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(54) **Flexible container with a handle reinforced against tear**

Flexibler Behälter mit einem gegen Einreissen verstärkten Griff

Récipient souple avec une poignée renforcée contre la déchirure

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Description

[0001] The present invention relates to a container of flexible material, provided with a reinforced handle in order to avoid or reduce the risk of tearing.

[0002] Containers of flexible material, for example of the so-called bellows type, are widely known in the art and are used for packaging products of various kinds, for example granular, powdery products and the like, vacuum-packed or otherwise.

[0003] They are made of a single-layer or multi-layer material, with one or both outer surfaces heat-sealable, for example of polyethylene. In general, the multilayer material comprises an outer layer of bioriented polypropylene, polyester or nylon and an inner layer of coextruded polyethylene, said two layers being firmly coupled to one another, by means of adhesive.

[0004] The package is obtained in a per se known manner, by successive folding, making transverse and longitudinal seals between superimposed parts of the heat-sealable layers.

[0005] These known containers are normally not provided with a handle system.

[0006] This poses no problem for small-sized containers, such as coffee packets and the like.

[0007] For packages of larger size, and therefore of greater weight, on the other hand, there are difficulties in handling and transport.

[0008] In these cases, the provision of an aperture obtained by means of punching in the upper part of the container, for insertion of the fingers, does not afford a sufficient guarantee of solidity, tending to tear because of the weight of the product contained in the package.

[0009] Use is often made, therefore, of applied handles, which are not very practical and result in an additional cost and weight of the container. Furthermore, said applied handles are generally of a material that is not homogeneous with that of the container, which leads to recycling problems.

[0010] Some solutions provide for application of a reinforcing material at the flattened, upper central part of the package, before punching, to obtain the aperture acting as a gripping handle.

[0011] These solutions have substantially the same drawbacks as applied handles.

[0012] Another solution that has recently appeared on the market consists in applying a local lacquering such as to ensure a lower level of adhesion between the coupled layers, so as to allow separation thereof when subjected to stress. In this manner the tendency to tearing decreases, in that the two layers each work separately, increasing the overall resistance.

[0013] This solution, although conceptually valid, has the drawback of being complicated and costly because of the provision of lacquering.

[0014] Furthermore, said lacquering must be applied very precisely, so as to ensure detachment of the layers when subjected to stress.

[0015] The object of the invention is to eliminate the aforementioned drawbacks, providing a simple and economical solution for reinforcing the handle of containers of flexible material, in order to avoid tearing of the same at the time of gripping.

[0016] Another object of the invention is to provide such a solution comprising a reinforced handle that is extremely reliable.

[0017] These objects are achieved according to the invention with the characteristics listed in appended independent claim 1.

[0018] Preferred embodiments of the invention are apparent from the dependent claims.

[0019] Essentially, according to the invention, instead of carrying out complete coupling between the surfaces of the layers of material in contact, spot coupling is carried out in the area of the handle. This makes it possible to obtain perfectly coupled areas of laminate alternating with areas which lack coupling, thus obtaining an increase in the resistance to tearing in said uncoupled areas, where the layers of material are separate from each other.

[0020] According to a variant the coupling between the layers is completely eliminated in a limited area, which surrounds the handle.

[0021] Spreading of the tear is influenced directly by the degree of stiffness of the laminate in that if it shows an elastic behaviour, the tensile stress due to the weight of the contents is partially absorbed by lengthening thereof. This situation is emphasised in the case of two uncoupled films which, thanks to a synergistic effect, develop a greater resistance to tearing. Another fundamental aspect in the generation of a breakage consists in the presence of a weak point to be identified, for example, in imperfect cutting of the punched shape. In the case of two separate films, it is highly improbable that two perfectly corresponding critical points initiating breakage will be present.

[0022] In fact it is known that the resistance of a plurality of layers that work separately is greater than that of a laminate with high adhesion between said layers, which exhibits greater stiffness.

