

[54] IDENTIFICATION CARD PREFORM AND LAMINATING SYSTEM UTILIZING SAME

3,457,661 6/1969 Peters 40/2.2
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[57] ABSTRACT

Related U.S. Application Data

[62] Division of Ser. No. 168,082, Aug. 2, 1971, Pat. No. 3,770,553.

A novel identification card made from a laminated preformed card blank. The blank has a transparent envelope joined along at least one edge with a flap opening to receive personal identification data, such as the photograph of a card holder. An opaque printable core is laminated to the inner side of the envelope's upper leaf and carries such preprinted information as may be common to cards generally such as the address of the issuing institution. The card preform is personalized by insertion of the personal identification of the particular card holder.

[52] U.S. Cl. 161/6, 161/5, 161/39, 156/538, 40/2.2

[51] Int. Cl. B32b 3/00

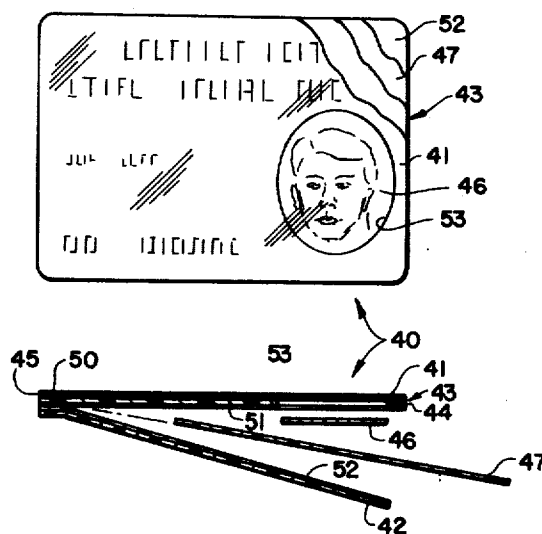
[58] Field of Search 40/1.5, 2.2; 282/25; 161/6, 5, 39; 156/538, 583

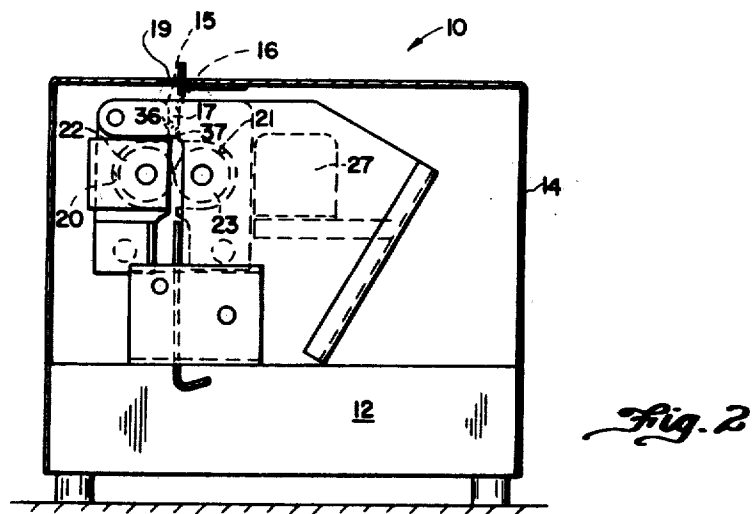
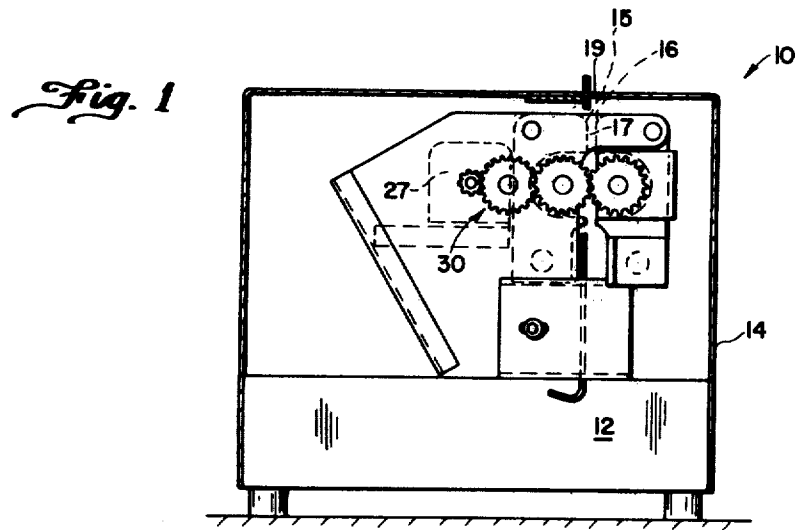
References Cited

