



(12) **United States Patent**  
**Hulst et al.**

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(54) **DATA STORAGE AND ACCESS SYSTEMS**

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**Related U.S. Application Data**

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and Crew LLP

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(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

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Data storage and access systems are described for down-  
loading and paying for data such as audio and video data,  
text, software, games and other types of data. A portable data  
carrier has an interface for sending and receiving data,  
non-volatile data memory for storing received content data  
and non-volatile payment validation memory for providing  
payment validation data to an external device. The carrier  
may also store a record of access made to the stored content,  
and content use rules for controlling access to the stored  
content. Preferred embodiments store further access control  
data and supplementary data such as hot links to web sites  
and/or advertising data. A complementary data access ter-  
minal, data supply computer system and data access device  
are also described. The combination of payment data and  
stored content data and, in preferred embodiments, use rule  
data, helps reduce the risk of unauthorized access to data  
such as compressed music and video data, especially over  
the Internet.

(51) **Int. Cl.**  
**G06K 5/00** (2006.01)

(52) **U.S. Cl.** ..... **230/380; 235/382; 235/492;**  
**235/451**

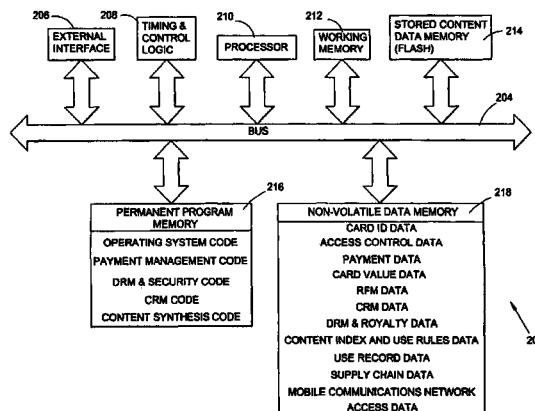
(58) **Field of Classification Search** ..... **235/380,**  
**235/382, 492, 451; 711/100, 101, 103**  
See application file for complete search history.

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**18 Claims, 17 Drawing Sheets**



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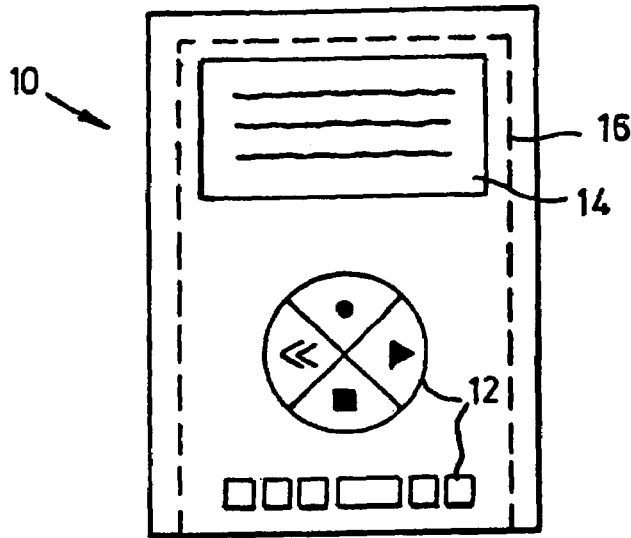
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Fig. 1

