



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : B42D 15/10	A1	(11) International Publication Number: WO 97/21552 (43) International Publication Date: 19 June 1997 (19.06.97)
(21) International Application Number: PCT/NL96/00480 (22) International Filing Date: 9 December 1996 (09.12.96) (30) Priority Data: 1001876 12 December 1995 (12.12.95) NL (71) Applicant (for all designated States except US): ING GROEP N.V. [NL/NL]; Strawinskylaan 2631, P.O. Box 810, NL-1000 AV Amsterdam (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): BRONGERS, Jan, Douwe [NL/NL]; Lupinesingel 550, NL-2403 EB Alphen Aan Den Rijn (NL). (74) Agent: DE BRUIJN, Leendert, C.; Nederlandsch Octrooibureau, Scheveningsweg 82, P.O. Box 29720, NL-2502 LS The Hague (NL).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: METHOD FOR APPLYING A SECURITY CODE TO AN ARTICLE, SUCH AS A CHEQUE GUARANTEE CARD, CREDIT CARD, IDENTITY CARD OR COMPONENT OF A MOTOR OR MACHINE <div style="text-align: center;"> </div> (57) Abstract <p>For applying a security code to an article (1), such as a cheque guarantee card, credit card, identity card or component of a motor or machine, use is made of a hologram or kinegram (2) wherein personification or identification symbols, letters, numerals or figures are or will be cut out by burning-in using a laser beam, said hologram or kinegram being affixed to an underlying hologram or kinegram which is affixed to the article directly or via one or more holograms or kinegrams, the various features being such that the optical effect of an underlying hologram or kinegram is visible through the cut-out symbols (4).</p>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LJ	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

Title: Method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or component of a motor or machine.

- 5 The invention relates to a method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or component of a motor or machine, wherein a diffraction-generating microstructure, such as a hologram or kinegram, is applied to said article, in which microstructure
10 personification or identification symbols, such as letters, numerals or figures, are or will be cut out by means of burning-in using a laser beam.

A method of this type is used in the production of the so-called Europass. For this pass the microstructure consists of
15 a hologram and the cut-out symbols consist of four numerals, which extend through the entire depth of the hologram. As a result of the cut-out symbols, all that is seen at these locations is the substrate, that is to say the plastic card,
20 which has been burned black. The possibility of the cut-out symbols being rendered invisible by filling up and of new, different personification or identification symbols being cut out is not excluded. Counterfeiting is thus possible.

- 25 The aim of the invention is, if not to preclude counterfeiting, certainly to make this appreciably more difficult.

According to the invention, the method mentioned in the preamble is, to this end, characterised in that the said
30 microstructure is affixed to another underlying microstructure which is affixed to the article directly or via one or more microstructures, the various features being such that the optical effect of an underlying microstructure is visible through the cut-out symbols formed.

35

The essential feature for the result is that, in addition to the upper hologram, kinegram or optionally another "optical variable device", an optical effect of an underlying hologram

or kinegram is also visible via the cut-out symbols. Of course, the principle of the invention is also applicable in the case of more than two holograms or kinegrams glued on top of one another. With this arrangement, via some cut-out symbols in the top microstructure, the optical effect of the microstructure located beneath it can be seen, whilst via cut-out symbols in the top microstructure and the microstructure located beneath it the optical effect of the underlying microstructure can be seen.

10

The said cut-out symbols can be burned in either after or before affixing the top microstructure. If the cut-out symbols are applied after affixing the relevant microstructure, burning-in must be carried out with the utmost care to prevent damage to the underlying hologram or kinegram.

15

The invention will now be explained with the aid of the two diagrammatic figures.

Figure 1 shows a view of a plastic card with a security code applied thereon according to the invention.

Figure 2 shows a cross-section of the card according to Figure 1 on a larger scale.

25

A first hologram or kinegram 2 has been glued on a plastic card 1, which serves as substrate, and a second hologram or kinegram 3 has been glued on to said first hologram or kinegram. In the upper, second hologram or kinegram 3, cut-out symbols 4 in the form of numerals have been made by means of a laser beam.

30

A person looking at the card sees the top hologram or kinegram 3 and, via the cut-out symbols 4, also sees the optical effect of the underlying hologram or kinegram 2.

35

The difference between a hologram and a kinegram is that a hologram suggests depth and a kinegram suggests movement. Both a hologram and a kinegram are formed by a microstructure with

a reflective coating consisting of a metal alloy.

It is exceptionally difficult, if not virtually impossible, to remove the top hologram or kinegram without damaging the bottom
5 hologram or kinegram, or to fill in the cut-out symbols 4 in the top hologram or kinegram 3 and then to cut out symbols in approximately the same position without the optical effect of the bottom hologram or kinegram being damaged or substantially
10 changed at the location of the cut-out symbols. Counterfeiting is therefore also easy to establish because an incomplete or damaged optical effect of the bottom hologram or kinegram becomes visible via the cut-out symbols in the top hologram or kinegram.

