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NL-7301 GL Apeldoorn (NL)(54) **Cardboard box with sprinkling spout.**

(57) Cardboard box provided with a spout, which box is formed from a flat sheet which in the unfolded state is divided by four parallel first folds (7) into five panels or faces, and has two second folds (8) which run at right angles to the first fold lines and divide at least four panels into three partial faces. The fifth face serves as an adhesive flap. The spout (14) is formed by two spout faces (13-19) separated by a

first fold line. The first spout face is bounded by the first fold line, a third fold line (15) and a cutting line (16). The second spout face (19) is cut out of the adjacent adhesive flap and is bounded by a curved cutting line and at the other side by the first fold line. The second spout face lies partially confined between the folded-over adhesive flap part and the first wall of the box.

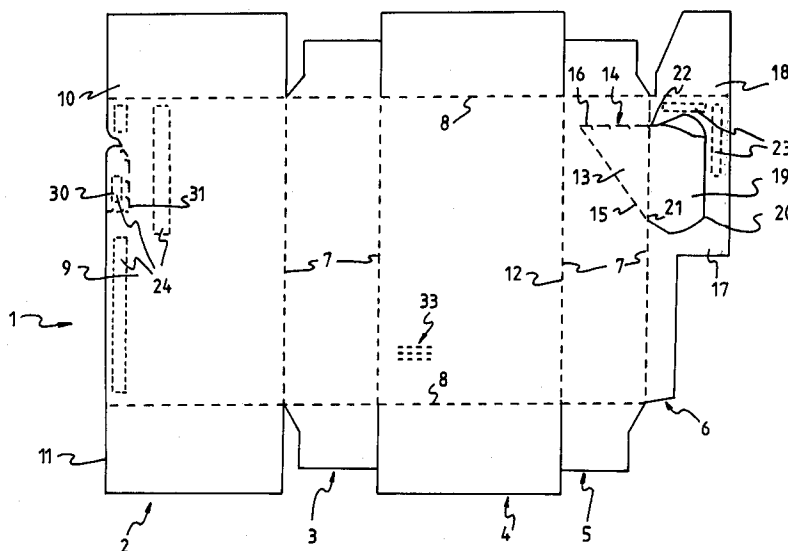


FIG.1

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The invention relates to a cardboard box provided with a sprinkling spout, which box is formed from a flat sheet which in the unfolded state is divided by four parallel first folds into five panels or faces, and has two second folds which run at right angles to the first folds and divide at least four panels into three partial faces, a centre face forming a side wall of the box and a top and a bottom flap which serve to form the top and the bottom of the box respectively in a known manner, while the last or fifth face serves as an adhesive or closing flap, and the sprinkling spout is formed by two spout faces which adjoin each other and are separated by a part of a first fold line, and the first spout face is approximately triangular and is bounded by the first fold line, a third fold line and a cutting or tear line, while the second spout face is cut out of the adjacent adhesive flap and is bounded at one side by a curved cutting line and at the other side by the first fold line.

Such a box pack is known from American Patent Specification US 4,150,778. This American patent discloses a cardboard box which can be assembled from a flat sheet in which a provision is also made for the formation of a pouring or sprinkling spout, by means of which spout the contents can be poured out or sprinkled after the box has been formed. A disadvantage of this known box is that in use the two spout faces forming the sprinkling spout form a relatively small angle with each other, with the result that the inside flap of the sprinkling spout bends towards the inside of the pack and flakes or other products in the pack accumulate behind the inside spout flap. This means that when the spout is opened the flakes can be pulled out with the spout, and thus do not pass through the spout but around it, with the result that flakes are spilt. Another disadvantage of this known pack is that a larger cardboard surface is required for the formation of this box with sprinkling spout than is the case with conventional boxes folded out of a flat sheet, in which an opening is made in the pack and no sprinkling spout is therefore formed. An additional flap or panel has to be used to allow the second spout face to be formed. Another possible embodiment of such a box pack is described in European Patent Application EP 0,466,337. The box pack proposed in this patent application shows a flat sheet, also consisting of six panels, but in this case the sixth panel lies adjacent to the panel from which the second spout face is cut. During the assembly of the pack the sixth panel is folded inwards and then fixed by means of adhesives to the inside of the remaining part of the previous panel, with the result that the second spout face is confined between the two outermost panels of the flat sheet.

