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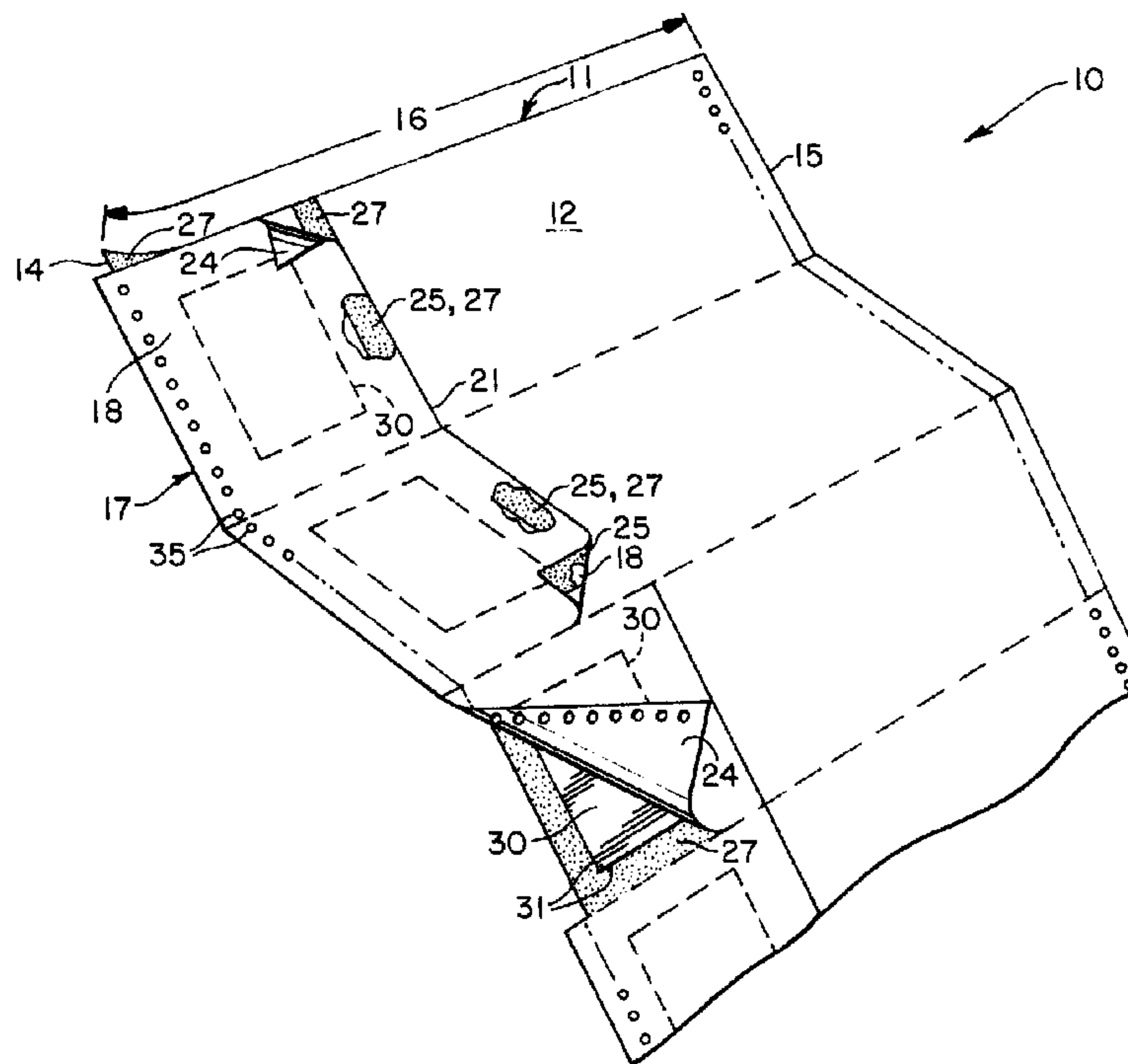
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(54) Titre : FORMULAIRE COMMERCIAL AVEC DOUBLURE DE SILICONE FORMEE

(54) Title: BUSINESS FORM WITH PATTERNED SILICONE LINER



(57) **Abrégé/Abstract:**

A business form with labels, and a method of construction of the form, are provided. The form according to the invention includes a cellulose ply larger than a second, release liner ply, and the release liner ply may be provided so that one edge (e.g. with tractor drive holes therein) extends past a substantially parallel edge of the cellulose ply, and at the opposite edge of the release liner ply, adhesive release material is provided along between 10-50% of the length of the edge so that the release material covered portion of the edge is not substantially permanently adhered to the edge by the adhesive between the plies. This allows the labels die cut (or otherwise formed) in the cellulose ply, where overlapped by the release liner, to be removed from the back or the front, and also allows one to separate the release liner ply completely from the cellulose ply, if desired (after use) for ease of recycling since one can get a portion started which allows breaking of the "permanent" bond between the cellulose and the release liner where no release material is provided on the release liner.

**ABSTRACT**

A business form with labels, and a method of construction of the form, are provided. The form according to the invention includes a cellulose ply larger than a second, release liner ply, and the release liner ply may be provided so that one edge (e.g. with tractor drive holes therein) extends past a substantially parallel edge of the cellulose ply, and at the opposite edge of the release liner ply, adhesive release material is provided along between 10-50% of the length of the edge so that the release material covered portion of the edge is not substantially permanently adhered to the edge by the adhesive between the plies. This allows the labels die cut (or otherwise formed) in the cellulose ply, where overlapped by the release liner, to be removed from the back or the front, and also allows one to separate the release liner ply completely from the cellulose ply, if desired (after use) for ease of recycling since one can get a portion started which allows breaking of the "permanent" bond between the cellulose and the release liner where no release material is provided on the release liner.

BUSINESS FORM WITH PATTERNED SILICONE LINER

There are many situations in which it is desirable to have business forms with self contained labels, particularly continuous business forms. The labels are provided on one part of the business form, while the rest of the form is used for imprinting or imaging other indicia. A typical such business form and method of production thereof are shown in U.S. Patent 5,254,381. While the business form therein is advantageous for many situations, it does not have as high a degree of versatility as desired, and removing the labels from the forms can be difficult in some circumstances. Part of the problem with ease of removal of the labels is due to the fact that the release liner is substantially permanently adhered to the paper (cellulose) ply along the entire length of one edge thereof.