UNITED STATES PATENTS

3,417,497 12/1968 Hannon 40/2.2

11 Claims, 7 Drawing Figures





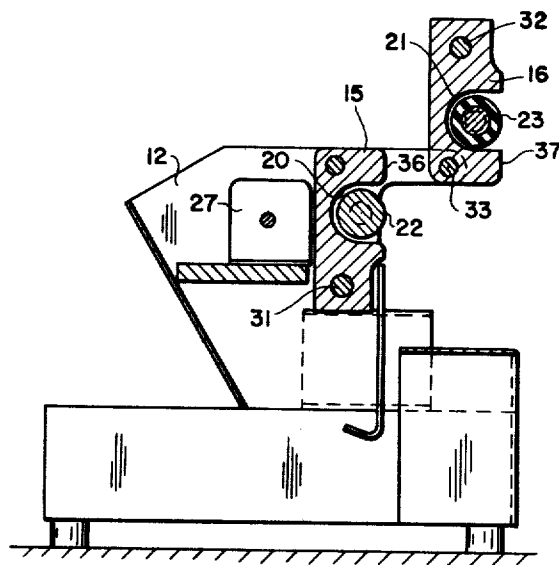


Fig. 3

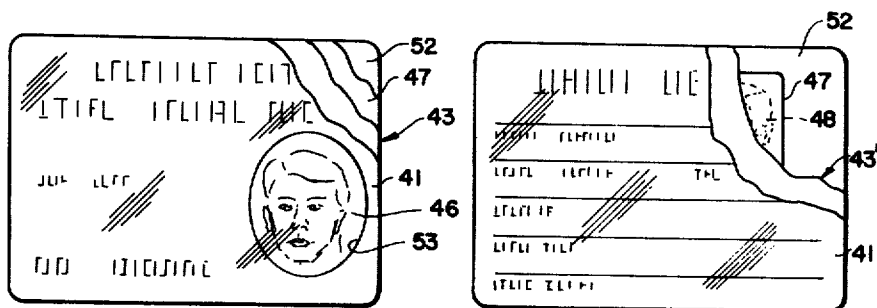


Fig. 4

Fig. 6

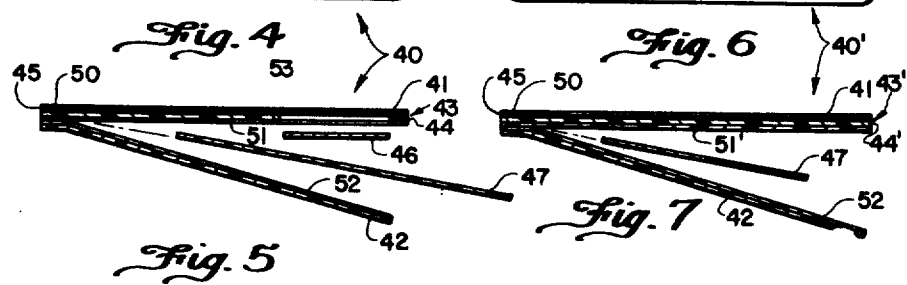


Fig. 5

Fig. 7

IDENTIFICATION CARD PREFORM AND LAMINATING SYSTEM UTILIZING SAME

This is a division, of application Ser. No. 168,082, filed Aug. 2, 1971, now U.S. Pat. No. 3,770,553.

The disclosure includes a laminating system and method utilizing the novel card blank. The system uses a portable laminating press into which an unsealed card is dropped edgewise. The width of the card is vertical as it passes through a pair of closely spaced vertical heating platens. Laminating rolls engage the card and control its rate of descent or heating dwell between the platens and apply the correct laminating pressure for bonding.

