(100) As String
Public StaticCats(12) As String
Public PlayTime As Integer
Public SongPlaying As Boolean
Public CancelSearch As Boolean
Public channel As Integer
Public HeadExpand As Integer
Public OtherChannel As Integer
Public cmd As String * 255
Public StopList As Boolean, PauseList As Boolean
Public cued(3) As Boolean
Public MainCount As Integer, SubCount As Integer
Public UndoEvent As Integer
Public UndoText(10) As String
```

```
Public UndoRow As Integer
Public ButMem As String
Public PlayedSongs(6, 3000, 10) As Variant
Public PlaylistsPlayed As Integer
Public PlayedTemp(6) As Integer
Public SlowSpeed As String
Public MidSpeed As String
Public FastSpeed As String
Public zed As Integer
Public FavHitsFinder As Integer
Public InitialFolder As String
Public totalFiles As Integer
Public NewSlidePos As Long
Public OldSlidePos As Long
Public volinc(2) As Long
Public RateInc As Long
Public DevID As Long
Public VolumeID As Long
Public VolumeHandle As Long
Public PitchHandle As Long
Public CancelCopy As Boolean
Public allCells1 As String, allCells2 As String, colors As String
Public FileNum As Integer, numRows As Integer
Public CurRow1 As Integer, CurRow2 As Integer, CurCol As Integer
Public FileColors() As Variant
Public AlreadyChosen As Boolean
Public automix As Boolean
Public FadePercent As Single
Public OldVolValue(2) As Long
Public WinPlayConnected As Integer
Public DisplayLibrary As Boolean
Public FirstLibrary As Boolean
Public NextTrackVar As Boolean
Public PrevTrackVar As Boolean
Public AutoExitTime As Long
Public AutoExitStart As Long
Public AutoExitEvent As Boolean
Public ExitButtonPushed
Public CancelLibrary As Boolean
Public VoiceActivation As Boolean
Public SongSelected As Boolean
Public FilePointer As Long
Public OrigVol(9) As Long
Public StoplistingList As Boolean
Public RatingTemp As String
Public RatingBlock As String
Public password As String
Public NewPassword1 As String
Public NewPassword2 As String
Public TimeSoFar As Long
Public NewPauseStartTime As Long

Declare Function waveOutClose Lib "winmm.dll" (ByVal hWaveOut As Long) As Long
```


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```
Declare Function waveOutGetVolume Lib "winmm.dll" (ByVal uDeviceID As Long, lpdwVolume As Long) As Long

Declare Function waveOutSetVolume Lib "winmm.dll" (ByVal uDeviceID As Long, ByVal dwVolume As Long) As Long

Declare Function waveOutGetID Lib "winmm.dll" (ByVal hWaveOut As Long, lpuDeviceID As Long) As Long

Declare Function waveOutPause Lib "winmm.dll" (ByVal hWaveOut As Long) As Long

Declare Function waveOutRestart Lib "winmm.dll" (ByVal hWaveOut As Long) As Long


Declare Function waveOutGetPlaybackRate Lib "winmm.dll" (ByVal hWaveOut As Long, lpdwRate As Long) As Long

Declare Function waveOutSetPlaybackRate Lib "winmm.dll" (ByVal hWaveOut As Long, ByVal dwRate As Long) As Long


Declare Function waveOutGetPitch Lib "winmm.dll" (ByVal hWaveOut As Long, lpdwPitch As Long) As Long
Declare Function GlobalAlloc Lib "kernel32" (ByVal wFlags As Long, ByVal dwBytes As Long) As Long

Declare Function GlobalLock Lib "kernel32" (ByVal hMem As Long) As Long

Declare Function GlobalFree Lib "kernel32" (ByVal hMem As Long) As Long

Declare Function GlobalUnlock Lib "kernel32" (ByVal hMem As Long) As Long

Declare Function CreateFile Lib "kernel32" Alias "CreateFileA" (ByVal lpFileName As String, ByVal dwDesiredAccess As Long,
ByVal dwShareMode As Long, lpSecurityAttributes As Any, ByVal dwCreationDisposition As Long, ByVal dwFlagsAndAttributes
As Long, ByVal hTemplateFile As Long) As Long

Declare Function ReadFile Lib "kernel32" (ByVal hFile As Long, lpBuffer As Any, ByVal nNumberOfBytesToRead As Long,
lpNumberOfBytesRead As Long, lpOverlapped As Any) As Long

Declare Function WriteFile Lib "kernel32" (ByVal hFile As Long, lpBuffer As Any, ByVal nNumberOfBytesToWrite As Long,
lpNumberOfBytesWritten As Long, lpOverlapped As Any) As Long

Declare Function GetFileSize Lib "kernel32" (ByVal hFile As Long, lpFileSizeHigh As Long) As Long

Declare Function CloseHandle Lib "kernel32" (ByVal hObject As Long) As Long

Declare Function ExitWindows Lib "user32" (ByVal dwReserved As Long, ByVal uReturnCode As Long) As Long
Declare Function waveOutSetPitch Lib "winmm.dll" (ByVal hWaveOut As Long, ByVal dwPitch As Long) As Long


Public Sub EndItAll()
  Unload Screen1
  Unload Screen2
```


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```
'Unload titlefrm
'Unload Updater
'Unload DriveScan
'Unload Main
Unload Recorder
End
End Sub
```

What is claimed is:

1. A music organizer and entertainment center comprising:

a storage device for storing encrypted, compressed data and an associated unique encryption key, the data defining a plurality of individual music selections and associated category flags, the encryption key being associated with an authorized user of the data;

a processor that retrieves selections and the associated category flags from the storage device based upon user selection of predetermined of the categories;

a decompression device that translates the encrypted, compressed data stored in the storage device into playable digital music data if a decrytion key associated with the authorized user and corresponding to the encryption key has been provided to the decompression device; and

a sound card that converts the playable digital music data into audible music signals.

2. The center as set forth in claim 1 further comprising a data reading device that transfers data to the data storage device, the data reading device receiving data from a service provider that appends predetermined associated category flags to each of the plurality of individual music selections as originally prepared by the service provider.

3. The center as set forth in claim 2 wherein the data reading device comprises an optical disc reader that reads an optical disc of individual music selections prepared by the service provider.

4. The center as set forth in claim 3 wherein the storage device includes a file having all individual music selections available from the service provider, constructed and arranged so that a user can identify each of the individual music selections whereby the individual music selections can be requested from the service provider.

5. The center as set forth in claim 4 wherein one of the category flags comprises an ownership category flag that indicates which music selections from the list of all music selections are currently resident in the storage device.

6. The center as set forth in claim 1 further comprising a graphical user interface display having a plurality of selectable screens, at least one of the selectable screens including a plurality of category buttons constructed and arranged so that when a predetermined of the category buttons is activated, music selections having category flags matching the predetermined category of a respective of the buttons are selected and listed on the display.

7. The center as set forth in claim 6 wherein at least one of the displays includes a play list of music selections chosen from the search list, the center being constructed and arranged to translate compressed data of each of the music selections on the play list, in a predetermined order, and to convert the playable digital music data into audible music signals.

8. The center as set forth in claim 7 further comprising a memory function constructed and arranged to memorize predetermined lists of music selections for subsequent playback based upon predetermined list identifier commands.

9. The center as set forth in claim 8 wherein at least one of the category flags comprises a rating flag and further comprising means for selectively blocking playback of songs associated with predetermined rating flags, the means for blocking including a password entry function to control the means for blocking.

10. The center as set forth in claim 1 further comprising a display screen having a plurality of graphical user interface displays, at least one of the displays including a plurality of buttons that, when activated, display a list of music selections on a search list having the associated category flags.

11. The center as set forth in claim 10 wherein each of the category buttons is constructed and arranged to display a plurality of sub-category buttons with other associated category flags whereby activation of the sub-category buttons further defines a selection of individual music selections so that the further defined music selections have each of the selected associated category flags.

12. The center as set forth in claim 1 further comprising a graphical user interface having a plurality of display screens, at least one of the screens showing thereon a plurality of buttons associated with individual of the associated category flags, a playback list showing music selections schedule for playback by the center and a search list showing current music selections retrieved based upon predetermined of the category buttons.

13. The center as set forth in claim 12 wherein the graphical user interface comprises a further screen having a plurality of music playback control buttons for controlling sound levels of the audible music signals.

14. The center as set forth in claim 13 wherein the graphical user interface includes a display screen having a listing of all available music selections currently stored in the storage device.

15. The center as set forth in claim 1 wherein the decryption key is stored in the center.

16. The center as set forth in claim 1 wherein the keys comprise a public/private key pair.

17. The center as set forth in claim 1 wherein the center comprises two separately housed units for being docked with each other.

18. The center of claim 1 wherein the center includes a voice-activation mechanism.

* * * * *

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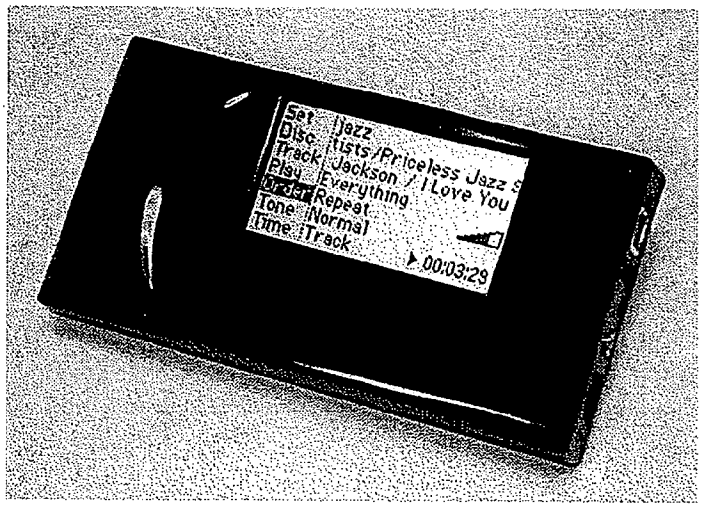
Reference cited in Substitute PTO Form 1449
Attorney Docket No. 380786-108980
Reexam Control No. 95/001,274

Personal Jukebox

User Manual



Copyright Notices

Contents

Introduction

Welcome to the future of personal music reproduction! Using the latest advances in hardware and software, the Personal Jukebox allows you to carry a sizable library - up to 81 hours - of your favorite music wherever you go.

Your Personal Jukebox comes pre-loaded with a sampler selection of music so you can use it right out of the box. You can replace these recordings or add selections from your own CD library using the companion Jukebox Manager software. Once installed on your Personal Computer, this software allows you to place a music CD in your computer's CD-ROM drive and download all or part of it into your Personal Jukebox. The software also provides a set of simple but powerful tools for organizing the music in your Personal Jukebox for fast and easy selection and playback.

Exciting features you'll discover with your new Personal Jukebox are:

- Rechargeable Lithium-Ion battery with ten-hour battery life.
- Built-in battery charger.
- Use it anywhere - play it with the headphones or through the speakers in your home or car stereo with inexpensive, optional accessories.
- Download mp3 files from your PC to your Personal Jukebox
- Capture music from CDs
  - High-quality music capture
  - Compatible with a wide variety of CD-ROM drives
  - No added pauses, clicks, or blank spots between tracks, even for live recordings
- Simple but powerful tools to organize your music collection your way.

- Easy to upgrade for new features in the future, e.g., to download and play music stored in different formats.

Safety Information

Warnings

To prevent fire or shock hazard do not expose the unit to moisture.

To avoid electrical shock, do not open the case. If service is needed, take the Personal Jukebox to an authorized service center.

Handle the battery carefully. Improper handling or disposal can lead to heat generation, smoke, bursting, or fire. See the *Power Sources* section below for more information. In no event shall seller be liable for any direct, incidental or consequential damages of any nature, or losses or expenses resulting from any defective product or the use of any product.

Do not use any other external power adapter since it may damage the Personal Jukebox.

Do not leave the Personal Jukebox where it will be subjected to extremes of light, temperature (such as inside a parked car), moisture, or vibration.

Do not use the headphones while driving, cycling, or operating any motorized vehicle. This can create a traffic hazard and is illegal in many areas. It can also be dangerous to play music at high volume while walking, especially at pedestrian crossings.

Avoid using the headphones at high volume for extended periods. If you experience ringing in your ears, reduce the volume.

Approvals

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Service

Only authorized personnel should service this product. See the *Limited Warranty* section of this manual for more information on what to do if you need service.

The following information will be valuable if service should be required during the warranty period.

Model No: _____
Serial No: _____
Purchase Date: _____
Purchased From: _____

Computer System Requirements

You will need a PC to use the Jukebox Manager software to download music to your Personal Jukebox. The following table shows the hardware and software requirements your PC must meet to run the Jukebox Manager software.

Minimum	Optimum
200 MHz or faster	300 MHz or faster
64 MB RAM	128 MB RAM
50 MB free disk space	50 MB free disk space
CD-ROM drive	CD-ROM drive
16 Color Display	256 Color Display
Windows 98	Windows 98
USB enabled	USB enabled

Packing list

When you open the box you will find the following items:

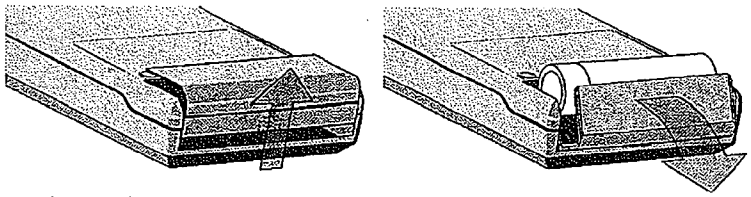
Personal Jukebox
Vinyl carrying case
Compact stereo headphones with vinyl carrying pouch
One rechargeable Lithium-Ion battery
International external power adapter
Shielded USB cable
Jukebox Manager Software CD
Instant Start Guide
User Manual

Getting Started

Follow the steps below to start using your Personal Jukebox.

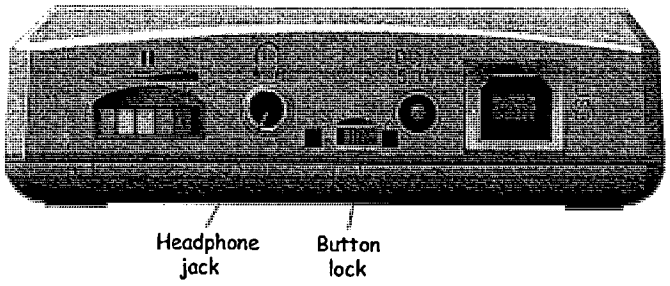
1. Put the lithium-ion battery in the Jukebox.

   Both the battery and the case have 9 and – printed on them to let you know which way to put the battery in. The 9 terminal of the battery must be in the 9 end of the case for the unit to operate.



2. Plug in the External Power Adapter to start charging the battery. It takes about 3 hours to fully charge the battery.

3. Plug in the headphones. The headphone jack is shown in the picture below.



4. Make sure the **Button lock** is unlocked. If it is locked you will see an icon representing a lock on the display. The **Button lock** is on the end of the unit next to the headphone jack and is shown in the picture above.

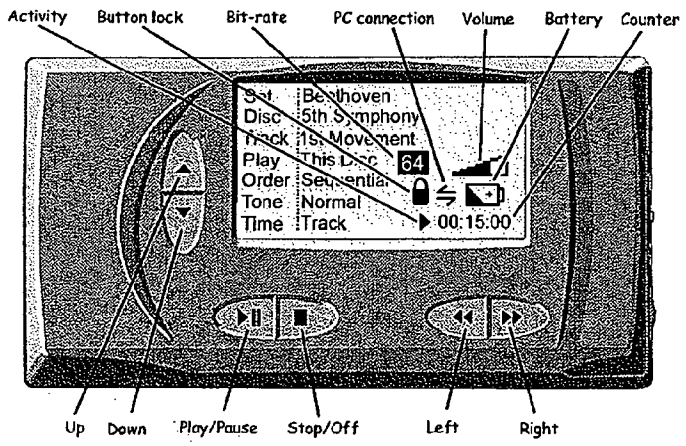
5. Press any button to turn your Jukebox on. Press the **Play/Pause** button to start playing the current music selection.

Playing Music

Your Personal Jukebox comes pre-loaded with a sampler selection of music, so you can begin enjoying it right away. Once you have familiarized yourself with the simple six-button controls on the front of the unit, you can explore the music included in the pre-loaded sampler selection.

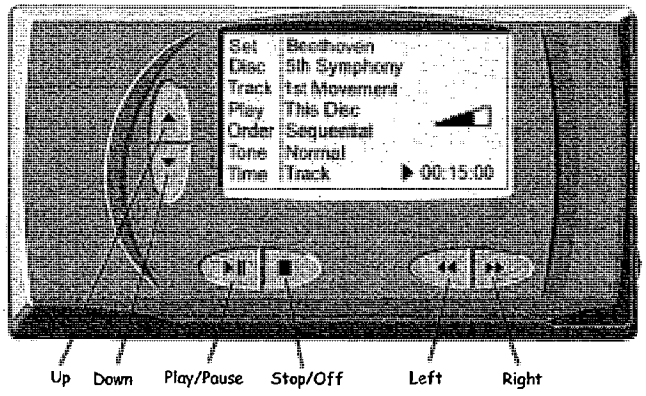
Using the Player

The picture below shows the controls you use to operate your Personal Jukebox and the indicators that can appear on the display screen. The function of each element in the picture is described in the sections that follow.



Buttons

Press any button to turn your Jukebox on. You will see a startup screen that shows the name of your Jukebox and the software version it is running and then the main screen shown in the picture above.



Use the **Up**, **Down**, **Left**, and **Right** buttons to select the music you want to play and to change the play options. See the section on *Music Selection and Play Options* for more information.

Use the **Play/Pause** button to play the current music selection or to temporarily stop music from playing. The ▸ **Activity** symbol means that music is playing. To stop playing music temporarily, press the **Play/Pause** button or push the volume wheel in. The **Activity** symbol will change to ⏸ and the unit will power itself off after twenty seconds of inactivity. To resume where you left off press the **Play/Pause** button or push the volume wheel.

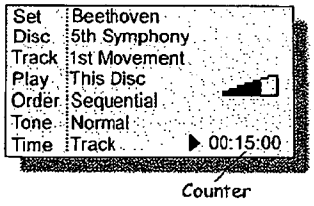
Note that if you press the **Play/Pause** button when the Jukebox is powered off and hold it down for a second or two the Jukebox will power on and start playing music.

Use the **Stop/Off** button to stop music from playing and to turn the player off. To stop playing music, press **Stop/Off**. The **Activity** symbol will change to ■. When you press any button or push the volume wheel in to restart the jukebox, the **Counter** is set to 00:00:00. When you

press **Play/Pause** or push in the volume wheel again to listen to the track, it will be played in its entirety.

The **Left** and **Right** buttons can also be used to fast forward and fast reverse the track you are playing. Fast forward and fast reverse only work when you have selected the **Counter**. The **Counter** is described in more detail in the section on Music Selection and Play Options below.

Music Selection and Play Options



Use the **Up** and **Down** buttons to highlight the music selection or play option you want to change and the **Left** and **Right** buttons to make the change.

For example, use the **Up** and **Down** buttons until Set is highlighted. You can now use the **Left** and **Right** buttons to choose which set you want to play.

The rest of this section describes each of the music selection and play options of your Personal Jukebox in detail.

Set: A list of the sets in your Personal Jukebox. A set is a group of discs. The sets in your sampler selection are blues, classical, and jazz. You can choose a set to play.

Disc: A list of the discs in the current set. A disc can correspond to a CD or it can be a collection of tracks you choose to group together. You can choose a disc to play.

Track: A list of tracks in the current disc. You can choose a track to play.

Play: A mode that you set to choose how much music to play. The options are *This Track*, *This Disc*, *This Set*, or *Everything*. For example, if you choose *This Track*, your Personal Jukebox will play only the current track.

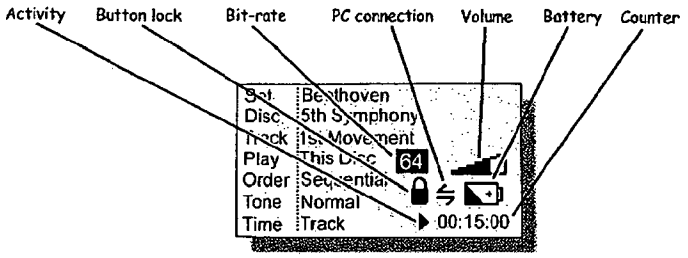
Order: A mode that you set to choose the order of play. The options are *Sequential*, *Shuffle*, and *Repeat*. For example, if you choose *Shuffle*, the tracks you have chosen to play will be played in random order.

Tone: A mode that you set to choose how much bass you hear. The options are *Normal*, *Extra Bass*, and *Super Bass*.

Time: A mode that you set to choose what is displayed in the **Counter**. The options are *Track*, *Track Left*, *Disc*, and *Disc Left*. If you choose *Track*, the **Counter** will show how long the track has been playing. If you choose *Track Left*, the **Counter** will show the amount of time it will take to finish playing the track.

Counter: The **Counter** is highlighted via the **Up** and **Down** buttons. **Down** once from the **Time** mode or **Up** once from the **Set** selection will highlight the **Counter**. When it is highlighted, you can use the **Left** and **Right** buttons to fast forward and fast reverse.

Indicators



The indicators that may appear on your display are all shown in the picture above and described here. It is unlikely that you will see all of the indicators at the same time. In fact, you may never see some of them.

Activity: This indicator shows whether your Personal Jukebox is playing music (▸), paused (II), or stopped (■). More information on the paused and stopped states is given in the sections on *Pausing and Resuming Play*, *Stopping Play*, and *Turning the Jukebox Off*.

Button lock: The lock indicator appears if the buttons are locked. To find the lock switch, see the section on *Side Controls and Connectors*.

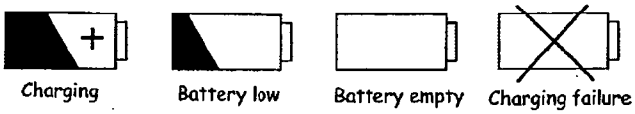
Playback bit-rate: If a track was encoded at a bit-rate other than 128 Kb/s this indicator appears when the track is played.

PC Connection: This indicator appears when the Personal Jukebox is connected to the PC via the USB cable.

Volume: The volume indicator is always present and shows the volume setting.

Battery: The battery indicator appears when the battery is charging, when the battery is low, when the battery is completely discharged, and when there is a charging failure. The picture below shows all of the battery states you might see. If the indicator appears because the battery is low, you can play music for about another hour before the battery runs down. The remaining battery life may vary depending

on the condition of your battery. If there is a charging failure, there is something wrong with the battery and you will need to replace it.

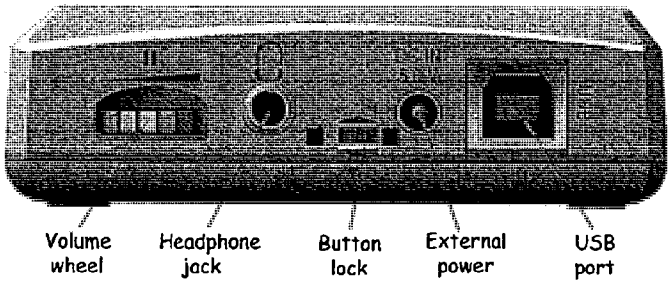


Turning the Jukebox Off

When you press **Stop/Off** the jukebox stops playing music and turns itself off after twenty seconds of inactivity. You can force the jukebox to turn itself off by pressing **Stop/Off** twice in a row.

Side Controls and Connectors

The picture below shows the locations of the connectors and the controls on the side of the unit.



Volume wheel: You can turn the wheel to adjust the volume or press the wheel in to start or stop play. Pressing the wheel is the same as pressing the **Play/Pause** button, but the wheel may sometimes be more convenient to use. For example, when you wear your Personal Jukebox on your belt. You can use the volume wheel to play and pause music even when the buttons are locked.

Headphone jack: This is where you plug in headphones, a stereo cable to play your Personal Jukebox through your home stereo speakers, or a cassette adapter to play it through your car speakers.

Button lock: If you lock the buttons, pressing them has no effect. This is useful when you might press the buttons inadvertently by putting your Personal Jukebox in its case or leaning into something while wearing it on your belt.

External power: This is where you plug in the external power adapter to run the Personal Jukebox and recharge the battery.

USB port: When you want to add music to your Personal Jukebox or reorganize the music you have in it, plug the USB cable into the USB port to connect your Personal Jukebox to your PC and then use the Jukebox Manager software to manage your music collection.

Loading CDs into your Personal Jukebox

Using the Jukebox Manager software, it is easy to load music from your own CD library into the Personal Jukebox. The Jukebox Manager software captures the music, transfers it to the Jukebox, and allows you to organize it. The software can also download mp3 files you have obtained from other sources such as Internet-based music stores. An excellent Internet site for mp3 music is www.mp3.com.

Important Note

This product is for your personal use only. Copying CDs or downloading music files for sale or other business purposes is a violation of copyright law. It is also a violation of copyright law to download files without permission of the copyright owner.

To use the Jukebox Manager software:

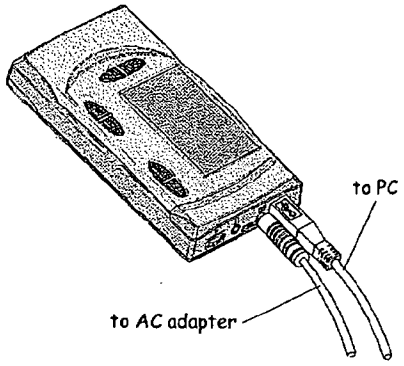
1. Make sure you are using Windows 98 and that your system recognizes the USB port on your PC. To check the latter:
   - Double click My Computer
   - Double click Control Panel
   - Double click System
   - Click the Device Manager tab
   - Look for Universal Serial Bus controllers. If none appear, you need to enable USB in the BIOS. See the documentation that came with your PC for instructions on how to do this.

Important Note

Do step 2 before doing step 3 in order to avoid causing problems with your system configuration. If you have inadvertently done step 3 first, the PC will ask you where the USB driver for the Personal Jukebox is. Don't try to find it. Exit as soon as you can.

2. Install the software by following these steps:
   - Insert the Jukebox Manager CD into your CD-ROM drive.
   - Double click My Computer
   - Double click the icon for your CD-ROM drive
   - Double click JukeboxManager.exe
   - Now follow the on-screen instructions to complete the installation. (Simply click **Yes** when asked whether you want to install the Jukebox Manager software, click **Next** after you've read each screen, and then click **Finish** when you are prompted to complete the setup).

3. Use the USB cable packaged with the Jukebox to connect the Jukebox to the PC as in the diagram below.



4. Remove the Jukebox Manager CD from the CD-ROM drive.

5. Run the Jukebox Manager program on your PC.
   - Click the Start menu
   - Click Programs
   - Click Jukebox Manager.

6. Put an audio CD in the CD-ROM drive.

7. Click the **Jukebox** menu and then **Capture CD Audio**.

   You will see the list of tracks on your CD. This window may not look like it represents your CD but it does. The names of the set, disc, and tracks are not available from the CD so what you see are default names for the tracks.

   You can use the **Titles** button to have the Jukebox Manager consult CDDB, an Internet database of CD information, to fill in the names for the set, disc, and tracks automatically. You must be able to use Internet Explorer to access the Internet. If you can, **Titles** is easy to use, just click it. You can also enter your own titles or modify the titles you got from CDDB.

When you are happy with the track titles and the set and disc names, make sure that the tracks you want are checked, and click **OK** to begin audio capture.

Some CD-ROM drives capture audio from CDs better than others do. Your drive may capture cleanly but slowly, it may introduce pops and clicks, or it may not be able to capture audio at all, in which case the Jukebox Manager reports an error.

We provide a test to help determine how well your CD-ROM drive captures audio.

For more information on CD-ROM drives, the drive test, and audio capture see the online Jukebox Manager Help.

8. For online help, click Help then click Topics.

Important Note

We strongly recommend that you use the External Power Adapter to power the Personal Jukebox while you are capturing music from CDs. The audio capture process uses maximum power. If you use battery power to do this, your battery will drain very quickly and you may not finish capturing the audio.

When you capture music from a CD, the music is not stored on your PC. It is transferred directly to your Personal Jukebox.

Managing the contents of your Personal Jukebox

You can use the Jukebox Manager software to organize the music in your Personal Jukebox. You can organize the music the way it was arranged on the original CDs or you can rearrange it. There are several reasons you might want to reorganize the music in your Personal Jukebox:

1. To change the order of the tracks on a disc.

   For example, you might want to put all of the slow songs on a disc before all of the fast songs.

2. To remove tracks you don't want to hear.

3. To create **play lists**: groups of tracks or discs you want to play frequently.

   When you play music on your Personal Jukebox you can play a track, a disc, a set, or everything in the Jukebox, but you cannot create a specific list of tracks, discs, or sets to play. For example, if you want to hear only the slow songs on a disc, you could play them one at a time by manually skipping over the fast songs or you could use the Jukebox Manager to make play lists as in the following example.

   Before:

Disc	Tracks
Beatles/Revolver	Taxman Eleanor Rigby I'm Only Sleeping Love You To Here, There and Everywhere Yellow Submarine She Said She Said Good Day Sunshine And Your Bird Can Sing For No One Doctor Robert I Want To Tell You Got To Get You Into My Life Tomorrow Never Knows

After:

Using the Jukebox Manager's **New Disc** operation to create two new discs and then using the **Copy** operation on each track to copy it from the original disc to one of the two new discs:

Disc	Tracks
Beatles/Revolver	Taxman Eleanor Rigby I'm Only Sleeping Love You To Here, There and Everywhere Yellow Submarine She Said She Said Good Day Sunshine And Your Bird Can Sing For No One Doctor Robert I Want To Tell You Got To Get You Into My Life Tomorrow Never Knows
Beatles/Revolver - slow	Eleanor Rigby I'm Only Sleeping Here, There and Everywhere For No One Tomorrow Never Knows
Beatles/Revolver - fast	Taxman Love You To Yellow Submarine She Said She Said Good Day Sunshine And Your Bird Can Sing Doctor Robert I Want To Tell You Got To Get You Into My Life

Now all you have to do to hear the slow songs is use the buttons to select Beatles/Revolver - slow.

Note: each track is stored once on the hard disk no matter how many discs it appears in, so you can make as many play lists as you'd like without filling up your disk.

4. To make it easier to find a disc or track

As the amount of music you have on your Personal Jukebox grows, the ability to categorize discs becomes more useful. If you have 20 discs in a set, and you want to find a specific disc to play, you may need to press the **Right** or **Left** button 19 times to find it. You can improve this by adding a new set and copying or moving some of the discs into it.

For example, if you have a lot of music by the Beatles, you may want to keep it all together as in the following example:

Before:

Set	Disc
Rock	Beatles/Revolver Rolling Stones/Let It Bleed Elvis Presley/The Number One Hits Beatles/Help! Beatles/Abbey Road

After:

Using the Jukebox Manager's **New Set** operation to create a set called Beatles and then using the **Move** operation on each of the Beatles discs to move it to the new set.

Set	Disc
Rock	Rolling Stones/Let It Bleed Elvis Presley/The Number One Hits
Beatles	Beatles/Revolver Beatles/Help! Beatles/Abbey Road

The online Help for the Jukebox Manager software describes how to create new sets and discs, how to reorder tracks and discs, how to move or copy tracks from one disc to another, and how to move or copy discs from one set to another.

Power Sources

You can use the Personal Jukebox on external power or with the supplied lithium-ion rechargeable battery. It is preferable to use the Personal Jukebox on external power when you are capturing music from CDs via the PC.

Even if the Personal Jukebox looks like it is off, it is not disconnected from the power source as long as it contains a battery or is connected to a wall outlet. If you know you are not going to use the Jukebox for a long time, be sure to disconnect the power by removing the battery and unplugging the External Power Adapter from the wall outlet.

Lithium-Ion Battery

The supplied lithium-ion battery lasts for about ten hours of continuous operation. It is fully rechargeable and should last for years even with heavy use.

Battery charging

The battery is charged when the Personal Jukebox is on external power via the External Power Adapter. It takes about three hours to charge a completely discharged battery. Charging time may vary depending on the condition of the battery. You can use the Personal Jukebox while the battery is being charged.

Battery disposal

Lithium-ion batteries are considered to be hazardous waste. You should consult your local regulations or the support web site for advice on how to safely dispose of it. For more information on the support web site see the *Limited Warranty* section of this manual.

Note that improper handling or disposal of this battery can lead to heat generation, smoke, bursting, or fire. In particular, do not remove

the label, disassemble the battery, short circuit by directly connecting the positive (9) and negative (-) terminals, and do not burn or otherwise expose to temperatures above 80 degrees Centigrade.

External Power Adapter

Use the External Power Adapter supplied with the Personal Jukebox to run it on external power.

Important note

Do not use any other external power adapter since it may damage the Personal Jukebox.

To remove the external power adapter from the wall outlet, grasp the adapter itself. Do not pull the cord.

Specifications

Music Storage

Up to 72 hours capacity (about 1000 tracks)
Notebook computer hard disk drive with ramp load

System

24-bit DSP running at 33MHz, approximately 20 MIPS
Large, crisp display (128 x 64 pixel bitmapped LCD)
Flash memory for easy software upgrade

Audio

Music is encoded at bit rates up to 128Kb/s
Optional 64Kb/s rate is supported for increased playing time.
MP3 files on your PC disk can be downloaded to the Personal Jukebox.

Inputs

External Power Adapter (AC Input: 100-240V @ 1.0A, 50-60Hz / DC Output: 5.0V @ 2.5A)

Outputs

Audio output power: more than 50 mW at 32Ω impedance

Battery

Lithium-Ion rechargeable battery, 3.6V / 1350mAh
About ten hours of continuous operation when fully charged
Recharges in about 3 hours

Dimensions

152.6w x 23.9h x 80d mm

Weight

10.5 ounces

Supplied accessories

Headphones with vinyl carrying pouch
International external power adapter
Lithium-Ion rechargeable battery
Software CD-ROM for Jukebox Manager installation
Shielded USB cable
Vinyl carrying case
User Manual & Quick-start Reference

Optional accessories

External battery charger kit
- Extra battery (Lithium-Ion rechargeable)
- charger
  - AC input: 100V @ 14VA / 240V @ 19VA, 50-60Hz
  - DC output: 4.3V 1.0A)

3.5mm Mini-DIN to twin-RCA cable (for Jukebox playback through home stereo)
Car power adapter
Car cassette audio adapter

Technology licenses

Hardware, firmware, and software:

Portions of this technology are licensed from Compaq Computer Corporation®, http://www.compaq.com.

COMPAQ

MP3 firmware decoder and software encoder:

MPEG Layer 3 audio coding technology licensed by Fraunhofer IIS, http://www.iis.fhg.de/amm/

Fraunhofer Institut
Integrierte Schaltungen

Caring for your Personal Jukebox

Your Personal Jukebox is an electronic device that should be handled with care. Treat it the way you would a camera - don't drop it, don't leave it in a car in either very hot or very cold weather, don't expose it to moisture or excessive vibration.

It's a good idea to keep your Personal Jukebox in its carrying case. The case provides some shock resistance and protects the display screen from scratches.

Clean the Personal Jukebox with a soft, dry or slightly damp cloth. Do not use an abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish.

Limitations

Supported mp3 files

Mp3 files you find on the Internet are generated by a variety of mp3 encoders. Variable Bit Rate (VBR) mp3 files, such as those generated by the Xing mp3 encoder, are not supported in this version of the software. The Jukebox Manager will report an error if you try to download one of these files from your PC to your Personal Jukebox.

Troubleshooting

Symptom	*Cause/Solution*
Jukebox won't power on	Battery may be backwards. Check to be sure 9 and – markings on the battery line up with the corresponding markings on the case
	Battery may be weak. Connect to external power or replace battery
	Button lock is locked. Unlock it
	If your unit has power and you know it contains music, and it still doesn't work, you can try the emergency reset: push the wheel in and hold it while pressing **Stop/Off**.
Problem connecting to PC	If you try to connect to the PC before you install the Jukebox Manager software, it is possible to get into a state where the PC assigns an *undefined* USB driver to your Personal Jukebox. To fix this, you need to remove the *undefined* driver and then install the Jukebox Manager software. To remove the driver: • keep the Personal Jukebox connected to the PC • click the **Start** menu • click **Settings** • click **Control Panel**. • Double click **System** • click the **Device Manager** tab • click the '+' sign beside **Universal Serial Bus controllers**, • You should see an undefined driver in the list. Select it and delete it.

Symptom	Cause/Solution
Problem connecting to PC (continued)	If the Personal Jukebox has powered off, power it on.
	Windows98 sometimes fails to recognize the presence of the Jukebox. To cause Windows to reconnect to the Jukebox, detach the USB cable and reattach it
Poor quality in captured music	Some CD-ROM drives are not good for capturing audio. See the Jukebox Manager online Help for more information. You may be able to change some settings to improve the situation.
Tracks are repeated	This happens when **Order** is set to *Repeat*. If you don't want this to happen, set **Order** to *Shuffle* or *Sequential*.
Tracks play in random order	This happens when **Order** is set to *Shuffle*. If you don't want this to happen, set **Order** to *Sequential* or *Repeat*.
Tracks not in same order as CD	Tracks are played in the order they appear in the Jukebox Manager software. Use this software to put the tracks in the play order you want.
Jukebox screen appears garbled	This can occur when the battery is very weak. Replace or recharge the battery as soon as possible.
"Disk Failure" appears on the screen.	This may be a battery problem. Connect the Jukebox to AC power. If you still see the "Disk Failure" message, write down the information on the screen and contact Technical Support.
"System Error" appears on the screen	This can be caused by: • Mechanical failures of the disk

Symptom	Cause/Solution
"System Error" appears on the screen (continued)	• Internal errors in the firmware Low battery conditions. Replace the battery. If the error still appears, write down the information on the screen and contact Technical Support.
Cannot rewind past the beginning of a track	This is a known limitation. To move to the previous track, select **Track** and then press **Left**.
VBR (Variable Bit Rate) MP3s are not supported	This is a known restriction. You can work around this by re-encoding VBR MP3s as constant bitrate MP3s.
Layer 2 MP3s are not supported	This is a known restriction.
Battery symbol has **X** over it	The battery cannot be charged. Dispose of the battery properly and replace it with a new one.
"Flash update mode" appears on the screen every time you power your Jukebox on	The firmware is corrupt. This can happen if you use the **Update Flash** operation in the Jukebox Manager and an error occurs during the transfer of the flash image. It can also happen if you transfer a bad firmware image. Obtain a new firmware image and load it into your Jukebox using the Jukebox Manager.

Limited Warranty

This section describes what we will do to protect you from defects.

What your warranty covers:

Any defect in materials or workmanship.

For how long after your purchase:

Up to one year from the date of purchase.

What we will do:

During the initial 30 days:

We will exchange on factory defect.

After 30 days and up to one year from the date of purchase:

We will repair or replace up to one year from your date of purchase on factory defect. The warranty covers the parts and labor.

How you get service:

Contact us on the Internet at www.pjbox.com. Self-diagnostic screens will allow you to troubleshoot your problem over the Internet. If after going through the troubleshooting screens we determine that you should receive a replacement player, you will be given a return material authorization (RMA) number. No returns will be accepted without an RMA number. You will also be given shipping instructions for the unit. Please follow these instructions carefully.

What your warranty does not cover:

- Acts of God, such as but not limited to lightning.
- Adjustment of customer controls.
- Damage from misuse or neglect
- A unit that has been modified.
- Batteries
- Shipping damage if the unit was not packed and shipped in the manner prescribed.

How state law relates to warranty:

This warranty gives you specific legal rights and you may have other rights that vary from state to state.

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.
95/001,274	12/01/2009	6928433	016788-000-0004	6990

37509 7590 06/09/2010

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 06/09/2010

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patents and Trademark Office
P.O.Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

DO NOT USE IN PALM PRINTER

THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:

MAILED

JUN 09 2010

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450.
Alexandria, VA 22313-1450
www.uspto.gov

MAILED

JUN 0 9 2010

CENTRAL REEXAMINATION UNIT

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW CA 94039-0460

(For Patent Owner)

PILLSBURY WINTHROP SHAW
PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

(For Third Party Requester)

In re: Goodman *et alia*
Inter Partes Reexamination Proceeding
Control No. 95/001,274
Deposited on: 01 December 2010
For: US Patent No. 6,928,433 B2

DECISION
DISMISSING-AS-MOOT
PETITION FOR EXTENSION
OF TIME
[37 CFR §§ 1.956 & 1.181]

This is a decision on the 26 May 2010, "Renewed Petition for Extension of Time Under 37 CFR § 1.956" requesting that the time for responding to the non-final Office action mailed 29 March 2010, be further extended. The petition was timely filed with certificate of service.

The petition is before the Director of the Central Reexamination Unit for consideration.

The petition is dismissed-as-moot for the reasons set forth below.

DISCUSSION

The Patent Owner's representative renews their requests the period of time be extended in which to file a response to the non-final Office action mailed 29 March 2010, which set two (2) months time for filing a response thereto. The instant petition for extension of time requests one (1) month extension of time. The petition was timely filed on 26 May 2010, together with electronic fee transmittal for the $200.00 petition fee as required by 37 CFR § 1.956 and 37 CFR § 1.17 (g). A certificate of service was provided with the petition.

The patent owner submitted a timely reply to the Office action on 01 June 2010. The submission of a timely response renders the petition for an extension of time as moot.

The petition is dismissed-as-moot for the reasons set forth below.

> **37 CFR § 1.956. Patent owner extensions of time in inter partes reexamination.** *The time for taking any action by a patent owner in an inter partes reexamination proceeding will be extended only for sufficient cause and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the patent owner is due, but in no case will the mere filing of a request effect any extension. Any request for such extension must be accompanied by the petition set forth in § 1.17(g). See § 1.304(a) for extensions of time for filing a notice of appeal to the U.S. Court of Appeals for the Federal Circuit.*

Addressing the requirement of 37 CFR § 1.956 to make a showing of "sufficient cause" to grant an extension request, MPEP § 2665 states, in pertinent part:

> As noted above, a request for extension of time under 37 CFR § 1.956 will be granted only for sufficient cause, ...
>
> Evaluation of whether "sufficient cause" has been shown for an extension must be made by **balancing** the desire to provide the patent owner with a fair opportunity to respond, **against** the requirement of the statute, 35 U.S.C. § 314(c), that the proceedings be conducted with special dispatch. ...

Any petition request must include the required petition fee as set forth according to 37 CFR § 1.17 (g) and 37 CFR § 1.956.

MPEP § 2665 Extension of Time for Patent Owner Response (in-part)

Requests for an extension of time in an inter partes reexamination proceeding will be considered only after the first Office action on the merits in the reexamination is mailed. Any request for an extension of time filed prior to the first action will be denied.

The certificate of mailing and the certificate of transmission procedures (37 CFR § 1.8), and the "Express Mail" mailing procedure (37 CFR § 1.10), may be used to file a request for extension of time, as well as any other paper in an existing *inter partes* reexamination proceeding (see MPEP § 2666).

As noted above, a request for extension of time under 37 CFR § 1.956 will be granted only for sufficient cause, and the request must be filed on or before the day on which action by the patent owner is due. In no case, will the mere filing of a request for extension of time automatically effect any extension, because the showing of cause may be insufficient or incomplete. In the prosecution of an *ex parte* reexamination, an automatic 1-month extension of time to take further action is granted upon filing a first timely response to a final Office action (see MPEP § 2272). The automatic extension given in *ex parte* reexamination does not apply to the first response to an Action Closing Prosecution (ACP) in an inter partes reexamination. The reason is that in *inter partes* reexamination, parties do not file an appeal in response to an ACP, and a further Office action (Right of Appeal Notice) will issue even if the parties make no response at all. Thus, there is no time period to appeal running against the parties after the ACP is issued, unlike ex parte reexamination where an appeal is due after final rejection and the time is thus automatically extended one month to provide time for the patent owner to review the Office's response to the amendment before deciding whether to appeal.

Evaluation of whether "sufficient cause" has been shown for an extension must be made by balancing the desire to provide the patent owner with a fair opportunity to respond, against the requirement of the statute, 35 U.S.C. § 314(c), that the proceedings be conducted with special dispatch.

Any request for an extension of time in a reexamination proceeding must fully state the reasons therefor. The reasons must include (A) a statement of what action the patent owner has taken to provide a response, to date as of the date the request for extension is submitted, and (B) why, in spite of the action taken thus far, the requested additional time is needed. The statement of (A) must provide a factual accounting of reasonably diligent behavior by all those responsible for preparing a response to the outstanding Office action within the statutory time period.

Prosecution will be conducted by initially setting a time period of at least 30 days or one month (whichever is longer), see MPEP § 2662. First requests for extensions of these time periods will be granted for sufficient cause, and for a reasonable time specified-usually 1 month. The reasons stated in the request will be evaluated, and the request will be favorably considered where there is a factual accounting of reasonably diligent behavior by all those responsible for preparing a response or comments within the statutory time period. Second or subsequent requests for extensions of time, or requests for more than one month, will be granted only in extraordinary situations.

...

DECISION

The patent owner's representative petitions under 37 CFR § 1.956 to further extend the period for response by adding one (1) month to the period for response. The decision to extend the period for response is evaluated based upon a showing of "sufficient cause." There is always the consideration to balance the need for the patent owner to have a fair opportunity to respond to the Office action between the need for special dispatch.

The patent owner submitted a timely reply to the Office action on 01 June 2010. The submission of a timely response renders the petition for an extension of time as moot.

The petition is hereby dismissed-as-moot.

CONCLUSION

1. The patent owner's petition for extension for time is hereby **dismissed-as-moot.**

2. The Patent Owner's timely responded on 01 June 2010.

3. All correspondence involving this proceeding may be addressed to the following:

By Mail to: Mail Stop *Ex Parte* Reexam
Central Reexamination Unit
Commissioner for Patents
United States Patent & Trademark Office
P. O. Box 1450
Alexandria, VA 22313-1450

By Fax to: (571) 273-9900
Central Reexamination Unit

By Hand: Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

By EFS: Registered users of EFS-Web may alternatively submit such correspondence via the electronic filing system EFS-Web, at https://sportal.uspto.gov/authenticate/authenticateuserlocalepf.html. EFS-Web offers the benefit of quick submission to the particular area of the Office that needs to act on the correspondence. Also, EFS-Web submissions are "soft scanned" (i.e., electronically uploaded) directly into the official file for the reexamination proceeding, which offers parties the opportunity to review the content of their submissions after the "soft scanning" process is complete.

4. Telephone inquiries with regard to this decision should be directed to Mark Reinhart, at (571) 272-1611, in the absence of Mark Reinhart calls may be directed to Eric Keasel, at (571) 272-4929, or Jessica Harrison, at (571) 272-4449, all are Supervisory Patent Examiners in the Central Reexamination Unit, Art Unit 3992.

/Mark Reinhart/

Mark Reinhart,
Supervisory Patent Examiner,
AU 3992,
Central Reexamination Unit
571-272-1611

Electronic Acknowledgement Receipt

EFS ID:	7829550
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Vikki Athen
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	16-JUN-2010
Filing Date:	01-DEC-2009
Time Stamp:	17:45:29
Application Type:	inter partes reexam

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	Reexam Certificate of Service	SupplementalCOS.pdf	2486368 ebc45e69e7bfc0fe1487d830c758ddce0713e4bc	no	6

Warnings:	
Information:	

Total Files Size (in bytes):	2486368

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

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

SUPPLEMENTAL CERTIFICATE OF SERVICE UNDER 37 CFR § 1.248(a)(4) FOR PAPERS FILED BY THE PATENT OWNER ON JUNE 1, 2010

Mail Stop *Ex Parte* Reexamination
Commissioner for Patents
United States Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

On June 1, 2010, the Patent Owner filed the following documents in the United States Patent and Trademark Office in the above-captioned *inter partes* reexamination proceeding:

- Amendment And Response Under 37 C.F.R. §§ 1.941, 1.943 and 1.945 (the "Amendment & Response");
- Declaration of James D. Foley, Ph.D. Under 37 CFR § 1.132, along with exhibits attached thereto (the "Foley Declaration");
- Declaration of Howard N. Egan Under 37 CFR § 1.131, along with exhibits attached thereto (the "Egan Declaration");
- Declaration of Inventors Under 37 CFR § 1.131, along with exhibits attached thereto (the "Inventor Declaration");
- Declaration of Craig McHugh Under 37 CFR § 1.132, along with exhibits attached thereto (the "McHugh Declaration");
- Notification of Prior or Concurrent Proceedings Under 37 CFR § 1.985(a) (the "Notification");
- Information Disclosure Statement Under 37 CFR §§ 1.98 and 1.555 (the "IDS");
- Substitute for form 1449/PTO (the "Substitute form 1449"); and
- a Certificate of Service.

In the above-identified Certificate of Service filed on June 1, 2010, the Patent Owner certified that service copies of all of the above-listed documents were being sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

The service copies were sent as described above in two boxes, including: (1) a "first box" containing copies of the Amendment & Response, Foley Declaration, Egan Declaration, Inventor Declaration and McHugh Declaration; and (2) a "second box" containing copies of the Notification, the IDS, the Substitute form 1449, as well as copies of all of the references listed in the Substitute form 1449.

On June 15, 2010, the United States Postal Service (USPS) returned the second box to the attorneys of record for the Patent Owner. The second box was returned by the USPS due to an inadvertent error in applying inadequate postage to the second box. More specifically, the postage applied to the second box was in the amount of 32 cents instead of 32 dollars. This error was inadvertent and unintentional. Attached as Exhibit A is a copy of the postage stamp on the second box, indicating the amount of 32 cents, with "Return For Post" hand-written by the USPS below the postage stamp. The Patent Owner currently has no reason to believe that the first box was not successfully delivered to the address set forth above as a result of the mailing on June 1, 2010.

On June 15, 2010, after the second box was returned by the USPS, counsel for the Patent Owner spoke by telephone with David A. Jakopin, current counsel of record for the Third Party Requester. In this telephone conversation, counsel for the Patent Owner explained the inadvertent error described above, and asked what would be the most convenient and expeditious way to serve the second box on counsel for the Third Party Requester. Mr. Jakopin responded that he would accept service on behalf of the Third Party Requester by hand delivery to the below address:

David A. Jakopin
Partner
Pillsbury Winthrop Shaw Pittman LLP
2475 Hanover Street
Palo Alto, CA 94304-1114

I hereby certify that on June 15, 2010, in reliance on Mr. Jakopin's instructions regarding service, counsel for the Patent Owner hand-delivered to the Third Party Requester at the above-indicated address the following documents:

(1) true and correct electronic copies of all of the documents as filed on June 1, 2010 by the Patent Owner in the USPTO in the above-captioned reexamination proceeding, including the Amendment & Response, Foley Declaration, Egan Declaration, Inventor Declaration, McHugh Declaration, the Notification, the IDS, the Substitute form 1449, and all of the references listed in the Substitute form 1449

2) true and correct paper copies of the Notification, the IDS, the Substitute form 1449, and the references listed in the Substitute form 1449, as filed by the Patent Owner in the USPTO on June 1, 2010 in the above-captioned reexamination.

Attached as Exhibit B is a copy of a cover letter from Counsel for the Patent Owner to Mr. Jakopin, which was hand delivered along with the above-identified materials on June 15, 2010.