According to the invention, a business form with labels, and a method of construction of the form, are provided that have more versatility than the form as disclosed in the '381 patent, yet have all of the advantages thereof, and in fact even more advantages. The form according to the invention includes a cellulose ply larger than a second, release liner ply, and the release liner ply may be provided so that one edge (e.g. with tractor drive holes therein) extends past a substantially parallel edge of the cellulose ply, and at the opposite edge of the release liner ply adhesive release material is provided along between 10-50% of the length of the edge so that the release material covered portion of the edge is not substantially

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permanently adhered to the edge by the adhesive between the plies. This allows the labels die cut (or otherwise formed) in the cellulose ply where overlapped by the release liner to be removed from the back or the front, and also allows  
5 one to separate the release liner ply completely from the cellulose ply, if desired (after use) for ease of recycling since one can get a portion started which allows breaking of the "permanent" bond between the cellulose and the release  
10 liner.

In one aspect, the invention broadly resides in a business form comprising: a first substantially rectangular cellulose ply having first and second faces, and first and second substantially parallel side edges having a first  
15 length, and spaced a first distance from each other; a second substantially rectangular ply having first and second faces, and first and second substantially parallel side edges having a second length, and spaced a second distance; said second face of said second ply having adhesive release material over  
20 substantially the entire area thereof, except that no adhesive release material is provided along a strip adjacent at least one of said first and second edges of the second ply, said strip having a length of about 50-90% of said second length; said second face of said second ply overlying  
25 said first face of said first ply with said first and second side edges of each ply substantially parallel to each other; pressure sensitive adhesive between said first ply first face and said second ply second face to readily releasably hold said plies together where said pressure sensitive adhesive  
30 engages said release material, and to substantially permanently hold said plies together where said second ply overlaps said first ply and there is no adhesive release material on said second ply second face; and wherein the

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first ply has at least one label formed therein by die cuts or lines of weakness where the first ply overlies the second ply, and wherein an end portion of the second ply at the second edge includes adhesive release material.

5           In a further aspect, the invention resides in a method of making a business form comprising the steps of:  
10       (a) forming a first cellulose material ply in web form, the first ply having first and second faces, and first and second substantially parallel side edges; (b) forming a  
15       second ply in web form, the second ply having first and second faces and first and second substantially parallel side edges; (c) skip coating adhesive release material on said second ply second face so that it substantially covers said second ply second face except along an edge strip  
20       adjacent at least one of said first and second side edges, to provide an edge strip with no adhesive release material which is less than the entire length of a said side edge;  
25       (d) applying pressure sensitive adhesive to at least the majority of the second face of the second ply, including at said edge strip; (e) bringing the second face of the second ply into juxtaposition with the first face of the first ply so that the plies at least partially overlap and the edge strip of the second ply is between the first and second edges of the first ply, and so that the adhesive readily  
30       releasably holds the first and second plies together except at the edge strip, where the pressure sensitive adhesive substantially permanently holds the first and second plies together; and (f) forming at least one label in the first ply where the first ply overlaps the second ply and is adhesively held thereto.

          In another aspect, the invention resides in a business form comprising: a first substantially rectangular

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cellulose ply having first and second faces, and first and second substantially parallel side edges having a first length, and spaced a first distance from each other; a second substantially rectangular ply having first and second  
5 faces, and first and second substantially parallel side edges having a second length, and spaced a second distance; the second face of the second ply having adhesive release material over substantially the entire area thereof, except that no adhesive release material is provided along a strip  
10 adjacent at least one of the first and second edges of the second ply, the strip having a length of about 50-90% of the second length; the second face of the second ply overlying the first face of the first ply with the first and second side edges of each ply substantially parallel to each other;  
15 pressure sensitive adhesive between the first ply first face and the second ply second face to readily releasably hold the plies together where the pressure sensitive adhesive engages the adhesive release material, and to substantially permanently hold the plies together where the second ply  
20 overlaps the first ply and there is no adhesive release material on the second ply second face; and wherein the first edge of the second ply extends past the first edge of the first ply so that the plies do not overlap at an exposed strip at the first edge of the second ply.

25 In drawings which illustrate embodiments of the invention,

FIGURE 1 is a bottom perspective view of one preferred embodiment of a business form according to the invention;

30 FIGURE 2 is an end view of the overlapped area between the plies of the form of FIG. 1 showing the release liner pulled up away from the cellulose ply to the extent

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allowed by the adhesive which substantially permanently holds the release liner ply to the cellulose ply along the inner edge of the release liner ply;

FIG. 3 is a plan view of the second face of the  
5 release liner ply of the FIG. 1 embodiment;

FIGURES 4 and 5 are schematic views of an embodiment similar to FIGS 1-3, except the first edge of the second (release liner) ply does not extend past the first edge of the cellulose ply;

10 FIGURES 6 and 7 are plan views of different embodiments of the second ply; and

FIGURE 8 is a schematic view similar to FIG 4 of a further embodiment of the invention.

FIG 1 shows a continuous form web, in which a  
15 plurality of individual forms are connected together by lines of weakness (such as perforation lines), as is well known in the art *per se*.

FIGURES 1-3 show a business form 10, which includes

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labels integral therewith. The form 10 comprises a first substantially rectangular cellulose ply 11 having first and second faces 12, 13 and first and second substantially parallel side edges 14, 15 having a first length, and spaced a first distance 16 from each other; and a second substantially rectangular ply 17 having first and second faces 18, 19 and first and second substantially parallel side edges 20, 21 having a second length 22, and spaced a second distance 23 which may be the same as the first distance or -- in one embodiment -- is at least 20% less than said first distance 16 (e.g. between 25-40% thereof).

The second face 19 of the second ply 17 has conventional adhesive release material (e.g. silicone ) 24 over substantially the entire area thereof, except that no active release material is provided along a strip 25 -- best seen in FIG 3 -- adjacent at least one of the first and second edges 20, 21, as seen in FIGS 1-3 the strip 25 provided only at the second edge 21. The strip 25 preferably has a length of about 50-90% (preferably about 75%) of the second length 22. The second length 22 is typically (except in the FIG 8 embodiment) substantially the same as the first length.

As seen in FIGS 1 and 2, the second face 19 of the second ply 17 overlies the first face 12 of said first ply 11 with the first and second side edges 14, 15, 20, 21 of each substantially parallel to each other. Conventional pressure sensitive adhesive 27 (preferably a permanent type of pressure

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sensitive adhesive) is between said first ply 11 first face 12 and said second ply 17 second face 19 to readily releasably hold said plies 11, 17 together where said adhesive 27 engages said release material 24, and to substantially permanently hold said plies together where said second ply overlaps said first ply and there is no active adhesive release material on said second ply second face (i.e. at the strip 25). In order to clearly illustrate this, in FIG 2 the area where the

adhesive 27' engages the non-release material strip 25 is shown by reference numeral 27', but it is to be understood that it is really part of the general coat of adhesive 27, and typically not a separate or distinct adhesive or adhesive section.

