



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
04.08.2004 Bulletin 2004/32

(51) Int Cl.7: **G07D 7/12, G07D 7/18**

(43) Date of publication A2:
30.06.2004 Bulletin 2004/27

(21) Application number: **03258164.7**

(22) Date of filing: **24.12.2003**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**
Designated Extension States:
AL LT LV MK

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(30) Priority: **27.12.2002 EP 02258988**

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(54) **Banknote validator**

(57) A banknote validator can recognise ink stains having predetermined characteristics and is operable to perform measurements on a received banknote in order to classify the banknote into at least the following categories: (a) genuine non-stained bills of said denomina-

tion; (b) bills which been stained; and (c) other bills, including non-genuine banknotes. Preferably, stained banknotes are sent to at least one dedicated store. The validator can classify banknotes into many denominations, but can only authenticate banknotes belonging to a sub-set of those denominations.

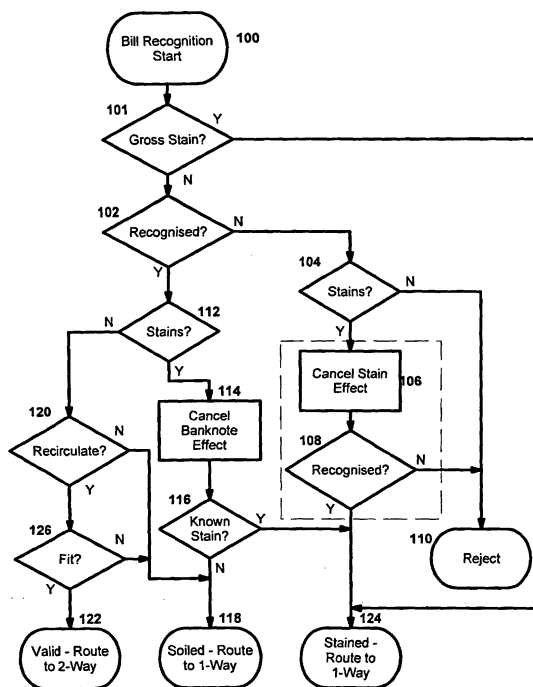


FIG. 3



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	FR 2 734 385 A (CHAMPOUD) 22 November 1996 (1996-11-22) * page 3, line 12 - page 7, line 36; figures 1-4 *	1,2,7-9, 15	G07D7/12 G07D7/18
X	EP 0 889 446 A (NCR INTERNATIONAL INC.) 7 January 1999 (1999-01-07) * page 2, line 14 - line 36 * * page 2, line 49 - page 4, line 53; figures 1-4B *	1,2,7-9, 15	
X	GB 1 150 605 A (GIORI) 30 April 1969 (1969-04-30) * page 2, line 13 - page 7, line 39; figures 1-7 *	1,2,15	
A	WO 89/00319 A (GLOBAL SECURITY AKTIEBOLAG) 12 January 1989 (1989-01-12) * page 1, line 23 - page 5, line 22; figures 1,2 *	1,2,15	
A,D	US 5 718 318 A (WATCHER) 17 February 1998 (1998-02-17) * column 2, line 45 - column 4, line 35; figures 1,2 *	1,2,7-9, 15	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G07D G07F
A	US 6 078 682 A (TANIOKA ET AL.) 20 June 2000 (2000-06-20) * column 2, line 17 - column 6, line 44; figures 1-7 *	1,2,15	
A	WO 98/35323 A (CUMMINS-ALLISON CORP.) 13 August 1998 (1998-08-13) * page 5, line 27 - page 21, line 20; figures 1-7 *	1,2,7-9, 15	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 June 2004	Examiner Rivero, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04C01)