[0023] Further characteristics of the invention will be made clearer by the detailed description that follows, referring to purely exemplary and therefore non-limiting embodiments thereof, illustrated in the appended drawings, in which:

Figure 1 is a diagrammatic axonometric view of a container with reinforced handle according to a first embodiment of the invention;

Figure 2 shows a diagrammatic plan view of a development of the container in Figure 1;

Figure 3 is an enlarged section taken along the line III-III in Figure 2;

Figures 4, 5 and 6 are views corresponding respectively to those of Figure 1, 2 and 3, showing a second embodiment of the invention.

[0024] With reference to said figures, and for the moment in particular to Figures 1 to 3, the container according to the invention has been indicated, as a whole, with reference numeral 1.

[0025] It is made from a laminate of flexible material 2 with at least two layers, advantageously with two layers 3, 4 (Figure 3) coupled to one another by means of an adhesive 20, the inner layer 3 being of polyethylene, for example, so as to be heat sealable, and the outer layer 4 is of bioriented polypropylene, for example.

[0026] The container 1 may or may not be vacuum packed, and is of the so-called bellows type, that is, it is obtained by making folds along the vertical folding lines 5 corresponding to its vertical edges, and making a vertical or longitudinal seal 6, which is disposed on one of the lateral surfaces of the container, and a lower horizontal or transverse seal 7 which is disposed on the bottom wall of the container.

[0027] The container formed, with a technique that can be considered per se known and will therefore not be described further, appears as shown in Figure 1, with an upright flattened upper strip or flap 8, in which a horizontal terminal seal 9 is provided (see Figure 2).

[0028] A further horizontal or transverse seal 10 can be provided on said upper flattened flap 8, at a certain distance from said terminal seal 9, and between the seals 9 and 10 a handle system 11 for gripping the container is made, consisting in apertures made by punching of the laminate from which the container is made, and destined to be opened upon insertion of the user's fingers.

[0029] In particular, when the container is formed, as shown in Figure 1, said apertures comprise a central oval hole 12 and two lateral holes 13. In fact, as said previously, the holes 12 and 13 are provisionally closed by the material making up the container and are opened, at the time of gripping, by the user's fingers. Alternatively, the holes 12, 13 can be opened already at the time of punching.

[0030] Going on to consider the laminate making up the container 1, as stated, this comprises an inner layer of polyethylene and an outer layer of bioriented polypropylene, said layers being coupled to one another by means of an adhesive 20, shown in black in the sectional view of Figure 3.

[0031] The adhesive 20, which normally covers the whole surface of the laminate making up the container 1, according to the invention is appropriately interrupted in the area of the handle, so as to cause easy separation of the two layers 3, 4 in said area when stress is applied through gripping, considerably increasing the resistance to tearing.

[0032] In Figures 1 and 2, the area of application of the adhesive 20 in the laminate 2 has been indicated by diagonal lines.

[0033] For simplicity's sake, in Figure 1 said area has been limited only to the upper strip or edge 8 of the container, but it should be understood that it extends over the whole surface thereof.

[0034] According to the embodiment shown in Figures 1 to 3, the interruption of the adhesive 20 in the area of the handle 11 is obtained by providing a spot coupling 21 of the layers 3 and 4 of the laminate 2 in a rectangular area 22 that encloses the handle 11.

[0035] A respective stripe of vertical coupling 20' is advantageously provided between the central hole 12 and each lateral hole 13, to avoid having a complete detachment of the layers 3, 4 in the rectangular area 22 at the time of gripping of the container.

[0036] With this solution perfectly coupled areas of laminate are obtained at the spot seals 21, alternating with areas 23 which are not coupled, so as to obtain an increase in the resistance to tearing in said areas, as stated above.

[0037] The embodiment illustrated in Figures 4 to 6 differs from that in Figures 1 to 3 in that it has around the holes 12, 13 of the handle 11 areas 123 which completely lack coupling, which surround the respective hole.

[0038] The effect thus obtained is substantially identical to that of the embodiment according to Figures 1 to 3, in that the holes 12 and 13 of the handle 11 are separated from one another by the areas of coupling 20 which determine a continuous coupling between the layers 3, 4 of the laminate 2 and at the same time the surface without coupling 123 is reduced with respect to the corresponding rectangular area 22 of Figures 1 and 2.