A



B



C

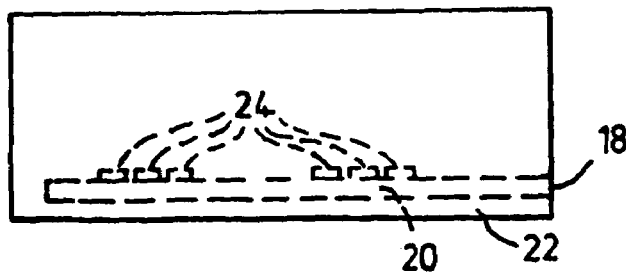


Fig. 2

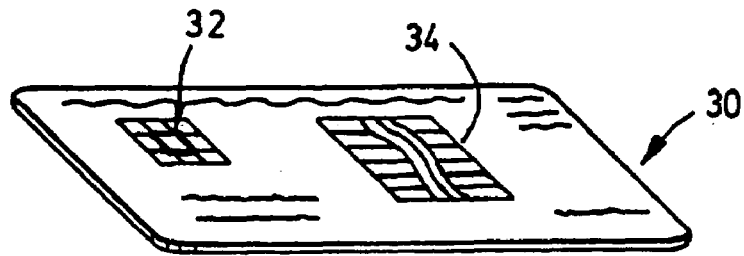


Fig. 3

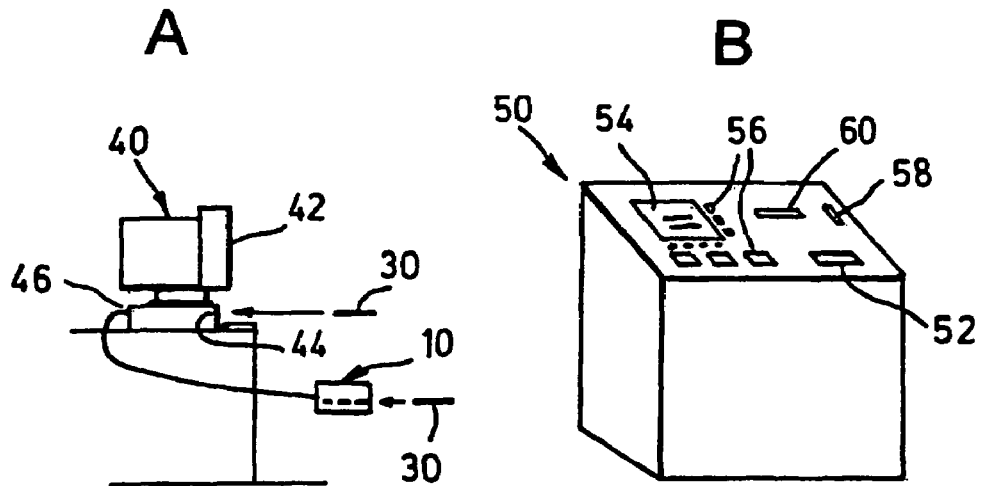
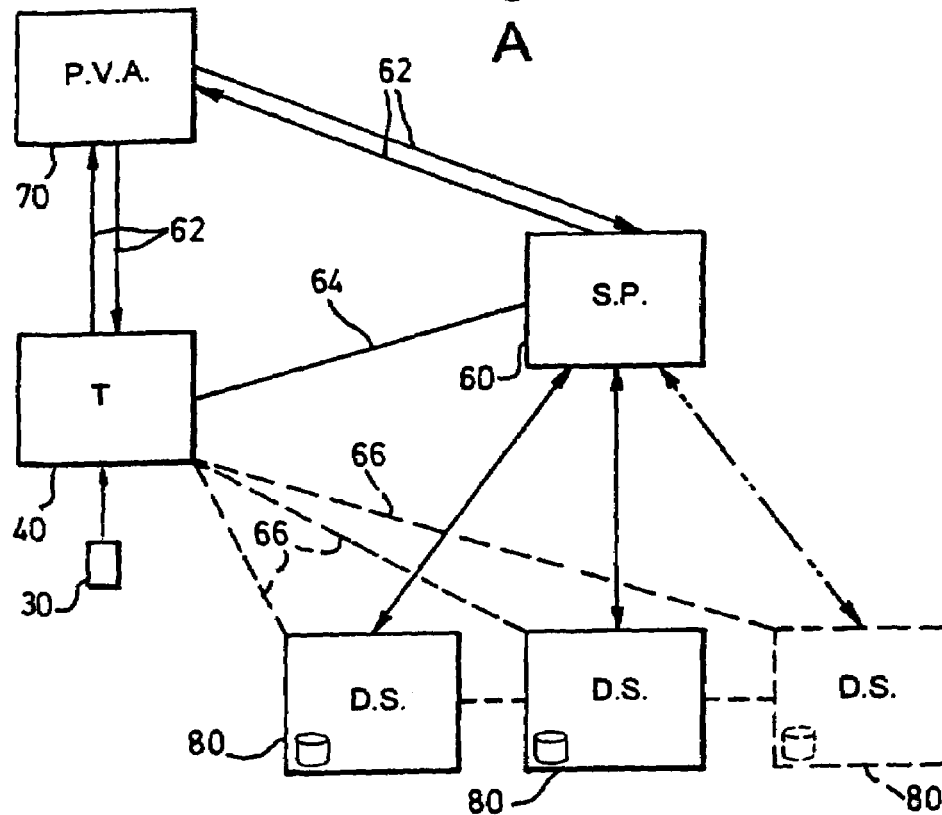
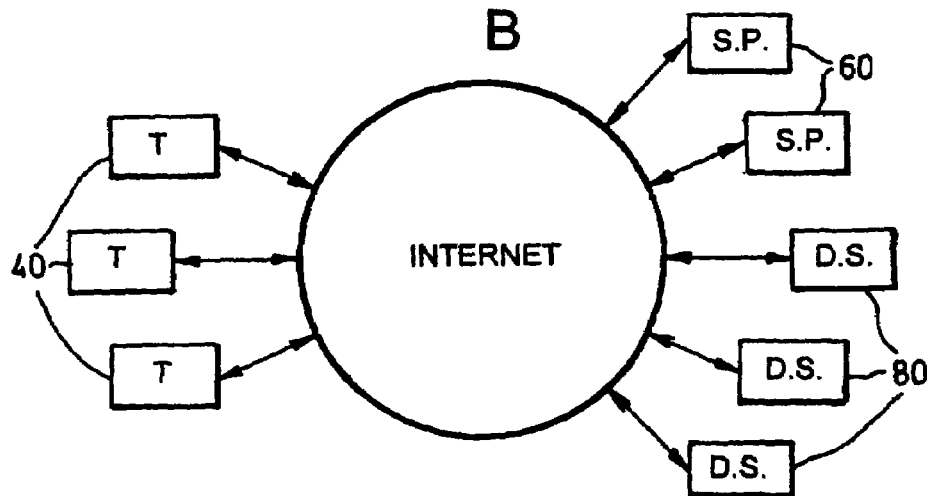


Fig. 4  
A



B



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