5 The adhesive area 27' "substantially permanently" holds the plies 11, 17 together thereat because no release material is provided, therefore a normal act of separating a release liner from a label will meet with sufficient resistance at the area 27' that the user will understand that further separation thereat is not intended during normal use, while all of the areas of the face 19 have release material 24 thereon will be easily separated from the ply 11. However the plies 11, 17 can of course be separated at the area 27' 0 by providing a much stronger pulling force, which force will actually cause the cellulose of the ply 11 to separate along a plane parallel to the faces 12, 13, the fibers of the ply 1 actually separating from each other. In this situation, the adhesive 27 typically stays with the ply 17 at the area 27'. This type of destructive separation is sometimes desirable (e. g. for ease of recycling), and the construction of the invention facilitates it, 5 since a start to this destructive separation is allowed by the user pulling on ply 17 at the edge 21 where there is release material 24 and adhesive separation is easy.

The business form 10 first ply 11 also has at least one label 30 formed therein by conventional die cuts (a die cut 31 is seen in FIGURE 1) or conventional lines of weakness where said first ply 11 overlies said second ply 17. The labels 30 are 0 primarily seen in dotted line in FIG 1 because they are not visible in or through the ply 17 and the die cut lines 31 do not typically extend through the ply 17.

In the FIGURES 1-3 embodiment, the first edge 20 of the second ply 17 extends past the first edge 14 of the first ply 11, as see most clearly in FIG 2 but also visible in FIG 1. This non-overlapping section is shown by reference numeral 33 in FIG 2. 5 Typically no perforation lines or other lines of weakness are provided therein, but if desired they may be (as seen schematically at 34 in FIG 2). Typically the face 19 at the section 33 is covered by release material 24, but it need not be since it will not engage the adhesive 27. Also, conventional tractor drive holes 35 are provided in section 33 to facilitate handling of the entire continuous form of FIG 1, and the section 35 may be 10 slit off from the rest of the form 10 after processing, using conventional equipment.

Tractor drive holes 36 are typically also provided at edge 15 of ply 11, and they too may be slit off after processing of the continuous form of FIG 1 (that is after complete formation and imaging (e. g. printing) thereof).

While the form 10 is not shown with indicia, it is to be understood that typically  
 5 indicia will be applied thereto, at least to the face 13, and especially at the area of the label or labels 30 on the first face 13.

The form 10 is typically formed on a Webtron press or the like. In a typical manner of construction, the following steps are practiced:

--(a) providing a first cellulose material ply 11 in web form, the first ply having first  
 0 and second faces 12, 13, and first and second substantially parallel side edges 14, 15.

--(b) providing a second ply 17 in web form, the second ply having first and second faces 18, 19 and first and second substantially parallel side edges 20, 21.

--(c) skip coating adhesive release material (e. g. silicone) 24, using conventional techniques on the Webtron press, on said second ply second face so that it  
 5 substantially covers said second ply second face except along an edge strip 25 adjacent at least one of said first and second side edges (e. g. edge 21 in FIGS 1-3), to provided an edge strip 27 with no adhesive release material which is less than the entire length of a said side edge.

--(d) applying pressure sensitive adhesive 27 (using a conventional coater  
 0 section of the Webtron press) to at least the majority of the second face of the second ply, including at the edge strip 25.

--(e) bringing the second face of the second ply into juxtaposition with the first face of the first ply (using conventional mating rollers and drives, for example) so that the plies at least partially overlap and the edge strip of the second ply is between the  
 5 first and second edges of the first ply, and so that the adhesive readily releasably holds the first and second plies together except at the edge strip, where the adhesive substantially permanently holds the first and second plies together (as seen in FIGS 1 and 2).

And --(f) forming at least one label 30 in the first ply where the first ply overlaps  
 0 the second ply and is adhesively held thereto, for example using conventional die

cutters on the Webtron press, which form the die cut lines 31, or alternatively using perforating equipment.

A wide variety of other embodiments may also be provided, some of which are seen in FIGURES 4-8. FIGURES 4 and 5 schematically show an embodiment similar to that of FIGURES 1-3 except that the first edge of the second (release liner) ply does not extend past the first edge of the cellulose ply. FIG 4 is a view like that of FIG 1, and FIG 5 is a slightly forwardly tilted (just to show the position of the second ply) plan view of the FIG 4 form showing the face of the form. In the FIGURES 4 and 5 embodiment components and features comparable to those of the FIGURES 1-3 embodiment are shown by the same reference numeral only preceded by a "1". The strip 125 is only seen where the ply 111 is cut away in FIG 5. Note that the edge 120 is "inside" (that is not extending outwardly from) the edge 114. FIG 5 schematically shows typical indicia 40 that may be applied to that part of the face 113 not overlapping the ply 117, while indicia 41 is shown on the labels 130 (which are obviously at a portion of the face 113 that does overlap ply 117).

FIGURES 6 and 7 are plan views of various configurations that the ply 17, 117 could have. Instead of just one strip 25, 125 of no active release material 24, 124, two strips are provided, the strip 25', 125' adjacent the edge 20, 120. The strips 15, 15', etc. may have either of the configurations illustrated, and typically -- as also in the FIGS 1-3 embodiment -- the adhesive release material 24, 124 is provided at one end of each of the edges 20, 21, 120, 121, in order to facilitate destructive tearing separation, when desired.

FIG 8 is similar to FIG 4 except that a third ply 217 substantially identical to the ply 117 is provided on the face 112 so that another set of labels 230 is provided. Also in this embodiment, the ply 117 is shown in a slightly modified form in that the end edges 50, 51 thereof are within the end edges 52, 53 of the ply 111, so that the ply 117 is completely surrounded by the ply 111.

While in the preferred embodiment, the strip or strips 25, 25', 125, 125' are formed by strip coating adhesive release material 24, 124, it is possible to fully coat the adhesive release material 24, 124 on the face 19, 119 and then at least partially

deactivate it, either mechanically (e.g. by roughening it),  
chemically, or with suitable radiation (or by not applying curing  
radiation, e.g. UV radiation, thereto), depending upon the exact  
release material 24, 124 utilized.