In addition, **I hereby certify that on June 16, 2010**, a true and correct copy of this SUPPLEMENTAL CERTIFICATE OF SERVICE UNDER 37 CFR § 1.248(a)(4) FOR PAPERS FILED BY THE PATENT OWNER ON JUNE 1, 2010, filed in the USPTO on June 16, 2010 in the above-captioned reexamination, was sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

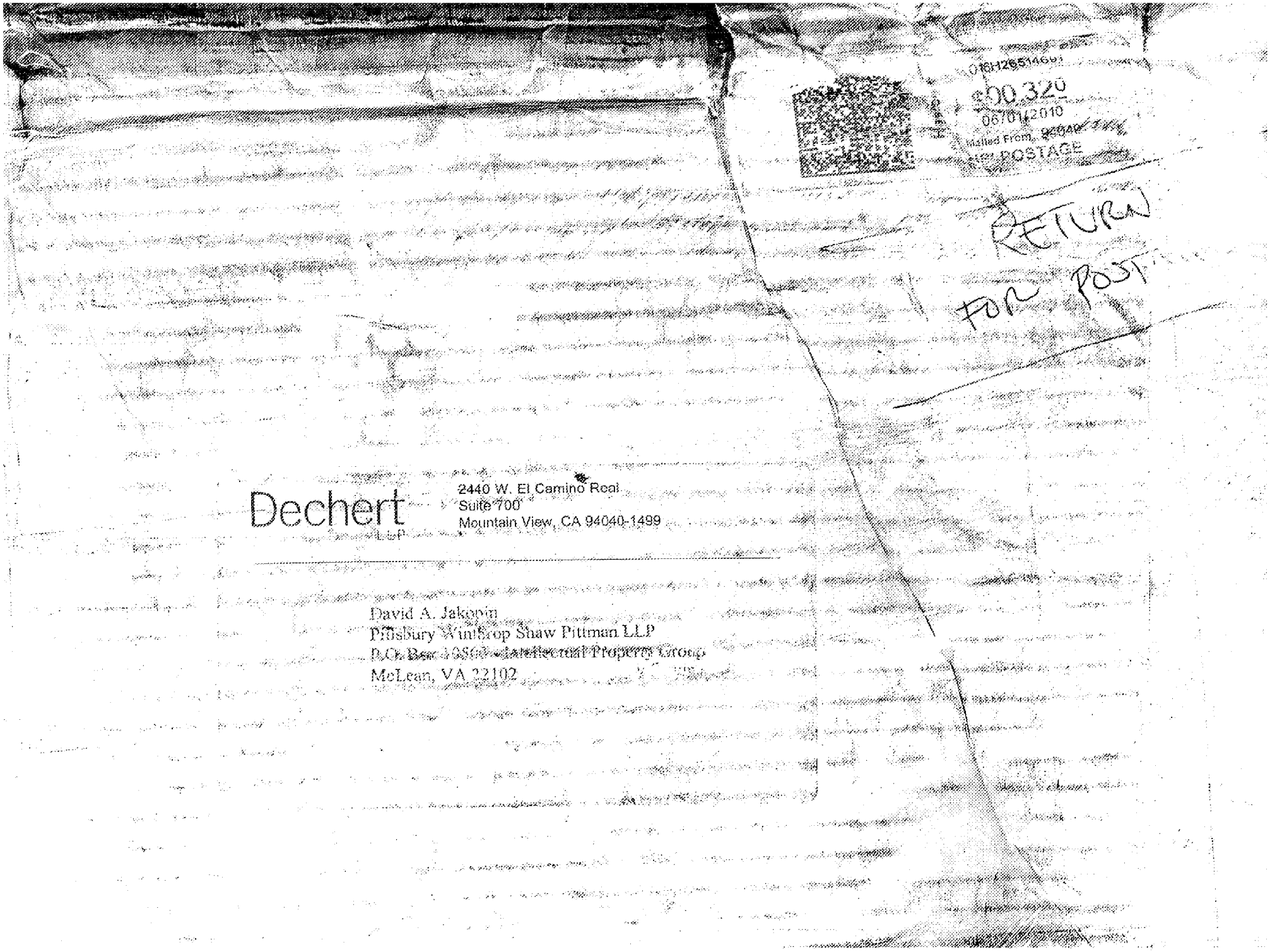
Date: June 16, 2010

Justin Boyce
Reg. No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

Attachment: Exhibit A (1 page)

Attachment: Exhibit B (2 pages)



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June 15, 2010

David A. Jakopin
Partner
Pillsbury Winthrop Shaw Pittman LLP
2475 Hanover Street
Palo Alto, CA 94304-1114

Re: *Inter Partes* Reexamination Control No. 95/001,274

Dear Mr. Jakopin,

Enclosed, please find a CD containing electronic copies of documents filed on June 1, 2010 by the Patent Owner in the United States Patent and Trademark Office in *Inter Partes* Reexamination Control No. 95/001,274, including:

- Amendment And Response Under 37 C.F.R. §§ 1.941, 1.943 and 1.945 (the "Amendment & Response");
- Declaration of James D. Foley, Ph.D. Under 37 CFR § 1.132, along with exhibits attached thereto (the "Foley Declaration");
- Declaration of Howard N. Egan Under 37 CFR § 1.131, along with exhibits attached thereto (the "Egan Declaration");
- Declaration of Inventors Under 37 CFR § 1.131, along with exhibits attached thereto (the "Inventor Declaration");
- Declaration of Craig McHugh Under 37 CFR § 1.132, along with exhibits attached thereto (the "McHugh Declaration");
- Notification of Prior or Concurrent Proceedings Under 37 CFR § 1.985(a) (the "Notification");
- Information Disclosure Statement Under 37 CFR §§ 1.98 and 1.555 (the "IDS");
- Substitute for form 1449/PTO (the "Substitute form 1449"); and
- a Certificate of Service.

Also enclosed are hard copies of the Notification, the IDS, the Substitute form 1449, as well as all of the references listed in the Substitute form 1449.

On June 1, 2010, service copies of all the above-listed documents were sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

The service copies were sent as described above in two boxes, including: (1) a "first box" containing copies of the Amendment & Response, Foley Declaration, Egan Declaration, Inventor Declaration and McHugh Declaration; and (2) a "second box" containing copies of the Notification, the IDS, the Substitute form 1449, as well as copies of all of the references listed in the Substitute form 1449.

The United States Postal Service (USPS) today returned the second box to the attorneys of record for Patent Owner. The second box was returned by the USPS due to an inadvertent error in applying inadequate postage to the second box. More specifically, the postage applied to the second box was in the amount of 32 cents instead of 32 dollars. This error was inadvertent and unintentional. The Patent Owner currently has no reason to believe that the first box was not successfully delivered to the address set forth above as a result of the mailing on June 1, 2010.

We apologize for this inadvertent error and any inconvenience it may have caused. We would not oppose any request for extension of time for the third party requestor to file comments in response to the Amendment & Response, provided that the requested extension does not exceed 15 additional days.

Sincerely,

Justin F. Boyce

JFB

CERTIFICATE OF SERVICE PURSUANT TO 37 C.F.R. 1.248(A)(4)

I hereby certify that on July 1, 2010, a true and correct copy of this Notice of Withdrawal of Third Party Requester was sent by counsel for the Third Party Requester via first class mail to current counsel of record for the Patent Owner at the address set forth below:

Justin F. Boyce, Esq.
Dechert LLP
2440 W. El Camino Real, Ste. 700
Mountain View, CA 94040-1499

Date: July 1, 2010

By: Bridgette E. M'Guinness
Bridgette E. M'Guinness

Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500
McLean, VA 22102
T: (650) 233-4500
F: (703) 770-7901

Customer No: 27498

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

Notice of Withdrawal of Third Party Requester

The undersigned is acting in a representative capacity on behalf of Archos S.A., who is the sole real party in interest for the third party requester in the above-identified *inter partes* reexamination proceeding.

In exchange for valuable consideration, the owner of the above-identified patent (the "Patent Owner") has given Archos S.A. a license to the above-identified patent.

Archos S.A. hereby withdraws from the above-identified *inter partes* reexamination proceeding, and notifies the U.S. Patent Office (the "Office") that it will no longer participate in this reexamination proceeding in any way. Archos S.A. specifically waives its right to file any comment in this proceeding that would otherwise be allowed under 35 U.S.C. § 314(b)(2) and/or 37 C.F.R. §§ 1.947, 1.951(b) and/or any other provision. Archos S.A. specifically waives its right to appeal under the provisions of 35 U.S.C. §§ 134, 141-144, and 315(b) with respect to any final decision favorable to the patentability of any original or proposed amended or new claim of the above-identified patent in the above-identified reexamination proceeding. Archos S.A. specifically waives its right to be a party to any appeal taken by the owner of the above-identified patent under the provisions of 35 U.S.C. §§ 134, 141-144, and 315(b) in the above-identified proceeding. Archos S.A. specifically waives its right to participate in any interview with the examiner in the above-identified proceeding.

Archos S.A. withdraws from the above-identified *inter partes* reexamination proceeding with the understanding that this withdrawal effectively transforms this proceeding into an *ex parte* reexamination proceeding. Archos S.A. understands that the Patent Owner may later file a petition with the Office to waive the general prohibition under 37 C.F.R. § 1.955 of interviews discussing the merits of the above-identified *inter partes* reexamination proceeding. In light of its complete withdrawal from this reexamination proceeding, Archos S.A. supports any petition later filed by the Patent Owner to waive the general prohibition under 37 C.F.R. § 1.955 of interviews discussing the merits of the above-identified reexamination proceeding. Archos S.A. specifically waives its right to participate in any interview with the examiner discussing the merits or any other aspects of the above-identified reexamination proceeding.

Date: July 1, 2010

Respectfully submitted,

By _____

David A. Jakopin
Registration No. 32995
Customer No.: 27498

PILLSBURY WINTHROP SHAW PITTMAN LLP
Intellectual Property Group
P. O. Box 10500
McLean, VA 22102
Telephone: (650) 233-4790
Facsimile: (703) 770-7901

Electronic Acknowledgement Receipt

EFS ID:	7941862
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	David A. Jakopin/Bridgette MGuinness
Filer Authorized By:	David A. Jakopin
Attorney Docket Number:	016788-000-0004
Receipt Date:	01-JUL-2010
Filing Date:	01-DEC-2009
Time Stamp:	18:00:44
Application Type:	inter partes reexam

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		ArchosCreativeWithdrawalfiling.pdf	128145 3d93bb58716e4ae860b7f1d3d7f0cc8a0306ad3a	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Reexam Miscellaneous Incoming Letter	1	2
	Reexam Certificate of Service	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	128145	

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:	95001274
Filing Date:	01-Dec-2009
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Filer:	Justin Francis Boyce/Lydie Fitzsimmons
Attorney Docket Number:	016788-000-0004

Filed as Large Entity

inter partes reexam Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Petition fee- 37 CFR 1.17(f) (Group I)	1462	1	400	400
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**400**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE PURSUANT TO 37 C.F.R. §1.248(a)(4)

I hereby certify that on this 8th day of July, 2010, a true and correct copy of this Petition Under 37 C.F.R. § 1.183 For A One-Time Waiver of 37 C.F.R. § 1.955 as filed in the United States Patent and Trademark Office on July 8, 2010 in the above-captioned reexamination, was sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: July 8, 2010

Justin F. Boyce
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

Petition Under 37 C.F.R. § 1.183 For A One-Time Waiver of 37 C.F.R. § 1.955

Dear Sir:

The owner of the above-identified patent hereby petitions the Director under the provisions of 37 C.F.R. § 1.183 to waive Rule 1.955 in order to allow the patent owner to conduct a single interview with representatives of the Patent Office to discuss the merits of the above-identified reexamination proceeding.

Rule 1.183 states that:

> In an extraordinary situation, when justice requires, any requirement of the regulations in this part which is not a requirement of the statutes may be suspended or waived by the Director or the Director's designee, sua sponte, or on petition of the interested party, subject to such other requirements as may be imposed. Any petition under this section must be accompanied by the petition fee set forth in § 1.17(f).

See 37 C.F.R. § 1.183.

Rule 1.955 states that "there will be no interviews in an *inter partes* reexamination proceeding which discuss the merits of the proceeding." *See* 37 C.F.R. § 1.955. However, no section of the patent statutes forbids the use of the Director's discretion to waive Rule 1.955 in appropriate circumstances.

This case presents an extraordinary situation because the third party requester in the above-identified proceeding has filed a Notice of Withdrawal indicating on the record that it will not further participate in the above-identified reexamination proceeding in any way, including in any interview with the Examiner. *See* Exhibit A, attached hereto. Also, the third party requester has stated that in light of its withdrawal, it supports this petition by the Patent Owner to waive the requirements of Rule 1.955. *Id.* As indicated in the Notice of Withdrawal, the third party requester has received a license to the above-identified patent. *Id.* Based on the Notice of Withdrawal, it is evident that the third party requester would not be prejudiced in any way if this petition is granted.

An interview between representatives of the Patent Office and the patent owner would provide an opportunity to discuss the substance of the patent owner's response to the office action mailed on March 29, 2010 in the above-identified proceeding. The number of outstanding issues is substantial. However, the patent owner's response, filed on June 1, 2010, is supported by two declarations submitted under 37 C.F.R. § 1.131, which the patent owner believes are sufficient to remove most of the prior art references forming the bases for rejections of the claims at issue. An interview would provide an opportunity to discuss the substance of the declarations submitted under 37 C.F.R. § 1.131, and also to clarify and focus the remaining issues to more expeditiously resolve the present proceeding.

Following the withdrawal by the third party requester, only a single party (*i.e.,* the patent owner) will now participate in the above-identified reexamination proceeding, and in any interview that might be permitted in this proceeding. Therefore, the patent owner respectfully submits that permitting an interview to be conducted in this reexamination proceeding will not hinder the ability of the Office to conduct the proceeding with special dispatch, but rather may well assist the Office in expeditiously resolving the outstanding issues in this proceeding.

In light of the above-described situation, patent owner respectfully petitions the Director to waive Rule 1.955 in order to allow the patent owner to conduct a single interview with representatives of the Patent Office to discuss the merits of the above-identified reexamination proceeding.

The Director is authorized to charge the fee required under 37 C.F.R. § 1.17(f), and any other fee that may be required for consideration of the instant Petition Under 37 C.F.R. § 1.183 to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980).

Respectfully submitted,

Date: July 8, 2010

Justin F. Boyce, Partner
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

EXHIBIT A

Reexam Control No. 95/001,274
Docket No. 380786-108980

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

Notice of Withdrawal of Third Party Requester

The undersigned is acting in a representative capacity on behalf of Archos S.A., who is the sole real party in interest for the third party requester in the above-identified *inter partes* reexamination proceeding.

In exchange for valuable consideration, the owner of the above-identified patent (the "Patent Owner") has given Archos S.A. a license to the above-identified patent.

Archos S.A. hereby withdraws from the above-identified *inter partes* reexamination proceeding, and notifies the U.S. Patent Office (the "Office") that it will no longer participate in this reexamination proceeding in any way. Archos S.A. specifically waives its right to file any comment in this proceeding that would otherwise be allowed under 35 U.S.C. § 314(b)(2) and/or 37 C.F.R. §§ 1.947, 1.951(b) and/or any other provision. Archos S.A. specifically waives its right to appeal under the provisions of 35 U.S.C. §§ 134, 141-144, and 315(b) with respect to any final decision favorable to the patentability of any original or proposed amended or new claim of the above-identified patent in the above-identified reexamination proceeding. Archos S.A. specifically waives its right to be a party to any appeal taken by the owner of the above-identified patent under the provisions of 35 U.S.C. §§ 134, 141-144, and 315(b) in the above-identified proceeding. Archos S.A. specifically waives its right to participate in any interview with the examiner in the above-identified proceeding.

Archos S.A. withdraws from the above-identified *inter partes* reexamination proceeding with the understanding that this withdrawal effectively transforms this proceeding into an *ex parte* reexamination proceeding. Archos S.A. understands that the Patent Owner may later file a petition with the Office to waive the general prohibition under 37 C.F.R. § 1.955 of interviews discussing the merits of the above-identified *inter partes* reexamination proceeding. In light of its complete withdrawal from this reexamination proceeding, Archos S.A. supports any petition later filed by the Patent Owner to waive the general prohibition under 37 C.F.R. § 1.955 of interviews discussing the merits of the above-identified reexamination proceeding. Archos S.A. specifically waives its right to participate in any interview with the examiner discussing the merits or any other aspects of the above-identified reexamination proceeding.

Date: July 1, 2010

Respectfully submitted,

By _____

David A. Jakopin
Registration No. 32995
Customer No.: 27498

PILLSBURY WINTHROP SHAW PITTMAN LLP
Intellectual Property Group
P. O. Box 10500
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Telephone: (650) 233-4790
Facsimile: (703) 770-7901

Electronic Acknowledgement Receipt

EFS ID:	7979655
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Lydie Fitzsimmons
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	08-JUL-2010
Filing Date:	01-DEC-2009
Time Stamp:	18:05:09
Application Type:	inter partes reexam

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$400
RAM confirmation Number	4817
Deposit Account	502778
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 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Reexam Miscellaneous Incoming Letter	380786_108980_Petition.pdf	189830 d61ec3e4b794aa611e8da8c6a93cf93ac3a8d744	no	6
Warnings:					
Information:					
2	Reexam Certificate of Service	380786_108980_Certificate_of_Service.pdf	31713 9a21204b6d7bb70ad33cc7f44967eb025918016a	no	1
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	30349 ebe8ae3c4fd6c85e49186e341c3eed6cbbe3bf1b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	251892		

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.

Content-Based Classification, Search, and Retrieval of Audio

Erling Wold, Thom Blum, Douglas Keislar, and James Wheaton
Muscle Fish

Many audio and multimedia applications would benefit from the ability to classify and search for audio based on its characteristics. The audio analysis, search, and classification engine described here reduces sounds to perceptual and acoustical features. This lets users search or retrieve sounds by any one feature or a combination of them, by specifying previously learned classes based on these features, or by selecting or entering reference sounds and asking the engine to retrieve similar or dissimilar sounds.

The rapid increase in speed and capacity of computers and networks has allowed the inclusion of audio as a data type in many modern computer applications. However, the audio is usually treated as an opaque collection of bytes with only the most primitive fields attached: name, file format, sampling rate, and so on. Users accustomed to searching, scanning, and retrieving text data can be frustrated by the inability to look inside the audio objects.

Multimedia databases or file systems, for example, can easily have thousands of audio recordings. These could be anything from a library of sound effects to the soundtrack portion of a news footage archive. Such libraries are often poorly indexed or named to begin with. Even if a previous user has assigned keywords or indices to the data, these are often highly subjective and may be useless to another person. Searching for a particular sound or class of sound (such as applause, music, or the speech of a particular speaker) can be a daunting task.

How might people want to access sounds? We believe there are several useful methods, all of which we have attempted to incorporate into our system.

- *Simile*: saying one sound is like another sound or a group of sounds in terms of some characteristics. For example, "like the sound of a herd of elephants." A simpler example would be to say that it belongs to the class of speech sounds or the class of applause sounds, where the system has previously been trained on other sounds in this class.
- *Acoustical/perceptual features*: describing the sounds in terms of commonly understood physical characteristics such as brightness, pitch, and loudness.
- *Subjective features*: describing the sounds using personal descriptive language. This requires training the system (in our case, by example) to understand the meaning of these descriptive terms. For example, a user might be looking for a "shimmering" sound.
- *Onomatopoeia*: making a sound similar in some quality to the sound you are looking for. For example, the user could making a buzzing sound to find bees or electrical hum.

In a retrieval application, all of the above could be used in combination with traditional keyword and text queries.

To accomplish any of the above methods, we first reduce the sound to a small set of parameters using various analysis techniques. Second, we use statistical techniques over the parameter space to accomplish the classification and retrieval.

Previous research

Sounds are traditionally described by their pitch, loudness, duration, and timbre. The first three of these psychological percepts are well understood and can be accurately modeled by measurable acoustic features. Timbre, on the other hand, is an ill-defined attribute that encompasses all the distinctive qualities of a sound other than its pitch, loudness, and duration. The effort to discover the components of timbre underlies much of the previous psychoacoustic research that is relevant to content-based audio retrieval.[1]

Salient components of timbre include the amplitude envelope, harmonicity, and spectral envelope. The attack portions of a tone are often essential for identifying the timbre. Timbres with similar spectral energy distributions (as measured by the centroid of the spectrum) tend to be judged as perceptually similar. However, research has shown that the time-varying spectrum of a single musical instrument tone cannot generally be treated as a "fingerprint" identifying the instrument, because there is too much variation across

1070-986X/96/$5.00 © 1996 IEEE

the instrument's range of pitches and across its range of dynamic levels.

Various researchers have discussed or prototyped algorithms capable of extracting audio structure from a sound.[2] The goal was to allow queries such as "find the first occurrence of the note G-sharp." These algorithms were tuned to specific musical constructs and were not appropriate for all sounds.

Other researchers have focused on indexing audio databases using neural nets.[3] Although they have had some success with their method, there are several problems from our point of view. For example, while the neural nets report similarities between sounds, it is very hard to "look inside" a net after it is trained or while it is in operation to determine how well the training worked or what aspects of the sounds are similar to each other. This makes it difficult for the user to specify which features of the sound are important and which to ignore.

Analysis and retrieval engine

Here we present a general paradigm and specific techniques for analyzing audio signals in a way that facilitates content-based retrieval. Content-based retrieval of audio can mean a variety of things. At the lowest level, a user could retrieve a sound by specifying the exact numbers in an excerpt of the sound's sampled data. This is analogous to an exact text search and is just as simple to implement in the audio domain.

At the next higher level of abstraction, the retrieval would match any sound containing the given excerpt, regardless of the data's sample rate, quantization, compression, and so on. This is analogous to a fuzzy text search and can be implemented using correlation techniques. At the next level, the query might involve acoustic features that can be directly measured and perceptual (subjective) properties of the sound.[4,5] Above this, one can ask for speech content or musical content.

It is the "sound" level—acoustic and perceptual properties—with which we are most concerned here. Some of the aural (perceptual) properties of a sound, such as pitch, loudness, and brightness, correspond closely to measurable features of the audio signal, making it logical to provide fields for these properties in the audio database record. However, other aural properties ("scratchiness," for instance) are more indirectly related to easily measured acoustical features of the sound. Some of these properties may even have different meanings for different users.

We first measure a variety of acoustical features of each sound. This set of N features is represented as an N-vector. In text databases, the resolution of queries typically requires matching and comparing strings. In an audio database, we would like to match and compare the aural properties as described above. For example, we would like to ask for all the sounds similar to a given sound or that have more or less of a given property. To guarantee that this is possible, sounds that differ in the aural property should map to different regions of the N-space. If this were not satisfied, the database could not distinguish between sounds with different values for this property. Note that this approach is similar to the "feature-vector" approach currently used in content-based retrieval of images, although the actual features used are very different.[6]

Since we cannot know the complete list of aural properties that users might wish to specify, it is impossible to guarantee that our choice of acoustical features will meet these constraints. However, we can make sure that we meet these constraints for many useful aural properties.

Acoustical features

We can currently analyze the following aspects of sound: loudness, pitch, brightness, bandwidth, and harmonicity.

Loudness is approximated by the signal's root-mean-square (RMS) level in decibels, which is calculated by taking a series of windowed frames of the sound and computing the square root of the sum of the squares of the windowed sample values. (This method does not account for the frequency response of the human ear; if desired, the necessary equalization can be added by applying the Fletcher-Munson equal-loudness contours.) The human ear can hear over a 120-decibel range. Our software produces estimates over a 100-decibel range from 16-bit audio recordings.

Pitch is estimated by taking a series of short-time Fourier spectra. For each of these frames, the frequencies and amplitudes of the peaks are measured and an approximate greatest common divisor algorithm is used to calculate an estimate of the pitch. We store the pitch as a log frequency. The pitch algorithm also returns a pitch confidence value that can be used to weight the pitch in later calculations. A perfect young human ear can hear frequencies in the 20-Hz to 20-kHz range. Our software can measure pitches in the range of 50 Hz to about 10 kHz.

Brightness is computed as the centroid of the

short-time Fourier magnitude spectra, again stored as a log frequency. It is a measure of the higher frequency content of the signal. As an example, putting your hand over your mouth as you speak reduces the brightness of the speech sound as well as the loudness. This feature varies over the same range as the pitch, although it can't be less than the pitch estimate at any given instant.

Bandwidth is computed as the magnitude-weighted average of the differences between the spectral components and the centroid. As examples, a single sine wave has a bandwidth of zero and ideal white noise has an infinite bandwidth.

Harmonicity distinguishes between harmonic spectra (such as vowels and most musical sounds), inharmonic spectra (such as metallic sounds), and noise (spectra that vary randomly in frequency and time). It is computed by measuring the deviation of the sound's line spectrum from a perfectly harmonic spectrum. This is currently an optional feature and is not used in the examples that follow. It is normalized to lie in a range from zero to one.

All of these aspects of sound vary over time. The trajectory in time is computed during the analysis but not stored as such in the database. However, for each of these trajectories, several features are computed and stored. These include the average value, the variance of the value over the trajectory, and the autocorrelation of the trajectory at a small lag. Autocorrelation is a measure of the smoothness of the trajectory. It can distinguish between a pitch glissando and a wildly varying pitch (for example), which the simple variance measure cannot.

The average, variance, and autocorrelation computations are weighted by the amplitude trajectory to emphasize the perceptually important sections of the sound. In addition to the above features, the duration of the sound is stored. The feature vector thus consists of the duration plus the parameters just mentioned (average, variance, and autocorrelation) for each of the aspects of sound given above. Figure 1 shows a plot of the raw trajectories of loudness, brightness, bandwidth, and pitch for a recording of male laughter.

After the statistical analyses, the resulting analysis record (shown in Table 1) contains the computed values. These numbers are the only information used in the content-based classification and retrieval of these sounds. It is possible to see some of the essential characteristics of the sound. Most notably, we see the rapidly time-varying nature of the laughter.

Table 1. Male laughter. Duration: 3.12571.

Property	Mean	Variance	Autocorrelation
Loudness	-54.4137	221.451	0.938929
Pitch	4.21221	0.151228	0.524042
Brightness	5.78907	0.0817046	0.690073
Bandwidth	0.272099	0.0169697	0.519198

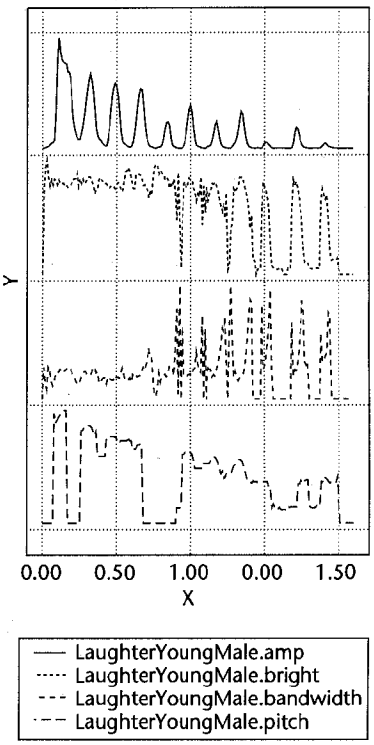

Figure 1. Male laughter.

Training the system

It is possible to specify a sound directly by submitting constraints on the values of the *N*-vector described above directly to the system. For example, the user can ask for sounds in a certain range of pitch or brightness, However, it is also possible to train the system by example. In this case, the user selects examples of sounds that demonstrate the property the user wishes to train, such as "scratchiness."

For each sound entered into the database, the *N*-vector, which we represent as a, is computed. When the user supplies a set of example sounds for training, the mean vector μ and the covariance matrix R for the a vectors in each class are calculated. The mean and covariance are given by

$$\mu = (1/M) \sum_j a[j]$$

$$R = (1/M) \sum_j (a[j] - \mu)(a[j] - \mu)^T$$

where M is the number of sounds in the summation. In practice, one can ignore the off-diagonal elements of R if the feature vector elements are reasonably independent of each other. This simplification can yield significant savings in computation time. The mean and covariance together become the system's model of the perceptual property being trained by the user.

Classifying sounds

When a new sound needs to be classified, a distance measure is calculated from the new sound's a vector and the model above. We use a weighted

L_2 or Euclidean distance:

$$D = ((a-\mu)^T R^{-1} (a-\mu))^{1/2}$$

Again, the off-diagonal elements of R can be ignored for faster computation. Also, simpler measures such as an L_1 or Manhattan distance can be used. The distance is compared to a threshold to determine whether the sound is "in" or "out" of the class. If there are several mutually exclusive classes, the sound is placed in the class to which it is closest, that is, for which it has the smallest value of D.

If it is known a priori that some acoustic features are unimportant for the class, these can be ignored or given a lower weight in the computation of D. For example, if the class models some timbral aspect of the sounds, the duration and average pitch of the sounds can usually be ignored.

We also define a likelihood value L based on the normal distribution and given by

$$L = exp(-D^2/2)$$

This value can be interpreted as "how much" of the defining property for the class the new sound has.

Retrieving sounds

It is now possible to select, sort, or classify sounds from the database using the distance measure. Some example queries are

- Retrieve the "scratchy" sounds. That is, retrieve all the sounds that have a high likelihood of being in the "scratchy" class.
- Retrieve the top 20 "scratchy" sounds.
- Retrieve all the sounds that are less "scratchy" than a given sound.
- Sort the given set of sounds by how "scratchy" they are.
- Classify a given set of sounds into the following set of classes.

For small databases, it is easiest to compute the distance measure(s) for all the sounds in the database and then to choose the sounds that match the desired result. For large databases, this can be too expensive. To speed up the search, we index (sort) the sounds in the database by all the acoustic features. This allows us to quickly retrieve any desired hyper-rectangle of sounds in the database by requesting all sounds whose feature values fall in a set of desired ranges. Requesting such hyper-rectangles allows a much more efficient search. This technique has the advantage that it can be implemented on top of the very efficient index-based search algorithms in existing commercial databases.

As an example, consider a query to retrieve the top M sounds in a class. If the database has M_0 sounds total, we first ask for all the sounds in a hyper-rectangle centered around the mean μ with volume V such that

$$V/V_0 = M/M_0$$

where V_0 is the volume of the hyper-rectangle surrounding the entire database. The extent of the hyper-rectangle in each dimension is proportional to the standard deviation of the class in that dimension.

We then compute the distance measure for all the sounds returned and return the closest M sounds. If we didn't retrieve enough sounds that matched the query from this first attempt, we increase the hyper-rectangle volume by the ratio of the number requested to the number found and try again.

Note that the above discussion is a simplification of our current algorithm, which asks for bigger volumes to begin with to correct for two factors. First, for our distance measure, we really want a hypersphere of volume V, which means we want the hyper-rectangle that circumscribes this sphere. Second, the distribution of sounds in the feature space is not perfectly regular. If we assume some reasonable distribution of the sounds in the database, we can easily compute how much larger V has to be to achieve some desired confidence level that the search will succeed.

Quality measures

The magnitude of the covariance matrix R is a measure of the compactness of the class. This can be reported to the user as a quality measure of the classification. For example, if the dimensions of R are similar to the dimensions of the database, this class would not be useful as a discriminator, since all the sounds would fall into it. Similarly, the system can detect other irregularities in the training set, such as outliers or bimodality.

The size of the covariance matrix in each dimension is a measure of the particular dimen-

sion's importance to the class. From this, the user can see if a particular feature is too important or not important enough. For example, if all the sounds in the training set happen to have a very similar duration, the classification process will rank this feature highly, even though it may be irrelevant. If this is the case, the user can tell the system to ignore duration or weight it differently, or the user can try to improve the training set. Similarly, the system can report to the user the components of the computed distance measure. Again, this is an indication to the user of possible problems in the class description.

Note that all of these measures would be difficult to derive from a non-statistical model such as a neural network.

Segmentation

The discussion above deals with the case where each sound is a single gestalt. Some examples of this would be single short sounds, such as a door slam, or longer sounds of uniform texture, such as a recording of rain on cement. Recordings that contain many different events need to be segmented before using the features above. Segmentation is accomplished by applying the acoustic analyses discussed to the signal and looking for transitions (sudden changes in the measured features). The transitions define segments of the signal, which can then be treated like individual sounds. For example, a recording of a concert could be scanned automatically for applause sounds to determine the boundaries between musical pieces. Similarly, after training the system to recognize a certain speaker, a recording could be segmented and scanned for all the sections where that speaker was talking.

Performance

We have used the above algorithms at Muscle Fish on a test sound database that contains about 400 sound files. These sound files were culled from various sound effects and musical instrument sample libraries. A wide variety of sounds are represented from animals, machines, musical instruments, speech, and nature. The sounds vary in duration from less than a second to about 15 seconds.

A number of classes were made by running the classification algorithm on some perceptually similar sets of sounds. These classes were then used to reorder the sounds in the database by their likelihood of membership in the class. The following discussion shows the results of this process for several sound sets. These examples illustrate the character of the process and the fuzzy nature of the retrieval. (For more information, and to duplicate these examples, see the "Interactive Web Demo" sidebar.)

Example 1: Laughter. For this example, all the recordings of laughter except two were used in creating the class. Figure 2 shows a plot of the class membership likelihood values (the *Y*-axis) for all of the sound files in the test database. Each vertical strip along the *X*-axis is a user-defined category (the directory in which the sound resides). See the "Class Model" sidebar on p. 32 for details on how our system computed this model.

The highest returned likelihoods are for the laughing sounds, including the two that were not included in the original training set, as well as one of the animal recordings. This animal recording is of a chicken coop and has strong similarities in sound to the laughter recordings, consisting of a number of strong sound bursts.

Example 2: Female speech. Our test database contains a number of very short recordings of a

Interactive Web Demo

The Muscle Fish World Wide Web site, http://www.musclefish.com, contains an interactive demo of our content-based retrieval algorithms. The interface lets the user see and select any of the sound files in our small demo database. The database is the same as that used for the examples in this article. The user can audition the selected sounds or can reorder the sounds in the database by closeness to the group of sounds selected. The associated Web pages include some suggested groupings that are good starting points for browsing.

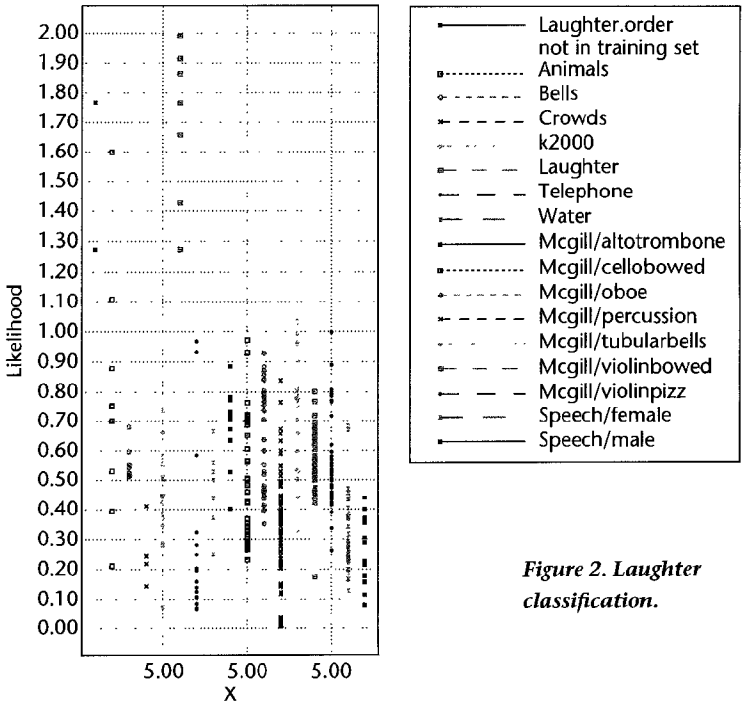

Figure 2. Laughter classification.

Class Model

The model computed by our system for the laughter example is detailed in Table A.

The "importance" is computed as the absolute value of the mean divided by the standard deviation. This is a normalized measure of how similar this feature is among all the members of the training set, and thus how important this feature is to the definition of the class. That is, sounds that have features close to the class's mean values for the important parameters will end up with a high likelihood of being in the class. For this class, the rapidly changing loudness is the most distinctive feature.

Table A. Class model for laughter example.

Feature		Mean	Variance	Importance
Duration		2.71982	0.191312	6.21826
Loudness:	Mean	–45.0014	18.9212	10.3455
	Variance	200.109	1334.99	5.47681
	Autocorrelation	0.955071	7.71106e-05	108.762
Brightness:	Mean	6.16071	0.0204748	43.0547
	Variance	0.0288125	0.000113187	2.70821
	Autocorrelation	0.715438	0.0108014	6.88386
Bandwidth:	Mean	0.363269	0.000434929	17.4188
	Variance	0.00759914	3.57604e-05	1.27076
	Autocorrelation	0.664325	0.0122108	6.01186
Pitch:	Mean	4.48992	0.39131	7.17758
	Variance	0.207667	0.0443153	0.986485
	Autocorrelation	0.562178	0.00857394	6.07133

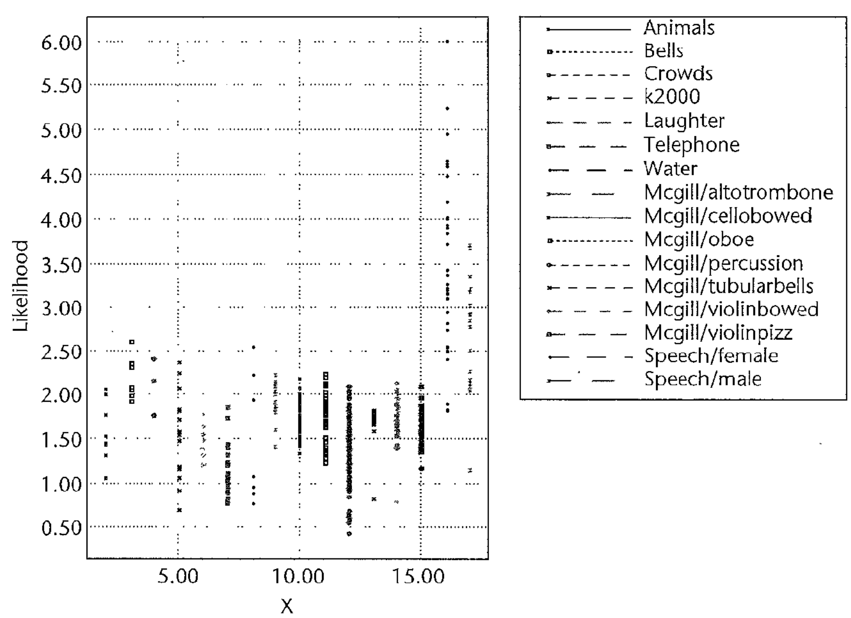

Figure 3. "Tear gas" similarities.

group of female and male speakers. For this example, the female-spoken phrase "tear gas" was used. Figure 3 shows a plot of the similarity (likelihood) of each of the sound files in the test database to this sound using a default value for the covariance matrix R. The highest likelihoods are for the other female speech recordings, with the male speech recordings following close behind.

Example 3: Touchtones. A set of telephone touchtones was used to generate the class in Figure 4. Again, the touchtone likelihoods are clearly separated from those of other categories. One of the touchtone recordings that was left out of the training set also has a high likelihood, but notice that the other one, as well as one of those included in the training set, returned very low likelihoods. Upon investigation, we found that the two low-likelihood touchtone recordings were of entire seven-digit phone numbers, whereas all the high-likelihood touchtone recordings were of single-digit tones. In this case, the automatic classification detected an aural difference that was not represented in the user-supplied categorization.

Applications

The above technology is relevant to a number of application areas. The examples in this section will show the power this capability can bring to a user working in these areas.

Audio databases and file systems

Any audio database or, equivalently, a file system designed to work with large numbers of audio files, would benefit from content-based capabilities. Both of these require that the audio data be represented or supplemented by a data record or object that points to the sound and adds the necessary analysis data.

When a new sound is added to the database, the analyses presented in the previous section are run on the sound and a new database record or object is formed with this supplemental information. Typically, the database would allow the user to add his or her own information to this record. In a multiuser system, users could have their own copies of the database records that they

could modify for their particular requirements.

Figure 5 shows the record used in our sound browser, described in the next section. Fields in this record include features such as the sound file's name and properties, the acoustic features as computed by system analysis routines, and user-defined keywords and comments.

Any user of the database can form an audio class by presenting a set of sounds to the classification algorithm of the last section. The object returned by the algorithm contains a list of the sounds and the resulting statistical information. This class can be private to the user or made available to all database users. The kinds of classes that would be useful depend on the application area. For example, a user doing automatic segmentation of sports and news footage might develop classes that allow the recognition of various audience sounds such as applause and cheers, referees' whistles, close-miked speech, and so forth.

The database should support the queries described in the last section as well as more standard queries on the keywords, sampling rate, and so on.

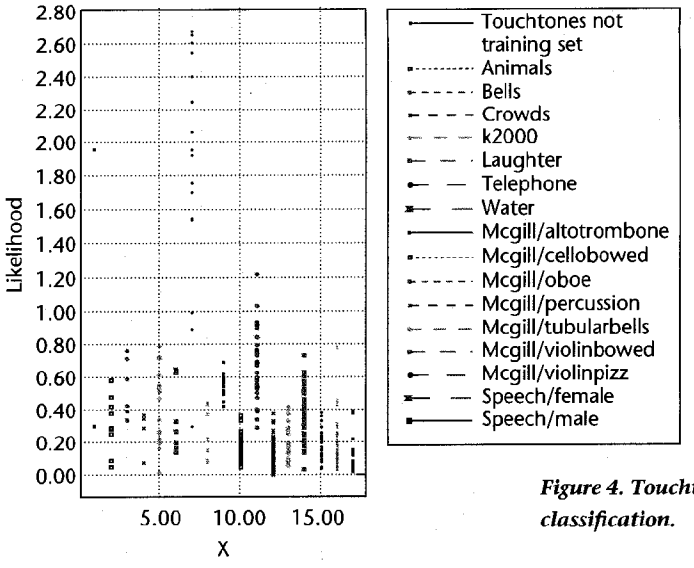

Figure 4. Touchtone classification.

An audio database browser

In this section, we present a front-end database application named SoundFisher that lets the user search for sounds using queries that can be content based. In addition, it permits general maintenance of the database's entries by adding, deleting, and describing sounds.

Figure 6 shows the graphical user interface (GUI) for the application during the formation of a query. The upper window is the Query window. The Search button initiates a search using the query and the results are then displayed in the Current Sounds window. Initially, the Results window shows a listing of all the sounds in the database.

A query is formed using a combination of constraints on the various fields in the database schema and a set of sounds that form a training set for a class. The example in Figure 6 is a query to find recent high-fidelity sounds in the database containing the "animal" or "barn" keywords that are similar to goose sounds, ignoring sound duration and average loudness.

The top portion of the Query window consists of a set of rows, each of which is a component of the total query. Each component includes the name of the field, a constraint operator appropriate for the data type of that field, and the value to which the operator is applied. Pressing one of the buttons in the row pops up a menu of possibilities or a slider and entry window combination for floating-point values. In Figure 6, there is one component that constrains the date to be recent, one that constrains the keywords, and one that specifies a high sampling rate. The OR subcomponent on the keyword field is added through a menu item. There are also menu items for adding and deleting components. All the components are ANDed together to form the final query.

Sound file attributes
- File name
- Sample rate
- Sample size
- Sound file format
- Number of channels
- Creation date
- Analysis date

User attributes
- Keywords
- Comments

Analysis feature vector
- Duration
- Pitch [mean, variance, autocorrelation]
- Amplitude [mean, variance, autocorrelation]
- Brightness [mean, variance, autocorrelation]
- Bandwidth [mean, variance, autocorrelation]

Figure 5. Database record.

The bottom portion of the Query window consists of a list of sounds in the training set. In this case, the sounds consist of all the goose recordings. We have brought up sliders for duration and loudness and set them to zero so that these features will be ignored in the likelihood computation.

Although not shown in this figure, some of the query component operators are fuzzy. For example, the user can constrain the pitch to be approximately 100 Hz. This constraint will cause the system to compute a likelihood for each sound equal to the inverse of the distance between that sound's pitch feature and 100 Hz. This likelihood is used as a multiplier against the likelihood computed from the similarity calculation or other parts of the query that yield fuzzy results. Note

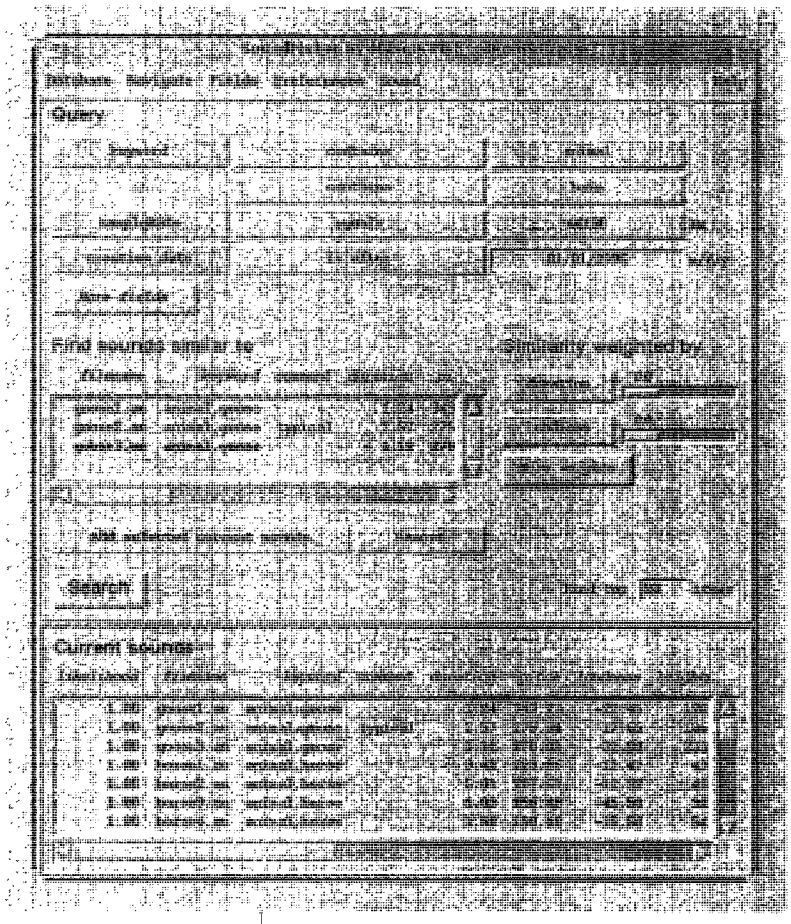

Figure 6. SoundFisher browser.

that ANDing two fuzzy searches is accomplished by multiplying the likelihoods and ORing two fuzzy searches by adding the likelihoods.

There are a number of ways to refine searches through this interface, and all queries can be saved under a name given by the user. These queries can be recalled and modified. The Navigate menu contains these commands as well as a history mechanism that remembers all the queries on the current query path. The Back and Forward commands allow navigation along this path. An entry is made in the path each time the Search button is pressed. It is, of course, possible to start over from scratch. There is also an option to apply the query to the current sounds or to the entire database of sounds.

Any saved query can be used as part of a new query. One of the fields available for constructing query components is "query," meaning "saved query." This lets the user perform complex searches that combine previous queries in Boolean expressions. It also lets the user train the system with a class of sounds embodying a concept such as "scratchiness," save that model under a name, then reuse that concept in future queries.

Audio editors

Current audio editors operate directly on the samples of the audio waveform. The user can specify locations and values numerically or graphically, but the editor has no knowledge of the audio content. The audio content is only accessible by auditioning the sound, which is tedious when editing long recordings.

A more useful editor would include knowledge of the audio content. Using the techniques presented in this article, a variety of sound classes appropriate for the particular application domain could be developed. For example, editing a concert recording would be aided by classes for audience applause, solo instruments, loud and soft ensemble playing, and other typical sound features of concerts. Using the classes, the editor could have the entire concert recording initially segmented into regions and indexed, allowing quick access to each musical piece and subsections thereof. During the editing process, all the types of queries presented in the preceding sections could be used to navigate through the recording. For example, the editor could ask the system to highlight the first C-sharp in the oboe solo section for pitch correction.

A graphical editor with these capabilities would have Search or Find commands that functioned like the query command of the SoundFisher audio browser. Since it would often be necessary to build new classes on the fly, there should be commands for classification and analysis or tight integration with a database application such as the SoundFisher audio browser.

Surveillance

The application of content-based retrieval in surveillance is identical to that of the audio editor except that the identification and classification would be done in real time. Many offices are already equipped with computers that have built-in audio input devices. These could be used to listen for the sounds of people, glass breaking, and so on. There are also a number of police jurisdictions using microphones and video cameras to continuously survey areas having a high incidence of criminal activity or a low tolerance of such activity. Again, such surveillance could be made more efficient and easier to monitor with the ability to detect sounds associated with criminal activity.

Automatic segmentation of audio and video

In large archives of raw audio and video, it is useful to have some automatic indexing and segmentation of the raw recordings. There has been quite a bit of work on the video side of the segmentation problem using scene changes and camera movement.[7] The audio soundtrack of video as well as audio-only recordings can be automatically indexed and segmented using the analysis methods discussed previously.

This is accomplished by analyzing the recording and extracting the trajectories for loudness, pitch, brightness, and other features. Some segmentation can be done at this level by looking at transitions and sudden changes in the analysis data. We used this technique to develop the Audio-to-MIDI conversion system that is part of the Studio Vision Pro 3.0 product from Opcode Systems. In this product, the raw trajectories are segmented by amplitude and pitch and converted into musical score information in the form of MIDI data. This is a convenient representation for understanding and manipulating the musical content of the audio recording. This product assumes musical instrument recordings, so pitch is very important. In a more general context, it might be more appropriate to segment the sound by amplitude or spectral changes.

You could treat these segments as individual sounds that can then be analyzed for their statistical features, as we have described above. Alternately, you could arbitrarily look at overlapping windows of the raw analysis data as the individual sounds. Once this is done, each of these sounds can be classified and thus indexed.

Future directions

In our current work, we are focusing on several areas to improve and refine the performance of our search, analysis, and retrieval engine.

Additional analytic features

An analysis engine for content-based audio classification and retrieval works by analyzing the acoustic features of the audio and reducing these to a few statistical values. The analyzed features are fairly straightforward but suffice to describe a relatively large universe of sounds. More analyses could be added to handle specific problem domains.

General phrase-level content-based retrieval

Our current set of acoustic features is targeted toward short or single-gestalt sounds. Matching sets of our features as trajectories in time or matching segmented sequences of single-gestalt sounds would allow phrase-level audio content to be stored and retrieved. For example, the Audio-to-MIDI system referenced above could be used to do matching of musical melodies. As with all media search, a fuzzy match is what is desired.

Source separation

In our current system, simultaneously sounding sources are treated as a single ensemble. We make no attempt to separate them, as source separation is a difficult task. Approaches to separating simultaneous sounds typically involve either Gestalt psychology[8] or non-perceptual signal-processing techniques.[9,10] For musical applications, polyphonic pitch-tracking has been studied for many years, but might well be an intractable problem in the general case.

Sound synthesis

Sound synthesis could assist a user in making content-based queries to an audio database. When the user was unsure what values to use, the synthesis feature would create sound prototypes that matched the current set of values as they were manipulated. The user could then refine the synthesized example until it bore enough similarity to the desired sort of sound.

Our examples show the efficacy and useful fuzzy nature of the search. The results of searches are sometimes surprising in that they cross semantic boundaries, but aurally the results are reasonable. This is work in progress. Further implementation and testing of the system will reveal whether the chosen acoustical features are sufficient or excessive for usefully analyzing and classifying most sounds. We believe, however, that the basic approach presented here works well for a wide variety of audio database applications. **MM**

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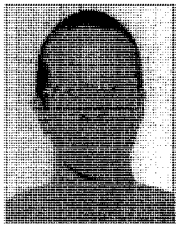
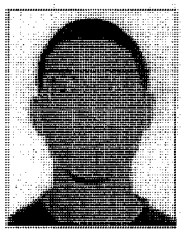
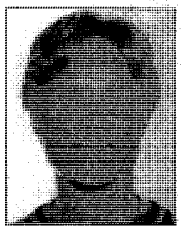


Erling Wold earned a PhD in EECS at the University of California, Berkeley in 1987 where he did research in source separation, FFT computer architectures, and stochastic sampling. Since that time, he has concentrated on signal processing and software architectures for music applications. He is a prolific composer and has written music for a variety of ensembles as well as for several feature films and theatrical works, including two operas. With the co-authors, he founded Muscle Fish, a software engineering firm specializing in audio and music.



Thomas Blum received a BA in Computer Applications to Music Synthesis from Ohio State in 1978. He creates software to help manage complex data, like sound, and creative tasks, like music composition. In 1978, he cofounded the Computer Music Association and served for roughly 10 years as an associate editor of *Computer Music Journal* (MIT Press).



Douglas Keislar received a PhD in Music from Stanford University, where he conducted psychoacoustical research at the Center for Computer Research in Music and Acoustics (CCRMA). He is an associate editor of *Computer Music Journal* (MIT Press).

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Readers may contact Erling Wold at Muscle Fish LLC, 2550 Ninth Street, Suite 207B, Berkeley, CA 94710, e-mail erling@musclefish.com.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.98 AND 1.555

Mail Stop *Inter Partes* Reexam
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Patent Owner submits herewith patents, publications or other information listed on the accompanying Substitute Form PTO-1449 that may be material to the reexamination of the above-captioned patent, and in respect of which there may be a duty of disclosure as set forth in 37 CFR § 1.555, for consideration and to be made of record in the above-captioned reexamination by the U.S. Patent and Trademark Office.

I. Applications and Patents Related to U.S. Patent No. 6,928,433

U.S. Patent No. 6,928,433 ("the `433 patent") was filed on January 5, 2001, and issued on August 9, 2005, from U.S. Patent Application No. 09/755,723.

