# United States Patent [19]

**Staats**

[11] **3,896,726**

[45] **July 29, 1975**


[54] **EMBOSSED MONOLITHIC IDENTIFICATION CREDIT CARD**


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[73] Assignee: **General Binding Corporation,** Northbrook, Ill.



[22] Filed: **May 31, 1974**

[21] Appl. No.: **475,111**

**Related U.S. Application Data**

[62] Division of Ser. No. 263,934, June 19, 1972, Pat. No. 3,855,033.

[52] **U.S. Cl.** ..... **101/369;** 40/2.2

[51] **Int. Cl.** ..... **B41n 1/12**

[58] **Field of Search** ..... 101/369, 395, 401.1; 40/2.2; 283/7, 8; 156/227, 228, 213, 219, 220, 293, 297



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[57] **ABSTRACT**

This invention provides a method of making an embossable monolithic identification credit card having a protected photograph and/or signature thereon. The method comprises the steps of providing a metal plate having a portion cut out of it to insert the photograph, folding a data sheet containing heat reactivatible adhesive on its backside around the metal plate, the data sheet having identifying indicia thereon and a cut-out portion corresponding to the cut-out portion of the metal plate, inserting the assembled metal plate, photograph and folded data sheet into a clear pouch consisting of two sheets of polyester each containing heat reactivatible adhesive of their inner surfaces, and applying heat and pressure to the assembly of materials to laminate the data sheet to both sides of the metal plate and to the edges of the photograph and the overlying pouch sheets to the data sheet over the photograph and identifying indicia, and with the pouch sheets adhered to one another on all four sides at its border whereby a monolithic identification credit card is provided which can be embossed with stable, raised indicia.


