(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 628 486 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **94830259.1**

(51) Int. Cl.[5] : **B65D 5/74**

(22) Date of filing : **30.05.94**

(30) Priority : **07.06.93 IT MI930467 U**

(43) Date of publication of application :
14.12.94 Bulletin 94/50

(84) Designated Contracting States :
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

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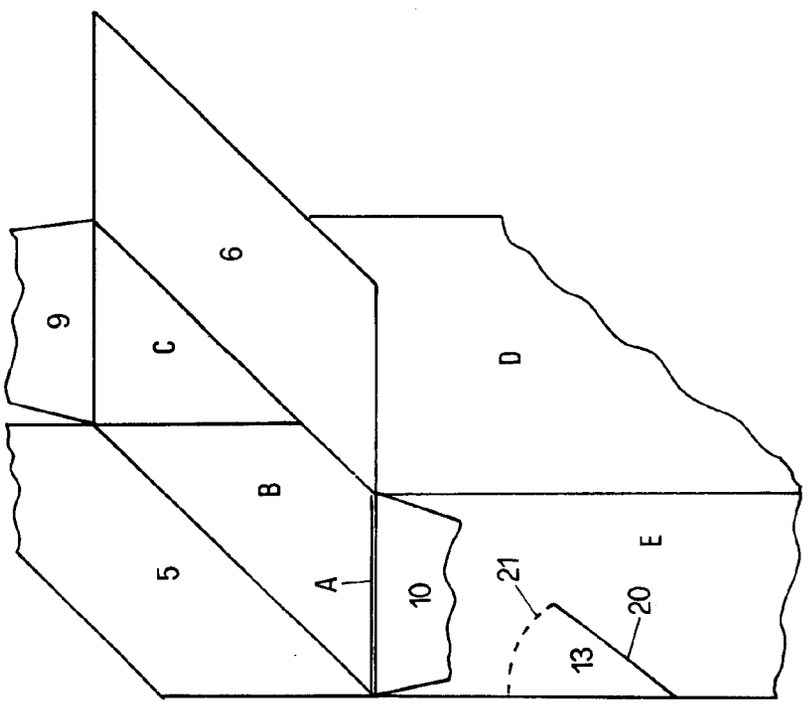
(54) Box made of cardboard or the like, having an improved dispensing spout.

(57) The box made of cardboard or the like, with dispensing spout is obtained from a blank (F) having rectangular zones (A,B,C,D,E) intended to form the side walls of the box and from which upper and lower flaps (5,6,7,8,9,10,11,12) forming the top and bottom closure portions of the box extend. For forming the dispensing spout the blank (F) comprises a zig-zag folding tongue (G) divided by converging scorelines (16,17) in tabs (13,14,15) forming the walls of the dispensing spout and a punched tab (18) having substantially the shape of the inner tab (13) of the zig-zag folding tongue (G) and arranged so as to be brought in register therewith. The punched tab (18) is glued to the outer tab (15) of the zig-zag folding tongue (G) when the box is assembled by overlapping and glueing to each other the two opposite rectangular zones (A,E) of the blank (F).



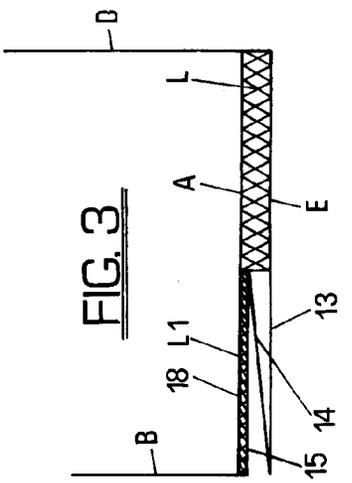


FIG. 3

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The present invention generally relates to boxes made of cardboard or the like and, more particularly, a box provided with dispensing spout having a very high strength and an excellent air-tightness.

The boxes made of cardboard or the like and provided with dispensing spouts are already known in the market. They have usually a parallele-pipedal shape and a dispensing spout formed on a side wall thereof. The dispensing spouts are formed by folded tongues, obtained from a starting blank, the outer one of which has a perforated line intended to be cut away from the wall in order that the dispensing spout can be taken by the fingers and brought in a pulled out position for dispensing the contents of the box.