The `433 patent is related to other U.S. applications and patents. These include: U.S. Patent Application Serial No. 09/755,629 (the "`629 Application), entitled "System for Selecting and Playing Songs in a Playback Device with a Limited User Interface," now abandoned; U.S. Patent No. 6,590,730 (the "`730 Patent"), entitled "Audioplayback Device with Power Savings Storage Access Mode"; and U.S. Patent Application Serial No. 11/033,465 (the "`465 Application"), which is a pending continuation

of the `433 patent. Relevant data concerning the `629 Application, the `730 Patent, and the `465 Application is presented in the IDS submitted on June 1, 2010.

A. Information From Related Patents and Applications

Information made of record during the prosecution of the related patents and applications that is not already of record in the above-captioned patent or instant reexamination is being cited herein. Specifically, **Cite Nos. A9 through A67** correspond to U.S. patents and published applications disclosed in the `465 Application. Similarly, **Cite Nos. B2 through B5** corresponds to non-patent documents disclosed in the `465 Application.

B. General

1) ☒ In accordance with 37 CFR § 1.98, accompanying this Information Disclosure Statement are:

1a. ☒ ***with the exceptions noted above***, copies of: (i) each foreign patent listed on the attached Substitute Form PTO-1449; (ii) each publication listed on the attached Substitute Form PTO-1449, or that portion which caused it to be listed, *other than* U.S. patents and U.S. patent application publications; (iii) for each pending unpublished U.S. application, a copy of the application specification including the claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion; and (iv) other information, or that portion which caused it to be listed herein or on the attached Substitute Form PTO-1449 (37 CFR § 1.98(a)(2)); and/or

1b. ☐ a concise explanation of relevancy, or an English language translation, of non-English language publications listed on the attached Substitute Form PTO-1449 (37 CFR § 1.98(a)(3)(i) & (ii)).

2) ☒ This Information Disclosure Statement is filed under 37 CFR § 1.555(a):

3a. ☐ within two months from the date of the order for reexamination;

3b. ☐ as soon as possible after two months from the date of the order for reexamination, and before a first office action on the merits.

The filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made. The filing of this Information Disclosure Statement shall not be construed as a representation that no other material information as defined in 37 CFR § 1.555(a) exists. The filing of

this Information Disclosure Statement shall not be construed to be an admission that any information cited herein is, or is considered to be, material to patentability as defined in 37 CFR § 1.555(b).

Moreover, although certain of the patents, publications and/or other information disclosed in this Information Disclosure Statement may be deemed to be "material" pursuant to 37 CFR § 1.555, the Disclosure is not intended to constitute an admission that any patents, publications and/or other information included or referred to herein is "prior art" to the captioned application unless specifically designated as such.

It is respectfully submitted that, as required by 37 CFR § 1.555, this Information Disclosure Statement is in compliance with 37 CFR § 1.98 and MPEP § 609. Accordingly, consideration of the foregoing and prompt return of a copy of the enclosed Substitute Form PTO-1449 with the Examiner's initials in the left column in accordance with MPEP § 609 are respectfully requested.

No fees are believed due in connection with this Information Disclosure Statement. However, the Director is authorized to charge any required fees, or credit any overpayment, to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980).

Respectfully submitted,

Date: 9/28/2010

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Proceedings

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Table of Contents

Multilevel and Graphical Views of Metadata

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Abstract

Digital libraries help users to search for, evaluate, and retrieve information. Metadata is indispensable in this process of locating information and evaluating its fitness for specific uses. This paper describes a multilevel organization and presentation of metadata for spatial information in digital libraries. It is proposed that a single organization of metadata within the context of large distributed heterogeneous (text, image, video, audio, etc.) collections is inadequate. The organization of metadata should change, depending upon the purpose for which it is being used and the state of an information seeking task. We argue for at least a three level organization of metadata and graphical presentation of metadata for digital library users. The Content Standard for Geospatial Metadata provides a foundation for this approach.

1. Introduction

There are several functional roles of metadata or meta-information depending on the application context. Metadata has been identified as supporting search, retrieval, transfer and evaluation of information resources (Bretherton 1994, Beard 1996, Smith 1996). The Content Standard for Digital Geospatial Metadata (FGDC 1994) serves the primary function of dataset description to support data sharing. It is not unreasonable to suggest that the standard initially evolved from a need to formalize the role of readme files and built on the data quality and data transfer standards effort now incorporated within the Spatial Data Transfer Standard (NIST 1994). The intent was to allow anyone not intimately involved in data collection, compilation or production efforts to make sense and effective use of the data. The content standard formally defines elements known as standard elements of which there are over 200. Some of these are classified as mandatory, some as mandatory if applicable and others are optional. The standard can be applauded for its comprehensiveness but it has some deficiencies. The standard lacks in ease of use from both data producers' perspectives as generators of metadata and data consumers perspectives as end users of the compiled metadata. Many data producers have found that their data do not align well with the prescriptions of the standard. The National Biological Survey (NBS 1996) was one of the first federal agencies to propose amendments to the standard to better support their metadata development efforts. Recent proposed extensions (FGDC 1997) allow specification of profiles by particular user communities.

While the initial orientation of the content standard elements was geared toward the logistics of data sharing, metadata elements to support search were not ignored. Geographic, thematic and temporal keywords, for example, are specified in the standard. It should be recognized that the descriptions of content in the sense of subject matter is only one of several important descriptive dimensions for geographic and scientific data sets. Fortunately recent implementations of the metadata content standard have included SGML and database implementations which allow search on all fields so there is adequate flexibility in the search criteria.

While a large amount of information is available to end users through the content standard, until recently there has been little attention to organizing and presenting the metadata for improved consumption by end users (Beard and Yerragudi 1998, Beard and Sharma 1997). Presentation for the most part has consisted of extraction of records exactly as specified by the standard and with presentation in the form of text or hypertext reports. Views of metadata are thus the same regardless of the status of users information seeking tasks.

The library and information science community have focused their metadata efforts on the formalization of information descriptions for information retrieval. Much of the focus turns to capturing the content of the material through indexing and classification by subject headings to support retrieval by interested users. This community assumes end users know how to make use of the retrieved material and metadata were not required for this purpose (i.e. it is assumed metadata are not required to describe how to open and read a book). The same assumption cannot be made for spatial and other scientific data sets. Detailed descriptions are in fact required to make effective use of these materials. For spatial data one needs information on the formats, coordinate systems, datum's, projections, units of measurement and so forth to make valid use of the data. Some clear differences are thus

apparent between the library science community and the FGDC views of metadata. The library science community has the advantage of a longer history and experience in responding to information seekers. There is a large body of literature on information retrieval, ranking, relevance and general responsiveness to information requests. A limitation in this community is that they generally have less experience and expertise in managing geographic and scientific data sets.

Early work on metadata for digital libraries focused on describing document-like objects. Most current digital libraries contain digitized versions of books, journals, and other items commonly present in a traditional library and the metadata for these holdings are functionally similar to traditional library card catalog contents. With the widespread use of geographic information systems (GISs) and advances in data collection techniques like remote sensing, there has been a significant increase in the amount of spatial data available on-line. Recognizing the need to organize these resources, digital libraries focusing on geographic resources like the Alexandria Digital Library (Frew et al 1996) are being developed. Unlike the document-like objects, geographic and scientific datasets are complex and have many spatial and temporal attributes. Metadata similar to a traditional library catalog entry with fields such as subject, author and title are no longer adequate to describe spatial data. The FGDC Content Standard for Geospatial Metadata covers many of these attribute but in many ways is still at the readme file level with respect to meeting information needs.

In the context of digital libraries (large, heterogeneous distributed digital collections) there is a need to combine the two views and their respective strengths with particular attention on the consumer (information seeker/user). We propose a multilevel structure of metadata to respond to different logical organizational structures that support various phases of information resource discovery. For each level we also propose graphic presentation of the metadata to facilitate use by consumers.

During the resource discovery process, digital library users move along an information granularity spectrum (Lagoze 1997). Early in the process users generally have relatively coarse granularity criteria. They may be interested in an overview of the library to determine what kind of collections exist, what geographical areas they pertain to and so on. They may compose and submit relatively vague searches that, by their nature, lead to large results. In many cases, examination of the results may lead to successive refinement of the search criteria to finer granularity, as the user seeks to decrease the size of the result set. The process is not linear and over the long-term the user may move back and forth over the granularity spectrum.

To aid users in the resource discovery process, the organization, content and presentation of metadata should change. Corresponding to the three stages of resource discovery; overview, search, and details, three functions of metadata are identified:

1. to provide an overview of digital library content
2. to enable comparison of multiple information items
3. to provide detailed description of individual items

Before moving on to descriptions of these three levels we define some key terms. The basic spatial information resource will be called a spatial information object (SIO) (Beard et al 1997). This refers to any item which can be located with respect to a spatial reference framework and typically includes maps, photographs, satellite images, and scientific datasets. For example, a city map of Boston, a satellite image of the State of Maine, and a census block would be typical examples of SIOs. A SIO can also be any item that can be referenced with respect to a location on the Earth or with respect to an arbitrary Cartesian coordinate system. For example, genome data, a painting or a medical image can be indexed relative to a coordinate system and could also be considered SIOs.

The real world phenomena or feature which an SIO refers to is called a geographic entity (GE). GEs have numerous possible spatial representations which are inherited by SIOs. These are referred to as footprints. Specifically a footprint is a projection of an object into some space. It is a point set with a finite representation. Footprints can range from very abstract: a point, bounding box, or convex hull, to representations with high levels of geometric detail. GEs (and hence SIOs) which are not spatially well defined (e.g. Gulf of Maine, White Mountains, southern coast of California) can have footprints which are probabilistic.

Adopting Lagoze's (1997) view of metadata being a surrogate for library documents, metadata in each of the above cases represents:

1. a collection of SIOs
2. a relation between an SIO and search criteria
3. an individual SIO.

At each level a different object is described. At the top level, the object is a collection, or more specifically, a spatial collection. For example, at the first level, metadata might describe a Gulf of Maine collection, a US streets network collection or a satellite images collection. At the second level, the object is the relation between a SIO and search criteria specified by a user. Ranking is a measure of the strength of this relation with higher ranks indicating greater match between the query and the SIO. At the third level, the key object is an individual SIO. Metadata at this level provides a detailed description of the characteristics of a specific SIO. The next sections describe each of these levels in greater detail.

2. Collection Level Metadata

There are many powerful search engines associated with the Web and digital libraries. Use of these assumes the user has some key terms in mind by which to search. Often this is not the case and users can be better served by broad overviews or summaries of library contents. Summary information, or collection level metadata, can provide an insight into the scope and extent of a library. Such summaries may prevent users from spending hours searching for information that is not present in the library or expedite their search by introducing information which may help to frame appropriate search criteria.

Collections can be formed by abstractions that cluster all SIOs that are similar. These abstractions provide an overview of the library without requiring the user to examine individual SIOs or their metadata. Different abstractions can be adopted depending upon the needs of the users. We propose the following as the basis for collections of SIOs :

- Repositories
- Geographic entities
- Physical characteristics

2.1 Collections by Repository

A digital library may consist of several distributed sites termed repositories connected over a network. For example, a State of Maine digital library might consist of state agency repositories, county agency repositories and municipal government repositories. In this case the digital library can be viewed as an aggregation of collections of each individual repository. Aggregation by repository is useful in cases where the repositories contain specialized information. For instance, in the above example, a user might be interested only in detailed information about the Boothbay region and therefore choose to search only county or local government repositories. A repository may contain SIOs in different formats such as maps, numerical data, books, and images, to name a few. Therefore a repository collection is heterogeneous. The numerous SIOs in a repository also need not describe the same geographic entity.

2.2 Collections by Geographic Entity

Another useful way of aggregating SIOs is by the geographic entity they describe. The geographic entity could be a region (e.g. a city), a feature (e.g. a forest) or specific instances like the Gulf of Maine, Appalachian Trail, or Niagara Falls. The geographic entity could also be a phenomenon associated with a location, such as an earthquake or a volcano. All SIOs that describe the same geographic entity could form a collection. Geographic entity collections are likely to be heterogeneous. For instance, the Acadia National Park collection might consist of a map of the various trails and scenic spots, photographs of the park, and information on the various species of plants, animals, and birds found in the park. Since all the SIOs in such a collection describe the same geographic entity, they can all be associated with one common footprint of the geographic entity.

2.3 Collections by Physical Representation

The collections described so far are heterogeneous. However, it would be helpful to aggregate SIOs into collections that are homogeneous with respect to certain physical characteristics. On a broad level, this could mean that all the SIOs in a collection belong to the same data type. For instance, a digital library can have a collection of satellite images, a collection of maps, and a collection of aerial photographs. At a more detailed level, there could be collections of SIOs with identical physical representation. For example, all USGS quads have identical formats so there could be a USGS quads collection.

By defining these collections we can now define metadata for aggregates of SIOs. Several metadata elements are common across the three types of collections. These include:

- Number of SIOs in the collection
- Total size of the collection
- Temporal range of SIOs within a collection

The temporal range indicates the earliest and latest dates associated with a collection. In some special cases where data are collected periodically, for instance, in the case of satellite images obtained every hour, or tide tables updated twice a day, it would be useful to indicate the frequency of the SIOs i.e., how often are they generated.

Beyond these common elements, different metadata pertain depending on the collection type. The next sections examine each of the three types of collections individually and for each collection graphic presentation of selected metadata elements are described.

2.4 Metadata for Repository Collections

As defined above a repository collection is an aggregation of all the SIOs that reside on a single repository. A repository can be identified by its name and network location. A repository might contain SIOs of different data types such as images, maps, text, video and so on. A summary of the different data types present in a repository collection would be indicative of the richness or the variety of the collection and is therefore included in the metadata.

The geographical coverage's of the SIOs in a repository could be of interest to many users of digital libraries. One way to convey this is through counts of SIOs by some geographic area. The areal units would depend upon the

size and scope of the library. For example, for an extremely large library like the Library of Congress, a large unit of area needs to be chosen, such as a State. Then the total number of SIOs present in the library for each State can be determined. However, if the library is more localized such as a State of Maine Digital library, density of SIOs can be computed for smaller areas such as towns. Counts of SIOs can be presented on a map with using greater saturation of color or by some other visual variable. This can be useful information for users, especially if the library specializes in collections for a certain area. For example, a map of collections for Alexandria Digital Library would reveal that currently it has more SIOs for California than for any other region. Similarly, a map of a Gulf of Maine collection would indicate that certain regions like Georges Bank and Bay of Fundy have a large number of SIOs associated with them.

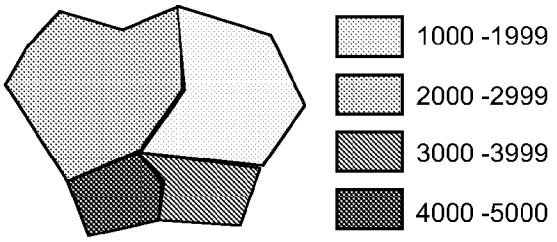


Figure 1. Counts of SIOs by areal unit

Some repositories may contain SIOs that pertain to a specific theme. For example, a digital library for environmental resources might have repositories specializing in water resources, hazardous waste management, and land use. In such cases, a brief description of the theme of the repository would be an important metadata element.

Metadata for repository collections can therefore be summarized as follows:

- Name of the repository
- Location
- Data Types
- Counts of SIOs by areal units
- Description of specific theme, if any.

2.5 Metadata for Geographic Entity Collections

Metadata for a geographic entity (GE) collection would include the name of the GE, a brief description of the GE, and the footprint(s) of the GE. All the SIOs within a GE collection are assumed to have a common footprint which is the footprint of the GE they describe. The footprint could be a point such as the centroid of a region, a bounding box, a polygon such as an outline of a State or a convex hull. Different footprints may be used depending on requirements for visual display. A GE collection might contain several different types of SIOs such as images, text, and maps, describing the same GE. A listing of all the different types of SIOs in the collection would be a good indicator of the richness of information describing a place.

Since a GE collection has many SIOs associated with one location this creates a potential graphic constraint for a visual display of the collection metadata. Therefore information about the collection can be presented on a map in the form of an iconic stack as shown in Figure 2. The icon conveys the richness of data types available for a set of GEs and the relative number of SIOs of a particular type. The figure conveys that GE A has a large number of maps, that GE B has a large number oftext reports, and that GE C has many different data types, without any single data type being predominant.

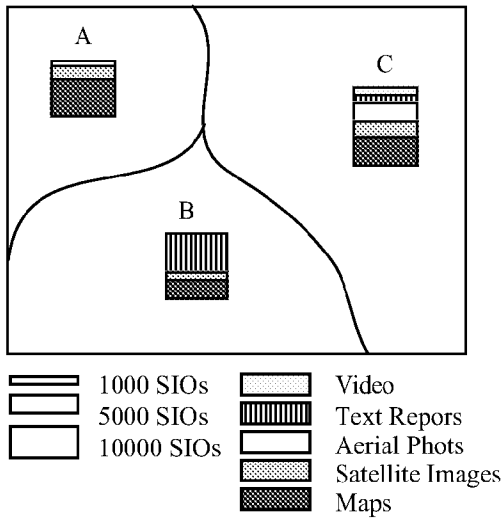


Figure 2. Iconic stacks showing distrbution of data types

The metadata for GE collections can be summarized as follows:

- Name of the GE
- Description of the GE
- Footprint of the GE
- Data types present in the collection

2.6 Metadata for Physical Characteristics Collections

A collection of this type will be homogeneous, i.e., all the SIOs present in the collection will have at least one charactersitic in common. This characteristic may be broad (e.g. the same data type such as a collection of satellite images, a collection of maps, or a collection of scientific datasets) or narrow (e.g a collection of LANDSAT images or a collection of USGS quads). In such cases, a section of the metadata would be very specific to the collection. For example, resolution of the images would be important metadata for the LANDSAT images collection while scale

of the maps would be important for a USGS quads collection.

The key metadata element is the common physical characteristic which defines the collection. Many resources with common physical characteristics will have a common source (e.g. USGS). The pattern of coverage of the SIOs in the collection would yield useful information such as whether there are any holes (regions without associated SIOs) in the coverage. Typical patterns of coverage could include overlapping (e.g. airphotos), exhaustive and mutually exclusive such as the USGS quads or exhaustive and overlapping. For example nautical charts exhaustively cover the coastline but in some areas the coastline is covered by multiple charts of different scales. The metadata for these collections would include:

- Common physical characteristic
- Data source, if applicable
- Geographic area and pattern of coverage.

Generation of collection level metadata can be accomplished by summaries over individual SIO metadata. Repository collection metadata could be generated by a repository custodian and updated automatically as new SIOs are added. A GE collection is likely to be generated as a response to a query (i.e. Find all information about Acadia National Park?) and the collection metadata may be generated as a summary over the query results. Common physical characteristic collections may be generated by the common producer (USGS) or in response to a query similar to GE collections. Depending on the generating mechanism, the collection metadata could be generated by the collection producer or as summaries over query results. This level of metadata should be made available to users initially browsing a library.

3. Search Result Level Metadata

This section describes a level of metadata that would allow users of digital spatial libraries to quickly compare multiple SIOs in particular a set of SIOs returned in response to a search request. A full FGDC metadata description is too cumbersome for quick comparative purposes. For quick comparative purposes, metadata need to be explicitly presented to users, in a form they can easily comprehend. Metadata at this level should be just sufficient for users to say I want this item as opposed to that one.

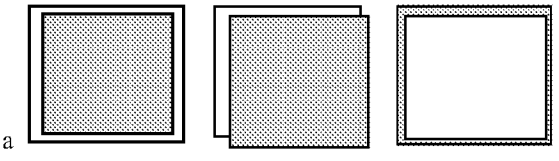
Carefully crafted presentation of the metadata can help users to make these choices quickly. Research has also shown that visual presentation of result sets is important (Schamber 1991, Evans et al 1992, Ahlberg and Shneiderman 1994, Lamping et al 1995, Hearst et al 1996). Hearst (1995) suggests that representation of results sets should present as many attributes of documents and their relationships to the generating query as possible, and present the information in a compact, coherent and accurate manner.

Search results are temporary entities, but are important links in the information resource discovery process. Since search results are temporary the metadata is temporary and computed on the fly as opposed to being stored. Search result level metadata represents the relation between the search criteria specified by a user and the SIOs returned by the search. Ranking is adopted as a measure of the strength of these relations. SIOs are ranked based on their extent of match with spatial, temporal, and thematic criteria specified by a user. The results of this multidimensional ranking are presented graphically to enable quick visual inspection and comparison.

3.1 Basis for Comparison

In an earlier paper, Beard and Sharma (1997) presented a multidimensional ranking scheme for spatial result sets and visual presentation using graphic icons. The multidimensional rank consists of a spatial, temporal and thematic ranking related to user expressions of information need. We refer to the representation of user requirements as targets. The user formulates targets and the system generates a result set roughly "matching" the target or targets. This functionality includes an ability to rank result sets on a presumed understanding of the user's target as a conceptual goal and an ability to generate a metric of similarity to the target. A fundamental concern in generating and ranking result sets is that they be responsive to users' information needs.

Users indicate spatial targets by drawing on a map or specifying a GE. If they specify a GE, the GE footprint becomes the target. The spatial target is then matched against footprints of SIOs in a library and each SIO is given a rank between zero and one. Three spatial relations; overlaps, inside and contains form the basis for matching and ranking. A one is a perfect score and indicates that a candidate SIO exactly matches the user target. Figure 3a shows examples of candidate SIOs which would received high ranks on the relations inside, overlaps and contains respectvely. Figure 3b shows examples of candidate SIOs which would recive low ranks on the relations inside, overlaps and contains respectively.

a 

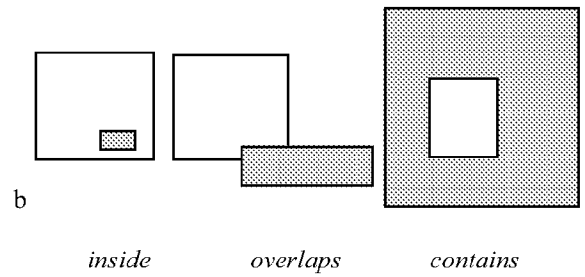


Figure 3. Examples of a) high and b) low spatial ranks for the relations inside, overlaps, and contains.

Temporal ranks are computed in a similar way. A user can specify a temporal target as an interval (multiple intervals or periodic targets are also possible) and SIOs in the library are matched and ranked on their relations to the target. The same relations; inside, overlaps and contain apply. Figures 4a and 4b show examples of high and low temporal rankings on these three relations.

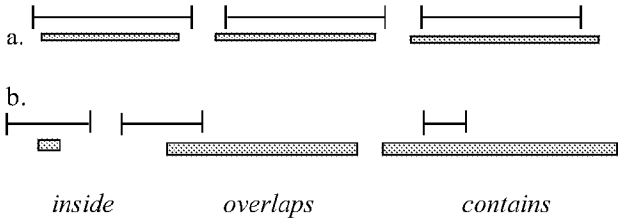


Figure 4. Examples of a) high and b) low temporal ranks for the relations inside, overlaps, and contains.

Thematic ranking is more challenging. It is difficult to rank spatial SIOs based on thematic content since the thematic content itself is multidimensional and highly domain dependent. A single ranking scheme cannot cover all the thematic characteristics of the data. The solution proposed is to adopt multiple thematic ranks, one for each theme of interest to the user. The number of ranks includes the number of thematic targets specified by a user in the search query. Thematic ranks are then binary (i.e they are either one or zero depending on whether the thematic characteristic of interest is present or absent.

The individual spatial, temporal, and thematic ranks are combined into an overall multidimensional rank. The overall rank is achieved by visually combining the individual ranks into a three part glyph as shown in Figure 5. This graphic combination allows the eye to easily process the glyph as one graphic unit or visually separate the individual ranks. The tag at the bottom of the glyph identifies the data.

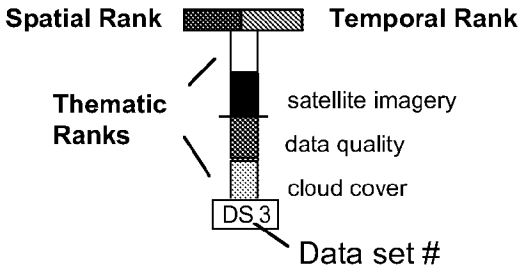


Figure 5. Glyph depicting the overall ranking scheme for SIOs.

Several of these glyphs can be arranged simultaneously on the screen (see Figure 6) and in conjunction with a map to get a quick overall impression of the desirability of the candidate SIOs. Ordering the glyphs involves a mathematical combination of ranks. As a default, the highest possible value of each dimension is assumed to be one but variable weights could be assigned. The end result is that the darker the overall glyph, the more closely it matches the users search criteria and the higher it appears in the overall order.

This level of metadata allows for rapid comparison of large numbers of SIOs based on a few criteria of interest to users. As indicated above this metadata is computed on the fly in a matching process between query metadata and the metadata of individual SIOs (Beard and Smith 1997). Such metadata could be stored if required by a user.

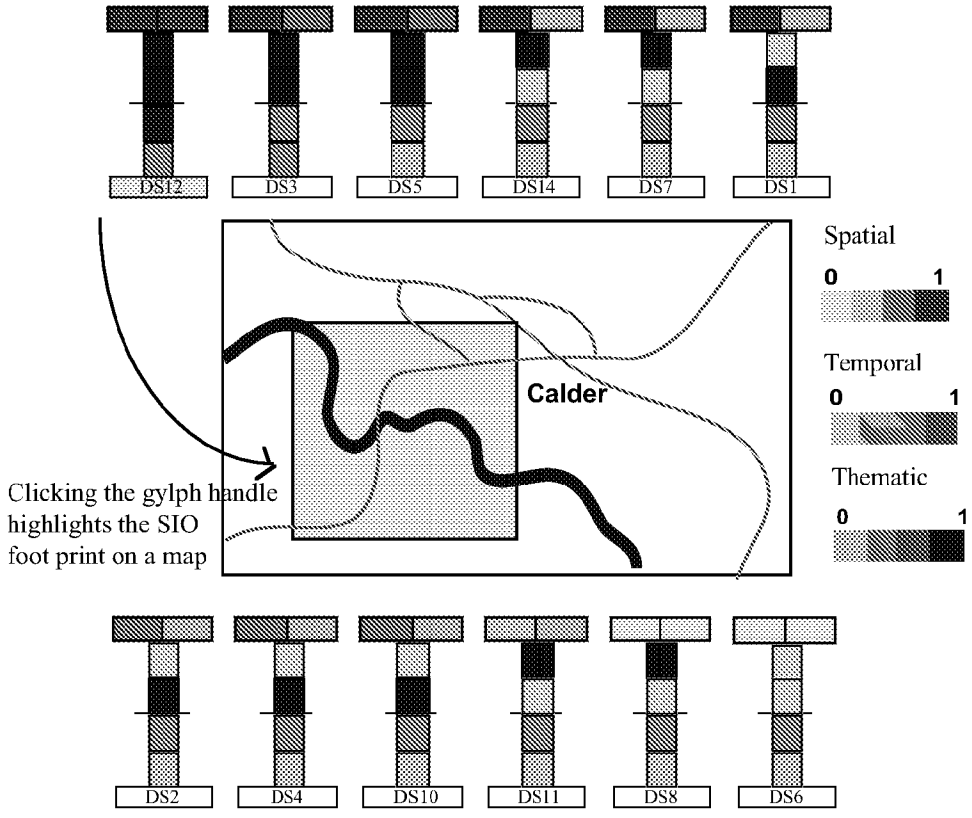


Figure 6. Ordering of glyphs by combined ranks and their spatial display. This level of metadata

4. Metadata for Individual SIOs

The previous section described a level of metadata that would allow users to compare multiple SIOs. Metadata was restricted to important spatial, thematic and temporal elements that would enable a quick and comparative assessment of numerous SIOs. As users narrow their search to a few SIOs they may become interested in the complete metadata description of SIOs that appear to be most useful to them. At this level, metadata is likely to be detailed, comprehensive and extensive. For example if all the FGDC content standard elements were present this would be a large volume of information to digest. We take the view that while all metadata elements should be available at this level for inspection by users not all them may be of interest. In this context users should be able to quickly isolate just the metadata elementshey wish to view. This section describes the organization of metadata for individual SIOs and how the organization is represented to the users. We start with content standard elements and provide additional structure and navigation tools. The structure of the FGDC Metadata Standard is simplified by synthesizing the seven categories of the Standard into three main categories -Background, Content, and Access. The metadata is communicated to the user through a graphical user interface using maps, symbols, tables, and lists, in addition to plain text.

Background metadata provides an overview of the SIO, Content describes what is contained in the SIO, and Access describes the physical storage of the SIO and the instructions on retrieving the SIO. Each of the three categories has several metadata elements under it, with each element describing a specific metadata entry. For instance, some of the metadata elements under the category Background would be "Region", "Time", and "Abstract" The three categories encompass all the fields in the FGDC metadata content standard and could be applied to other metadata formats as well.

An interactive *metadata interface*, based on the metaphor of navigation is adopted to present metadata at this level. The visual presentation relieves the user from the tedium of viewing and assimilating pages of detailed text. Also, it is very useful since most of the metadata elements of spatial data lend themselves naturally to a map or graphical representation. The subsequent sections describe the basis for the metadata interface, which is the navigation metaphor and this is followed by a description of the interface.

Navigation is a very common activity in the real world. People navigate each time they move from point A to point B. They use tools such as maps, signs, and trails to orient themselves in space and this is known as orienteering. To make it easier for the user to navigate the metadata of individual SIOs the metadata interface takes advantage of the users' familiarity with the process of orienteering in the real world. Therefore the target domain of the metadata interface is navigating the metadata and the source domain is orienteering in the real world.

The metadata interface is divided into two distinct areas: the *navigation area* and the *display area* (Figure 7). Within the navigation area a metadata navigation chart serves as a map since it describes the layout of the metadata.. This chart contains all the metadata elements pertaining to SIOs in a digital library. The metadata elements are represented as buttons, connected by trails. The chart informs the users of the various metadata elements (places) that exist and the paths (trails) to be followed to access them. All the metadata elements that support the same function are connected and can thus be reached by following a single trail (Figure 8). Each trail is identified by a sign. For instance, the metadata elements such as "Region", "Time", and "Abstract" all provide an overview of the SIO and thus describe its background. They are therefore connected and can be accessed by following the trail with the "Background " sign. There are three such trails corresponding to Background, Content , and Access.

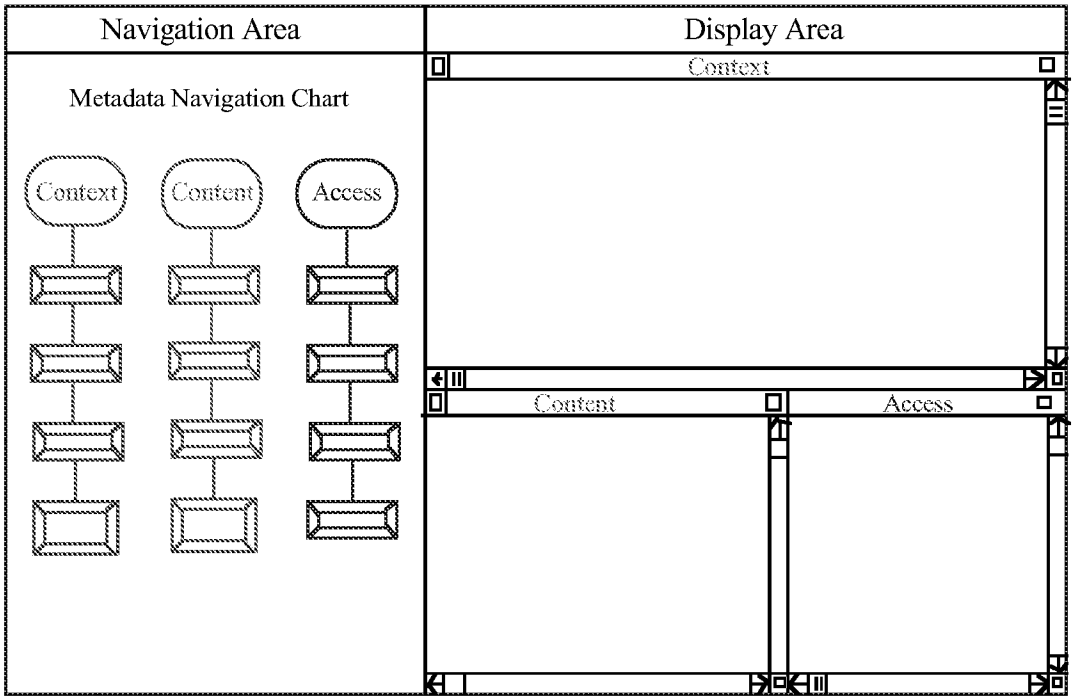


Figure 7. Metadata interface showing navigation and display areas.

When a user clicks on a button representing a metadata item, the trail leading to the button gets shaded. This helps the user to differentiate between the metadata elements that have been accessed and those that have not. This is analogous to hypertext links changing color when clicked. The objective is to inform users of their navigation status - what trails they have followed, and what metadata elements they have viewed.

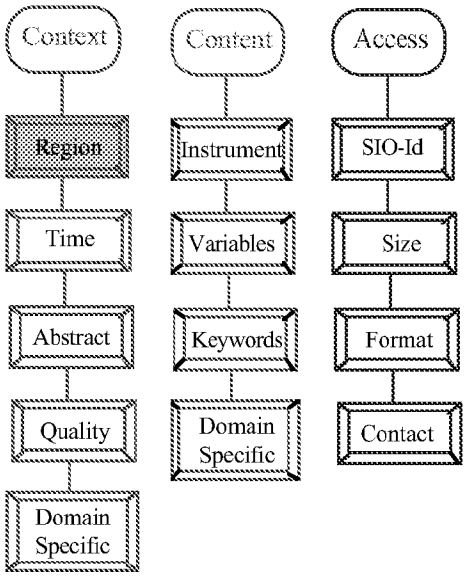
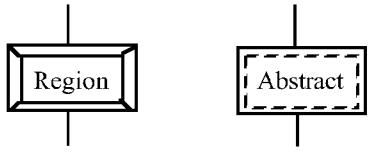


Figure 8. Metadata navigation chart showing elements visited.

Sometimes it is possible that the metadata for a SIO is incomplete. This implies that some of the metadata elements in the navigation area will not contain any information. To notify the users of the absence of metadata elements the corresponding buttons have a different visual appearance. For instance, if the item "Abstract" did not contain any information, it would be displayed as shown in Figure 9.



Figue 9. Graphic distinction between present and absent elements

The display area is used for displaying the information corresponding to the metadata element selected in the navigation area. For instance, when a user clicks on the button "Region" in the navigation area, a map will appear in the display area with a box drawn around the region for which the SIO was collected. The display can be in the form of maps, symbols, tables, lists or plain text, depending upon the metadata item selected. Some metadata elements like "Region", and "Time" are better suited for a map or graphical representation while there are others like "Abstract" that can only be displayed as plain text. The display area has three windows, corresponding to the three metadata categories. The Background window displays the Background metadata, the Content window displays the Content metadata and the Access window displays the Access metadata. These windows can be re-sized, moved around, opened, and closed. The rationale behind using windows is to provide flexibility to the users regarding the amount of metadata they would like to see. For instance, most users might not be interested in Access metadata of an SIO unless they are certain that the SIO meets their requirements and are ready to retrieve it. They can avoid looking at Access metadata and use all the available space in the display area to browse through the Background and Content metadata. The entire display area can also be used for a single window. For example, a user might re-size the Background window to fit the entire screen while viewing a map. The Background window is equipped with map tools like zoom-in, zoom-out and pan to change the map display. It is also possible to have all the windows displaying metadata simultaneously..

5. Summary

The metadata for spatial information resources tends to be complex since several elements are required to fully understand and effectively use the data. The content standard for geospatial metadata identifies a comprehensive set of metadata elements for documenting such resources. Recent mechanisms to extend the standard have been proposed to allow it to cover less traditional geospatial information resources such as scientific datasets and also non-spatial datasets. The standard provides a good basis for metadata development but has some limitations . This paper extends the basic content through multilevel structuring supported by various graphical presentations. Metadata for collections of spatial information resources and spatial query results are proposed in addition to the metadata elements for individual SIOs. We feel that metadata at these additional levels can help to improve responsiveness to end user information needs in large distributed heterogeneous collections.

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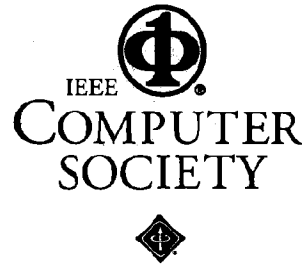

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A Combinatorial Approach to Content-based Music Selection

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Abstract

Advances in networking and transmission of digital multimedia data will bring soon huge catalogues of music to users. Accessing these catalogues raises a problem for users and content providers, that we define as the music selection problem. We introduce three main goals to be satisfied in music selection: match user preferences, provide users with new music, and exploit the catalogue in an optimal fashion. We propose a novel approach to music selection, based on computing coherent sequences of music titles, and show that this amounts to solving a combinatorial pattern generation problem. We propose constraint satisfaction techniques to solve it. The resulting system is an enabling technology to build better music delivery services.

1. Music Delivery and Selection

Music delivery concerns the transportation of music in a digital format to users. Music delivery has recently benefited from technological progress in networking and signal processing. In particular, progress in networking transmission, compression of audio, and protection of digital data [7] allow now or in the near future to deliver quickly and safely music to users in a digital format through networks, either internet, or digital audio broadcasting. Additionally, digitalization of data makes it possible today to transport information on content, and not only data itself, as exemplified by the Mpeg-7 project [9]. All these techniques give users, at home, access to huge catalogues of annotated music.

These techniques address the *distribution* problem, but also raise the problem of choosing among these catalogues. In the case of music, a typical database of titles contains about 500.000 titles ([1, 10]). A database containing all tonal music recordings would probably reach 4 millions titles. Ethnic music and less "standard" types of music would probably double or triple this number. Every month, about 4000 CDs are created in western countries.

2. Goals of Music Selection

We define in this section the music selection problem according to the goals of the user and the content provider.

2.1 The user's viewpoint

The problem of choosing items is general in western societies, in which there is an ever increasing number of products available. For entertainment and specially music, however, the choosing problem is specific, because the underlying goals - personal enjoyment and excitement - do not fall in the usual categories of rational decision making. Although modeling a user's goals in accessing music is very complex, we identify two basic ingredients: desire of repetition, and desire of surprise.

The desire of *repetition* is well known in music theory and experimental psychology [8, 12]. At the melodic or rhythmic levels of music "repetition breeds content". For instance, sequences of repeating notes create expectations of the same note to occur. At a higher level, tonal music is based on structures that create strong expectations on the next events to come (e.g. dominant seventh chord in tonal music are expected to resolve). At the global level of music selection, this desire of repetition tends to have people wanting to listen to music they know already (and like) or that is similar to music they already know: a Beatles fan will probably be interested in listening to the latest Beatles bootleg containing hitherto unreleased versions of his favorite hits.

On the other hand, the desire for *surprise* is a key to understanding music, at all levels of perception. The very theories that emphasize the role of expectation in music also show that listeners do not favor expectations that are always fulfilled, and enjoy surprises and untypical musical progressions [20]. At a larger level, listeners want from time to time to discover new music, new titles, new bands, or new musical styles.

Of course, these two desires are contradictory, and the issue in music selection is precisely to find the right compromise: provide users with items they already know, and also items they do not know, but will probably like.

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2.2 The content's provider viewpoint

From the viewpoint of record companies, the goal of music delivery is to achieve a better exploitation of the catalogue. Indeed, record companies have problems with the exploitation of their catalogue using standard distribution schemes. For technical reasons, only a small part of the catalogue is actually "active", i.e. proposed to users, in the form of easily available products. More importantly, the analysis of music sales shows clearly decreases in the sales of albums, and short-term policies based on selling lots of copies of a limited number of items (hits) are no longer efficient. Additionally, the sales of general-purpose "samplers" (e.g. "Best of love songs") are no longer profitable, because users already have the hits, and do not want to buy CDs in which they like only a fraction of the titles. Instead of proposing a small number of hits to a large audience, a natural solution is to increase diversity, by proposing more customized albums to users.

The approaches to music selection can be examined according to these three goals: repetition, surprise, and exploitation of catalogues. We show in the next Section that current approaches only achieve partially the goals.

3. Approaches in Music Selection

Current approaches in music selection can be split up in two categories: query systems and recommendation systems. In both cases, these approaches provide sets of items to the user, which he/she has still to choose from.

3.1 The database approach

Query systems address database issues for storing and representing musical data. They propose means of accessing musical items using some sort of semantic information. Various kinds of queries can be issued by users, either very specific (e.g. the title of the Beatles song which contains the word "pepper"), or largely under specified (e.g. "Jazz" titles). In all cases the database approach, however sophisticated, satisfies the goal of repetition, since it provides users with exactly what they ask for, so no novelty is achieved.

3.2 Collaborative filtering approaches

Collaborative Filtering (CF) Systems [19] address the "surprise" goal, i.e. issue personalized recommendations to users. CF has had some success in the field of music selection [1, 5, 6, 11] as well as in other domains such as books and news.

CF is based on the idea that there are *patterns* in tastes: tastes are not distributed uniformly. These patterns can be exploited very simply by managing a profile for each user connected to the service. The profile is typically a set of associations of items to grades. In the recommendation phase, the system looks for all the agents having a similar profile the user's; will look for items liked by these similar agents, which are not known by the user, and will recommend these items to him/her.

Experimental results show that the recommendations, at least for simple profiles, are of good quality, once a sufficient amount of initial ratings is given by the user [19]. However, there are limitations to this approach, which appear by studying quantitative simulations of CF systems, using work on the dissemination of cultural tastes [4, 2]. The first one is the inclination to "cluster formation", which is induced by the very dynamics of the system. CF systems produce interesting recommendations for naïve profiles, but get stuck when the profiles get bigger: eclectic profiles are disadvantaged. Another problem, shown experimentally, is that the dynamics favors the creation of hits, i.e. items which are liked by a huge fraction of the population. If hits are not a bad thing in themselves, they nevertheless limit the possibility of other items to "survive" in a world dominated by weight sums.

CF addresses the goal of surprise in a safe way by proposing users items which are similar to known items. However, cluster formation and uneven distribution of chances for items (e.g. hits) are the main drawbacks of the approach, both from the user viewpoint (clusters from which it is difficult to escape), and the content provider viewpoint (no systematic exploitation of the catalogue).

4. On-the-fly Music Program Generation

Instead of proposing users sets of individual titles, we propose to build full-fledged music programs, i.e. sequences of music titles, satisfying particular properties.

4.1 General idea

There are several motivations for proposing music programs rather than unordered collections of titles. One is simply based on the recognition that music titles are rarely listened to in isolation: CD, radio programs, concerts are all made up of temporal sequences of pieces, in a certain order. This order is most of the time significant: different orders do not produce the same impressions on listeners. The craft of music programming is precisely to build coherent sequences, rather than just select individual titles.

The second motivation is that properties of sequences play an important role in the perception of music: for instance, several music titles in a similar style convey a particular atmosphere, and create expectations for the next coming titles. As a consequence, an individual title may not be particularly enjoyed by a listener *in abstracto*, but may be the *right piece at the right time* within a sequence.

Rather than focusing on similarity of individual titles, we can exploit properties of sequences to satisfy the three goals of music selection. The proposal is therefore the following. First we build a database of titles, with content information for each title. Then we specify music programs by giving the properties or patterns we want the program to have. These properties are

represented as constraints, in the sense of constraint satisfaction techniques. Finally, a constraint solver computes the solutions of the corresponding combinatorial pattern generation problem.

4.2 Working example

The problem is therefore to build music programs seen as temporal sequences that satisfy the three goals of music selection: repetition, surprise, and exploitation of catalogues. As an example, we will take a music program for which we specify the desired properties. In the next sections, we will focus on the format of the database and the nature of constraints.

Here is a "liner-note" description of a typical music program. The properties of the sequence are grouped in three categories: user preferences, properties on the coherence of sequences, and constraints on the exploitation of the catalogue. This example describes a music program called "Driving a Car", ideally suited for car music:

User preferences

- No slow/very slow tempos
- At least 30% female-type voice
- At least 30% purely instrumental pieces
- At least 40% brass
- At most 20% "Country Pop" style
- One song by "Harry Connick Jr".

Constraints on the coherence of the sequence

- Styles of titles are close to their neighbors (successor and predecessor). This is to ensure some continuity in the sequence, style-wise.
- Authors are all different

Constraints on the exploitation of the catalogue

- Contains twelve different pieces. This is to fit on a typical CD or minidisk format.
- Contains at least 5 titles from the label "Epic/Sony Music". This is a bias to exploit the catalogue in a particular region.

5. Database of Music Titles

The database of music titles contains content information needed for specifying the constraints.

5.1 Format of the database

Each item is described attributes which take their value in a predefined taxonomy. The attributes are of two sorts: technical attributes and content attributes. Technical attributes include the name of the title (e.g. "Learn to love you"), the name of the author (e.g. "Connick Harry Jr."), the duration (e.g. "279 sec"), and the recording label (e.g. "Epic/Sony Music"). Content attribute describe musical properties of individual titles. The attributes are the following: *style* (e.g. "Jazz Crooner"), *type of voice* (e.g. "muffled"), *music setup* (e.g. "instrumental"), *type of instruments* (e.g. "brass"), *tempo* (e.g. "slow-fast"), and other optional attributes such as the *type of melody* (e.g. "consonant"), or the main *theme* of the lyrics (e.g. "love").

In the current state of our project, the database is created by hand, by experts (including the third author). However, it should be noted that 1) some attributes could be extracted automatically from the signal, such as the tempo, see e.g. [18] and 2) all the attributes are simple, i.e. do not require sophisticated musical analysis.

5.2 Taxonomies of values and similarity relations

An important aspect of the database is that the values of content attributes are linked to each other by similarity relations. These similarity relations are used for specifying constraints on the continuity of the sequence (e.g., the preceding example contains a constraint on the continuity of styles). More generally, the taxonomies on attributes values establish links of partial similarity between items, according to a specific dimension of musical content.

Some of these relations are simple ordering relations. For instance tempos take their value in the ordered list (fast, fast-slow, slow-fast, slow). Other attributes such as *style*, take their value in full-fledged taxonomies. The taxonomy of styles is particularly worth mentioning, because it embodies a global knowledge on music that the system is able to exploit.

Various classifications of musical styles have been designed, particularly by internet music retailers [1, 10]. These classifications are mainly designed for a query-based approach. For instance, the taxonomy of Amazon is a tree-like classification which embodies a relation of "generalization / specialization" between styles: "Blues" is more general than "Memphis Blues". As such, it is well suited for navigating in the catalogue to find under-specified items, but it does not represent similarities between styles, for instance, having a common origin, like, say, "Soul-Blues" and "Jazz-Crooner".

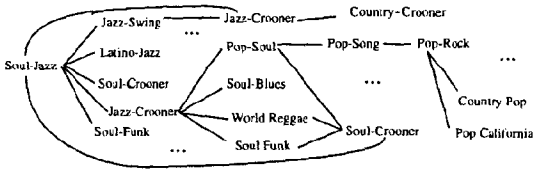

Figure 1. Our taxonomy of musical styles. Links indicate a similarity relation between styles. "Jazz-Crooner" is represented as similar with "Soul-Blues".

Our taxonomy of styles represents explicitly relations of similarity between styles as a non-directed graph in which vertices are styles and edges express similarity. It currently includes 120 different styles, covering most of western music (see Figure 1).

6. CSP for Building Music Programs

Building music programs that satisfy sets of constraints is a combinatorial pattern generation problem. The problem is the opposite of pattern matching: in pattern matching, one looks for patterns in given sequences. Here, we want to *create* sequences with given patterns.

Constraint Satisfaction Programming (CSP) is a paradigm for solving hard combinatorial problems, particularly in the finite domain. In this paradigm, problems are represented by variables, having a finite set of possible values, and constraints represent properties that the values of variables should have in solutions. CSP is a powerful paradigm because it allows to state declaratively the properties of solutions, and use general purpose algorithms to find them. These algorithms are based on the notion of constraint filtering: each constraint is taken individually to reduce the search space; this reduction - filtering - depends heavily on the constraint [17]. The whole issue of CSP is to identify general purpose constraints that can be used to specify particular classes of problems (so-called "global constraints"), and design efficient filtering procedures for these global constraints.

In the next section, we formulate the music program problem as a finite domain CSP. In the following section we propose a small set of global constraints to specify most of music programs. The resulting system, *RecitalComposer* is composed of a constraint solver, a database and associated taxonomies of attribute values.

6.1 CSP for building sequences

A music program satisfying constraints can be seen as a solution of a finite domain CSP: the sequence is composed of successive items represented as variables $v_1, v_2, \ldots v_i$. Each variable v_i represents the i^{th} item in the sequence. The domain of the variables v_i is the - finite - catalogue to look from. Constraints establishing properties of the sequence are expressed in the CSP paradigm, and hold on the variables v_i, and their attributes v_i^j (see 5.1). This formulation yields a hard combinatorial problem. To give an idea, finding a sequence of 20 items, with 100,000 possible values for each item (about the size of a catalogue of a major label) represents a search space of 10^{100}. Efficient filtering procedures have to be designed in order to find solutions in a reasonable time.

Constraints on sequence have been studied in the community of constraint programming. For instance, the *Sequence Constraint* of CHIP [3] is designed to enable the expression of complex regulation rules. This constraint is used to control the occurrences of some patterns in a sequence. Specific filtering techniques are designed to handle this sequence constraint efficiently. This constraint is typically used for complex timetable problems to specify regulations rules (e.g. any employee has at least twice a month a two-day rest). Another kind of sequence constraint is the *Global Sequencing Constraint* [15] of IlogSolver [13]. This constraint is used to specify the number of successive items having their values in a given set. This constraint is a generalization of the global cardinality constraint [16] and is filtered by the same method.

Our problem is different because we need to constrain not only the value of each item, but also the value of item's attributes (e.g. *style*, *tempo*, etc). For instance, we want to have five Jazz music titles and 3 slow motion titles in a raw. These requirements cannot be expressed neither in terms of the Sequence Constraint of CHIP nor of the Global Sequencing Constraint. They are stated by a set of individual cardinality constraints. This approach raises efficiency issues that led us to develop specific filtering techniques, not described in this paper for reasons of space.

6.2 Similarity, difference and cardinality

The constraints needed to specify music programs (user preferences, program coherence, and exploitation of the catalogue) can be expressed using a small number of global constraints: similarity constraints, difference constraints, and cardinality constraints. We describe below these constraints, with examples of use.

6.2.1 Similarity constraints.

This constraint states that within a given range, the items are successively "similar" to each other. The similarity is defined by a binary predicate holding on one given attribute *j*. The general formulation is :

$$S(a, b, j, similar(,)) =$$
$$\text{For every } v_i,\ i \in [a, b-1],\ similar(v_i^j, v_{i+1}^j)$$

Where *a* and *b* are integers representing indexes, *j* is an attribute, and *similar(,)* is a binary predicate. Each variable of the predicate denotes an item's j^{th} attribute. For instance, this constraint allows to state that the 10 first pieces should have "close" styles, in the sense of the similarity relation of the classification of styles.

6.2.2 Difference constraints

This constraint enforces difference of attributes on a set of contiguous items. Its general formulation is:

$D(I, j)$ meaning that:

All items v_i, $i \in I$, have pairwise different values for attribute *j*. Here, *I* is a set of item indexes, *j* is an attribute index. This constraint allows to state that, e.g. the 10 first pieces should have different authors, or different styles. This constraint is an extension of the well-known *all-different* constraint, for which efficient filtering procedures have already been proposed in the literature [14].

6.2.3 Cardinality constraints

These constraints allow to impose properties on *sets of items*. They are the most difficult from a combinatorial point of view, because they state properties on the *whole* sequence.

In our context, we identified two such cardinality constraints: cardinality on items and cardinality on attributes.

6.2.3.1 Cardinality on items

This constraint states that the number of items whose attribute j belongs to a given set E is within [a, b]. The general formulation is :

$$Cl(I, j, a, b, E) = |\{i \in I;\ v_i^j \in E\}| \in [a, b]$$

Where I is a set of item indexes, j is an attribute index, a and b are integers and E is a subset of the possible values of attribute j. For instance, this constraint can be used to state that there should be between 4 and 6 pieces within a the first 10, whose style is "Rock".

6.2.3.2 Cardinality on attribute values

This constraint states that the number of different values for some attribute is within [a, b]:

$$CA(I, j, a, b) = |\{v_i^j;\ i \in I\}| \in [a, b]$$

Where I is a set of item indexes, j is an attribute index, a and b are integers. This constraint can be used for instance to state that among a sequence of five pieces, there should be pieces from at least three different labels.

6.2.4 Example

We can now express the example of Section 4.2 as a CSP on sequences, by instantiating the global constraints defined above.

- No slow/very slow tempos: simple unary constraints on each variable.
- At least 30% female-type voice: cardinality constraint on attribute "voice-type".
- At least 30% purely instrumental pieces: cardinality constraint on attribute "music setup".
- At least 40% brass: cardinality constraint on attribute "instrument".
- At most 20% "Country Pop" style: cardinality constraint on attribute "style".