The object of the invention is a box pack in the case of which the drawback of the second spout face being able to come away from the inside wall is overcome, and in the case of which significantly less cardboard has to be used for assembly of the box.

This object of the invention is achieved with a cardboard box pack as a result of the fact that a part of the fifth face is folded over, so that the second spout face lies partially confined between the folded-over adhesive flap part and the first wall of the box. These characteristics mean that much less cardboard is required to assemble the box pack than was the case with the abovementioned known box packs, while the second spout face always remains resting against the inside wall of the pack, and the contents of the pack can thus leave only through the sprinkling spout of the pack, and not around it. These measures ensure that less cardboard is needed for such a pack, and the difference which can exceed 20%. Since the price of the cardboard makes up approximately 60% of the final cost, such a saving means well over 10% of the cost. Such packs are always used once, and it is therefore extremely important to keep the cost of the pack as low as possible, since it makes up an essential part of the cost of the products which are sold in such a pack.

A possible embodiment of the pack according to the invention is characterized in that the adhesive flap consists of a centre face, which centre face is partially folded over along a fold line running parallel to the first fold lines. The spout face serving as slide guide is therefore partially supported at both sides, at one side by the folded-over part of the adhesive flap, and at the other side by the outside wall of the box pack against which the adhesive flap is fixed.

Another possible embodiment of the box pack according to the invention is characterized in that the adhesive flap consists of a centre face, which centre face is folded double along a fold line running parallel to the first fold line. These measures ensure that the top part of the spout face situated in the inside of the box pack is supported at both sides, at one side by the outside wall of the box pack, and at the other side by the top adhesive flap which is folded over downwards along the fold line and then glued to the part of the adhesive flap remaining after the spout face part has been cut out.

The flat sheets are preferably cut out in such a way that they are characterized in that the adhesive face consists of a centre adhesive flap and a top adhesive flap separated by one of the second fold lines, and in that the top flap is folded inwards and fixed to the centre adhesive flap, so that the second spout face lies partially confined. This ensures

that an even greater saving in cardboard material can be obtained, through the fact that the flat sheet can be cut turn and turn about from a long roll of cardboard, the bottom part of the adhesive flap cut out being completed by the top part of the following adhesive flap of the flat sheet subsequently cut out. Each flat sheet is therefore rotated through 180° relative to the previous flat sheet.

The invention will be explained in greater detail with reference to the drawing. In the drawing:

- Figure 1 shows a flat sheet for a box pack according to the invention;
- Figure 2 shows another possible embodiment of a flat sheet for a box pack according to the invention;
- Figure 3 shows an assembled closed box pack according to the invention;
- Figure 4 shows a box pack according to the invention, with opened spout;
- Figure 5 shows a detail in cross-section near the spout of the embodiment shown in Figure 1;
- Figure 6 shows a detail in cross-section of the pack with spout shown in Figure 2.

Figure 1 shows a flat sheet 1 for a box pack according to the invention. This flat sheet 1 is divided into five panels 2, 3, 4, 5, 6 by four parallel first folds 7. Each panel is divided into a number of partial faces by means of two parallel second folds 8, running at right angles to the first folds 7. The centre faces of the panels 2, 3, 4, 5 in a known manner form the side faces and end faces of the box when it is assembled, and the top and bottom flaps of each panel 2, 3, 4, 5 in a known manner form the top and bottom of the box when it is assembled. Thus, panel 2 is divided into three partial faces, a centre face 9 forming one of the side walls of the box, and a top flap 10 and a bottom flap 11.

A spout face 13 of a spout 14 is formed in the centre face 12 of the panel 5, which spout face is triangular in shape, and one side of which is formed by the fold line 7, a second side by a fold line 15 running at an acute angle of approximately 30° to 45° to the fold line 7, and a third side 16 which in this case consists of a tear line running approximately parallel to the fold line 8. The last panel 6, which is used for fixing to the first panel by means of adhesives in order to be able to form the box, in this embodiment consists of a centre face 17 and a top flap 18. The bottom half of the centre face 17 consists of a narrow strip which serves only as an adhesive strip, and the top half is broader and a second spout face 19 is formed therein, which spout face is bounded at one side by the fold line 7 and at the other side by cutting line 20 which begins at the intersection point of the

fold lines 7 and 15 and ends at the intersection point where the fold line 7 intersects the tear line 16. When the pack is being assembled the top flap 18 is folded over downwards along the line 8 and fixed with adhesives near the rear side to the part of the adhesive flap 17 which is not cut out. For assembly of the box, the adhesive flap is provided with two adhesive strips 23, 24, so that the box can be formed in a known manner.

