Dec. 10, 1968 L. BERGER 3,414,998

COUNTERFEITPROOF, ENCAPSULATED IDENTIFICATION CARD

Filed June 1, 1966

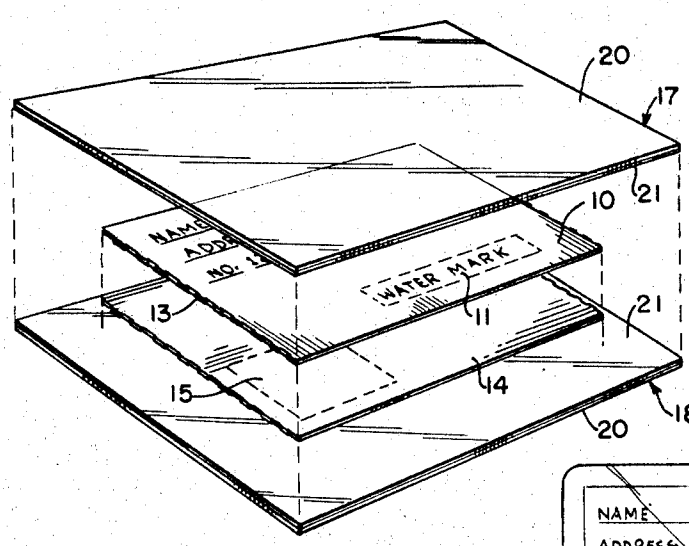



FIG. 1

FIG. 2

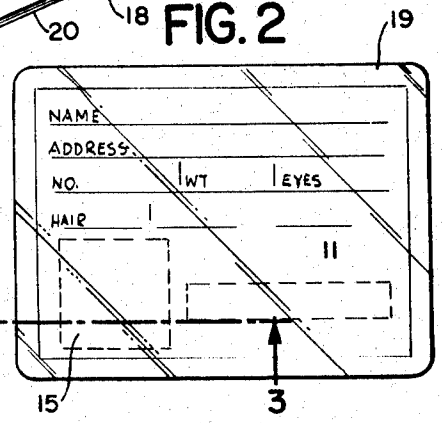



FIG. 3

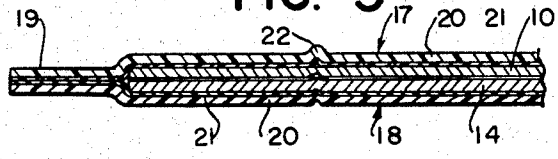



FIG. 5

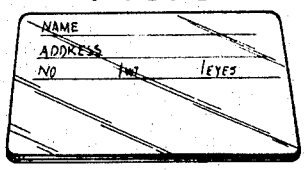



FIG. 4

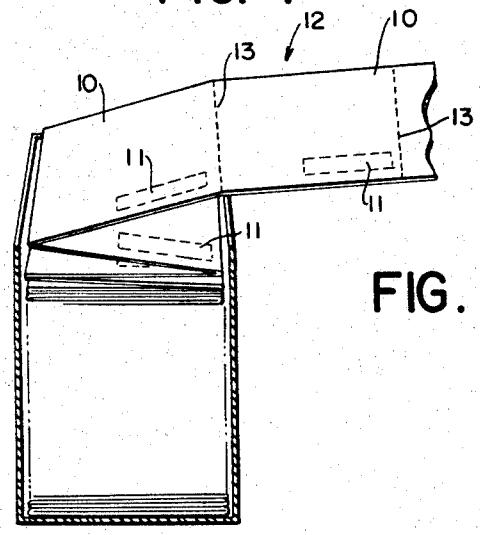
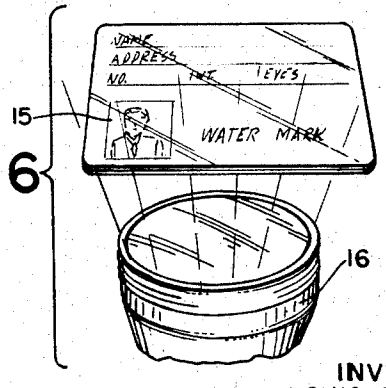