CROSS REFERENCE TO RELATED PATENTS

United States Letters Pat. Nos. 3,417,497 and 3,413,171 respectively entitled "Identification Card" and "Process of Making Identification Cards," both issued to Donald F. Hannon.

BACKGROUND OF THE INVENTION

The invention pertains generally to the art of making laminated articles and particularly wallet-sized identification cards. ID cards in general use today by banks, universities and other institutions commonly have a protective plastic covering which is either embossed with the personal data of the card holder or encases a printed data card. Increasingly a photograph of the card holder is included for added security. The invention pertains to a new system for making such cards employing a preformed card blank which may be personalized in any one or a combination of the ways indicated.

THE PRIOR ART

Various types of ID cards are in use which provide a high degree of security. For example, the type of card disclosed in the referenced patents has a thin, printed core sheet which carries the personal data of the card holder. The surfaces of the core sheet are provided by a low softening temperature copolymer. The core is sandwiched between tough, transparent, plastic covering sheets comprised of multilayer materials. The inner layers of the covering sheets, or layers adjacent the printed core, will be formed of a copolymer having a low softening temperature like the coating on the printed core. The outer or remote layer is of a polyester film. Expressed another way, the polyester film is polymerized polyethylene glycol ester. This material is sold commercially by the Du Pont de Nemours Co. under trademark "Mylar."

The application of heat and pressure softens and bonds the inner layers while the remote layers remain firm and do not become tacky or stick to the rolls of the laminating press. The printing on the core becomes suspended between the fused or softened copolymer layers during lamination. The laminated card thus formed is an integrally bonded structure which is then die cut to the proper size.

Often it is desirable for the card-holder's picture to be included as part of the personal data. Typically, the picture is a Polaroid print or die cut photograph of the individual. This may be placed on the printed core sheet at a designated location and in the process of lamination becomes suspended between the inner fused copolymer layer of the protective covering sheet and the coating on the core. Further protection against

tampering is gained where a grid-like pattern is printed over the copolymer layer which overlies the photograph. During lamination this printed grid is, in part, transferred to the face of the photograph so that any attempt to cut around and lift out the photograph is defeated and any heat applied to the card will cause the pattern to distort, giving indication of tampering.

Such security precautions are considered necessary where numerous card holders are involved. Merely showing the card entitles the holder to the benefits offered by the issuing institution and rapid identification becomes a vital factor. This is especially true where credit cards issued by banks and student identification cards issued by universities and colleges are involved. Also the issuing process, where great numbers of cards are involved, necessarily involves much preparation and has become an expensive and time-consuming operation.

For example, where a photograph is included the card holder must appear at an appropriate location for photographing. Typewritten data sheets must be prepared. Usually issuing centers will not have high-speed embossing equipment and if data is to be embossed on the card, conventional, slow graphotype embossing machines must be available. A laminating press for feeding and laminating the plastic sheets to make the cards must be supplied as well as die cutting equipment for cutting out the finished cards.

A prior art laminating press capable of making the cards described in the referenced patents will ordinarily have coils of the plastic material fed continuously in strips along a horizontal path. The card locations on the strips are "personalized" by placing the personal data information between the strips. The strips are then brought together from above and below the pass line, heated, and passed between laminating rolls of the press. The cards themselves are then die cut from the laminated strips and the scrap material discarded.

SUMMARY OF THE PRESENT INVENTION

The present invention affords an improved card laminating system utilizing a preformed card blank and laminating press especially designed to laminate the preformed blanks.

In accordance with the invention, the preformed card blank comprises an envelope precut to size and having an open flap. The envelope includes transparent sides made of polyester outer layers and copolymer inner layers. A separate, preprinted core of the same size having a copolymer coating on one side and a narrow coating strip on the opposite side adjacent one edge is bonded between the envelope's sides. The inner copolymer layers of the envelope sides have a softening temperature the same as that of the copolymer coating of the core. The envelope and core are prelaminated forming a composite preformed card blank including one side completely bonded to the preprinted core while the opposite side is substantially free and can be flapped open, hinging where the bond is formed with the narrow coating strip on the back side of the core.

