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(54) TAMPER INDICATING PACKAGE AND SEAL

VERPACKUNG UND SIEGEL MIT BESCHÄDIGUNGSANZEIGE

CONDITIONNEMENT ET SCELLE INDIQUANT UNE ALTERATION

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Description

This invention relates to bags and packages adapted for the secure transportation of articles of value such as bank notes.

Various types of "tamper indicating" security bags have previously been proposed, and the general principle of operation of such bags is that when the bag has been opened correctly by an authorised person, it will have been cut at the indicate place, and the various welded and glued seals will still be intact. However, if the bag is tampered with, by an unauthorised person attempting to open and reseal it, the construction of the bag is such that this will be clearly evident.

One bag of this kind is shown in GB-A-2,145,997, which discloses a security bag having an adhesive coated flap at its open end, formed by an extension of one of the walls beyond the open end, the adhesive area being partially overlaid by the other facing wall. In use, the adhesive area is covered by a protective peelable strip, until the bag is ready to be used, and when the peelable strip is removed, the overlapping portion of the front wall can be sealed against the adhesive, and the projecting flap can also be folded over the top edge of the front wall, so as to give a double seal.

In this type of bag it is common to use a hot melt pressure sensitive adhesive for the self sealing portion. Such adhesives are very strong at ambient temperature, but significantly weaker in hot or cold conditions: for example, if a normal hot melt seal is frozen to -40°C, the adhesive becomes brittle and snaps. The bag can then be opened easily and resealed. When the adhesive reaches normal temperature once again, it will be as effective as before, and show no signs of having been tampered with.

Accordingly, the present invention seeks to provide a security bag having a seal with improved "tamper detection" characteristics. Accordingly, the present invention provides a self seal bag, a tamper-indicating sealing tape or label, and a bag including such a tape or label according to claims 1, 7 and 11.

The patterned areas may be formed with a white or coloured ink and may cover all or only part of the seal area. Preferably, the main body of the bag comprises an opaque plastics material, and the adhesive layer is carried on a transparent flap which is welded or otherwise attached to the bag at or near one end which is initially open, so that the flap can be folded over the end to form a seal. The general structure of the bag may be as shown in patent GB-A-2,145,997, with the patterned adhesive layer applied to the foldable flap of the bag, or alternatively, the adhesive layer may be carried on a separate flap which is welded to the bag or attached by means of a suitable adhesive and formed of inherently transparent material.

The bag may be formed from a continuous strip of polythene which is cut into lengths equal to about twice the intended length of the finished bag. An area of the strip can then be cut-out and replaced by a closure panel, including an adhesive layer with patterned areas according to the invention. The strip is then folded in half, and the free edges are welded together to form a bag, so that the closure panel is formed on one face of the bag, rather than being at the end. Alternatively, the various panels of the bag may be assembled from separate pieces of polythene, with the "closure panel" cut from a continuous tape on a reel.

Preferably, the adhesive area is covered by a peelable strip to protect it from accidental adhesion, before the bag is intended to be closed.

The bag may also be constructed in accordance with GB-A-2,009,707, and may incorporate "micro-security printing", to facilitate detection of tampering with other side seals of the bag, for example. This may also be applied in the seal area, as well as around the edges of the bag.

Some embodiments of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a security bag in accordance with the invention;
Figure 2 is a side edge elevation of the bag of Figure 1;
Figure 3 is an enlarged perspective view of the closure flap portion of the bag of Figures 1 and 2; and
Figure 4 is a cross-sectional view showing the component layers of the closure flap of Figure 3.
Figure 5 is a cross-sectional view showing an alternative arrangement of component layers;
Figure 6 is a cross-sectional view showing a further alternative arrangement;
Figure 7 shows a further alternative;
Figures 8a, 8b, 8c, 8d and 8e show various stages in the formation of an alternative bag in accordance with the invention; and
Figures 9a, 9b, 9c, 9d, 9e, and 9f illustrate a further alternative way of making a bag in accordance with the invention.

Referring to the drawings, and particularly to Figures 1 and 2, the security bag 2 comprises closed side edges 4 and 6, and the end 8 of the bag is also closed, usually by a fold formed in manufacture. The side edges may be welded, and may carry so called "micro-security" printing to facilitate detection of unauthorised tampering with these edges.