- One song by "Harry Connick Jr": cardinality constraint on attribute "author".
- Styles of titles are close to their neighbors (successor and predecessor): similarity constraint on attribute "style".
- Authors are all different: difference constraint on attribute author.
- Contains twelve different pieces: standard all-diff constraint on variables.
- Contains at least 5 titles from the label "Epic/Sony Music": cardinality constraint on attribute "label".

A solution of this problem is listed in Figure 2. The solution is computed within a few seconds by our Java prototype, an extension of the framework described in [17] with sequence constraints, and a sample catalogue containing 200 titles.

3	Sunrise	Atkins Chet instrumental	Jazz Calif instrumental	250s jazz guitar	slow fast strings
21	Surrounded	Kravitz Lenny powerful	Pop Calif Woman	238s piano	slow fast strings
6	Still is still moving to	Nelson Willie nasal	Country Calif Man	210s calif guitar	fast calif guitar
9	Not a moment too soon	Mac Graw Tim hoarse	Country Calif Man	222s calif guitar	slow fast piano
10	Lovin' all night	Crowell Rodney normal	Country Pop Man	227s calif guitar	fast brass
11	Hard way (the)	Carpenter Mary normal	Country Pop Woman	262s calif guitar	slow fast piano
17	Point of rescue (the)	Ketchum Hal normal	Country Calif Man	265s calif guitar	fast calif guitar
50	At seventeen	Ian Janis soft	Pop Folk Woman	281s acoustic guiter	slow fast brass
27	Dream on	Lebounty Bill broken	Pop Calif Man	298s keyboard	slow fast brass
106	Another time another plac	Steely Dan instrumental	Jazz Calif instrumental	245s piano	fast slow keyboard
112	Learn to love you	Connick Harry J muffled	Jazz Crooner Man	279s brass	slow fast strings
137	Heart of my heart	Elgart Les instrumental	Jazz Swing instrumental	151s double bass	slow fast brass

Figure 2. A Solution of the music program defined in Section 4.2.

7. Evaluation

The comparison of *RecitalComposer* with other systems is not possible, since we do not know any other attempt at generating sequences of multimedia data. We give here indications about the scale-up to large catalogues, and the quality of results.

7.1 Technical evaluation of the CSP approach

The current prototype was used on sample database of about 200 titles, using a Java prototype. Solutions are computed within a few seconds. Because we do not have so far a full database with more items, we did experiments on a dummy database of 10,000 items consisting of the initial database duplicated 50 times. These experiments show that resolution times grow linearly with the database size, using a non optimized Java prototype.

Experiments on databases larger by an order of magnitude are in progress and not reported here, but we claim that such an increase in size do not pose any problem for two reasons: 1) The database may be split up in smaller domains of interest for the solver, using simple heuristics, and 2) the increase of the number of "different" items is not related to the number of backtracks: the only relevant parameter is the "density" of solutions in the search space, which, in our case, is always high.

7.2 Evaluation of resulting sequences

The solutions found by *RecitalComposer* satisfy two goals of music selection: user preferences (repetition) are satisfied by definition, and exploitation of the catalogue is systematic: no clustering or bias is introduced, so the system searches the entire database for solutions. As illustrated in the working example, specific constraints can be added to force the system to exploit particular regions of the catalogue.

Assessing the surprise goal is more difficult. The basic idea is that unknown titles may be inserted in music programs with a high probability of being accepted, because of the

properties of continuity in the sequence. Experiments are currently conducted to compare programs produced by *RecitalComposer*, and programs produced by human experts (Sony Music) on the same sample database. Preliminary results show that the solutions found by the program are good, and yield unexpected items that human experts would not have thought about.

8. Services

The technique presented here is an enabling technology to build music delivery services. The simplest application of *RecitalComposer* is a system targeted at music professionals for building music programs from a given database. In the application, the user can specify the constraints using an interface, and launch the system on a database. In this system, the user has full control on all the constraints, so it is aimed at professionals, who want to express all the properties of the desired programs.

Aplications targeted at non professionals have also been developed using RecitalComposer. *PathBuilder* is an application in which the user can specify a starting title and an ending title. The system contains hidden constraints on continuity of styles, and tempos are fixed. For instance, find a continuous path between Céline Dion's "All by myself", and Michael Jackson's "Beat it". Another similar application allows users to specify only the stylistic structure of the program. This may be used for instance for creating long programs for parties, in which you know in advance the structure (e.g. begin with Pop, then Rock, then Slows, etc.).

Finally, our approach can be used to produce music programs in specific styles, by adding domain specific constraints. A prototype application dedicated to Baroque music has been designed and implemented in our lab. The application allows to build various "recitals" in the domain of Baroque harpsichord music. Recitals of Baroque music (XVIIth century) follow rules identified by musicologists, while allowing a great deal of freedom to performers. A typical rule concerning the structure of recitals is the "continuity of tempos" between consecutive pieces. More specific rules are also in use, such as rules on the tonality: at this period of musical history, recitals where allowed to modulate - i.e. change tonality - only once. Other constraints concern the structure of the recital (introductory part with necessary piece types), as well as necessary alternation of piece types.

Other applications are envisaged for set-top-boxes services and digital audio broadcasting which we do not detail here for reasons of space.

9. Conclusion

RecitalComposer is an enabling technology for building high-level music delivery services. The system is based on the idea of creating explicit sequences of items, specified by their global properties, rather than computing sets of items satisfying queries. One of its main advantages over other approaches is that it produces ready-for-use music programs which satisfy the goals of music selection: repetition, surprise, and exploitation of catalogues.

Current work focuses on the semi-automatic creation and maintenance of large databases of titles. Indeed, some of the attributes can be extracted automatically from input signals; others such as similarity relations between styles could be extracted using collaborative filtering techniques.

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WELCOME TO THE GATHERING PLACE

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COMPUTER NETWORKS and ISDN SYSTEMS

Specifying metadata standards for metadata tool configuration

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Abstract

A critical problem for metadata applications is flexibility. A metadata application must be sufficiently flexible to cope with changes to metadata standards over time and to allow users to extend a standard to cope with local requirements. A key component of supporting flexible metadata applications is software which can be dynamically configured by a specification of the metadata standard. By contrast, in current metadata software the metadata standard is embedded in the code, making changes relatively more difficult and expensive. Configurable software also leads to better tools at a lower cost, as it is not necessary to re-implement functionality for every new metadata standard.

This paper describes a metadata specification designed to support dynamic configuration of metadata software by capturing features of metadata standards. The specification comprises three components: the classification of the metadata standard, the metadata schema, and the metadata expression.

Keywords: Metadata data models; Metadata standards; Metadata software

1. Introduction

There are many objects available on the Internet, including documents, data sets, and programs. Metadata is the information associated with those objects that allows access to and manipulation of the objects. Typically, metadata describes what the object is (e.g. title, subject, keywords), how to use the object (e.g. where to retrieve it from, how it is encoded), and how the object is to be managed (e.g. lifecycle, relationships with other objects). A comprehensive list of metadata resources is maintained by IFLA [1].

Different communities are standardising the metadata they need to access and manipulate the resources they use. This is producing a large number of metadata standards. Typical metadata standards include Dublin Core [3] for resource discovery, GILS [5] for accessing government information, and ANZLIC [2] and FGDC [4] for describing geographical data sets.

An essential characteristic of any system is flexibility to adjust to change. For a metadata application, flexibility means the ability to extend the metadata standard quickly and easily. The ability to modify a metadata standard is needed for the following reasons:

- *Long data life.* Metadata has the same life as the objects it describes. Organisations, for example, may have a legal requirement to maintain some records for fixed periods (often 50 to 100 years) and the metadata to access these records must be maintained for the same period. Over such lengthy periods it is likely the metadata standard will change, with consequent changes in the stored metadata and the programs that manipulate the metadata.

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- *Local extensions.* Organisations and people frequently need to extend metadata standards to deal with issues local to that organisation. For example, additional metadata properties may be added to link a metadata record to other records in the organisation.

It is relatively easy to change the standard itself; it is much harder is to change the software that implements the standard. Current metadata software typically has the standard embedded in the code and changing the standard means rewriting the code. The typical Dublin Core metadata creation tool, for example, is a CGI script targeted at a specific metadata application. Such scripts are inflexible as changes to the metadata standard require the script to be modified and retargeting the script to a different metadata application would require the script to be completely rewritten. Such scripts also have a very limited ability to handle complex structured metadata and have very limited functionality, being limited to data entry rather than being a true metadata editor.

This lack of sophisticated metadata manipulation tools highlights the advantage of the metadata specification approach advocated in this paper. The typical metadata tools have limited functionality and flexibility because they address only one metadata standard. Hence it is not worth expending a lot of resources on them as they have limited application.

An alternative is to prepare a metadata specification which is used to configure the metadata software. Ideally a change to the standard merely requires a change to the specification and no code needs to be touched. Other advantages of this approach are:

- *Software development.* A metadata tool can be configured to handle many metadata standards, and hence it is easier to justify spending resources in its development. In particular, software developers can spend their resources in improving the quality of the software, rather than re-implementing the same functionality for different standards.
- *Reduced organisational cost.* An organisation which needs to use several metadata standards will only need to buy one suite of metadata software. Apart from reducing the initial cost, this reduces training costs, and assists in integrating the different sets of metadata in use.

Our main interest in a metadata specification is to configure metadata software, but the specification could also be used to formally document a metadata standard.

This paper describes the results of research into what information can be included in a metadata specification designed to allow the easy configuration of metadata software. In Section 2, we describe the metadata specification we developed in detail, and Section 3 describes a metadata editor we developed to test the specification. The strengths and weaknesses of the specification approach are discussed in Section 4.

2. The metadata specification

A metadata specification captures some of the characteristics of a metadata standard. Ideally all characteristics would be captured by the specification, but the law of diminishing returns comes into play; some features are simply too complex to be worth the effort of capturing.

Our metadata specification is divided into three components: a metadata classification, the metadata schema, and the metadata expression. The metadata classification describes the descriptive power of the standard; how complex may the metadata values be? The metadata schema captures characteristics of individual metadata standards. The metadata expression captures how a metadata value is expressed during storage or transmission over a network.

2.1. Some definitions

A metadata instance consists of a set of facts about a resource. An instance can be represented as an acyclic directed labelled graph (Fig. 1).

The root node represents the resource being described. The leaf nodes represent primitive values (e.g. strings containing names), and the interior nodes represent structured values (i.e. a value where the information is structured into sub-properties). For convenience we treat structured values as "resources". This allows a convenient definition that a vertex in the graph (Fig. 2) represents a property (fact) and links a resource and a value. The label of the vertex is the property type.

This formal definition of metadata is based on that presented in RDF [7], the major change is

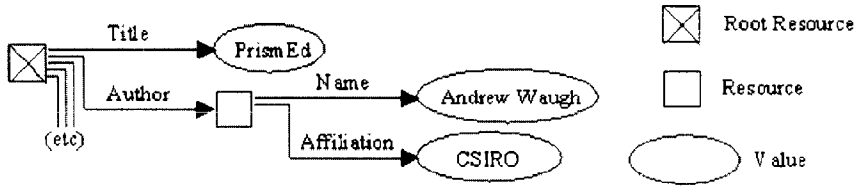

Fig. 1.

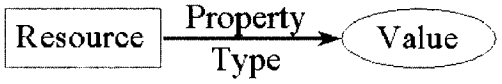

Fig. 2.

that RDF metadata may be *cyclic* whereas we have restricted them to be acyclic. We do not consider this restriction to be of practical concern when dealing with metadata as cycles do not make sense; a cycle in a metadata value would mean that a part of a value is the value itself. Restricting the data model to acyclic graphs has the advantage of allowing the complex concept of reification in RDF to be much more simply expressed as annotations (to be described in Section 2.2.2).

2.2. A metadata classification

We classify metadata standards into four classes based on their expressive power. In essence the classification answers the question "in this standard, how complicated can the information in a metadata value be?" Software written to handle one class of metadata standard will not be able to manipulate more powerful classes of metadata.

Metadata standards can be divided into four classes (Fig. 3) depending on whether the standard supports structured values and whether it supports annotated values.

The four classes overlap (Fig. 4) and a metadata standard that supports structured, annotated, metadata can support the simpler types of metadata.

2.2.1. Structured values

The horizontal axis of Fig. 3 divides metadata standards into those which only support "simple" values and those which support "structured" values. The information in a "simple" value is in one undifferentiated lump. For example, a simple "address"

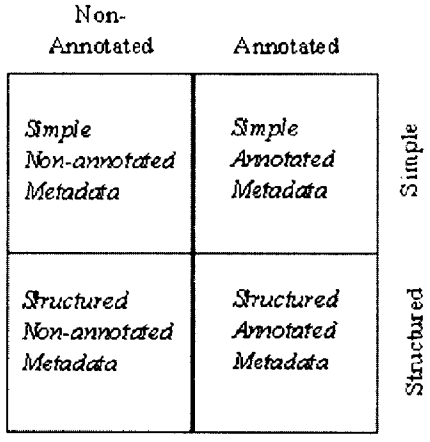

Fig. 3.

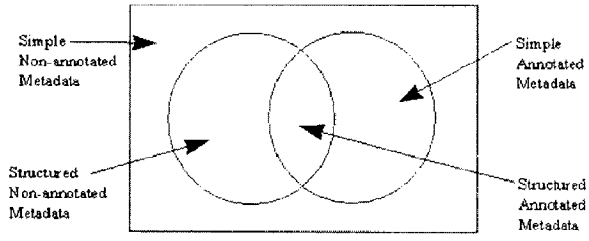

Fig. 4.

property contain:

```
Address ("723 Swanston Street Carlton
         Victoria 3053, Australia").
```

A "structured" value structures the information value into properties. An address might be expressed:

```
Address (
    Street ("723 Swanston Street")
    Suburb ("Carlton")
    State ("Victoria")
    Postcode ("3053")
    Country ("Australia"))
```

Explicitly labelling the information in a value in this way simplifies machine processing of the value

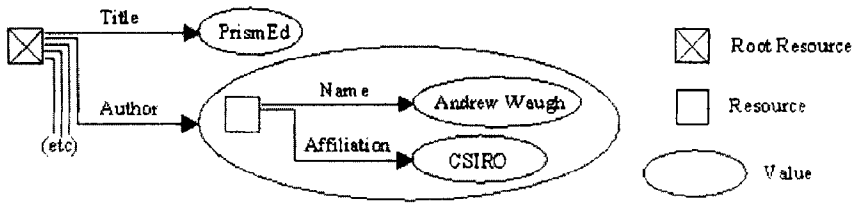

Fig. 5.

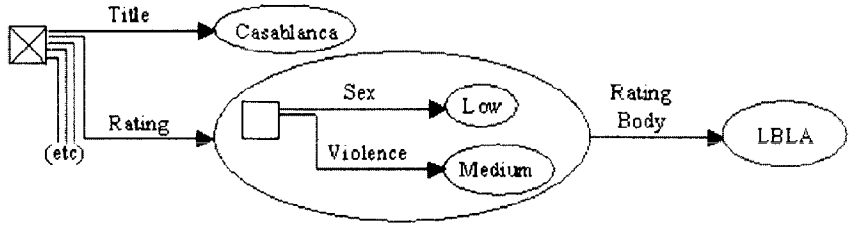

Fig. 6.

as it is trivial for a program to extract a component. However, it can be more expensive to generate the value in the first place (as something or someone must identify the components).

Not all metadata standards support structured values. Strictly speaking, Dublin Core does not, although some of uses of "sub-elements" are really structured values. Other standards (e.g. ANZLIC and GILS) have some structured values. A very few metadata standards (such as RDF) fully support structured values.

Conceptually, a value can be considered as a resource (Fig. 5), which can, recursively, contain a simple value or a structured value.

2.2.2. Annotated values

The vertical axis of Fig. 3 divides metadata standards into those which allow values to be annotated, and those which do not. An annotation is information which *about* a value (as distinct from information which is *part* of the value).

For example, PICS allows a rating (the value) to annotated with information about who assigned the rating. The current Dublin Core standard defines three types of annotation (called qualifiers): scheme (what standard the value was drawn from); subelement (a refinement of the semantics of the property type); and language (the language of the metadata value).

Conceptually, an annotation is a property where the resource is a value. (Fig. 6).

2.3. Metadata schema

The metadata schema is the configuration information that specialises the metadata software for a particular metadata standard. The schema, for example, turns a generic metadata editor into a Dublin Core editor, an ANZLIC editor, or a GILS editor.

The characteristics captured in the schema developed for this work fall into four groups:

- Structural (relating to structured values);
- HCI (relating to the human/computer interface);
- Validation (relating to validation of values); and
- Defaults (relating to default values).

The grammar used to express the metadata schema in our example metadata editor is represented by the following BNF production (Fig. 7):

Part of the schema definition for the Dublin Core standard is shown in Fig. 8.

2.3.1. Structural information

Structural information describes how the information in the value may be structured (i.e. whether the value can contain structured properties). In the grammar, the structural information is the basic framework on which the other schema information is supported. The schema contains the following structural information:

- *The property name.* The name is used to link the components of the schema together (e.g. "title", "titlequal" in Fig. 8).

```
Input           := "root" Word ( Properties )+
Properties      := Word "property" Definition
Definition      := ( Description )? ( Label )? ( Logo )? ( NoValues )?
                   Validate ( Annotations )?
Description     := "description" Url
Label           := "label" String
Logo            := "logo" Url
NoValues        := "values" PosInt PosInt
ValuesOrdered   := ( "valuesOrdered" | "valuesUnordered" )
Annotations     := "annotations" Word ( "," Word )*
Validate        := ( "container" "property" ContainerAttr )
                |  ( "string" "property" StringAttr )
                |  ( "integer" "property" IntAttr )
                |  ( "real" "property" FloatAttr )
ContainerAttr   := ( "set" | "sequence" ) "of" Word ( "," Word )*
StringAttr      := ( "maxLength" PosInt )? ValidValues
IntAttr         := ( "range" SRange Int "," Int ERange )? ValidValues
FloatAttr       := ( "range" SRange Float "," Float ERange )? ValidValues
SRange          := ( "[" | "(" )
ERange          := ( "]" | ")" )
ValidValues     := ("valid" "values" ("only")? String ("," String )* )?
                   ( "defaults" String ( "," String )* )?
```

Fig. 7.

- *The structure of the value.* This is expressed as a set of links between pairs of property names. In the BNF, the tree structure is represented by the definition of a "container" property (see "dublinCore" in Fig. 8) which lists the properties which may occur in this value.
- *The number of values.* These control the maximum and minimum number of values allowed in a particular property (see the NoValues production in Fig. 7).
- *The ordering of values.* This controls whether the order of the values in a property is significant.

2.3.2. HCI information

HCI (Human/Computer Interface) information is used to inform the human user about the semantics of the metadata. The HCI information for each property includes:

- *Descriptive information.* This is the URL of a file containing a description of the property (see "description" in Figs. 7 and 8). This description can be used as help text. Including this information in the schema is particularly important as it allows accurate help information to be generated once by the organisation that defines the metadata standard, rather than having to write help files individually for each metadata application.
- *Property label/logo.* This is a short string (label) or image (logo) used to label components (e.g. buttons) in the user interface (see "label" and "logo" in Figs. 7 and 8).

2.3.3. Validation information

Validation information is used to validate property values. Validation information is a primitive representation of the semantics of the attribute. The schema can specify:

- *Property syntax* (see the "validate" production in Fig. 7). The following syntaxes are supported: container, string, integer, and real (floating point).

```
- Sample Dublin Core Schema
-
- Uses the proposed qualifier list from
-       http://www.loc.gov/marc/dcqualif.html
- and
-       http://sunsite.berkeley.edu/Metadata/types.html
root dublinCore

dublinCore property
        description
        label "Dublin Core"
        logo
        container property set of
                title, creator, subject, description, publisher,
                contributors, date, type, format, source,
                language, relation, coverage, rights

title property
        description
        label "Title"
        string property
        annotations titlequal

        titlequal property
                label "Qualifiers"
                container property set of titleqt, lang

        titleqt property
                label "Type"
                string property
                valid values only "Alternative"
```

Fig. 8.

Simple checks can be performed on values based on the syntax: an integer, for example, cannot contain a decimal part.

- *Permitted values.* This information restricts the permitted values beyond the basic syntax (see the last seven productions in Fig. 7). Integers and floating point numbers can be restricted to a particular range. Strings can be restricted to a maximum length. A specific list of values can be specified for all three types; this is how enumerated lists and booleans are implemented. Regular expressions would be useful, but have not yet been implemented.

Such a simple encoding of the semantics of a value is very limiting. Many properties have rules that govern valid values (e.g. telephone numbers), but to predefine them all in the specification for the schema is not feasible. There are also application-specific validations; for example, checking a part number or employee number against a database.

Distributed object technologies offer an alternative. A validation object can encapsulate a validation test for a particular property (Fig. 9). For example, the validation object could encapsulate the Human Resources database. The metadata software would send a request containing an employee number and be returned a indication as to whether it was valid. The test implemented by the validation object can be arbitrarily complex, but the interface can be very simple: *String Validate(String)* where the object is

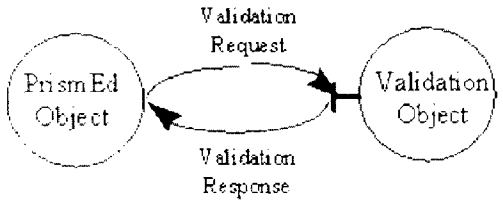

Fig. 9.

passed a string to validate and returns null string if the string is valid or an error message otherwise.

It would be equally possible to implement the validation object using Java applets and for the metadata software to download the applets. However, a value would typically be much smaller than the code for the validation object and hence it would normally be more efficient to transfer the value to the validation object than to transfer the validation object to the metadata software.

2.3.4. Default information

Default information contains the initial contents of an newly created value.

2.4. Metadata expression

The metadata expression is how a value is expressed (stored or transmitted) outside a metadata application. There are many different equivalent ways of expressing a metadata value; the binary based expressions used for ASN.1, for example, are quite different to the character based expressions used for HTML.

In practice, the metadata expression is closely related to the classification of the standard as the expression format must support the expressive power of the standard. For example, Dublin Core was initially a simple, non annotated metadata standard and could be expressed in HTML-2.0. Considerable problems were caused when Dublin Core was extended to support qualifications (i.e. it changed to a simple, annotated, metadata standard) which could not be expressed in HTML-2.0. The work-around was to encode the qualification in the value, but it was recognised that this would cause problems with indexing. The eventual solution was to lobby for HTML-4.0 to include support for qualifications.

The metadata expression is a problem from the point of view of a metadata specification. The wide range of possible ways of expressing metadata makes it difficult to encode the expression in a configuration file, as was done for the metadata schema.

We chose, instead, to implement each expression as a Java class. All expression classes are subclasses of an abstract class "Instance". Instance defines five methods: express(), parse(), addControls(), removeControls(), and action(). The first two methods generate and parse the metadata expressions. The last three methods allow the user of the editor to control options available in the expression (e.g. selection of HTML-4.0 instead of HTML-2.0).

3. PrismEd: a generic metadata editor

To test and develop the ideas presented in this paper we have implemented a generic metadata editor named PrismEd. It allows a user to create or read a metadata instance, edit it, and store the result. PrismEd was designed to edit metadata that had structured, annotated, values. Specification files were written to configure PrismEd to edit Dublin Core metadata, ANZLIC metadata, and GILS metadata. A limited function version of the editor can be downloaded as an applet [6]

PrismEd can be used to create metadata from scratch, but we expect that its main role will be as a component in a metadata management process (Fig. 10). In this process, most of the metadata instance is captured automatically (e.g. extracted from the underlying data, or from the system that produced the data). PrismEd would be used check and augment this automatically generated information. The editor would also be subsequently used to maintain the metadata.

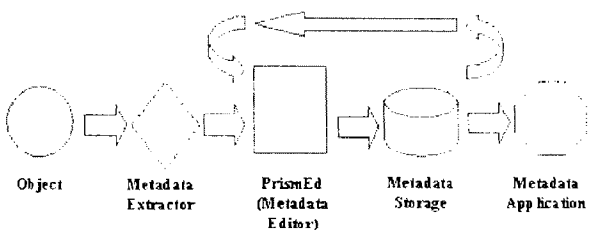

Fig. 10.

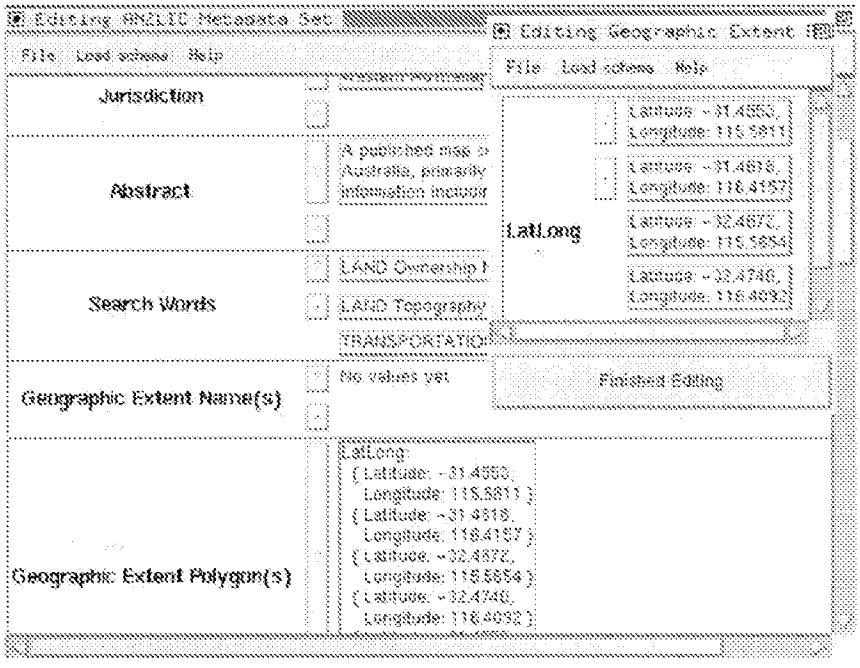

Fig. 11.

The user interface design of PrismEd attempts to display the maximum amount of information whilst retaining an uncluttered display. When editing metadata, we have found that as much of the metadata as possible should be displayed on the screen as this aids comprehension. Unfortunately, text editing components can use up a lot of screen real estate, particularly if scrollbars are necessary. This problem is compounded in metadata applications where the application often allows lengthy values (say 2000 characters), but the actual values are normally very much shorter than this. PrismEd compromises by placing metadata values on buttons. Clicking on the button pops up a window allowing the value to be edited. In Fig. 11, the user is editing a Geographic Extent Polygon value.

PrismEd is written in Java 1.0.2 and is currently about 5000 lines of code. It was written to run as either an applet or an application; unfortunately both have limitations. It is normally run as an application as PrismEd loads faster, the run time environment is less buggy, and it can read and write files from the local file system. The disadvantage is that the run time environment lacks the integrated network environment of a browser. Classes must be found to interpret HTML and generic processing of URLs is difficult.

4. Results and further work

Generation of a schema from a moderately complicated standard (e.g. ANZLIC) for PrismEd required about four hours (including testing, but excluding generation of help files). This is much faster than any other method of producing an ANZLIC editor. Reflecting changes in the metadata standard, or extending it to handle local properties, simply involves editing the schema.

The main limitation of the approach described in this paper is adding new metadata expressions. As described in Section 2, it is necessary to write Java routines to generate and parse each different expression. It took, for example, about three hours to generate the PrismEd schema for GILS, but to write the Z39.50 interface necessary to interface PrismEd to a GILS server would have required far more effort. So far, our experience has been that these routines are not difficult to write, but a much more experience needs to be gained before a categorical statement can be made. In the meantime, RDF opens the possibility that many metadata standards will have the same expression (XML [8]).

The metadata classification in this paper has drawn heavily from the ideas presented in RDF. We

view RDF as an abstract metadata standard. It defines a structured, annotated, metadata standard. This standard is then specialised to provide a number of components that are expected to be generally useful (e.g. InstanceOf), and defines a method of expressing metadata values in XML [8]. Other standards bodies will specialise RDF by defining properties for their particular application thus producing a concrete metadata standard. For example, work is progressing on using RDF to represent Dublin Core.

The work presented in this paper can be viewed as a prototype of the systems that could be built using RDF. We have simplified the RDF data model slightly as we believe that the model is needlessly complex and we have added the concept of the schema which specialises the model for a particular metadata application.

The development of a metadata specification similar to the one proposed in this paper can be expected to have a number of beneficial effects on metadata standards:

- *Widening developer's horizons.* Developers of new metadata standards will have a "source book" of ideas for features that their standard could support.
- *Improved metadata interworking.* It will be much easier to produce applications which draw from several metadata standards if the standards have the same underlying data model.

However, a specification might straight-jacket the development of new ideas for metadata standards. It is important that the specification itself be flexible and capable of accommodating new ideas.

5. Conclusions

It is possible to implement generic metadata tools. This will result greater flexibility for metadata standards because it will be easy to reconfigure the software that manipulates the metadata. It will also result in software with greater functionality and flexibility as the development cost can be spread over a wider customer base.

In developing generic metadata tools, it is necessary to consider three issues: classification of the metadata standards to be used, the metadata schema, and the metadata expresssion.

The metadata classification limits the expressive power of a generic metadata tool as it limits the standards that can be manipulated by the generic tool. We classify metadata applications along two dimensions: the complexity of the values (whether simple or structured values are supported), and the whether values can be annotated. We believe that a metadata tool that can manipulate structured structured values can be configured to manipulate any metadata.

The metadata schema is the configuration information needed to configure the tool to a particular metadata standard. We have divided the characteristics of a schema into Structural, HCI, Validation, and Default characteristics. Structural information describes the organisation of information in the metadata. HCI information indicates the semantics of the information to users of the tool. Validation information is used to validate values. Default information controls the default values.

The metadata expression describes how the metadata instance is represented outside the tool. There are an enormous range of ways of expressing metadata; ranging from databases to text files of various formats. This makes it difficult to write a generic program to handle the range. We have compromised by providing an API into which a variety of external representations can be slotted. Java makes this easy. This problem may be reduced by the adoption of standard metadata expressions based on XML.

It is likely that the specification presented in this paper will evolve as experience grows with specifying metadata standards, particularly as new metadata standards with new concepts are developed. We believe that the benefits of being able to use generic metadata software will outweigh the costs of developing this metadata specification.

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Andrew Waugh is a Senior Scientist in the CSIRO Division of Mathematical and Information Sciences. He has an M.Sc. from the University of Melbourne. Experience with X.500 electronic directories focused his attention on the difficulties of economically creating and managing accurate metadata. He was seconded to the Research Data Networks CRC from 1994 to 1997 where he extended this interest to the difficulty of finding resources on the developing net.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

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Respectfully submitted,

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Sheet 1 of 4

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Patent No.	6,928,433
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Group Art Unit[2]	3992
Examiner Name	Mary J. STEELMAN
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Attorney Docket No.	380786-108980

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Examiner Signature		Date Considered	13897529.1

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Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, VA 22313-1450
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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:
MAILED

SEP 2 9 2010

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

(For Patent Owner)

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

(For Third Party Requester)

MAILED

SEP 2 9 2010

CENTRAL REEXAMINATION UNIT

Inter Partes Reexamination Proceeding
Control No.: 95/001,274
Filed: December 1, 2009
For: U.S. Patent No. 6,928,433

DECISION GRANTING PETITION FOR WAIVER OF 37 CFR 1.955 FOR ONE-TIME INTERVIEW

This is a decision on patent owner's "PETITION UNDER 37 C.F.R. § 1.183 FOR A ONE-TIME WAIVER OF 37 C.F.R. § 1.955," filed on July 8, 2010.

The patent owner petition is before the Office of Patent Legal Administration.

The petition fee of $400 pursuant to 37 CFR 1.17(f) for the petition under 37 CFR 1.183 was charged to patent owner's deposit account on July 9, 2010, as authorized on page 3 of the petition.

The petition is granted to the extent set forth herein.

BACKGROUND

1. U.S. Patent No. 6,928,433 ("the '433 patent") issued to Goodman *et al.* on August 9, 2005.

2. A request for *inter partes* reexamination was filed by a third party requester on December 1, 2009, which request was assigned control no. 95/001,274 ("the '1274 proceeding").

3. Reexamination was ordered in the '1274 proceeding on February 26, 2010.

4. On March 29, 2010, the Office mailed an Office action on the merits in the '1274 proceeding.

5. On June 1, 2010, patent owner filed an "AMENDMENT AND RESPONSE UNDER 37 C.F.R. §§ 1.941, 1.943 and 1.945," responsive to the March 29, 2010 Office action ("the June 1, 2010 response submission").

4. On July 1, 2010, third party requester filed a paper entitled "NOTICE OF WITHDRAWAL OF THIRD PARTY REQUESTER" in the '1274 proceeding.

7. On July 8, 2010, patent owner filed the instant petition paper entitled "PETITION UNDER 37 C.F.R. § 1.183 FOR A ONE-TIME WAIVER OF 37 C.F.R. § 1.955."

DECISION

Relevant Statutes, Regulations and Practice

35 U.S.C. § 314 provides, in part:

> (a) IN GENERAL.— Except as otherwise provided in this section, reexamination shall be conducted according to the procedures established for initial examination under the provisions of sections 132 and 133. In any *inter partes* reexamination proceeding under this chapter, the patent owner shall be permitted to propose any amendment to the patent and a new claim or claims, except that no proposed amended or new claim enlarging the scope of the claims of the patent shall be permitted.
>
> ****
>
> (c) SPECIAL DISPATCH.— Unless otherwise provided by the Director for good cause, all *inter partes* reexamination proceedings under this section, including any appeal to the Board of Patent Appeals and Interferences, shall be conducted with special dispatch within the Office.

37 CFR 1.955 provides:

> There will be no interviews in an *inter partes* reexamination proceeding which discuss the merits of the proceeding.

Patent Owner's Petition under 37 CFR 1.183

The instant petition under 37 CFR 1.183 has been fully considered. In the instant petition, petitioner patent owner requests waiver of 37 CFR 1.955, which prohibits interviews in *inter partes* reexamination. In particular, petitioner requests that waiver be granted to allow the patent owner to conduct a single interview in the '1274 proceeding.[1]

37 CFR 1.183 provides for suspension or waiver of any requirement of the regulations which is not a requirement of the statutes in an extraordinary situation, when justice requires, on petition of the interested party. The burden is on petitioner to set forth with specificity the facts that give rise to an extraordinary situation in which justice requires suspension of a rule. In support of its request for waiver of 37 CFR 1.955, petitioner asserts that third party requester has withdrawn from, and will not further participate in, the '1274 proceeding in any way.[2] Patent owner also asserts that third party requester has received a license to the '433 patent and, therefore, "it is evident that the third party requester would not be prejudiced in any way if this petition is

[1] *See* July 8, 2010 petition under 37 CFR 1.183 at page 1.
[2] *See id.* at page 2.

granted."[3] Patent owner further asserts that the interview would more expeditiously resolve the '1274 proceeding by providing an opportunity to discuss patent owner's June 2, 2010 response to the March 29, 2010 Office action and, in particular, two declarations under 37 CFR 1.131 that were submitted by patent owner with its June 1, 2010 response submission.[4]

A review of the *Notice of Final Rule Making, Rules to Implement Optional Inter Partes Reexamination Proceedings*, 65 FR 76755 (Dec. 7, 2000), 1242 *Off. Gaz. Pat. Office* 12 (Jan. 2, 2001) (final rule) reveals that the Notice of Proposed Rule Making had proposed implementation of a regulation that would have permitted interviews in *inter partes* reexamination proceedings. In the final rule, however, the Office decided to preclude both *ex parte* and *inter partes* interviews in an *inter partes* reexamination proceeding, and accordingly published 37 CFR 1.955 in its present form. The Office concluded that, for a variety of reasons, "[n]o matter what the structure of the interview, the presence of a third party requester (or a separate interview with the requester) will complicate the reexamination proceeding and significantly delay it." Thus, the key basis for the present 37 CFR 1.955 proscription of all and any interviews in an *inter partes* reexamination proceeding was that the presence of two (or more) parties in the proceeding would interfere with the Office's ability to conduct an *inter partes* reexamination proceeding with special dispatch as mandated by 35 U.S.C. § 314.

In this instance, however, third party requester has stated on the record that it will not further participate in the '1274 *inter partes* reexamination proceeding.[5] Thus, only a single party (patent owner) will now participate in the '1274 proceeding, and any interview that might be permitted in the proceeding. Accordingly, petitioner asserts in the instant petition that "permitting an interview to be conducted in this reexamination proceeding will not hinder the ability of the Office to conduct the proceeding with special dispatch, but rather may well assist the Office in expeditiously resolving the outstanding issues in this proceeding."[6] In addition, patent owner has focused upon matters at issue in the proceeding to be discussed at the interview, in particular, two declarations under 37 CFR 1.131 that were submitted by patent owner with its June 1, 2010 response submission.

Based on the present facts and circumstances, it is found that permitting a single interview to be conducted at this point in the '1274 *inter partes* proceeding is not anticipated to potentially hinder the ability of the Office to conduct the '1274 proceeding with special dispatch, but rather may well assist the Office in expeditiously resolving the proceeding.[7] Accordingly, in view of the particular facts and circumstances set forth herein, in this instance and at this point, the record in the '1274 proceeding is deemed to present an extraordinary situation which justifies

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[3] *See id.*

[4] *See id.* (stating that patent owner believes the two declarations under 37 CFR 1.131 "are sufficient to remove most of the prior art references forming bases for rejections of the claims at issue.")

[5] *See* July 1, 2010 "NOTICE OF WITHDRAWAL OF THIRD PARTY REQUESTER" (stating that third party requester "hereby withdraws from the above-identified inter partes reexamination proceeding," "will no longer participate in this reexamination proceeding in any way," "specifically waives its right to participate in any interview with the examiner in the above-identified proceeding," and "supports any petition later filed by the Patent Owner to waive the general prohibition under 37 C.F.R. § 1.955 of interviews discussing the merits of the above-identified reexamination proceeding.")

[6] July 8, 2010 petition under 37 CFR 1.183 at page 2.

[7] The '1274 proceeding is ready for examiner action following patent owner's June 1, 2010 response submission after the Mach 29, 2010 Office action.

waiver of 37 CFR 1.955 to further the interests of the patent owner, members of the public who may be interested in the outcome of the proceeding, and the Office. Thus, patent owner's petition under 37 CFR 1.183 is granted to the extent that 37 CFR 1.955 is waived such that a single interview will be permitted, subject to the examiner's approval. It is noted, however, that there are no established regulatory or practice guidelines to govern the manner in which an interview in an *inter partes* reexamination proceeding is to be conducted. Therefore, the waiver of 37 CFR 1.955 so as to permit an interview is granted only to the extent that patent owner satisfies the following preliminary requirements.

Requirements and Guidelines for Conducting Interview

A. Preliminary Requirements

1. Promptly, upon receipt of the present decision, patent owner must contact the examiner in charge of the proceeding to identify the issues that are sought to be discussed, to determine if an interview will be granted with respect to those issues (which the examiner is directed to consider based on criteria analogous to that of granting *ex parte* reexamination interviews), and to ascertain the examiner's desktop facsimile number.

2. At least three (3) working days prior to the interview, patent owner must file an informal written statement of the issues to be discussed at the interview, and an informal copy of any proposed claims to be discussed, unless examiner waives this requirement. The copy of these materials is to be submitted by facsimile transmission (FAX) directly to the examiner or hand-carried to the examiner so as to avoid the possibility of delay in matching the materials with the file. The informal copies that are considered by the examiner will be made of record in the reexamination proceeding – as an attachment to the Interview Summary form PTOL-474 (modified as needed for *inter partes* reexamination) completed by the examiner after the interview.

3. Patent owner must serve a copy of the papers discussed in item (2) above on the third party requester in accordance with 37 CFR 1.903, and include a copy of the certificate of service of such papers in the papers as filed in item (2) above.

B. Guidelines for Conducting the Interview

1. The interview must be conducted in the Office at such times, within Office hours as examiner may designate. The interview will not be permitted at any other time or place, without the authority of the Director.

2. Patent owner must make every effort to conduct the interview in not more than one (1) hour. Patent owner may, however, show cause, at the interview, why more time is needed, and the examiner is also free to extend the interview, at the examiner's sole discretion.

3. The interview should be attended by the conferees who signed the March 29, 2010 Office action, or their substitutes (if the conferees are not reasonably available).

4. At the conclusion of the interview, the examiner will prepare an interview summary, using form PTOL-474, the *Ex Parte* Interview Summary Form, and making appropriate modifications thereto, taking into account that the present proceeding is an *inter partes* reexamination proceeding. A copy of the interview summary form is to be given to patent owner at the conclusion of the interview. A copy of the interview summary form will also be mailed to third party requester, and the original of the form is to be made of record in the Image File Wrapper for the proceeding.

C. Prosecution after the Interview

1. Patent owner must file a complete written statement of the reasons presented at the interview as warranting favorable action, to avoid termination or limitation of the proceeding as appropriate under 37 CFR 1.957. The written statement must be filed as a separate paper filed within one month from the date of the interview.

2. All papers filed by patent owner in the '1274 *inter partes* reexamination proceeding must continue to be served in accordance with 37 CFR 1.903, and service must be reflected by attaching a certificate of service, or consideration of the document may be refused.

CONCLUSION

1. Patent owner's July 8, 2010 petition under 37 CFR 1.183 is granted to waive the provisions of 37 CFR 1.955, to the extent that a single interview will be permitted, upon approval by the examiner and compliance with the Preliminary Requirements, as set forth above.

2. The provisions of 37 CFR 1.955 are waived solely on the present facts and circumstances, and solely for the purposes of conducting one interview with respect to the March 29, 2010 Office action and the June 1, 2010 patent owner response submission.

3. Any future petition for waiver of 37 CFR 1.955 will not be granted absent a further strong showing of necessity, including an explanation of why the basis for any further interview could not have been addressed in the first interview.

4. Any questions concerning this communication should be directed to Nicole Dretar, Legal Advisor, Office of Patent Legal Administration, at (571) 272-7717.

Kenneth M. Schor
Senior Legal Advisor
Office of Patent Legal Administration

9-28-10

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

APPLICANT INITIATED INTERVIEW REQUEST FORM

Pursuant to the Decision of the Office of Patent Legal Administration, mailed September 29, 2010 in the above-identified reexamination, the owner of the above-identified patent hereby requests an interview to discuss the issues outlined in the attached Proposed Agenda.

Tentative Participants:

1) **Russ Swerdon**, representative of the Patent owner
2) **Justin Boyce**, Attorney of Record

Proposed Date of Interview: To Be Determined **Proposed Time:** To Be Determined

Type of Interview Requested: Personal

Exhibit To Be Shown Or Demonstrated: No

Brief Description: See attached Proposed Agenda (one page)

	Issues	Claims/Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1)	35 USC § 102	1, 2, 4, 6-8, 12-16	US Pat. 5,739,451	☐	☐	☐
(2)	35 USC § 103	1-16	US Pat. 5,739,451	☐	☐	☐
(3)	37 CFR § 131	1-16		☐	☐	☐

Brief Description of Arguments to be Presented: *See* attached Proposed Agenda (one page)

An interview was conducted on the above-identified patent on _____.

NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).

Justin F. Boyce Reg. No. 40,920
Applicant's Representative

_____
Examiner / SPE Signature

Attachment: Proposed Agenda (one page)

Proposed Agenda For Requested Interview

Reexamination Control No. 95/001,274

I. Patentability of claims 1, 2, 4, 6-8, 12-16 under 35 U.S.C. § 102(b) over USPN 5,739,451 issued to Winsky et al. ("Winsky `451")

A. Paragraphs 32-48 of the Declaration of James D. Foley, Ph.D. under 37 CFR § 1.132 in relation to novelty of claims 1, 2, 4, 6-8, 12-16 over Winsky `451

II. Patentability of claims 1-16 under 35 U.S.C. § 103(a) over Winsky `451

A. Paragraphs 49-59 of the Declaration of James D. Foley, Ph.D. under 37 CFR § 1.132, in relation to non-obviousness of claims 1-16 over Winsky `451

B. Declaration of Craig McHugh under 37 CFR § 1.132 in support of secondary indicia of non-obviousness of claims 1-16

III. The declarations submitted under 37 C.F.R § 131 to remove three of the four asserted prior art references:

A. U.S. Patent Pub. No.2002/0045960 by Phillips ("Phillips `960");

B. U.S. Patent No. 6,760,721 issued to Chasen et al. ("Chasen `721"); and

C. U.S. Patent No. 6,976,229 issued to Balabanovic et al. ("Balabanovic `229").

Electronic Acknowledgement Receipt

EFS ID:	8628946
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Lydie Fitzsimmons
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	14-OCT-2010
Filing Date:	01-DEC-2009
Time Stamp:	16:38:42
Application Type:	inter partes reexam

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	Letter Requesting Interview with Examiner	380786_433RX_Applicant_Initiated_Interview_Request.pdf	66278 a8af7c40fbf8122b35d97cc6eb8e4aad65f59024	no	2

Warnings:	
Information:	

2	Reexam Certificate of Service	380786_433RX_Certificate_of_Service.pdf	33949 e20c4ffbe047a8af25fc81db9e609f86af232209	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	100227	

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

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
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By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE PURSUANT TO 37 CFR § 1.248(a)(4)

I hereby certify that on this 14th day of October, 2010, a true and correct copy of this certificate of service as well as the Applicant Initiated Interview Request Form as filed in the United States Patent and Trademark Office on October 14, 2010 in the above-captioned reexamination, were sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: October 14, 2010

Justin F. Boyce
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
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By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

SUPPLEMENTAL FEE AUTHORIZATION

Mail Stop *Inter Partes* Reexamination
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Upon review of Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980), the Patent Owner finds that no fees have been debited in connection with the Amendment and Response Under 37 CFR §§ 1.941, 1.943 and 1.945 filed on June 1, 2010 ("Amendment and Response") in the above-captioned reexamination proceeding. Although general authorization to deduct any additional fees was given in the Amendment and Response, Patent Owner believes that the USPTO's failure to deduct fees to date may be due to the fact that fees due were not specified in the Amendment and Response. Patent Owner believes that additional fees in the amount of $676 should be paid in accordance with the provisions of 37 CFR § 1.20(c)(4). This amount is based on the addition of new claims 17-33 beyond the originally issued claims 1-16, resulting in 13 claims in excess of 20, and assuming the large entity fee of $52.00 per claim.

Accordingly, Patent Owner hereby authorizes the Director to charge the required fees of $676 to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980). The Director is also authorized to charge any additional fees that may be required, or credit any overpayment, in connection with the Amendment and Response filed on June 1, 2010, or this request, to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980).

Respectfully submitted,

Date: November 2, 2010

Justin F. Boyce, Partner
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

Electronic Patent Application Fee Transmittal

Application Number:	95001274
Filing Date:	01-Dec-2009
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Filer:	Justin Francis Boyce/Amy MacDonald
Attorney Docket Number:	016788-000-0004

Filed as Large Entity

inter partes reexam Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Reexamination claims in excess of 20	1822	13	52	676
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**676**

Electronic Acknowledgement Receipt

EFS ID:	8752870
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Amy MacDonald
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	02-NOV-2010
Filing Date:	01-DEC-2009
Time Stamp:	15:48:35
Application Type:	inter partes reexam

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$676
RAM confirmation Number	2129
Deposit Account	502778
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 1.17 (Patent application and reexamination processing fees)

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	Miscellaneous Incoming Letter	Creative_Supp_Fee_Auth.pdf	50739 e6451769bacc7eaf73fa7145c71de5f9a4c9ff4f	no	2
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	30060 710fc5b60acbaebc06cd27b80d02f6495f8e604a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	80799		

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<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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<u>New International Application Filed with the USPTO as a Receiving Office</u>
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Electronic Acknowledgement Receipt

EFS ID:	8754183
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Amy MacDonald
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	02-NOV-2010
Filing Date:	01-DEC-2009
Time Stamp:	16:57:06
Application Type:	inter partes reexam

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	Reexam Certificate of Service	COS.pdf	30459 20d5d0df79c013d449388239179bc2897fff538d	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	30459

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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

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE PURSUANT TO 37 C.F.R. §1.248(a)(4)

I hereby certify that on this 2nd day of November, 2010, true and correct copies of:

- Supplemental Fee Authorization
- this Certificate of Service,

as filed in the United States Patent and Trademark Office on November 2, 2010 in the above-captioned reexamination, were sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: November 2, 2010

Justin F. Boyce
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

13927276.1.LITIGATION

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.
95/001,274	12/01/2009	6928433	016788-000-0004	6990

37509 7590 11/19/2010

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 11/19/2010

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patents and Trademark Office
P.O.Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:
MAILED
NOV 19 2010

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

Inter Partes ~~Ex Parte~~ Reexamination Interview Summary	Control No. 95/001,274	Patent Under Reexamination 6928433	
	Examiner MARY STEELMAN	Art Unit 3992	

All participants (USPTO personnel, patent owner, patent owner's representative):

(1) *Mary Steelman, Primary Examiner*

(2) *Eric Keasel, SPE*

(3) *Eric Kiss, Primary Examiner*

(4) *Justin Boyce, Reg. No. 40,920*

Date of Interview: *17 November 2010*

Type: a)☐ Telephonic b)☐ Video Conference
c)☒ Personal (copy given to: 1)☐ patent owner 2)☐ patent owner's representative)

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.
Any other agreement(s) are set forth below under "Description of the general nature of what was agreed to..."

Claim(s) discussed: *1-3, 5, and 7*.

Identification of prior art discussed: *Winsky USPN 5,739,451*.

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:
See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims patentable, if available, must be attached. Also, where no copy of the amendments that would render the claims patentable is available, a summary thereof must be attached.)

A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION MUST INCLUDE PATENT OWNER'S STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. (See MPEP § 2281). IF A RESPONSE TO THE LAST OFFICE ACTION HAS ALREADY BEEN FILED, THEN PATENT OWNER IS GIVEN **ONE MONTH** FROM THIS INTERVIEW DATE TO PROVIDE THE MANDATORY STATEMENT OF THE SUBSTANCE OF THE INTERVIEW (37 CFR 1.560(b)). THE REQUIREMENT FOR PATENT OWNER'S STATEMENT CAN NOT BE WAIVED. **EXTENSIONS OF TIME ARE GOVERNED BY 37 CFR 1.550(c).**

		/M. Steelman/ Primary Examiner

cc: Requester (if third party requester)

Continuation of Description of the general nature of what was agreed to if an agreement was reached, or any other comments: Also present: Russ Swerdon, PO representative, Craig McHugh, President and COO of Creative Labs. Discussed claim terms "selecting" and "accessing." Discussed Winsky's claimed invention, language of '433 claim 1, and "levels" forming a hierarchy. Discussed conception and reduction to practice of invention. No agreement was reached. Interview was granted in Petition Decision 09/29/2010, where page 5, first and second paragraphs explicitly call for PTOL-474, Interview Summary to be filed by Examiner. Patent Owner must file a complete written statement of the reasons presented at the interview as warranting favorable action within one month of the date of the interview .

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
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By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE PURSUANT TO 37 CFR § 1.248(a)(4)

I hereby certify that on this 17th day of December, 2010, true and correct copies of:

- PATENT OWNER'S STATEMENT OF THE INTERVIEW; and
- this Certificate of Service

as filed in the United States Patent and Trademark Office on December 17, 2010 in the above-captioned reexamination, were sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: December 17, 2010

Justin F. Boyce
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

Electronic Acknowledgement Receipt

EFS ID:	9063349
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Lydie Fitzsimmons
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	17-DEC-2010
Filing Date:	01-DEC-2009
Time Stamp:	15:11:48
Application Type:	inter partes reexam

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	Applicant summary of interview with examiner	Patent_Owners_Statement_of_the_Interview.pdf	36975 bd39cd4550c222cad5f2b3ab2507425483697c8b	no	1

Warnings:	
Information:	

2	Miscellaneous Incoming Letter	Certificate_of_Service.pdf	426688 ebbdc52b05b30bbde0d67232d671166d8b3d1532	no	10
Warnings:					
Information:					
			Total Files Size (in bytes):	463663	

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

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

PATENT OWNER'S STATEMENT OF THE INTERVIEW

Mail Stop Inter Partes Reexamination
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Examiners:

A personal Examiner interview was held for one hour on November 17, 2010 in connection with the above-captioned reexamination. The interview was attended by Examiners Mary Steelman, Eric Kiss and Eric Keasel, and Patent Owner's representatives Craig McHugh (president and chief operating officer of Creative Labs, Inc.), Russell Swerdon (Director of Intellectual Property for Creative Labs, Inc.) and Justin Boyce (counsel of record for the Patent Owner). Patent Owner thanks Examiners Steelman, Kiss, and Keasel for the courtesy of the interview.