[0039] It is understood that when the container is formed, the thickness of the laminate 2 is at least doubled in the area of the handle 11 provided in the top strip 8 thereof.

[0040] Naturally, the embodiments shown are purely by way of non-limiting illustration of the idea of a solution of the invention. Thus, for example, although specific reference has been made to a laminate with two layers 3, 4, the principles of the invention also apply in the case of laminates with more than two layers.

[0041] From what is described the advantages of the invention appear obvious; however, it must not be understood as limited to what is described and illustrated in the drawings, but only to the content of the claims that follow.

Claims

1. A container of flexible material, obtained by successive folding and sealing of a sheet material (2) comprising at least two layers (3, 4) coupled to one another by means of adhesive (20), said container having an extending strip (8), wherein a handle (11) is made by punching, **characterized in that**, in the

area of said handle (11), areas without coupling (23; 123) between the layers (3, 4) of said sheet material (2) are provided in order to obtain an increase in the resistance to tearing when stress is applied through gripping of the handle.

2. A container according to claim 1, **characterized in that** said handle (11) comprises a plurality of holes (12, 13) that are open or can be opened following insertion of the user's fingers.

3. A container according to claim 1 or 2, **characterized in that** spot coupling is provided at said handle (11) so as to obtain areas of perfectly coupled sheet material (21), alternating with areas without coupling.

4. A container according to claims 2 and 3, **characterized in that** between at least some pairs of adjacent holes (12, 13) of said handle (11) a respective vertical stripe (20') of coupling between the layers (3, 4) of said sheet material (2) is provided.

5. A container according to anyone of claims 2 to 4, **characterized in that** said area of spot coupling (21) is comprised in a rectangular area (22) enclosing the handle (11).

6. A container according to claim 1 or 2, **characterized in that** said area without coupling (123) extends continuously around said handle (11).

7. A container according to claim 6, **characterized in that** said area without coupling (123) surrounds each of said holes (12, 13), leaving therebetween a space wherein said adhesive (20) is provided between the layers (3, 4) of said sheet material (2).

Patentansprüche

1. Ein Behälter aus flexiblem Material, der durch anschließendes Falten und Versiegeln von Blattmaterial (2) gewonnen wird, das mindestens zwei Schichten (3, 4) umfasst, die durch Klebstoff (20) miteinander verbunden sind, wobei der genannte Behälter einen vorstehenden Streifen (8) aufweist, in dem durch Stanzen ein Griff (11) hergestellt wird, **dadurch gekennzeichnet, dass** sich im Bereich des genannten Griffs (11) Bereiche ohne Verbindung (23, 123) zwischen den Schichten (3, 4) des genannten Blattmaterials (2) vorgesehen sind, um eine Erhöhung der Reißfestigkeit zu erzielen, wenn durch Ergreifen des Griffs Belastungen aufgebracht werden.

2. Ein Behälter gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der genannte Griff (11) eine Vielzahl von Löchern (12, 13) umfasst, die offen sind bzw. durch Einführen der Finger des Benutzers geöffnet werden können.

3. Ein Behälter gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** eine stellenweise Verbindung an dem genannten Griff (11) vorgesehen ist, um Bereiche mit perfekt verbundenem Blattmaterial (21) abwechselnd mit Bereichen ohne Verbindung zu erzielen.

4. Ein Behälter gemäß den Ansprüchen 2 und 3, **dadurch gekennzeichnet, dass** zwischen mindestens einigen Paaren anliegender Löcher (12, 13) des genannten Griffs (11) jeweils ein senkrechter Verbindungsstreifen (20') zwischen den Schichten (3, 4) des genannten Blattmaterials (2) vorgesehen ist.

5. Ein Behälter gemäß einem beliebigen der Ansprüche von 2 bis 4, **dadurch gekennzeichnet, dass** der genannte Bereich der stellenweisen Verbindung (21) in einem rechteckigen Bereich (22) enthalten ist, der den Griff(11) einschließt.