The preprinted core will carry any general data, such as the name and address of the issuing institution. A separate personal data sheet may be inserted before final lamination. The personal data sheet may be prepared in advance and include information such as the card holder's name, home address, social security num-

ber and the like. As used herein, the term "personalized" will here refer exclusively to the step in the laminating process where the preformed card blank is prepared for issue to the card holder by the insertion of personal data as opposed to information common to the cards generally inserted during prefabrication of the card blanks.

In one embodiment, a cutout is provided in the core which affords a window in the envelope. Access to the window is provided by hinging open the back flap. The window will normally receive a photograph of the card holder, whose picture has been previously die cut to appropriate size for the window, and, when inserted, appears, cameo-fashion, visible through the front of the preformed card blank.

In the invention personalizing the card blanks becomes simply a matter of inserting a personal data sheet and/or taking the photograph of the prospective card holder, die cutting the picture to size, inserting it in the card blank, and laminating the back flap of the envelope closed. No subsequent die cutting of the card blank is required since it is preformed to the required size.

In addition, the present invention contemplates a portable laminating press especially designed for use in laminating the preformed card blanks. In connection with this aspect of the invention, a laminating press is provided having a pair of vertical heating platens which define sides of a vertical card feed path. Each platen has a feed roll recess. A laminating roll is rotatably mounted in each recess. Since the rolls are in these platen recesses, only a small arcuate portion of each is at any given moment out of direct heat transfer relationship with its heating platen. The rolls grip the card blank and are driven at a speed which, under the gravity feed conditions, provides sufficient dwell of the card blanks between the heating platens so that the inner layers reach the required laminating temperature and bond under pressure afforded by the rolls, while the outer polyester layers engaged by the rolls remain firm and do not stick to the rolls.

The invention also contemplates the method of issuing ID cards utilizing a preformed card blank which involves the steps of preprinting general data on a polymer coating applied to a core, bonding the core to a transparent protective polymer material on one side and partially bonding to a second protective polymer material on the opposite side, personalizing the preformed blank by inserting the personal data of the prospective card holder between the protective polymer materials, and laminating the partially bonded side under sufficient heat and pressure to seal the card blank without affecting the prebonded surfaces.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a sectional view of the laminating press showing the drive mechanism for the laminating rolls;

FIG. 2 is a sectional view from a direction opposite the view of FIG. 1;

FIG. 3 is a sectional view of the press with the outer housing removed and showing one heating platen pivoted upwardly;

FIGS. 4 and 5 are, respectively top and cross-sectional views of one form of card blank personalized by insertion of the card-holder's photograph as well as a personal data sheet, the photograph being visible through a window in front of the card; and,

FIGS. 6 and 7 are top and sectional views of another form of card blank in which a personal data sheet and/or photograph of the prospective card holder is inserted and visible from only the back side of the card.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, a portable rotary laminating press is shown generally at 10. The press has a frame 12 which carries a sheet metal housing 14. The frame 12 supports fixed and movable heating platens 15, 16. The platens are closely spaced to define a vertical laminating path 17. The platens have roll recesses 20, 21 respectively. A pair of laminating rolls 22, 23 are rotatably mounted along the laminating path and in the platen recesses 20, 21 respectively. The laminating rolls 22, 23 are driven by a motor 27 through a gear train 30.

Referring now to FIG. 3, showing the press in cross-section with the outer housing 14 removed, the heating platens 15, 16 are relatively large metal bodies. The lower portions of these bodies are bored to carry electrical heating elements 31, 32. The platens, when disposed opposite each other, are as shown in FIGS. 1 and 2, and form a heating zone along the path 17.

The movable platen 16 is pivotally mounted on the frame 12 at 33. The movable platen 16 may be swung upwardly exposing the inner parts in the heating zone for servicing as shown in FIG. 3. During operation, the platens are positioned with flat heat conductive surfaces 36, 37 in closely spaced relationship as depicted in FIGS. 1 and 2. The platens are about as long as they are wide with the roll recesses 20, 21 toward the middle and extending transversely thereacross.