However, such dispensing spouts are affected by some drawbacks, among which the more important ones are the following:

- easiness of being broken during the cutting operation of the perforated line and the pulling out thereof;
- very poor air-tightness, which is necessary in the case that the box contents is a perishable product.

The former drawback is due to the fact that for opening the box and pouring the contents thereof, it is necessary to cut the box along the perforated line and pull out the dispensing spout with consequent opening of the folded tongues forming it. During the pull out operation a breakage of the dispensing spout can occur because it is made of cardboard and therefore it can be detached from the box. Furthermore, in the case that the dispensing spout is opened and closed for a plurality of times, a breakage thereof can occur.

The latter drawback is due to the fact that the perforated line serving to pull out the spout is made by perforations which communicate the environment air with the inner of the box. As a result of this, the product packaged in the box can be damaged with time and particularly if the product is stored for a long time.

The present invention aims at providing a box made of cardboard or the like with a dispensing spout which obviates all the above mentioned drawbacks and gives the possibility to have a dispensing spout very strong and the safety of imparting to the box a perfect air-tightness.

More particularly, the box according to the present invention is of the type obtained from a blank having a substantially rectangular strip and divided by scorelines in rectangular zones intended to form the side wall of the box and from which upper and lower flaps forming the top and bottom closure portions of the box extend and is characterized in that the blank comprises:

- a zig-zag folding tongue attached to one free edge of the strip and divided by converging scorelines in tabs forming the walls of the dispensing spout;
- a punched tab defined by perforated lines in the opposite free edge of the strip, having substantially the shape of the inner tab of the zig-zag folding tongue and arranged so as to be brought in register therewith;
- said punched tab being intended to be glued to the outer tab of the zig-zag folding tongue when the box is assembled by overlapping and glueing to each other two end rectangular zones of the blank.

According to a feature of the present invention, the tabs forming the zig-zag folding tongue are three in number.

According to another feature of the present invention, the inner tab of the zig-zag folding tongue is larger than the punched tab, thus providing an overlapping zone acting as an air-tightness seal.

In alternative, the punched tab is larger than the inner tab of the zig-zag folding tongue, thus forming therewith an overlapping zone acting as an air-tightness seal.

According to a further feature of the present invention the three tabs of the zig-zag folding tongue have a surface decreasing from the inner tab to the outer tab in order to facilitate the folding operation of the dispensing spout.

According to still another feature of the present invention, the zig-zag folding tongue has the shape of segment of a circle and its tabs have also the shape of segments of a circle with the apexes lying in the center of the circle.

According to still a further feature of the present invention, the center of the radius of curvature of the zig-zag folding tongue having the shape of circle segment is offset from the apexes of the three tabs for forming the overlapping zone acting as an air-tightness seal.

Advantageously, the outer tab of the zig-zag folding tongue has the outer side convex in shape to facilitate the pulling out operation of the dispensing spout.

The present invention will be now described in more detail in connection with the accompanying drawings, wherein:

Fig. 1 is a plan view of the blank for obtaining the box with dispensing spout according to the present invention;

Fig. 2 is a plan view in a larger scale of the detail of the tongue forming the dispensing spout in an open condition;

Fig. 3 is a partial perspective view of the box assembled with the dispensing spout in a closed condition, as it is put on the market and with the dispensing spout shown in cross-section in the lower portion thereof;

Fig. 4 is a view similar to Fig. 3 of the box assembled with the dispensing spout being opened;

Fig. 5 is a view similar to Figs. 3 and 4 of the box

assembled with the dispensing spout fully opened;

Fig. 6 is a view similar to Fig. 1 showing a modification of the box with dispensing spout according to the present invention.

Referring now to Fig. 1, there is shown the blank for obtaining the box with dispensing spout according to the present invention. The blank, generally designated by F, has substantially a rectangular shape and comprises five rectangular zones A,B,C,D,E separated from each other by scorelines 1,2,3,4, respectively and intended to form the side walls of the box. More particularly, the box in this case has a parallelepipedal shape and the zones A,C,E of the blank F form the smaller side walls, whereas the zones B,D form the larger side walls. Therefore, the rectangular zones A,C,E have the same width and the rectangular zones B,D have also the same width. Projecting from the upper sides of the blank zones B,D are the flaps 5,6 intended to form the top closure portion of the box and projecting from the lower sides of these blank zones are the flaps 7,8 intended to form the bottom closure portion of the box. Also projecting from the upper sides of the zones C,E are the flaps 9,10 intended to form the top closure portion of the box and projecting from the upper sides of these zones are the flaps 11,12 intended to form the bottom closure portion of the box.