Figure 2 shows another possible embodiment of the flat sheet 1 for forming a box. This flat sheet also consists of five panels 2, 3, 4, 5, 6 which are formed by four parallel first fold lines 7. In this embodiment the adhesive flap is also provided with a second spout face which serves as slide guide, and which spout face 19 is formed at one side by the part of the fold line 7 between the intersection points 21 and 22 and at the other side by a cutting line 20 also running from the points 21 to 22. The remaining part which is left after the second spout face has been cut out is folded in the lengthwise direction parallel to the first fold line 7 along the line 25, and the part 26 is then folded forward and fixed to the part 27 of the adhesive flap 6 by means of two adhesive strips 28, 29. The box is then assembled in the known manner, the view shown forming the inside of the box.

The flat sheets shown in Figures 1 and 2 are both provided with a tab 30 which is formed from the centre face 9 of panel 2 and is bounded by a tear line 31. When the box is assembled, the tab 30 is fixed to the spout face 19 by means of adhesives, with the result that this tab or pull tab 30 serves as the seal of the pack.

Figure 3 shows the box after it has been assembled from the flat sheet 1, the spout face 13, the fold line 15 and the tear line 16 and a small part of the second spout face 19 and the pull tab 30 being visible.

Figure 4 shows the box according to the invention with the spout open, and in which the contents consist of flakes 32 which are being poured out.

Figures 5 and 6 show in cross-section in detail a part of the pack shown in Figures 1 and 2. Figure 5 shows the spout partly opened, consisting of the two spout faces 13 and 19. Figure 5 corresponds to the embodiment shown in Figure 1, the top flap 18 being folded over downwards along the fold line 8 and fixed to the centre face of the panel 17. The spout face 19 in this case lies confined between the top flap 18 and the centre face 9 of the panel 2. Figure 6 shows in cross-section a box assembled from a flat sheet of the type shown in Figure 2. In this case the panel 6 is divided into two parts 26, 27 by the fold line 25, and the part 26 is then fixed to the part 27 of the panel 6 or adhesive flap.

The pack is normally delivered to the customer by the supplier of the pack in the form of a glued

flat sheet folded double, but not yet folded to the form of a box, and the customer then forms the double-folded and glued flat sheet into a box and fills it with the desired product. In order to prevent the harmonica effect during the storage of flat boxes, the flat sheet can be provided with embossing 33 (corrugations or the like stamped or pressed into the cardboard), see Figure 1, as indicated in panel 4, which makes the thickness of the glued flat sheets in the lengthwise direction remain the same during storage.

The embodiment shown in Figure 2 does not show this harmonica effect. However, if the bottom half of the part 26 of the panel 6 is omitted, the harmonica effect occurring can then be prevented by means of embossing.

Claims

1. Cardboard box provided with a sprinkling spout, which box is formed from a flat sheet which in the unfolded state is divided by four parallel first folds into five panels or faces, and has two second folds which run at right angles to the first folds and divide at least four panels into three partial faces, a centre face forming a side wall of the box and a top and a bottom flap which serve to form the top and the bottom of the box respectively in a known manner, while the last or fifth face serves as an adhesive or closing flap, and the sprinkling spout is formed by two spout faces which adjoin each other and are separated by a part of a first fold line, and the first spout face is approximately triangular and is bounded by the first fold line, a third fold line and a cutting or tear line, while the second spout face is cut out of the adjacent adhesive flap and is bounded at one side by a curved cutting line and at the other side by the first fold line, **characterized in that** a part of the fifth face is folded over, so that the second spout face lies partially confined between the folded-over adhesive flap part and the first wall of the box.
2. Box according to Claim 1, **characterized in that** the adhesive flap consists of a centre face, which centre face is partially folded over along a fold line running parallel to the first fold lines.
3. Device according to Claim 1, **characterized in that** the adhesive flap consists of a centre face, which centre face is folded double along a fold line running parallel to the first fold line.
4. Box according to Claim 1, **characterized in that** the adhesive face consists of a centre

adhesive flap and a top adhesive flap, separated by one of the two fold lines, and in that the top flap is folded inwards and fixed to the centre adhesive flap, so that the second spout face lies partially confined.