The laminating rolls 22, 23 are soft rubber rolls mounted at each end in the frame 12. The rolls are each in closely spaced heat transfer relationship with the roll recesses 20, 21 except for the portions of the rolls which, at any given time, are in rolling engagement along a line of contact in the laminating path.

The laminating press, according to its preferred form, is designed to process preformed card blanks as shown in FIGS. 4-7. The blanks 40, 40' have tough, protective outer coverings 41, 42 and core assemblies 43, 43'. The protective covering sides and core may be made of the materials disclosed in the referenced patents. Preferably the covering sides will be made of a multilayer having a heat softenable copolymer on the inner surface adjacent the core and a tough, protective, outer layer of polyester film. The core assemblies 43, 43' have opaque bases 44, 44', respectively. The bases are of suitable material such as paper or vinyl and coated on both faces by copolymer. The upper face of each core assembly, as viewed in FIGS. 5 and 7, is bonded to its covering 41. Thus, the copolymer upper layer of the cover 41 are bonded together to form a single layer 45 in which printing on the surface of the core assembly is suspended.

It is important to note in the present invention the back coverings 42 are each free as an opening flap for insertion of personal data of the prospective card holder. As shown in FIG. 4 and 5, this data may be a photograph 46 and personal data card 47; as shown in FIG. 6 and 7, this data may be a personal data card 47 which may include thereon the picture 48 of the card holder.

This provision of a flap opening of the back covering 42 is accomplished by forming a narrow seal at 50 along the left-hand edges of the cards as viewed in FIGS. 5 and 7. This narrow seal is effected, in the embodiment of FIG. 5, between a lower copolymer layer 51 on the core assembly 43 and a copolymer bonding layer 52 of the lower covering 42. In the embodiment of FIG. 7 this narrow seal, which functions as a hinge, is formed between a covering bonding layer 52 and a bonding layer 51' of the core assembly 43'.

The difference between the embodiments of FIGS. 4 and 5 on the one hand and the embodiments of FIGS. 6 and 7 on the other is in the provision of a see-through aperture 53 in the core assembly 43. Thus, in the core assembly 43, an aperture is formed at least in the core base 44 and the lower bonding layer 51 to receive the photograph 46 so that it is visible from the face of the card. Alternately, one may form an aperture in the core base 44 only, or provide a transparent window in the core base only behind which the photograph may be positioned for viewing from the face of the card. In the embodiment of FIGS. 6 and 7 the photograph, if present, is visible only through the back covering layer 42.

After the personal data card and photograph have been inserted in the card blank, the card is simply dropped through the feed slot 19 with the narrow seal or hinge 50 entering the laminating machine first. When the lamination process has been completed, the entire assembly is sealed into a unitary mass with the upper or face covering layer 45 bonded to the photograph 46 and the personal data card 47 intimately bonded to both the lower bonding layer 51 of the core assembly and the bonding layer 52 of the lower covering 42. Similarly, any portions of the bonding layers 51, 52 which are in contact around the perimeter of the personal data card 47 will be bonded together. Similarly, in the embodiments of FIGS. 6 and 7, the bonding layers 51', 52 will each be bonded to the personal data card 47 and to one another.

According to the process of the invention by which the preformed card blanks are prepared for issue, the bonding layers of the core assemblies are preprinted with such general data and information as may be common to all cards of a given issue. The preformed card blanks are first assembled and the face covering is laminated to the core assembly while the back covering is bonded to the core assembly along the narrow strip 50. The personal data card and photograph of the prospective card holder are prepared. If the photograph is to be inserted in the core aperture 53, it is then die cut to the size of the aperture. The cut photograph and the personal data card 47 are then inserted in the card blank, personalizing it to the prospective card holder. In the form of card blank shown in FIGS. 6 and 7, the personal data is on a separate sheet 47 which may be a photographic print including data and the cardholder's photograph 48. This data sheet 47 is inserted with the photograph 48 facing to the rear.

