(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 6 March 2003 (06.03.2003)

PCT

(10) International Publication Number WO 03/019449 A3

(51) International Patent Classification⁷: G06F 17/60, H04L 9/00, G06K 9/00, H04K 1/00

(21) International Application Number: PCT/US02/27954

(22) International Filing Date: 30 August 2002 (30.08.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/316,851	31 August 2001 (31.08.2001)	US
60/327,687	5 October 2001 (05.10.2001)	US
60/352,652	28 January 2002 (28.01.2002)	US
10/172,769	14 June 2002 (14.06.2002)	US
10/172,506	14 June 2002 (14.06.2002)	US

(71) Applicant (for all designated States except US): DIGI-MARC CORPORATION [US/US]; 19801 S.W. 72nd Avenue, Suite 100, Tualatin, OR 97062 (US).

(72) Inventors; and

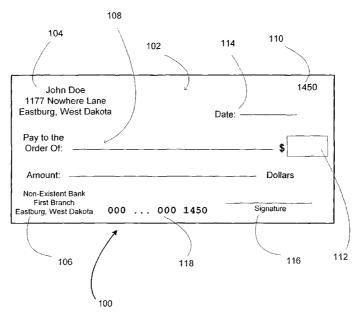
(75) Inventors/Applicants (for US only): CARR, J., Scott

[US/US]; 22655 S.W. Grahams Ferry Road, Tualatin, OR 97062 (US). RHOADS, Geoffrey, B. [US/US]; 2961 S.W. Turner Road, West Linn, OR 97068 (US). HIEN, William, C., III [US/US]; 151 Indiantown Road, Glenmoore, PA 19343-1412 (US). MILLER, Marc, D. [US/US]; P.O. Box 596, Corte Madera, CA 94976 (US). HAWES, Jonathan, L. [US/US]; 2502 Jolie Point Road, West Linn, OR 97068 (US). ELOVITZ, Andrea, Nicole [US/US]; 5655 Southwood Drive, Lake Oswego, OR 97035 (US). STEWART, Steven, W. [US/US]; 4730 S.W. Joshua Street, Tualatin, OR 97062 (US).

- (74) Agent: STEWART, Steven, W.; Digimarc Corporation, 19801 S.W. 72nd Avenue, Suite 100, Tualatin, OR 97062 (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, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: DIGITALLY WATERMARKING CHECKS AND OTHER VALUE DOCUMENTS



(57) Abstract: A digital watermark (100) comprises of various techniques for encoding hidden information in checks and other security documents. The hidden information provides an authentication tool. Also including a method for encoding a security document with information. The security document comprises a substrate (102) having printing thereon. The information is hidden in the printing and corresponds to text or numbers conveyed by at least a portion of the printing. The method includes dividing the information into a plurality of playload sets, wherein each payload set includes a sub-set of the information, and encoding the payload sets acoss the substrate (102). The plurality of payload sets is concatenated in order to retrieve the information.



O 03/019449 A3



(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).

(88) Date of publication of the international search report: 30 May 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.

Published:

with international search report

INTERNATIONAL SEARCH REPORT

International application No. PCT/US02/27954

A. CLAS	SSIFICATION OF SUBJECT MATTER					
IPC(7) :G06F 17/60; H04L 9/00; G06K 9/00; H04K 1/00						
US CL :Please See Extra Sheet.						
According to International Patent Classification (IPC) or to both national classification and IPC						
B. FIELDS SEARCHED						
	ocumentation searched (classification system followed	. ,				
U.S. :	705/76, 80, 13, 54, 156, 158, 175, 176, 169; 713/176	; 382/100				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched						
Electronic d	data base consulted during the international search (n	ame of data base and, where practicable	e, search terms used)			
USPTO APS EAST						
C. DOCUMENTS CONSIDERED TO BE RELEVANT						
Category*	Citation of document, with indication, where ap	propriate, of the relevant passages	Relevant to claim No.			
X,E	US 6,487,301 B1 (ZHAO) 26 Nov columns 7, 11, 13.	vember 2002 (26.11.2002),	1-5, 7-11, 13-16, 18-22, 29-34			
Y,P	US 2002/0056041 A1 (MOSKOWITZ) 09 May 2002 (09.05.2002), column 4, lines 5-67.		6, 12, 17, 23-25, 27, 35			
Y	US 5,005,200 A (FISCHER) 02 April 1991 (02.04.1991), column 24, lines 23-67.		26, 28			
Y	US 6,216,116 B1 (BARKAN et al) 1 column 15.	26, 28				
Y	US 6,076,064 A (ROSE, JR.) 13 June 2000 (13.06.2000), column 8.		6, 12, 17, 23-25, 27, 35			
Furt	her 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 "Beautiful date and not in conflict with the application but cited to understand the principle or theory underlying the invention			lication but cited to understand			
	rlier document published on or after the international filing date	"X" document of particular relevance; the				
	cument which may throw doubts on priority claim(s) or which is ed to establish the publication date of another citation or other	when the document is taken alone				
spe "O" do	ecial reason (as specified) cument referring to an oral disclosure, use, exhibition or other aans	"Y" document of particular relevance; the considered to involve an inventive step with one or more other such docum obvious to a person skilled in the art	when the document is combined - nents, such combination being			
"P" document published prior to the international filing date but later		"&" document member of the same patent				
Date of the actual completion of the international search Date of mailing of the international search report			arch report			
06 JANUARY 2003		22 JAN 2003				
Name and mailing address of the ISA/US		Authorized officer				
Commissioner of Patents and Trademarks Box PCT						
Washington, D.C. 20231		EDWYN LABAZE	0 0 1			
Facsimile No. (703) 805-3280		Telephone No. (708) 305-5487	Benehila			

INTERNATIONAL SEARCH REPORT

International application No. PCT/US02/27954

A. CLASSIFICATION OF SUBJECT MATTER: US CL :					
705/76, 80, 13, 1, 28, 31, 54, 156, 158, 175, 176, 169; 713/176; 382/100; 380/30, 25					
	i.				

Form PCT/ISA/210 (extra sheet) (July 1998)★