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(54) **PACKAGE MADE OF FLEXIBLE MATERIAL WITH TEARING OPENING**

VERPACKUNG AUS FLEXIBLEM MATERIAL MIT AUFREISSÖFFNUNG

EMBALLAGE COMPOSÉ D'UNE MATIÈRE SOUPLE À OUVERTURE DÉCHIRABLE

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Description

[0001] The present invention refers to a package made of flexible material, for granular, pasty or liquid products, provided with a tear-off or tearing opening.

[0002] The package according to the invention can be of any known type, for example stand-up package, that is, which is self-supporting when filled with the product, having a reinforced base, from which extend two side walls heat-sealed along the side and top edges, or can be a parallelepiped package with upper and lower bellows closures.

[0003] Packages of the above type, or other similar ones, with tearing opening, have a cut or notch near the upper edge of the package, at one side thereof, to promote tearing of the material, which should proceed parallel to the upper edge of the package, something which does not normally happen.

[0004] In order to try to bring about straight cutting of the package, it has been proposed that a cut should be made, normally by laser, in the outer layer, for example of polyester, of the normally multilayer material that forms the package.

[0005] However, it can happen that the tear promoting notch made on the side of the package is not perfectly aligned with the laser cut, causing tearing to deviate from the straight cut, something which can also happen even if the tear promoting notch is perfectly aligned with the cut.

[0006] In order to try to overcome in part this drawback it has also been proposed to make two laser cuts parallel to each other at a distance of 3-4 mm, so as to ensure that the tear promoting notch is disposed between the two laser cuts and the tear proceeds between them.

[0007] Among other things, these systems of the prior art are also costly because they require the installation of laser systems.

[0008] It should also be considered that if a mistake is made in setting the laser power, besides cutting the outer layer, it risks cutting the whole package, or an intermediate barrier layer, thus losing the barrier effect. GB2332900 discloses a package according to the preamble of appended claim 1, further comprising a sheet of easily tear-able flexible material having an outer layer and an inner layer, the inner layer being provided with a line of weakness. US 5,552,202 discloses a tear guide arrangement for opening a package comprising a pair of opposing base strips and a pair of opposing tear guide strips. The base strips are composed of resilient polymeric material, whereas the tear guide strips are composed of a stiff or tough polymeric material having a substantially higher tensile strength than the resilient material of the base strips. The stiff polymeric material of the tear guide strips ensures that the tear guide strips separate cleanly from the respective base strips and this stiff material provides the mass essential to a bond rupture.

[0009] Object of the invention is to overcome the drawbacks of the above-mentioned systems of the prior art, by providing a package that ensures perfectly straight

tearing during the opening stage.

[0010] Another object of the invention is that of providing such a package with tearing opening that is simple and cheap to make.

5 **[0011]** These objects are achieved by the package according to the appended claim 1. A tear promoting notch aligned with the pre-cut line of the strip is advantageously provided at one side edge of the package.

10 **[0012]** In this manner, when the package is to be opened, on applying opposing traction forces at the two separate slices of the strip, the tear proceeds straight along the separation line, being prevented from deviating from said line by the presence of the material of the slices. Further characteristics of the invention will be made clearer by the detailed description that follows, referring to a purely exemplifying and therefore non limiting embodiment thereof, illustrated in the appended drawings, in which:

20 Figure 1 is a plan view from the inside of a die-cut blank from which a package with tearing opening according to the invention can be obtained;

Figure 2 is an enlarged view of the top right corner of the die-cut blank of Figure 1;

25 Figures 3 and 4 show diagrammatically two successive stages in the formation of a package according to the invention;

Figure 5 is an enlargement of a detail of the package of Figure 4;

30 Figure 6 is a view like that of Figure 5 showing the start of the tearing stage.

[0013] With reference to Figure 4, a purely exemplifying package, indicated by reference numeral 10, to which can be applied the tearing opening system of the present invention, which will be described in greater detail below, has a substantially parallelepiped shape, and has a bottom wall or base 11, a top wall 12, a front wall 13, a rear wall 14 and two side walls 15 and 16.

40 **[0014]** This package is formed starting from a strip of multilayer sheet material, with the inner layer heat-sealable, which is fed along a mandrel normally disposed vertically, around which it is closed by means of a longitudinal weld S so as to form a tube which is closed at the bottom by means of a transverse heat seal SI followed by a bellows fold F1 (Figure 4), after having been cut to the right length to form the package 10.