**4 Claims, 5 Drawing Figures**

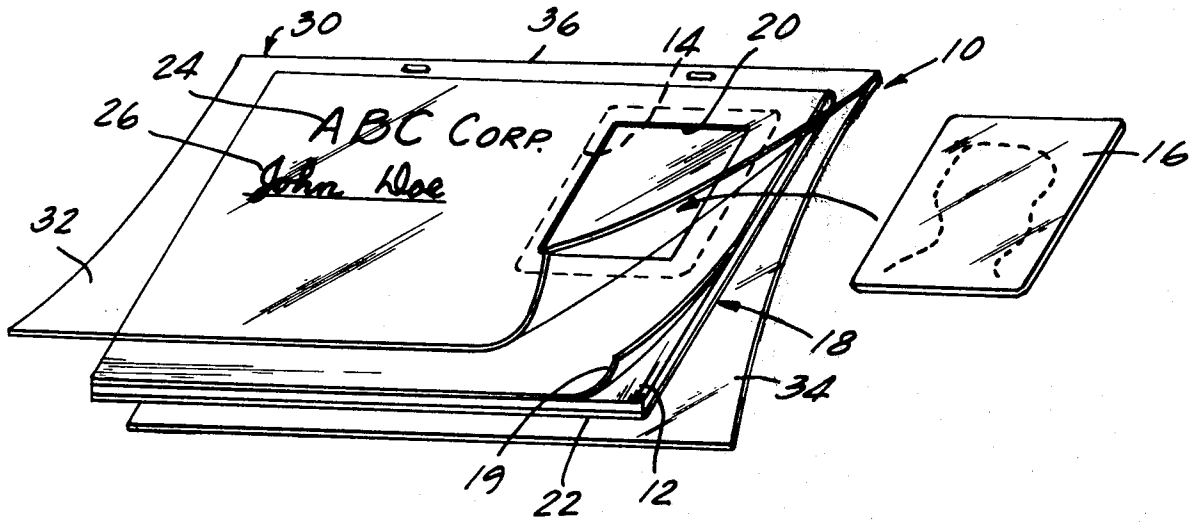


Fig. 1

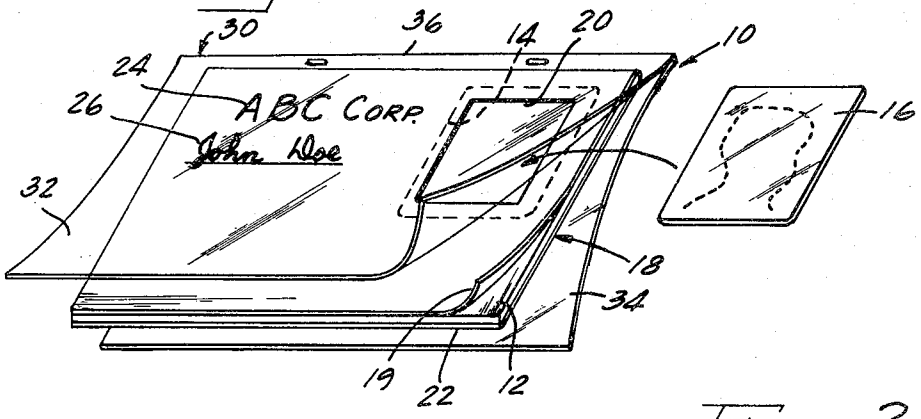



Fig. 2

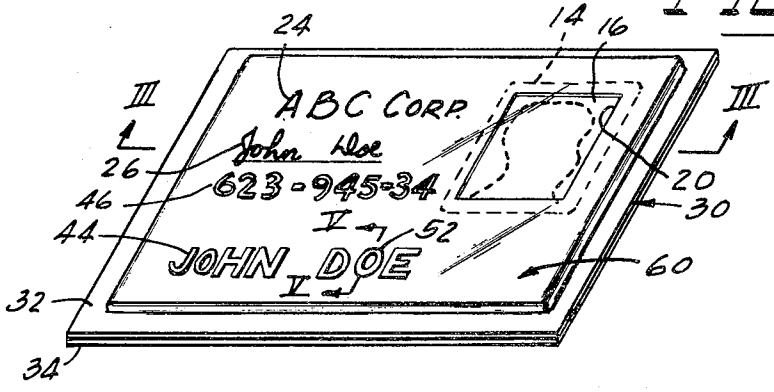



Fig. 3

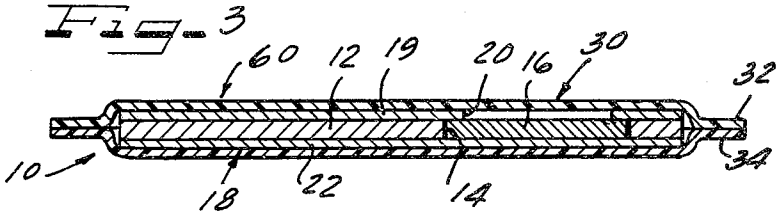
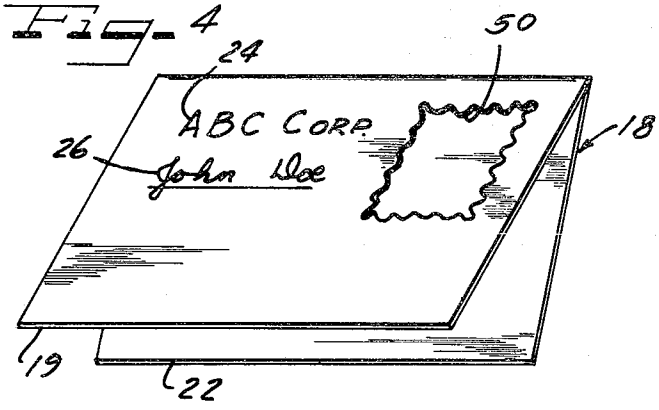



Fig. 4



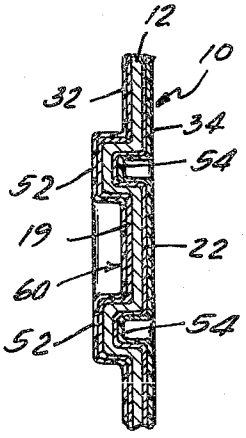




Fig. 5

# EMBOSSED MONOLITHIC IDENTIFICATION CREDIT CARD

## CROSS-REFERENCE TO RELATED APPLICATION

This is a division of my application Ser. No. 263,934, filed June 19, 1972, now U.S. Pat. No. 3,855,033.

## BACKGROUND OF THE INVENTION

This invention relates to identification credit cards and the method of making the same. More particularly, this invention relates to an embossable identification credit card having a protected photograph and/or signature thereon.

It has been customary to make most credit cards of several layers of polyvinyl chloride bonded together at an elevated temperature and pressure. Generally, since both sides are printed and over-laminated, the process requires that fabrication take place in a manufacturing facility. Subsequently, the card is individualized by the issuer who embosses pertinent information on the card such as name, address and account number. Then, when the person to whom the card is issued receives the card, he signs his name on a special portion, i.e., signature panel, which has been treated to receive ink. Not all credit cards in the past have had this provision of a signature.