6. Ein Behälter gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** sich der genannte Bereich ohne Verbindung (123) durchgehend um den genannten Griff (11) erstreckt.

7. Ein Behälter gemäß Anspruch 6, **dadurch gekennzeichnet, dass** der genannte Bereich ohne Verbindung (123) jedes der genannten Löcher (12, 13) umschließt und dazwischen einen Raum freilässt, in dem der genannte Klebstoff (20) zwischen den Schichten (3, 4) des genannten Blattmaterials (2) vorgesehen ist.

Revendications

1. Récipient en matériau flexible, obtenu par pliage et soudure successifs d'un matériau en feuille (2) comprenant au moins deux couches (3, 4) reliées entre elles au moyen d'un adhésif (20), ledit récipient possédant une bande saillante (8), où une poignée (11) est réalisée par perforation, **caractérisé en ce que** des zones de non-accouplement (23 ; 123) entre les couches (3, 4) dudit matériau en feuille (2) sont prévues au niveau de ladite poignée (11) dans le but d'obtenir une augmentation de la résistance au déchirement au moment de la sollicitation appliquée lors de la prise de la poignée.

2. Récipient selon la revendication 1, **caractérisé en ce que** ladite poignée (11) comprend plusieurs orifices (12, 13) qui sont ouverts ou pouvant être ouverts après l'introduction des doigts de la main

de l'usager.

3. Récipient selon la revendication 1 ou 2, **caractérisé en ce qu'**un accouplement par points est prévu au niveau de ladite poignée (11) de manière à obtenir des zones de matériau en feuille parfaitement accouplées (21), alternées avec des zones de non-accouplement.

4. Récipient selon la revendication 2 ou 3, **caractérisé en ce qu'**une bande verticale respective (20') d'accouplement entre les couches (3, 4) dudit matériau en feuille (2) est prévue entre au moins quelques paires d'orifices adjacents (12, 13) de ladite poignée (11).

5. Récipient selon une revendication quelconque parmi les revendications allant de 2 à 4, **caractérisé en ce que** ladite zone d'accouplement par points (21) est comprise dans une zone rectangulaire (22) renfermant la poignée (11).

6. Récipient selon la revendication 1 ou 2, **caractérisé en ce que** ladite zone de non-accouplement (123) s'étend de façon continue autour de ladite poignée (11).

7. Récipient selon la revendication 6, **caractérisé en ce que** ladite zone de non-accouplement (123) entoure chacun desdits orifices (12, 13), laissant un espace entre eux où ledit adhésif (20) est prévu entre les couches (3, 4) dudit matériau en feuille (2).