The rear wall 10 of the bag is made longer than the front wall 12, so as to form a flap 14 which extends beyond the opening 16 of the bag, through which the contents are inserted in use. As shown, the extreme end portion 18 of the flap 14 is made as a detachable "receipt" portion, and a separate closure flap 20 is welded or otherwise adhesively attached in the opening of the bag, at an area 22 near its lower edge, so that the extreme lower edge 24 is within the mouth of the bag, whilst its upper portion 26 projects out of the mouth of

the bag, and carries an adhesive area 28 on its outwardly facing surface.

The arrangement of the closure flap and its adhesive coating are shown more clearly in Figures 3 and 4. Whereas the main body of the bag will normally be made of an opaque material, so as to obscure the contents, the closure flap 20 is made of a clear plastics material, which is preferably a film of low density polyethylene, of about 70 microns thick. The surface of the flap is treated by corona discharge, and a pattern of wording, such as a repeated pattern of the word "void", is printed on the outer surface, in a clear high release silicone acrylate. This print layer is indicated at 30 in Figure 4.

A solid layer of white or coloured ink 32 is then applied over the print pattern, this layer being formulated so as to have good opacity, and also to provide a good surface for adhesive to bond to. The layer may then be overprinted with "scatter" print, carrying a warning of the presence of the security seal. It will be appreciated that the printed messages will normally be in reverse print, so as to be correctly readable through the transparent base film.

A layer 34 of hot melt adhesive is then applied over the ink layer 32, and a silicone release tape 36 is applied over the adhesive layer to protect it from accidental adhesion to other surfaces, before the bag is required to be sealed. Most of the surface area of the reverse side of the flap 20, except for an area 40 where it is welded to the bag, is also coated with a silicone layer 38, so as to avoid too much of the flap from being welded to the body of the bag.

In use, after the contents of the bag have been inserted, the release tape 36 is peeled from the adhesive area 28 of the flap, exposing the hot melt adhesive 34. The area of the adhesive preferably extends below the top edge of front wall 12 of the bag, as previously proposed in the arrangement of GB-A-2,145,997, so that the top edge of the front wall can be pressed onto the adhesive, once the release tape 36 has been removed. The flap 20 is then folded over the top edge of front wall 12, so as to adhere to the upper part 44 of the outer surface of front wall 12. The hot melt adhesive 34 is so formulated as to bond strongly to the outer surface of the bag and is, of course, already strongly bonded to the ink layer 32. Consequently, if any attempt is made to peel the flap 20 from the front of the bag, the printed pattern of clear silicone acrylate immediately becomes obvious, since a corresponding pattern of ink remains attached to the hot melt adhesive, rather than remaining on the base film. The layer of ink is so disrupted by the action of unpeeling the flap 20, that any attempt to reseal the bag is immediately obvious by the appearance of the ink pattern, through the transparent film of the flap.

It will be appreciated that a number of other variations of construction are possible, such as the use of different types of adhesive or double sided tape and different relative positioning of the layers of "micro-security" printing and the ink pattern. Thus the sealer print may be applied over the layer 32, or below it. These layers may also cover all or only part of the seal area. Although the examplary bag is described as being formed from low density polyethylene film it is also envisaged that it may be constructed from other suitable film or sheet materials.

Figures 5 and 6 illustrate how additional "scatter print", may be applied as a layer 50 superimposed on the "patterned" layer, as shown in Figure 5, or alternatively beneath it, as shown in Figure 6. In addition, as shown in Figure 7, the layer 32 may be discontinuous, and may be applied in areas corresponding to the discrete areas 30 (cf. Figure 4).

Figure 8 illustrates a method of making an alternative form of bag. A continuous sheet of polythene 60 having a width equal to the finished width of the bag, is cut into lengths corresponding to about twice the length of a finished bag, and a section 62, near one end of the length, is cut out. A portion of closure tape 64, having a cross-section of the kind shown in Figures 4 to 7, is then welded or otherwise adhesively attached, over this area. The other end 66 of the sheet is then folded over as shown in figure 8(e), and the side edges sealed together, so that the panel 64 then forms a flap with a security closure, in a similar manner to the bag of Figure 1.

Alternatively, as shown in Figure 9, the process may start with a somewhat shorter length of polythene 70, Figure 9a, to which one side of the closure tape 72 is attached as shown in Figure 9c. Finally, as shown in Figure 9e, a further panel 74 of polythene is attached to the other side of the closure tape, providing a similar arrangement to that of Figure 8c.