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CLAIMS:

1. A business form comprising:

a first substantially rectangular cellulose ply having first and second faces, and first and second substantially parallel side edges having a first length, and spaced a first distance from each other;

a second substantially rectangular ply having first and second faces, and first and second substantially parallel side edges having a second length, and spaced a second distance;

said second face of said second ply having adhesive release material over substantially the entire area thereof, except that no adhesive release material is provided along a strip adjacent at least one of said first and second edges of the second ply, said strip having a length of about 50-90% of said second length;

said second face of said second ply overlying said first face of said first ply with said first and second side edges of each ply substantially parallel to each other;

pressure sensitive adhesive between said first ply first face and said second ply second face to readily releasably hold said plies together where said pressure sensitive adhesive engages said release material, and to substantially permanently hold said plies together where said second ply overlaps said first ply and there is no adhesive release material on said second ply second face; and

wherein the first ply has at least one label formed therein by die cuts or lines of weakness where the

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first ply overlies the second ply, and wherein an end portion of the second ply at the second edge includes adhesive release material.

2. A business form as recited in claim 1 wherein a strip having no adhesive release material is provided only along said second edge of said second ply.

3. A business form as recited in claim 2 wherein said first edge of said second ply extends past said first edge of said first ply so that said plies do not overlap at an exposed strip at said first edge of said second ply.

4. A business form as recited in claim 3 wherein said exposed strip has tractor drive holes formed therein, and wherein the second distance is between about 25-40% of the first distance.

5. A business form as recited in claim 1 wherein said second ply first and second edges are between said first ply first and second edges.

6. A business form as recited in claim 1 wherein said second ply has strips having no adhesive release material along both said first and second edges of said second ply.

7. A business form as recited in claim 1 wherein said strip with no adhesive release material is formed by strip coating said second ply so that no adhesive release material at all is provided at said strip.

8. A business form as recited in claim 1 further comprising a third ply like said second ply only disposed in association with said first ply second face, with adhesive between said third ply second face and first ply second face.

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9. A business form as recited in claim 1 further comprising a third ply like said second ply only disposed in association with said first ply second face, with adhesive between said third ply second face and first ply second  
5 face.

10. A business form as recited in claim 1 wherein said second ply is completely within the area encompassed by said first ply.

11. A method of making a business form comprising the  
10 steps of:

(a) forming a first cellulose material ply in web form, the first ply having first and second faces, and first and second substantially parallel side edges;

(b) forming a second ply in web form, the second  
15 ply having first and second faces and first and second substantially parallel side edges;

(c) skip coating adhesive release material on said second ply second face so that it substantially covers said second ply second face except along an edge strip adjacent  
20 at least one of said first and second side edges, to provide an edge strip with no adhesive release material which is less than the entire length of a said side edge;

(d) applying pressure sensitive adhesive to at least the majority of the second face of the second ply,  
25 including at said edge strip;

(e) bringing the second face of the second ply into juxtaposition with the first face of the first ply so that the plies at least partially overlap and the edge strip of the second ply is between the first and second edges of

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the first ply, and so that the adhesive readily releasably holds the first and second plies together except at the edge strip, where the pressure sensitive adhesive substantially permanently holds the first and second plies together; and

- 5 (f) forming at least one label in the first ply where the first ply overlaps the second ply and is adhesively held thereto.

12. A method as recited in claim 11 wherein step (d) is practiced so as not to apply pressure sensitive adhesive  
10 along said first edge of the second ply, and wherein step (e) is practiced so as to provide said first edge of the second ply extending outwardly from the first edge of the first ply.

13. A method as recited in claim 12 wherein step (b)  
15 is practiced so as to form tractor drive holes along the second ply first edge, and wherein step (e) is practiced so that the tractor drive holes extend outwardly from the first edge of the first ply.

14. A method as recited in claim 11 wherein step (c)  
20 is practiced to produce an edge strip having a length of about 50-90% the length of the second edge of the second ply.

15. A business form produced by practicing steps (a)-(f) of claim 11.

25 16. A business form comprising:

a first substantially rectangular cellulose ply having first and second faces, and first and second substantially parallel side edges having a first length, and spaced a first distance from each other;

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a second substantially rectangular ply having first and second faces, and first and second substantially parallel side edges having a second length, and spaced a second distance;

5 the second face of the second ply having adhesive release material over substantially the entire area thereof, except that no adhesive release material is provided along a strip adjacent at least one of the first and second edges of the second ply, the strip having a length of about 50-90% of  
10 the second length;

the second face of the second ply overlying the first face of the first ply with the first and second side edges of each ply substantially parallel to each other;

pressure sensitive adhesive between the first ply  
15 first face and the second ply second face to readily releasably hold the plies together where the pressure sensitive adhesive engages the adhesive release material, and to substantially permanently hold the plies together where the second ply overlaps the first ply and there is no  
20 adhesive release material on the second ply second face; and

wherein the first edge of the second ply extends past the first edge of the first ply so that the plies do not overlap at an exposed strip at the first edge of the second ply.

25 17. A business form as recited in claim 16 wherein the first ply has at least one label formed therein by die cuts or lines of weakness where the first ply overlies the second ply, and wherein an end portion of the second ply at the second edge includes adhesive release material.

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18. A business form as recited in claim 17 wherein a strip having no adhesive release material is provided only along the second edge of the second ply.

19. A business form as recited in claim 18 wherein the  
5 first edge of the second ply extends past the first edge of the first ply so that the plies do not overlap at an exposed strip at the first edge of the second ply.

20. A business form as recited in claim 19 wherein the exposed strip has tractor drive holes formed therein, and  
10 wherein the second distance is between about 25-40% of the first distance.

21. A business form as recited in claim 17 wherein the second ply first and second edges are between the first ply first and second edges.

15 22. A business form as recited in claim 17 wherein the second ply has strips having no adhesive release material along both the first and second edges of the second ply.

23. A business form as recited in claim 17 further comprising a third ply like the second ply only disposed in  
20 association with the first ply second face, with pressure sensitive adhesive between the third ply second face and first ply second face.