45 **[0015]** The tube closed at the bottom, in the form of a bag, is filled with a pre-set amount of granular, pasty or liquid product, and is subsequently closed at the top by means of a further transverse weld SP and subsequent bellows folding F2.

50 **[0016]** Figure 1 shows the development of the package 10 seen from the inside, with the fold lines to obtain the package indicated.

55 **[0017]** As stated, the material forming the package is normally a multilayer material, with an inner heat-sealable layer, for example polyethylene and possibly an in-

intermediate barrier layer, such as aluminium. The outer layer is advantageously polyester.

[0018] According to the invention, near the upper edge 2 of the die-cut blank 1, below the area where the upper weld SP is made, a strip 3 pre-cut longitudinally into two halves or slices 4, 5 along the cutting line 6 which runs parallel to the upper edge 2 of the die-cut blank 1 or of the package 10, is disposed on the inside of the die-cut blank.

[0019] The strip or ribbon 3 is heat-sealable on both sides, so as to be able to be heat-sealed to the inside wall of the package 10 and allow the welds to be made to obtain a tight seal of the package, in the case in point the vertical weld S in the area where the strip is applied.

[0020] The strip 3 is advantageously also made of multilayer sheet material, the outer heat-sealable layers of which are polyethylene or derivatives thereof, for example.

[0021] The strip 3, or rather the two slices 4, 5 separated by the longitudinal cut 6, are disposed on the inside of the package 10 at least on the opposite front 13 and rear 14 walls as outlined in Figure 3.

[0022] A notch 20, aligned with the cutting line 6 of the strip 3 (Figure 5) is made at a side edge of the package, acting as a tear promoter.

[0023] In order to open the package, by pulling in opposite directions on the upper edge of the package, at the slices 4, 5 of the strip 3, a perfectly straight tear of the package material along the separation line 6 between the slices 4, 5 is obtained, as shown diagrammatically in Figure 6.

[0024] The straightness of the tear of the package is ensured by the separation line 6 between the two slices 4, 5, which forms a sort of track along which the tear is obliged to run.

[0025] In fact, any deviation of the tear from this separation line 6 would imply triggering of a tear in one of the two slices 4, 5, which is extremely improbable, given that the resistance of the material of the slices would have to be overcome.

[0026] The invention achieves the intended object even with minimum thicknesses of the pre-cut strip 3, but it is obvious that the greater its thickness, the greater the guarantee that the tear will follow the separation line 6 of the strip.

[0027] The applicant has performed numerous tests on packages of various types and has been able to verify the perfect performance of the tearing opening system according to the invention.

[0028] Thus, for example, in the package shown in the appended figures, it has been possible to ascertain that the tear proceeds without particular problems even in the area affected by the vertical weld S, where there is a superimposition of materials, but where the separation line 6 between the slices 4 and 5 is in any case present.

[0029] In the appended figures the pre-cut strip 3 has been provided along the entire horizontal extent of the package, but it is obvious that it can be provided in pre-

set areas which come to be opposed in the formed package, preferably reaching a side edge thereof, especially if complete opening of the package is not required.

[0030] Although a parallelepiped package obtained from a tube with a vertical S-shaped weld has been shown in the figures, the tearing opening system according to the invention can be applied to other types of package, for example with "fin" seals along the four vertical edges of the package, as well as to stand-up packages, and so forth.

[0031] Obviously the invention is not restricted to the particular embodiment described previously and illustrated in the appended drawings, but numerous modifications of detail within the reach of a person skilled in the art can be made thereto, without thereby departing from the scope of the invention as set forth in the appended claims.