Claims

1. A self seal bag having a closure comprising a flap (14,20) having one sealing surface carrying a sealing layer, and another surface (44) which is adapted to be brought into contact with the sealing layer so as to form a seal, wherein the sealing layer includes patterned areas (30) of clear high release silicone acrylate covered by an opaque ink layer (32), which on its turn is covered by a layer of adhesive (34), so that subsequent peeling of the seal causes part of the ink to be left on the sealing surface, whilst the other part is left on the other surface (44) in accordance with said patterned areas (30); and wherein at least part of the flap (14,20) is transparent or translucent, so that the disruption of the sealing layer is clearly evident, if the bag is then resealed.

2. A bag according to claim 1 in which the said opaque ink is white.

3. A bag according to claim 1 or claim 2 in which the body of the bag comprises plastics material, and the sealing layer is carried on a transparent flap

(14,20) which is either integral therewith or is welded or otherwise attached to the bag, at or near one end which is initially open, so that the flap can be folded over the end to form a seal.

4. A bag according to claim 3 in which the sealing layer on the flap (14,20) is partly overlaid by the opposite wall (12) of the bag, before the bag is closed, whereby a double seal is formed upon closure of the bag.

5. A bag according to any preceding claim further comprising a peelable release tape (36) which covers the sealing layer before the bag is closed.

6. A bag according to any preceding claim in which at least part of the reverse surface (40) of the flap (20) opposite to that carrying the sealing layer is coated with a silicone release layer (38).

7. A tamper-indicating sealing tape or label comprising:

(a) a base film (20) of transparent or translucent flexible plastics material, having one surface treated to facilitate the application of printed indicia; wherein:
(b) a pattern (30) is printed on said treated surface, in a clear high release silicone acrylate;
(c) a layer of opaque ink (32) is applied over said pattern; and wherein
(d) a layer of adhesive (34) is applied over said opaque ink layer.

8. A tape according to claim 7 further comprising: a further layer of "scatter print" (50) which is applied either before or after said opaque ink layer (32), in a contrasting colour, and before application of said adhesive (34).

9. A tape according to claim 7 or claim 8 further comprising a protective silicone release tape (36) which is applied over said adhesive (34) and can be peeled off to enable a seal to be made.

10. A tape or label according to any one of claims 7 to 9 in which the reverse surface of the base film (20) opposite to that carrying the adhesive is treated with a silicone release layer (38).

11. A bag including a closure comprising the tape or label (64,72) according to any one of claims 7 to 9.

12. A bag according to claim 11 which is formed by folding an elongate strip of plastics material (60,70) across its width and heat-sealing the superimposed long side edges together so as to form an open mouth at one end.

13. A bag according to claim 12 in which security printing is applied along said sealed side edges.

Patentansprüche

1. Selbstsiegeltasche mit einem Verschluß mit einer Lasche (14,20), die eine eine Versiegelungsschicht traggende Versiegelungsoberfläche hat, und einer anderen Oberfläche (44), die unter Bildung eines Siegels mit der Versiegelungsschicht in Berührung bringbar ist, bei der die Versiegelungsschicht gemusterte Flächen (30) aus mit einer opaken Farbschicht (32) bedecktem, durchsichtigem Siliconacrylat von hohem Ablösungsvermögen enthält, wobei die Farbschicht ihrerseits von einer Klebstoffschicht (34) bedeckt ist, so daß bei einem späteren Abschälen des Siegels ein Teil der Farbe auf der Versiegelungsoberfläche zurückbleibt, während der andere Teil entsprechend den gemusterten Flächen (30) auf der anderen Oberfläche (44) zurückbleibt, und bei der wenigstens ein Teil der Lasche (14,20) durchsichtig oder durchscheinend ist, so daß das Zerreißen der Versiegelungsschicht klar ersichtlich ist, wenn die Tasche dann erneut versiegelt wird.

2. Tasche nach Anspruch 1, bei der die genannte opake Farbe weiß ist.

3. Tasche nach Anspruch 1 oder Anspruch 2, bei der der Körper der Tasche aus Kunststoffmaterial besteht und die Versiegelungsschicht von einer durchsichtigen Lasche (14, 20) getragen wird, die an oder nahe an einem zu Anfang offenen Ende an die Tasche angeformt oder angeschweißt oder anderweitig verbunden ist, so daß die Lasche zur Bildung eines Siegels über das Ende umgefaltet werden kann.