FIG. 6




INVENTOR
LOUIS BERGER

BY Mandeville & Schweitzer
ATTORNEYS

United States Patent Office 3,414,998 Patented Dec. 10, 1968



3,414,998

# COUNTERFEITPROOF, ENCAPSULATED IDENTIFICATION CARD

Louis Berger, 1428 Sorolla Ave., Coral Gables, Fla. 33134

Filed June 1, 1966, Ser. No. 554,474
5 Claims. (Cl. 40—2.2)

## ABSTRACT OF THE DISCLOSURE

This invention provides a personal identification card that is substantially counterfeitproof and tamperproof. The card includes a structurally incorporated watermark distinctive to each individual card issuing authority, as an anti-counterfeiting means. The card is made tamperproof by providing an internal photographic image of the card's rightful holder, that is destroyed if the card is tampered with. The watermark and photographic image are disposed to permit simultaneous verification of the authenticity of the card as well as of the holder by viewing the card against a lighted background. The invention is also directed in part to a novel method for producing such identification cards.

The present invention relates to identification cards and the like. It is advantageously related to, but not necessarily limited to, tamperproof identification cards of the general type described and claimed in the Louis Berger United States Patent No. 3,204,354, and is more specifically directed to the construction of identification cards in such manner as to make counterfeiting of the cards difficult to the point of impracticability, while at the same time accommodating low cost, mass production manufacture of the cards by duly authorized sources.

To a widespread and increasing extent, personal identification cards and documents are found to be necessary and desirable for ordinary, day-to-day usages, such as for drivers' licenses, liquor service identification, travel identification, credit cards, plant security, and the like. Heretofore, considerable effort has been devoted to the construction of identification cards in a manner to make extremely difficult the tampering or changing of the identification material, subsequent to issuance of the identification card or papers, and a particularly advantageous form of tamperproof identification card forms the subject matter of my prior United States Patent No. 3,204,354.

As personal identification cards are coming into increasingly widespread use, the materials and techniques for the making of such cards are becoming increasingly available and understood, and so there is an increasing danger that identification cards which are in themselves rather effectively tamperproof may in the first instance be issued from a counterfeit source. While the card, upon inspection, may bear no evidence of tampering with the identification material, because there will in fact have been no tampering, the card may be false in its entirety, because of having been issued in the first instance with bogus identifying information by an unauthorized source.

It is a principal objective of the present invention to provide a specifically novel and improved form of identification card, capable of low cost, mass production issuance, which incorporates, in addition to relatively tamperproof identification information, additional and effectively counterfeitproof indicia evidencing that the card was issued by an authorized source. In its most basic aspect, the identification card of the invention includes an information-bearing sheet, arranged to be supplied on a continuous form basis to an assembly or issuance point, which contains, on each and every card-sized sheet, a distinctive and identifying watermark. After assembly and encapsulation



of the identification card, the distinctive watermark, which is generally very indistinct or entirely invisible to casual observation of the encapsulated card, may be readily verified by shining a flashlight through the card or otherwise viewing it against a lighted background.

As will be understood, a watermark is imparted to the card during the papermaking process, while paper is in a wet condition on the Fourdrinier or other paper-forming machine. It requires specifically made, costly imprinting rolls installed on the papermaking equipment, and distinctive watermarks are scrupulously respected among various paper companies. Thus, counterfeiting of a watermark is not feasible in the absence of participation of at least a large number of high level personnel of a paper company, which would represent a most extraordinary and unlikely event. While it might be possible for a highly skilled counterfeiter to prepare a small number of carefully and individually made "hand sheets" of paper bearing a simulated watermark, such a procedure would not enable the counterfeiter to operate on a large scale. It would not be economically attractive to counterfeit such routine identification as drivers' licenses and credit cards, for example, on a one-at-a-time basis, so there would be very little inducement for a highly skilled counterfeiter to set up an operation.

In one of its most advantageous, specific forms, the new counterfeitproof identification card of the invention comprises an identification or indica bearing sheet, incorporating a distinctive watermark, which is adhesively secured over the top of a photographic sheet bearing the photographic likeness of the person to be identified. The adhesively secured or bonded sheets advantageously are encapsulated in a suitable plastic material, such as a Mylar-polyethylene lamination. Most advantageously, the photographically exposed undersheet is so adhesively bonded to the watermarked oversheet that the separation of the two sheets will necessarily result in destruction of the photographic image, at least.