In the rectangular zone E there is punched a tongue, generally designated by G, having the shape of a segment of a circle, which is attached to the zone E by a scoreline 20 and a perforated line 21. This tongue G is divided by scorelines 16,17 starting from the apex of the circle segment, in three tabs 13,14,15. Therefore, these tabs have also the shape of a segment of a circle. The scorelines 16,17 allow the three tabs 13,14,15 to be folded above each other in a zig-zag manner and therefore the tongue G will be referred to in the following as "zig-zag folding tongue". In the zone A there is punched a tab 18 having also the shape of a segment of a circle and defined by an angled perforated line 19. This perforated line 19 permits the tab 18 to be easily detached from the rectangular zone A, so that it remains attached to the rectangular zone B along the scoreline 1.

As can better be seen in Fig. 2, the feature of the tabs of the zig-zag folding tongue G is that they have as a base a line in the shape of an arc of circle of decreasing length from the inner one to the outer one, that is the arc of circle of the tab 14 is shorter than the arc of circle of the tab 13 and the arc of circle of the tab 15 is shorter than the arc of circle of the tab 14. Furthermore, the center 0 of the radius of curvature R of the zig-zag folding tongue G is offset from the mating point of the apexes of the three tabs 13,14,15, so as to permit an easy folding in a zig-zag manner of the three tabs without interference. In order to facilitate the pulling out operation of the dispensing spout, the outer tab 15 of the zig-zag folding tongue has the outer side convex in shape, as indicated by K.

By means of the so shaped blank F, the box provided with the dispensing spout can be assembled. As can be seen in Fig. 3, the first step of the assembling operation consists in folding above each other in a zig-zag manner the three tabs 13,14,15 of the tongue G which remains attached to the rectangular zone E through the scoreline 20 and the perforated line 21. Then, the blank F is folded along the scorelines 1,2,3,4 so as to form the parallelepipedal box and the flaps 5,6,7,8,9,10,11,12 are internally folded to form the top and bottom closure portions. Then, the rectangular zone E is glued on the rectangular zone A, as indicated by L, by glueing in the meantime the outer tab 15 of the zig-zag folding tongue G on the punched tab 18 of the zone A, as indicated by L1.

At this point, the box is fully assembled and the dispensing spout is in the closed condition, again attached to the rectangular zone A.

Fig. 4 shows the first step for pulling out the dispensing spout. This step consists in cutting the zig-zag folding tongue G along the perforated line 21 of the tab 13 and in opening the two tabs 14,15.

Fig. 5 shows the dispensing spout in the fully opened condition. This is obtained by cutting the punched tab 18 of the rectangular zone A along the perforated line 19. After having cut this tab which is glued on the outer tab 15 of the zig-zag folding tongue G, the dispensing spout can be fully opened, as can be seen in this Figure.

A feature of the dispensing spout according to the present invention is that the radius of curvature of the tab 13 of the zig-zag folding tongue G is longer than that of the punched tab 18 of the rectangular zone A, so that, when the dispensing spout is in a closed condition, the curved edge thereof bears against the upper zone Z of the tab 18, thereby preventing the occurrence of an air infiltration through the perforated lines 19,21 of the tabs 18 and 13, respectively. Therefore, the dispensing spout of the box is fully air-tight.

Another feature of the dispensing spout according to the present invention is the particular strength of the spout itself which avoids possible breakages during the pulling out operation thereof.

In Fig. 6 there is shown a modification of the blank F for obtainig a box with dispensing spout according to the present invention. The sole difference is that in this case the punched tab 18 of the rectangular zone A has a longer radius of curvature than that of the inner tab 13 of the zig-zag folding tongue G and a triangular aperture 22 along its perforated line 19 intended to facilitate the pulling out operation of the dispensing spout. As a matter of fact, in this aperture 22 the nail of a finger can be inserted in order to promote the cutting operation of the tab 18 along the perforated line 19.