Claims

1. A package made of flexible material upside closed by means of a weld (SP) at or close to the upper edge (2) thereof and provided with a tearing opening below said weld (SP), **characterized in that**, at said tearing opening below said weld (SP) and inside the package, a strip (3) made of a sheet material is applied, which is pre-cut in two halves or slices (4), (5) along a separation line (6) running parallel to said upper edge (2) of the package, such that during the tear-off operation the tearing proceeds along said separation line (6).
2. A package according to claim 1, wherein said pre-cut strip (3) is applied within opposite walls of the package (10).
3. A package according to claim 1 or 2, **characterized in that** said pre-cut strip (3) engages all the length of the package (10) or a portion thereof.
4. A package according to any one of the preceding claims, **characterized in that** a tearing promoting notch (20) is provided on a side edge of the package in alignment with said separation line (6) between the slices (4), (5) of the pre-cut strip (3).
5. A package according to any one of the preceding claims, **characterized in that** said pre-cut strip (3) is heat sealable on both sides thereof, thereby being able to be heat sealed within the package (10) and allowing welds for closing the package to be carried out in the area where it is placed.
6. A package according to any one of the preceding claims, **characterized in that** it is made of a multilayer material, wherein the inner layer is made of a heat sealable material, such as polyethylene.

7. A package according to any one of the preceding claims, wherein said pre-cut strip (3) is made of a multilayer sheet material, wherein the outer made of a heat sealable material, such as polyethylene or derivative thereof.
8. A package according to any one of the preceding claims, which is parallelepiped in shape with a lower bellows closure (F1) and an upper bellows closure (F2).
9. A package according to any one of the claims 1 to 7, wherein said package (10) is of the stand-up type.
10. A package according to any one of the preceding claims, suitable for containing granular, pasty, liquid materials, and the like.

Patentansprüche

1. Verpackung, die aus flexiblem Material hergestellt ist, oben mittels einer Schweißnaht (SP) an oder nahe der oberen Kante (2) davon geschlossen ist und mit einer Aufreißöffnung unter der Schweißnaht (SP) bereitgestellt ist, **dadurch gekennzeichnet, dass** an der Aufreißöffnung unter der Schweißnaht (SP) und im Inneren der Verpackung ein Streifen (3) aufgetragen ist, der aus einem Folienmaterial hergestellt ist, der in zwei Hälften oder Schnitte (4), (5) entlang einer Trennlinie (6), die parallel zu der oberen Kante (2) der Verpackung verläuft, derart vorgeschnitten ist, dass während des Abreißvorgangs das Reißen entlang der Trennlinie (6) erfolgt.
2. Verpackung nach Anspruch 1, wobei der vorgeschnittene Streifen (3) innerhalb gegenüberliegenden Wände der Verpackung (10) aufgetragen ist.
3. Verpackung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der vorgeschnittene Streifen (3) mit der gesamten Länge der Verpackung (10) oder einem Abschnitt davon in Eingriff steht.
4. Verpackung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** eine reißenunterstützende Kerbe (20) auf einer Seitenkante der Verpackung in Ausrichtung mit der Trennlinie (6) zwischen den Schnitten (4), (5) des vorgeschnittenen Streifens (3) bereitgestellt ist.
5. Verpackung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der vorgeschnittene Streifen (3) auf beiden Seiten davon heißsiegelbar ist, wodurch er imstande ist, innerhalb der Verpackung (10) heißversiegelt zu werden und Schweißnahten zum Schließen der Verpackung erlaubt, in dem Bereich, in dem er platziert ist, ausge-

führt zu werden.

6. Verpackung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie aus einem Mehrschichtmaterial hergestellt ist, wobei die innere Schicht aus einem heißsiegelbaren Material hergestellt ist, wie etwa Polyethylen.
7. Verpackung nach einem der vorhergehenden Ansprüche, wobei der vorgeschnittene Streifen (3) aus einem Mehrschichtfolienmaterial hergestellt ist, wobei das Äußere aus einem heißsiegelbaren Material hergestellt ist, wie etwa Polyethylen oder einem Derivat davon.
8. Verpackung nach einem der vorhergehenden Ansprüche, die parallelepipedförmig ist, mit einem unteren Balgverschluss (F1) und einem oberen Balgverschluss (F2).
9. Verpackung nach einem der Ansprüche 1 bis 7, wobei die Verpackung (10) vom aufrechtstehenden Typ ist.
10. Verpackung nach einem der vorhergehenden Ansprüche, die zum Beinhalt von körnigem, pastösem, flüssigem Material und dergleichen geeignet ist.