5. Box according to one of Claims 1, 2 or 3, **characterized in that** the second spout face is situated in the top half of the centre adhesive flap, and in that the bottom half of the centre adhesive flap consists only of a narrow adhesive edge.
6. Flat sheet for assembling a cardboard box pack according to one of the preceding claims.

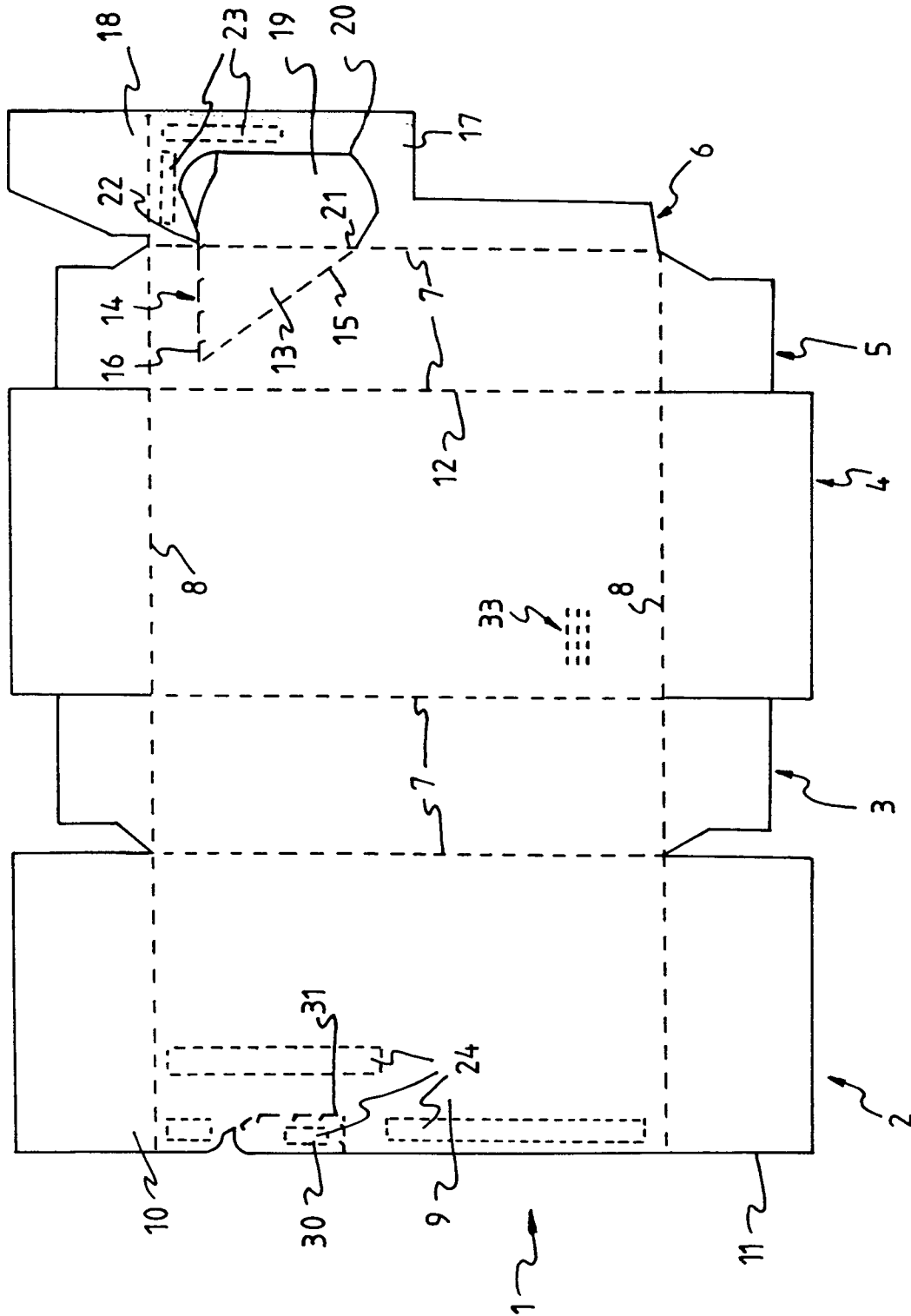
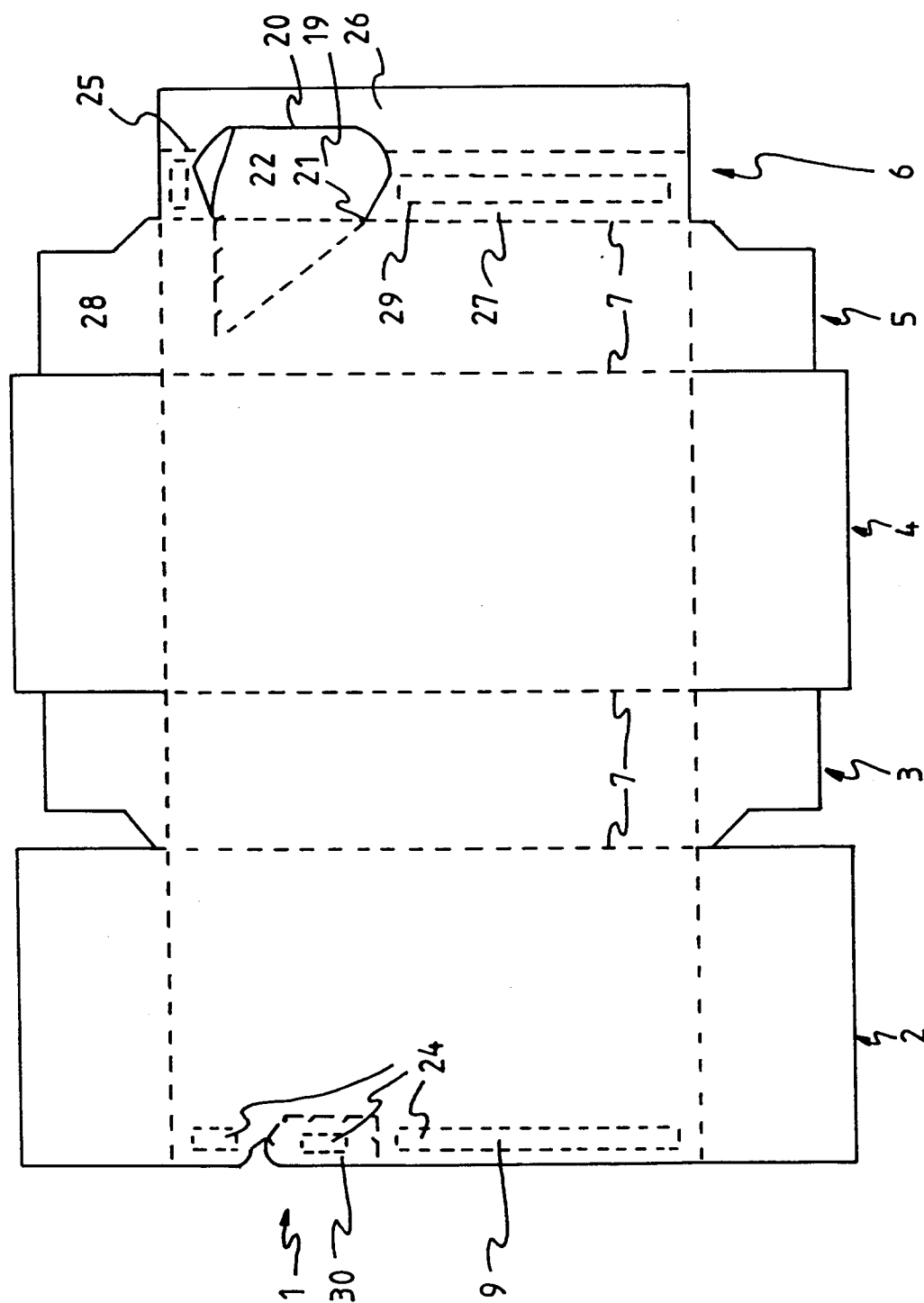