24. A business form as recited in claim 16 wherein the exposed strip has tractor drive holes formed therein.

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PATENT AGENTS

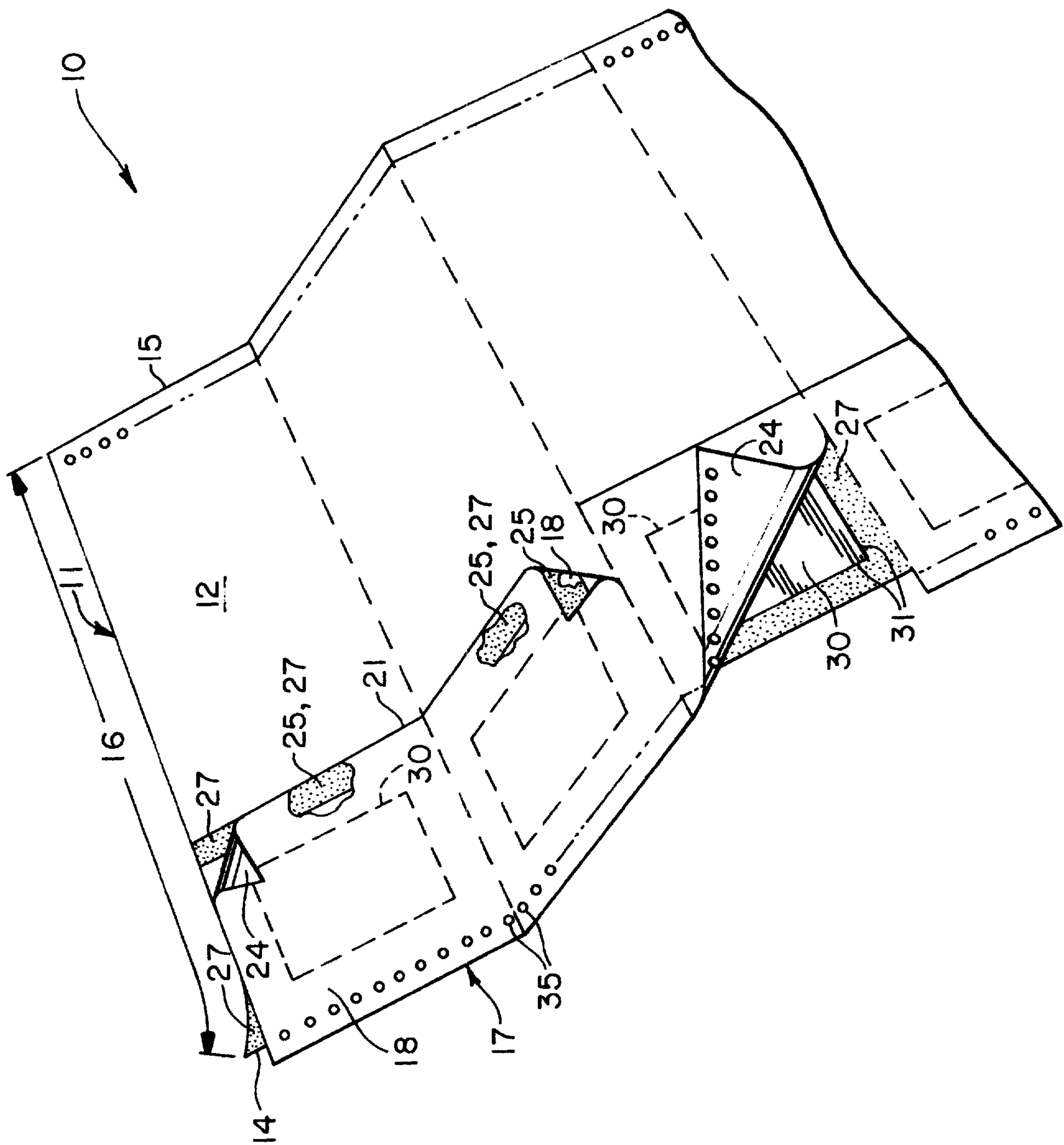


FIG. 1

FIG. 1

FIG. 2

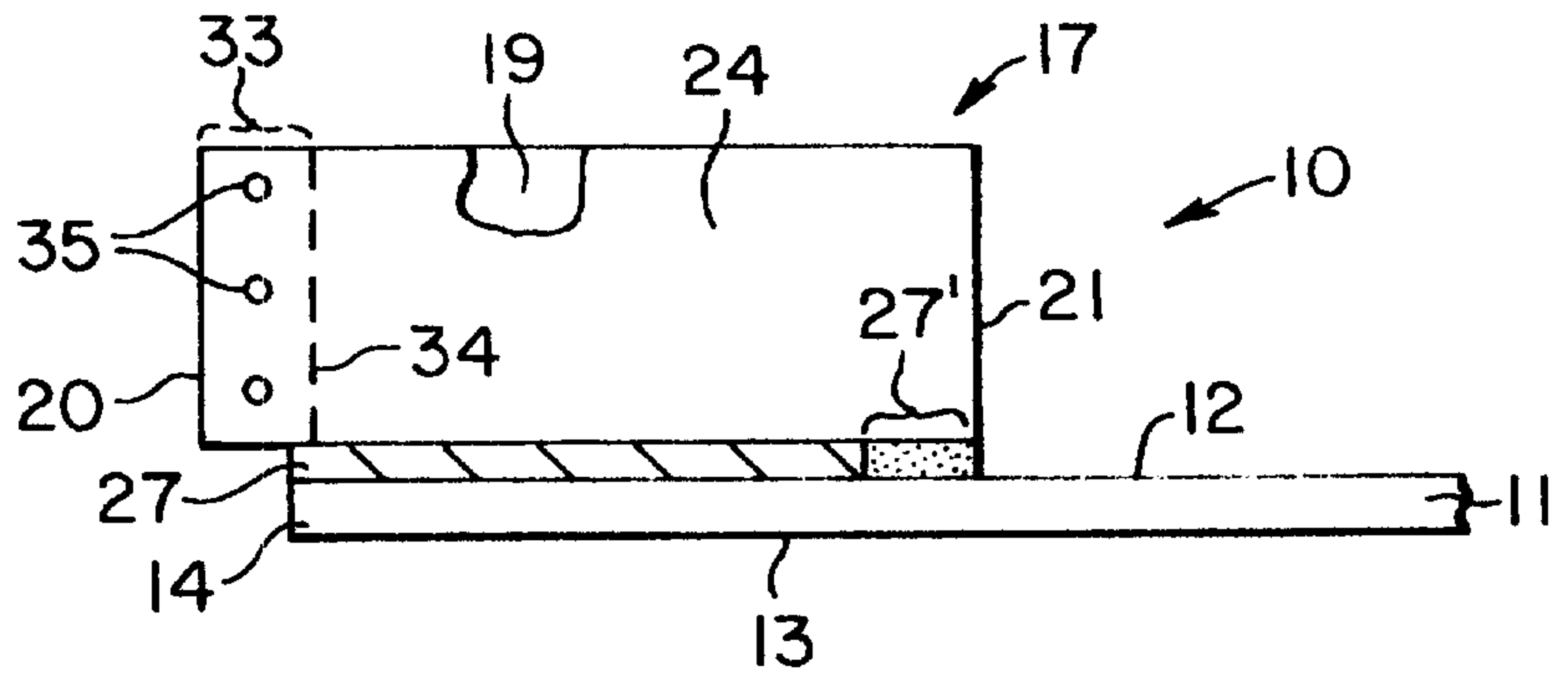