The card blank is then inserted in an aluminum clip (not shown) to hold it flat and this assembly dropped in the slot 19 of the portable laminating machine 10. The heating platens 16 immediately commence to heat the individual card blank within the aluminum clip to a temperature in the range of 300° to 375° F. necessary to soften the bonding layers 51, 51', 52 of the core and coverings. While this temperature range is higher than that described in the referenced patents, as is necessi-

tated by the relatively thick construction of the card, the novel press nonetheless effects a seal without smearing the ink on bonding layers. This is achieved with the use of very soft rolls 22, 23 of a durometer of 30 to 35. Further, since the rolls are positioned in the semicylindrical recesses 20, 21 they are continuously heated to approximately the same temperature as the platens and thus make it possible to perform the lamination in a very short vertical pass. After discharge by the laminating rolls, the card is completely sealed at the edges and requires no finished cutting or other operation.

Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present disclosure of the preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. A preformed assembly for making an identification card which when sealed forms a laminated envelope structure encasing an insert, comprising:

- a. a pair of transparent side flaps sandwiching an opaque core;
- b. said side flaps being precut to a generally similar configuration and being positioned with the peripheral edges of one side flap in registry with the peripheral edges of the other side flap;
- c. said core being precut to a size no greater than that of said side flaps and being positioned between said side flaps so as not to protrude beyond said peripheral edges;
- d. said core being bonded to one of said side flaps so as to form an integral laminated assembly;
- e. said core also being bonded to the other of said side flaps along only portions of the mating surfaces therebetween leaving the remaining mating surface portions freely separable so as to permit the insertion of an insert therebetween.

2. The assembly of claim 1 wherein said core has a precut opening therethrough whereby indicia provided on both sides of an insert can be viewed through said side flaps.

3. The assembly of claim 1 wherein the inner adjacent surface of said side flaps comprise heat softenable layers.

4. The identification card of claim 1 wherein said core is preprinted with general data which is viewable through said one side flap.

5. An identification card comprising:

- a. a heat sealed laminated envelope structure encasing an insert means;
- b. said laminated envelope structure prior to sealing comprising:
 - i. a pair of transparent side flaps sandwiching a core;
 - ii. said side flaps being precut to a generally similar configuration and being positioned with the peripheral edges of one side flap in registry with the peripheral edges of the other side flap;
 - iii. the inner adjacent surfaces of said side flaps comprising heat softenable layers;
 - iv. said core being precut to a size no greater than that of said side flaps and being positioned be-

tween said side flaps so as not to protrude beyond said peripheral edges;

v. said core being bonded to and between said side flaps along only portions of the mating surfaces between the core and at least one of the flaps, leaving the remaining mating surface portions 5 freely separable so as to permit the insertion of said insert therebetween; and,

c. said insert means being precut to a size which will permit its insertion between said remaining mating surface portions and having identification indicia 10 on its surface whereby said identification indicia is viewable through said side flap.

6. The identification card of claim 5 wherein said core has a precut opening therethrough, and said insert 15 means includes additional identification indicia on its surface which is adjacent one of said side flaps whereby said additional identification indicia is viewable through the other said side flap.

7. The identification card of claim 6 wherein said insert 20 means comprises a pair of inserts one of which carries said identification indicia, and the other of which carries said additional identification indicia, said inserts being positioned back to back between said side flaps.

8. The identification card of claim 7 wherein said other insert comprises a photograph which is cut to a size no greater than said precut opening, and said pho-

tograph is positioned within said opening so as to be viewable through one side flap.

9. The identification card of claim 5 wherein said core is preprinted with general data which is viewable through one side flap.

10. A preformed identification card blank comprising:

a. a pair of transparent side flaps sandwiching an opaque core;

b. said side flaps being precut to a generally similar configuration and being positioned with the peripheral edges of one side flap in registry with the peripheral edges of the other side flap;

c. said core being preprinted with general data viewable through at least one of said side flaps;

d. said core being precut to a size no greater than that of said side flaps and being positioned between said side flaps so as not to protrude beyond said peripheral edges;

e. said core being bonded to and between said side flaps along only portions of the mating surfaces between said core and at least one of the flaps, leaving the remaining mating surface portions freely separable.

11. The preformed card blank of claim 10 wherein the inner adjacent surfaces of said side flaps comprise heat softenable layers.

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