Presented below is a written statement of the interview. A Certificate of Service indicating service of this Patent Owner's Statement Of The Interview on the *inter partes* reexamination requestor is submitted herewith.

I. OVERVIEW OF PROCEDURAL STATUS

An Office Action was mailed on March 29, 2010 in the above-captioned *inter partes* reexamination of U.S. Patent No. 6,928,433 (the "`433 patent"). On June 1, 2010, the Patent Owner submitted a response to the Office Action.

On July 8, 2010, the Patent Owner filed a Petition Under 37 C.F.R. § 1.183 For A One-Time Waiver of 37 C.F.R. § 1.955. On September 29, 2010, the USPTO's Office of Patent Legal Administration mailed a Decision Granting Petition for Waiver Of 37 CFR 1.955 For One-Time Interview (the "Decision"), which set out "Requirements and Guidelines for Conducting Interview." *See* Decision, pp. 4-5. The Decision included a requirement that "patent owner must file an informal written statement of the issues to be discussed at the interview." *Id.*, p. 4. On October 14, 2010, pursuant to the Decision, the Patent Owner submitted by facsimile transmission (FAX) an Applicant Initiated Interview Request Form including a Proposed Agenda for Requested Interview (hereinafter, the "Interview Request and Proposed Agenda"). On October 14, 2010, the Patent Owner also filed with the USPTO a copy of the Interview Request and Proposed Agenda, along with a certificate of service indicating that a copy of the Interview Request and Proposed Agenda was served on the Requester.

A copy of the Interview Request and Proposed Agenda is attached hereto as Exhibit A. As explained below, the topics outlined in the Proposed Agenda were discussed at the Examiner interview held on November 17, 2010.

II. OVERVIEW OF THE OFFICE ACTION AND RESPONSE

The `433 patent contains originally issued claims 1-16, all of which stand rejected as allegedly anticipated or obvious over one or more references discussed in the Office Action mailed March 29, 2010 (the "Office Action"). New claims 17-33 were added in the Response filed June 1, 2010 (the "Response"). All of the new claims 17-33 depend from claim 1.

References cited in the Office Action include three U.S. patents alleged to be prior art under 35 U.S.C. § 102(e): U.S. Patent Pub. No.2002/0045960, filed on October 10, 2001, claiming the benefit of U.S. provisional application No. 60/240,766 filed on October 13, 2000, and published on April 18, 2002 by Phillips (hereinafter "Phillips `960"); U.S. Patent No.

6,760,721, filed on April 14, 2000, and issued on July 6, 2004 to Chasen et al. (hereinafter "Chasen `721"); and U.S. Patent No. 6,976,229, filed on Dec. 16, 1999, and issued on Dec. 13, 2005 to Balabanovic et al. (hereinafter "Balabanovic `229"). *See* Office Action, pp 3-5.

Along with the Response, the Patent Owner submitted two declarations under 37 CFR § 1.131: Declaration of Howard N. Egan Under 37 CFR § 1.131 (the "Egan Declaration"); and Declaration of Inventors Under 37 CFR § 1.131 (the "Inventors Declaration"). The Egan Declaration and the Inventors Declaration were submitted in support of arguments under 37 CFR § 1.131 that all three of the section 102(e) references (*i.e.,* Phillips `960, Chasen `721 and Balabanovic `229) should be removed as prior art. *See* Response, pp. 6-10.

Claims 1, 2, 4, 6-8, and 12-16 currently stand rejected under 35 U.S.C. § 102(b) as being anticipated by USPN 5,739,451 to Winsky et al (hereinafter "Winsky `451"). Claims 1-16 currently stand rejected under 35 U.S.C. § 103(a) as being obvious over Winsky `451. In the Response, the Patent Owner submitted remarks traversing the rejections of claims 1-16 over Winsky `451. *See* Response, pp. 10-31.

In support of novelty and non-obviousness, the Patent Owner also submitted, along with the Response, a Declaration of James D. Foley, Ph.D. Under 37 CFR § 1.132 (the "Foley Declaration"). In support of secondary indicia of non-obviousness, the Patent Owner submitted a Declaration of Craig McHugh Under 37 CFR § 1.132 (the "McHugh Declaration").

III. STATEMENT OF THE INTERVIEW

During the interview, Patent Owner's representatives discussed the evidence presented in the Egan Declaration and the Inventors Declaration in order to identify any points of disagreement by the Examiners concerning the Patent Owner's arguments under 37 CFR § 1.131 for removal of Phillips `960, Chasen `721 and Balabanovic `229 as prior art. Specifically, the Patent Owner explained that the Egan Declaration and the Inventors Declaration present evidence supporting two alternative legal arguments. The first argument is that: (1) the inventors conceived the methods recited in claims 1-33 of the `433 Patent at least as early as Dec. 14, 1999; and (2) Mr. Egan and others reduced to practice the methods recited in claims 1-33 at least as early as Dec. 14, 1999. The second argument is that: (1) the Inventors conceived the methods

of claims 1-33 of the `433 Patent at least as early as Dec. 14, 1999; (2) the Inventors and others reduced to practice the methods of claims 1-33 at least as early as Jan. 4, 2000; and (3) the Inventors and others were diligent in reducing to practice the methods recited in claims 1-33 during the entire time period spanning from Dec. 14, 1999 and proceeding on a daily basis through Jan. 4, 2000.

A. Overview of Discussion re Winsky

During the interview claims 1, 2, 3, 5, and 7 were discussed in relation to the rejections over Winsky. It was noted that Winsky's teaching of an electronic reference machine whose objective was the identification of a single track title differed substantially from the goals of the inventions in the '433 patent in addressing problems in accessing and organizing the large number of songs in portable media players. These different objectives were noted to be important in interpreting the teachings of Winsky and thus assisting in identifying how Winsky is patentably distinct from the requirements of the claims. In discussing claim 1, the patent owner representatives discussed the electronic reference machine in Winsky and particularly how the reference doesn't describe its search function as a hierarchy, how its search function as applied to tracks doesn't behave as a hierarchy, and why its very limited access to only a single segment of a song at only a single level, a tracks level, doesn't suggest the flexibility of a hierarchy. These all point to Winsky neither teaching nor suggesting the specific relationships required by claim 1 as to the access using the three level hierarchy, the three display screens, and movement between them.

To clarify, the representatives discussed how the invention requires access according to a hierarchy. This distinction is important over the search filter of Winsky applied in sequential screens because use of the hierarchy recited in the claims enables flexibility that would not be present from a search filter/result technique of Winsky. Use of the hierarchy allows the flexibility of enabling, for example, the feature of claim 2 of accessing tracks from a selection at a second level of the hierarchy. This feature not only distinguishes claim 2 from Winsky but also highlights that the search filter/results technique of Winsky isn't a hierarchy access method and doesn't teach or suggest the hierarchy access limitations of claim 1 or the resulting advantages. These advantages were significant as demonstrated by the widespread commercial success in the

sales of portable players implementing the efficient techniques of the inventions of the '433 patent. Claim 7 was also discussed and the failure of Winsky to teach the sequence of screens recited, i.e., reverting back to the 2nd display screen after the 3rd, and Winsky's limitations as to access at the track level were also presented as distinguishing claim 7 from the teachings of Winsky and offered as further evidence that Winsky's search filter/results techniques were not accessing according to a hierarchy as required by claim 1.

B. Further Summary of Discussion re Winsky

During the interview, Patent Owner's representatives presented the backgrounds of the inventions of the `433 patent and the Winsky `451 patent. The Patent Owner explained that the goal of the `433 patent was to address problems associated with portable media players, including the fact that a user must select from and access a large number of songs using a small display screen, and the fact that users want to organize their music in a personalized way (*e.g.*, creating playlists). *See* `433 Patent, 1:36-2:11. Patent Owner's representatives explained that, in contrast with the `433 patent, Winsky `451 teaches a "reference machine" for researching information about songs. *See* Winsky `451, 1:5-10. The problem addressed by Winsky `451 is that users may remember only "a fragment of lyrics of a song, or ancillary information relating to the song ... without being able to recall ... the name of the song." *Id.*, 1:16-18. The goal of Winsky `451 was to "facilitate the identification of the song, as well as supply ancillary information pertaining to the song." *Id.*, 1:21-23. Patent Owner's representatives explained that Winsky `451 does not provide a device that is useful for listening to and enjoying music because it only teaches playing a segment of a song in order to identify the song. *Id.*, 3:43-4:26.

Patent Owner's representatives also reiterated the Patent Owner's arguments in response to the claim rejections under 35 U.S.C. §§ 102 and 103(a) as being anticipated by, or obvious over Winsky `451 in order to identify any points of disagreement by the Examiners. Patent Owner's representatives discussed the terms "selecting" and "accessed" in claim 1, and reiterated an argument – previously presented in the Response - that Winsky `451 does not teach "tracks accessed according to a hierarchy ... having a plurality of categories, subcategories, and items respectively in a first, second, and third level of the hierarchy," as recited in claim 1. *See* Response at pp. 10-31.

Patent Owner's representatives explained that the "hierarchy" based accessing method of claim 1 allows a user to access tracks on three "levels": (1) first level in which whole categories are accessed; (2) a second level in which whole sub-categories are accessed; and (3) a third level in which an individual track may be accessed. Patent Owner's representatives further explained that as the user makes selections, the method progresses from one screen to the next while traversing the three levels of the hierarchy in order access single tracks or groups of tracks.

Patent Owner's representatives explained that Winsky `451 does not teach "tracks accessed according to a hierarchy ... having ... a first, second, and third level" because Winsky `451 only teaches accessing musical segments on a single level; one segment at a time. *See* Winsky `451, Fig. 3, 5:29-58; 6:21-28. Patent Owner's representatives acknowledged that Winsky `451 teaches "selecting" icons on three "screens," but pointed out that the terms "selecting" and "access" have different meanings, and that the terms "level" and "screen" have different meanings. Patent Owner's representatives argued that while Winsky `451 teaches "selecting" icons on three "screens," it does not teach "tracks accessed according to a hierarchy ... having ... a first, second, and third level."

Patent Owner's representatives asserted that a person of ordinary skill in the art would not have had any reason to substitute "tracks accessed according to a hierarchy" in the system taught by Winsky `451 because the hierarchy-based access method would not facilitate Winsky's goal of identifying a song based on partial information. The Patent Owner's representatives indicated that this point is supported by the Foley Declaration.

The Patent Owner's representatives also reiterated arguments previously presented in the Response that Winsky `451 does not teach the limitations of claims 2 and 3 of the `433 patent. Patent Owner's representatives pointed out that Winsky `451 does not teach or suggest "selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory," as recited in claim 2 because it only teaches playing one "musical segment" at a time in order to facilitate identifying the song. *See* Winsky `451, 5:27-33, 6:21-27.

The Patent Owner's representatives reiterated arguments previously presented in the Response that Winsky `451 does not teach or suggest "accessing at least one track comprises selecting a subcategory and adding the tracks associated with the selected subcategory to a playlist," as recited in claim 3 because it only teaches playing one "musical segment" at a time, and because it does not teach or suggest a "playlist." *See* Winsky `451, 5:27-33, 6:21-27.

The Patent Owner's representatives reiterated arguments previously presented in the Response that Winsky `451 does not teach or suggest "selecting an item in the third display screen and adding at least one track associated with the selected item to a playlist," as recited in claim 5 because it does not teach or suggest a "playlist."

Patent Owner's representatives reiterated arguments previously presented in the Response that Winsky `451 does not teach "accessing at least one track is made ... by reverting back to one of the second and first display screens," as in claim 7 because this claim requires that tracks be accessed via "one of the second and first display screens" and Winsky `451 does not teach this feature because it only teaches accessing one "musical segment" at a time via a lowest level display screen showing a list of songs. *See* Winsky `451, 5:27-33, 6:21-27.

Finally, the Patent Owner's representatives briefly discussed the secondary indicia of non-obviousness presented in the McHugh Declaration, including the evidence showing that the inventions claimed in the `433 patent have enjoyed commercial success.

No agreement was reached between the Examiners and the Patent Owner's representatives.

IV. CONCLUSION

No fee is believed to be due with this submission. However, the Director is authorized to charge any additional required fees to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980).

Respectfully submitted,

Date: December 17, 2010

Justin F. Boyce, Partner
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

EXHIBIT A

Proposed Agenda For Requested Interview

Reexamination Control No. 95/001,274

I. Patentability of claims 1, 2, 4, 6-8, 12-16 under 35 U.S.C. § 102(b) over USPN 5,739,451 issued to Winsky et al. ("Winsky `451")

   A. Paragraphs 32-48 of the Declaration of James D. Foley, Ph.D. under 37 CFR § 1.132 in relation to novelty of claims 1, 2, 4, 6-8, 12-16 over Winsky `451

II. Patentability of claims 1-16 under 35 U.S.C. § 103(a) over Winsky `451

   A. Paragraphs 49-59 of the Declaration of James D. Foley, Ph.D. under 37 CFR § 1.132, in relation to non-obviousness of claims 1-16 over Winsky `451

   B. Declaration of Craig McHugh under 37 CFR § 1.132 in support of secondary indicia of non-obviousness of claims 1-16

III. The declarations submitted under 37 C.F.R § 131 to remove three of the four asserted prior art references:

   A. U.S. Patent Pub. No.2002/0045960 by Phillips ("Phillips `960");

   B. U.S. Patent No. 6,760,721 issued to Chasen et al. ("Chasen `721"); and

   C. U.S. Patent No. 6,976,229 issued to Balabanovic et al. ("Balabanovic `229").

Litigation Search Report CRU 3999

Reexam Control No. 95/001,274

To: Mary Steelman **Art Unit: 3992** **Date: 12/21/10** **Case Serial Number: 95/001,274**	**From: Karen L. Ward** **Location: CRU 3999** **Mdw 7C76** **Phone: (571) 272-7932** **Karen.Ward@uspto.gov**

Search Notes

Litigation was found involving U.S. Patent No. 6,928,433.

3:06CV3218 – NO
4:06CV3218 – YES

1) I performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.

2) I performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.

3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.

4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.

5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

Westlaw.

Date of Printing: Dec 21, 2010

KEYCITE

C US PAT 6928433 AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA, Assignee: Creative Technology LTD (Aug 09, 2005)

History

Direct History

=> 1 **AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA,** US PAT 6928433, 2005 WL 1914838 (U.S. PTO Utility Aug 09, 2005) (NO. 09/755723)

Patent Family

2 AUDIO TRACK FILING METHOD IN PORTABLE DIGITAL MUSIC PLAYER, INVOLVES DETERMINING APPROPRIATE LOCATION TO FILE AUDIO TRACK BY READING HIERARCHICAL TREE STRUCTURED FILE BASED ON TRACK METADATA, Derwent World Patents Legal 2003-110747

Assignments

3 Action: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). Number of Pages: 004, (DATE RECORDED: Apr 23, 2001)

Patent Status Files

.. Request for Re-Examination, (OG DATE: Mar 16, 2010)

.. Certificate of Correction, (OG DATE: Jun 06, 2006)

.. Patent Suit(See LitAlert Entries),

Docket Summaries

7 "CREATIVE TECHNOLOGY LTD. v. APPLE COMPUTER, INC.", (N.D.CAL. May 15, 2006) (NO. 3:06CV03218), (35 USC 271 PATENT INFRINGEMENT)

Litigation Alert

8 Derwent LitAlert P2006-51-06 (May 15, 2006) Action Taken: Stipulated dismissal - Plaintiff Creative Technology Ldt and Defendant Apple Computer Inc hereby stipulate to the dismissal with prejudice

Prior Art (Coverage Begins 1976)

H 9 DATA PROTOCOL AND METHOD FOR SEGMENTING MEMORY FOR A MUSIC CHIP, US PAT 5670730Assignee: Lucent Technologies Inc., (U.S. PTO Utility 1997)

C 10 MULTIMEDIA CONTENT DELIVERY SYSTEM AND METHOD, US PAT 6248946Assignee: iJockey, Inc., (U.S. PTO Utility 2001)

H 11 MUSIC ORGANIZER AND ENTERTAINMENT CENTER, US PAT 5969283Assignee: Looney Productions, LLC, (U.S. PTO Utility 1999)

C 12 PERFORMANCE SETTING DATA SELECTING APPARATUS, US PAT 5918303Assignee: Yamaha Corporation, (U.S. PTO Utility 1999)

C 13 SING-ALONG DATA TRANSMITTING METHOD AND A SING-ALONG DATA TRANSMITTING/RECEIVING SYSTEM, US PAT 6062868Assignee: Pioneer Electronic Corporation, (U.S. PTO Utility 2000)

C 14 SYSTEM AND METHOD FOR PLAYING COMPRESSED AUDIO DATA, US PAT 6377530Assignee: Compaq Computer Corporation, (U.S. PTO Utility 2002)

C 15 SYSTEM AND METHODS FOR SELECTING MUSIC ON THE BASIS OF SUBJECTIVE CONTENT, US PAT 5616876Assignee: Microsoft Corporation, (U.S. PTO Utility 1997)

C 16 SYSTEM FOR MANAGING POWER IN A PORTABLE MUSIC PLAYER, US PAT 6590730Assignee: Creative Technology Ltd., (U.S. PTO Utility 2003)

C 17 SYSTEM FOR MANAGING POWER IN A PORTABLE MUSIC PLAYER, US PAT APP 20020089774 (U.S. PTO Application 2002)

US District Court Civil Docket

U.S. District - California Northern
(San Francisco)

3:06cv3218

Creative Technology Ltd v. Apple Computer, Inc

This case was retrieved from the court on Monday, May 22, 2006

Date Filed: 05/15/2006
Assigned To: Honorable Bernard Zimmerman
Referred To:
Nature of suit: Patent (830)
Cause: Patent Infringement
Lead Docket: None
Other Docket: None
Jurisdiction: Federal Question

Class Code: ADRMOP, AO279, E-Filing
Closed: No
Statute: 35:271
Jury Demand: Both
Demand Amount: $0
NOS Description: Patent

Litigants

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Plaintiff

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Apple Computer, Inc A California Corporation
Defendant

Date	#	Proceeding Text
05/15/2006	1	COMPLAINT for Patent Infringement & Demand for Jury Trial - [Summons Issued] against Apple Computer, Inc., [Filing Fee: $350.00, Receipt Number 5514559]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)
05/15/2006	--	SUMMONS Issued as to Apple Computer, Inc.. (tn, COURT STAFF) (Entered: 05/16/2006)
05/15/2006	2	ADR SCHEDULING ORDER: Case Management Statement due 8/7/2006 & Initial Case Management Conference set for 8/14/2006 at 4:00 P.M.. (Attachments: #(1) Standing Order). (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)
05/15/2006	3	DISCLOSURE STATEMENT Pursuant to Fed.R.Civ.P.7.1 Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)
05/15/2006	4	REPORT on the filing or determination of an Action Regarding Patent Infringement. (cc: form mailed to register). (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/16/2006 (tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	--	CASE DESIGNATED for Electronic Filing. (tn, COURT STAFF) (Entered: 05/16/2006)
05/17/2006	5	Defendant Apple Computer, Inc.'s ANSWER to Complaint with Jury Demand byApple Computer, Inc.. (Lamison, Eric) (Filed on 5/17/2006) (Entered: 05/17/2006)

US District Court Civil Docket

U.S. District - California Northern (Oakland)

4:06cv3218

Creative Technology Ltd v. Apple Computer, Inc

This case was retrieved from the court on Thursday, June 24, 2010

Date Filed:	**05/15/2006**	**Class Code:**	**CLOSED**
Assigned To:	**Honorable Saundra Brown Armstrong**	**Closed:**	**Yes**
Referred To:		**Statute:**	**35:271**
Nature of suit:	**Patent (830)**	**Jury Demand:**	**Both**
Cause:	**Patent Infringement**	**Demand Amount:**	**$0**
Lead Docket:	**None**	**NOS Description:**	**Patent**
Other Docket:	**None**		
Jurisdiction:	**Federal Question**		

Litigants

Creative Technology Ltd A Singapore Corporation
Plaintiff

Attorneys

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Date	#	Proceeding Text
05/15/2006	1	COMPLAINT for Patent Infringement & Demand for Jury Trial - [Summons Issued] against Apple Computer, Inc., [Filing Fee: $350.00, Receipt Number 5514559]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/22/2006 (tn, COURT STAFF). Additional attachment(s) added on 5/22/2006 (tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	--	SUMMONS Issued as to Apple Computer, Inc.. (tn, COURT STAFF) (Entered: 05/16/2006)
05/15/2006	2	ADR SCHEDULING ORDER: Case Management Statement due 8/7/2006 & Initial Case Management Conference set for 8/14/2006 at 4:00 P.M.. (Attachments: #(1) Standing Order). (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)
05/15/2006	3	DISCLOSURE STATEMENT Pursuant to Fed.R.Civ.P.7.1 Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/22/2006

		(tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	4	REPORT on the filing or determination of an Action Regarding Patent Infringement. (cc: form mailed to register). (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/16/2006 (tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	--	CASE DESIGNATED for Electronic Filing. (tn, COURT STAFF) (Entered: 05/16/2006)
05/17/2006	5	Defendant Apple Computer, Inc.'s ANSWER to Complaint with Jury Demand byApple Computer, Inc.. (Lamison, Eric) (Filed on 5/17/2006) (Entered: 05/17/2006)
05/19/2006	6	APPLICATION of Attorney Stephen K. Shahida for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385810]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 6 Application for Admission of Attorney Stephen K. Shahida Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/19/2006	7	APPLICATION of Attorney John R. Fuisz for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385807]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 7 Application for Admission of Attorney John R. Fuisz Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/19/2006	8	APPLICATION of Attorney Mark G. Davis for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385808]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 8 Application for Admission of Attorney Mark G. Davis Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/22/2006	9	Declination to Proceed Before a U.S. Magistrate Judge by Creative Technology Ltd. And Request for Reassignment to a United States District Judge . (Koh, Lucy) (Filed on 5/22/2006) (Entered: 05/22/2006)
05/22/2006	10	CERTIFICATE OF SERVICE by Creative Technology Ltd. re 9 Declination to Proceed Before a U.S. Magistrate Judge (Koh, Lucy) (Filed on 5/22/2006) (Entered: 05/22/2006)
05/23/2006	11	CLERK'S NOTICE of Impending Reassignment to U.S. District Judge (ls, COURT STAFF) (Filed on 5/23/2006) (Entered: 05/23/2006)
05/23/2006	12	ORDER REASSIGNING CASE. Case reassigned to Judge Saundra Brown Armstrong for all further proceedings. Judge Bernard Zimmerman no longer assigned to the case. Signed by Executive Committee on 5/23/06. (ha, COURT STAFF) (Filed on 5/23/2006) (Entered: 05/23/2006)
05/31/2006	13	CASE MANAGEMENT SCHEDULING ORDER FOR REASSIGNED CIVIL CASES: Case Management Conference set for 9/7/2006 03:45 PM. via telephone. Signed by Judge Armstrong on 5/31/06. (lrc, COURT STAFF) (Filed on 5/31/2006) Modified on 6/1/2006 (jlm, COURT STAFF). (Entered: 05/31/2006)
06/01/2006	14	CERTIFICATE OF SERVICE by Creative Technology Ltd. re 13 Case Management Scheduling Order (Koh, Lucy) (Filed on 6/1/2006) (Entered: 06/01/2006)
06/01/2006	15	ORDER by Judge Saundra Brown Armstrong GRANTING 6 Motion for Pro Hac Vice (Stephen K. Shahida) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/01/2006	16	ORDER by Judge Saundra Brown Armstrong GRANTING 7 Motion for Pro Hac Vice (John R. Fuisz) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/01/2006	17	ORDER by Judge Saundra Brown Armstrong GRANTING 8 Motion for Pro Hac Vice (Mark G. Davis) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/02/2006	18	SUMMONS Returned Executed by Creative Technology Ltd.. Apple Computer, Inc. served on 5/15/2006, answer due 6/5/2006. (Koh, Lucy) (Filed on 6/2/2006) (Entered: 06/02/2006)
06/05/2006	19	CERTIFICATE OF SERVICE by Apple Computer, Inc. re 5 Answer to Complaint (Lamison, Eric) (Filed on 6/5/2006) (Entered: 06/05/2006)
06/19/2006	20	MOTION to Stay filed by Apple Computer, Inc.. Motion Hearing set for 7/25/2006 01:00 PM in Courtroom 3, 3rd Floor, Oakland. (Higgins, Zachariah) (Filed on 6/19/2006) (Entered:

		06/19/2006)
06/19/2006	21	Declaration of Zachariah A. Higgins in Support of 20 MOTION to Stay filed byApple Computer, Inc.. (Attachments: # 1 Exhibit A# 2 Exhibit B)(Related document(s) 20) (Higgins, Zachariah) (Filed on 6/19/2006) (Entered: 06/19/2006)
06/19/2006	22	Proposed Order re 20 MOTION to Stay by Apple Computer, Inc.. (Higgins, Zachariah) (Filed on 6/19/2006) (Entered: 06/19/2006)
06/26/2006	23	STIPULATION and [Proposed] Order to Stay Action by Apple Computer, Inc.. (Arnold, Brian) (Filed on 6/26/2006) (Entered: 06/26/2006)
07/10/2006	24	ORDER by Judge Armstrong granting 20 Motion to Stay (lrc, COURT STAFF) (Filed on 7/10/2006) (Entered: 07/10/2006)
08/29/2006	25	STIPULATION of Dismissal by Creative Technology Ltd.. (Koh, Lucy) (Filed on 8/29/2006) (Entered: 08/29/2006)
08/29/2006	--	REPORT on the determination of an action regarding PATENT INFRINGEMENT (cc: form mailed to register). (jlm, COURT STAFF) (Filed on 8/29/2006) (Entered: 08/30/2006)

Source: **Command Searching > Utility, Design and Plant Patents**
Terms: **6928433** (Edit Search | Suggest Terms for My Search)

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1. 7846025, December 7, 2010, Method and apparatus for managing data in a gaming system, Whitten, Jon Marcus Randall, Sammamish, WASHINGTON, United States of America(US), United States of America(US); Pirich, Christopher M., Seattle, WASHINGTON, United States of America(US), United States of America(US); 082452, Microsoft Corporation, Redmond, WASHINGTON, United States of America (US), United States company or corporation

   CORE TERMS: game, region, gaming, saved, user, disk drive, console, memory, stored, storage, controller, nickname, subdirectory, interface, video, media, network, bus, portable, audio, processing, online, save, drive, bsol, disc, orb, storage space, storing, button

   ... April 5, 2005, Okamoto, United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

2. 7827259, November 2, 2010, Method and system for configurable automatic media selection, Heller, David, San Jose, CALIFORNIA , United States of America(US), United States of America(US); Robbin, Jeffrey L., Los Altos, CALIFORNIA , United States of America(US), United States of America(US); 833399, April 27, 2004, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., APPLE COMPUTER, INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:015276/0649; March 6, 2008, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:020617/0085, Apple Inc., Cupertino, CALIFORNIA , United States of America(US), United States company or corporation

   CORE TERMS: media, played, user, player, computer, song, presentation, criterion, automatic, upcoming, display, playlist, module, interface, host, graphical, audio, displayed, random, window, presenting, utilized, computer program, selecting, readable, track, playing, rating, automatically, pertaining

   ... 2005, Abram et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

3. 7818568, October 19, 2010, Multiple user authentication for online console-based gaming, Multerer, Boyd C., Seattle, WASHINGTON, United States of America(US), United States of America(US); Chen, Ling Tony, Bellevue, WASHINGTON, United States of America(US), United States of America(US); Anderson, Darren L., Bellevue, WASHINGTON, United States of America(US), United States of America (US); 290023, January 7, 2010, ASSIGNMENT OF ASSIGNORS INTEREST (SEE

DOCUMENT FOR DETAILS)., MICROSOFT CORPORATION, ONE MICROSOFT WAY, REDMOND, WASHINGTON, UNITED STATES OF AMERICA(US), 98052-6399, reel-frame:023747/0298, Microsoft Corporation, Redmond, WASHINGTON, United States of America(US), United States company or corporation

CORE TERMS: game, console, online, authentication, gaming, user, ticket, network, controller, server, memory, in-line-formulae, session, reply, bus, entity, disk drive, message, media, portable, video, multi-user, processing, storage, audio, protocol, database, player, manufacturing, encrypted

... April 5, 2005, Okamoto, United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 4. 7818350, October 19, 2010, System and method for creating a collaborative playlist, New, Matthew David, Irvine, CALIFORNIA , United States of America(US), United States of America(US); Baird, Daniel Davidson, Carlsbad, CALIFORNIA , United States of America(US), United States of America(US); 249802, October 12, 2005, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., YAHOO! INC., 701 FIRST AVENUE, SUNNYVALE, CALIFORNIA, UNITED STATES OF AMERICA(US), 94089, reel-frame:017091/0309, Yahoo! Inc., Sunnyvale, CALIFORNIA , United States of America(US), United States company or corporation

CORE TERMS: user, media, playlist, identifier, collaborative, computing, pane, interface, messaging, menu, drop down, button, box, displaying, displayed, exemplary, workspace, artist, depicted, select, input, conversation, display, server, selecting, software, song, real-time, database, streaming

... 2005, Crow et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 5. 7811174, October 12, 2010, Method and apparatus for managing data in a gaming system, Whitten, Jon Marcus Randall, Sammamish, WASHINGTON, United States of America(US), United States of America(US); Pirich, Christopher M., Seattle, WASHINGTON, United States of America(US), United States of America(US); 082457, Microsoft Corporation, Redmond, WASHINGTON, United States of America (US), United States company or corporation

CORE TERMS: game, region, gaming, saved, user, disk drive, console, memory, stored, storage, controller, nickname, subdirectory, interface, video, media, network, bus, portable, audio, processing, online, save, drive, disc, bsol, orb, storage space, storing, button

... April 5, 2005, Okamoto, United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 6. 7797446, September 14, 2010, Method and system for updating playlists, Heller, David, San Jose, CALIFORNIA , United States of America(US), United States of America(US); Robbin, Jeffrey L., Los Altos, CALIFORNIA , United States of America (US), United States of America(US); 198639, November 13, 2002, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., APPLE COMPUTER, INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA (US), 95014, reel-frame:013481/0668; March 6, 2008, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:020617/0085, Apple Inc., Cupertino, CALIFORNIA , United States of America(US), United States company or corporation

CORE TERMS: media, playlist, track, player, user, dynamic, update, message, interface, processing, computer, updated, module, personal computer, filter, database, flag, audio, updating, host, processed, deleted, idle, graphical, stored, box, automatically, manager, screen, peripheral

... 2005, Abram et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 7. 7769903, August 3, 2010, Intelligent interaction between media player and host computer, Robbin, Jeffrey L., Los Altos, CALIFORNIA , United States of America (US), United States of America(US); Heller, David, San Jose, CALIFORNIA , United States of America(US), United States of America(US); 757204, Apple Inc., Cupertino, CALIFORNIA , United States of America(US), United States company or corporation

CORE TERMS: media, player, computer, host, synchronization, processing, user, stored, personal computer, playlist, module, database, bus, portable, identifier, manager, played, equalization, residing, peripheral, pertain, display, automatic, interact, storage, audio, interaction, interface, manage, cable

... 2005, Whitledge et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 8. 7765401, July 27, 2010, Multiple user authentication for online console-based gaming, Multerer, Boyd C., Seattle, WASHINGTON, United States of America(US), United States of America(US); Chen, Ling Tony, Bellevue, WASHINGTON, United States of America(US), United States of America(US); Anderson, Darren L., Bellevue, WASHINGTON, United States of America(US), United States of America (US); 290022, January 7, 2010, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., MICROSOFT CORPORATION, ONE MICROSOFT WAY, REDMOND, WASHINGTON, UNITED STATES OF AMERICA(US), 98052-6399, reel-frame:023747/0702, Microsoft Corporation, Redmond, WASHINGTON, United States of America(US), United States company or corporation

CORE TERMS: game, console, sub, online, authentication, gaming, user, ticket, network, controller, server, memory, in-line-formulae, session, reply, bus, entity, disk drive, message, media, portable, video, multi-user, processing, storage, audio, protocol, database, player, manufacturing

... April 5, 2005, Okamoto, United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 9. 7765326, July 27, 2010, Intelligent interaction between media player and host computer, Robbin, Jeffrey L., Los Altos, CALIFORNIA , United States of America (US), United States of America(US); Heller, David, San Jose, CALIFORNIA , United States of America(US), United States of America(US); 277418, October 21, 2002, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., APPLE COMPUTER, INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:013413/0368; March 13, 2007, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:019000/0383; September 21, 2007, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:019863/0272, Apple Inc., Cupertino, CALIFORNIA , United States of America(US), United States company or corporation

CORE TERMS: media, player, computer, host, synchronization, processing, user,

stored, personal computer, playlist, module, bus, database, portable, identifier, manager, played, equalization, residing, cable, peripheral, pertain, display, automatic, interact, storage, audio, synchronized, interface, storing

... 2005, Whitledge et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

☐ 10. 7747620, June 29, 2010, Method and system for generating affinity based playlists, Beaupre, Todd, Los Angeles, CALIFORNIA , United States of America(US), United States of America(US); 365460, February 28, 2006, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., YAHOO! INC., 701 FIRST AVENUE, SUNNYVALE, CALIFORNIA, UNITED STATES OF AMERICA(US), 94089, reel-frame:017614/0857, Yahoo! Inc., Sunnyvale, CALIFORNIA , United States of America(US), United States company or corporation

CORE TERMS: user, media, song, artist, playlist, engine, album, processor, pane, music, server, rating, network, collection, affinity, database, interface, genre, displayed, stored, button, messaging, clicking, score, display, drop-down, menu, rated, click, additionally

... 2005, Crow et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United ...

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1. Briefing.com, June 14, 2006 Wednesday 11:01 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 23:01 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com, common stock

   ... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

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3. Briefing.com, June 14, 2006 Wednesday 11:01 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 23:01 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com, common stock

   ... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

4. Briefing.com, June 14, 2006 Wednesday 6:00 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 18:00 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com, common stock

   ... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

5. Briefing.com, June 14, 2006 Wednesday 5:00 PM Eastern Time, , 12169 words, Briefing.com: Hourly In Play (R) - 17:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, phase, patent, bln, filing, CPI, positive, Bloomberg, guidance, closing, fair value, EPS, clinical, awarded, approx, 10-K, per share, stock option, Fisher, definitive, estimate, assays, hike, com, Tribune, Parlux, Lekach

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

6. Briefing.com, June 14, 2006 Wednesday 4:00 PM Eastern Time, , 11602 words, Briefing.com: Hourly In Play (R) - 16:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, phase, patent, bln, filing, CPI, Bloomberg, closing, fair value, EPS, clinical, awarded, 10-K, approx, stock option, Fisher, positive, estimate, assays, hike, com, per share, Tribune, extension, delay, euro, core

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

7. Briefing.com, June 14, 2006 Wednesday 3:05 PM Eastern Time; , 10978 words, Briefing.com: Hourly In Play (R) - 15:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, phase, patent, bln, filing, Bloomberg, CPI, closing, fair value, EPS, awarded, 10-K, approx, stock option, Fisher, estimate, assays, com, per share, Tribune, delay, hike, core, yoy, market share, clinical trials, chief financial officer

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

8. Briefing.com, June 14, 2006 Wednesday 2:00 PM Eastern Time, , 10590 words, Briefing.com: Hourly In Play (R) - 14:00 ET

CORE TERMS: mln, consensus, phase, patent, bln, Fed, BONDX, filing, fair value, EPS, CPI, closing, awarded, 10-K, approx, stock option, Bloomberg, estimate, assays, com, per share, Tribune, delay, yoy, market share, chief financial officer, common stock, last year, clinical trials, NanoPolaris

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

9. Briefing.com, June 14, 2006 Wednesday 1:00 PM Eastern Time, , 9910 words, Briefing.com: Hourly In Play (R) - 13:00 ET

CORE TERMS: mln, phase, bln, filing, patent, fair value, closing, awarded, 10-K, consensus, approx, stock option, EPS, com, per share, Tribune, Fed, BONDX, CPI, delay, yoy, chief financial officer, market share, common stock, last year, clinical trials, NanoPolaris, Parlux, Lekach, PARL

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

10. Briefing.com, June 14, 2006 Wednesday 12:00 PM Eastern Time, , 9489 words, Briefing.com: Hourly In Play (R) - 12:00 ET

CORE TERMS: mln, phase, bln, filing, patent, fair value, closing, awarded, 10-K, consensus, approx, stock option, EPS, com, per share, Tribune, Fed, CPI, delay, yoy, market share, common stock, last year, chief financial officer, clinical trials, NanoPolaris, Parlux, Lekach, PARL, definitive

... Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN ...

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,274	12/01/2009	6928433	016788-000-0004	6990

37509 7590 12/23/2010

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

EXAMINER	
STEELMAN, MARY J	
ART UNIT	**PAPER NUMBER**
3992	

MAIL DATE	DELIVERY MODE
12/23/2010	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.

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:
MAILED

DEC 23 2010

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

ACTION CLOSING PROSECUTION (37 CFR 1.949)	Control No.	Patent Under Reexamination	
	95/001,274	6928433	
	Examiner	Art Unit	
	MARY STEELMAN	3992	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on 17 December 2010
Third Party(ies) on _____

Patent owner may once file a submission under 37 CFR 1.951(a) within 1 month(s) from the mailing date of this Office action. Where a submission is filed, third party requester may file responsive comments under 37 CFR 1.951(b) within 30-days (not extendable- 35 U.S.C. § 314(b)(2)) from the date of service of the initial submission on the requester. **Appeal cannot be taken from this action.** Appeal can only be taken from a Right of Appeal Notice under 37 CFR 1.953.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

PART I. THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892
2. ☒ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

PART II. SUMMARY OF ACTION:

1a. ☒ Claims 1-33 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been canceled.
3. ☐ Claims _____ are confirmed. [Unamended patent claims]
4. ☐ Claims _____ are patentable. [Amended or new claims]
5. ☒ Claims 1,2,4, 6-20, 27 are rejected.
6. ☒ Claims 3,5,21-26 and 28-33 are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable ☐ are not acceptable.
8 ☐ The drawing correction request filed on _____ is: ☐ approved. ☐ disapproved.
9 ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d). The certified copy has: ☐ been received. ☐ not been received. ☐ been filed in Application/Control No _____
10. ☐ Other _____

INTER PARTES REEXAMINATION COMMUNICATION	Control No.	Patent Under Reexamination	
	95/001,274	6928433	
	Examiner	Art Unit	
	MARY STEELMAN	3992	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS ACTION IS SET TO EXPIRE ☒ 1 MONTH(S) ☐ THIRTY DAYS FROM THE MAILING DATE OF THIS LETTER. EXTENSIONS OF TIME FOR PATENT OWNER ARE GOVERNED BY 37 CFR 1.956.

Each time the patent owner responds to this Office action, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

Transmittal of Communication to Third Party Requester Inter Partes Reexamination	Control No.	Patent Under Reexamination	
	95/001,274	6928433	
	Examiner	Art Unit	
	MARY STEELMAN	3992	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

***INTER PARTES* REEXAMINATION OF USPN 6,304,975 to Shipley.**

ACTION CLOSING PROSECUTION (ACP)

This office action addresses reexamination of claims 1-16 of USPN 6,928,233 B2 to Goodman et al. Per Non Final Office Action mailed 03/29/2010, claims 1-16 are rejected. Per Patent Owner's request (06/01/2010) new claims 17-33 are added.

A "Notice of Withdrawal of Third Party Requester" was received 07/01/2010. An interview to discuss the merits of the case was granted (09/29/2010) by the Office of Patent Legal Administration. The interview between Patent Owner and USPTO was conducted on 11/17/2010. Patent Owner Interview Summary was received 12/17/2010.

Summary of Inter Partes Reexamination Prosecution

A Request for *Inter Partes* reexamination of claims 1-16 of USPN 6, 928,433 B2 to Goodman et al. was received 12/01/2009. Reexamination control number 95/001274 was assigned. An Order for Reexamination (02/26/2010) and a first Non Final Office Action (03/29/2010) rejecting all claims under reexamination has been issued. This Action Closing Prosecution Office Action fully responds to documents received 06/01/2010: Patent Owner Response, 37 CFR 1.132 Declaration of James D. Foley, 37 CFR 1.132 Declaration of Craig McHugh, 37 CFR 1.131 Declaration of Howard N. Egan, and 37 CFR 1.131 Declaration of Inventors, Ron Goodman, Howard N. Egan, and David Bristow.

Declarations Under 37 CFR 1.132 and 37 CFR 1.131 entered into the record:

37 CFR 1.132 Declaration of James D. Foley

The Declaration of James D. Foley states (paragraph 1) there is no personal or financial stake or interest in the outcome of the above referenced reexamination. Dr. Foley opines (paragraph14-16) that a person of ordinary skill in the art in 1999 would have at least a Bachelor of Science degree in computer science with 2-3 years of experience in the design and implementation of user interfaces for hand held portable electronic devices.

Examiner gives weight to the credentials presented for Dr. Foley and generally agrees with Dr. Foley's assessment of a person of ordinary skill in the art (paragraphs 13-16), at the time of the invention, with respect to the claimed scope of the invention. The arguments presented by the Foley Declaration will be addressed below in combination with Examiner's response to Patent Owner's arguments.

37 CFR 1.132 Declaration of Craig McHugh

The Declaration of Craig McHugh, noting that Craig McHugh is the president and chief operating officer of Creative Labs, Inc. shows a vested interest in the outcome of the reexamination. Compensation is not shown.

The Declaration asserts (paragraphs 5-6) that the '433 patent (the Zen Patent) imparted easy to use navigational qualities that had not been present in other portable media players. The McHugh Declaration attests to (paragraphs 5-6) the use of the claimed invention in Creative's NOMAD and Zen portable media players. "These inventions were an essential element to the efficient accessing of tracks on high capacity portable media players; they enabled the development, release, and commercial sales success of the Creative NOMAD® and Zen portable

media players as well as the commercial success of portable media players made by Creative's competitors subsequent to the release of the Nomad Jukebox." The Declaration attests to the commercial success, citing Exhibits E (navigate/customize portable music collections, add to playlists) & G (100,000 units of NOMAD Jukebox portable media players shipped).

Mr. McHugh claims (paragraphs 9-35) the commercial success is attributed to the advantages provided by the invention as claimed in the '433 patent for purposes of allowing a user to efficiently and intuitively organize and access a large number of songs stored on a high capacity portable media player, which has a small display screen and limited controls. The Declaration asserts the success of Apple's iPod devices is due to the invention described in the '433 patent. The McHugh Declaration attaches Exhibits A-W & Exhibits 9 and 10 in support of the claimed of commercial success.

Exhibits A-W (paragraphs 8-22) provide press releases, awards, copies of court documents, and articles related to competitors that use the user interface methods of the '433 patent. The Exhibits also include articles related to Creative's successive product developments that continue to use the methods of the '433 patent.

Examiner notes that weight given in a Declaration may be established by a convincing nexus of commercial success, establishing the technical qualifications of the affiant, and of a showing that the claimed scope is commensurate with the secondary evidence. Examiner is persuaded that the Declaration of Craig McHugh fairly establishes technical qualifications of Craig McHugh.

The declaration attests that the invention has been licensed to Apple (Exhibit Q) and has been used in the iPod products. The $100,000,000 licensing fee paid by Apple to Creative is

considered to be an implied legal success, not contributing a nexus to a commercial success. It is noted that Exhibit 9 notes products that practice one or more of the asserted claims and Exhibit 10 maps claims 1 & 5 to features of the Zen Vision:M portable player. Gross sales figures do not show commercial success absent evidence as to market share. Evidence of commercial success is only relevant if it can be shown that the commercial success resulted from the innovative aspect of the invention rather than from marketing efforts or from other features that are not a part of the claimed invention. Evidence of secondary considerations, such as unexpected results or commercial success, is irrelevant to 35 U.S.C. 102 rejections and thus cannot overcome a rejection so based. *In re Wiggins*, 488 F.2d 538, 543, 179 USPQ 421, 425 (CCPA 1973). Rejections applying USPN 5,739,451 to Winsky et al. are not withdrawn based on this evidence. Examiner is not persuaded of commercial success in the market due to claimed limitations.

37 CFR 1.131 Declaration of Howard N. Egan

The Howard N. Egan Declaration attests to the fact that he is a current employee of Creative Advanced Technology Center, a wholly owned subsidiary of Creative Technology Ltd. Mr. Egan asserts (paragraphs 3-8) that he was asked to provide evidence and testimony concerning the conception and reduction to practice of the claimed invention.

37 CFR 1.131 Declaration of Inventors, Ron Goodman, Howard N. Egan, and David Bristow

The Inventors declaration is in support of the claimed date of invention of the subject matter of original claims 1-16 and new claims 17-33. Per paragraph 8, "Mr. Goodman and Mr. Bristow have personal knowledge of some, but not all, of the facts set forth in the Egan Declaration because Mr. Goodman and Mr. Bristow were not as directly involved in Howard Egan's reduction to practice of the invention..."

Information Disclosure Statement

IDS forms received 06/01/2010 and 09/28/2010 have been entered into the record.

"With respect to the **Information Disclosure Statements** (PTO/SB/08A and 08B or its equivalent) considered with this action, the information cited has been considered as described in the MPEP. Note that MPEP 2256 and 2656 indicate that degree of consideration to be given to such information will be normally limited by the degree to which the party filing the information citation has explained the content and relevance of the information. Information that does not appear to be "patents or printed publications" as identified in 35 U.S.C. 301 have been considered to the same extent (unless otherwise noted), but have been lined through and will not be printed on any resulting reexamination certificate." Court proceedings and Office Actions have been considered. However, the citations do not meet the requirements of 37 CFR 1.98 and have been lined through. A Patent Publication Number has been lined through as it appears to be incorrect.

A concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, of each patent,

publication, or other information listed that is not in the English language. The concise explanation may be either separate from applicant's specification or incorporated therein.

It is also noted that the IDS is filed more than seven months after the date of the order for reexamination. 37 CFR 1.555(a) states, in part: Any information disclosure statement must be filed with the items listed in § 1.98(a) as applied to individuals associated with the patent owner in a reexamination proceeding, and should be filed within two months of the date of the order for reexamination, or as soon thereafter as possible. It is unclear how, why, or if, the information is being filed "as soon thereafter as possible".

References Cited in this Reexamination

USPN 5,739,451 to Winsky et al (hereinafter Winsky '451) (file date 12/27/1996, issue date 04/14/1998)

USPN 6,760,721 B 1 to Chasen et al. (hereinafter Chasen ' 721) (file date 04/14/2000, issue date 07/06/2004)

USPN 6,976,229 B 1 to Balabanovic et al. (hereinafter Balabanovic '229) (file date 12/16/1999, issue date 12/13/2005)

US Patent Application Publication 2002/0045960 A1 to Phillips et al. (hereinafter Phillips '960) (file date 10/10/2001, provisional application 60/240766 filed 10/13/2000, publication date 04/18/2002)

Discussion related to Conception, Reduction to Practice, and Diligence and Antedating Prior Art References

Patent Owner has presented evidence to antedate US Patent Publication 2002/0045960 to Phillips (priority date of October 13, 2000), USPN 6,760,721 to Chasen et al (priority date of April 14, 2000) and USPN 6,976,229 to Balabanovic et al. (priority date of December 16, 1999). Patent Owner has presented a **Declaration of Howard N. Egan** Under 37 CFR § 1.131 (the "Egan Declaration", including Exhibits A – QQ) and a **Declaration of Inventors** Under 37 CFR § 1.131 (the "Inventors Declaration", including Exhibits U, V, W, Y, RR), signed by all three Inventors. Presented evidence supporting an alleged December 14, 1999 date of conception includes copies of source code files, engineering diagrams, schematics and other documents bearing dates of Dec. 14, 1999 or earlier. *See* Egan Declaration, ¶¶ 1-31, Exhs. A through T; *see also* Inventors Declaration, ¶¶ 22-24, Exh. RR. In addition, the Egan Declaration presents a table mapping the Dec. 14, 1999 source code as implemented by each and every element of claims 1-33, and also explaining how the source code was designed as firmware for use on a portable media player having a hard disk storage, an LCD display, and control buttons. See Egan Decl. pp. 8-25 citing Exhs. A through T.

Patent Owner has presented evidence in support of an alleged December 14, 1999 date of reduction to practice: copies of source code files, lab notebooks, engineering diagrams, schematics and other documents bearing dates of Dec. 14, 1999 or earlier. *See, e.g.,* Egan Declaration, ¶¶ 1-48, Exhs. A through W. **Patent Owner** and the **Egan Declaration** (¶¶ 32-48) assert that Mr. Egan tested the Dec. 14, 1999 source code - which implemented all of claims 1-

33. **Patent Owner** asserts (Patent Owner Response 06/01/2010, p. 9) that Mr. Egan's testing of the portable media player prototypes on or before Dec. 14, 1999 was sufficient to establish an actual reduction to practice by Dec. 14, 1999 because the testing showed the invention worked for its intended purpose, as the inventions were implemented as software, and a person of ordinary skill in the art would understand that testing software in an emulation system is an adequate method for testing software, *Id.*, ¶¶ 32-48. (Exhs. V and W) **Patent Owner** notes that the firmware testing including connections to test equipment that assisted certain operations of the portable media player, *Id.*, ¶¶ 32-48; Exh. U.

The intended purpose of the inventions recited in claims 1-33 of the '433 Patent was to provide a graphical user interface on a small screen of a portable media player to allow the user to select tracks stored in a computer-readable medium. *See* Foley Decl. ¶ 31. Given this intended purpose, it was not necessary that the portable media player prototypes be disconnected from the test equipment in order for Mr. Egan to conclude that the user interface would work for its intended purpose. *Scott,* 34 F.3d at 1061. *See* Egan Declaration, ¶¶ 32-48.

Alternately, **Patent Owner** asserts (p. 10) that Mr. Egan (and others who worked at the direction of the Inventors) reduced to practice the inventions recited in claims 1-33 at least as early as Jan. 4, 2000. *See* Egan Declaration, ¶¶ 46-63; *see also* Inventors Declaration, ¶¶ 27-31. Beginning on Jan. 5, 2000, the Patent Owner publicly demonstrated the operation of the Nomad® Jukebox portable media player at the Consumer Electronics Show 2000 ("CES 2000"). *See* Egan Declaration, ¶¶ 57-63; *see also* Inventors Declaration, ¶¶ 28-31. These devices were tested on or before Jan. 4, 2000, and they were determined to work for the intended purpose of the invention. *See* Egan Declaration, ¶¶ 57-63; *see also* Inventors Declaration, ¶¶ 27-31. Mr.

Egan and others who worked at the direction of the Inventors were diligent in efforts to reduce to practice the inventions of claims 1-33 starting on Dec. 14, 1999 and proceeding on a daily basis up until the time of the actual reduction to practice on Jan. 4, 2000. *See* Egan Declaration, ¶¶ 57-63; *see also* Inventors Declaration, ¶¶ 27-33.

Patent Owner opines (p. 10) that "the evidence shows the inventions were conceived at least as early as Dec. 14, 1999, and reduced to practice at least as early as Jan. 4, 2000, and because the evidence shows reasonable diligence was exercised in reducing the inventions to practice starting from Dec. 14, 1999 and proceeding through Jan. 4, 2000, the evidence establishes invention of the subject matter of claims 1-33 at least as of Dec. 14, 1999, which is prior to the effective date of Balabanovic "229 (i. e., December 16, 1999). "For all of the reasons explained above, Patent Owner respectfully submits that the proffered evidence is sufficient to remove Balabanovic '229, Chasen '721, and Phillips '960 as prior art pursuant to 37 C.F.R. § 1.131, and **Patent Owner** respectfully requests that the Examiner withdraw all rejections based on these three references." The CES show date of January 5, 2000 constitutes "public use." **Patent Owner** alleges a reduction to practice prior to application filing date of 01/05/2001.

The **Egan Declaration** includes attached Exhibits A through QQ, which are summarized in paragraphs 14-21. Paragraphs 22-28 provide an overview of the state of the source code as of December 14, 1999. Table A (pages 8-25) maps the December 14, 1999 source code to claim limitations in support of conception. Mr. Egan attests (paragraph 30-31) that "no extensive experimentation and no exercise of inventive skill was needed to further reduce to practice the inventions of claims 1-33 or the '433 patent" and that the "team had developed a working prototype of the Nomad Jukebox by December 14, 1999." Mr. Egan provided evidence and

recollections (paragraphs 32-48) of efforts prior to December 14, 1999, leading up to a public demonstration of a Nomad Jukebox prototype at the Consumer Electronics Show 2000 (CES 2000), January 5 through January 10, 2000. Diligence is provided (paragraphs 49-56) for every day between December 14, 1999 and January 04, 2000, except 12/21/1999, 12/25/1999, and 01/02/2000. Table B (pages 35-51) maps the January 4, 2000 Oasis source code, which was embedded as fully operative firmware in the NOMAD Jukebox portable media player, to claim limitations. Mr. Egan asserts (paragraphs 63-65) that it is clear that the invention was working for the intended purpose by that January 4, 2000.