Although the present invention is not limited thereto, special advantages may be derived by incorporating the principles of the present invention in the tamperproof, encapsulated identification card of my prior Patent No. 3,204,354, in which the photographically imaged undersheet bears two separate photographs, one being concealed behind the information bearing top sheet, and the other being directly exposed through a suitable aperture provided in the top sheet. In the case of the last-mentioned structure, one of the identifying photographic images would be readily visible on the casually observed identification card, while the second photo, along with the concealed distinctive watermark verifying the authority of the issuing source, would be revealed by viewing of the card over a lighted background.

As one of the specific features of the invention, the new counterfeitproof identification card is of a character suitable for at least semiautomated issuance. Accordingly, as one fundamental requirement, the watermarked information bearing sheet is supplied in a continuous form in the manner typical of more conventional business forms. Customarily, the continuous length of watermarked sheet is in zigzag-folded form, with tear-apart perforations being provided at opposed edges of each sheet. The sheets may also be provided in roll form, as will be understood.

For a better understanding of the invention and for a further description of its features and advantages, reference should be made to the following detailed description and to the accompanying drawing, in which:

FIG. 1 is an exploded perspective view illustrating the individual components of an advantageous form of counterfeitproof identification card according to the invention;

FIG. 2 is a top plan view of an encapsulated identification card of the type shown in FIG. 1;

FIG. 3 is an enlarged, fragmentary, cross-sectional view taken generally along line 3—3 of FIG. 2;

FIG. 4 is a representative view illustrating a continuous supply of watermarked information bearing sheets for incorporation in the identification card of FIGS. 1 and 2;

FIG. 5 is a perspective view of a completed identification card according to the invention as it would appear to the casual view; and

FIG. 6 is a perspective view of the identification card as shown in FIG. 5, but viewed against a lighted background to show a distinctive watermark verifying the source of issuance, as well as a concealed identifying photo.

Referring now to the drawing, and initially to FIGS. 1–3 thereof, a counterfeitproof identification card, according to the invention, includes, as a critical component, a sheet bearing identification material, which also incorporates a distinctive watermark imparted to the sheet during the paper-making process. In the specifically illustrated identification card structure, a sheet **10**, which may be of ordinary paper, is formed to full card dimensions and is imprinted on its upper surface with appropriate identifying information. At some place on the sheet **10**, the specific location being generally unimportant, there is incorporated a distinctive watermark **11**, which is specific to and identifies the issuing authority. The watermark **11** actually forms part of the structural makeup of the paper sheet **10**, being imparted to the sheet by a suitably formed roller, during the actual paper-making process, while the paper is still in a wet condition on the paper machine.

In accordance with a significant aspect of the invention, the sheets **10**, which are of full card dimensions, are supplied in a continuous length (FIG. 4) with dividing perforations or other lines of weakness **13** being provided between the adjoining edges of adjacent cards or sheets. Each and every one of the sheets **10** on the continuous form is provided with a distinctive watermark **11**, which requires, of course, that the watermark-forming roller installed on the paper machine must be specifically designed and intended, first, to impart the desired, specific watermark and, second, to accommodate the formation of such a watermark on a highly repetitive basis corresponding to the size of the identification sheet. Thus, since the proper watermaking of each of the sheets **10** requires that a roll be manufactured with the specific, proper watermark design repeated on a frequency related specifically to the diameter of the roll and the dimensions of the card, and, since the watermark-forming operation must be carried out as an integral part of the paper-making operation, it is wholly impracticable to counterfeit a given watermark on a substantial basis, at least within the framework of such a counterfeit operation being economically attractive to the counterfeiter.

