(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 553 508 B2

(12) **NEW EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the opposition decision:
28.06.2000 Bulletin 2000/26

(45) Mention of the grant of the patent:
26.03.1997 Bulletin 1997/13

(21) Application number: **92203406.1**

(22) Date of filing: **05.11.1992**

(51) Int. Cl.[7]: **B42D 15/10**

(54) Fraud-proof identification document, as well as method of making the same

Betrugssicheres Identitätsdokument sowie Verfahren zu seiner Herstellung

Document d'identité sans risque de fraude ainsi que la méthode de son assemblage

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **27.01.1992 NL 9200146**

(43) Date of publication of application:
04.08.1993 Bulletin 1993/31

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Description

[0001] The invention relates to a fraud-proof identification document, consisting of a laminate of two uniform and completely overlapping, transparent covering sheets of thermosetting plastic material, which at their inner sides have been provided with a thin adhesive layer of thermoplastic plastic material and have been laminated on to each other by hot-pressing while enclosing the identification data. The invention also relates to the making of such identification documents.

[0002] In the sense of this invention, identification documents are understood to mean passes such as admission passes, bank passes, credit cards, as well as documents issued by the central government, such as passports, driving licences, and the like. In order to protect such documents intended for specific personal use against forgery, nowadays they are usually designed in the way as described in the introduction, that is, coated with a laminate of thermosetting plastic material. It is common use, to enclose the document concerned, consisting of printed paper, cardboard, or plastic material, with two transparent covering sheets of thermosetting plastic material, each provided with a thin adhesive layer of thermoplastic material, and subsequently laminate this entirey by hot-pressing. The document EP-A-431564 discloses a method of manufacturing a fraud-proof identification document according to the preamble of claim 1.

[0003] A thus prepared identification document does offer a primary protection against forging, but does not completely exclude this possibility, as it remains possible to remove the laminate by a heat treatment, change the data of the document, for example by applying another passport photo, and subsequently laminate the thus forged document anew.

[0004] The aim of the invention is to provide an identification document, which is absolutely fraud-proof, and in which disengaging the laminate inevitably leads to destruction of the identification data enclosed.

[0005] To that end, the invention provides a fraud-proof identification document as described in the introduction, characterized in that the identification data were printed on the adhesive layer of one of the covering sheets by a printer, prior to lamination.

[0006] By applying the identification data on one of the adhesive layers of the covering sheets with the help of a printer, it is achieved, that after lamination, these data are so to speak part of a common binding layer, which is formed by the two adhesive layers after hot-pressing of the laminate. The identification data in the shape of for example ink dot patterns present in this binding layer enclosed by two transparent covering sheets, remains clearly visible and legible, because during laminating e.g. with hot pressing rollers, no lateral displacement of the adhesive layers in relation to each other will occur. However, should one want to reopen such a laminate again, for example by exposing it to the temperature of the hot pressing, pulling both covering sheets from each other would cause the printed pattern to be pulled apart in an irregular way, thereby damaging it such that on laminating anew the originally applied information is damaged to such an extent, that the laminate can no longer be used as an identification document.

[0007] Instead of printing the identification data on the adhesive layer of one of both covering sheets, according to the invention, an intermediate sheet can be laminated along as well. In that case, the invention is characterized in that an intermediate sheet of thermosetting plastic material, being provided with a thin adhesive layer of thermoplastic material on at least one side has been laminated along between the two covering sheets, on which third sheet, on its adhesive layer, the identification data have been printed by a printer prior to lamination. This last embodiment is preferred, if one requires a slightly thicker and stronger identification document. Moreover, the intermediate sheet need not be transparent, so that the identification can be made to stand out in contrast to a white back layer. However, in this embodiment the printing patterns of the identification data are in the middle of a binding layer, consisting of two original adhesive layers of the intermediate and one of the covering sheets respectively, so that opening the laminate under heat here will inevitably lead to destruction of the information contents as well.

