

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
13 February 2003 (13.02.2003)

PCT

(10) International Publication Number  
WO 03/012747 A3

(51) International Patent Classification<sup>7</sup>: G07D 11/00,  
7/12, 7/00

24 Prince Wood Lane, Birkby, HD2 2DG (GB). **SACKFIELD, Martin** [GB/GB]; 157 Manchester Road, Astley, MANCHESTER M29 7FH (GB).

(21) International Application Number: PCT/GB02/03458

(74) Agents: **AHMAD, Sheikh, Shakeel** et al.; David Keltie Associates, Fleet Place House, 2 Fleet Place, London EC4M 7ET (GB).

(22) International Filing Date: 30 July 2002 (30.07.2002)

(25) Filing Language: English

(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.

(26) Publication Language: English

(30) Priority Data:  
0118531.3 30 July 2001 (30.07.2001) GB

(71) Applicant (*for all designated States except US*): **INNOVATIVE TECHNOLOGY LIMITED** [GB/GB]; Derker Street, Oldham OL1 4EQ (GB).

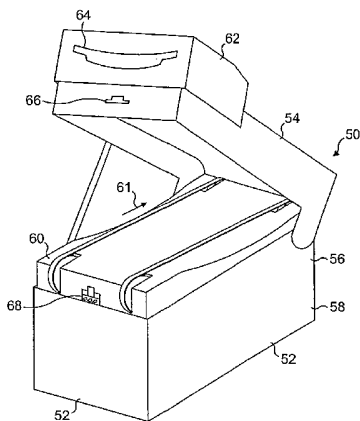
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

(71) Applicants and

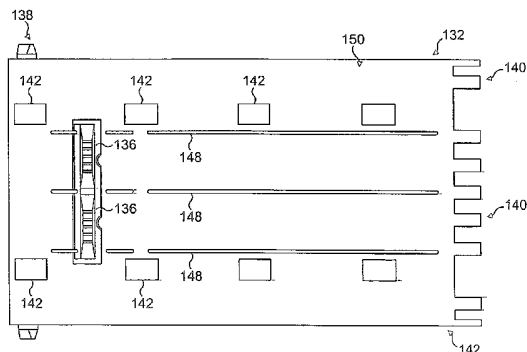
(72) Inventors (*for US only*): **ASHURST, Kevin** [GB/GB];

[Continued on next page]

(54) Title: HANDLING BANKNOTES



(57) Abstract: A banknote validator (50) for receiving and accepting valid banknotes is described. The banknote validator (50) comprising a housing (54) comprising banknote sensing means (136) and a separable banknote drive mechanism (60) for conveying the banknote into the validator (50) to the sensing means (136), wherein the banknote drive mechanism (60) is arranged to be readily removable such that a faulty drive mechanism can be rapidly replace. The banknote validator also comprises a housing including a sensor housing body and a sensor for sensing a characteristic of a banknote in use to determine its validity provided within the sensor housing body. The sensor housing body (54) comprises a one-piece translucent moulded portion (140) defining a banknote-engaging surface (150) along a note path (61) of the validator (50) and an opaque portion provided adjacent the sensor and arranged such that in use illumination of the banknote is sensed by the sensor without substantial interference from ambient light.



WO 03/012747 A3



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:**  
16 October 2003

**Published:**

— *with international search report*

*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/GB 02/03458

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G07D11/00 G07D7/12 G07D7/00

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 G07D G07F

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)

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.
X	US 6 158 565 A (HATAMACHI TADASHI ET AL) 12 December 2000 (2000-12-12) column 3, line 26 - line 60 column 4, line 57 -column 6, line 44 column 8, line 1 - line 34 column 9, line 49 - line 61 figures 1-8	1-4,10
X	US 5 152 512 A (KAWAUCHI MASATAKA ET AL) 6 October 1992 (1992-10-06)  abstract column 1, line 57 -column 2, line 22 column 3, line 40 - line 65 figures 1,2,6	10-16, 20,21, 25-27

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"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

"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

"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

5 May 2003

Date of mailing of the international search report

24.07.03

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

Königer, A

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 02/03458

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 199 58 017 A (GIESECKE & DEVRIENT GMBH) 7 June 2001 (2001-06-07)	1
A	abstract column 1, line 27 - line 56 column 2, line 7 - line 12 claim 1 figures	2-27
A	EP 0 883 093 A (MARS INC) 9 December 1998 (1998-12-09) abstract column 1, line 44 - line 48 column 2, line 40 -column 4, line 14 column 5, line 7 - line 36 column 9, line 11-13 claim 1 figures 1-4	1-27

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 02/03458

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-27

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-27

Banknote validator with removable drive mechanism.

Independent claims 1, 10, 25 and 26 and dependent claims 2-9 and 11-24 and 27 refer to a banknote validator with a removable drive mechanism. An embodiment specifies the drive mechanism in more detail (conveyor belt with tensioning means and reaction rollers).

Problem solved is enabling easy maintenance of a banknote validator.

2. Claims: 28-35

Sensor housing

Independent claim 28 and dependent claims 29-35 refer to a sensor housing where in use illumination of the banknote is sensed by the sensor without interference from ambient light (use of a translucent portion in the sensor housing body).

Problem solved simple design and prevention of contamination of sensor.

## INTERNATIONAL SEARCH REPORT

In: International Application No  
PCT/GB 02/03458

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6158565	A	12-12-2000	JP 11073538 A	16-03-1999
			JP 11086071 A	30-03-1999
-----				
US 5152512	A	06-10-1992	JP 2193837 A	31-07-1990
			JP 2690994 B2	17-12-1997
-----				
DE 19958017	A	07-06-2001	DE 19958017 A1	07-06-2001
			AU 2670901 A	12-06-2001
			BR 0016072 A	06-08-2002
			CA 2394017 A1	07-06-2001
			WO 0141078 A2	07-06-2001
			EP 1238375 A2	11-09-2002
			JP 2003515854 T	07-05-2003
			US 2003038062 A1	27-02-2003
-----				
EP 0883093	A	09-12-1998	CA 2111585 A1	28-10-1993
			WO 9321609 A1	28-10-1993
			DE 59309650 D1	22-07-1999
			EP 0591485 A1	13-04-1994
			EP 0883093 A2	09-12-1998
			ES 2132226 T3	16-08-1999
			JP 7500204 T	05-01-1995
			US 5662201 A	02-09-1997
			US 5909792 A	08-06-1999
-----				