4. Tasche nach Anspruch 3, bei der die Versiegelungsschicht auf der Lasche (14,20) vor dem Verschließen der Tasche teilweise von der gegenüberliegenden Taschenwand (12) bedeckt ist, wodurch beim Verschließen der Tasche eine doppelte Versiegelung gebildet wird.

5. Tasche nach einem vorhergehenden Anspruch, die ferner ein abziehbares Ablöseband (36) aufweist, das vor dem Verschließen der Tasche die Versiegelungsschicht bedeckt.

6. Tasche nach einem vorhergehenden Anspruch, bei der wenigstens ein Teil der Rückseite (40) der Lasche (20), die der die Versiegelungsschicht tragenden Seite abgewandt ist, mit einer Silicon-Ablöseschicht (38) beschichtet ist.

7. Unberechtigte Veränderungen anzeigendes Versiegelungsband oder Aufkleber mit

(a) einer Basisfolie (20) aus durchsichtigem oder durchscheinendem, flexiblem Kunststoffmaterial, dessen eine Oberfläche zur Erleichterung der Aufbringung gedruckter Angaben behandelt wurde, bei der

(b) auf die behandelte Oberfläche ein Muster (30) in Form eines klaren Siliconacrylats von hohem Ablösevermögen aufgedruckt ist,

(c) auf das genannte Muster eine Schicht aus opakem Farbstoff (32) aufgebracht ist, und bei der

(d) auf die genannte opake Farbschicht eine Klebstoffschicht (34) aufgebracht ist.

8. Band nach Anspruch 7, das ferner eine weitere "Streudruck"schicht (50) aufweist, die vor oder nach der opaken Farbschicht (32) und vor Aufbringung des genannten Klebstoffs (34) in einer kontrastierenden Farbe aufgebracht ist.

9. Band nach Anspruch 7 oder Anspruch 8, das ferner ein Schutzsilicon-Ablöseband (36) aufweist, das auf den genannten Klebstoff (34) aufgebracht ist und zur Herstellung einer Versiegelung abgezogen werden kann.

10. Band oder Aufkleber nach einem der Ansprüche 7 bis 9, bei dem die Rückseite der Basisfolie (20), die der den Klebstoff tragenden Seite abgewandt ist, mit einer Silicon-Ablöseschicht (38) behandelt ist.

11. Tasche mit einem Verschluß, der das Band oder den Aufkleber (64,72) nach einem der Ansprüche 7 bis 9 aufweist.

12. Tasche nach Anspruch 11, die durch Querfaltung eines länglichen Streifens Kunststoffmaterial (60,70) in seiner Breite und Heißverschweissung der übereinandergelegten langen Seitenränder gebildet ist, um an einem Ende eine Öffnung zu bilden.

13. Tasche nach Anspruch 12, bei der längs der genannten verschweissten Seitenränder Sicherheitbedruckung aufgebracht ist.

Revendications

1. Sac à scellement automatique comportant une fermeture comprenant un rabat (14, 20) ayant une surface de scellé portant une couche de scellé, et une autre surface (44), qui est prévue pour être amenée en contact avec la surface de scellé, de manière à former un scellé, dans lequel la couche de scellé comporte des surfaces recouvertes de motifs (20), faites d'acrylate de silicone transparent à haute libération recouvert d'une couche d'encre opaque (32), qui est recouverte à son tour d'une couche de colle (34), de façon qu'un retrait ultérieur du scellé laisse une partie de l'encre sur la surface de scellé, tandis que l'autre partie est laissée sur l'autre surface (44), en fonction desdites surfaces recouvertes de motifs (20) ; et dans lequel au moins une partie du rabat (14, 20) est transparente ou translucide, de façon que la rupture de la couche de scellé soit manifestement évidente, si le sac est ensuite de nouveau scellé.

2. Sac selon la revendication 1, dans lequel ladite encre opaque est blanche.

3. Sac selon la revendication 1 ou la revendication 2, dans lequel le corps du sac est constitué d'une matière plastique, et la couche de scellé est portée sur un rabat transparent (14, 20) qui, soit fait partie intégrante de celui-ci, soit est soudé ou autrement fixé au sac, sur ou près d'une extrémité qui est initialement ouverte, de façon que le rabat puisse être replié sur l'extrémité de manière à constituer un scellé.