[0008] Effectively, printing of the adhesive layer of one of both covering sheets or of an intermediate sheet can take place with the help of a controlled laser printer, coupled to a scanner, which scans and prints the information to be applied point by point. In this way, passport photos, such as used with many of such documents, can be accommodated as well.

[0009] The invention also provides an efficient method of making a number of identification documents as described hereinbefore.

[0010] For making identification documents, in which the identification data are printed on the inner side, provided with a adhesive layer, of one of both covering sheets, the method according to the invention is characterized in that a first transparent sheet of thermosetting plastic material, coated on one side with a thin adhesive layer of thermosetting plastic material, which sheet has the size of a number of identification documents, is printed with identification data for a number of identification documents on the coated sides according to sections, by a printer, that a second, transparent sheet, similar and uniform to the first sheet, is put on this first sheet with the adhesive layers of both sheets facing each other and laminated with the first sheet by hot pressing, and that the laminate obtained is cut according to sections to form a corresponding number of identification documents.

[0011] For making identification documents with an enclosed intermediate sheet, the method according to the invention is characterized in that a sheet of thermo-

setting plastic material, coated with a thin adhesive layer of thermoplastic plastic material on at least one side, which sheet has the size of a number of identification documents, is printed with identification data for a number of identification documents according to the sections by a printer, that this sheet is positioned between two transparent sheets Of thermosetting plastic material, each of them coated on one side with a thin adhesive layer of thermoplastic material, which two sheets have the same dimensions as the intermediate sheet and have their adhesive layers facing each other, that the three sheets are laminated by hot pressing, and that the laminate obtained is cut according to the sections to form a corresponding number of identification documents.

[0012] Efficiently, in this method, printing with identification data is performed by a laser printer coupled to a scanner, at which identification data are scanned and printed point by point.

[0013] The method according to the invention is particularly suitable for programmed automated processing of a series of identification documents. By programmed laser printing, a relatively large sheet of thermosetting plastic material can readily be printed with a number of identifications next to and under each other on its adhesive layer, which are distributed across the large sheet matrix-wise. After laser print printing, the second sheet is laid up, or the sheet is positioned between two outer covering sheets, and laminating takes place in one hot pressing operation, as a result of which one obtains a laminated plate consisting of a number of information documents positioned next to and under each other section-wise, that only need to be cut loose from each other, which can simply take place with the help of suitable equipment. Each of the identification documents thus obtained is completely fraud-proof, since in all these documents the printing ink is situated in the interior of a common binding layer of twee enclosing sheets of thermosetting plastic material.

[0014] The invention is now further explained by means of an embodiment, in which the making of a number of identification documents with the help of two covering sheets to be laminated is explained. In the drawing

Fig. 1 shows a both covering sheets prior to laminating in diagrammatical side view in cross-section,
Fig. 2 shows the laminate obtained by hot pressing, likewise in diagrammatical side view in cross-section, and
Fig. 3 shows a diagrammatical plan view of this laminate with the subdivision in individual identification documents indicated thereon.

[0015] In fig. 1, a transparent sheet of thermosetting material has been indicated by 1, for example a high-grade polyester. This sheet 1 is coated with a thin layer 2 of thermoplastic adhesive material, for example ethyl vinyl acetate. The dimensions of this sheet have been selected such, that as seen in fig. 3, a series of identifications can be applied thereon next to and under each other (identifications 1 through 6).

[0016] This sheet is used for printing identification data thereon, in which a laser printer prints these data, indicated by 3, 4 and 5, on the adhesive layer 2. The data concerned of various identifications (3, 4, 5) are printed point by point after point by point opto-electronic scanning of basic data, digits, passport photos and the like, and the data belonging to a specific identification are present in one of the sections on the sheet 1.

[0017] After printing with identification data, a second, uniform and transparent sheet 1' provided with a similar adhesive layer 2' is laid on to the adhesive side 2 of the first sheet 1 with the adhesive side 2'.