FIG. 3

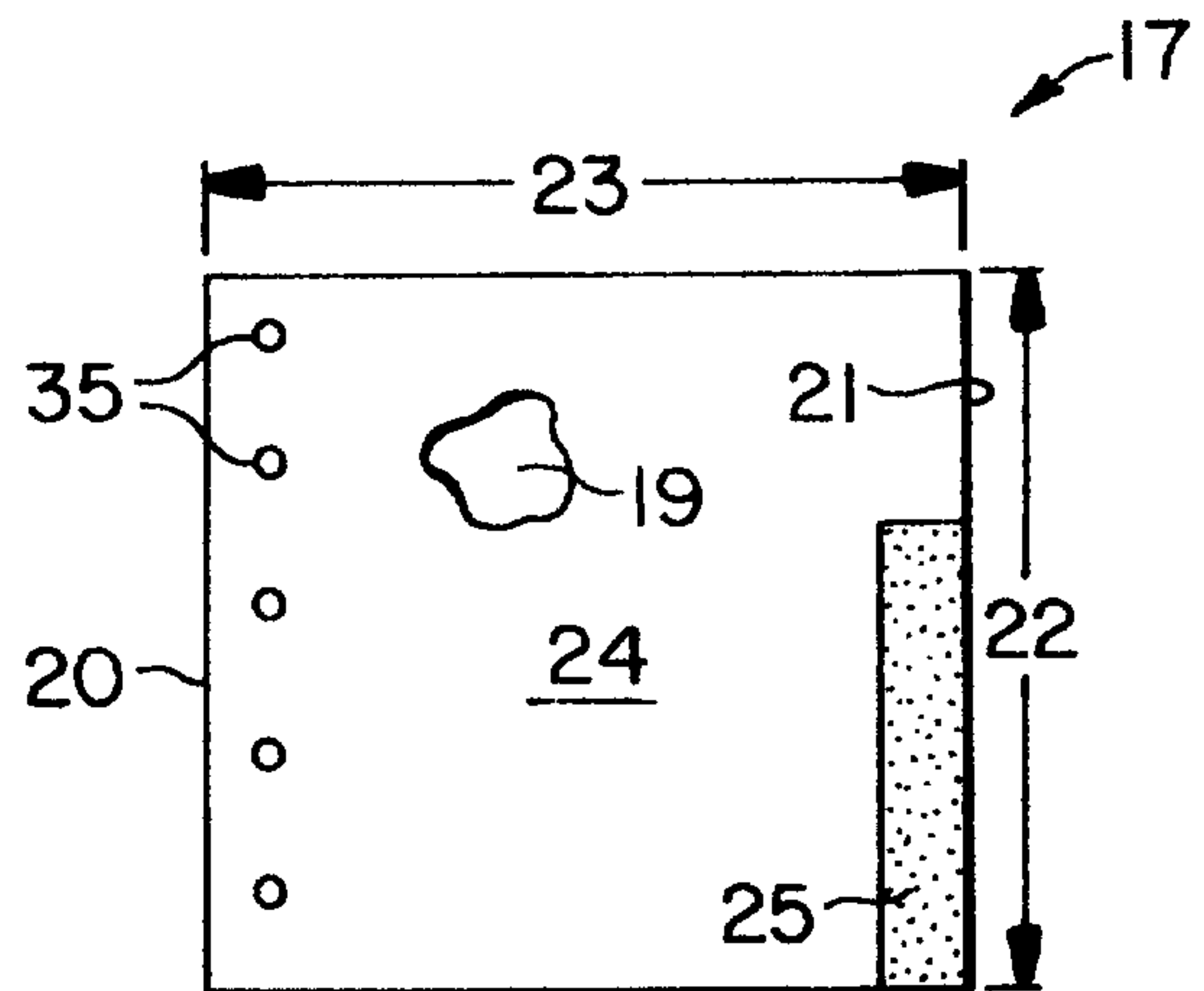


FIG. 4

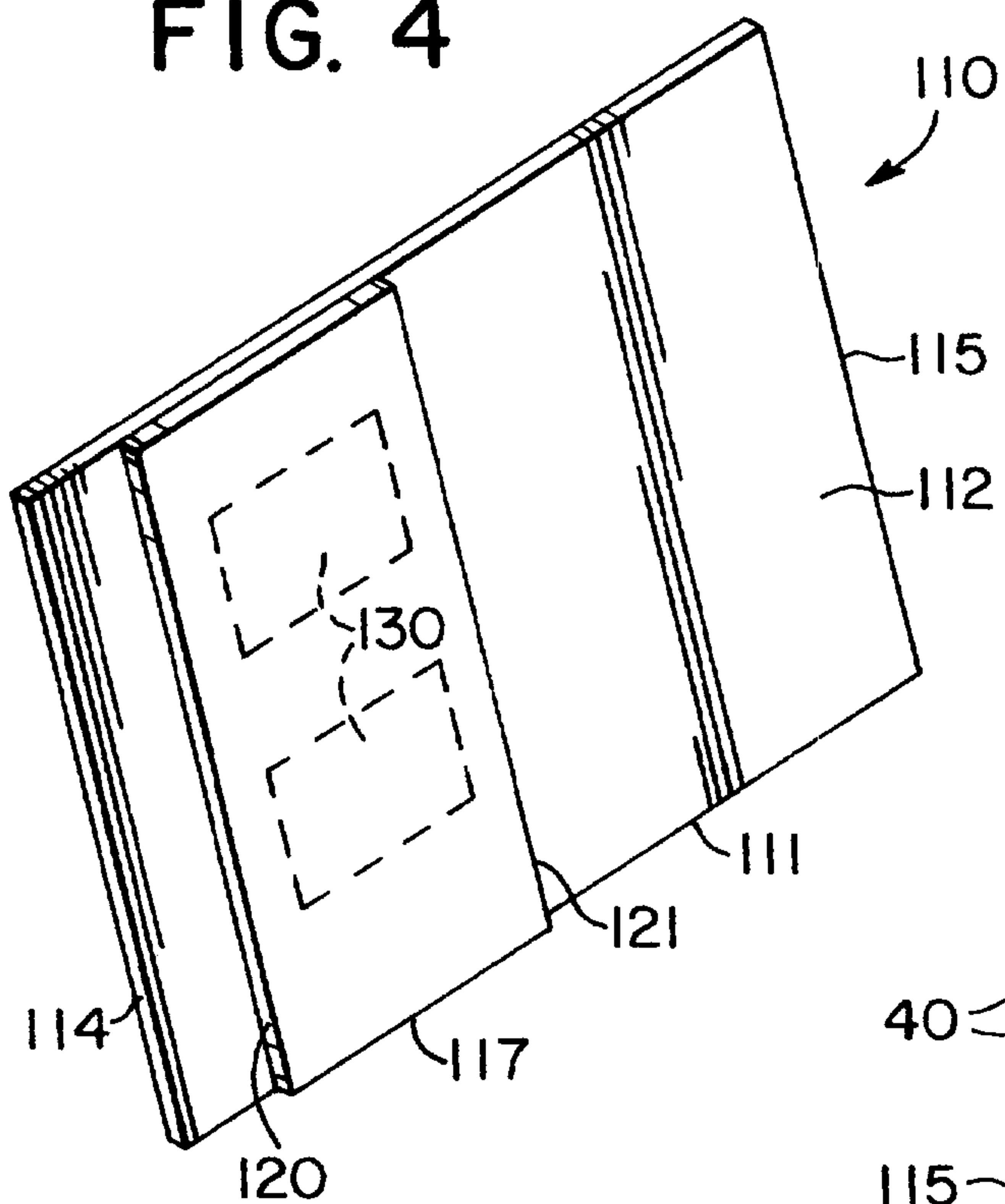


FIG. 5