Recently, however, the Federal Government has instituted legislation which requires that all credit cards must contain provisions for a signature and/or a photograph at the option of the issuer. This requirement complicates matters for both the credit card manufacturer and the issuer since the production practices of the former and the commercial practices of the latter do not conveniently lend themselves to including a photograph. While the signature panel can be included, it has long been recognized that since the signature is not overlaminated or protected, it is subject to being tampered with and changed by even the rankest amateur.

The ideal and preferred credit card as considered by those connected with the credit card business would be a monolithic card bearing both an overlaminated photograph and signature of the person to whom the card is issued. Accordingly, both the photograph and signature would be overlaminated and protected. And, of course, the card would have to be embossed to serve its prime function in purchases of goods and services made with the card. In order to accomplish this and guarantee that the person requesting the card and his issued card bear cross-identity, it becomes necessary to prepare the card at the issuer's facility instead of the credit card manufacturing facility. In turn, this suggests that the issuer must have reasonably priced, simple, and effective equipment available to perform this function preferably while the card requester waits. Banks and oil companies are typical credit card issuers.

Equipment of this nature has been available and has been marketed for several years. However, the product or card resulting from such equipment while resolving the photograph, signature and overlaminate problems, has lacked an embossment of adequate integrity and stability level. For example, typical cards of this type are fabricated by pasting a die-cut Polaroid photograph onto a pre-printed data card which is signed at the time of issuance. The assembly is inserted into a pouch consisting of two layers of a polyester film, each containing heat-reactivatible adhesive on their surfaces and then



processed in a laminator to provide a monolithic credit card. Such cards, while they may be embossed with raised letters to a height of national standards, i.e., 0.018 inches, will tend to lose their embossment as they are used subsequently in imprinters. The reason for this is that the monolithic combinations of polyester and heat-reactivatible adhesives are not as hard as conventional rigid polyvinyl chloride.

In an attempt to harden a polyester layered card, one or two pieces of polyvinyl chloride have been used as the core of the card. However, this construction has not always been successful despite the fact that the embossment may be satisfactory since the temperatures used to seal the pouch are higher than the distortion point of the polyvinyl chloride. This results in an embossable, monolithic card which tends to warp, wrinkle, or distort and is unacceptable functionally and aesthetically.

It would, therefore, be a substantial advance in the art if a method were developed which provided a monolithic identification credit card that could be embossed with stable, raised indicia and would not warp or become distorted. Such an identification card would also have a protected photograph and/or signature. The stable character of the raised indicia of the card would prevent any errors in the imprinting of the name or identification number of the card owner on a credit charge slip or on any other form on which the card may be used.

## SUMMARY OF THE INVENTION

I have, accordingly, provided a new method for producing an identification credit card which can be embossed with stable, raised indicia and has an overlaminated photograph and/or signature thereon. An embossable, monolithic identification card having a protected photograph and/or signature thereon is made by means of this method by first providing a metal plate having a portion cut out from it to insert the photograph. A data sheer containing heat reactivatible adhesive on one surface and having a signature and printed identifying data thereon and a cut-out portion corresponding to the cut-out portion of the metal plate is folded around the metal plate. The assembled metal plate, photograph and data sheet are then inserted into a pouch consisting of two layers of polyester each containing a heat-reactivatible adhesive on their inner surfaces. By a lamination process, heat and pressure are applied to the assembled materials in the pouch for a sufficient period of time to laminate the data sheet to the metal plate and to the edges of the photograph in a frame-like manner and to laminate the pouch to the data sheet over the photograph and signature and to itself around the edges. The resultant card is a monolithic identification credit card that can be embossed with stable, raised indicia.

Therefore, it is the primary object of the present invention to provide a method for making an identification credit card which can be embossed with stable, raised indicia.

Another object of the invention is to provide a method for producing an embossable identification credit card with a protected photograph and/or signature simply and in a short time.