[0018] Subsequently, hot pressing takes place, for example with hot pressing rollers or with hot pressing plates, as a result of which a laminate is formed, as shown in fig. 2.

[0019] As can be seen in fig. 2, this laminate consists of two transparent outer layers 1 and 1' of polyester or another suitable thermosetting material, with a binding layer 2'' of the thermoplastic material of the original adhesive layer 2 and 2' therebetween. Within this binding layer 2'', all printed identification data have now been completely contained in the binding material, whereby it is guaranteed that the laminate can not be opened without taking the printing ink information 3, 4 and 5 from its original connection and there consequently destroying it as identification.

[0020] Fig. 3 shows a diagrammatical plan view of the laminate obtained with the border lines of the several identifications indicated thereon.

[0021] By cutting the laminate through across the full lines, one obtains the individual identifications 1 through 6, which represent very reliable and fraud-proof safety documents, in which forgery later on is absolutely impossible.

[0022] The method can be modified by employing an intermediate sheet, also made of polyester, which however need not be transparent, and has likewise been provided with a thin adhesive layer of thermoplastic material, on to which the identification data are printed in the same way. Subsequently, this intermediate sheet is positioned between two covering sheets according to fig. 1, after which laminating takes place. Thus, once again one obtains a laminate with a number of identifications applied thereon, which can be separated from each other in the same way in order to obtain individual identification documents.

[0023] It should be understood, that many modifications and variations are possible within the field of the invention. If, for example, one requires rounded-off corners at the individual identification documents, cutting can be substituted by punching, for example.

[0024] It is also possible to make "kangaroo-type" laminates as described in dutch patent application 80

04467 instead of the usual laminates.

Claims

1. A method of manufacturing a fraud-proof identification document comprising: forming identification data (3,4,5) such as digits, letters,

   passport photos, on a thermoplastic layer (2) provided on a support (1), and
   forming a protective layer (1') over said thermoplastic layer (2),
   characterized by
   printing a first transparent sheet of thermosetting plastic material (1) coated on one side with a thin adhesive thermoplastic layer (2) on the coated side with said identification data (3,4,5), placing a second transparent sheet of thermosetting plastic material (1') also coated on one side with a thin adhesive thermoplastic layer (2') and similar and uniform to the first sheet, over the first sheet with the adhesive layers of both sheets faced to each other, and laminating the sheets into contact with each other by hot-pressing.

2. Method according to claim 1,
   characterized in that

   the first sheet, after being printed, is placed between the second transparent sheet and a third transparent, sheet of thermosetting plastic material coated with a thin adhesive thermoplastic layer similar to the second transparant sheet with the adhesive layers of the second and third sheets faced to each other, and laminated into contact with each other by hot-pressing.

Patentansprüche

1. Verfahren zum Herstellen eines betrugssicheren Identitätsdokumentes, enthaltend:

   Erstellung von Identifikationsdaten (3, 4, 5), wie etwa Ziffern, Buchstaben, und Paßphotos auf einer thermoplastischen Schicht (2), die auf einem Träger (1) angebracht ist, und
   Ausbilden einer Schutzschicht (1') über der thermoplastischen Schicht (2), gekennzeichnet durch
   Drucken eines ersten transparenten Bogens aus wärmeaushärtendem Kunststoffmaterial (1), der auf der einen Seite mit einer dünnen haltenden thermoplastischen Schicht (2) beschichtet ist, auf die beschichtete Seite mit den Identifikationsdaten (3, 4, 5), Anordnen eines zweiten transparenten Bogens aus einem wärmeaushärtenden Kunststoffmaterial (1'), der ebenfalls auf einer Seite mit einer dünnen haftenden thermoplastischen Schicht (2') beschichtet ist und dem ersten Bogen ähnlich sowie gleichartig ist, über dem ersten Bogen, wobei die haftenden Schichten beider Bögen einander zugewandt sind; und Laminieren der Bögen zu einer Verbindung miteinander durch Heißpressen.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß

   der erste Bogen nach dem Drucken zwischen dem zweiten transparenten Bogen und einem dritten transparenten Bogen aus wärmeaushärtendem Kunststoffmaterial, der mit einer dünnen heftenden thermoplastischen Schicht, ähnlich dem zweiten Bogen beschichtet ist, angeordnet wird, wobei die heftenden Schichten des zweiten und des dritten Bogens einander zugewandt sind und zu einer Verbindung miteinander durch Heißpressen laminiert werden.

Revendications

1. Procédé pour fabriquer un document d'identification à l'abri des fraudes, comprenant les étapes suivantes :

   - former des données d'identification (3, 4, 5) telles que des chiffres, lettres, photos d'identité, sur une couche thermoplastique (2) prévue sur un support (1), et
   - former une couche protectrice (1') sur ladite couche thermoplastique (2),

   caractérisé en ce qu'on imprime une première feuille transparente d'une matière plastique thermodurcissable (1) revêtue sur un côté d'une mince couche thermoplastique adhésive (2) sur le côté revêtu avec lesdites données d'identification (3, 4, 5), on place une deuxième feuille transparente d'une matière plastique thermodurcissable (1') également revêtue sur un côté d'une mince couche thermoplastique adhésive (2') et semblable à et de mêmes dimensions que la première feuille, sur la première feuille avec les couches adhésives des deux feuilles en vis-à-vis l'une de l'autre, et on stratifie les feuilles en contact l'une avec l'autre par compression à chaud.

2. Procédé selon la revendication 1, caractérisé en ce que, après avoir été imprimée, la première feuille est placée entre la deuxième feuille transparente et une troisième feuille transparente de matière plastique thermodurcissable revêtue d'une mince cou-

che thermoplastique adhésive semblable à la deuxième avec les couches adhésives des deuxième et troisième feuilles en vis-à-vis l'une de l'autre, et on stratifie les feuilles en contact l'une avec l'autre par compression à chaud.

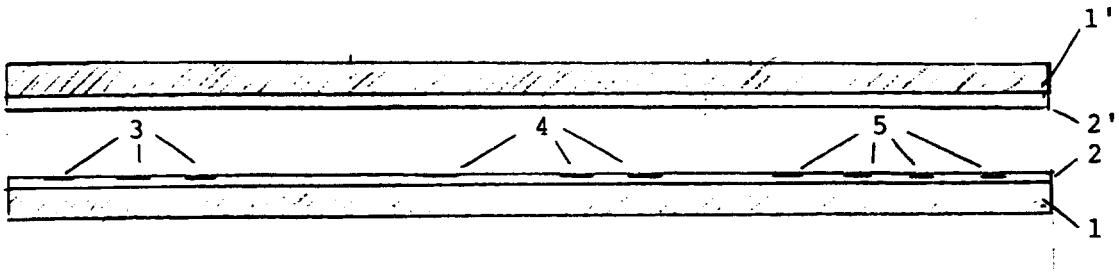

FIG. 1

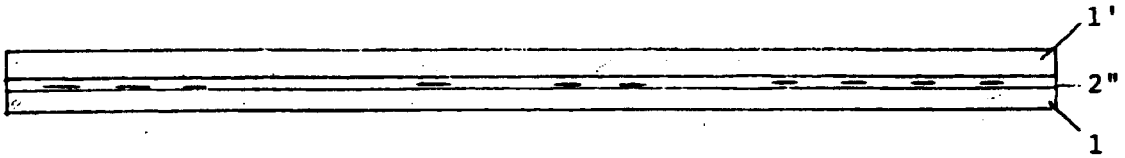

FIG. 2

IDENT. 1	IDENT. 2	IDENT. 3
IDENT. 4	IDENT. 5	IDENT. 6

FIG. 3