In a most advantageous form of the identification card of the invention, the top sheet **10** has adhesively secured to its undersurface an imaged photographic sheet **14** which bears the photographic likeness **15** of the person to be identified. Typically and advantageously, the backsheet **14** is of full card dimensions, although the image provided thereon at **15** may be considerably smaller than full card dimensions, so as to be capable of being viewed, against a lighted background, through an area of the top sheet **10**, which may be left free of printing or other obstruction, if desired. Most advantageously, the top sheet **10** and backsheet **14** are of a semi opaque nature, so that the photographic image **15** is not readily visible upon a casual inspection of the identification card. However, the top sheet **10**, as well as the photographic sheet **14** itself, will pass light of reasonable intensity, so that the photographic image may be readily viewed by placing the card over a lighted background. A flashlight is suitable for this purpose, as indicated at **16** in FIG. 6.



In the manufacture of a completed identification card, the individual top sheets **10**, each bearing a distinctive watermark specific to the authorized issuing source, are separated from the continuous form supply, along the perforated or otherwise weakened separation line **13**, either before or after being completed with the approriate identifying information. The photographic backsheet **14**, advantageously also derived from a continuous form source and selectively exposed to form the photographic image **15** on its upper surface, is brought together with the top sheet **10** and adhesively secured with its photographically exposed top surface bonded to the back surface of the top sheet **10**. The adhesive for this bonding is so selected as to provide a bond sufficient to rupture and destroy the photographic image **15** if any attempt is made to separate the two sheets.

After adhesive lamination as above described, the bonded sheets **10**, **14** are then encapsulated by clear plastic sheets **17**, **18**. Most advantageously, the plastic sheets **17**, **18** are of dimensions somewhat greater than the adhesively laminated sheets **10**, **14**, so as to provide a projecting margin **19** extending around the entire periphery of the card assembly. Plastic sheets most suitable for encapsulation purposes comprise laminations of polyethylene terephthalate (Mylar) **20** on the outside and polyethylene **21** on the inside. The Mylar outer web imparts significant strength and durability to the encapsulating material, while the polyethylene inner surface enables the two encapsulating sheets **17**, **18** to be bonded together properly at the card edges, and also enables the encapsulating sheets to be bonded to the surfaces of the cards themselves. Most advantageously, the polyethylene layer **21** is bonded to the Mylar layer **20** by appropriate adhesive rather than by mere extrusion of the polyethylene onto the Mylar, for greater protection against delamination.

In the completed, encapsulated card, the routine identifying information is readily visible through the transparent top sheet of the encapsulating plastic, while the concealed photograph and the security watermark **11** typically would be relatively less visible, or perhaps not visible at all, to the casual observation of the card. However, if there is occasion to challenge or verify the identification, the card may be viewed against a lighted background, such as a flashlight **16** placed underneath the card. The presence of the watermark **11** would enable the challenging authority to determine with substantial confidence that the card was genuinely issued, while the correspondence of the photographic image **15** thus revealed to the bearer of the card would confirm the identity of the bearer. If desired, of course, the encapsulated card could incorporate a seocnd and openly visible photographic image, as set forth in my prior U.S. Patent No. 3,204,354, such that the identifying photograph could be readily compared to the appearance of the bearer. The concealed photo could be viewed only in the event of a desire to further verify the genuineness of the identification.

The encapsulated card advantageously may be embossed (as shown at **22** in FIG. 3), for use in the manner of an otherwise conventional credit card, for example.

In its most fundamental aspect, the identification card of the invention incorporates a wallet-size identifying card or sheet of bond paper or the like, derived from a continuous form of such sheets, in which each sheet of the continuous form, and therefore each identification card, bears a distinctive watermark specific to the issuing source. The watermark, being structurally incorporated into the card or sheet at the papermill, is difficult to the point of complete impracticability to counterfeit on a volume basis. Thus, personal identification cards which may otherwise be made available on a low-cost, mass production basis may be readily verified as to the genuineness of the

original issuance by inspection of the watermark. The watermark typically may be visible to a minimal extent, if at all, upon normal inspection of the card, but is clearly and readily visible when the card is viewed against a lighted background. By adding a second and adhesively bonded backing sheet, photographically imaged to correspond to the intended bearer of the card, the identification card may be rendered substantially tamperproof as well as counterfeitproof, so as to provide extremely reliable personal identification of the intended bearer. As will be understood, the personal identification may include a thumb print or the like, in addition to or in place of a photograph or other identifying material.