Furthermore, the tab 15 of the zig-zag folding tongue G has a notch 23 at the apex to facilitate the folding operation of the tabs 14,15 of the zig-zag folding tongue G. In this case the flaps 10,12 forming the top and bottom closure portions are attached to the rectangular zone A and the box is assembled by arranging the rectangular zone E behind the rectangular zone A. Therefore, the punched tab 18 in this case lies externally and is glued on the tab 15 of the zig-zag folding tongue G. The air-tightness is obtained because the radius of curvature of the punched tab 18 is longer than that of the tab 13 so that, in the closed condition, the punched tab 18 bears on the zone Z above the perforated line 21 of the rectangular zone E.

From the foregoing it can be easily apparent that the dispensing spout of the box obviates the above mentioned drawbacks because it is very strong and is fully air-tight with respect to the box with the dispensing spout in a closed condition.

Furthermore, the particular configuration of the dispensing spout according to the present invention eliminates any possibility of tears because, for pulling it out, it is only necessary to open the tabs forming the zig-zag folding tongue and for this operation only a lowest force is necessary.

Claims

1) Box made of cardboard or the like with dispensing spout, of a type obtained from a blank (F) having a substantially rectangular strip divided in rectangular zones (A,B,D,D,E) intended to form the side walls of the box and from which upper and lower flaps (5,6,7,8,9, 10,11,12) forming the top and bottom closure portions of the box extend, characterized in that the blank comprises:

- a zig-zag folding tongue (G) attached to one edge of the blank strip and divided by converging scorelines (16,17) in tabs (13,14,15) forming the walls of the dispensing spout;
- a punched tab (18) defined by perforated lines (19) in the opposite edge of the blank strip, having substantially the shape of the inner tab (13) of the zig-zag folding tongue (G) and arranged so as to be brought in register therewith;
- said punched tab (18) being intended to be glued to the outer tab (15) of the zig-zag folding tongue (G) when the box is assembled by overlapping and glueing to each other the two opposite rectangular zones (A,E) of the blank (F).

2) Box according to claim 1, characterized in that the tabs (13,14,15) of the zig-zag folding tongue (G) are three in number.

3) Box according to claims 1 and 2, characterized in that the inner tab (13) of the zig-zag folding tongue (G) is larger than the punched tab (18), thus providing an overlapping zone (Z) acting as an air-tightness seal.

4) Box according to claims 1 and 2, characterized in that the punched tab (18) is larger than the inner tab (13) of the zig-zag folding tongue (G), thus forming therewith an overlapping zone (Z) acting as an air-tightness seal.