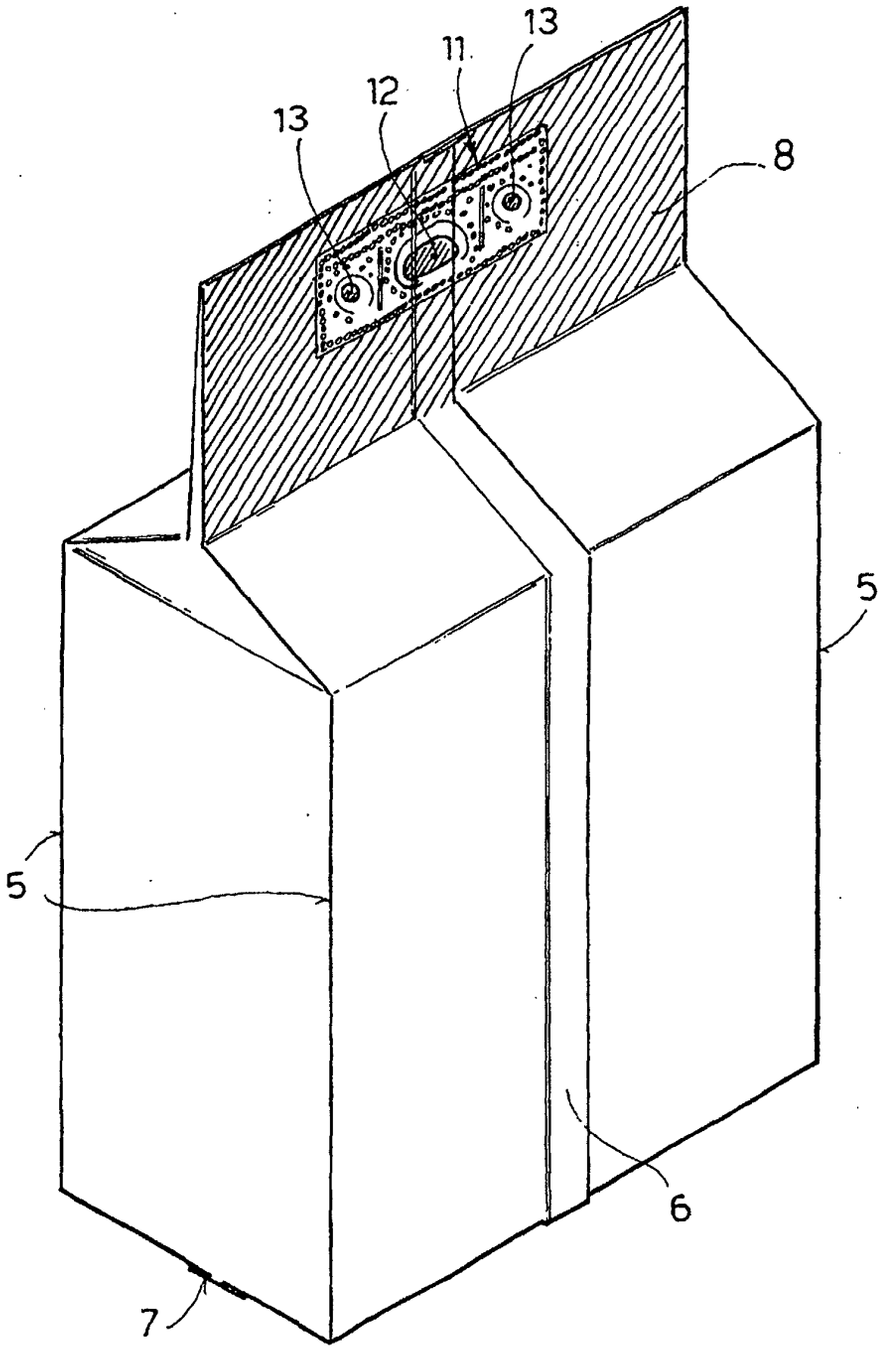


FIG.1