According to the invention, each primary source of issuance of identification cards is assigned a specific and distinctive, registered watermark not available to any other party. This mark would identify any card as having been issued by a specific authorized source and the absence of the proper watermark would immediately identify a counterfeit.

While it is to be understood that identification means available heretofore, such as passports and the like, may present difficulties in connection with counterfeiting and tampering, the identification means heretofore available for this purpose is not suitable for low-cost, mass production issuance as contemplaed by the present invention and as obviously necessary for use in connection with such routine and widespread identification as for drivers' licenses, for example. The card of the present invention, while being tamperproof and counterfeitproof to an extraordinary extent, is still formed of extremely low-cost components, capable of business machine-like handling at the processing source.

When utilized as a credit card or the like, the encapsulated card may be embossed in the usual manner with the name, address and other appropriate indicia for automatic printout in conventional credit card machines. The arrangement would permit the store or business keeper to ascertain whether the card was in the hands of its intended bearer.

It should be understood, of course, that the specific form of the invention herein illustrated and described is intended to be representative only, as certain variations may be made therein without departing from the clear teachings of the disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

I claim:

1. A tamperproof multilayer identification card comprising
   (a) a translucent identification sheet having information thereon personal to the intended bearer of the card,
   (b) said identification sheet having anticounterfeiting means incorporated therein,
   (c) said anticounterfeiting means including a specific watermark distinctive to a designated card issuing authority, and
   (d) a translucent security sheet having tamperproof means associated therewith for revealing a tampered with card when viewed against a lighted background,
   (e) said tamperproof means being disposed in relation to said watermark to permit the simultaneous checking of the card for tampering and counterfeiting when viewing the card against a lighted background.

2. The identification of claim 1 wherein



   (a) said security sheet is a photographically sensitized sheet jointed to the back of said identification sheet by adhesive means, and
   (b) said temperproof means includes a selectively exposed area of said security sheet, containing a photographic image of the intended bearer of the card,
   (c) said adhesive means forming an image destroying bond between said sheets, whereby subsequent separation of the sheets destroys at least part of said photographic image.

3. A method for producing identification cards having anticounterfeiting means incorporated therein, including the steps of
   (a) imparting a distinctive watermark to a continuous supply of paper at regular intervals,
   (b) said regular intervals corresponding to a predetermined dimension of the identification card,
   (c) applying indicia personal to the intended bearers of the cards to predetermined selective areas of the paper,
   (d) separating said continuous supply of paper into individual identification sheets, and
   (e) bonding photographically sensitive sheets to the backs of said identification sheets by adhesive means,
   (f) said photographically sensitive sheets being selectively exposed to form photographic images of the intended bearers of the card, and
   (g) encapsulating the bonded sheets in plastic sheets.

4. The method of claim 3 further characterized by
   (a) providing the continuous supply of paper with parallel weakened lines at a spacing corresponding to said predetermined dimension, and
   (b) separating said continuous supply of paper into individual identification sheets along said weakened lines of separation.

5. A tamperproof multilayer identification card comprising
   (a) a translucent sheet having identifying information thereon,
   (b) said identifying information including anticounterfeiting means,
   (c) said anticounterfeiting means comprising a specific watermark distinctive to a designated card issuing authority, and
   (d) a translucent security sheet having tamperproof means associated therewith for revealing a tampered-with card when viewed against a lighted background,
   (e) said tamperproof means being disposed in relation to said watermark to permit the simultaneous checking of the card for tampering and counterfeiting when viewing the card against a lighted background,
   (f) said identification card having thereon information personal to the intended bearer of the card.

**References Cited**

UNITED STATES PATENTS

| | | | |
|---|---|---|---|
| 1,002,600 | 9/1911 | Morris et al. | |
| 2,588,067 | 3/1952 | Whitehead | 40—2.2 |
| 3,152,901 | 10/1964 | Johnson | 283—7 X |
| 3,204,354 | 9/1965 | Berger | 40—2.2 |


EUGENE R. CAPOZIO, *Primary Examiner.*

W. J. CONTRERDS, *Assistant Examiner.*

U.S. Cl. X.R.

283—6, 7