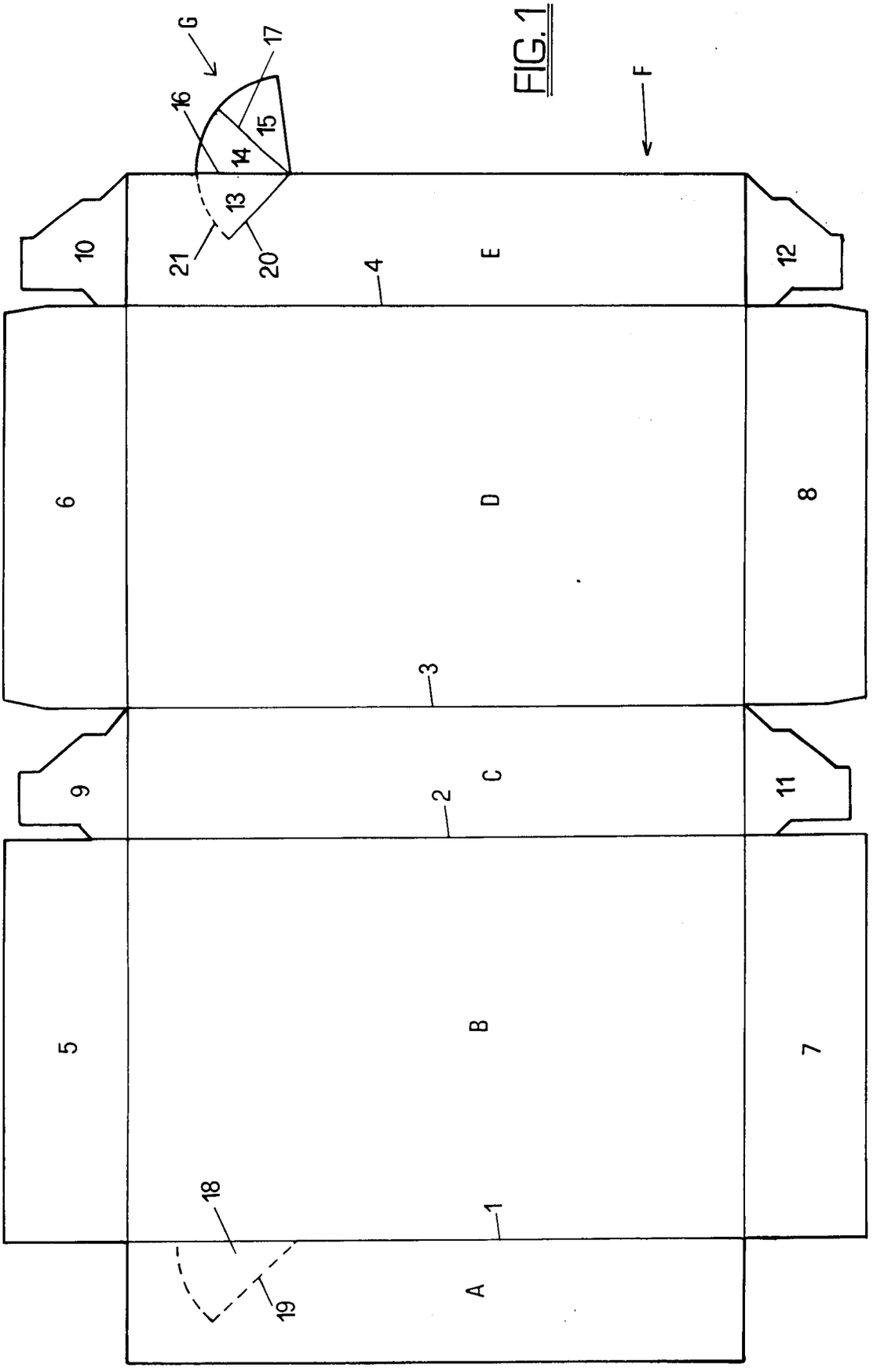
5) Box according to claim 2, characterized in that the three tabs (13,14,15) of the zig-zag folding tongue (G) have a surface decreasing from the inner tab (13) to the outer tab (15) in order to facilitate the folding operation of the dispensing spout.