Revendications

1. Emballage, composé d'une matière flexible, fermé sur le haut au moyen d'une soudure (SP) au niveau du, ou près du bord supérieur (2) de celui-ci et doté d'une ouverture déchirable en-dessous de ladite soudure (SP), **caractérisé en ce qu'**au niveau de ladite ouverture déchirable, en-dessous de ladite soudure (SP) et à l'intérieur de l'emballage, une bande (3) composée d'une matière en feuilles est appliquée, laquelle est prédécoupée en deux moitiés ou tranches (4), (5) le long d'une ligne de séparation (6) s'étendant parallèlement audit bord supérieur (2) de l'emballage, de sorte que pendant l'opération d'ouverture par déchirure, la déchirure progresse le long de ladite ligne de séparation (6).
2. Emballage selon la revendication 1, dans lequel ladite bande prédécoupée (3) est appliquée à l'intérieur de parois opposées de l'emballage (10).
3. Emballage selon la revendication 1 ou 2, **caractérisé en ce que** ladite bande prédécoupée (3) se met en prise avec toute la longueur de l'emballage (10) ou une partie de celle-ci.
4. Emballage selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'**une en-

taille favorisant la déchirure (20) est fournie sur un bord latéral de l'emballage en alignement avec ladite ligne de séparation (6) entre les tranches (4), (5) de la bande prédécoupée (3).

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5. Emballage selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite bande prédécoupée (3) est thermocollable des deux côtés de celle-ci, en pouvant ainsi être thermocollée à l'intérieur de l'emballage (10) et en permettant à des soudures pour fermer l'emballage d'être réalisées dans la zone où elle est placée. 10
6. Emballage selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** est composé d'une matière multicouches, dans lequel la couche intérieure est composée d'une matière thermocollable, telle du polyéthylène. 15
7. Emballage selon l'une quelconque des revendications précédentes, dans lequel ladite bande prédécoupée (3) est composée d'une matière en feuilles multicouches, dans lequel l'extérieure est composée d'une matière thermocollable, telle du polyéthylène ou des dérivés de celui-ci. 20 25
8. Emballage selon l'une quelconque des revendications précédentes, lequel est de forme parallélépipédique avec une fermeture à soufflet inférieure (F1) et une fermeture à soufflet supérieure (F2). 30
9. Emballage selon l'une quelconque des revendications 1 à 7, dans lequel ledit emballage (10) est du type debout. 35
10. Emballage selon l'une quelconque des revendications précédentes, convenant pour contenir des matières granulaires, pâteuses ou liquides, et similaires. 40

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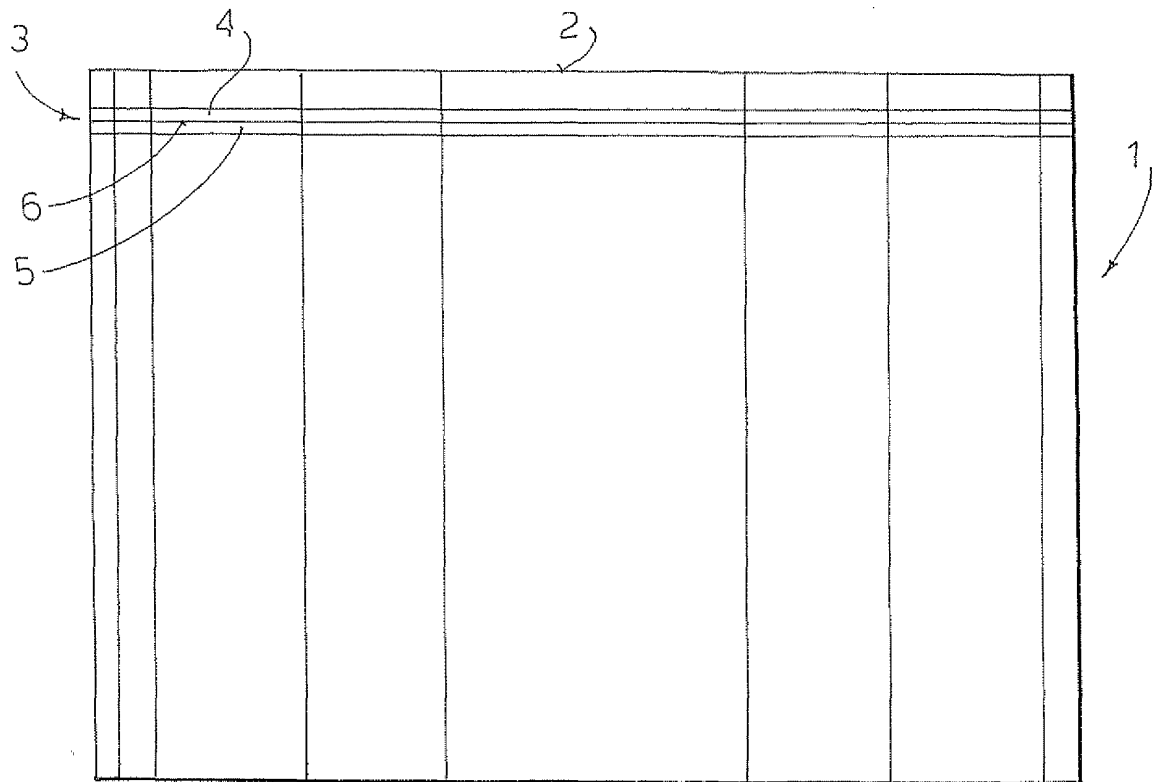