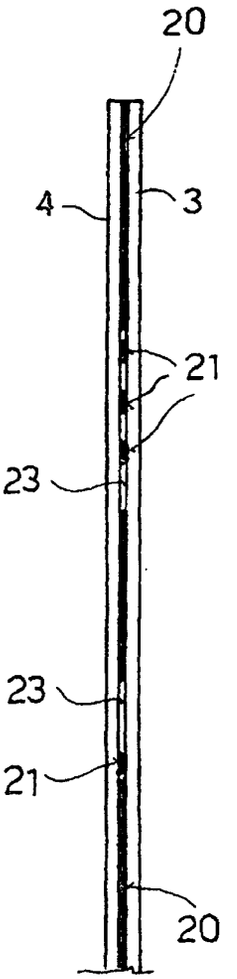
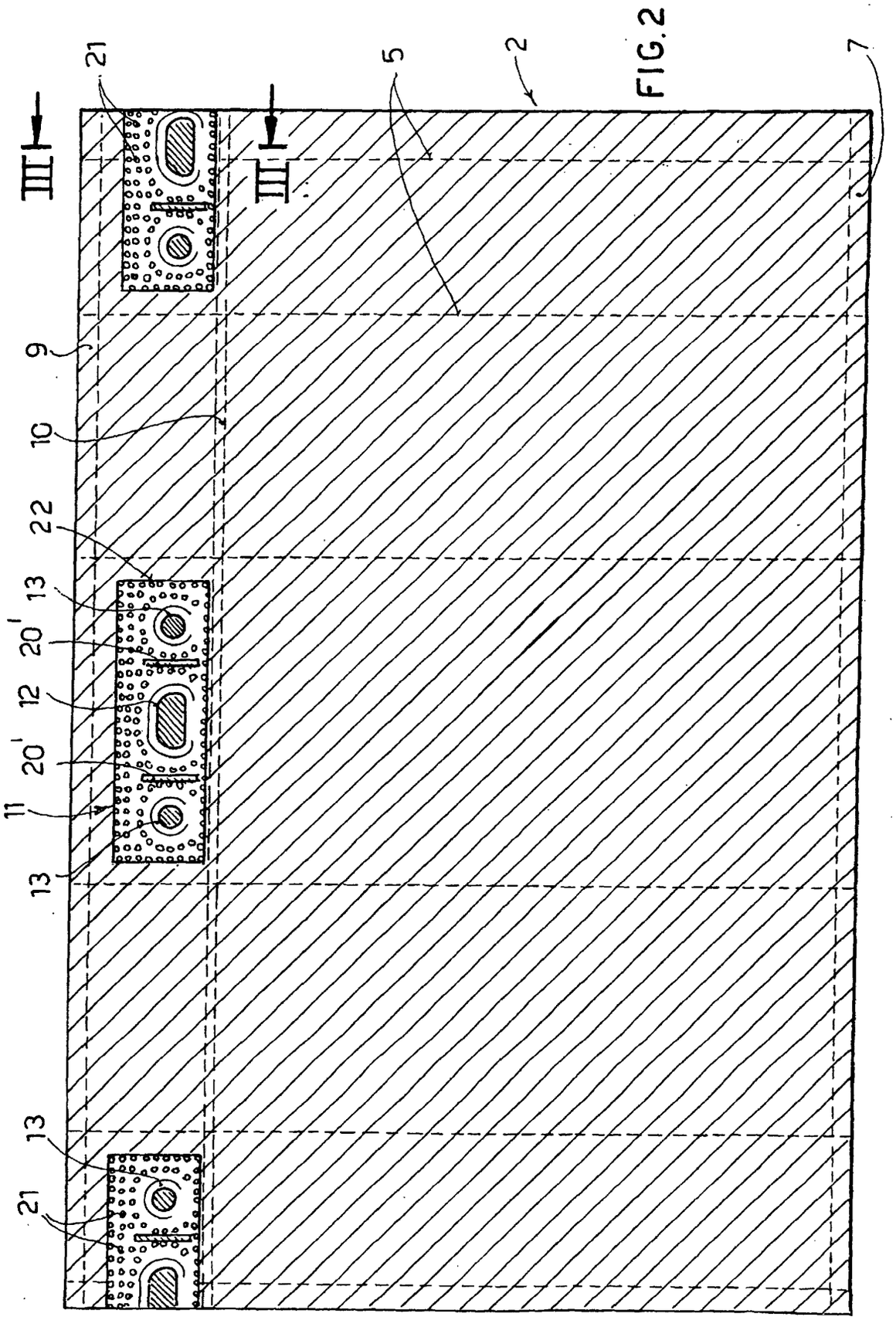