15 The top hologram or kinegram 3 can be glued to the bottom hologram or kinegram 2 before or after making the cut-out symbols 4.

More than two holograms or kinegrams glued to one another are
20 also possible, in which case some cut-out symbols extend only through the top hologram or kinegram and other cut-out symbols extend through several holograms or kinegrams. Only the bottom hologram or kinegram remains unaffected.

25 The invention can be employed not only for cheque guarantee cards and credit cards but also for identity cards, machine components and the like. Within the scope of the invention, all sorts of variants are also conceivable in respect of the card referred to as an illustrative embodiment.

Claims

1. Method for applying a security code to an article, such as a cheque guarantee card, credit card, identity card or
5 component of a motor or machine, wherein a diffraction-generating microstructure, such as a hologram or kinegram, is applied to said article, in which microstructure personification or identification symbols, such as letters, numerals or figures, are or will be cut out by means of
10 burning-in using a laser beam, characterised in that the said microstructure is glued to another underlying microstructure which is affixed to the article directly or via one or more microstructures, the various features being such that the optical effect of the underlying microstructure is visible
15 through the cut-out symbols formed.
2. Method according to Claim 1, characterised in that the said symbols are burned in by means of laser beams after affixing the top microstructure, without the underlying microstructure
20 being damaged.
3. Method according to Claim 1, characterised in that the said symbols are made before the top microstructure is affixed to the underlying microstructure.
25
4. Method according to one of the preceding claims, characterised in that three or more microstructures are affixed on top of one another and, through some cut-out symbols in the top microstructure, the optical effect of the microstructure
30 located beneath it can be seen, and via cut-out symbols in the top microstructure and the microstructure located beneath it the optical effect of the underlying microstructure can be seen.
- 35 5. Article to which a security code has been applied in accordance with the method according to one of the preceding claims.

fig-1

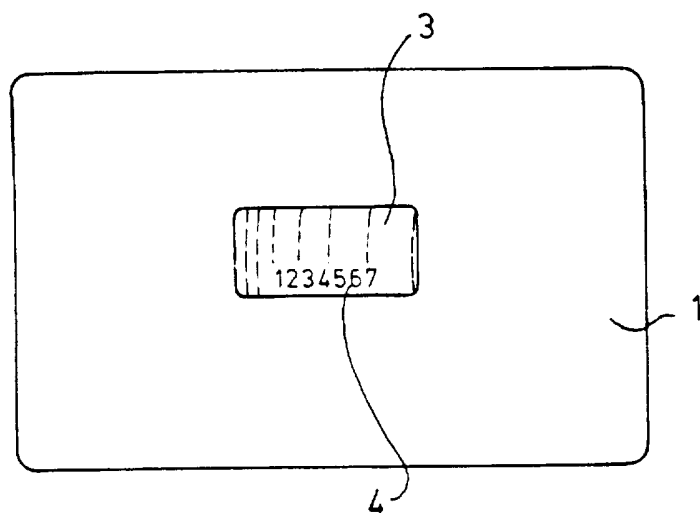
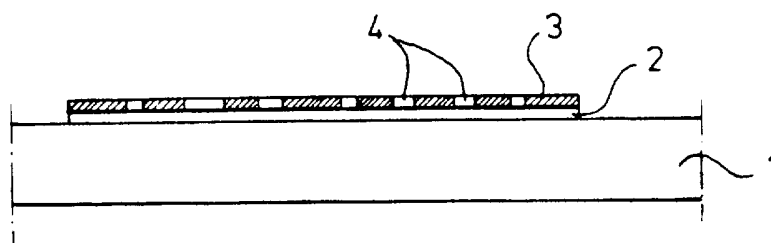


fig-2



INTERNATIONAL SEARCH REPORT

International Application No.
PCT/NL 96/00480

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B42D15/10

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)
IPC 6 B42D G06K

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,5 331 443 (STANISCI) 19 July 1994 see the whole document	1
Y	EP,A,0 372 274 (GAO) 13 June 1990 see column 5, line 32 - column 6, line 4; figure 1	1
A	GB,A,2 287 430 (LANDIS & GYR) 20 September 1995 see page 9, line 5 - line 21; figure 7	1

☐ 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 February 1997

Date of mailing of the international search report

1 2. 02. 97

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

Evans, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 96/00480

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-5331443	19-07-94	NONE	
EP-A-372274	13-06-90	DE-A- 3840729	13-06-90
		AT-T- 118407	15-03-95
		DE-D- 58909000	23-03-95
		EP-A- 0628431	14-12-94
		ES-T- 2069565	16-05-95
		JP-A- 2184497	18-07-90
		US-A- 5298922	29-03-94
GB-A-2287430	20-09-95	BE-A- 1008674	02-07-96
		BR-A- 9501088	27-02-96
		CN-A- 1120708	17-04-96