FIG. 1

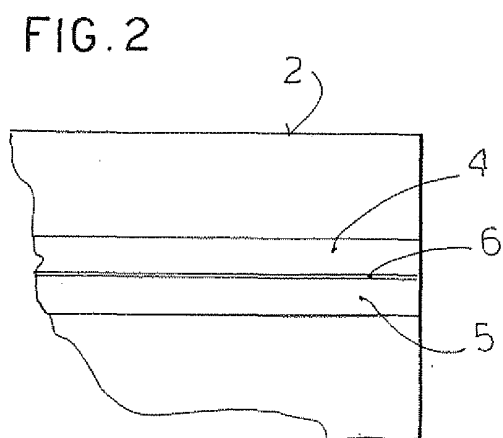


FIG. 2

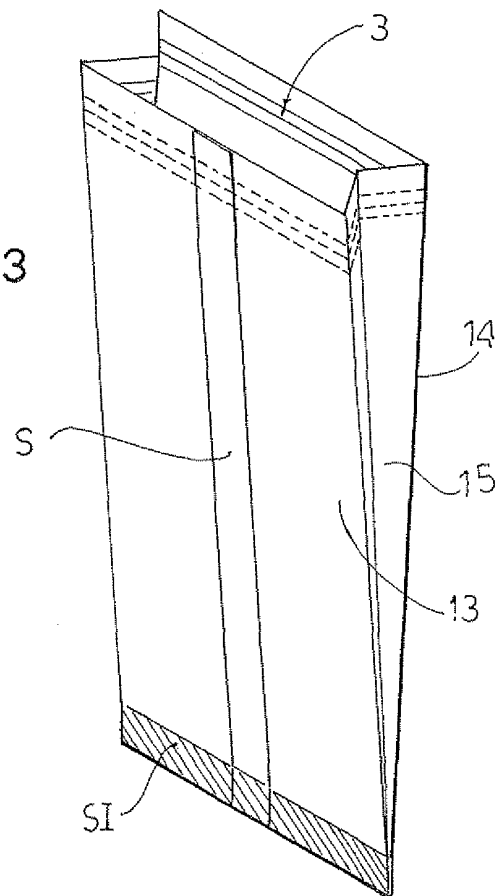


FIG. 3

FIG. 5

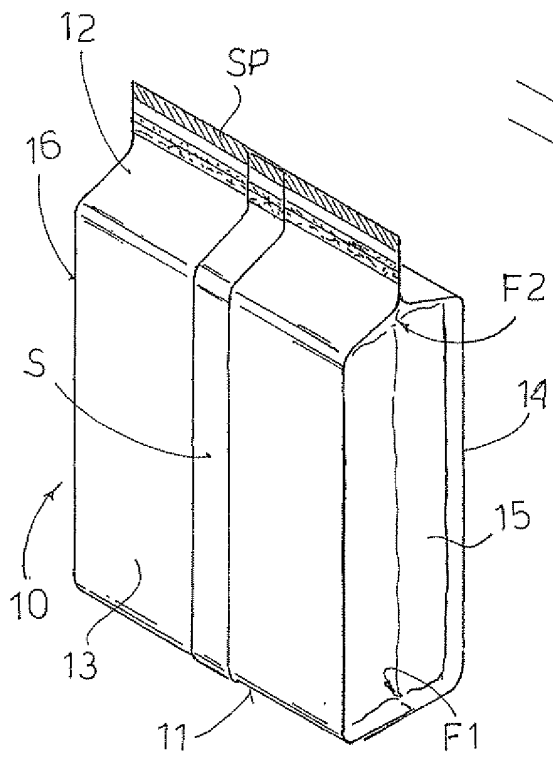