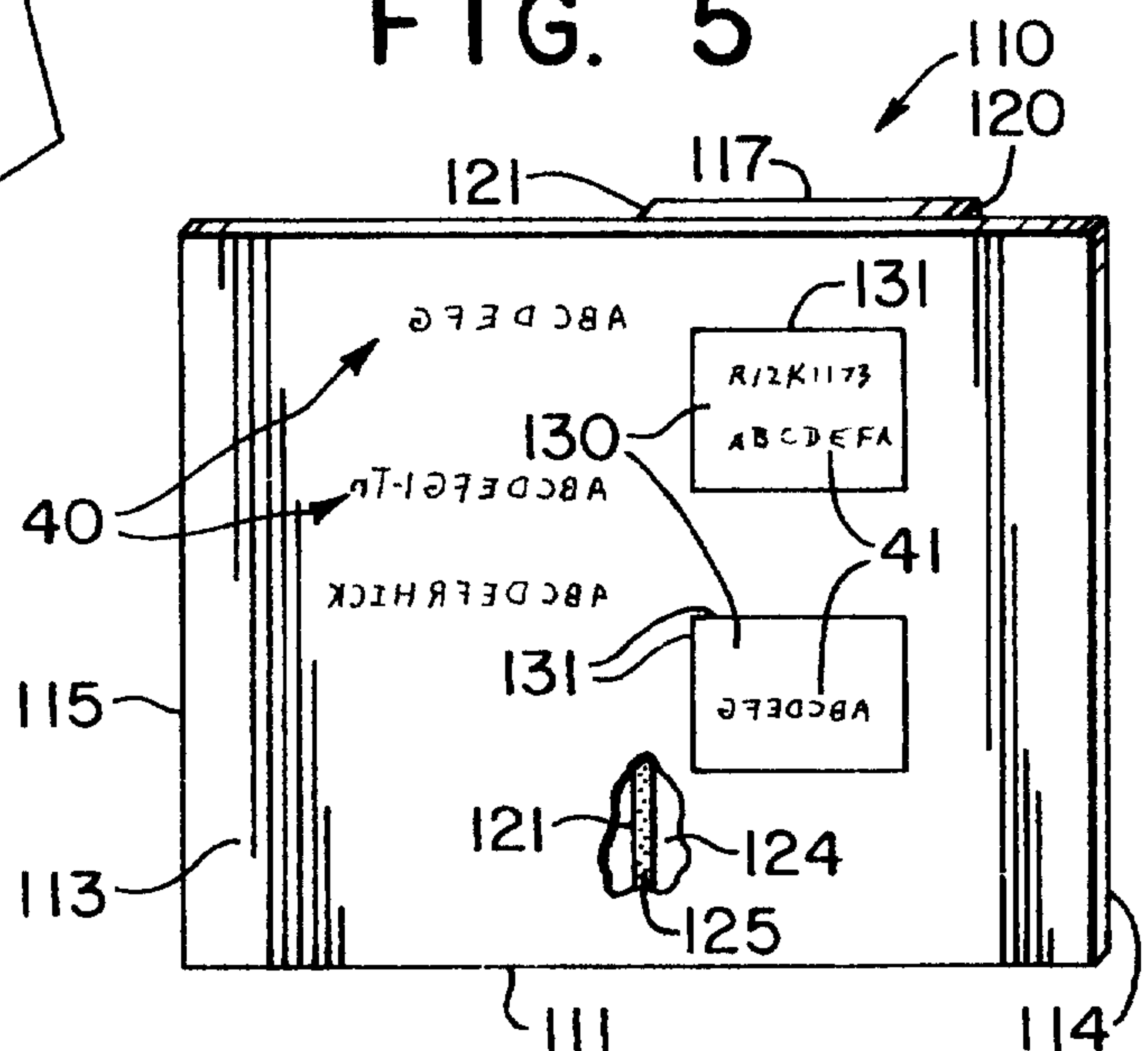


FIG. 6

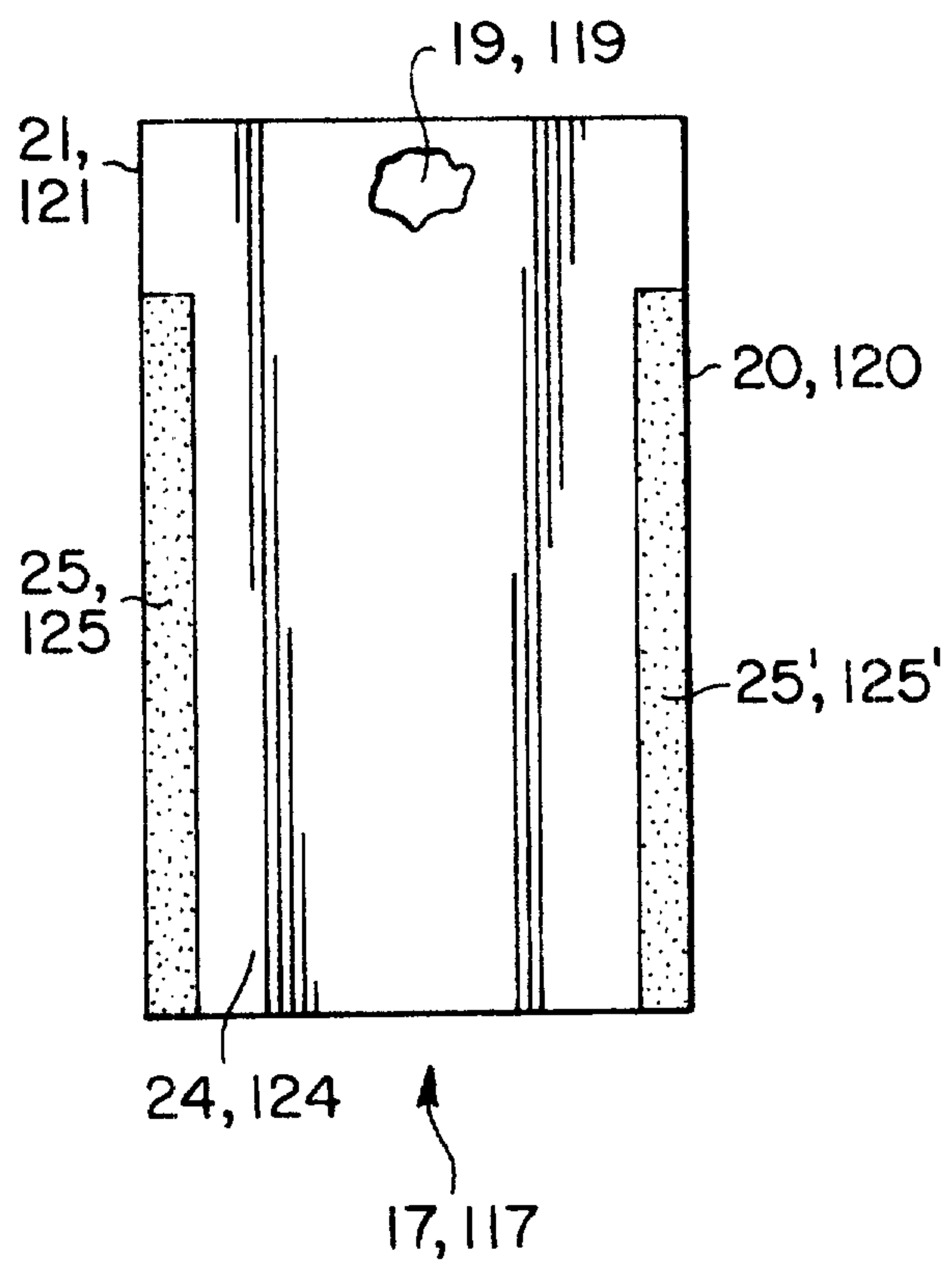


FIG. 7

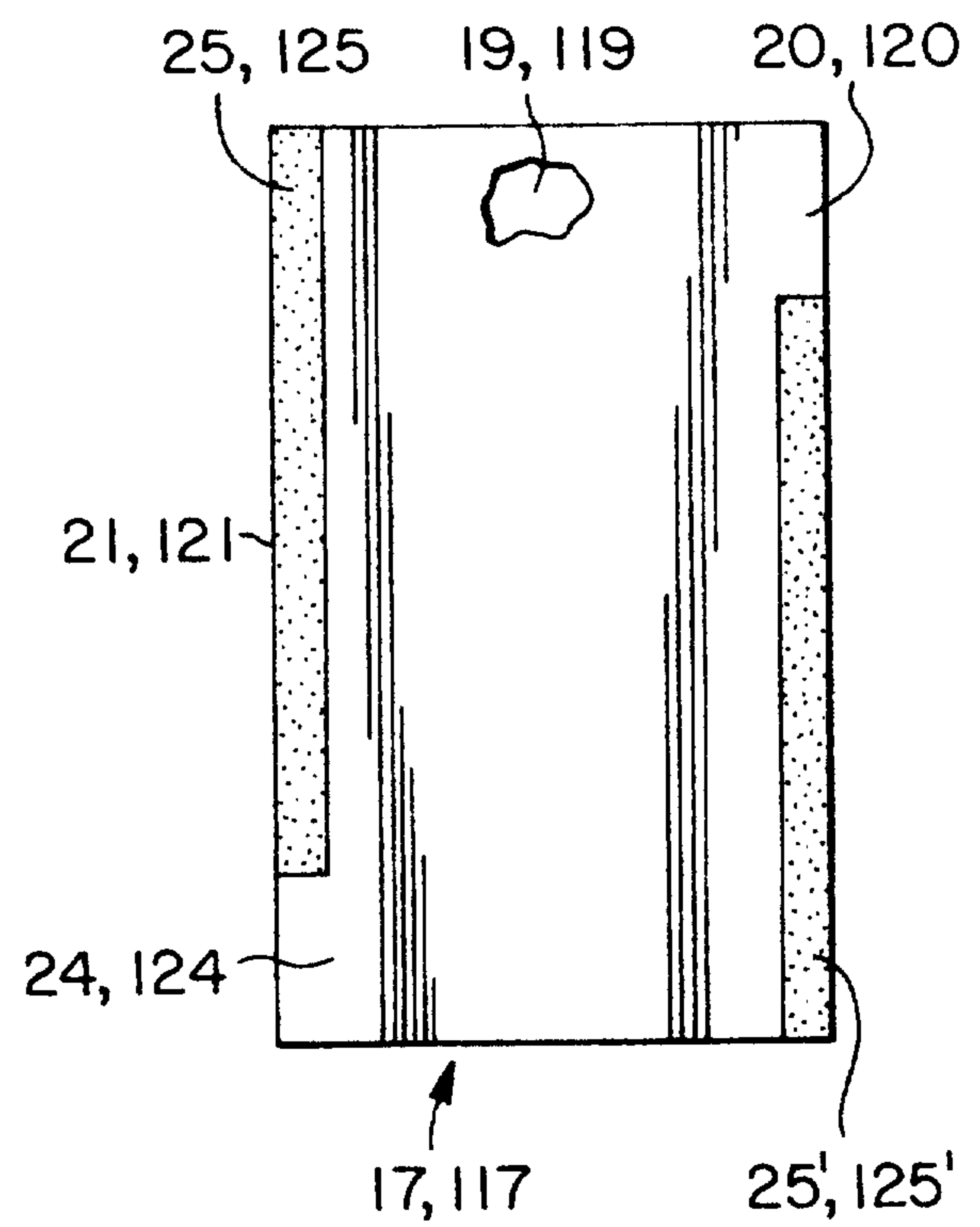


FIG. 8