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Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	JP 09 204522 A (SANYO ELECTRIC CO LTD) 5 August 1997 (1997-08-05)	3-5	
Y	* abstract * * paragraph '0013! - paragraph '0029!; figure 1 *	6	
Y	----- EP 0 605 208 A (CANON KABUSHIKI KAISHA) 6 July 1994 (1994-07-06) * page 3, line 1 - line 21 * * page 5, line 23 - line 33; figure 6 *	6	
X	JP 2002 373357 A (OKI ELECTRIC IND CO LTD) 26 December 2002 (2002-12-26)	3-5	
A	* abstract; figures 1-5 *	6	
X	JP 09 196861 A (TOSHIBA CORP) 31 July 1997 (1997-07-31)	3-5	
A	* abstract; figures 1-6 *	6	
A	JP 02 019992 A (NEC CORP) 23 January 1990 (1990-01-23) * abstract; figure *	3-6	
X	EP 1 050 854 A (MARS INCORPORATED) 8 November 2000 (2000-11-08) * paragraph '0001! - paragraph '0011! * * paragraph '0015! - paragraph '0063!; figures 2-4 *	10,12-14	
X	US 2001/043140 A1 (ROSS) 22 November 2001 (2001-11-22) * paragraph '0005! - paragraph '0051! * * paragraph '0064! - paragraph '0088!; figures 2-5 *	10,13,14	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Place of search		Date of completion of the search	Examiner
The Hague		11 June 2004	Rivero, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P44001)



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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 5 076 441 A (GERLIER) 31 December 1991 (1991-12-31)	10,13,14	
A	* column 1, line 64 - column 2, line 47 * * column 3, line 23 - column 9, line 16; figures 1-3 *	12	
A	----- EP 1 071 047 A (MARS INCORPORATED) 24 January 2001 (2001-01-24) * paragraph '0064! - paragraph '0071!; figure 2 *	10,12-14	
A	----- US 5 933 520 A1 (ISHIMOTO ET AL.) 3 August 1999 (1999-08-03) * column 3, line 37 - column 10, line 50; figures 1-20 *	10,12-14	
A	----- WO 00/33262 A (MARS INCORPORATED) 8 June 2000 (2000-06-08) * page 5, line 13 - page 6, line 4 * * page 6, line 12 - page 9, line 15; figure 1 *	10,12-14	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 June 2004	Examiner Rivero, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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**LACK OF UNITY OF INVENTION
SHEET B**

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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-9, 11 15

A banknote validator storing data indicative of ink used for staining banknotes, being operable to compare this data with data measured from the banknote and classify the banknote based on the results of the comparison.

1.1. claims: 3-6

A banknote validator operable to generate adjusted measurements when analyzing a banknote to compensate for the possible existence of stains present on the banknote

2. claim: 10

Banknote validator to classify a banknote into one of a plurality of types, thereafter operable to authenticate a banknote only if it is classified as one of a sub-group of said types

3. claim: 12

Banknote handling machine having a validator and a display, said validator operable to classify a banknote into a large number of genuine denominations and to authenticate banknotes of a certain sub-group of denominations, the display showing a predetermined message in response to classifying a banknote as belonging to a type which does not fall within said sub-group

4. claim: 13

Banknote validator operable to denominate and authenticate genuine articles belonging to a first set of classes, and to denominate but not to authenticate genuine articles belonging to a second set of classes.

5. claim: 14

Banknote validator which stores characteristic data of a plurality of different types of banknotes for permitting denomination and authentication of that type of banknote, and for banknotes belonging to other types, to store a sub-set of data permitting only denomination of said banknotes and not authentication thereof