The **Inventor's Declaration** (paragraph 9) asserts that information and evidence presented demonstrates the invention was conceived at least as early as Dec. 14, 1999 (with some claims to earlier dates). The Declaration (paragraph 12) asserts a reduction to practice, showing diligence December 14, 1999 through January 4, 2000. The **Inventors** assert (paragraph 14) that work was performed on a daily basis, with once a week meetings throughout the Fall of 1999. See Exhibits V & W - two engineering notebooks of meeting notes. Exhibit RR (paragraph 21) shows screenshots from the Oasis simulator (compiled 11/03/1999), designed to be executed on a personal computer, that incorporates the methods described in the '433 patent. The Declaration (paragraphs 27-31) asserts that an email attachment "Script Guideline: Public Demonstration" sent December 29, 1999 provides evidence about what functions were ready for the demonstration at CES 2000 which began January 5, 2000 and that the prototypes worked for the intended purpose at least as early as January 4. 2000. See Exhibits Y, PP, QQ and RR. The Declaration asserts various dates related to conception, diligence, and reduction to practice in paragraphs 34-36.

Examiner has analyzed the evidence and reweighed the evidence as a whole in consideration of the prima facie case and the secondary evidence. In view of Exhibit RR, Oasim simulator screen shots compiled 11/3/99, Examiner is persuaded that conception of the invention occurred at least as early as December 14, 1999. **Examiner** agrees that Table A (Egan Declaration, p. 8-25, maps '433 claim elements to code dated 12/14/1999) sufficiently supports a date of conception and the start of diligence of the invention taught by USPN 6,928,433 to Goodman et al. as December 14, 1999. Further, **Examiner** is persuaded of diligence from December 14, 1999 through January 4, 2000, with a reduction to practice on January 4, 2000. **Examiner** is persuaded that daily activity, except for three days, demonstrated from December 14, 1999 through January 4, 2000 show diligence. The missing three days, 12/21/1999, 12/25/1999 and 01/02/2000, are presumed to include a Christmas holiday and otherwise activities in preparation for demonstration at CES 2000 on January 5, 2000. Gaps in the documented evidence fail to support conception and diligence prior to December 14, 1999. Documents such as Exhibit Z - CVS Activity Log 11/10/99-1/10/00, and Exhibit W- Log book of work dated October – December 1999 support Examiner's assertion that there was not a reduction to practice prior to January 4, 2000. Table C, in the Declaration of Inventors, maps claim limitations to the Nomad Jukebox DemoScript presented at CES 2000, where the script was available by January 4, 2000.

In view of the above noted evidence supporting a conception and diligence date beginning December 14, 1999, followed by a reduction to practice on January 4, 2000, Examiner agrees that the evidence is sufficient to overcome the following prior art references: US Patent Publication 2002/0045960 to Phillips (priority date of October 13, 2000), USPN 6,760,721 to

Chasen et al (priority date of April 14, 2000) and USPN 6,976,229 to Balabanovic et al. (priority date of December 16, 1999). Note that claims 1, 2, 4, and 6-8, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451. Furthermore, claims are also rejected as obvious over Winsky '451 where there was a suggestion of a teaching or a nominal substitution or modification.

Statutory Basis for Claim Rejections – 35 USC § 102 and 103

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:

Claim Rejections - 35 USC § 102

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 –

(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.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 6-8, 12-15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451.

Regarding independent claim 1:

Winsky '451 teaches: A "hand held electronic music reference machine" (col. 2, line 64-65), that has the ability to allow a user to obtain information relative to a variety of songs. Database 20 of the hand held electronic reference machine "has a first memory portion 22 storing textual or alphanumeric information which can be shown on display 16. Memory portion 22 includes an area 24 storing song titles and another memory area 26 storing at least some lyrics for each song whose title exists in memory area 24." (col. 3, line 43-48) Each of these song titles correspond to one of the plurality of tracks. Winsky '451 teaches a hierarchy of categories, within memory portion 22, "areas 28, 30, 32, 34, 36 and 38 [see Figure 3] respectively storing band or artist names, songwriter names, highest chart positions attained by the various songs, the

years in which the highest chart positions were attained, Hall of Fame listings and recording labels." (col. 3, line 48-53) The hierarchy is described as having a "main menu [that] includes a 'Title' selection, a 'Search' selection and a 'Setup' selection.' (col. 5, line 42-44) (first display screen/level of hierarchy; selecting a category in the first display screen) When 'Search' is selected from the main menu, display 16 shows a list of (second display screen / level of hierarchy; displaying the subcategories belonging to the selected category in a listing presented in the second display screen) nine search parameters or filters (subcategories) including song titles, bands, song writers, song position, chart position, year, hall of fame status, record labels, lyrics, and melody line. Any search filter may be selected (third display screen/level of hierarchy; selecting a subcategory in the second display screen) by actuating Enter function key 76 upon highlighting the desired search filter." (col. 5, line 51-56; col. 8, line 59-61) Winsky '451 teaches that "at least a portion of the song" (col. 1, lines 51-54) be provided as the audio reproduction (accessing at least one track). In the detailed description, the "portion of the song" stored in memory is referred to as a "stored reproducible musical segment" (col. 3, lines 62-66). In a specific example given within the Winsky '451 patent, "[d]uring a search of the band list (third display screen; displaying the items belonging to the selected subcategory in a listing presented in the third display screen), highlighting of the entries may be shifted from artist to artist by using up and down directional keys 68 and 70." (col. 6, line 17-19) In a hierarchical, nested search, while searching the band list, a subcategory of 'artist' may be selected, and for each 'artist' a subcategory of 'song title' may be selected. Winsky '451 teaches, "[i]f selection monitor 64 detects the actuation of Enter function key 76, a list of song titles appears for the highlighted recording artist." (col. 6, line 19-21) Thus, the list of song titles corresponds to the

displayed items. Winsky '451 discloses, "As in every case where a list of song titles is shown on display 16, actuation of special function key 78, which is detected by selection monitor 64, causes selector module 80 to retrieve the stored reproducible musical segment (accessing at least one track based on a selection made in one of the display screens) for a highlighted song from memory portion 44 and to feed the retrieved segment to synthesis module 46 for playback via speaker 52." (col. 6, line 21- 27) (selecting at least one track from a plurality of tracks stored; accessing at least one track based on a selection made in one of the display screens)

Regarding claim 2:

Winsky '451 discloses (col. 5, line 54-56) "[a]ny search filter may be selected (selecting a subcategory) by actuating Enter function key 76 upon highlighting the desired search filter." A plurality of tracks can be played from the selected subcategory by highlighting different songs within the subcategory, and then actuating the special function key 78, which is detected by selection monitor 64, to cause selector module 80 to retrieve the stored reproducible musical segment (track) for a highlighted song from memory portion 44 and to feed the retrieved segment to synthesis module 46 for playback (repeat playing a plurality of tracks associated with the selected subcategory) via speaker 52." (col. 6, line 21-27)

Regarding claim 4:

Winsky '451 teaches highlighting of a song (selecting an item in the third display screen) that is on the list of the display 16 in order to obtain further information relating to that song. (col. 6, line 24) "As in every case where a list of song titles is shown on display 16, actuation of

special function key 78 (selecting an item in the third display screen), which is detected by selection monitor 64, causes selector module 80 to retrieve the stored reproducible musical segment (track; accessing at least one track) for a highlighted song from memory portion 44 and to feed the retrieved segment (track) to synthesis module 46 for playback via speaker 52." (col. 6, line 21-27) (playing at least one track associated with the selected item)

Per claim 6:

Winsky '451 expressly teaches playing at least one track associated with a selected one of the category, subcategory, and item. See Abstract, "audible reproduction (accessing at least one track, playing at least one track) of the segment stored...for the selected song (selected one of the category, subcategory, and item)." See also col. 6, lines 21-27.

Regarding claim 6, Winsky '451 fails to explicitly or inherently teach a playlist as defined in the '433 Specification. Specification '433, 10: 4-7, defines a playlist as collections of songs defined by the user, the device manufacture, or others. However, the "OR" language does not require this limitation to be met, where, otherwise, the first limitation is taught by Winsky '451.

Regarding claim 7:

Winsky '451 teaches usage of left or right directional keys 72 and 74 that can be used to access different submenus, thereby allowing a user to revert from the third display back to one of the second and first display screens. (col. 5, line 24-26)

Regarding claim 8:

Winsky '451 teaches highlighting of a song that is on the list of the display 16 in order to obtain further information relating to that song. (col. 6, line 24) Upon actuation of the "Enter function key 76, display control 58 accesses memory portion 22 to obtain identification information and lyrics for the highlighted song." (col. 6, line 29-32) (selecting one of the items displayed in the third display screen) A fourth display screen is presented with some of this information, as shown in Figure 6, with further information presented in subsequent display screens shown as Figures 6B-6H.

Per claim 12:

Each "Title" in the '451 patent has a "reproducible music segment" (track) associated with it. (col. 5, line 32) Accessing this music track is achieved by highlighting the Title (accessing a track title) in the third display screen and then pressing the specialized function key 78 labeled "NOTE" in Figure 1 causes the music track to play. (col. 5, line 29-39) (selecting a music track; accessing at least one track; track is played in response to the access)

Per claim 13:

Winsky teaches "Upon such a selection of an entry by a user, selection monitor 64 signals display control 58 to show different information on display careen 16..." (col. 5, lines 19-22) (automatic transition of the display), "[w]hen 'Search' is selected from the main menu [i.e. the recited first display screen], display 16 shows a list of nine search parameters .... " (col. 5, line

51-52) (transition to second display screen) From the second display that shows the list of nine search parameters, if the search parameter "Artist" is selected, a list of artists then appears (automatic transition into third display screen). This is shown at Figs. 5A with screen 88, and explained at col. 6, line 1-2. As further explained at col. 6, line 17-19, the list of artist names (third display screen) can be shifted from artist to artist using up and down directional keys 68 and 70.

Per claim 14:

The "Main menu" as described above with respect to claim 1 is a first display screen that appears at the top level of the hierarchy. (col. 3, lines 13-16, & Fig. 4) To select a "track", entries are made in the menu / submenus until the reproducible musical segment is accessed for playback.

Per claim 15:

The "Search menu"(col. 5, lines 35-61) as described above with respect to claims 9 and 11 is a first display screen that appears at least one level below the "main menu" (col. 5, line 41) (top level of the hierarchy).

Regarding newly added **claims 17 & 18**, Winsky teaches (8: 57-61; 10: 57-61), "the hierarchy" (...the plurality of tracks accessed according to a hierarchy, the hierarchy having a plurality of categories, subcategories, and items respectively in a first, second, and third level of

the hierarchy...) is an overlapping hierarchy, having a plurality of categories that include items, and wherein at least one of the items is included in more than one of the categories. When multiple filters are applied, each successive subset presented on the display will be smaller. As an example, a particular item/ track name may be displayed, then filtered by a category / subcategory in the successive display, then filtered again by another category / subcategory in yet another successive display. The particular item / track name may be displayed in each successive display [overlapping hierarchy, item included in more than one of the categories]. Winsky teaches ('451, 8:57-61) a plurality of categories / subcategories and the successive use of filters to result in a smaller list of items. The particular item / track name may be accessed in at least two different ways according to the user selection of filters.

Claims 1-2, 4, 6-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winsky '451.

Per claim 1:

See rejection of limitations addressed in the '451 anticipation rejection above.

To the extent that Winsky fails to explicitly disclose selecting from a hierarchy comprising a plurality of categories, subcategories and items respectively in a first, second, and third level of the hierarchy, it would have been obvious to modify Winsky's teachings of (col. 4, line 51) "reproduction in a visually sensible form on display screen 16", where (col. 4, lines 55-56) "display control module 58 obtains a menu and submenus (categories, subcategories) from memory portion 40, song identification information (items) from memory portion 22..."

To the extent that Winsky fails to explicitly disclose "accessing at least one track", it would be obvious that that converting into sound during the display of lyrics is a suggestion of "accessing at least one track." Winsky (col. 7, lines 18-27) discloses "reproducible segments (tracks) stored in memory portion 44 are musical arrangements...frequently of chorus sections and occasionally correspond to the words of the title, where the title appears in the lyrics of a song. The reproducible segments stored in memory portion 44 may be converted into sound (necessarily accessing the track) during display of lyrics (FIGS. 6D-6H)."

Per claim 2:

See rejection provided in the '451 anticipation rejection above. To the extent that Winsky discloses (col. 6, lines 24-27) a single reproducible musical segment for a highlighted song (col. 3, line 62 – 67), it would be obvious to store multiple musical segments for playing a plurality of tracks, or otherwise to repeat the selection steps to repeat and play a plurality of tracks. Winsky is suggestive of a "plurality of tracks" (col. 7, lines 18-27), "the reproducible musical segments in memory portion 44...are taken from the most commonly recognizable parts of the respective songs. Preferably, the reproducible segments stored in memory portion 44 are musical arrangements. The arrangements are frequently of chorus sections and occasionally correspond to the words of the title...The reproducible segments stored in memory portion 44 may be converted into sound during display of lyrics (FIGS 6D-6H)."

Per claim 4:

See rejection provided in the '451 anticipation rejection above.

Per claims 6-8:

See rejections provided in the '451 anticipation rejection above.

Per claim 9:

Winsky '451 teaches Search categories available for selection that include (col. 3, lines 48-53) "band or artist names (artist), songwriter names, highest chart positions attained by the various songs, the years in which the highest chart position were attained, Hall of Fame listings and recording labels" or (col. 5, lines 40-56), "song titles (or as a variation, an album), bands, song writers, song position, chart position, year, hall of fame status, record labels, lyrics and melody line."

It would be an obvious variation for albums or genres to be included in this selectable Search category (available categories include at least artist, album, and genre). Winsky '451 is suggestive of this (col. 4, lines 28-31) by disclosing a removably mounted database 20 "for enabling the use of platform 12 with different databases storing song identification (album) and melody information for different periods or different types of music (genre)." It would have been obvious for a subcategory in a second display screen to comprise a listing of at least one genre type (i.e., jazz or country western) because Winsky '451 suggested (col. 4, lines 34-35), "One card might be limited to popular songs, while another card carries jazz or country western songs." (sub category listed in the second display screen comprises a listing of at least one genre type, i.e., jazz or country western) Winsky '451 teaches (col. 5, lines 54-56) that "any search filter (search category, sub category, or item; genre type is selected) may be selected by actuating

Enter function key 76 upon highlighting the desired search filter." (at least one genre type is selected)

Per claim 10:

"Displaying in the third display screen at least one album associated with the selected genre type and selecting one of the at least one albums displayed" is an obvious variation of Winsky's invention. Winsky '451 suggests that different types of music (genres) may be stored in a database. Winsky '451 teaches (col. 4, lines 49-51) "a display control module 58 which extracts or selects information from database 20 for reproduction in a visually sensible form (first display screen, second display screen, third display screen, etc.) on display screen 16." Winsky '451teaches (col. 4, lines 55-56) "Display control module 58 obtains a menu and submenus from memory portion 40." Should an album be selected from a subcategory under a genre type category, a subsequent submenu screen for the album would logically link to associated identification information and lyrics (listing of tracks associated with the selected album) (col. 5, lines 20-24). Winsky '451 teaches, (col. 3, lines 42-47; col. 3, lines 61-63), "Database 20 further includes a memory portion 44 which stores, for each song, a segment of the song's musical arrangement (track)."

It would have been obvious, for one of ordinary skill in the art, to modify Winsky's invention to include an album associated with a genre type in a third display screen, where the selection of the album in a genre category results in the presentation of a listing of tracks (identification information and lyrics) associated with the selected album in a fourth sequential screen, as the presentation would be in a visually sensible form. Winsky '451 is suggestive of

variations in selectable options (col. 4, lines 28-31) by disclosing a removably mounted database 20 "for enabling the use of platform 12 with different databases storing song identification (album) and melody information for different periods or different types of music (genre)." It would have been obvious for a subcategory to comprise a listing of at least one genre type (i.e., jazz or country western) because Winsky '451 suggested (col. 4, lines 34-35), "One card might be limited to popular songs, while another card carries jazz or country western songs." Winsky '451teaches (col. 5, lines 54-56) that "any search filter (search category, sub category, or item; genre type is selected) may be selected by actuating Enter function key 76 upon highlighting the desired search filter." (at least one genre type is selected)

Per claim 11:

See rejection addressed in claim 9 above. Where the first display screen displays options labeled "Titles", "Search", and "Setup", and where a selection of "Search" option, transitions to a second display screen selection of "Names of Artists" (col. 5, lines 51-55), and upon selection of an "Artist" a transition to a third display screen of list of song titles (col. 6, lines 19-21) (albums, an obvious variation of song titles, substitute albums for song titles) associated with the first artist name. Notably, Winsky '451 suggests (col. 5, lines19-23) "Upon such a selection of an entry by a user, selection monitor 64 signals display control 58 to show different information on display screen 16, e.g., identification information and lyrics for a selected song or a submenu such as a list of search options (search for an album by a particular artist)."

(Claim 11 is similar to claims 9 and 10, where a first screen displays options labeled "Titles", "Search", and "Setup", where a selection of "Search" transitions optionally to a

selection of "Genres" (an obvious variation of the selectable Search categories), a selection of a specific genre (jazz or country western) on a second display transitions to a third display of albums associated with the specific genre, followed by a transition to a 4th display of identification information and lyrics (track names) associated with the selected album.)

It would have been obvious, to one of ordinary skill in the art, at the time of the invention to modify Winsky's teachings to substitute "album" as an available category and to associate an artist name and an album because an album name is recognizable information for song identification. The simple substitution of category would be within the level of one of ordinary skill in the art. Winsky '451 teaches (col. 1, lines 21-22), "It would be beneficial to have a reference work which would facilitate the identification of the song, as well as supply ancillary information pertaining to the song." Winsky '451 teaches (col. 1, lines 56-57) as an objective a device that exhibits minimum complexity and is easy to use.

Per claims 12 - 15:

See rejections provided in the '451 anticipation rejection above.

Per claim 16:

"Microprocessor 50 includes a display control module 58 which extracts or selects information from database 20 for reproduction in visually sensible form on display screen 16." (col. 4, lines 49-51) "Display control module 58 obtains a menu (plurality of categories) and submenus (plurality of sub categories, plurality of items) from memory portion 40." (col. 4, lines 55-56)

"...display control 58 to show different information on display screen 16, e.g., identification information (album names) and lyrics (items comprise a list of track names) for a selected song or a submenu such as a list of search options (subcategories...list of album names). Alternatively, a submenu may be selected..." (col. 5, lines 21-24)

The hierarchy of nested displays, as disclosed by Winsky '451, teaches or suggests a plurality of categories comprising a list of artist names (col. 6, lines 1-2, "names of bands and other recording artists are searched via menu selection"), where a submenu (subcategory) comprises a list of album names (col. 6, lines 19-21) (Winsky '451 teaches song titles where "albums" are an obvious substitution of song titles.), and a selection of the album is associated with items comprising song titles (col. 6, lines 19-20, "a list of song titles appears for the highlighted recording artist"), where for a song title, memory stores identification information and lyrics (track names) (col. 5, lines 21-24)

To the extent that a "category" comprising "a list of artist names" is required to be in the first display screen (claim 1), it would be obvious that a "list of artist names" is found a screen following the main menu. Winsky teaches nested presentation levels that are accessed by applying sequential filters ('451: 8: 57-61; 10: 57-61).

It would have been obvious, to one of ordinary skill in the art, at the time of the invention to modify Winsky's teachings to substitute "album" as an available category and to associate an artist name and an album because an album name is recognizable information for song identification. The simple substitution of category would be within the level of one of ordinary skill in the art. Winsky '451 teaches (col. 1, lines 21-22), "It would be beneficial to have a reference work which would facilitate the identification of the song, as well as supply ancillary

information pertaining to the song." Winsky '451 teaches (col. 1, lines 56-57) as an objective a device that exhibits minimum complexity and is easy to use.

Regarding **claims 17-18,** see rejections provided in the '451 anticipation rejection above.

Regarding **claims 19-20**, Winsky discloses a memory arranged in a hierarchy. Winsky discloses a software program presenting menu selections. Successive screen display presentations represent levels of display selections. All levels of display results are associated with the memory hierarchy ('451, FIG. 3). By applying search filters, a reduced subset of display results is presented in each successive display ('451, 8: 57-61; 10: 57-61). Memory arrangements are represented by a tree structure (FIG. 3, within a memory, database 20 may be considered a branch, with lower branches organized based on metadata such a song titles, bands, etc., and associated with tracks found in Musical Segment Memory 44.

Regarding **claim 27**, the category "album" on a display screen, followed by a list of album names is an obvious variation of Winsky's teachings at 5: 40-61. "A selection is made by actuating Enter function key 76 when the desired selection is highlighted." Regarding "playing a plurality of tracks associated with the selected album name", see rejection of claims 1 & 2 above.

Claims 3, 5, 21-26, and 28-33 are objected to for dependence upon a rejected claim. Claim limitations (claims 3 & 5) related to "adding the tracks associated with the selected subcategory / item...to a playlist" are not taught by Winsky. Claims 21-26 are dependent on

claims 3 or 5. Similarly, claims 28-33, recite the limitations "adding a plurality of tracks associated with the selected album name to a playlist."

Response to Arguments

Regarding claim 1, Patent Owner asserts (p. 12 & cite to Foley Decl. ¶¶ 40-41) Winsky's main menu, list of search parameters, and list of artists do not teach or suggest "levels" of a "hierarchy." **Patent Owner** argues that Winsky does not mention a "hierarchy" and Foley opines "As will be understood by a person of ordinary skill in the art, a "musical segment" may be accessed from memory without the use of a "hierarchy." **Patent Owner** asserts (p. 13) that a "screen" (in reference to Winsky's display screens) is quite different from a "level of a hierarchy" by which tracks may be accessed.

Patent Owner stresses the difference (p. 13) between "selecting" and "accessing" and specifically submits there may exist confusion about the meaning of claim terms including "hierarchy," "levels," "screens," "selected," and "accessed." **Patent Owner** asserts that screens facilitate selecting and levels of the hierarchy facilitate accessing of tracks or meta-data associated with tracks.

Patent Owner (p. 14 & cite to Foley Decl. ¶¶ 39-40 & 44-46) does not dispute that Winsky teaches an interface that provides a first, second, and third display screen, but does not agree that "segments may be accessed according to a hierarchy...having ...a first, second, and third level. **Patent Owner** argues that Winsky's "one-dimensional list" is not a "hierarchy." **Patent Owner** argues (p. 15 & cite to Foley Decl. ¶ 48) that Winsky does not teach selecting and

accessing a whole category of tracks via a first level of the hierarchy...a whole sub-category of tracks via a second level of the hierarchy...

Dr. Foley argues (paragraphs 19-23) the claimed hierarchy based accessing of multiple levels allows a user to selectively add whole categories or sub-categories of tracks all at once, or to selectively add individual tracks. **Dr. Foley** asserts (paragraphs 21-22) that claim 1 requires three "display screens" distinct from the concept of accessing tracks using three levels of a "hierarchy." **Dr. Foley** states, "...the term "hierarchy" pertains to a particular method of accessing data, where the hierarchy may be derived by using metadata associated with the audio content." Paragraphs 23-30 provide a discussion of the hierarchy organized by numbered levels, where levels are accessed to display categories / sub-categories / items. The display screen interface moves from one hierarchy level to another, efficiently traversing the hierarchy. The benefit is an easily understood structure for organizing and accessing a large number of tracks, or whole categories, stored on a portable media player having a small screen. In one selection, a user can access /select one or more tracks (or whole categories / whole sub-categories) via screen selections corresponding to any one of the three hierarchy levels. The Declaration addresses issues related to claim 1 (paragraphs 32-56), providing an overview of Winsky '451, including arguments: (paragraph 36) Winsky '451 does not describe any algorithm used for the "Search" function; (paragraphs 38-39) Winsky '451 does not suggest that any of the "search parameters" may be used to access the segments stored in the musical segment memory 44...search parameters are used to search the textual information memory; (paragraph 40) Winsky '451 does not teach "tracks accessed according to a hierarchy" that includes a first, second, and third level. In contrast, Winsky '451 describes only one way of accessing musical segments (tracks);

(paragraph 41) a list of songs is not a hierarchy and a "screen" used in selecting titles is not the same thing as a "level of a hierarchy" according to which tracks may be "accessed" in a computer readable medium; (paragraph 43) the difference between the terms "selected" and "accessed", where "accessed" is in reference to a access of the computer readable medium and "selecting" refers to identifying a particular display element; (paragraphs 44-45, 48) the difference between "levels" and "screens", where "screens" facilitate the selecting of tracks, and "levels" of the hierarchy facilitate the accessing of tracks (ability to access whole categories or whole sub-categories) from the computer readable medium; (paragraphs 47 & 54) Winsky '451 does not teach "search parameters" used to access segments from the musical segment memory 33, but rather the "search parameters" are used to access the "textual information memory 22 or the note structure memory 48. **Dr. Foley** summarizes (paragraphs 49-50) that a person of ordinary skill in the art in 1999 would not have had any reason to substitute "tracks accessed according to a hierarchy" in the system taught by Winsky '451, because Winsky '451 is not designed for listening to songs, and is not concerned with organizing and accessing tracks. The Declaration (paragraph 51), in reference to Winsky's "main menu" (including "titles," "Search" and "Setup" selections), asserts that "Search" and "Setup" selections are not "categories" in any level of any hierarchy in which tracks are "accessed." **Dr. Foley** asserts (paragraphs 53 & 55) Winsky '451 does not teach that a list of bands is displayed upon selection of "bands" from the list of "search parameters", but rather requires selecting a search parameter (e.g. bands) followed by a "search term" query of the textual information memory 22. **Dr. Foley** notes (paragraph 56) that Winsky's "reassignment of function" ('451, 8: 46-53) does not suggest adding a "hierarchy" feature.

Examiner notes that memory storage is arranged in a hierarchy ('451, FIG. 3, 3: 42-63; 8: 41, ROM on card 18 stores database 20, database 20 stores tracks at "musical segment 44"). Further, by way of implementing the user interface screen, and successively applying filter selections ('451, 8: 57-61; 10: 57-61), resulting in the display of smaller subsets of selections (levels), navigation is presented in hierarchical levels. Winsky fairly suggests ('451, 2: 32-38; 4: 36-39; 5: 29-33; 8: 57-61; 10: 57-61) applying successive filters that display subsets of results on the display screen, "selecting" from "screens" (at various levels) and "accessing" memory locations. **Examiner** asserts that the order of display screen presentation in a user interface program represents hierarchical levels of search criteria. It is not required for Winsky to explicitly recite a hierarchy. **Examiner** asserts that the '433 Specification does not provide specific definitions for the terms "hierarchy," "levels," "screens," "selected," and "accessed."

Given the claim limitation "accessing at least one track based on a selection", it is understood that "accessing" is in reference to actually redirecting program execution to a computer readable medium memory location that stores a specified track or information related to the track. Winsky fairly teaches accessing segments ('451, 5: 29-39), where the "plurality of tracks" are accessed according to a memory hierarchy, as shown in the database 20 of FIG. 3.

Claim language is broad. **Examiner** notes that selecting / accessing whole categories / sub-categories is not in the claim language, and such arguments are moot. **Examiner** disagrees with Patent Owner statement (p. 15) that Winsky is not designed for "organizing and accessing tracks." Claim language does not recite "listening to songs." Claim language reciting "at least one" does not require more than one.

Patent Owner argues (p. 15-16 & cite to Foley Decl. ¶¶ 35 & 53-54) that the description of a "main Menu" in Winsky '451 does not satisfy "a plurality of categories...in a first...level of the hierarchy." **Patent Owner** argues that Winsky's "Search" and "Setup" selections that appear on a display "screen" do not represent "categories."

Examiner asserts the broadest reasonable interpretation of the term "category" reads on Winsky's first screen display ('451, FIG. 4) which presents three "categories" for user selection, "Titles", "Search", and "Setup." The '433 Specification fails to provide a limiting definition for the term "categories." Claim language related to "categories" is broad. It is improper to import limitations from the Specification, *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993) The first display screen represents the first "level" in the hierarchy of screen presentations.

Patent Owner argues (p. 16-17 & cite to Foley Decl. ¶¶ 35, 52-53) that a "Search" function) (i.e. querying the textual information memory using a search term) does not teach accessing a "category" of tracks via a level of a hierarchy.

Examiner notes that broad claim language recites, "accessing at least one track based on a selection made in one of the display screens." User selections from a first, second, and third display screen all contribute to "accessing at least one track." Also note that Winsky ('451, 5: 27-38) teaches "upon the highlighting of a song title"... "induce the transmission of a reproducible musical segment from memory portion 44..." See also '451, 6: 21-27, which reads on accessing at least one track based on a selection made in one of the display screens. Claim language does not recite accessing a "category" of tracks via a "level" of a "hierarchy." Claim

language does not preclude the pressing a "special function key" 78 when "accessing at least one track."

Patent Owner argues (p. 17-18 & cites to Foley Decl. ¶¶ 35, 52-53, & 55), "Winsky '451 does not teach the steps of "selecting a subcategory in the second display screen" and "displaying the items belonging to the selected subcategory in a listing presented in the third display screen.""

Examiner asserts that Winsky teaches ('451, 5: 51-61) "selecting a subcategory in the second display screen," "displaying the items belonging to the selected subcategory in a listing presented in the third screen." Addressing Patent Owner's scenario, the selection of a "band" in the third display screen would navigate to a fourth screen. Claim language does not address navigation following a third display screen. (screen 1 = main menu categories/select "search", navigate to search screen 2 = list of "search filters," ('451, 5: 50, i.e., song titles, bands, song writers...)/select "bands", navigate to screen 3 = names of bands) Winsky '451, 8: 57-61, "After the display of a master list of titles (FIG. 4), the use of search filters reduces the number of titles listed. Generally, the greater the number of filters used, the smaller the resulting list of titles." See also '451, 10: 57-61 which explains that each successive search element (filter) applied will search only from the reduced set provided responsive to the prior search.

Regarding claim 2, **Patent Owner** asserts (p. 18-19), "Winsky '451 does not teach that multiple songs may be highlighted at one time."

Examiner notes that claim language recites "tracks" not "songs." Claim language does not recite "highlighted at one time." Claim language "accessing at least one track" fairly reads

on accessing one track. Further, **Examiner** explained in an obvious statement (Non Final 03/29/2010, p. 20): "To the extent that Winsky discloses (col. 6, lines 24-27) a single reproducible musical segment for a highlighted song (col. 3, line 62 - 67), it would be obvious to store multiple musical segments for playing a plurality of tracks, or otherwise to repeat the selection steps to repeat and play a plurality of tracks. Winsky is suggestive of a "plurality of tracks" (col. 7, lines 18-27), "the reproducible musical segments in memory portion 44...are taken from the most commonly recognizable parts of the respective songs. Preferably, the reproducible segments stored in memory portion 44 are musical arrangements. The arrangements are frequently of chorus sections and occasionally correspond to the words of the title... The reproducible segments stored in memory portion 44 may be converted into sound during display of lyrics (FIGS 6D-6H)." The language of claim 2 does not preclude repeating the selecting / playing of a single track so as to read on "playing a plurality of tracks associated with the selected subcategory."

Regarding claim 7, **Patent Owner** asserts (p. 19-20 & cites to Foley Decl. ¶¶ 33-39 & 47-48), Winsky does not teach "accessing at least one track is made...by reverting back to one of the second and first display screens. Winsky does not teach that the main menu or the search parameters can be used to access segments.

Examiner notes claim language recites, "The method of selecting a track...wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display screens, the second display screen presented sequentially after the third display screen." **Examiner** agrees with Patent Owner that Winsky

does disclose directional keys for navigating ('451, 5: 24-26) back to a second and first display screen. Further, reverting back to a first and second display screens, following the presentation of a third display screen, may be included in steps taken to access a track. Claim language does not require directly accessing a track from a first or second display screen. Claim language does not preclude further navigation taken in steps to "access a track." Claim language is broad. It is improper to read limitations in from the Specification.

Regarding claim 13, **Patent Owner** asserts (p. 20-21 & cites to Foley Decl. ¶¶ 33-39, 47-48, & 52-54), "Winsky '451 does not teach that "receipt of the selection in the second display screen results in an automatic transition of the second display screen into the third display screen." **Patent Owner** asserts that a list of recording artists (or bands) is displayed by pressing a function key 86, and that the list is not displayed upon selection of "bands" from the list of "search parameters. Rather a keyboard to enter a "search term" a database would be queried."

Examiner notes that the use of "specialized function key 86" ('451, 6:3-4) is an alternative. **Examiner** asserts that Main menu (first display screen presents a selection of categories comprising "Titles", "Search", or "Setup") may navigate [automatic transition] to a second display screen (which presents, as an example, the selected "Titles" category). A filter may be applied to the second display screen, resulting in a transition to a third display screen comprised of a smaller subset of choices. As an example ('451, 5: 47-48), the selection of "Titles" in the first display screen will present, on a second display screen a master list of song titles, to which a filter may be applied resulting in a displayed subset on a third screen. Any number of successive filters ('451, 8: 57-61; 10: 57-61) may be applied, resulting in successive

display screens presenting a smaller subset. Winsky (8:54-61) teaches "the search filters described hereinabove are implemented ...pursuant to the techniques described in USPN 5,321,609...incorporated by reference. After the display of a master list of titles (FIG. 4), the use of search filters reduces the number of titles listed. Generally, the greater the number of filters used, the smaller the resulting list of titles." Thus, it is understood that pressing of function key 86 is not required to arrive at a list of titles/artists/ bands.

Regarding claim 16, **Patent Owner** asserts (p. 21) that Winsky's "identification information" does not suggest "album names" as a subcategory.

Examiner asserts that "identification information" may ('451, 2: 5; 2: 41; FIG. 6; 3: 22-25) broadly and reasonably read on "album names." '451, 4: 56-58, "Display control module 58 obtains...song identification information from memory portion 22..." FIG. 3 shows memory storage 20 grouped by "identification information" subcategories. Winsky clearly teaches organized categories such as ('451, 3: 50; FIG. 3 #24-#26) "band or artist names, songwriter names, highest chart positions..." A category of "album name'" represents an obvious variation of Winsky's organization. A hierarchy of nested displays, as disclosed by Winsky '451, is traversed by applying search filters (8: 57-61; 10: 57-61). Regarding claim 16, **Examiner** asserts that Winsky '451 teaches a first screen display, where a "search" selection results in the presentation of categories. By applying a search filter ('451, 8: 57-61; 10: 57-61) to a list of artist names, the result could display a list of album names. By applying a successive search filter to the list of album names, the displayed result may be a list of track names.

Regarding the newly added claims 17-33, **Patent Owner** asserts that new claims further narrow the "hierarchy", which Patent Owner asserts is not disclosed in parent claim 1. **Patent Owner** notes that claims 3 and 5 are not rejected as anticipated by Winsky, thus asserts that new dependent claims 21-26 are not anticipated by Winsky. Regarding claims 2, 3, 23, 25, 27, 28, 30, and 32, the **Foley Declaration** asserts that Winsky does not teach playing a whole track, playing a playlist, a way to add a plurality of tracks to a playlist, or to play a plurality of tracks.

Examiner notes that playing "a whole track" is not in the claim language. **Examiner** maintains that Winsky teaches playing a playlist of one track. Winsky teaches playing a plurality of tracks by either playing multiple segments of one selection, or alternately repeating the steps to play a track. Claims 3 and 5 recite a "playlist" and adding (by accessing at least one track) tracks (one or more) associated with the selected subcategory to a playlist. Where conceivably Winsky's playlist of one could include several "tracks" of segments, **Examiner** agrees that Winsky fails to teach "accessing" for the purpose of "adding" to the "tracks"... "of a playlist." New claims 21-26, dependent on claims 3 or 5, are not found obvious for the same reasons. Similarly, new claims 28-33 rely on "adding a plurality of tracks...to a playlist" and would not be obvious for the same reason. **Examiner** withdraws the obvious rejection of claims 3 and 5.

In summary:

Examiner withdraws the prior rejections of claims 3 and 5.

Examiner withdraws all rejections based on USPN 6,760,721 B 1 to Chasen et al, USPN 6,976,229 B 1 to Balabanovic et al, or US Patent Application Publication 2002/0045960 A1 to Phillips et al.

Claims 1, 2, 4, and 6-8, 12-15, 17, and 18 are anticipated by Winsky '451.

Claims 1, 2, 4, 6-20, and 27 are found to be obvious over Winsky '451.

Claims 3, 5, 21-26 and 28-33 are objected to for dependence upon a rejected claim.

Conclusion

This is an **ACTION CLOSING PROSECUTION (ACP)**; see MPEP § 2671.02.

(1) Pursuant to 37 CFR 1.951 (a), the patent owner may once file written comments limited to the issues raised in the reexamination proceeding and/or present a proposed amendment to the claims which amendment will be subject to the criteria of 37 CFR 1.116 as to whether it shall be entered and considered. Such comments and/or proposed amendments must be filed within a time period of 30 days or one month (whichever is longer) from the mailing date of this action. Where the patent owner files such comments and/or a proposed amendment, the third party requester may once file comments under 37 CFR 1.951 (b) responding to the patent owner's submission within 30 days from the date of service of the patent owner's submission on the third party requester.

(2) If the patent owner does not timely file comments and/or a proposed amendment pursuant to 37 CFR 1.951 (a), then the third party requester is precluded from filing comments under 37 CFR 1.951(b).

(3) Appeal cannot be taken from this action, since it is not a final Office action.

Any comments considered necessary by PATENT OWNER regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the patent owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation" and will be placed in the reexamination file.

Extensions of time under 37 CFR 1.136(a) will not be permitted in *inter partes* reexamination proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to the patent owner in a reexamination proceeding. Additionally, 35 U.S.C. 314(c) requires that inter partes reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.937). Patent owner extensions of time in inter partes reexamination proceedings are provided for in 37 CFR 1.956. Extensions of time are not available for third party requester comments, because a comment period of 30 days from service of patent owner's response is set by statute. 35 U.S.C. 314(b)(3).

Any paper filed with the USPTO, i.e., any submission made, by either the Patent Owner or the Third Party requester must be served on every other party in the reexamination proceeding, including any other Third Party requester that is part of the proceeding due to merger of the reexamination proceedings. As proof of service, the party submitting the paper to the Office must attach a Certificate of Service to the paper, which sets forth the name and address of the party served and the method of service. Papers filed without the required Certificate of Service may be denied consideration. 37 CFR 1.903; MPEP 2666.06.

The Patent Owner is reminded that any proposed amendment to the specification and/or claims in this reexamination proceeding must comply with 37 CFR 1.530(d)-(j), must be

formally presented pursuant to 37 CFR 1.52(a) and (b), and must contain any fees required by 37 CFR 1.20(c).

Amendments in an *inter partes* reexamination proceeding are made in the same manner that amendments in an *ex parte* reexamination are made. MPEP 2666.01. See MPEP 2250 for guidance as to the manner of making amendments in a reexamination proceeding.

The Patent Owner is reminded of the continuing responsibility under 37 CFR 1.985(a), to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving the instant Patent Under Reexamination or any related patent throughout the course of this reexamination proceeding. The Third Party requester is also reminded of the ability to similarly inform the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2686 and 2286.04.

All correspondence relating to this *Inter Partes* reexamination proceeding should be directed:
By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://sportal.uspto.gov/authenticate/authenticateuserlocalepf.html.

By Mail to: Mail Stop *Inter Partes* Reexam
Attn: Central Reexamination Unit
Commissioner for Patents United States Patent & Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

By FAX to: (571) 273-9900

Central Reexamination Unit

By hand: Customer Service Window

Attn: Central Reexamination Unit

Randolph Building, Lobby Level

401 Dulany Street

Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/M. Steelman/

M. Steelman

Primary Examiner

Central Reexamination Unit - Art Unit 3992

(571) 272-3704

Conferees: ASK

CBL

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 4

Complete if Known	
Patent No.	6,928,433
Reexam Control No.	95/001,274
Original Serial No.	09/755,723
First Named Inventor	Ron GOODMAN
Group Art Unit	3992
Examiner Name	Mary J. STEELMAN
Confirmation No.	6990
Attorney Docket No.	380786-108980

U.S. PATENT DOCUMENTS DISCLOSED IN RELATED PATENTS AND APPLICATIONS

Examiner Initials*	Cite No.[1]	U.S. Publication Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Date of Issue/ Publication of Cited Document MM-DD-YYYY
MM	A9	5,404,316		Klingler et al.	04-04-1995
	A10	5,717,879		Moran et al.	02-10-1998
	A11	5,917,488		Anderson et al.	06-29-1999
	A12	5,966,122		Itoh	10-12-1999
	A13	5,999,173		Ubillos et al.	12-07-1999
	A14	6,084,582		Qureshi et al.	07-04-2000
	A15	6,097,389		Morris et al.	08-01-2000
	A16	6,121,966		Teodosio et al.	09-19-2000
	A17	6,166,735		Dom et al.	12-26-2000
	A18	6,333,752		Hasegawa et al.	12-25-2001
	A19	6,346,951		Mastronardi	02-12-2002
	A20	6,362,900		Squilla et al.	03-26-2002
	A21	6,453,078		Bubie et al.	09-17-2002
	A22	6,624,826		Balabanovic et al.	09-23-2003
	A23	5,491,795		Beaudet et al.	02-13-1996
	A24	5,590,319		Cohen et al.	12-31-1996
	A25	5,717,925		Harper et al.	02-10-1998
	A26	5,721,911		Ha et al.	02-24-1998
	A27	5,857,203		Kauffman et al.	01-05-1999
MM	A28	5,862,325		Reed et al.	01-19-1999

Examiner Signature	M. Steelman	Date Considered	12-6-2010

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Sheet 2 of 4

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Examiner Initials*	Cite No.[1]	U.S. Publication Document Number	Kind Code (if known)	Name of Patentee or Applicant of Cited Document	Date of Issue/ Publication of Cited Document MM-DD-YYYY
	A29	5,924,090		Krellenstein	07-13-1999
	A30	6,028,605		Conrad et al.	02-22-2000
	A31	6,055,543		Christensen et al.	04-25-2000
	A32	6,061,692		Thomas et al.	05-09-2000
	A33	6,122,641		Williamson et al.	09-19-2000
	A34	6,131,100		Zellweger	10-10-2000
	A35	6,163,781		Wess, Jr.	12-19-2000
	A36	6,199,059		Dahan et al.	03-06-2000
	A37	6,212,524		Weissman et al	04-03-2001
	A38	6,240,407		Chang et al.	05-29-2001
	A39	6,256,031		Meijer et al.	07-03-2001
	A40	6,263,341		Smiley	07-17-2001
	A41	6,269,394		Kenner et al.	07-31-2001
	A42	6,282,548		Burner et al.	08-28-2001
	A43	6,311,194		Sheth et al.	10-30-2001
	A44	6,363,377		Kravels et al.	03-26-2002
	A45	6,389,426		Tumbull et al.	05-14-2002
	A46	6,405,215		Yaung	06-11-2002
	A47	6,430,575		Dourish et al.	08-06-2002
	A48	6,449,341		Adams	09-10-2002
	A49	4,350,070		Bahu	09-21-1982

Examiner Signature		Date Considered	12·6·2010

13897529.1

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Sheet 3 of 4

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MJ	A50	5,261,087		Mukaino	11-09-1993
	A51	5,393,927		Aoki	02-28-1995
	A52	5,435,564		Kennedy et al.	07-25-1995
	A53	5,606,143		Young	02-25-1997
	A54	5,670,730		Grewe et al.	09-23-1997
	A55	6,248,946		Dwek	06-19-2001
	A56	5,969,283		Looney et al.	10-19-1999
	A57	6,062,868		Toriumi	05-16-2000
	A58	6,377,530		Burrows	04-23-2002
	A59	5,616,876		Cluts	04-01-1997
MJ	A60	6,590,730		Veltchev et al.	07-08-2003
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MJ	A62	5,918,303		Yamaura et al.	06-29-2009
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	A64	5,557,541		Schulhof	09-07-1996
	A65	5,851,979		Scialla et al.	01-22-2003
	A66	6,649,942		Masayuki et al.	10-30-2003
MJ	A67	5,572,442		Schulhof	10-25-1996

Examiner Signature	M. Steelman	Date Considered	12/6/2010

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	Examiner Name	Mary J. STEELMAN
	Confirmation No.	6990
Sheet 4 of 4	**Attorney Docket No.**	380786-108980

NON-PATENT LITERATURE DOCUMENTS DISCLOSED IN RELATED PATENTS AND APPLICATIONS

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.	Translation
MJS	B2	BEARD et al., "Multilevel and Graphical Views of Metadata," Research and Technology Advances in Digital Libraries, pp. 256-265, 1998.	
	B3	PACHET et al., "Combinatorial Approach to Content-Based Music Selection," Multimedia Computing and Systems, pp. 457-462, 6/7/1999.	
	B4	WAUGH, "Specifying Metadata Standards for Metadata Tool Configuration," Computer Networks and ISDN Systems, vol. 30, pp. 23-32, 1998.	
MJS	B5	WOLD et al., "Content-Based Classification, Search, and Retrieval of Audio," IEEE Multimedia, IEEE Computer Society, vol. 3, pp. 27-36, 1996.	

Examiner Signature	M. Steelman	Date Considered	12·6·2010

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(Use as many sheets as necessary)

Sheet 1 of 5

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Examiner Name	Mary J. STEELMAN
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Attorney Docket No.	380786-108980

U.S. PATENT DOCUMENTS DISCLOSED IN RELATED PATENTS AND APPLICATIONS

Examiner Initials*	Cite No.[1]	U.S. Publication Document Number	Kind Code (*if known*)	Name of Patentee or Applicant of Cited Document	Date of Issue/ Publication of Cited Document MM-DD-YYYY
MJS	A1	US-4,984,103		Nigam	01-08-1991
	A2	US-5,739,451		Winksy et al.	04-14-1998
	A3	US-5,787,292		Ottesen et al.	07-28-1998
	A4	US-6,310,848	B1	Ucki	10-30-2001
	A5	US-6,760,721	B1	Chasen et al.	07-06-2004
	A6	US-6,976,229	B1	Balabanovic et al.	12-13-2005
	A7	US-2001/0008471	A1	Naohara et al.	07-19-2001
MJS	A8	US-2002/0045960	A1	Phillips et al.	04-18-2002

NON PATENT LITERATURE DOCUMENTS DISCLOSED IN RELATED PATENTS AND APPLICATIONS

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.	Translation
MJS	B1	"MHJ2181AT, MHK2120AT, MHK2090AT, MHK2060AT Disk Drives Product Manual," (C141-E088-02EN), pp. 1-227, Fujitsu Limited, 1999.	

OFFICIAL CORRESPONDENCE AND RESPONSES IN RELATED U.S. PATENT APPLICATION SERIAL NO. 09/755,629

Examiner Initials*	Cite No.[1]	Description of Item
MJS	C1	~~Original Application, dated January 5, 2001, for Application No. 09/755,629.~~

Examiner Signature	M. Steelman	Date Considered	12.06.2010

*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] Unique citation designation number. [2] Applicant is to place a check mark here if English language Translation or translation of abstract is attached.

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Substitute for form 1449/PTO	Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Patent No.	6,928,433
	Reexam Control No.	95/001,274
(Use as many sheets as necessary)	Original Serial No.	09/755,723
	First Named Inventor	Ron GOODMAN
	Group Art Unit	3992
	Examiner Name	Mary J. STEELMAN
Sheet 2 of 5	Confirmation No.	6990
	Attorney Docket No.	380786-108980

OFFICIAL CORRESPONDENCE AND RESPONSES IN RELATED U.S. PATENT APPLICATION SERIAL NO. 09/755,629

Examiner Initials*	Cite No.[1]	Description of Item
	C2	Non-Final Office Action, dated September 24, 2001, for Application No. 09/755,629.
	C3	Amendment, dated December 26, 2001, for Application No. 09/755,629.
	C4	Non-Final Office Action, dated February 19, 2002, for Application No. 09/755,629.
	C5	Notice of Abandonment, dated September 19, 2002, for Application No. 09/755,629.

OFFICIAL CORRESPONDENCE AND RESPONSES IN RELATED U.S. PATENT APPLICATION SERIAL NO. 11/033,465

Examiner Initials*	Cite No.[1]	Description of Item
	D1	Original Application, dated January 10, 2005, for Application No. 11/033,465.
	D2	Non-Final Office Action, dated August 6, 2008, for Application No. 11/033,465.
	D3	Amendment and Response to Non-Final Office Action, dated February 6, 2009, for Application No. 11/033,465.
	D4	Final Office Action, dated April 15, 2009, for Application No. 11/033,465.
	D5	Request for Continued Examination (RCE) Transmittal, dated October 15, 2009, for Application No. 11/033,465.
	D6	Amendment (Submitted with an RCE herewith), dated Oct. 15, 2009, for Application No. 11/033,465.
	D7	Non-Final Office Action, dated November 24, 2009, for Application No. 11/033,465.
	D8	Information Disclosure Statement by Applicant, dated May 5, 2010, for Application No. 11/033,465.

Examiner Signature	M. Steelman	Date Considered	12/06/2010

*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] Unique citation designation number. [2] Applicant is to place a check mark here if English language Translation or translation of abstract is attached.

13808393.1

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 5

Complete if Known	
Patent No.	6,928,433
Reexam Control No.	95/001,274
Original Serial No.	09/755,723
First Named Inventor	Ron GOODMAN
Group Art Unit	3992
Examiner Name	Mary J. STEELMAN
Confirmation No.	6990
Attorney Docket No.	380786-108980

OFFICIAL CORRESPONDENCE AND RESPONSES IN RELATED U.S. PATENT APPLICATION SERIAL NO. 11/033,465

Examiner Initials*	Cite No.[1]	Description of Item
	D9	Applicant Initiated Interview Request Form, dated May 18, 2010, for Application No. 11/033,465.
	D10	Response, dated May 24, 2010, for Application No. 11/033,465.

PLEADINGS FROM *CREATIVE TECHNOLOGY LTD. V. APPLE COMPUTER, INC.*, CASE NO. 4:06-CV-03218-SBA (N.D. Cal. May 15, 2006)

Examiner Initials*	Cite No.[1]	Description of Item
	E1	Complaint for Patent Infringement, with Exhibits 1-2, filed by Creative Technology Ltd. on May 15, 2006.
	E2	Apple Computer, Inc.'s Answer to Creative Technology Ltd.'s Complaint, filed by Apple Computer, Inc. on May 17, 2006.
	E3	Stipulated Dismissal, filed by Creative Technology Ltd. and Apple Computer, Inc. on August 29, 2006.

PLEADINGS FROM *IN THE MATTER OF CERTAIN PORTABLE DIGITAL MEDIA PLAYERS*, INTERNATIONAL TRADE COMMISSION INVESTIGATION NO. 337-TA-573 (MAY 15, 2006)

Examiner Initials*	Cite No.[1]	Description of Item
	F1	Complaint Under Section 337 of the Tariff Act of 1930, as Amended, with Exhibits 1-17 and Appendices A-B, filed by Creative Labs, Inc. and Creative Technology Ltd. on May 15, 2006.
	F2	Response of Apple Computer, Inc. to the Complaint of Creative Labs, Inc. and Creative Technology Ltd., with Exhibits 1-5, filed by Apple Computer, Inc. on July 6, 2006.
	F3	Joint Motion to Terminate the Investigation Based on a Binding Term Sheet, filed by Creative Technology Ltd., Creative Labs, Inc., and Apple Computer, Inc. on August 29, 2006.

Examiner Signature	M. Steelman	Date Considered	12·06·2010

*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] Unique citation designation number. [2] Applicant is to place a check mark here if English language Translation or translation of abstract is attached.

13808393.1

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 4 of 5

Complete if Known	
Patent No.	6,928,433
Reexam Control No.	95/001,274
Original Serial No.	09/755,723
First Named Inventor	Ron GOODMAN
Group Art Unit	3992
Examiner Name	Mary J. STEELMAN
Confirmation No.	6990
Attorney Docket No.	380786-108980

U.S. PATENT DOCUMENTS THAT HAVE COME TO THE ATTENTION OF THE PATENT OWNER

Examiner Initials*	Cite No.[1]	U.S. Publication Document Number	Kind Code *(if known)*	Name of Patentee or Applicant of Cited Document	Date of Issue/ Publication of Cited Document MM-DD-YYYY
MJS	G1	US-5,355,302		Martin et al.	10-11-1994
	G2	US-5,481,509		Knowles	01-02-1996
	G3	US-5,530,235		Stefik et al.	06-25-1996
	G4	US-5,864,868		Contois	01-26-1999
	G5	US-5,870,710		Ozawa et al.	02-09-1999
	G6	US-5,914,941		Janky	06-22-1999
	G7	US-5,963,916		Kaplan	10-05-1999
MJS	G8	US-6,182,126	B1	Nathan et al.	01-30-2001

FOREIGN PATENT DOCUMENTS THAT HAVE COME TO THE ATTENTION OF THE PATENT OWNER

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office	Number	Kind Code *(if known)*	Issue Date of Publication of Cited Document MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Translation[2]
MJS	H1	JP	H4-11288		01-16-1992	Brother Industries, Ltd.	X
MJS	H2	WIPO	WO 00/51128	A1	08-31-2000	Havin Co., Ltd.	

