

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 February 2003 (20.02.2003)

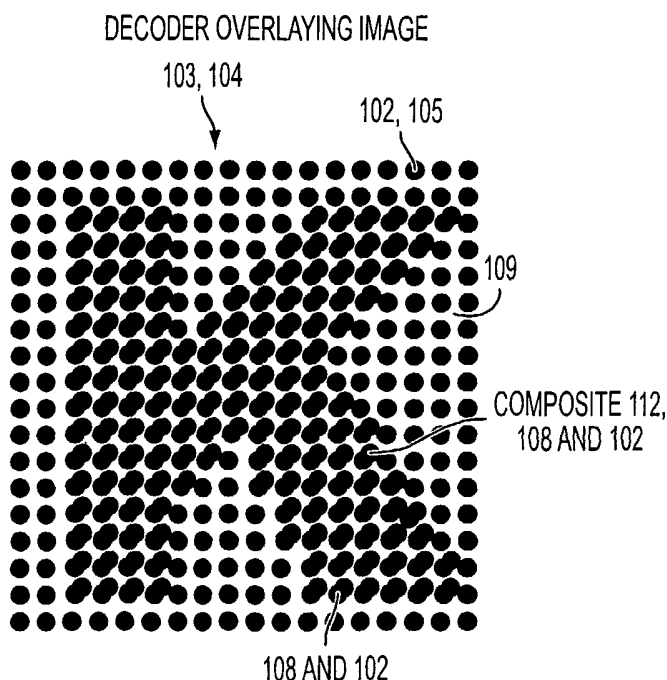
PCT

(10) International Publication Number
WO 03/014836 A3

- (51) International Patent Classification⁷: **H04B 1/20**
- (21) International Application Number: PCT/US02/25142
- (22) International Filing Date: 7 August 2002 (07.08.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/310,749 7 August 2001 (07.08.2001) US
- (71) Applicant (for all designated States except US): **PACIFIC HOLOGRAPHICS, INC.** [US/US]; 115 Harvey West Boulevard, Suite A, Santa Cruz, CA 95060 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **LONG, Michael, D.** [US/US]; 416 King Street, Santa Cruz, CA 95060 (US). **NEWCOMB, Diana** [US/US]; 806 Pine Street, Santa Cruz, CA 95062 (US).
- (74) Agents: **ANANIAN, R., Michael** et al.; DORSEY & WHITNEY LLP, 4 Embarcadero Center, Suite 3400, San Francisco, CA 94111 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— with international search report

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR ENCODING AND DECODING AN IMAGE OR DOCUMENT AND DOCUMENT ENCODED THEREBY



(57) Abstract: Holographic and diffractive security devices and documents carrying security devices as well as system, apparatus, and method for making and using security devices. Security devices (104) provide at least one type of security feature in form of secret, hidden, or covert security feature (108), not visible to a normal unaided human eye. Covert security features may be any graphic or symbolic representation. One or multiple security features may be provided on any single security device in any combination. Covert feature is revealed either when a decoder device (103) is used with the security device, or when the security device is oriented and viewed in predetermined manner. Embodiments may provide a second overt or non-covert security device in the form of a diffractive or holographic image or graphic (109) that is visible to the unaided eye without use of any decoder or special viewing conditions.



WO 03/014836 A3



(88) Date of publication of the international search report:

18 December 2003

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/US02/25142

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 1/20

US CL : 369/10

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. : 369/10; 359/1, 2, 32, 33, 558, 566, 567; 283/86, 85, 93, 901; 356/71

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,784,200 A (MODEGI) 21 July 1998 (21.07.1998), Figures 1, 3, 5-15, 31-36, 39-40; column 14, line 9 - column 31, line 14.	78, 82, 83
---		-----
Y		1-77, 79-81, 84
Y	US 5,999,280 A (HUANG) 07 December 1999 (07.12.1999), Figures 1-5; column 2, line 41 - column 5, line 60.	1-77, 79-81, 84
Y	US 6,226,109 B1 (TOMPKIN et al) 01 May 2001 (01.05.2001), Figures 3-15; column 4, line 42 - column 12, line 17.	71-73
A	US 5,032,003 A (ANTES) 16 July 1991 (16.07.1991), see entire document, especially Figure 2.	1, 76, 78, 82

☐ 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 relevance	"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
"E" earlier application or patent published on or after the international filing date	"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
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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
"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	"&" document member of the same patent family

Date of the actual completion of the international search

28 May 2003 (28.05.2003)

Date of mailing of the international search report

17 SEP 2003

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

ARNEL LAVARIAS

Telephone No. (703) 308-1782

Arnel Lavarias