Other objects, features and advantages of the invention will be readily apparent from the following description of the preferred embodiments thereof, taken in conjunction with the accompanying drawings, al-

though variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows the various components used in making an embossable credit card according to the present invention;

FIG. 2 illustrates an embossed monolithic identification credit card made by the present method;

FIG. 3 is a cross-sectional view taken substantially along line III—III of FIG. 2;

FIG. 4 illustrates in perspective the preferred embodiment of the folded data sheet of the present credit card; and

FIG. 5 is a partial view taken along line V—V of FIG. 2, illustrating the embossed indicia of the credit card.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the basic identification card generally indicated by **10** is composed of a metal plate core **12** having a portion **14** cut out of it to have a photograph **16** inserted therein. A data sheet **18** is folded in half around the metal plate **12.** The front half **19** of the data sheet **18** has a cut-out portion **20** which corresponds to the cut-out portion **14** of the metal plate **12.** The back or bottom half **22** of the data sheet **18** contains no cut-out portion and is arranged to cover the back side of the aluminum card and the photograph **16.** As shown in FIGS. **2** and **3,** the corresponding opening **20** of the data sheet **18** is arranged to overlap the edges of the photograph **16** in a frame-like manner when the card **10** is assembled.

The folded data sheet **18** may have printing **24** on it such as "ABC CORP." and also the signature **26** of the recipient of the card, i.e., John Doe. Printing of the conditions of issuance and use may be printed on the back half **22** of the data sheet **18.** Typically, the printing may be done in both halves **19** and **22** on the exposed outer surface of each half. The inner surfaces of the data sheet contain a heat-reactivatible adhesive.

As indicated in FIG. **1,** after the photograph **16** has been placed in the die or portion **14** cut out of the metal plate **12** and the folded data sheet **18** placed on both sides of the metal plate, the assembled photograph and data sheet are inserted into a clear pouch **30.** The pouch **30** has a top leaf **32** and a bottom leaf **34** which both extend from an overlap all four sides of the assembled plate and folded data sheet as shown in FIG. **3.** The clear pouch **30** as shown is usually tack-welded along the top edge **36.** The inner surface of the top and bottom leaves **32, 34** of the pouch **30** and the front and back halves **19,22** of the data sheet **18** are coated with a heat-reactivatible adhesive on their inner surfaces. Accordingly, when heat and pressure are applied to the assembled materials, the folded data sheet will adhere to both sides of the metal plate and to the edges of the photograph **16,** and the pouch will be laminated to the data sheet over the photograph **16,** signature **26,** and to itself at its edges.

As illustrated in FIGS. **2** and **3,** the various components when laminated together provide an embossable, monolithic, identification credit card having a protected photograph and signature thereon. As shown specifically in FIG. **2** and illustrated in FIG. **5,** both the name **44** of the recipient, i.e., John Doe, and the identifying account number **46,** i.e., 623–945–34, are embossed on the card, respectively in stable, raised letters and numerals.

The metal plate **12** may be of any permanently deformable metal. However, it is preferred to use aluminum as the core of the card **10** since it is light, inexpensive and is stable in its embossed, or deformed state under a high incidence of use. Different types of aluminum may be used such as a commercial 2024 Al-clad aluminum having both sides bright and a moderate stiffness. An aluminum of increased hardness is available for a tougher embossment if this is desired. The commercially abraded aluminum sheet stock is preferred according to the present invention since it improves the bond of the adhesive coated data sheet **18** to its surfaces. The cut-out portion **14** may be removed from the aluminum plate **12** by an conventional die or stamp machine.

The photograph **16** may be any photograph that will be of the size to be fit into the cut-out portion **14** of the metal plate **12.** Generally, the photograph would be a Polaroid photograph taken at the time the credit card is issued and then placed into the cut-out portion **14** of the plate **12.** It is preferable that the photograph be colored instead of black and white.

The folded data sheet **18** may be a paper sheet having a heat-reactivatible adhesive coating such as polyethylene on its inner surfaces which will face and adhere to the aluminum plate surfaces. As shown in FIGS. **2** and **3,** the opening or cut-out portion **20** of the data sheet **18** is smaller in area than the photograph **16** so that data sheet opening edges overlap the photograph **16.** With this arrangement, it is very difficult to remove the photograph for falsification without producing observable damage in the data sheet. Also as illustrated in FIG. **4,** a preferred form of the cut-out portion comprises an opening or cut-out portion **50** of the data sheet **18** which is provided with a varying edge, formed as saw teeth or a series of half-holes as in postage stamp perforations. This arrangement would make it even more difficult to remove the photograph without damaging the data sheet.

The pouch **30** may be made of any suitable clear polyester sheeting which is known as polyethylene terephthalate, i.e., Mylar. A heat-reactivatible adhesive coating such as polyethylene or copolymer of ethylene or ethylene-ethyl acetate as described in U.S. Pat. No. 3,684,635, should be provided on the inner surfaces of the polyester leaves **32,34** so that it can be laminated to the paper data sheet, photograph, and to itself.