Examiner Signature	M. Steelman	Date Considered	12/06/2010

*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] Unique citation designation number. [2] Applicant is to place a check mark here if English language Translation or translation of abstract is attached.

13808393.1

Substitute for form 1449/PTO	Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Patent No.	6,928,433
	Reexam Control No.	95/001,274
	Original Serial No.	09/755,723
(Use as many sheets as necessary)	First Named Inventor	Ron GOODMAN
	Group Art Unit	3992
	Examiner Name	Mary J. STEELMAN
	Confirmation No.	6990
Sheet 5 of 5	Attorney Docket No.	380786-108980

NON-PATENT LITERATURE DOCUMENTS THAT HAVE COME TO THE ATTENTION OF THE PATENT OWNER			
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.	Translation
MS	I1	"Personal Jukebox User Manual," pp. 1-32, HanGo Electronics Co., Ltd., 1999.	

Examiner Signature	M. Steelman	Date Considered	12-06-2010

*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] Unique citation designation number. [2] Applicant is to place a check mark here if English language Translation or translation of abstract is attached.

13808393.1

Reexamination	Application/Control No.	Applicant(s)/Patent Under Reexamination
	95/001,274	6928433
	Certificate Date	Certificate Number

Requester Correspondence Address: ☒ Patent Owner ☐ Third Party

DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

LITIGATION REVIEW ☒	ms (examiner initials)	12/21/2010 (date)
Case Name		Director Initials
USDist CA-N San Fran 3:06cv3218 Creative Tech v Apple Computer OPEN		ADW for SP
USDistCt CA-N Oakland 4:06cv3218 Creative Tech v Apple Computer CLOSED		ADW for SP

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	NUMBER
1. No copending office proceedings found	
2.	
3.	
4.	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

RESPONSE UNDER 37 C.F.R. § 1.951(a) TO ACTION CLOSING PROSECUTION

Mail Stop *Inter Partes* Reexamination
ATTN: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

An Action Closing Prosecution was mailed on December 23, 2010 in the *inter partes* reexamination of the above-captioned patent, which set a one-month deadline for response. This paper includes the Patent Owner's timely response under 37 CFR § 1.951(a) to the Action Closing Prosecution. Reconsideration of the claims in light of the remarks that follow is requested.

REMARKS

U.S. Patent No. 6,928,433 (the "'433 patent") contains original claims 1-16. Claims 17-33 were previously added by amendment during this reexamination. Claims 1-2, 4, 6-20, and 27 stand rejected. Claims 3, 5, 21-26 and 28-33 are objected to for dependence upon a rejected claim.

Claims 1, 2, 4, 6-8, 12-15, and 17-18 stand rejected as anticipated under 35 USC § 102(b) by USPN 5,739,451 to Winsky et al (hereinafter "Winsky '451"). Claims 1-2, 4, 6-20, and 27 stand rejected under 35 USC §103(a) as being obvious over Winsky '451.

The Patent Owner thanks the Examiner for careful review of the claims. However, for the reasons explained below, the Patent Owner presents the following arguments regarding patentability of claims 2 and 7. The Patent Owner believes that all the following arguments are "limited to the issues raised in the Office action closing prosecution" as required by 37 CFR § 1.951(a).

While Winsky `451 provides an opportunity for a user to identify a song and to play back a portion of a song, Winsky's use of menu screens and iterative searches by the user is fundamentally different from the accessing of tracks using a hierarchy that is presented in the claims of the `433 patent. The patent owner also provides further discussion below regarding 2 and 7, pointing out specifically how the teachings of Winsky `451 fail to respectively teach or suggest playing a group of tracks by making a subcategory selection, and as to claim 7 how Winsky's one-way progressive filtering does not teach or suggest reverting to the previous level of the hierarchy.

I. Claim 2 is Patentable Over Winsky '451

Claim 2 requires "wherein the accessing at least one track comprises selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory." The examiner continues to reject claim 2 under 35 USC § 102(b) as being anticipated by Winsky `451. *See* Action Closing Prosecution, pp. 16, 33-34. Alternatively, the examiner argues that claim 2 is unpatentable under 35 USC §103(a) as being obvious over Winsky '451. *Id.*, pp. 21, 33-34.

In the Action Closing Prosecution, the examiner states "a plurality of tracks can be played from the selected subcategory by highlighting different songs within the subcategory, and then actuating the special function key 78." *Id.* at 16. However, the Patent Owner has previously pointed out that Winsky '451 does not teach that multiple songs may be highlighted at one time. Rather, Winsky '451 teaches that a music segment is played "for a highlighted song." *See* Winsky '451, col. 6, line 21-27. In Winsky `451, the user can only select one "song" at a time. *Id.* Thus, Winsky `451 does not teach "selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory," as recited in claim 2.

As explained below, the examiner's rejections of claim 2 under 35 USC §§ 102(b) and 103(a) are based on a claim construction that is beyond the scope of the broadest reasonable interpretation.

A. The Examiner's Overly-Broad Construction of Claim 2 is Beyond the Scope of the Broadest Reasonable Interpretation

In the Action Closing Prosecution, the examiner argues that "the language of claim 2 does not preclude repeating the playing of a single track so as to read on 'playing a plurality of tracks associated with the selected subcategory'." *See* Action Closing Prosecution, p. 34 (emphasis added). Applicants respectfully disagree. Claim 2 requires that the act of "selecting a sub-category" must be at least part of the act that results in "playing a plurality of tracks associated with the selected subcategory." Inherent in the language of claim 2 is a cause and effect relationship between "selecting a sub-category" and "playing a plurality of tracks associated with the selected subcategory." Indeed, the specification of the `433 patent describes this cause and effect where it states "another option allows the user to press play button 122 of Fig. 9 to cause any currently selected songs or a list of songs (*e.g.*, an album) to immediately be played." `433 patent at col. 9, lines 20-23 (emphasis added).

"During reexamination, as with original examination, the PTO must give claims their broadest reasonable construction consistent with the specification." *In re Suitco Surface, Inc.* 603 F.3d 1255, 1259 (Fed. Cir. 2010) (citations omitted). The Federal Circuit thus reviews the PTO's interpretation of disputed claim language to determine whether it is "reasonable." *Id. citing In re Morris*, 127 F.3d 1048, 1055 (Fed.Cir.1997). The "broadest reasonable construction" rubric does not give the PTO an unfettered license to interpret claims to embrace anything remotely related to the claimed invention. *Id.* Rather, claims should always be read in light of the specification and teachings in the underlying patent. *Id. citing Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 ("The claims of a patent are always to be read or interpreted in light of its specifications.").

In the present case, the examiner's broad construction of claim 2 is unreasonable because it entirely discounts the language "selecting a subcategory in the second display screen" in claim 2. The Patent Owners points out that claim 1 also recites the same words; "selecting a subcategory in the second display screen." The difference between claims 1 and 2 is that in claim 2, the act of "selecting a subcategory in the second display screen" directly causes the portable media player to perform the act of "playing a plurality of tracks associated with the selected subcategory."

When read in the appropriate context of the claim language (including claim 2 and other claims) and the `433 patent specification, the broadest reasonable construction of claim 2 is that the act of "selecting a sub-category" must be at least part of the function that *causes or results* in "playing a

plurality of tracks associated with the selected subcategory." The patent owner is not asking the Examiner to import claim limitations from the specification but rather to place the claim terms in context.

Moreover, the Examiner's interpretation of claim 2 is inconsistent with claim 6, which recites "the method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises one of playing or adding to a playlist at least one track associated with a selected one of the category, subcategory, and item." Applying the Examiner's construction to claim 6 would render many of the terms in claim 6 superfluous, *i.e.*, there would be no need to mention the terms "subcategory" and "item" in claim 6 since any track selected after the "category" selection would necessarily be associated with the levels below including its subcategory and item. Winsky `451 does not teach or suggest playing a track from the subcategory level, let alone a group of tracks from the subcategory level of the hierarchy. Instead, Winsky `451 only suggests playing a track portion from the track level of the hierarchy. The Patent Owner submits that under the guidelines of *In re Suitco*, the claim when read in view of the specification, requires the playing of the associated tracks to be responsive to the selection of the subcategory. Playing a single track responsive to the highlighting of a track in a list presented in subsequent screens cannot be reasonably interpreted as responsive to the selection of the subcategory in the second display screen as required by a proper construction of claim 2.

For the reasons explained above, claim 2 cannot be considered so broad as to include "repeating the selecting/playing of a single track so as to read on 'playing a plurality of tracks associated with the selected subcategory'." *See* Action Closing Prosecution, p. 34 (emphasis added).

The examiner has not pointed to any teaching of Winsky `451 that would satisfy claim 2 as properly construed. Thus, claim 2 is not anticipated under 35 U.S.C. § 102 by Winsky `451.

B. Even Under The Examiner's Overly-Broad Construction of Claim 2, Winsky `451 Does Not Anticipate Claim 2

Even if claim 2 could properly be considered so broad as to include "repeating the selecting/playing of a single track so as to read on 'playing a plurality of tracks associated with the selected subcategory'," as the examiner contends (*see* Action Closing Prosecution at p. 34), Winsky `451 does not provide any such teaching. In arguing this point, the examiner relies on the following passage from Winsky `451:

> As in every case where a list of song titles is shown on display 16, **actuation of special function key 78**, which is detected by selection monitor 64 causes selector module 80 to **retrieve the stored reproducible musical segment** for a highlighted

song from memory portion 44 and to feed the retrieved segment to synthesis module 46 **for playback** via speaker 52.

See Winsky `451 at col. 6, lines 21-27 (emphasis added).

The above-quoted language from Winsky `451 only teaches that a music segment is played "for a highlighted song." *See* Winsky '451, col. 6, line 21-27. In other words, the user can only select one "song" at a time, and even then, only a portion of the song is played back. *Id.* The Action Closing Prosecution states in parentheses "repeat playing a plurality of tracks associated with the selected subcategory." *See* Action Closing Prosecution at p. 16. But, the examiner provides no citation for this additional suggestion, which appears to have been conjured by the examiner based on a hindsight review of claim 2. Winsky '451 must be interpreted based on the knowledge of a person of ordinary skill in the art at the time of the invention (*i.e.*, the 1999 time period), as opposed to the present date, which is more than ten years later. In any event, it seems there is no dispute that Winsky '451 is silent on "repeat playing a plurality of tracks associated with the selected subcategory." More specifically, Winsky `451 is totally silent as to what happens to the existing display screen when key 78 is depressed or how different tracks can be selected and/or played after the current segment has completed play. Any conclusion of obviousness here is based on improper hindsight reasoning, based on a current (ten years later) understanding of maneuvering using display screens, not based on knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made. Accordingly, Winsky `451 does not teach or suggest the limitations of claim 2.

For all of the reasons explained above, Winsky `451 does not teach "playing a plurality of tracks associated with the selected subcategory" even under the examiner's overly-broad and unreasonable construction of claim 2.

C. Even Under The Examiner's Overly-Broad Construction of Claim 2, Winsky `451 Does Not Render Claim 2 Obvious

In the Action Closing Prosecution, the examiner appears to argue in the alternative that even if Winsky `451 does not teach the elements of claim 2, it would be obvious to "otherwise repeat the selection steps to repeat and play a plurality of tracks." *Id*, p. 21. However, the examiner provides no reasoning whatsoever to explain why a person of ordinary skill in the art in the relevant time period would have allegedly found it obvious based on the teachings of Winsky `451 to "repeat the selection steps to repeat and play a plurality of tracks." *Id.* Therefore, the examiner has not presented a prima facie case of obviousness even under the examiner's overly-broad construction of claim 2.

As explained above, Winsky `451 does not suggest "playing a plurality of tracks associated with the selected subcategory," as recited in claim 2. Winsky `451 actually teaches away from playing more than one "musical segment" in series because the whole purpose of Winsky's "reference machine" is to provide a "reference work which would facilitate the identification of the song." Winsky '451, col. 1, lines 21-23. The problem addressed by Winsky `451 is that users may "remember only a musical phrase or a fragment of lyrics of a song ... without being able to recall ... the name of the song." *Id.*, col. 1, lines 16-23. Unlike the invention claimed in the present '433 patent, the device described by Winsky '451 is not designed for listening to songs, not designed for enjoying music, and it is not designed for "organizing and accessing tracks." *See* '433 Patent, col. 1, lines 34-35. Because the device described by Winsky `451 is not designed for listening to songs, a person of ordinary skill in the art would not understand it to suggest playing more than one track in series.

For all of the reasons explained above, Winsky `451 does not teach the elements of claim 2 even under the examiner's overly-broad and unreasonable construction.

II. Claim 7 is Patentable Over Winsky '451

Claim 7 recites "wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display screens, the second display screen presented sequentially after the third display screen." The examiner continues to reject claim 7 under 35 USC § 102(b) as being anticipated by Winsky `451. *See* Action Closing Prosecution, pp. 17, 34-35. Alternatively, the examiner argues that claim 7 is unpatentable under 35 USC §103(a) as being obvious over Winsky '451. *Id.*, pp. 22, 34-35.

The Patent Owner submits that the Examiner has misinterpreted the passage in Winsky at col. 5, lines 24-26, the sole basis for the Examiner's non-patentability arguments as to this claim. *See* Action Closing Prosecution, pp. 17, 34-35. The cited passage merely refers to the ability of the left right arrow keys (*see* keys 72 and 74 in FIG. 1 reproduced below) to make selections when the "options" in the screen are presented horizontally, as in Figure 4 of Winsky `451 (also reproduced below).

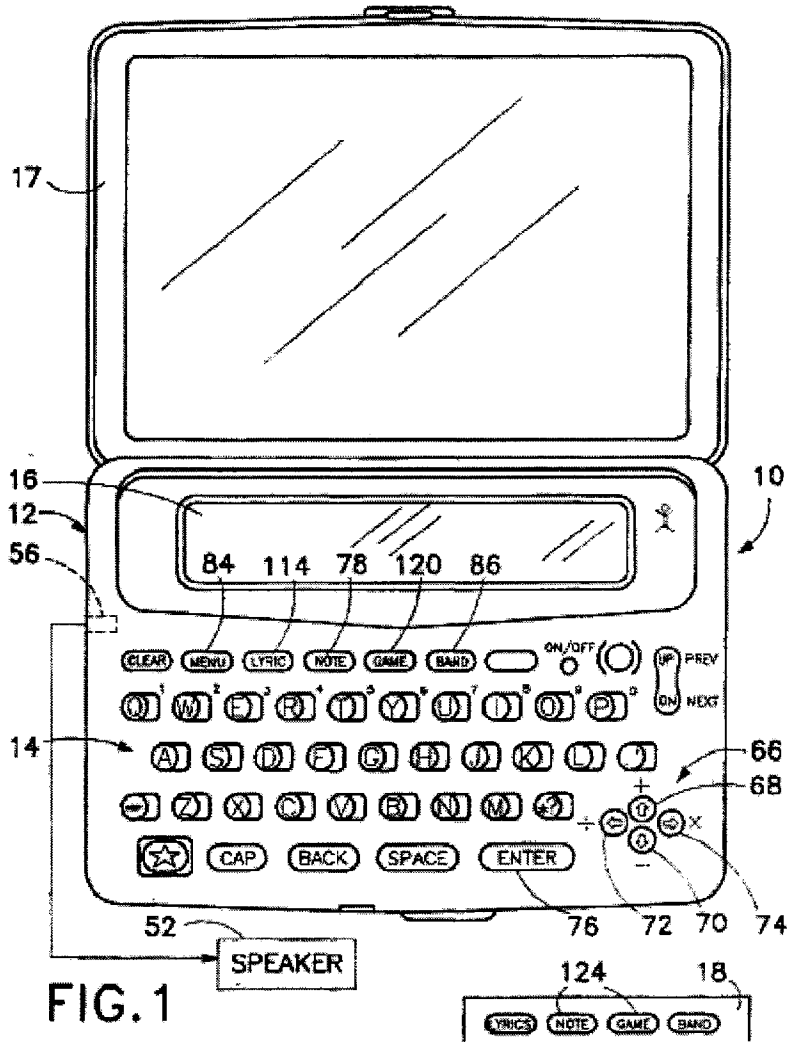


FIG. 1

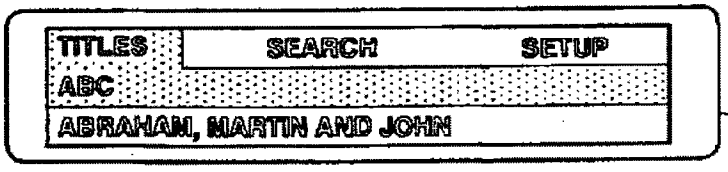


FIG. 4

Referring to Figure 4, Winsky '451 states:

> The main menu includes a "Titles" selection, a "Search" selection and a "Setup" selection. A selection is made by actuating Enter function key 76 when the desired selection is highlighted. The highlighting can be shifted among the different selections by using left and right directional keys 72 and 74 (FIG. 1).

'451 Patent, col. 5, lines 40-47.

Even if Winsky `451 teaches directional keys 72 and 74 that can be used to access different submenus, it still fails to teach the limitations of claim 7 for at least two reasons. First, Winsky's movement using the directional keys 72 and 74 is limited to movement on one level of a hierarchy. In Figure 4 of Winsky `451, the options include "Titles," "Search," and "Setup." *See* Winsky `451, Fig. 4; col. 5, lines 40-48. As indicated by the examiner in describing her version of the first level of a hierarchy, moving between "Titles" and "Search" and Setup" would be movement on a single level, not movement from a third level to a second level as required by claim 7. *See* Action Closing prosecution, pp. 14-15. Thus, Winsky's reference that "a submenu may be selected by actuating a left or right directional key" clearly does not teach or suggest reverting from a third level of a hierarchy to a second level, or even reverting form a second level to a first level.

Moreover, Winsky `451provides no teaching that once a search filter is applied, a previous screen (or alleged corresponding "level") can be recovered. Any conclusion of obviousness here of reverting back to a previous level of a hierarchy is not based on knowledge that was within the level of ordinary skill in the art at the time the claimed invention was made but rather on the consumer experiences that have became everyday activities in the ten years since the time of the claimed invention. In addition, Winsky's progressive filtering makes it impossible to revert back to a previous hierarchy level. As noted by the Examiner, Winsky `451 teaches that, "by applying search filters, a reduced set of display results is presented in each successive display" ('451, 8:57-61; 10: 57-61)." (*see* Action Closing Prosecution, page 27). If, after a first search filter were applied, the second search filter would apply to the reduced subset of segments. Any subsequent filters applied would only apply to the reduced subset of segments, not the larger subset of segments available from a previous screen. Winsky's application of search filters is a reduction of candidate tracks from filter screen to filter screen, all moving laterally on a single level (*i.e.,* the track level), not reverting back to an upper hierarchy level as required by claim 7.

Second, claim 7 requires "accessing at least one track ... by reverting back to one of the second and first display screens." This language therefore requires that tracks may be accessed via "one of the second and first display screens," which correspond to the first second "levels" of the claimed "hierarchy." *See* claim 1 (reciting: "the plurality of tracks accessed according to a hierarchy, the hierarchy having a plurality of categories, subcategories, and items respectively in a first, second, and third level of the hierarchy"; "selecting a category in the first display screen"; and "selecting a subcategory in the second display screen.") Thus, in the context of claims 1 and 2, it is clear that accessing via the "first screen" requires accessing via the "first level," and accessing via the "second screen" requires accessing via the "second level." As explained below, Winsky `451 clearly does not

teach or suggest reverting from a third level of a hierarchy to a second level, or even reverting form a second level to a first level.

The Action Closing Prosecution asserts that Winsky `451 teaches three "display screens" as found in: (1) the "main menu"; (2) the list of "search parameters" displayed upon selection of Search in the main menu; and (3) the list of artists allegedly displayed upon selection of the "bands" search parameters. *See* Action Closing Prosecution, pp. 14-15. As explained above, Winsky '451 teaches that a music segment is played "for a highlighted song." Winsky `451, col. 6, line 21-27. In rejecting claim 1, the Action Closing Prosecution characterizes the "list of song titles" in Winsky '451 as being presented on a third screen, and not on a first or second screen. *See* Action Closing Prosecution, pp. 14-15. However, a track cannot be accessed via the alleged first screen (*i.e.*, the "main menu") or the alleged second screen (*i.e.*, the list of "search parameters"). For all of the reasons explained above, Winsky `451 does not teach that the "main menu" or the "search parameters" can be used to access segments. Thus, Winsky '451 does not teach "accessing at least one track ... by reverting back to one of the second and first display screens," as required in claim 7.

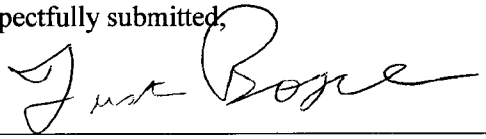
For all of the reasons explained above, Winsky `451 does not teach or suggest the limitations of claim 7. Therefore, claim 7 is neither anticipated under 35 U.S.C. § 102 by Winsky `451, nor rendered obvious under 35 U.S.C. § 103 by Winsky `451.

III. Conclusion

For all of the reasons explained above, the Patent Owner respectfully requests reconsideration of claims 2 and 7.

No fees are believed to be due in connection with this Response. However, the Director is authorized to charge any additional required fees, or credit any overpayment, to Dechert LLP Deposit Account No. 50-2778 (Order No. 380786-108980).

Respectfully submitted,



Date: January 24, 2011

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Electronic Acknowledgement Receipt

EFS ID:	9296211
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Justin Francis Boyce/Lydie Fitzsimmons
Filer Authorized By:	Justin Francis Boyce
Attorney Docket Number:	016788-000-0004
Receipt Date:	24-JAN-2011
Filing Date:	01-DEC-2009
Time Stamp:	21:54:44
Application Type:	inter partes reexam

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	Reexam Miscellaneous Incoming Letter	Response_to_Action_Closing_Prosecution.pdf	490444 4610c20951925de43e8fa972b84dbe78cda92ccf	no	9

Warnings:	
Information:	

2	Reexam Certificate of Service	Certificate_of_Service.pdf	37551 9b675035e17e4d701bed936d7177a0c5c4038f32	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	527995	

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

In re Patent No.:	**6,928,433**	Reexam Control No.:	**95/001,274**
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, David Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE PURSUANT TO 37 CFR § 1.248(a)(4)

I hereby certify that on this 24th day of January, 2011, true and correct copies of:

- RESPONSE UNDER 37 C.F.R. § 1.951(a) TO ACTION CLOSING PROSECUTION; and
- this Certificate of Service

as filed in the United States Patent and Trademark Office on January 24, 2011 in the above-captioned reexamination, were sent by Patent Owner's counsel via first class mail to current counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: January 24, 2011

Justin F. Boyce
Registration No. 40,920

DECHERT LLP
Customer No. 37509
Tel: 650.813.4800
Fax: 650.813.4848

PTO/SB/81B (12-08)
Approved for use through 1/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REEXAMINATION - PATENT OWNER POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Control Number(s)	95001274
Filing Date(s)	2009-12-01
First Named Inventor	Ron GOODMAN
Title	Automatic Hierarchical Categorization...
Patent Number	6928433
Examiner Name	STEELMAN, Mary J
Attorney Docket No(s).	CLIP024USRE

I hereby revoke all previous patent owner powers of attorney given in the above-identified reexamination proceeding control number(s).

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the proceeding(s) identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 40032

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the proceeding(s) identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified reexamination proceeding control number(s) (more than one may be changed only if they are merged proceedings) to be:

☒ The address associated with the above-mentioned Customer Number:

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Inventor; having ownership of the patent being reexamined.

OR

☒ Patent owner.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Inventor or Patent Owner

Signature		Date	Apr 6, 2012
Name	Chon Hock LEOW	Telephone	408-432-6700
Title and Company	Chief Technology Officer of Creative Technology Ltd		

NOTE: Signatures of all the inventors or patent owners 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 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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent No.:	6,928,433	Reexam Control No.:	95/001,274
Original Issue Date:	August 9, 2005	Examiner:	STEELMAN, MARY J.
Original Serial No.:	09/755,723	Group Art Unit:	3992
Original Filing Date:	January 5, 2001	Confirmation No.:	6990
By:	Ron Goodman, Howard N. Egan, Davis Bristow		
For:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA		

CERTIFICATE OF SERVICE

I hereby certify that on this 6th day of April, 2011, true and correct copies of:

- REEXAMINATION REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY UNDER 37 CFR §§ 3.73(B)
- this Certificate of Service

as filed in the United States Patent and Trademark Office on the same day were sent by Patent Owner's counsel via first class mail to counsel of record for the Third Party Requester at the address set forth below:

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 – Intellectual Property Group
McLean, VA 22102

Respectfully submitted,

Date: April 6, 2012

Russell Swerdon
Registration No.: 36,943

Electronic Acknowledgement Receipt

EFS ID:	12491915
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	37509
Filer:	Russell Nicholas Swerdon./Louisa Toy
Filer Authorized By:	Russell Nicholas Swerdon.
Attorney Docket Number:	016788-000-0004
Receipt Date:	06-APR-2012
Filing Date:	01-DEC-2009
Time Stamp:	19:44:48
Application Type:	inter partes reexam

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	Reexam Miscellaneous Incoming Letter	CLIP024USRE_POA_AND_STATEMENT.pdf	181995 6e6aabcb16a09de32792e6af392a09910f88d55b	no	2

Warnings:	
Information:	

2	Reexam Certificate of Service	CLIP024USRE_CERT_OF_SERVICE.pdf	24337 65db5770c49eff6db36bde8d42f4c5b1ab11dfe7	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	206332	

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 0551-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Creative Technology Ltd

Application No./Patent No.: 6928433 Filed/Issue Date: 08/09/2005

Titled: Automatic Hierarchical Categorization of Music By Metadata

Creative Technology Ltd , a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. [X] 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 _____, Frame _____, or for which a copy therefore is attached.

OR

B. [X] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: BRISTOW, David To: Creative Technology Ltd

The document was recorded in the United States Patent and Trademark Office at
Reel 015640, Frame 0748, or for which a copy thereof is attached.

2. From: GOODMAN, Ron & EGAN, Howard To: Creative Technology Ltd

The document was recorded in the United States Patent and Trademark Office at
Reel 011788, Frame 0174, 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).

[X] 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.

Signature 4/4/2012 Date

Chon Hock LEOW Chief Technology Officer

Printed or Typed Name Title

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

Bib Data Sheet

CONFIRMATION NO. 6990

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
95/001,274	12/01/2009 RULE	707	3992	016788-000-0004

APPLICANTS

6928433, Residence Not Provided;
CREATIVE TECHNOLOGY LIMITED (OWNER), SINGAPORE, SINGAPORE;
DAVID A. JAKOPIN (3RD PTY. REQ.), MCLEAN, VA;
ARCHOS, SA (REAL PTY IN INTEREST), Residence Not Provided;
PILLSBURY WINTHROP SHAW PITTMAN LLP, MCLEAN, VA

**** CONTINUING DATA ***************************

This application is a REX of 09/755,723 01/05/2001 PAT 6928433

**** FOREIGN APPLICATIONS *********************

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☐ no				
35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature Initials				

ADDRESS

40032

TITLE

AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
95/001,274	12/01/2009	6928433	016788-000-0004

CONFIRMATION NO. 6990

POA ACCEPTANCE LETTER

40032
CREATIVE LABS, INC.
LEGAL DEPARTMENT
1901 MCCARTHY BLVD
MILPITAS, CA 95035

OC000000053624654

Date Mailed: 04/09/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/06/2012.

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.

/jawhitfield/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
95/001,274	12/01/2009	6928433	016788-000-0004

CONFIRMATION NO. 6990

POWER OF ATTORNEY NOTICE

37509
DECHERT LLP
P.O. BOX 390460
MOUNTAIN VIEW, CA 94039-0460

OC000000053624590

Date Mailed: 04/09/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/06/2012.

- 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).

/jawhitfield/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

GENERAL POWER OF ATTORNEY TO PROSECUTE APPLICATIONS AND REEXAMINATION PROCEEDINGS BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE

I hereby appoint:

■ Practitioners associated with the Customer Number 22850

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 and reexamination proceedings 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 or reexamination proceeding identified in the attached statement under 37 CFR 3.73(b) to the address associated with Customer Number **22850**.

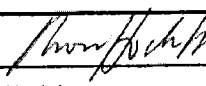
Assignee Name and Address:

CREATIVE TECHNOLOGY LTD
31 International Business Park
Creative Resources
Singapore 609921
Singapore

A statement under 37 CFR 3.73(b) is attached.

SIGNATURE OF ASSIGNEE OF RECORD

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date: May 1ST 2012
Name	Chon Hock Leow	Telephone: 408-432-6700
Title	Chief Technology Officer	

OBLON, SPIVAK McCLELLAND, MAIER & NEUSTADT, L.L.P. [07/2009]

Electronic Acknowledgement Receipt

EFS ID:	12860247
Application Number:	95001274
International Application Number:	
Confirmation Number:	6990
Title of Invention:	AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA
First Named Inventor/Applicant Name:	6928433
Customer Number:	40032
Filer:	Marvin Jay Spivak/Corrine Cunningham
Filer Authorized By:	Marvin Jay Spivak
Attorney Docket Number:	CLIP024USRE
Receipt Date:	24-MAY-2012
Filing Date:	01-DEC-2009
Time Stamp:	16:29:54
Application Type:	inter partes reexam

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		397709USpoa.pdf	115831 206bc1a6d1174c9ab1bdd696d67d809cb82b1c96	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Power of Attorney	1	1
	Change of Address	2	2
	Assignee showing of ownership per 37 CFR 3.73(b).	3	3
	Reexam Certificate of Service	4	4
Warnings:			
Information:			
	Total Files Size (in bytes):	115831	

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
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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.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Ron GOODMAN, et al.

Control No./Patent No.: 95/001,274 Filed/Issue Date: December 1, 2009

Entitled: AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

Creative Technology LTD (Name of Assignee) Corporation (Type of Assignee, e.g., corporation, partnership, government agency, etc.)

States that it is:

1. ■ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.
   The extent (by, percentage) of its ownership interest is _____%

in the patent application/patent identified above by virtue of:

■ 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 015640, Frame 0748, or for which a copy therefore is attached.

■ 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.

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature

5-23-17
Date

Scott A. McKeown
Printed or Typed Name - Attorney of Record

703-412-6297
Telephone Number

42,866
Registration Number

Docket No. 397709US91RX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE REEXAMINATION
OF U.S. PATENT NO.
6,928,433

INVENTOR(S):
Ron GOODMAN, et al.

CONTROL NO: 95/001,274

FILED: December 1, 2009

FOR: AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

CONFIRMATION OF ATTORNEY AND CORRESPONDENCE ADDRESS

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

Commissioner:

The undersigned hereby confirms the attorneys of record for the above-identified reexamination proceeding as those appearing in the General Power of Attorney filed herewith, and accordingly requests the appropriate attorneys of record be noted, and the correct correspondence address be entered for this reexamination proceeding as the address associated with Customer Number:

22850

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.

Scott A. McKeown
Registration No. 42,866

Customer Number
22850
Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 07/09)

DOCKET NO.: 397709US91RX

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE REEXAMINATION
OF U.S. PATENT NO.
6,928,433 GROUP: 3992

INVENTOR(S):
Ron GOODMAN, et al.

CONTROL NO:95/001,274 EXAMINER: MARY J. STEELMAN

FILED: December 1, 2009

FOR: AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

CERTIFICATE OF SERVICE

COMMISSIONER FOR PATENTS
Alexandria, VA 22313-1450

Commissioner:

I hereby certify that on May 24, 2012, a copy of the foregoing General Power of Attorney; Confirmation of Attorney and Correspondence Address and Statement under 37 C.F.R. 3.73(b) was served via First Class Mail to the following:

Mr. David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500 - IP Group
McLean, VA 22102

Respectfully Submitted,
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.

Scott A. McKeown
Registration No. 42,866

Customer Number
22850

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 07/09)

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

Bib Data Sheet

CONFIRMATION NO. 6990

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
95/001,274	12/01/2009 RULE	707	3992	CLIP024USRE

APPLICANTS

6928433, Residence Not Provided;
CREATIVE TECHNOLOGY LIMITED (OWNER), SINGAPORE, SINGAPORE;
DAVID A. JAKOPIN (3RD PTY. REQ.), MCLEAN, VA;
ARCHOS, SA (REAL PTY IN INTEREST), Residence Not Provided;
PILLSBURY WINTHROP SHAW PITTMAN LLP, MCLEAN, VA

**** CONTINUING DATA ***************************

This application is a REX of 09/755,723 01/05/2001 PAT 6928433

**** FOREIGN APPLICATIONS *********************

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☐ no				
35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature Initials				

ADDRESS

22850

TITLE

AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Litigation Search Report CRU 3999

Reexam Control No. 95/001,274

To: Mary Steelman **Art Unit: 3992** **Date: 05/30/12** **Case Serial Number: 95/001,274**	**From: Karen L. Ward** **Location: CRU 3999** **MDW 7C76** **Phone: (571) 272-7932** **Karen.Ward@uspto.gov**

Search Notes

Litigation was found involving U.S. Patent No. 6,928,433.

3:06CV3218 – OPEN
4:06CV3218 – CLOSED

1) I performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.

2) I performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.

3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.

4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.

5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

Westlaw.

Date of Printing: May 30, 2012

KEYCITE

C US PAT 6928433 AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA, Assignee: Creative Technology LTD (Aug 09, 2005)

History

Direct History

=> 1 **AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA,** US PAT 6928433, 2005 WL 1914838 (U.S. PTO Utility Aug 09, 2005)

Patent Family

2 AUDIO TRACK FILING METHOD IN PORTABLE DIGITAL MUSIC PLAYER, INVOLVES DETERMINING APPROPRIATE LOCATION TO FILE AUDIO TRACK BY READING HIERARCHICAL TREE STRUCTURED FILE BASED ON TRACK METADATA, Derwent World Patents Legal 2003-110747

3 INPUTS RECEIVING METHOD USED FOR PLAYING MUSIC TRACKS IN PORTABLE MEDIA PLAYER INVOLVES SELECTING FIRST CATEGORY AND DISPLAYING TRACKS IN THIRD LEVEL OF HIERARCHY STORED IN COMPUTER READABLE MEDIA, Derwent World Patents Legal 2011-Q84205

Assignments

4 Action: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS). Number of Pages: 004, (DATE RECORDED: Apr 23, 2001)

Patent Status Files

.. Request for Re-Examination, (OG DATE: Mar 16, 2010)

.. Certificate of Correction, (OG DATE: Jun 06, 2006)

.. Patent Suit(See LitAlert Entries),

Docket Summaries

8 "CREATIVE TECHNOLOGY LTD. v. APPLE COMPUTER, INC.", (N.D.CAL. May 15, 2006) (NO. 3:06CV03218), (35 USC 271 PATENT INFRINGEMENT)

Litigation Alert

9 Derwent LitAlert P2006-51-06 (May 15, 2006) Action Taken: Stipulated dismissal - Plaintiff Creative Technology Ldt and Defendant Apple Computer Inc hereby stipulate to the dismissal with prejudice

Prior Art (Coverage Begins 1976)

H 10 DATA PROTOCOL AND METHOD FOR SEGMENTING MEMORY FOR A MUSIC CHIP, US PAT 5670730Assignee: Lucent Technologies Inc., (U.S. PTO Utility 1997)

C 11 MULTIMEDIA CONTENT DELIVERY SYSTEM AND METHOD, US PAT 6248946Assignee: iJockey, Inc., (U.S. PTO Utility 2001)

H 12 MUSIC ORGANIZER AND ENTERTAINMENT CENTER, US PAT 5969283Assignee: Looney Productions, LLC, (U.S. PTO Utility 1999)

C 13 PERFORMANCE SETTING DATA SELECTING APPARATUS, US PAT 5918303Assignee: Yamaha Corporation, (U.S. PTO Utility 1999)

C 14 SING-ALONG DATA TRANSMITTING METHOD AND A SING-ALONG DATA TRANSMITTING/RECEIVING SYSTEM, US PAT 6062868Assignee: Pioneer Electronic Corporation, (U.S. PTO Utility 2000)

C 15 SYSTEM AND METHOD FOR PLAYING COMPRESSED AUDIO DATA, US PAT 6377530Assignee: Compaq Computer Corporation, (U.S. PTO Utility 2002)

C 16 SYSTEM AND METHODS FOR SELECTING MUSIC ON THE BASIS OF SUBJECTIVE CONTENT, US PAT 5616876Assignee: Microsoft Corporation, (U.S. PTO Utility 1997)

C 17 SYSTEM FOR MANAGING POWER IN A PORTABLE MUSIC PLAYER, US PAT 6590730Assignee: Creative Technology Ltd., (U.S. PTO Utility 2003)

C 18 SYSTEM FOR MANAGING POWER IN A PORTABLE MUSIC PLAYER, US PAT APP 20020089774 (U.S. PTO Application 2002)

US District Court Civil Docket

U.S. District - California Northern
(San Francisco)

3:06cv3218

Creative Technology Ltd v. Apple Computer, Inc

This case was retrieved from the court on Monday, May 22, 2006

Date Filed:	**05/15/2006**	**Class Code:**	**OPEN**
Assigned To:	**Honorable Bernard Zimmerman**	**Closed:**	**No**
Referred To:		**Statute:**	**35:271**
Nature of suit:	**Patent (830)**	**Jury Demand:**	**Both**
Cause:	**Patent Infringement**	**Demand Amount:**	**$0**
Lead Docket:	**None**	**NOS Description:**	**Patent**
Other Docket:	**None**		
Jurisdiction:	**Federal Question**		

Litigants

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Apple Computer, Inc A California Corporation
Defendant

Date	#	Proceeding Text	Source
05/15/2006	1	COMPLAINT for Patent Infringement & Demand for Jury Trial - [Summons Issued] against Apple Computer, Inc., [Filing Fee: $350.00, Receipt Number 5514559]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)	
05/15/2006	--	SUMMONS Issued as to Apple Computer, Inc.. (tn, COURT STAFF) (Entered: 05/16/2006)	
05/15/2006	2	ADR SCHEDULING ORDER: Case Management Statement due 8/7/2006 & Initial Case Management Conference set for 8/14/2006 at 4:00 P.M.. (Attachments: #(1) Standing Order). (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)	
05/15/2006	3	DISCLOSURE STATEMENT Pursuant to Fed.R.Civ.P.7.1 Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)	
05/15/2006	4	REPORT on the filing or determination of an Action Regarding Patent Infringement. (cc: form mailed to register). (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment (s) added on 5/16/2006 (tn, COURT STAFF). (Entered: 05/16/2006)	
05/15/2006	--	CASE DESIGNATED for Electronic Filing. (tn, COURT STAFF) (Entered: 05/16/2006)	
05/17/2006	5	Defendant Apple Computer, Inc.'s ANSWER to Complaint with Jury Demand byApple Computer, Inc.. (Lamison, Eric) (Filed on 5/17/2006) (Entered: 05/17/2006)	

US District Court Civil Docket

U.S. District - California Northern
(Oakland)

4:06cv3218

Creative Technology Ltd v. Apple Computer, Inc

This case was retrieved from the court on Thursday, June 24, 2010

Date Filed: 05/15/2006
Assigned To: Honorable Saundra Brown Armstrong
Referred To:
Nature of suit: Patent (830)
Cause: Patent Infringement
Lead Docket: None
Other Docket: None
Jurisdiction: Federal Question

Class Code: CLOSED
Closed: Yes
Statute: 35:271
Jury Demand: Both
Demand Amount: $0
NOS Description: Patent

Litigants

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Date	#	Proceeding Text	Source
05/15/2006	1	COMPLAINT for Patent Infringement & Demand for Jury Trial - [Summons Issued] against Apple Computer, Inc., [Filing Fee: $350.00, Receipt Number 5514559]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/22/2006 (tn, COURT STAFF). Additional attachment(s) added on 5/22/2006 (tn, COURT STAFF). (Entered: 05/16/2006)	
05/15/2006	--	SUMMONS Issued as to Apple Computer, Inc.. (tn, COURT STAFF) (Entered: 05/16/2006)	
05/15/2006	2	ADR SCHEDULING ORDER: Case Management Statement due 8/7/2006 & Initial Case Management Conference set for 8/14/2006 at 4:00 P.M.. (Attachments: #(1)	

		Standing Order). (tn, COURT STAFF) (Filed on 5/15/2006) (Entered: 05/16/2006)
05/15/2006	3	DISCLOSURE STATEMENT Pursuant to Fed.R.Civ.P.7.1 Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment(s) added on 5/22/2006 (tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	4	REPORT on the filing or determination of an Action Regarding Patent Infringement. (cc: form mailed to register). (tn, COURT STAFF) (Filed on 5/15/2006) Additional attachment (s) added on 5/16/2006 (tn, COURT STAFF). (Entered: 05/16/2006)
05/15/2006	--	CASE DESIGNATED for Electronic Filing. (tn, COURT STAFF) (Entered: 05/16/2006)
05/17/2006	5	Defendant Apple Computer, Inc.'s ANSWER to Complaint with Jury Demand byApple Computer, Inc.. (Lamison, Eric) (Filed on 5/17/2006) (Entered: 05/17/2006)
05/19/2006	6	APPLICATION of Attorney Stephen K. Shahida for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385810]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 6 Application for Admission of Attorney Stephen K. Shahida Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/19/2006	7	APPLICATION of Attorney John R. Fuisz for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385807]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 7 Application for Admission of Attorney John R. Fuisz Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/19/2006	8	APPLICATION of Attorney Mark G. Davis for Leave to Appear in Pro Hac Vice [Filing Fee: $210.00 Receipt No. 3385808]. Filed by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Filed on 5/19/2006) (Entered: 05/22/2006)
05/19/2006	--	RECEIVED ORDER: [Proposed] Order Granting re 8 Application for Admission of Attorney Mark G. Davis Pro Hac Vice Submitted by Plaintiff Creative Technology Ltd.. (tn, COURT STAFF) (Entered: 05/22/2006)
05/22/2006	9	Declination to Proceed Before a U.S. Magistrate Judge by Creative Technology Ltd. And Request for Reassignment to a United States District Judge . (Koh, Lucy) (Filed on 5/22/2006) (Entered: 05/22/2006)
05/22/2006	10	CERTIFICATE OF SERVICE by Creative Technology Ltd. re 9 Declination to Proceed Before a U.S. Magistrate Judge (Koh, Lucy) (Filed on 5/22/2006) (Entered: 05/22/2006)
05/23/2006	11	CLERK'S NOTICE of Impending Reassignment to U.S. District Judge (ls, COURT STAFF) (Filed on 5/23/2006) (Entered: 05/23/2006)
05/23/2006	12	ORDER REASSIGNING CASE. Case reassigned to Judge Saundra Brown Armstrong for all further proceedings. Judge Bernard Zimmerman no longer assigned to the case. Signed by Executive Committee on 5/23/06. (ha, COURT STAFF) (Filed on 5/23/2006) (Entered: 05/23/2006)
05/31/2006	13	CASE MANAGEMENT SCHEDULING ORDER FOR REASSIGNED CIVIL CASES: Case Management Conference set for 9/7/2006 03:45 PM. via telephone. Signed by Judge Armstrong on 5/31/06. (lrc, COURT STAFF) (Filed on 5/31/2006) Modified on 6/1/2006 (jlm, COURT STAFF). (Entered: 05/31/2006)
06/01/2006	14	CERTIFICATE OF SERVICE by Creative Technology Ltd. re 13 Case Management Scheduling Order (Koh, Lucy) (Filed on 6/1/2006) (Entered: 06/01/2006)
06/01/2006	15	ORDER by Judge Saundra Brown Armstrong GRANTING 6 Motion for Pro Hac Vice (Stephen K. Shahida) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/01/2006	16	ORDER by Judge Saundra Brown Armstrong GRANTING 7 Motion for Pro Hac Vice (John R. Fuisz) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/01/2006	17	ORDER by Judge Saundra Brown Armstrong GRANTING 8 Motion for Pro Hac Vice (Mark G. Davis) (kc, COURT STAFF) (Filed on 6/1/2006) Additional attachment(s) added on 6/5/2006 (jlm, COURT STAFF). (Entered: 06/02/2006)
06/02/2006	18	SUMMONS Returned Executed by Creative Technology Ltd.. Apple Computer, Inc. served on 5/15/2006, answer due 6/5/2006. (Koh, Lucy) (Filed on 6/2/2006) (Entered: 06/02/2006)

06/05/2006	19	CERTIFICATE OF SERVICE by Apple Computer, Inc. re 5 Answer to Complaint (Lamison, Eric) (Filed on 6/5/2006) (Entered: 06/05/2006)
06/19/2006	20	MOTION to Stay filed by Apple Computer, Inc.. Motion Hearing set for 7/25/2006 01:00 PM in Courtroom 3, 3rd Floor, Oakland. (Higgins, Zachariah) (Filed on 6/19/2006) (Entered: 06/19/2006)
06/19/2006	21	Declaration of Zachariah A. Higgins in Support of 20 MOTION to Stay filed byApple Computer, Inc.. (Attachments: # 1 Exhibit A# 2 Exhibit B)(Related document(s) 20) (Higgins, Zachariah) (Filed on 6/19/2006) (Entered: 06/19/2006)
06/19/2006	22	Proposed Order re 20 MOTION to Stay by Apple Computer, Inc.. (Higgins, Zachariah) (Filed on 6/19/2006) (Entered: 06/19/2006)
06/26/2006	23	STIPULATION and [Proposed] Order to Stay Action by Apple Computer, Inc.. (Arnold, Brian) (Filed on 6/26/2006) (Entered: 06/26/2006)
07/10/2006	24	ORDER by Judge Armstrong granting 20 Motion to Stay (lrc, COURT STAFF) (Filed on 7/10/2006) (Entered: 07/10/2006)
08/29/2006	25	STIPULATION of Dismissal by Creative Technology Ltd.. (Koh, Lucy) (Filed on 8/29/2006) (Entered: 08/29/2006)
08/29/2006	--	REPORT on the determination of an action regarding PATENT INFRINGEMENT (cc: form mailed to register). (jlm, COURT STAFF) (Filed on 8/29/2006) (Entered: 08/30/2006)

Source: **Command Searching > Utility, Design and Plant Patents** i
Terms: **6928433** (Suggest Terms for My Search)

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1. 8188357, May 29, 2012, Graphical user interface and methods of use thereof in a multimedia player, Robbin, Jeffrey L., Los Altos, California, United States of America(US), United States of America(); Jobs, Steve, Palo Alto, California, United States of America(US), United States of America(); Wasko, Timothy, High River, Canada(CA), Canada(); Christie, Greg, San Jose, California, United States of America(US), United States of America(); Chaudhri, Imran, San Francisco, California, United States of America(US), United States of America(); 464708, Apple Inc., Cupertino, California, United States of America(US), United States company or corporation

   CORE TERMS: user, interface, player, media, song, artist, display, multimedia, selectable, transition, album, input, automatic, lower order, select, portable, stored, genre, selecting, hierarchically, playing, cache, processor, graphical, storage, displayed, screen, supplied, grouping, invoking

   ... 6925595, August 2, 2005, Whitledge et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 6933433, ...

2. 8174827, May 8, 2012, Portable tablet computing device with a low power operation mode as a media player, Pan, Yang, Singapore, Republic of Singapore (SG), Republic of Singapore(); 696065, PAN YANG

   CORE TERMS: media, player, tablet, computing, portable, display, netbook, user, screen, low power, dedicated, general purpose, storage unit, hierarchical, processor, interface, computer, exemplary, housing, network, select, pivot, hinge, device used, power supply, schematic, keyboard, switched, pivoted, web-based

   ... 6788527, September 7, 2004, Doczy et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 7398535, ...

3. 8166416, April 24, 2012, Play menu and group auto organizer system and method for a multimedia player, Mei, David, Forest Hills, New York, United States of America(US), United States of America(); Bao, Jin-Xia, Forest Hills, New York, United States of America(US), United States of America(); Bao, Si Ping, Forest Hills, New York, United States of America(US), United States of America(); 502143, August 10, 2006, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., CYBER GROUP USA, INC., 99-14 74TH AVENUE, FOREST HILLS, NEW

YORK, UNITED STATES OF AMERICA(US), 11375, reel-frame:018179/0675, Cyber Group USA, Inc., Forest Hills, New York, United States of America(US), United States company or corporation

CORE TERMS: intelligence, cursor, symbol, player, user, sequence, screen, multimedia, scroll, song, priority, click, album, button, computer, media, display, input, displayed, border, folder, menu, interface, moving, organizer, arrow, inside, mouse, auto, selectable

... 6809722, October 26, 2004, Mei et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 6987221, ...

4. 8156106, April 10, 2012, Methods and systems for managing data, Arrouye, Yan, Mountain View, California, United States of America(US), United States of America (); Giampaolo, Dominic, Mountain View, California, United States of America(US), United States of America(); Carol, Andrew, Half Moon Bay, California, United States of America(US), United States of America(); 748325, Apple Inc., Cupertino, California, United States of America(US), United States company or corporation

CORE TERMS: user, metadata, window, notification, menu, region, display, database, button, folder, pull down, software, selecting, parameter, interface, indexed, storage, directory, processing, query, data processing, specify, path, exemplary, select, side bar, imported, column, coalescing, filtering

... 6847959, January 25, 2005, Arrouye et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 7752176, ...

5. 8156046, April 10, 2012, Methods of rendering recommended media assets to a user by employing a handheld media player, Pan, Yang, Shanghai, People's Republic of China(CN), People's Republic of China(); 202228, PAN YANG

CORE TERMS: media, user's, player, merchandiser, screen, message, recommended, storage, display, played, zone-hidden, handheld, displayed, album, song, computer, artist, stored, priority, unpaid, hidden, metadata, select, storage system, advertising, zone-user, database, playing, server, interface

... 6539429, March 25, 2003, Rakavy et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 7228327, ...

6. 8151212, April 3, 2012, Restricted user interface navigation, Johnson, Eric, Ottawa, Canada(CA), Canada(); Dicke, Ronald Anthony, Ottawa, Canada(CA), Canada(); 530230, September 8, 2006, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., REDSKY MOBILE INC., 107 SMIRLE AVE., OTTAWA, CANADA( ), K1Y 0S4, reel-frame:018221/0802; January 19, 2009, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., RESEARCH IN MOTION LIMITED, 295 PHILLIP STREET, WATERLOO, ONTARIO, CANADA( ), N2L 3W8, reel-frame:022123/0746, Research In Motion Limited, Waterloo, ON, Canada(CA), Foreign company or corporation

CORE TERMS: interval, user, handheld, display's, coarse, displayed, input, fine, navigation, finer, tab, intermediate, select, actuation, engine, presentation, interface, navigating, wireless, network, scroll, memory, scrolling, pressing, digital,

locate, sorted, moving, email, thumbwheel

6928433, August 9, 2005, Goodman et al., United States of America (US), 707#4 ...

7. 8150937, April 3, 2012, Wireless synchronization between media player and host device, Ng, Stanley, Campbell, California, United States of America(US), United States of America(); Fadell, Anthony M., Portola Valley, California, United States of America(US), United States of America(); Robbin, Jeffrey L., Los Altos, California, United States of America(US), United States of America(); 987649, November 12, 2004, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., APPLE COMPUTER, INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:015999/0987; March 13, 2007, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:019000/0383; March 6, 2008, CHANGE OF NAME (SEE DOCUMENT FOR DETAILS)., APPLE INC., 1 INFINITE LOOP, CUPERTINO, CALIFORNIA, UNITED STATES OF AMERICA(US), 95014, reel-frame:020617/0085, Apple Inc., Cupertino, California, United States of America(US), United States company or corporation

   CORE TERMS: media, player, host, computer, wireless, synchronization, network, stored, processing, module, playlist, portable, user, bus, wired, automatically, database, interaction, channel, wireless communications, copied, residing, docking, station, capability, identifier, cable, synchronize, automated, storage

   ... August 2, 2005, Whitledge et al., United States of America (US), 715#234 **6928433**, August 9, 2005, Goodman et al., United States of America (US) 6959288, ...

8. 8150804, April 3, 2012, Hierarchical categorization of media assets and user interface for media player, Pan, Yang, Shanghai, People's Republic of China(CN), People's Republic of China(); 175455, PAN YANG

   CORE TERMS: media, user, player, merchandiser, hidden, album, input, artist, zone-hidden, song, interface, priority, displayed, storage, stored, message, screen, zone-user, processor, portable, storage system, database, played, pushed, hierarchical, rotational, computer, server, hidden assets, storage space

   6928433, August 9, 2005, Goodman et al., United States of America (US) 7096234, ...