4. Sac selon la revendication 3, dans lequel la couche de scellé située sur le rabat (14, 20) est partiellement recouverte par la paroi opposée (12) du sac, avant que le sac soit fermé, de façon qu'un double scellé soit formé lors de la fermeture du sac.

5. Sac selon l'une quelconque des revendications précédentes, comprenant en outre une bande amovible (36), qui recouvre la couche de scellé avant que le sac soit fermé.

6. Sac selon l'une quelconque des revendications précédentes, dans lequel au moins une partie de la surface inverse (40) du rabat (20), opposée à celle qui porte la couche de scellé, est revêtue d'une couche de libération de silicone (38).

7. Bande ou étiquette de scellé indiquant une altération comprenant:

(a) un film de base (20), fait de matière plastique souple transparente ou translucide, ayant une surface traitée pour faciliter l'application d'une indication imprimée ; dans lequel:

(b) un motif (30) est imprimé sur ladite surface traitée, en un acrylate de silicone transparent à haute libération ;

(c) une couche d'encre opaque (32) est appliquée sur ledit motif ; et dans lequel

(d) une couche de colle (34) est appliquée sur ladite couche d'encre opaque.

8. Bande selon la revendication 7, comprenant en outre une autre couche "d'impression de dispersion" (50), qui est appliquée soit avant, soit après ladite couche d'encre opaque (32), dans une cou-

leur faisant contraste, et avant application de ladite colle (34).

9. Bande selon la revendication 7 ou la revendication 8, comprenant en outre une bande protectrice de silicone amovible (36), qui est appliquée sur ladite colle (34), et qui peut être enlevée de manière à permettre d'effectuer un scellé.

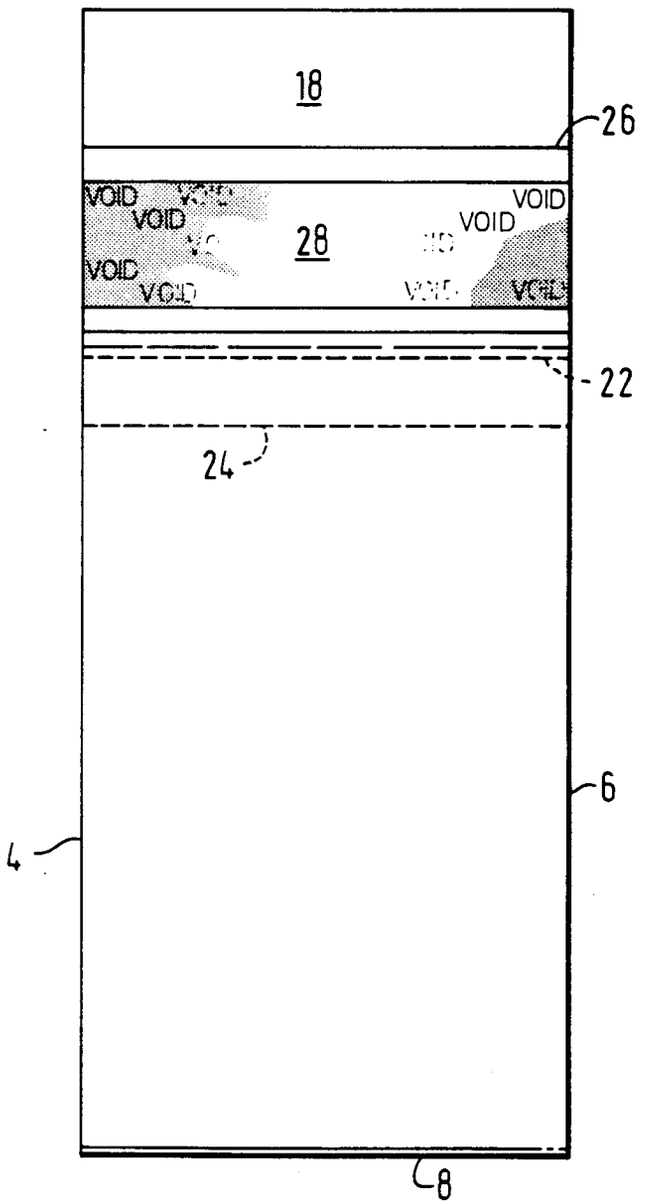
10. Bande ou étiquette selon l'une quelconque des revendications 7 à 9, dans laquelle la surface inverse du film de base (20) opposée à celle qui porte la colle est traitée par une couche de libération de silicone (38).

