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- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];  
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

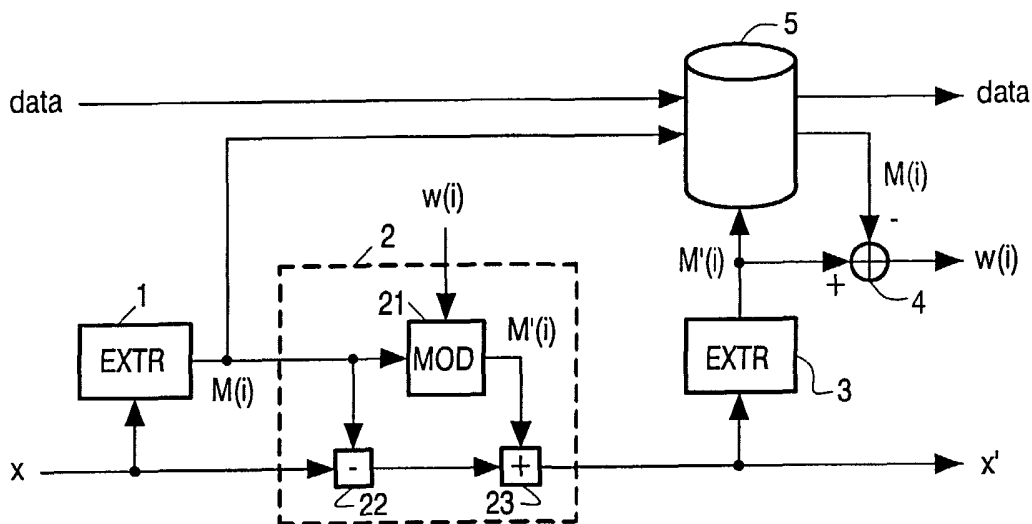
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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **VAN DER VEEN, Minne** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **BRUEKERS, Alphons, A., M., L.** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: **SCHMITZ, Herman, J., R.**; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

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(54) Title: WATERMARK EMBEDDING AND RETRIEVAL



(57) Abstract: Fingerprinting is a technique to identify multimedia signals by extracting robust perceptual features of the signal contents and searching the extracted features in a database where titles, artists, etc. are stored. Watermarking is a technique of embedding payload data in a signal in an unobtrusive manner. The invention combines both techniques. A fingerprint (M(i)) is extracted (1) from a host signal (x) and stored in a database (5). A watermark (w(i)) is embedded (2) in the host signal by modifying (21) the signal, such that the fingerprint (M'(i)) of the modified signal (x') differs slightly from the original fingerprint. The difference is so small that the database considers them to be similar. At the receiver end, the fingerprint is extracted (3) from the watermarked signal and applied to the database, which responds by returning the original fingerprint of the signal. The embedded watermark is retrieved by subtracting (4) the original fingerprint supplied by the database from the fingerprint extracted from the host signal.

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INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04N7/26

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)  
IPC 7 G06T G10L

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 practical, search terms used)  
INSPEC, EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Further documents are listed in the continuation of box C.  Patent family members are listed in annex.

° Special categories of cited documents :

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Date of the actual completion of the international search <b>16 December 2003</b>	Date of mailing of the international search report <b>28/01/2004</b>
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <b>dos Santos, L</b>
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## INTERNATIONAL SEARCH REPORT

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KAABNEH K A ET AL: "Muteness-based audio watermarking technique" PROCEEDINGS 21ST INTERNATIONAL CONFERENCE ON DISTRIBUTED COMPUTING SYSTEMS WORKSHOPS, PROCEEDINGS 21ST INTERNATIONAL CONFERENCE ON DISTRIBUTED COMPUTING SYSTEMS WORKSHOPS, MESA, AZ, USA, 16-19 APRIL 2001, pages 379-383, XP002264956 2001, Los Alamitos, CA, USA, IEEE Comput. Soc, USA ISBN: 0-7695-1080-9 cited in the application Sections 4, 5 ---	1-8
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Information on patent family members

Intern: I Application No

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