9. 8133115, March 13, 2012, System and method for recording and displaying a graphical path in a video game, Campbell, Scott, Bountiful, Utah, United States of America(US), United States of America(); 691929, October 22, 2003, ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., SONY COMPUTER ENTERTAINMENT AMERICA INC., SECOND FLOOR, 919 EAST HILLSDALE BOULEVARD, FOSTER CITY, CALIFORNIA, UNITED STATES OF AMERICA(US), 94404, reel-frame:014645/0297; November 9, 2010, MERGER (SEE DOCUMENT FOR DETAILS)., SONY COMPUTER ENTERTAINMENT AMERICA LLC, SECOND FLOOR, 919 E. HILLSDALE BOULEVARD, FOSTER CITY, CALIFORNIA, UNITED STATES OF AMERICA(US), 94404, reel-frame:025406/0506, Sony Computer Entertainment America LLC, Foster City, California, United States of America(US), United States company or corporation

CORE TERMS: path, marker's, player, elapsed, game, color, sub-cache, time-trial, video game, changes color, graphical, display, string, stored, exemplary, memory, instruct, session, travel, cache, interface, retrieve, software, crashed, colored, displayed, completed, repeat, card, disc

... 6917692, July 12, 2005, Murching et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 6956871, ...

10. 8131775, March 6, 2012, Methods and systems for managing data, Arrouye, Yan, Mountain View, California, United States of America(US), United States of America (); Giampaolo, Dominic, Mountain View, California, United States of America(US), United States of America(); Carol, Andrew, Half Moon Bay, California, United States of America(US), United States of America(); 636676, Apple Inc., Cupertino, California, United States of America(US), United States company or corporation

CORE TERMS: user, metadata, window, notification, menu, region, display, database, button, folder, pull down, software, selecting, parameter, interface, indexed, storage, directory, processing, query, data processing, specify, path, exemplary, select, side bar, imported, column, coalescing, filtering

... 6847959, January 25, 2005, Arrouye et al., United States of America (US) **6928433**, August 9, 2005, Goodman et al., United States of America (US) 20010054042, ...

Source: **Command Searching > Utility, Design and Plant Patents** i
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1. Briefing.com, June 14, 2006 Wednesday 11:01 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 23:01 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, update, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com

   ... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

2. Briefing.com, June 14, 2006 Wednesday 11:01 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 23:01 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, update, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com

   ... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

3. Briefing.com, June 14, 2006 Wednesday 11:01 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 23:01 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, update, phase, patent, bln, CPI, positive, Bloomberg, estimate, guidance, closing, fair value, EPS, clinical, awarded, approx, stock option, 10-K, delay, per share, Fisher, definitive, inquiry, assays, hike, com

   ... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

4. Briefing.com, June 14, 2006 Wednesday 6:00 PM Eastern Time, , 12497 words, Briefing.com: Hourly In Play (R) - 18:00 ET

   CORE TERMS: mln, Fed, BONDX, filing, consensus, update, phase, patent, bln,

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... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

5. Briefing.com, June 14, 2006 Wednesday 5:00 PM Eastern Time, , 12169 words, Briefing.com: Hourly In Play (R) - 17:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, update, phase, patent, bln, filing, CPI, positive, Bloomberg, guidance, closing, fair value, EPS, clinical, awarded, approx, 10-K, per share, stock option, Fisher, definitive, estimate, assays, hike, com, Tribune, Parlux

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

6. Briefing.com, June 14, 2006 Wednesday 4:00 PM Eastern Time, , 11602 words, Briefing.com: Hourly In Play (R) - 16:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, phase, update, patent, bln, filing, CPI, Bloomberg, closing, fair value, EPS, clinical, awarded, 10-K, approx, stock option, Fisher, positive, estimate, assays, hike, com, per share, Tribune, extension, delay, euro

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

7. Briefing.com, June 14, 2006 Wednesday 3:05 PM Eastern Time, , 10978 words, Briefing.com: Hourly In Play (R) - 15:00 ET

CORE TERMS: mln, Fed, BONDX, consensus, phase, patent, bln, update, filing, Bloomberg, CPI, closing, fair value, EPS, clinical, awarded, 10-K, approx, stock option, Fisher, estimate, assays, com, per share, Tribune, delay, hike, core, yoy, market share

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

8. Briefing.com, June 14, 2006 Wednesday 2:00 PM Eastern Time, , 10590 words, Briefing.com: Hourly In Play (R) - 14:00 ET

CORE TERMS: mln, consensus, phase, patent, bln, Fed, BONDX, update, filing, fair value, EPS, CPI, closing, awarded, 10-K, clinical, approx, stock option, Bloomberg, estimate, assays, com, per share, Tribune, delay, yoy, market share, chief financial officer, common stock, last year

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S.

Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

9. Briefing.com, June 14, 2006 Wednesday 1:00 PM Eastern Time, , 9910 words, Briefing.com: Hourly In Play (R) - 13:00 ET

CORE TERMS: mln, phase, bln, filing, patent, fair value, closing, awarded, update, 10-K, consensus, approx, stock option, EPS, com, per share, Tribune, Fed, BONDX, CPI, delay, yoy, chief financial officer, market share, common stock, last year, clinical trials, NanoPolaris, Parlux, Lekach

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

10. Briefing.com, June 14, 2006 Wednesday 12:00 PM Eastern Time, , 9489 words, Briefing.com: Hourly In Play (R) - 12:00 ET

CORE TERMS: mln, phase, bln, filing, patent, fair value, closing, awarded, Update, 10-K, consensus, approx, stock option, EPS, com, per share, Tribune, Fed, CPI, delay, yoy, market share, common stock, last year, chief financial officer, clinical trials, NanoPolaris, Parlux, Lekach, PARL

... an investigation of Apple Computer (AAPL) for the iPod's infringement of U.S. Patent **6,928,433,** which Creative refers to as the "ZEN Patent." Creative asserts that the ZEN Patent covers the user ...

Source: **Command Searching > News, All (English, Full Text)**
Terms: **6928433 or 6,928,433** (Suggest Terms for My Search)
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,274	12/01/2009	6928433	CLIP024USRE	6990

40032 7590 06/04/2012

CREATIVE LABS, INC.
LEGAL DEPARTMENT
1901 MCCARTHY BLVD
MILPITAS, CA 95035

EXAMINER	
STEELMAN, MARY J	

ART UNIT	PAPER NUMBER
3992	

MAIL DATE	DELIVERY MODE
06/04/2012	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.

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:

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JUN 04 2012

CENTRAL REEXAMINATION UNIT

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the Central Reexamination Unit at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

PTOL-2070(Rev.07-04)

Transmittal of Communication to Third Party Requester Inter Partes Reexamination	Control No.	Patent Under Reexamination
	95/001,274	6928433
	Examiner	Art Unit
	MARY STEELMAN	3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.

Right of Appeal Notice (37 CFR 1.953)	Control No.	Patent Under Reexamination
	95/001,274	6928433
	Examiner	Art Unit
	MARY STEELMAN	3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Responsive to the communication(s) filed by:
Patent Owner on 24 January, 2011
Third Party(ies) on _____

Patent owner and/or third party requester(s) may file a notice of appeal with respect to any adverse decision with payment of the fee set forth in 37 CFR 41.20(b)(1) within **one-month or thirty-days (whichever is longer)**. See MPEP 2671. In addition, a party may file a notice of **cross** appeal and pay the 37 CFR 41.20(b)(1) fee **within fourteen days of service** of an opposing party's timely filed notice of appeal. See MPEP 2672.

All correspondence relating to this inter partes reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

If no party timely files a notice of appeal, prosecution on the merits of this reexamination proceeding will be concluded, and the Director of the USPTO will proceed to issue and publish a certificate under 37 CFR 1.997 in accordance with this Office action.

The proposed amendment filed _____ ☐ will be entered ☐ will not be entered*

*Reasons for non-entry are given in the body of this notice.

1a. ☒ Claims 1-33 are subject to reexamination.
1b. ☐ Claims _____ are not subject to reexamination.
2. ☐ Claims _____ have been cancelled.
3. ☒ Claims 2,3,5 and 7 are confirmed. [Unamended patent claims].
4. ☒ Claims 21-26 and 28-33 are patentable. [Amended or new claims].
5. ☒ Claims 1,4,6,8-20 and 27 are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ The drawings filed on _____ ☐ are acceptable. ☐ are not acceptable.
8. ☐ The drawing correction request filed on _____ is ☐ approved. ☐ disapproved.
9. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119 (a)-(d) or (f). The certified copy has:
   ☐ been received. ☐ not been received. ☐ been filed in Application/Control No. _____.
10. ☐ Other _____

Attachments

1. ☐ Notice of References Cited by Examiner, PTO-892
2. ☐ Information Disclosure Citation, PTO/SB/08
3. ☐ _____

RIGHT OF APPEAL NOTICE

This office action addresses the reexamination of claims 1-16 of USPN 6,928,422 B2 to Goodman.

Per Patent Owner request (06/01/2010) claims 17-33 were added.

A Notice of Withdrawal of Third Party Requester" was received 07/01/2010.

As noted in ACP (12/23/2010), the date of conception of the invention is found to have occurred as early and 12/14/1999, followed by a reduction to practice on 01/04/2000. The evidence was found to be sufficient to overcome the following prior art references:

US Patent Publication 2002/0045960 to Phillips (priority date of October 13, 2000)
USPN 6,760,721 to Chasen et al (priority date of April 14, 2000)
USPN 6,976,229 to Balabanovic et al. (priority date of December 16, 1999).

Per ACP, claims 1, 2, 4, and 6-8, 12-15, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451 and claims 1-2, 4, 6-20, and 27 are also rejected as obvious over Winsky '451, where there was a suggestion of a teaching or a nominal substitution or modification.

As noted in ACP (12/23/2010, p. 27) limitations of claims 3 & 5 related to "adding the tracks associated with the selected subcategory / item...to a playlist" are not taught by Winsky '451.

Newly added claims 21-26 are dependent on claims 3 or 5 (where all limitations are not taught by Winsky '451). Similarly, claims 28-33, recite the limitations "adding a plurality of tracks associated with the selected album name to a playlist," where such limitations are not taught by Winsky '451

Patent Owner Comments (01/24/2011, incorporated by reference) in response to ACP (12/23/2010) have been entered into the record and given full consideration, as noted below. Patent Owner argues the rejections of claims 2 and 7.

Service of Papers

Any paper filed with the USPTO, i.e., any submission made, by either the Patent Owner or the Third Party Requester must be served on every other party in the reexamination proceeding, including any other third party requester that is part of the proceeding due to merger of the reexamination proceedings. As proof of service, the party submitting the paper to the Office must attach a Certificate of Service to the paper, which sets forth the name and address of the party served and the method of service. Papers filed without the required Certificate of Service may be denied consideration. 37 CFR 1.903; MPEP 2666.06.

Patent Owner Arguments

Patent Owner asserts (Remarks 01/24/2011, p. 2), "...Winsky's use of menu screens and iterative searches by the user is fundamentally different from the accessing of tracks using a

hierarchy that is presented in the claims of the '433 patent. Winsky '451 teaches (6: 21-27) that a music segment is played "for a highlighted song," the user can only select one "song" at a time. Playing a single track responsive to the highlighting of a track in a list presented in subsequent screens cannot be reasonably interpreted as responsive to the selection of the subcategory in the second display screen and cannot be considered so broad as to include "repeating the selecting / playing of a single track so as to read on 'playing a plurality of tracks associated with the selected subcategory'." See Action Closing Prosecution, p. 34 (emphasis added). Winsky '451 is silent on "repeat playing a plurality of tracks associated with the selected subcategory." Winsky '451 is totally silent as to what happens to the existing display screen when key 78 is depressed or how different tracks can be selected and/or played after the current segment has completed play. Winsky "451 does not teach or suggest (claim 2) "playing a plurality of tracks associated with the selected subcategory." A person of ordinary skill in the art would not understand it to suggest playing more than one track in series.

Regarding claim 7, **Patent Owner** asserts that Winsky '451 teaches directional keys 72 and 74 (5: 24-26; FIG. 1, #72, #74; FIG. 4; 5: 40-47) that are limited to movement on one level of a hierarchy. Moving between "Titles" and "Search" and Setup" would be movement on a single level, not movement from a third level to a second level as required by claim 7. *See* Action Closing prosecution, pp. 14-15. Thus, Winsky's reference that "a submenu may be selected by actuating a left or right directional key" clearly does not teach or suggest reverting from a third level of a hierarchy to a second level, or even reverting form a second level to a first level.

Winsky '451 provides no teaching that once a search filter is applied, a previous screen (or alleged corresponding "level") can be recovered. Any conclusion of obviousness here of reverting back to a previous level of a hierarchy is not based on knowledge that was within the level of ordinary skill in the art at the time the claimed invention was made but rather on the consumer experiences that have become everyday activities in the ten years since the time of the claimed invention.

Winsky's progressive filtering makes it impossible to revert back to a previous hierarchy level. As noted by the Examiner, Winsky '451 teaches that, "by applying search filters, a reduced set of display results is presented in each successive display" ('451, 8:57-61; 10:57-61)." *(see* Action Closing Prosecution, page 27). If, after a first search filter were applied, the second search filter would apply to the reduced subset of segments. Any subsequent filters applied would only apply to the reduced subset of segments, not the larger subset of segments available from a previous screen. Winsky's application of search filters is a reduction of candidate tracks from filter screen to filter screen, all moving laterally on a single level (i. e., the track level), not reverting back to an upper hierarchy level as required by claim 7. Claim 7 language requires that tracks may be accessed via "one of the second and first display screens," which correspond to the first second "levels" of the claimed "hierarchy." *See* claim 1 (reciting: "the plurality of tracks accessed according to a hierarchy, the hierarchy having a plurality of categories, subcategories, and items respectively in a first, second, and third level of the hierarchy"; "selecting a category in the first display screen"; and "selecting a subcategory in the second display screen.") A track cannot be accessed via the alleged first screen (i. e., the "main menu") or the alleged second screen *(i.e.,* the

list of "search parameters"). Winsky '451 does not teach "accessing at least one track ... by reverting back to one of the second and first display screens," as required in claim 7.

Examiner finds Patent Owner arguments persuasive. The 35 USC 102 (b) rejections of claims 2 and 7 as anticipated by Winsky '451 and the 35 USC 103(a) rejections of claims 2 and 7 as obvious over Winsky '451 are hereby withdrawn.

In Summary

Claims 1-33 have been reexamined.

Claim 2 is confirmed because Winsky '451 fails to anticipate or make obvious "wherein the accessing at least one track comprises selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory."

Claim 3 is confirmed because Winsky '451 fails to make obvious "wherein the accessing at least one track comprises selecting a subcategory and adding the tracks associated with the selected subcategory to a playlist." See ACP 12/23/2010, p. 37.

Claim 5 is confirmed because Winsky '451 fails to make obvious wherein the accessing at least one track comprises selecting an item in the third display screen and adding at least one track associated with the selected item to a playlist." See ACP 12/23/2010, p. 37.

Claim 7 is confirmed because Winsky '451 fails to anticipate or make obvious "wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display screens, the second display screen presented sequentially after the third display screen."

New **claim 21** (dependent on claim 3), **claims 22-26** (dependent on claim 5), **claims 28-33** are not found obvious because Winsky fails to teach the above noted limitations of parent claims 3 and 5, and (regarding claims 28, 30, and 32, and including claims 29, 31, and 33 dependent thereon) "accessing at least one track comprises adding a plurality of track associated with the selected album name to a playlist."

Claims 2-3, 5, and 7 are confirmed. **Claims 21-26 and 28-33** are found patentable.

Claims 1, 4, 6, 8, 12-15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451. The rejections, per Non Final (03/29/2010) and ACP (12/03/2010), are incorporated by reference and maintained.

Claims 1, 4, 6, 8-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winsky '451. The rejections, per Non Final (03/29/2010) and ACP (12/03/2010), are incorporated by reference and maintained.

Extensions of Time

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 314(c) requires that inter partes reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.937). Patent Owner extensions of time in *inter partes* reexamination proceedings are provided for in 37 CFR 1.956. Extensions of time are not available for third party requester comments, because a comment period of 30 days from service of patent owner's response is set by statute. 35 U.S.C. 314(b)(3).

Notification of Other Proceedings

The patent owner is reminded of the continuing responsibility under 37 CFR 1.985(a) to apprise the Office of any litigation activity, or other concurrent proceeding, involving the patent under reexamination throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of any such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §2686 and 2686.04.

Conclusion

This is a RIGHT OF APPEAL NOTICE (RAN); see MPEP § 2673.02 and § 2674. The decision in this Office action as to the patentability or unpatentability of any original patent claim, any proposed amended claim and any new claim in this proceeding is a FINAL DECISION.

No amendment can be made in response to the Right of Appeal Notice in an *inter partes* reexamination. 37 CFR 1.953(c). Further, no affidavit or other evidence can be submitted in an *inter partes* reexamination proceeding after the right of appeal notice, except as provided in 37 CFR 1.981 or as permitted by 37 CFR 41.77(b)(1). 37 CFR 1.116(f).

Each party has a thirty-day or one-month time period, whichever is longer, to file a notice of appeal. This time period may not be extended. 37 CFR 41.61(e). The patent owner may appeal to the Board of Patent Appeals and Interferences with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent by filing a notice of appeal and paying the fee set forth in 37 CFR 41.20(b)(1). The third party requester may appeal to the Board of Patent Appeals and Interferences with respect to any decision favorable to the patentability of any original or proposed amended or new claim of the patent by filing a notice of appeal and paying the fee set forth in 37 CFR 41.20(b)(1).

In addition, a patent owner who has not filed a notice of appeal may file a notice of cross appeal within fourteen days of service of a third party requester's timely filed notice of appeal and pay the fee set forth in 37 CFR 41.20(b)(1). A third party requester who has not filed a notice of appeal may file a notice of cross appeal within fourteen days of service of a patent owner's timely filed notice of appeal and pay the fee set forth in 37 CFR 41.20(b)(1).

Any appeal in this proceeding must identify the claim(s) appealed, and must be signed by the patent owner (for a patent owner appeal) or the third party requester (for a third party requester appeal), or their duly authorized attorney or agent.

Any party that does not file a timely notice of appeal or a timely notice of cross appeal will lose the right to appeal from any decision adverse to that party, but will not lose the right to file a respondent brief and fee where it is appropriate for that party to do so. If no party files a timely appeal, the reexamination prosecution will be terminated, and the Director will proceed to issue and publish a certificate under 37 CFR 1.997 in accordance with this Office action.

All correspondence relating to this *inter partes* reexamination proceeding should be directed:

By U.S. Postal Service Mail:
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ATTN: Central Reexamination Unit Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By FAX:
(571) 273-9900
Central Reexamination Unit

By hand:
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Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/Mary Steelman/

Reexamination Specialist

Art Unit 3992, Central Reexamination Unit

Conferees:

ALEXANDER J. KOSOWSKI
Supervisory Patent Reexamination Specialist
CRU -- Art Unit 3992

Reexamination	Application/Control No.	Applicant(s)/Patent Under Reexamination
	95/001,274	6928433
	Certificate Date	Certificate Number

Requester Correspondence Address: ☐ **Patent Owner** ☒ **Third Party**

David A. Jakopin
Pillsbury Winthrop Shaw Pittman LLP
P.O. Box 10500- Intellectual Property Group
McLean, VA 22102

LITIGATION REVIEW ☒	ms (examiner initials)	05/30/2012 (date)
Case Name		Director Initials
USDist CA-N San Fran 3:06cv3218 Creative Tech v Apple Computer OPEN		
UsDistCt CA-N Oakland 4:06cv3218 Creative Tech v Apple Computer CLOSED		

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
95/001,274	12/01/2009	6928433	CLIP024USRE

CONFIRMATION NO. 6990

POA ACCEPTANCE LETTER

22850
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

OC000000054639538

Date Mailed: 06/05/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/24/2012.

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.

/jawhitfield/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
95/001,274	12/01/2009	6928433	CLIP024USRE

CONFIRMATION NO. 6990

POWER OF ATTORNEY NOTICE

40032
CREATIVE LABS, INC.
LEGAL DEPARTMENT
1901 MCCARTHY BLVD
MILPITAS, CA 95035

OC000000054639530

Date Mailed: 06/05/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/24/2012.

- 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).

/jawhitfield/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/001,274	12/01/2009	6928433	CLIP024USRE	6990

22850 7590 08/24/2012

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED: 08/24/2012

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

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THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS
PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

Date:

Transmittal of Communication to Third Party Requester
Inter Partes Reexamination

REEXAMINATION CONTROL NO. : 95001274
PATENT NO. : 6928433
TECHNOLOGY CENTER : 3999
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified Reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the inter partes reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an ex parte reexamination has been merged with the inter partes reexamination, no responsive submission by any ex parte third party requester is permitted.

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PTOL-2070(Rev.07-04)

Transmittal of Communication to Third Party Requester Inter Partes Reexamination	Control No.	Patent Under Reexamination
	95/001,274	6928433
	Examiner	Art Unit
	MARY STEELMAN	3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

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NOTICE OF INTENT TO ISSUE INTER PARTES REEXAMINATION CERTIFICATE	Control No. 95/001,274	Patent Under Reexamination 6928433
	Examiner MARY STEELMAN	Art Unit 3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

1. ☒ Prosecution on the merits is (or remains) closed in this *inter partes* reexamination proceeding. This proceeding is subject to reopening at the initiative of the Office or upon petition. *Cf.* 37 CFR 1.313(a). A Certificate will be issued in view of:
   a. ☐ The communication filed on by .
   b. ☐ Patent owner's failure to file an appropriate timely response to the Office action dated .
   c. ☐ The failure to timely file an Appeal with fee by all parties to the reexamination proceeding entitled to do so. 37 CFR 1.959 and 41.61.
   d. ☒ The failure to timely file an Appellant's Brief with fee by all parties to the reexamination proceeding entitled to do so. 37 CFR 41.66(a).
   e. ☐ The decision on appeal by the ☐ Board of Patent Appeals and Interferences ☐ Court dated .
   f. ☐ Other:

2. ☐ The Reexamination Certificate will indicate the following:
   a. Change in the Specification: ☐ Yes ☒ No
   b. Change in the Drawings: ☐ Yes ☒ No
   c. Status of the Claims:
      (1) Patent claim(s) confirmed:3 and 5.
      (2) Patent claim(s) amended (including dependent on amended claim(s)):
      (3) Patent claim(s) cancelled: 1,2,4 and 6-16.
      (4) Newly presented claim(s) patentable: 17-28.
      (5) Newly presented cancelled claims: 29-33.
      (6) Patent claim(s) ☐ previously ☐ currently disclaimed:
      (7) Patent claim(s) not subject to reexamination: .

3. ☒ Note the attached statement of reasons for patentability and/or confirmation. Any comments considered necessary by patent owner regarding reasons for patentability and/or confirmation must be submitted promptly to avoid processing delays. Such submission(s) should be labeled: "Comments On Statement of Reasons for Patentability and/or Confirmation."

4. ☐ Note attached NOTICE OF REFERENCE CITED, (PTO-892).

5. ☐ Note attached LIST OF REFERENCES CITED (PTO/SB/08 or PTO/SB/08 substitute).

6. ☐ The drawings filed on _____ is: ☐ approved ☐ disapproved.

7. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. § 119(a) - (d) or (f).
   a)☐ All b)☐ Some* c)☐ None of the certified copies have
   ☐ been received.
   ☐ not been received.
   ☐ been filed in Application No. .
   ☐ been filed in reexamination Control No. .
   ☐ been received by the International Bureau in PCT Application No. .
   * Certified copies not received: .

8. ☒ Note Examiner's Amendment.

9. ☐ Other: .

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

	/Mary Steelman/ Reexamination Specialist Art Unit: 3992

NOTICE OF INTENT TO ISSUE REEXAMINATION CERTIFICATE

This office action addresses reexamination of claims 1-16 of USPN 6,928,233 B2 to Goodman et al. and new claims 17-33 proposed to be added by Patent Owner request (06/01/2010).

Regarding the inter partes reexamination proceeding of USPN 6,928,433 B2 to Goodman et al., in view of failure to file an Appeal with fee by all parties to the reexamination proceeding entitled to do so, prosecution on the merits is closed.

Per ACP (12/23/2010, pp. 37-38) all prior rejections of claims 3 and 5 were withdrawn. Patent Owner presented persuasive evidence to antedate prior art (US Patent Publication 2002/0045960 to Phillips, USPN 6,760,721 to Chasen et al., and USPN 6,976,229 to Balabanovic et al.)

The ACP maintained the following rejections:

Claims 1, 2, 4, 6-8, 12-15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451.

Claims 1-2, 4, 6-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winsky '451.

Reasons for Confirmation / Patentability

Original **claims 3 and 5** are confirmed for the following limitations, not taught by Winsky: "...adding the tracks associated with the selected subcategory / item...to a playlist" / "...adding at least one track associated with the selected item to a playlist."

Claims 21-26 (claims proposed to be added 06/01/2010) are found patentable for dependence on claims 3 or 5.

Claims 28-33 (claims proposed to be added 06/01/2010) are found patentable because limitations "adding a plurality of tracks associated with the selected album name to a playlist" are not taught by Winsky.

An Examiner's Amendment is made in the record canceling original claims 1-2, 4, 6-16 and Patent Owner proposed (06/01/2010) new claims to be added, 29-33. **Proposed to be added new claims (21-26 and 28-33) with patentable subject matter have been amended by Examiner**. The text is amended as follows: reordered so that new claim numbers consecutively follow original patent claim numbers (**reordered as NEW claims 17-28**), with internal dependencies corrected, as shown in the following Examiner's amendment.

A total of 14 claims are found patentable and / or confirmed: Original patented claims 3 & 5 and renumbered, **per Examiner's Amendment, new claims 17-28**.

Examiner's Amendment

[1. A method of selecting at least one track from a plurality of tracks stored in a computer-readable medium of a portable media player configured to present sequentially a first, second, and third display screen on the display of the media player, the plurality of tracks accessed according to a hierarchy, the hierarchy having a plurality of categories, subcategories, and items respectively in a first, second, and third level of the hierarchy, the method comprising: selecting a category in the first display screen of the portable media player; displaying the subcategories belonging to the selected category in a listing presented in the second display screen; selecting a subcategory in the second display screen; displaying the items belonging to the selected subcategory in a listing presented in the third display screen; and accessing at least one track based on a selection made in one of the display screens.

2. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory.]

3. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting a subcategory and adding the tracks associated with the selected subcategory to a playlist.

[4. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting an item in the third display screen and playing at least one track associated with the selected item.]

5. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting an item in the third display screen and adding at least one track associated with the selected item to a playlist.

[6. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises one of playing or adding to a playlist at least one track associated with a selected one of the category, subcategory, and item.

7. The method of selecting a track as recited in claim 1 wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display

screens, the second display screen presented sequentially after the third display screen.

8. The method of selecting a track as recited in claim 1 further comprising selecting one of the items displayed in the third display screen and presenting a listing of items associated with the selected item in a fourth sequentially presented display screen.

9. The method of selecting a track as recited in claim 1 wherein the category genre is selected in the first display screen from available categories that include at least artist, album, and genre; and the subcategories listed in the second display screen comprise a listing of at least one genre type and one of the at least one genre type is selected.

10. The method of selecting a track as recited in claim 9 further comprising displaying in the third display screen at least one album associated with the selected genre type and selecting one of the at least one albums displayed in the third display screen and presenting a listing of tracks associated with the selected album in a fourth sequentially presented display screen.

11. The method of selecting a track as recited in claim 1 wherein the category artist is selected in the first display screen from available categories that include at least artist, album, and genre; the subcategories listed in the second display screen comprise a listing of names of artists and a first artist name is selected; and the items displayed in the third display screen comprises at least one album associated with the first artist name.

12. The method of selecting a track as recited in claim 1 wherein the track is a music track, accessing at least one track comprises accessing a track title in the third display screen, and the track is played in response to the access.

13. The method of selecting a track as recited in claim 1 wherein receipt of the selection in the first display screen results in an automatic transition of the first display screen into the second display screen and receipt of the selection in the second display screen results in an automatic transition of the second display screen into the third display screen.

14. The method of selecting a track as recited in claim 1 wherein the category selected in the first display screen is from a top level of the hierarchy.

15. The method of selecting a track as recited in claim 1 wherein the

category selected in the first display screen is a category from a level at least one level below the top level of the hierarchy.

16. The method of selecting a track as recited in claim 1 wherein the plurality of categories comprise a list of artist names, the plurality of subcategories comprise a list of album names and the plurality of items comprise a list of track names.]

17.
(New) The method of selecting a track as recited in claim 3 wherein the playlist is an active queue
list of songs that is currently being played.

18.
(New) The method of selecting a track as recited in claim 5 wherein the playlist is an active queue
list of songs that is currently being played.

19.
(New) The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is associated with a plurality of tracks, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected item to a playlist.

20.

(New) The method of selecting a track as recited in claim 19 wherein the playlist is an active queue list of songs that is currently being played.

21.

(New) The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is a selected album name, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected album name to a playlist.

22.
(New) The method of selecting a track as recited in claim 21 wherein the playlist is an active queue list of songs that is currently being played.

23.
(New) The method of selecting a track as recited in claim 1 wherein:
the category album is selected in the first display screen from available categories that include at

least artist and album;
the subcategories listed in the second display screen comprise a listing of album names and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

24.
(New) The method of selecting a track as recited in claim 23 wherein the playlist is an active queue list of songs that is currently being played.

25.
(New) The method of selecting a track as recited in claim 1 wherein:
the category_ genre is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of a plurality of genre types, and one of one genre types is selected;
the items displayed in the third display screen comprise a listing of a plurality of album names associated with the selected genre type, and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

26.
(New) The method of selecting a track as recited in claim 25 wherein the playlist is an active queue list of songs that is currently being played.

27.
(New) The method of selecting a track as recited in claim 1 wherein:
the category_ artist is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of artist names, and one of the listed artist names is selected;
the items displayed in the third display screen comprise a listing of album names associated with the selected artist name, and one of the listed album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

28.
(New) The method of selecting a track as recited in claim 27 wherein the playlist is an active queue list of songs that is currently being played.

[29.
(New) The method of selecting a track as recited in claim 28 wherein the playlist is an active queue list of songs that is currently being played.

30.
(New) The method of selecting a track as recited in claim 1 wherein:
the category_ genre is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of a plurality of genre types, and one of one genre types is selected;
the items displayed in the third display screen comprise a listing of a plurality of album names associated with the selected genre type, and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

31.
(New) The method of selecting a track as recited in claim 30 wherein the playlist is an active queue list of songs that is currently being played.

32.
(New) The method of selecting a track as recited in claim 1 wherein:
the category_ artist is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of artist names, and one of the listed artist names is selected;
the items displayed in the third display screen comprise a listing of album names associated with the selected artist name, and one of the listed album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

33. (New) The method of selecting a track as recited in claim 32 wherein the playlist is an active queue list of songs that is currently being played.]

Any comments considered necessary by the Patent Owner regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the Patent Owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation: and will be placed in the reexamination file.

Conclusion

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extension of time in ex parte reexamination proceedings are provided for in 37 CFR 1.550(c). A request for extension of time must be filed on or before the day on which a response to this action is due, and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). The mere filing of a request will not affect any extension of time. An extension of time will be granted only for sufficient cause, and for a reasonable time specified.

All correspondence relating to this *inter partes* reexamination proceeding should be directed:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://efs.uspto.gov/efile/myportal/efs-registered

By Mail to: Mail Stop Inter Partes Reexam

Attn: Central Reexamination Unit

Commissioner for Patents

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By FAX to: (571) 273-9900
Central Reexamination Unit

By Hand: Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/Mary Steelman/

Reexamination Specialist

CRU 3992

571-272-3704

Conferees: /FOF/

Alexander Kosowski
Supervisor
Art Unit 3992

Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination	
95/001,274	6928433	
Examiner	**Art Unit**	
MARY STEELMAN	3992	

SEARCHED			
Class	Subclass	Date	Examiner
NONE			

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Prosecution History	8/13/2012	MS

Reexamination	Application/Control No.	Applicant(s)/Patent Under Reexamination
	95/001,274	6928433
	Certificate Date	Certificate Number
		C1

Requester Correspondence Address: ☐ **Patent Owner** ☒ **Third Party**

PILLSBURY WINTHROP SHAW PITTMAN LLP
P.O. BOX 10500
MCLEAN, VA 22102

LITIGATION REVIEW ☒	**MS** (examiner initials)	**06/04/2012** (date)
Case Name		Director Initials
USDist CA-N San Fran 3:06cv3218 Creative Tech v Apple Computer OPEN		DRK Psv SY
UsDistCt CA-N Oakland 4:06cv3218 Creative Tech v Apple Computer CLOSED		↓

COPENDING OFFICE PROCEEDINGS	
TYPE OF PROCEEDING	**NUMBER**
1. No copending office proceedings found.	
2.	
3.	
4.	

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	95/001,274	6928433	
	Examiner	Art Unit	
	MARY STEELMAN	3992	

ISSUE CLASSIFICATION

ORIGINAL CLASS	ORIGINAL SUBCLASS		CROSS REFERENCE(S) CLASS	CROSS REFERENCE(S) SUBCLASS (ONE SUBCLASS PER BLOCK)						
386	243		707	999.00 3	999.00 4	999.10 2				
INTERNATIONAL CLASSIFICATION			G9B	27.019	27.021	27.051				
G 11 B	27/11									
G 11 B	27/10									
G 11 B	27/34									
G 06 F	017/30									
	/									

N/A (Assistant Examiner) (Date)	/Mary Steelman/ 09/14/2012 (Primary Examiner) (Date)	Total Claims Allowed: 16	
9/17/12 (Legal Instruments Examiner) (Date)		O.G. Print Claim(s): 1	O.G. Print Fig.: 8

☒ 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
	1		31		61		91		121		151		181
	2		32		62		92		122		152		182
	3		33		63		93		123		153		183
	4		34		64		94		124		154		184
	5		35		65		95		125		155		185
	6		36		66		96		126		156		186
	7		37		67		97		127		157		187
	8		38		68		98		128		158		188
	9		39		69		99		129		159		189
	10		40		70		100		130		160		190
	11		41		71		101		131		161		191
	12		42		72		102		132		162		192
	13		43		73		103		133		163		193
	14		44		74		104		134		164		194
	15		45		75		105		135		165		195
	16		46		76		106		136		166		196
	17		47		77		107		137		167		197
	18		48		78		108		138		168		198
	19		49		79		109		139		169		199
	20		50		80		110		140		170		200
	21		51		81		111		141		171		201
	22		52		82		112		142		172		202
	23		53		83		113		143		173		203
	24		54		84		114		144		174		204
	25		55		85		115		145		175		205
	26		56		86		116		146		176		206
	27		57		87		117		147		177		207
	28		58		88		118		148		178		208
	29		59		89		119		149		179		209
	30		60		90		120		150		180		210

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22850 7590 09/17/2012

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1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
STEELMAN, MARY J	

ART UNIT	PAPER NUMBER
3992	

MAIL DATE	DELIVERY MODE
09/17/2012	PAPER

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The time period for reply, if any, is set in the attached communication.

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(THIRD PARTY REQUESTER'S CORRESPONDENCE ADDRESS)

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   ☐ not been received.
   ☐ been filed in Application No. .
   ☐ been filed in reexamination Control No. .
   ☐ been received by the International Bureau in PCT Application No. .
   * Certified copies not received: .

8. ☒ Note Examiner's Amendment.

9. ☐ Other: .

All correspondence relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Office action.

	/Mary Steelman/ Reexamination Specialist Art Unit: 3992

SUPPLEMENTAL NOTICE OF INTENT TO ISSUE REEXAMINATION CERTIFICATE

This Supplemental NIRC office action addresses reexamination of claims 1-16 of USPN 6,928,233 B2 to Goodman et al. and new claims 17-33 proposed to be added by Patent Owner request (06/01/2010). The NIRC (mailed o8/24/2012) is hereby withdrawn.

Regarding the inter partes reexamination proceeding of USPN 6,928,433 B2 to Goodman et al., in view of failure to file an Appeal with fee by all parties to the reexamination proceeding entitled to do so, prosecution on the merits is closed.

Per ACP (12/23/2010, pp. 37-38) all prior rejections of claims 3 and 5 were withdrawn. Patent Owner presented persuasive evidence to antedate prior art (US Patent Publication 2002/0045960 to Phillips, USPN 6,760,721 to Chasen et al., and USPN 6,976,229 to Balabanovic et al.).

The RAN (06/04/2012, p. 4) further found Patent Owner arguments regarding the rejections of claims 2 and 7 to be persuasive. As stated in the RAN (06/04/2012, p. 6), "Examiner finds Patent Owner arguments persuasive. The 35 USC 102 (b) rejections of claims 2 and 7 as

anticipated by Winsky '451 and the 35 USC 103(a) rejections of claims 2 and 7 as obvious over Winsky '451 are hereby withdrawn."

Per the RAN Office Action (06/04/2012, pp. 7-8) the following rejections are maintained:

> **Claims 1, 4, 6, 8, 12-15, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Winsky '451.**
>
> **Claims 1, 4, 6, 8-20, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winsky '451.**

Reasons for Confirmation / Patentability (See RAN 06/04/2012, pp. 6-7)

Original **claim 2** is confirmed because Winsky '451 fails to anticipate or make obvious "wherein the accessing at least one track comprises selecting a subcategory in the second display screen and

playing a plurality of tracks associated with the selected subcategory."

Original **claim 3** is confirmed because Winsky '451 fails to make obvious "wherein the accessing at least one track comprises selecting a subcategory and adding the tracks associated with the selected subcategory to a playlist."

Original **claim 5** is confirmed because Winsky '451 fails to make obvious wherein the accessing at least one track comprises selecting an item in the third display screen and adding at least one track

associated with the selected item to a playlist."

Original **claim 7** is confirmed because Winsky '451 fails to anticipate or make obvious "wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display screens, the second display screen presented sequentially after the third display screen."

Claims 21-26 (claims proposed to be added 06/01/2010) are found patentable for dependence on confirmed claims 3 or 5.

Claims 28-33 (claims proposed to be added 06/01/2010) are found patentable because limitations "adding a plurality of tracks associated with the selected album name to a playlist" are not taught by Winsky.

An Examiner's Amendment is made in the record **canceling** original claims 1, 4, 6, 8-16 and Patent Owner proposed (06/01/2010) new claims to be added, claims 17-20 & 27. **Proposed to be added new claims (new claim 21, dependent on confirmed claim 3, new claims 22-26, dependent on confirmed claim 5, and new claims 28-33) with patentable subject matter have been amended by Examiner.** The text is amended as follows: reordered so that new claim numbers consecutively follow original patent claim numbers (**reordered as NEW claims 17-28**), with internal dependencies corrected, as shown in the following Examiner's amendment.

A total of 16 claims are found patentable and / or confirmed: Original patented claims 2, 3, 5, & 7 and renumbered, **per Examiner's Amendment, new claims 17-28.**

Examiner's Amendment

[1. A method of selecting at least one track from a plurality of tracks stored in a computer-readable medium of a portable media player configured to present sequentially a first, second, and third display screen on the display of the media player, the plurality of tracks accessed according to a hierarchy, the hierarchy having a plurality of categories, subcategories, and items respectively in a first, second, and third level of the hierarchy, the method comprising: selecting a category in the first display screen of the portable media player; displaying the subcategories belonging to the selected category in a listing presented in the second display screen; selecting a subcategory in the second display screen; displaying the items belonging to the selected subcategory in a listing presented in the third display screen; and accessing at least one track based on a selection made in one of the display screens.]

2. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting a subcategory in the second display screen and playing a plurality of tracks associated with the selected subcategory.

3. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting a subcategory and adding the tracks associated with the selected subcategory to a playlist.

[4. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting an item in the third display screen and playing at least one track associated with the selected item.]

5. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises selecting an item in the third display screen and adding at least one track associated with the selected item to a playlist.

[6. The method of selecting a track as recited in claim 1 wherein the accessing at least one track comprises one of playing or adding to a playlist at least one track associated with a selected one of the category, subcategory, and item.]

7. The method of selecting a track as recited in claim 1 wherein the accessing at least one track is made after the presentation of the third display screen by reverting back to one of the second and first display screens, the second display screen presented sequentially after the third display screen.

[8. The method of selecting a track as recited in claim 1 further comprising selecting one of the items displayed in the third display screen and presenting a listing of items associated with the selected item in a fourth sequentially presented display screen.

9. The method of selecting a track as recited in claim 1 wherein the category genre is selected in the first display screen from available categories that include at least artist, album, and genre; and the subcategories listed in the second display screen comprise a listing of at least one genre type and one of the at least one genre type is selected.

10. The method of selecting a track as recited in claim 9 further comprising displaying in the third display screen at least one album associated with the selected genre type and selecting one of the at least one albums displayed in the third display screen and presenting a listing of tracks associated with the selected album in a fourth sequentially presented display screen.

11. The method of selecting a track as recited in claim 1 wherein the category artist is selected in the first display screen from available categories that include at least artist, album, and genre; the subcategories listed in the second display screen comprise a listing of names of artists and a first artist name is selected; and the items displayed in the third display screen comprises at least one album associated with the first artist name.

12. The method of selecting a track as recited in claim 1 wherein the track is a music track, accessing at least one track comprises accessing a track title in the third display screen, and the track is played in response to the access.

13. The method of selecting a track as recited in claim 1 wherein receipt of the selection in the first display screen results in an automatic transition of the first display screen into the second display screen and receipt of the selection in the second display screen results in an automatic transition of the second display screen into the third display screen.

14. The method of selecting a track as recited in claim 1 wherein the category selected in the first display screen is from a top level of the

hierarchy.

15. The method of selecting a track as recited in claim 1 wherein the category selected in the first display screen is a category from a level at least one level below the top level of the hierarchy.

16. The method of selecting a track as recited in claim 1 wherein the plurality of categories comprise a list of artist names, the plurality of subcategories comprise a list of album names and the plurality of items comprise a list of track names.]

17. (New) The method of selecting a track as recited in claim 3 wherein the playlist is an active queue list of songs that is currently being played.

18. (New) The method of selecting a track as recited in claim 5 wherein the playlist is an active queue list of songs that is currently being played.

19. (New) The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is associated with a plurality of tracks, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected item to a playlist.

20. (New) The method of selecting a track as recited in claim 19 wherein the playlist is an active queue list of songs that is currently being played.

21. (New) The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is a selected album name, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected album name to a playlist.

22. (New) The method of selecting a track as recited in claim 21 wherein the playlist is an active queue list of songs that is currently being played.

23. (New) The method of selecting a track as recited in claim 1 wherein:
the category album is selected in the first display screen from available categories that include at least artist and album;
the subcategories listed in the second display screen comprise a listing of album names and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected

album name to a playlist.

24. (New) The method of selecting a track as recited in claim 23 wherein the playlist is an active queue list of songs that is currently being played.

25. (New) The method of selecting a track as recited in claim 1 wherein:
the category_ genre is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of a plurality of genre types, and one of one genre types is selected;
the items displayed in the third display screen comprise a listing of a plurality of album names associated with the selected genre type, and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

26. (New) The method of selecting a track as recited in claim 25 wherein the playlist is an active queue list of songs that is currently being played.

27. (New) The method of selecting a track as recited in claim 1 wherein:
the category_ artist is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of artist names, and one of the listed artist names is selected;
the items displayed in the third display screen comprise a listing of album names associated with the selected artist name, and one of the listed album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

28. (New) The method of selecting a track as recited in claim 27 wherein the playlist is an active queue list of songs that is currently being played.

[29. (New) The method of selecting a track as recited in claim 28 wherein the playlist is an active
queue list of songs that is currently being played.

30. (New) The method of selecting a track as recited in claim 1 wherein:
the category_ genre is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of a plurality of genre types, and one of one genre types is selected;
the items displayed in the third display screen comprise a listing of a plurality of album names associated with the selected genre type, and one of the album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected

album name to a playlist.

31. (New) The method of selecting a track as recited in claim 30 wherein the playlist is an active queue list of songs that is currently being played.

32. (New) The method of selecting a track as recited in claim 1 wherein:
the category_artist is selected in the first display screen from available categories that include at least artist, album, and genre;
the subcategories listed in the second display screen comprise a listing of artist names, and one of the listed artist names is selected;
the items displayed in the third display screen comprise a listing of album names associated with the selected artist name, and one of the listed album names is selected; and
the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

33. (New) The method of selecting a track as recited in claim 32 wherein the playlist is an active queue list of songs that is currently being played.]

Any comments considered necessary by the Patent Owner regarding the above statement must be submitted promptly to avoid processing delays. Such submission by the Patent Owner should be labeled: "Comments on Statement of Reasons for Patentability and/or Confirmation: and will be placed in the reexamination file.

Conclusion

Extensions of time under 37 CFR 1.136(a) will not be permitted in these proceedings because the provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Additionally, 35 U.S.C. 305 requires that reexamination proceedings "will be conducted with special dispatch" (37 CFR 1.550(a)). Extension of time in ex parte reexamination proceedings are provided for in 37 CFR 1.550(c). A request for extension of time must be filed on or before the day on which a response to this action is due, and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). The mere filing of a request will not affect any extension of time. An extension of time will be granted only for sufficient cause, and for a reasonable time specified.

All correspondence relating to this *inter partes* reexamination proceeding should be directed:

By EFS: Registered users may submit via the electronic filing system EFS-Web, at https://efs.uspto.gov/efile/myportal/efs-registered

By Mail to: Mail Stop Inter Partes Reexam

Attn: Central Reexamination Unit

Commissioner for Patents

United States Patent & Trademark Office

P.O. Box 1450

Alexandria, VA 22313-1450

By FAX to: (571) 273-9900

Central Reexamination Unit

By Hand: Customer Service Window
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401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

/Mary Steelman/

Reexamination Specialist

CRU 3992

571-272-3704

Conferees: /FOF/

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BIB DATA SHEET

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**** CONTINUING DATA ***************************

This application is a REX of 09/755,723 01/05/2001 PAT 6,928,433

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

Foreign Priority claimed	☐ Yes ☒ No		STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☒ No	☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature	Initials				

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UNITED STATES

TITLE

AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA

FILING FEE RECEIVED	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

US006928433C1

(12) INTER PARTES REEXAMINATION CERTIFICATE (469th)
United States Patent
Goodman et al.

(10) Number: US 6,928,433 C1
(45) Certificate Issued: Oct. 8, 2012

(54) **AUTOMATIC HIERARCHICAL CATEGORIZATION OF MUSIC BY METADATA**

(75) Inventors: **Ron Goodman**, Santa Cruz, CA (US); **Howard N. Egan**, Capitola, CA (US)

(73) Assignee: **Creative Technology Limited**, Singapore (SG)

Reexamination Request:
No. 95/001,274, Dec. 1, 2009

Reexamination Certificate for:

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(51) **Int. Cl.**

G11B 27/11	(2006.01)
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G06F 17/30	(2006.01)

(52) **U.S. Cl.** **386/243**; 707/999.003; 707/999.004; 707/999.102; G9B/27.019; G9B/27.021; G9B/27.051

(58) **Field of Classification Search** 707/104
See application file for complete search history.

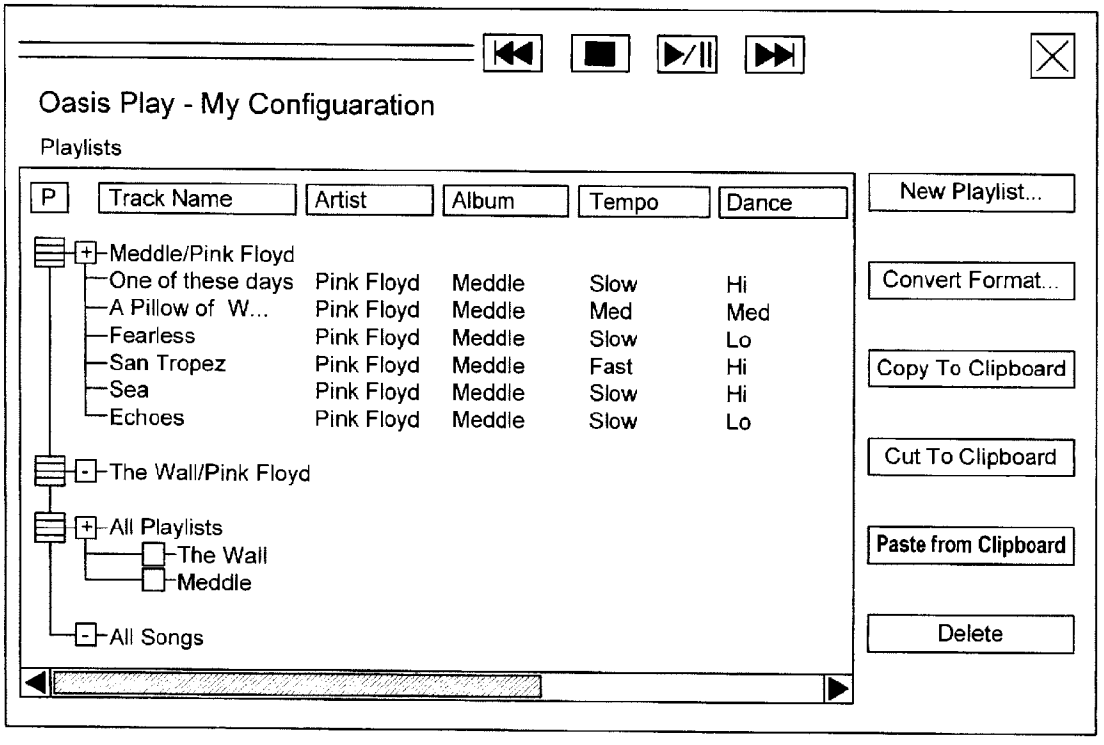
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 95/001,274, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — Mary Steelman

(57) **ABSTRACT**

A method, performed by software executing on the processor of a portable music playback device, that automatically files tracks according to hierarchical structure of categories to organize tracks in a logical order. A user interface is utilized to change the hierarchy, view track names, and select tracks for playback or other operations.



INTER PARTES REEXAMINATION CERTIFICATE ISSUED UNDER 35 U.S.C. 316

THE PATENT IS HEREBY AMENDED AS INDICATED BELOW.

Matter enclosed in heavy brackets [ ] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **2**, **3**, **5** and **7** is confirmed.

Claims **1**, **4**, **6** and **8-16** are cancelled.

New claims **17-28** are added and determined to be patentable.

17. The method of selecting a track as recited in claim 3 wherein the playlist is an active queue list of songs that is currently being played.

18. The method of selecting a track as recited in claim 5 wherein the playlist is an active queue list of songs that is currently being played.

19. The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is associated with a plurality of tracks, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected item to a playlist.

20. The method of selecting a track as recited in claim 19 wherein the playlist is an active queue list of songs that is currently being played.

21. The method of selecting a track as recited in claim 5 wherein the selected item in the third display screen is a selected album name, and wherein the accessing at least one track comprises adding the plurality of tracks associated with the selected album name to a playlist.

22. The method of selecting a track as recited in claim 21 wherein the playlist is an active queue list of songs that is currently being played.

23. The method of selecting a track as recited in claim 1 wherein:

the category album is selected in the first display screen from available categories that include at least artist and album;

the subcategories listed in the second display screen comprise a listing of album names and one of the album names is selected; and

the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

24. The method of selecting a track as recited in claim 23 wherein the playlist is an active queue list of songs that is currently being played.

25. The method of selecting a track as recited in claim 1 wherein:

the category genre is selected in the first display screen from available categories that include at least artist, album, and genre;

the subcategories listed in the second display screen comprise a listing of a plurality of genre types, and one of one genre types is selected;

the items displayed in the third display screen comprise a listing of a plurality of album names associated with the selected genre type, and one of the album names is selected; and

the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

26. The method of selecting a track as recited in claim 25 wherein the playlist is an active queue list of songs that is currently being played.

27. The method of selecting a track as recited in claim 1 wherein:

the category artist is selected in the first display screen from available categories that include at least artist, album, and genre;

the subcategories listed in the second display screen comprise a listing of artist names, and one of the listed artist names is selected;

the items displayed in the third display screen comprise a listing of album names associated with the selected artist name, and one of the listed album names is selected; and

the accessing at least one track comprises adding a plurality of tracks associated with the selected album name to a playlist.

28. The method of selecting a track as recited in claim 27 wherein the playlist is an active queue list of songs that is currently being played.

* * * * *