11. Sac comportant une fermeture comprenant la bande ou étiquette (64, 72) selon l'une quelconque des revendications 7 à 9.

12. Sac selon la revendication 11, qui est formé en pliant une bande allongée de matière plastique (60, 70) d'un bout à l'autre de sa largeur, et en scellant ensemble à chaud les bords des longs côtés superposés, de manière à former une embouchure ouverte à une extrémité.

13. Sac selon la revendication 12, dans lequel une impression de sûreté est appliquée le long desdits bords latéraux scellés.

FIG.1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26
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VOID
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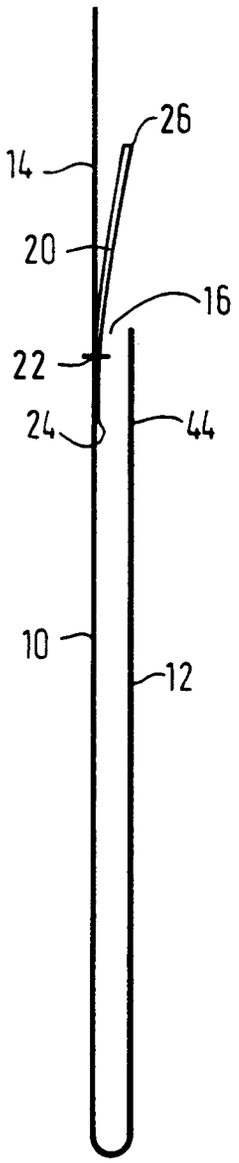
VOID
VOID
28
22
24
6
4
8