FIG. 2



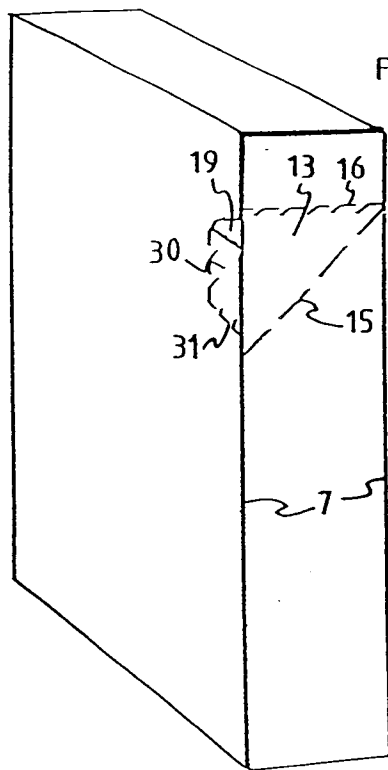


FIG.3

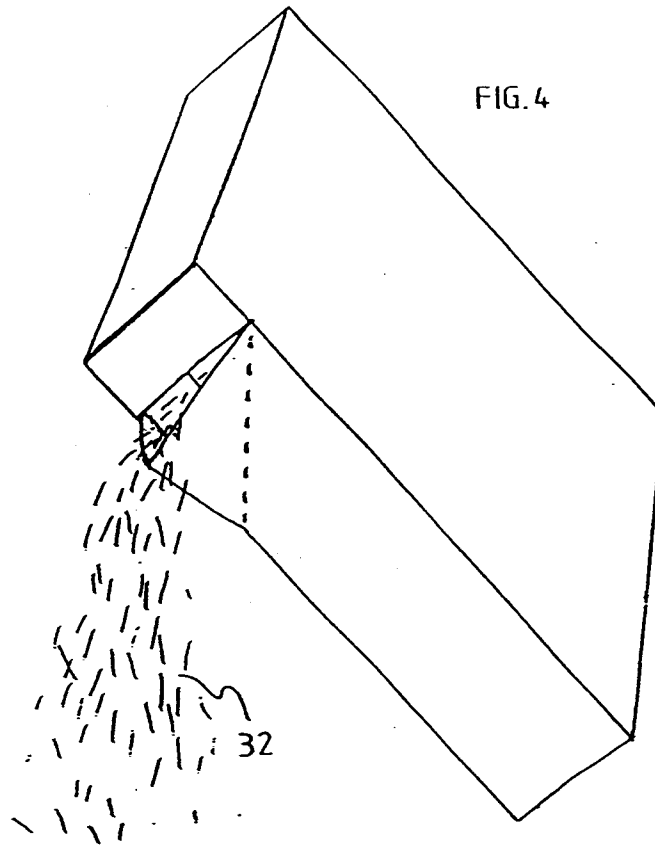


FIG. 4

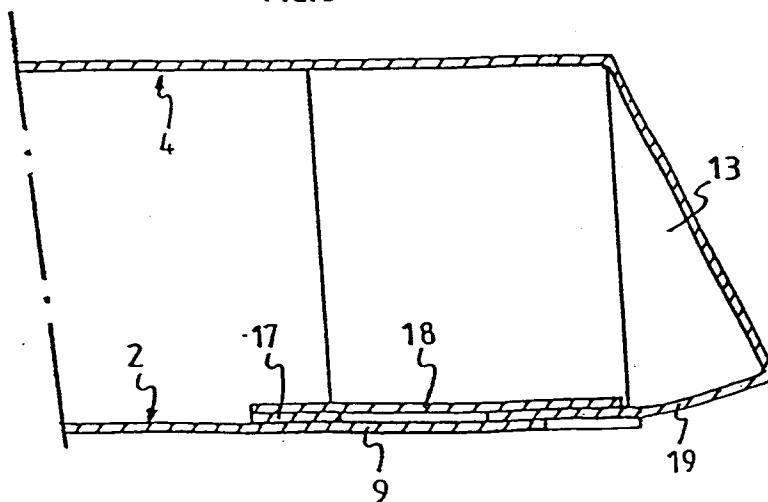


FIG. 5

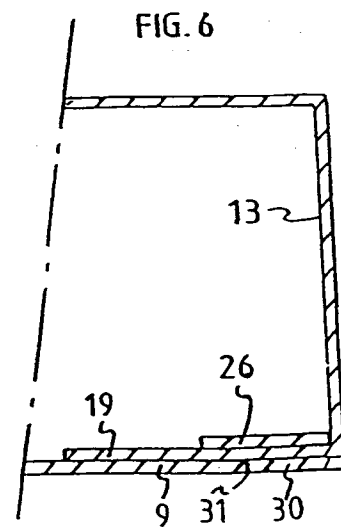


FIG. 6



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EUROPEAN SEARCH REPORT

Application Number
EP 93 20 3427

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	DE-U-92 08 031 (E. GUNDLACH GMBH) * figures * ---	1,2,4-6	B65D5/74
X	DE-U-91 10 809 (DISPO-KOMMERZ AG) * figures * -----	1,3,6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.5)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 April 1994	Examiner Martin, A
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