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

**ANNEX TO THE EUROPEAN SEARCH REPORT
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11-06-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2734385	A	22-11-1996	FR 2734385 A1	22-11-1996
			AU 5642796 A	29-11-1996
			WO 9636946 A2	21-11-1996
EP 0889446	A	07-01-1999	EP 0889446 A2	07-01-1999
			JP 11086072 A	30-03-1999
			ZA 9805827 A	10-01-2000
GB 1150605	A	30-04-1969	CH 440786 A	31-07-1967
			AT 259281 B	10-01-1968
			BE 681902 A	14-11-1966
			DE 1499514 A1	04-12-1969
			FR 1489113 A	21-07-1967
			NL 6607686 A ,B	05-12-1966
			NO 117664 B	08-09-1969
			SE 331382 B	21-12-1970
			US 3412993 A	26-11-1968
WO 8900319	A	12-01-1989	SE 461359 B	05-02-1990
			AU 1967988 A	30-01-1989
			SE 8702710 A	31-12-1988
			WO 8900319 A1	12-01-1989
US 5718318	A	17-02-1998	GB 2279796 A	11-01-1995
			DE 69405105 D1	25-09-1997
			DE 69405105 T2	05-03-1998
			EP 0706698 A1	17-04-1996
			ES 2105721 T3	16-10-1997
			HK 1001929 A1	17-07-1998
			WO 9500932 A1	05-01-1995
			JP 9501248 T	04-02-1997
US 6078682	A	20-06-2000	JP 3507093 B2	15-03-2004
			JP 6205210 A	22-07-1994
			JP 3486432 B2	13-01-2004
			JP 7046400 A	14-02-1995
			CA 2112735 A1	02-07-1994
			DE 69331041 D1	06-12-2001
			DE 69331041 T2	06-06-2002
			EP 0605208 A2	06-07-1994
			KR 138243 B1	15-06-1998
WO 9835323	A	13-08-1998	US 5960103 A	28-09-1999
			AU 6151898 A	26-08-1998
			EP 0961997 A2	08-12-1999
			WO 9835323 A2	13-08-1998

EPO FORM P0459

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 25 8164

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-06-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 09204522	A	05-08-1997	JP 2816129 B2	27-10-1998
			CN 1209895 A	03-03-1999
			EP 0881603 A1	02-12-1998
			WO 9727566 A1	31-07-1997
			US 6157895 A	05-12-2000
			US 6253158 B1	26-06-2001
			US 6327543 B1	04-12-2001
EP 0605208	A	06-07-1994	JP 3507093 B2	15-03-2004
			JP 6205210 A	22-07-1994
			JP 3486432 B2	13-01-2004
			JP 7046400 A	14-02-1995
			CA 2112735 A1	02-07-1994
			DE 69331041 D1	06-12-2001
			DE 69331041 T2	06-06-2002
			EP 0605208 A2	06-07-1994
			KR 138243 B1	15-06-1998
			US 6078682 A	20-06-2000
JP 2002373357	A	26-12-2002	NONE	
JP 09196861	A	31-07-1997	NONE	
JP 02019992	A	23-01-1990	NONE	
EP 1050854	A	08-11-2000	GB 2349002 A	18-10-2000
			EP 1050854 A2	08-11-2000
			US 2002195309 A1	26-12-2002
US 2001043140	A1	22-11-2001	GB 2361765 A	31-10-2001
US 5076441	A	31-12-1991	AT 114065 T	15-11-1994
			DE 58908629 D1	15-12-1994
			EP 0379638 A1	01-08-1990
			ES 2063795 T3	16-01-1995
EP 1071047	A	24-01-2001	EP 1071047 A1	24-01-2001
			AT 243350 T	15-07-2003
			AT 198946 T	15-02-2001
			AU 3588995 A	29-03-1996
			CA 2198848 A1	21-03-1996
			DE 69520005 D1	01-03-2001
			DE 69520005 T2	06-09-2001
			DE 69531120 D1	24-07-2003
			DE 69531120 T2	13-05-2004
			EP 0796478 A1	24-09-1997

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 25 8164

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-06-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1071047 A		ES 2195837 T3	16-12-2003
		ES 2155139 T3	01-05-2001
		WO 9608795 A1	21-03-1996
US 5933520 A1	03-08-1999	JP 7264419 A	13-10-1995
		US 5933520 A	03-08-1999
WO 0033262 A	08-06-2000	GB 2344446 A	07-06-2000
		AU 1580100 A	19-06-2000
		CN 1334944 T	06-02-2002
		EP 1138026 A1	04-10-2001
		WO 0033262 A1	08-06-2000
		JP 2002531906 T	24-09-2002
		US 2003192765 A1	16-10-2003
		US 6588571 B1	08-07-2003