FIG.2


26
14
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16
22
24
44
10
12

FIG.3

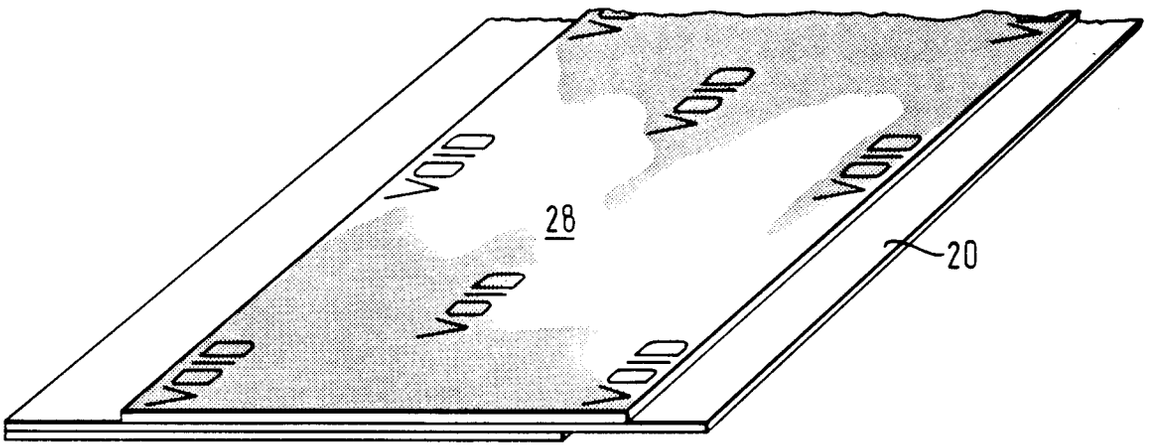

FIG.4

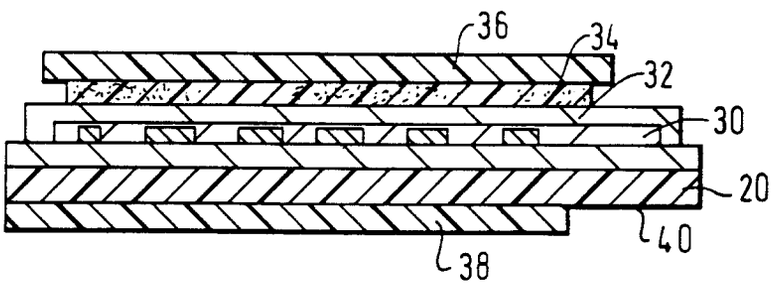

FIG.5

