

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 411 480 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
29.09.2004 Bulletin 2004/40

(51) Int Cl.7: **G07D 5/00**

(43) Date of publication A2:
21.04.2004 Bulletin 2004/17

(21) Application number: **03425572.9**(22) Date of filing: **04.09.2003**

(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

(30) Priority: **04.09.2002 IT rm20020440**

(71) Applicant: **Koroliouk, Dmitri**
00044 Frascati (RM) (IT)

(72) Inventors:
 • **Koroliouk, Dmitri**
00044 Frascati (RM) (IT)
 • **Volkov, Igor**
00044 Frascati (RM) (IT)
 • **Koba, Alexander**
00044 Frascati (RM) (IT)
 • **Zakarevski, Stanislav**
00044 Frascati (RM) (IT)
 • **Rocchi, Alessandro**
00044 Frascati (RM) (IT)

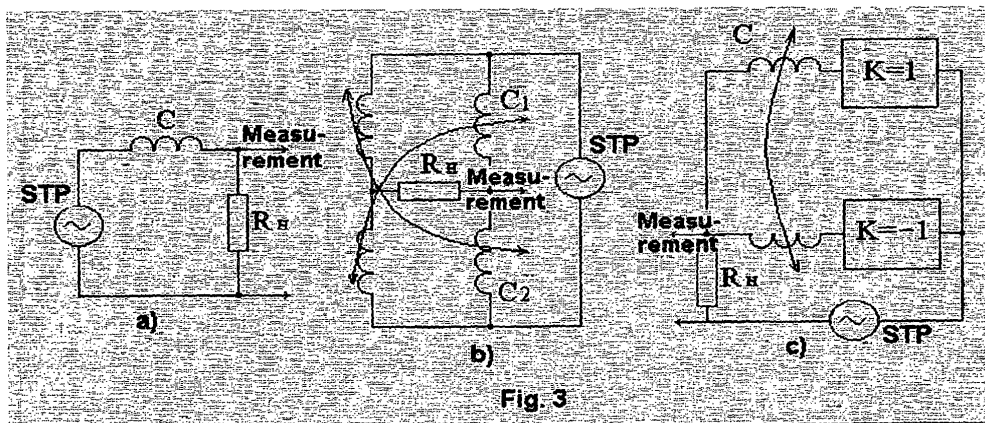
(54) Method and device for validation of coins and counters

(57) The present invention belongs to the class of the devices for material by mean of electrical and magnetic methods.

The method and the device proposed in the present document are aimed to validate coins and counters by means of their value determining and can be used in payphones, automatic distributors, points of payment and various vending machines.

The present document claims universal method and relative device are proposed which use measurement principles of active and reactive parts of the current (or the tension) of electromagnetic sensor contemporarily on more frequencies with relative coin image formation and its identification.

The analyzing element of the device is a sensor composed of one, two or more bobbins connected between them and enveloped the polar extremes of magnetic conductor with a pass bigger the maximal coin thickness. The mentioned polar extremes have in the section a drop form or triangular form with the base corresponding to minimal diameter of the coin and with the altitude corresponding to maximal diameter of the coins. In order to achieve maximal sensibility and to minimize the sensor exposition at electromagnetic disturbs, the magnetic conductor is realized with maximal closure of the magnetic field with calibrated gap aimed for coin passageway or with double polar extremes for compensated measurement schemes or for those of bridge type.

**Fig. 3****EP 1 411 480 A3**



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 42 5572

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	EP 1 172 772 A (AZKOYEN MEDIOS DE PAGO S A) 16 January 2002 (2002-01-16) * paragraphs '0014! - '0021! * * paragraphs '0048! - '0051! * * paragraphs '0058! - '0067! * * figures 2,3 *	1-10	G07D5/00
X A	EP 0 336 018 A (NIPPON CONLUX CO LTD) 11 October 1989 (1989-10-11) * column 2, line 45 - column 3, line 33 * * column 5, lines 11-21 * * column 7, line 27 - column 8, line 42 * * column 9, lines 48-55 * * figures 1,6,7,14,15 * * claims 1-3 *	1-3,5-7,9,10 4,8	
X	US 5 573 099 A (CHURCH DONALD W ET AL) 12 November 1996 (1996-11-12) * column 6, lines 34-21 * * column 9, lines 42-45 * * column 14, lines 52-62 * * claims 1,2 * * figures 4b,7 *	1,6	
A	US 5 040 657 A (GUNN WILLIAM L ET AL) 20 August 1991 (1991-08-20) * column 3, lines 22-64 * * column 5, lines 35-39 * * column 6, lines 22-61 * * column 27, lines 16-29 * * claims 1,6,7,11,13 * * figures 1-3 *	1,2,6-8,10	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) G07D G07F G01R
Place of search The Hague		Date of completion of the search 5 August 2004	Examiner Espuela, V
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 (P04con1)

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

EP 03 42 5572

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.

05-08-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 1172772	A	16-01-2002	ES	2170678 A1	01-08-2002
			EP	1172772 A2	16-01-2002

EP 0336018	A	11-10-1989	JP	1251292 A	06-10-1989
			JP	2567654 B2	25-12-1996
			AU	603274 B2	08-11-1990
			AU	2772089 A	07-12-1989
			CA	1332965 C	08-11-1994
			DE	3856188 D1	25-06-1998
			DE	3856188 T2	03-12-1998
			EP	0336018 A2	11-10-1989
			KR	9202855 B1	06-04-1992
			US	4971187 A	20-11-1990

US 5573099	A	12-11-1996	CA	2113492 A1	15-07-1995
			AU	1410395 A	01-08-1995
			WO	9519615 A1	20-07-1995
			GB	2301472 A , B	04-12-1996

US 5040657	A	20-08-1991	US	4963118 A	16-10-1990
			AU	650352 B2	16-06-1994
			AU	1961992 A	17-09-1992
			AU	631134 B2	19-11-1992
			AU	3940789 A	22-02-1990
			CA	1326065 C	11-01-1994
			DE	68913621 D1	14-04-1994
			DE	68913621 T2	06-10-1994
			DE	355061 T1	16-08-1990
			EP	0355061 A2	21-02-1990
			HK	46394 A	20-05-1994
			IE	62093 B1	14-12-1994
			JP	2168377 A	28-06-1990
			JP	2783856 B2	06-08-1998
			KR	131873 B1	01-10-1998
			US	4898564 A	06-02-1990