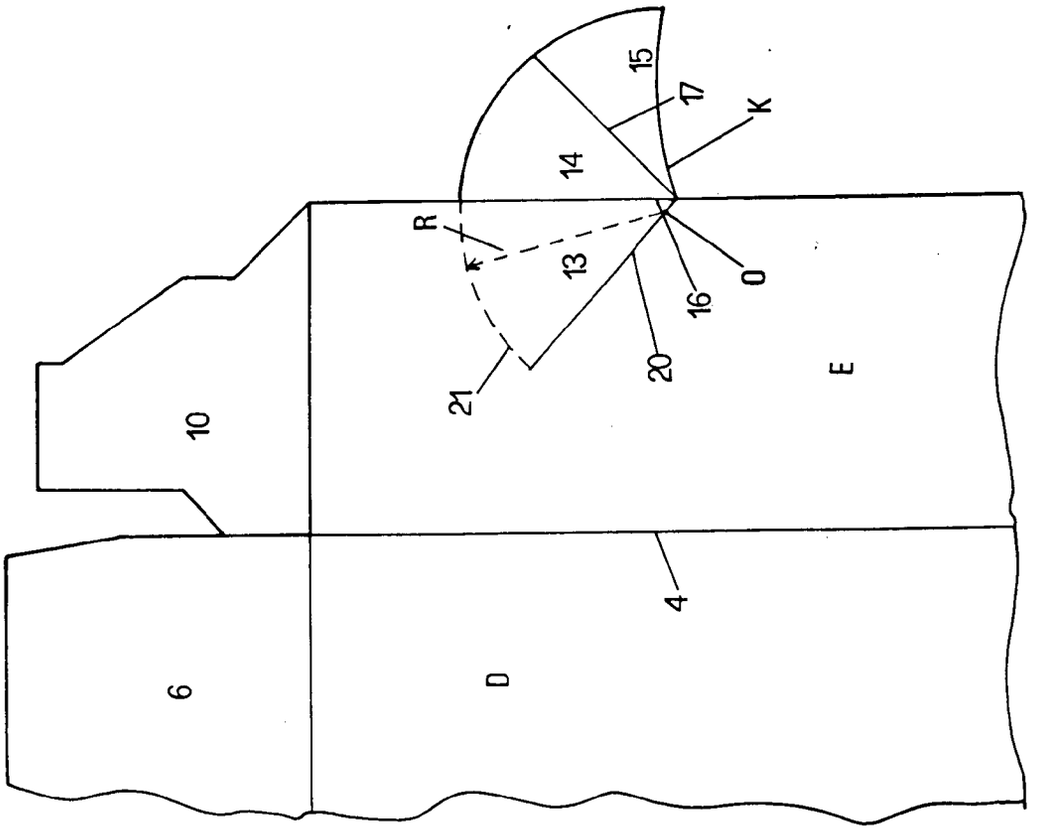
6) Box according to one of the preceding claims, characterized in that the zig-zag folding tongue (G) has the shape of a segment of a circle and its tabs (13,14,15) have also the shape of a segment of a circle with the apexes lying in the center of the circle.

7) Box according to claim 6, characterized in that the center of the radius of curvature of the zig-zag folding tongue (G) having the shape of a circle segment is offset from the apexes of the tabs (13,14,15) to form the overlapping zone (Z) acting as an air-tightness seal.

8) Box according to one of the preceding claims, characterized in that the outer tab (15) of the zig-zag folding tongue (G) has the outer side convex in shape (K) to facilitate the pulling out operation of the dispensing spout.