The resultant monolithic identification credit card **10** has an over-all thickness within 0.035 inch which meets the national standard for the thickness of credit cards. The polyester leaves **32,34** each have an over-all thickness of about 0.010 inch while the front and back halves **19,22** of the data sheet **18** each have a thickness of approximately 0.0025 inch and each containing approximately 0.001 inch of heat-reactivatible adhesive. The pouch generally is constructed with 0.004 inch polyester and 0.006 inch adhesive or 0.002 inch polyester and 0.005 inch adhesive.

As shown in FIG. **5,** the raised or embossed indicia **52** provided on the card of the present invention has corresponding cavities **54** thereunder and the embossment is of the entire thickness of the monolithic card. The stable, raised indicia **52** in their thickness includes the leaves **32,34** of the pouch, the halves **19,22** of the

data sheet, and the metal plate core **12.** The embossed indicia **52** generally have a height of between about 0.018 inch and 0.020 inch above the top surface **60** of the resultant card. The monolithic card **10** may be embossed by any conventional embossing machine or apparatus to form the raised indicia illustrated in FIG. **2,** i.e., "John Doe" and the account number 623–945–34.

In the lamination of the present components of the credit card according to the present invention, the data sheet **18** is folded over both sides of the aluminum card with its opening **20,** or the irregular opening **50,** arranged to surround the edges of the photograph **16** inserted in the cut-out portion **14** of the metal plate **12.** With the card properly assembled in the folded data sheet this assembly is inserted into the pouch **30** in between the leaves **32** and **34.** Then, the entire assembly may be processed through an oven-type laminator of the kind sold by General Binding Corporation of Northbrook, Illinois, as a "MINI-LAM" which is described in U.S. Pat. No. 3,695,020. In the use of an oven-type laminator, heat and pressure need only be applied to the assembly of materials for a short period of time to produce a smooth, flat laminate. The laminator for satisfactory results, is generally heated to a temperature about 325 ± 5°F measured on the bottom heater to provide sufficient heat for a period of 10 to 16 seconds to laminate the component layers and produce the resultant monolithic card **10.**

In the process of laminating, the back **22** of the data sheet **18** containing printed and/or written information bonds to the back of the aluminum plate **12** and the back of the photograph **16.** The front **19** of the data sheet also containing indicia bonds to the front of the aluminum plate and to the edges of the photograph **16** in a frame-like manner. The top pouch sheet containing heat-reactivatible adhesive on its inner surface is laminated to the exposed data sheet, the photograph and to the bottom pouch layer **34** at all four edges. The bottom layer **34** of the pouch **30** correspondingly bonds to the exposed bottom data sheet and of course to the front layer **32** at all four edges. I have found the resultant monolithic identification card readily embossed by conventional machines that can be maintained and operated in the issuer's facilities, e.g., the office of a bank issuing a credit card. The final product is a monolithic identification credit card which incorporates dimensionally use-stable raised indicia.

According to the present invention, an embossed identification credit card having a protected photograph and/or signature as well as stable, raised indicia can be provided in just a few minutes prior to its issuance and the card may, accordingly, be made in the presence of the recipient. That is, by having a Polaroid photograph made of the intended recipient, the photograph with his signature can be incorporated within a card having stable, embossed indicia according to the present invention in a very short time. Also, the lamination and embossing processes of the present invention may be simply performed with small, inexpensive equipment that can be operated in an office or other place of business from where the credit card may be issued.

It will be clear that variations may be made in the present method of making embossable indentification credit cards without departing from the scope of the present invention. It is my intention accordingly, that the scope of the invention may be limited solely to that of the hereinafter appended claims.

I claim as my invention:

**1.** A monolithic embossed identification credit card having a protected photograph and signature thereon, said card comprising:

a. a metal plate having an opening with a photograh inserted therein;

b. a folded paper data sheet laminated to both sides of said metal plate and to the edges of said photograph, said data sheet having a cut-out portion overlying said photograph and a signature thereon;

c. a clear pouch having a heat-reactivatible adhesive thereon laminated to said data sheet over said photograph and signature; and

d. embossed indicia impressed into said card with the deformation thereof extending through all layers of said card.

**2.** A credit card according to claim **1,** wherein the cut-out portion of said data sheet is smaller in area than said photograph and has a varying edge formed as saw teeth.

**3.** A credit card according to claim **1,** wherein said metal plate is composed of aluminum.

**4.** A credit card according to claim **1,** wherein said clear pouch is composed of polyester sheeting.

* * * * *