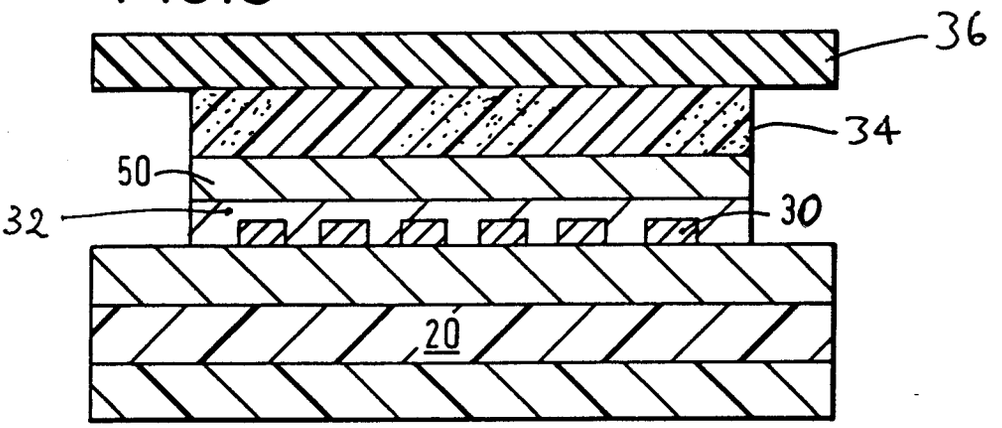

FIG.6

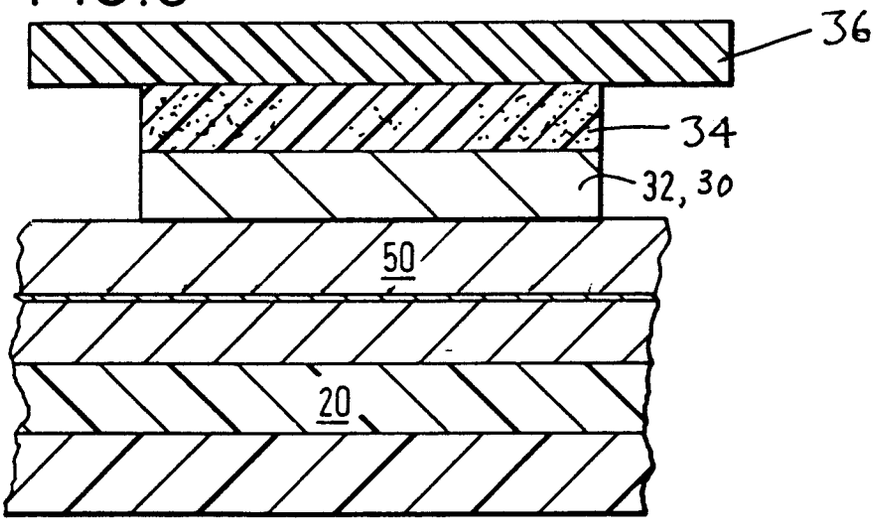

FIG.7

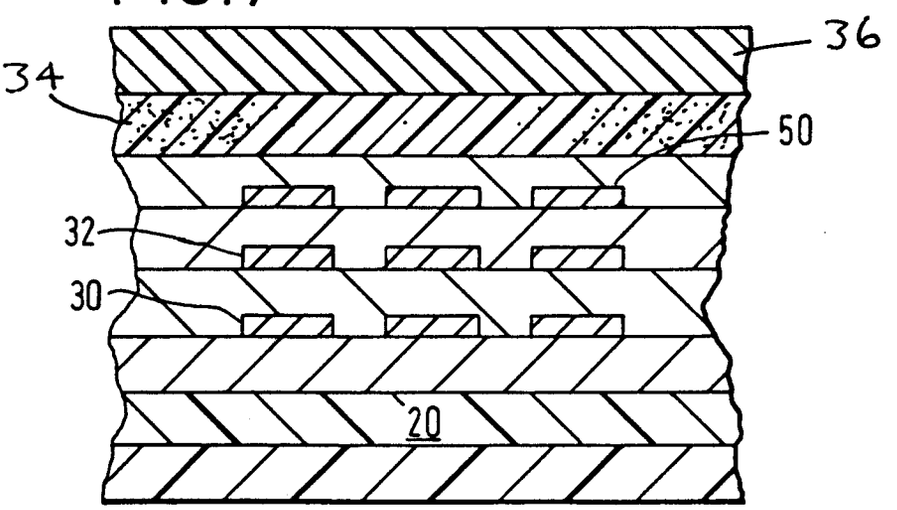

FIG.8

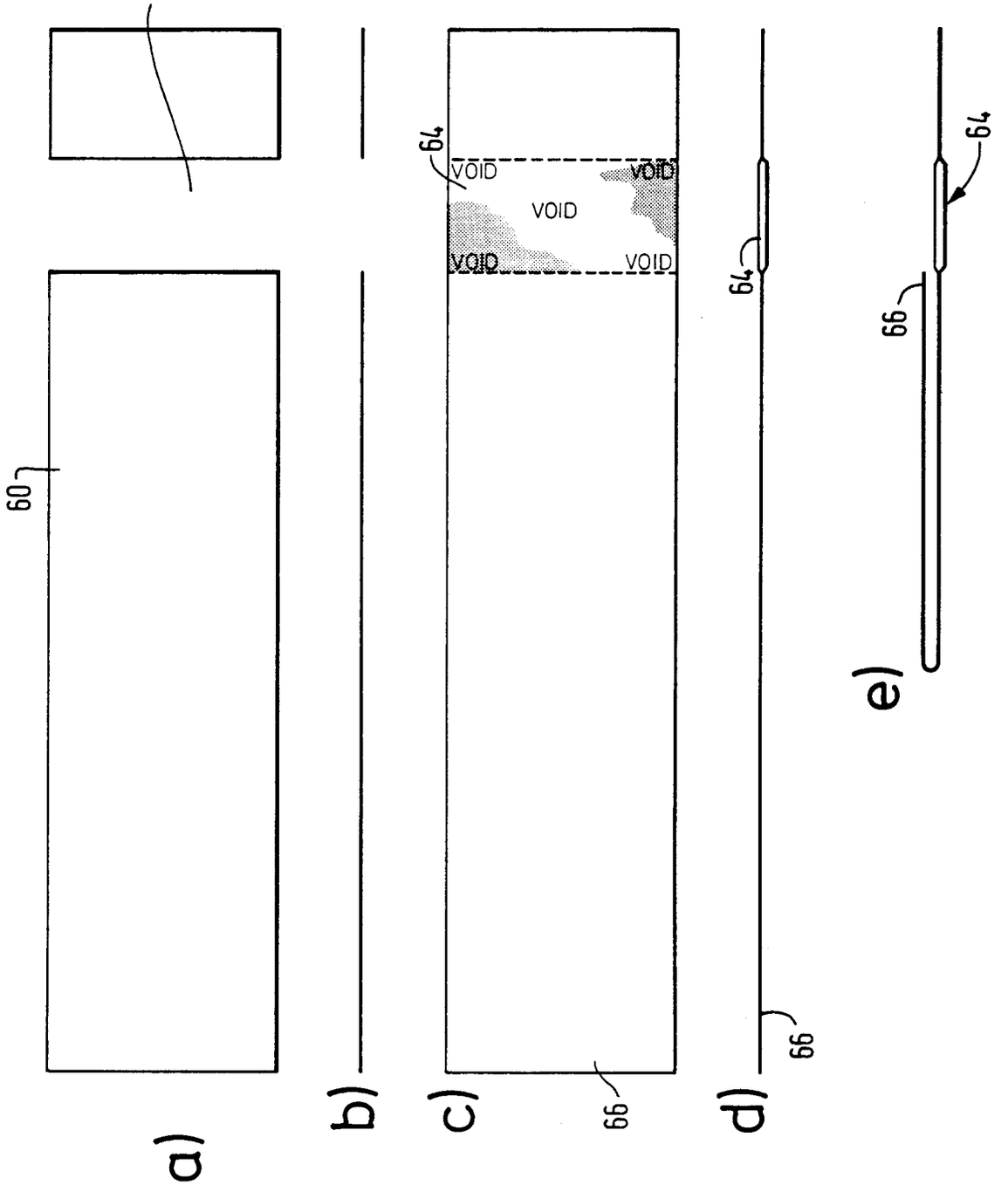

FIG.9