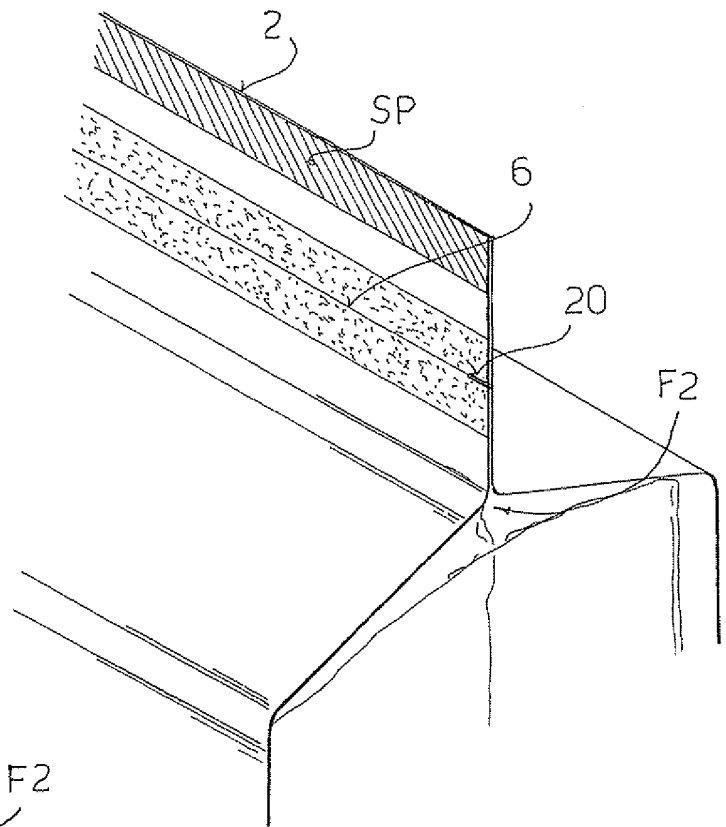


FIG. 4

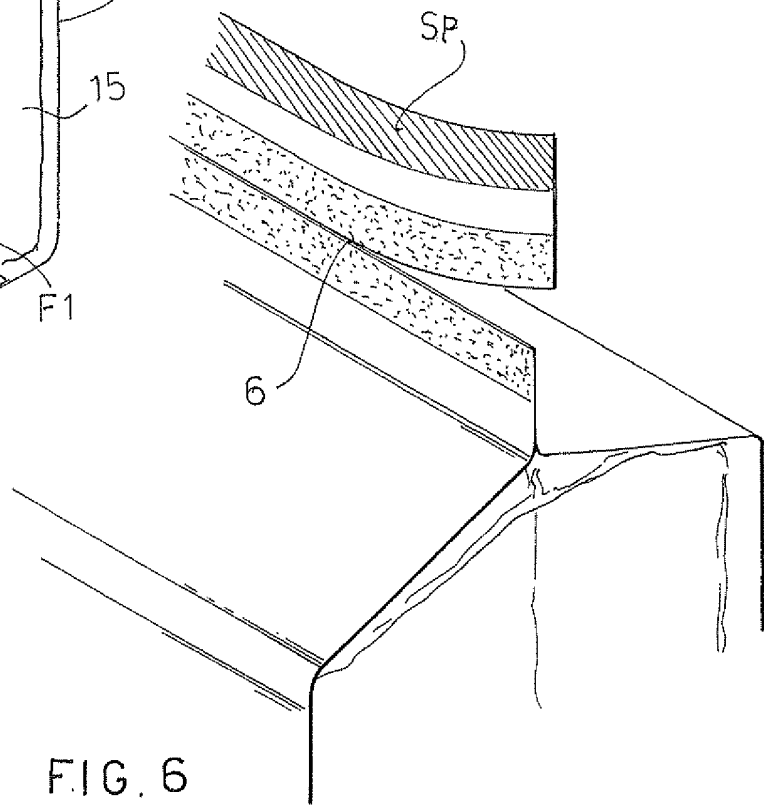


FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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