AUTHENTICATING A DATA STORAGE MEDIUM USING PREDETERMINED INTER-SECTOR RELATIONSHIPS

A data storage medium (230, 400) and associated method (500, 520), apparatus (250, 430) and application routine (110, 524) for authenticating the medium as an authentic copy. The medium (such as a prerecorded or recordable optical disc) is formatted so that a predefined relationship is established (502) between physical locations of at least first and second addressable data sectors (220) prior to recording of data to the sectors (506). The predetermined relationship will be present in an authorized copy of the medium (330) but not in an unauthorized duplicate (332), allowing an application routine to grant or deny access (532, 534) to remaining portions of the medium based on the presence or absence of the detected relationship. The predetermined relationship is further used to embed a forensic data payload to serve as a digital fingerprint on the medium.
Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report: 22 January 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
### INTERNATIONAL SEARCH REPORT

**International application No.**

**PCT/US03/15151**

**A. CLASSIFICATION OF SUBJECT MATTER**

- **IPC(7):** G06F 12/00
- **US CL:** 711/163,164,360/53,47,48

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

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

- **U.S.:** 711/163,164,360/53,47,48

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 6,034,831 A (DOBBEK et al) 07 March 2000, col. 4, lines 27-60.</td>
<td>1,13,20,29,37</td>
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<tr>
<td>X</td>
<td>US 6,034,831 A (DOBBEK et al) 07 March 2000, col. 1, lines 32 to col. 12, lines 4</td>
<td>2,4-9,11-12,14,18-19,21-25,27-28,32-36,38-40</td>
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<td>US 6,034,831 A (DOBBEK et al) 07 March 2000, col. 4, lines 27-60.</td>
<td>1,13,29</td>
</tr>
<tr>
<td>Y</td>
<td>US 6,028,936 A (HILLIS et al) 22 February 2000, col. 8, lines 22 to col. 9, lines 25.</td>
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<td>US 6,034,831 A (DOBBEK et al) 07 March 2000, col. 4, lines 27-60.</td>
<td>1,13,20,29</td>
</tr>
<tr>
<td>Y</td>
<td>US 5,881,032 A (ITO et al) 09 March 1999, col. 8, lines 55 to col. 9, lines 45.</td>
<td>10,15,26,31</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

- **"T"** later documents 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 relevance; 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 relevance; 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**

16 October 2003 (16.10.2003)

**Date of mailing of the international search report**

17 Nov 2003

**Name and mailing address of the ISA/US**

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Form PCT/ISA/210 (second sheet) (July 1998)
Continuation of B. FIELDS SEARCHED Item 3:
EAST DATABASE
search terms: relationship, sectors, authorize or authorized, accessed or denied, analog duplication etc.