FIG.3

FIG.2



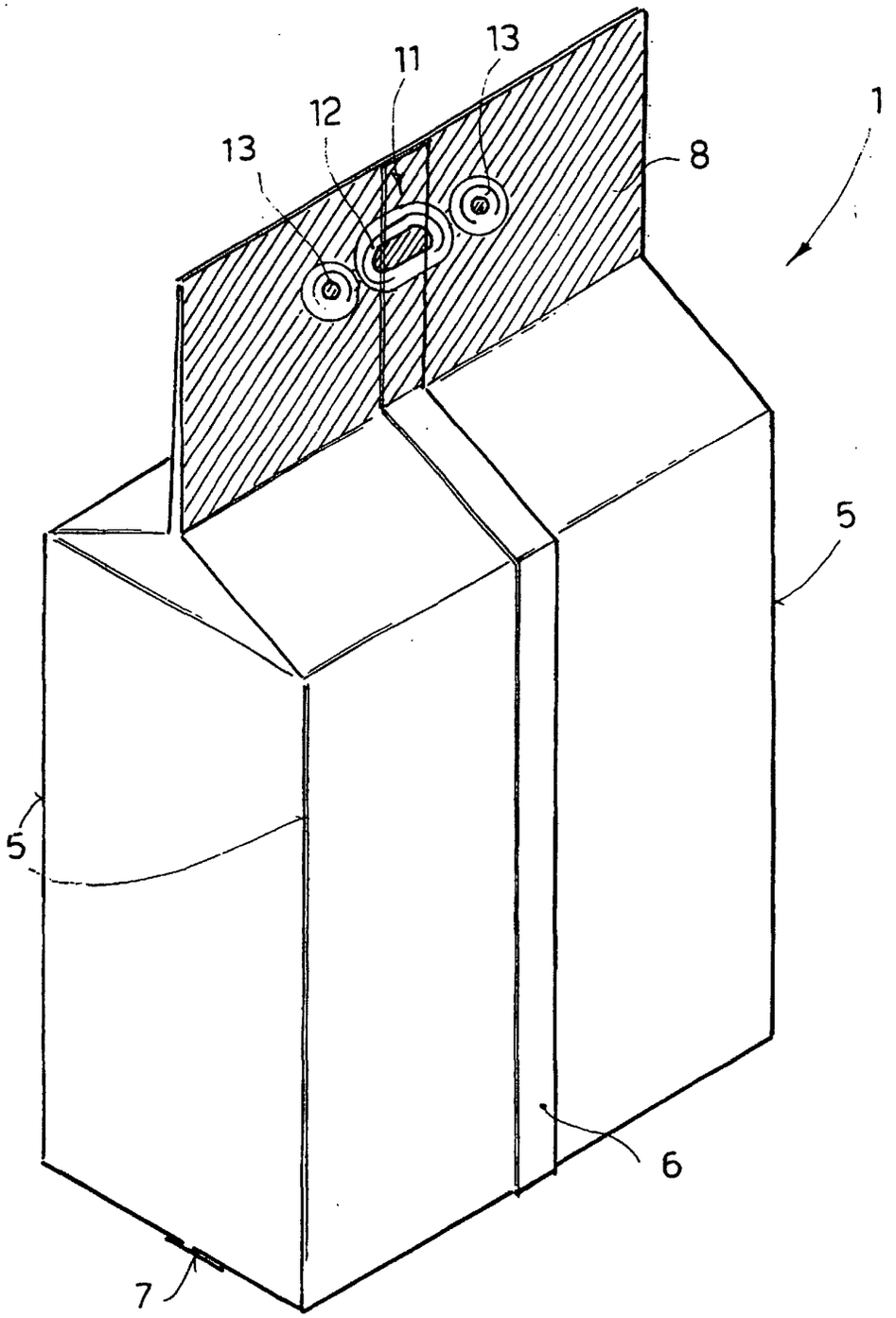


FIG 4

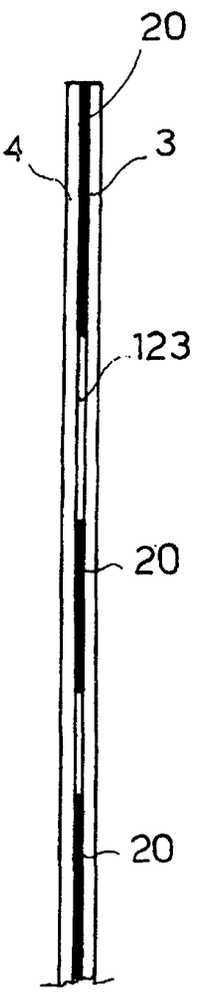


FIG. 6

FIG.5