FIG.1





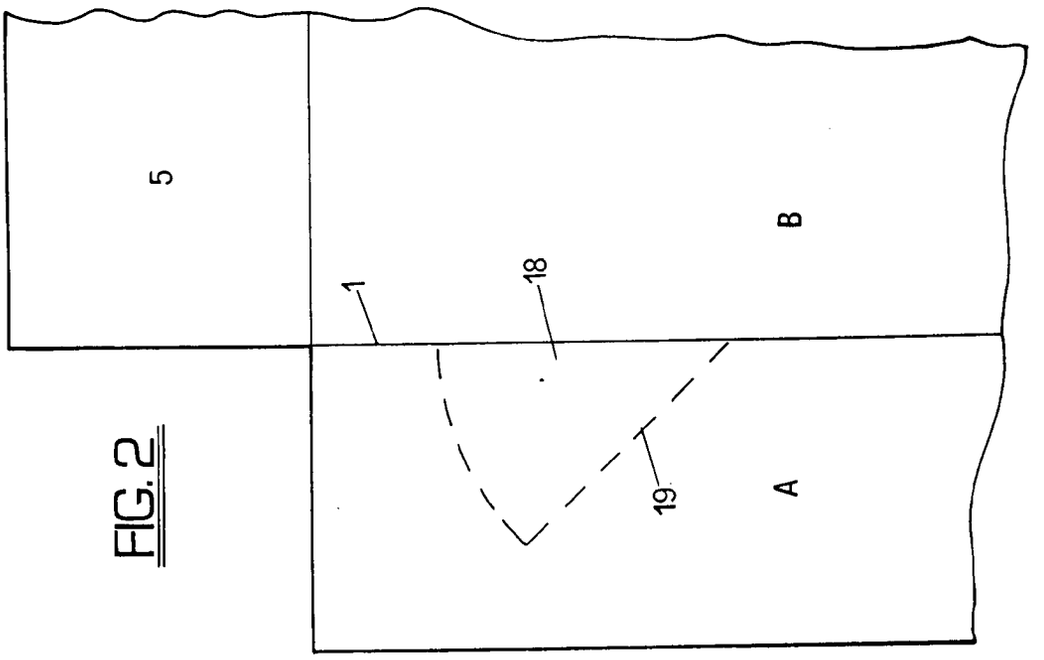


FIG.2

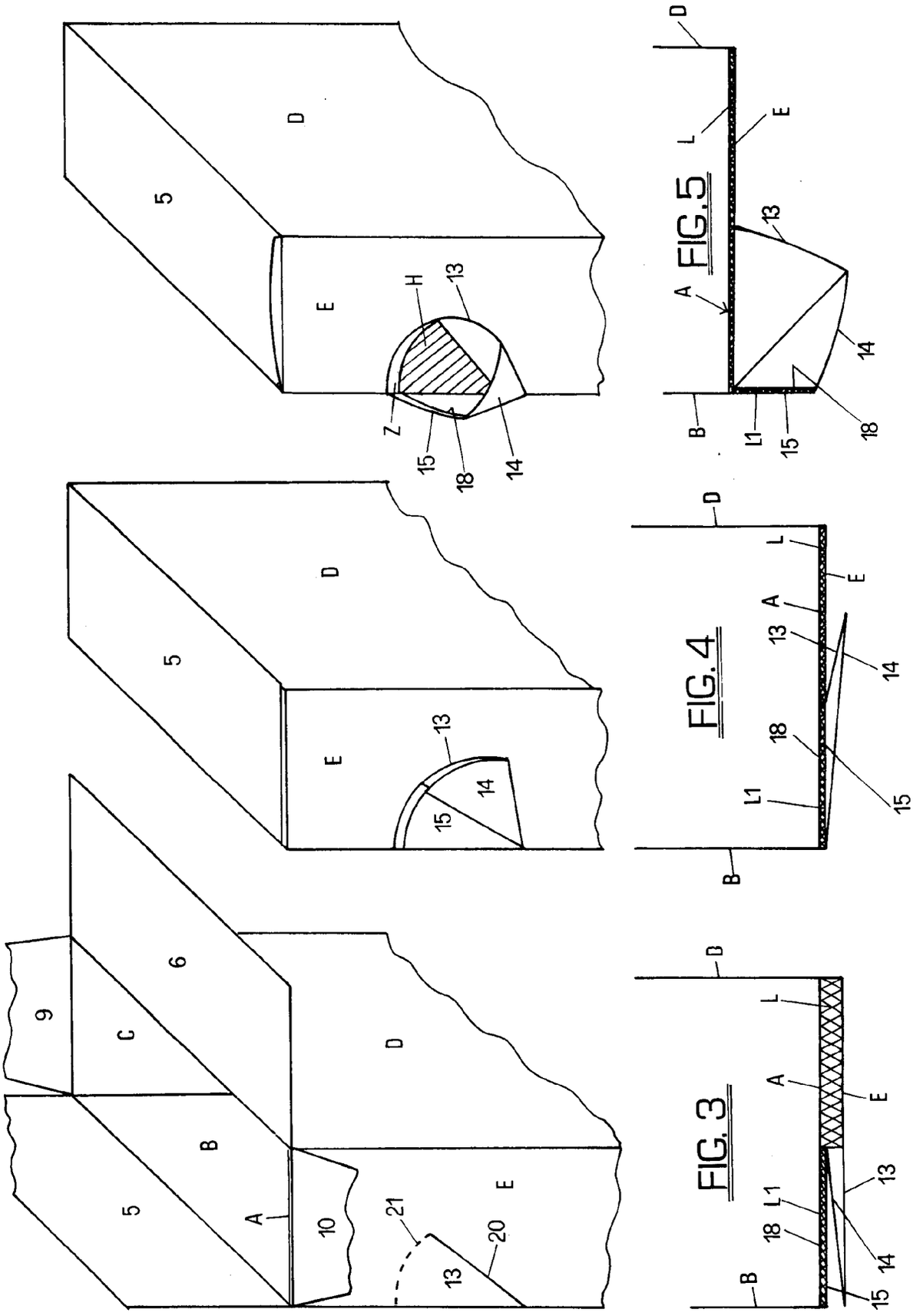

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FIG. 3
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FIG. 4
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FIG. 5
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FIG. 6