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(54) Container with sealable and severable cover.

(57) Container with cover, both made from plastics, which container can be hermetically closed by providing a seal between two engaging flanges of the container and the cover respectively and can subsequently be opened by breaking a thin wall section in the flange, which flange comprises a substantially vertical auxiliary wall (4), at some distance from the container (3) and externally around the container, which extends along some height in the upper region of the container and which is connected to the container wall by a circumferential connecting wall (5). The auxiliary wall has a thin wall section (21) beneath the junction with the connecting wall. The flange wall (9) of the cover is formed by a skirt of a hooded cover, which skirt, in the case of a closed container, envelops the auxiliary wall (4) and extends beyond the thin wall section (21) in such a way that below the thin wall section there are two contiguous flange sections (11, 10) of the container and the cover respectively, between which a seal (13) can be provided.

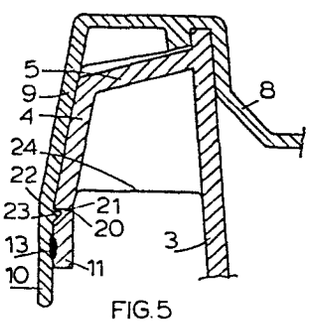

FIG.5

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CURVER VERPAKKINGEN B.V.

CONTAINER WITH SEALABLE AND SEVERABLE COVER

The invention relates to a container with cover, both made from plastics, which container can be hermetically closed by providing a seal between two engaging flanges of the container and the cover respectively, and can subsequently be opened by breaking a thin wall section in the container flange.

A similar container and cover are known from UK Patent Application No. 2009704.

A disadvantage of this known container and cover is that much room is needed to pack these containers, whether filled or empty, on account of the horizontal flanges projecting outwardly from the container. Another disadvantage is the fact that the outwardly projecting horizontal flanges are sensitive to thrusts in vertical direction, especially in upward direction, which may result in unintentional breakage of at least part of the thin wall section, the hermetic seal being thereby broken. Yet another disadvantage of the said container and cover combination is that, although after breakage of the seal between the container and the cover and removal of the cover the cover can be wedged onto the container again, the combination with the wedged closure is less reliable under certain conditions. This is due to the fact that the wedged closure is based solely on friction between the sunk portion of the cover and the inside wall of the container. When a filled container is tilted or toppled, the force exerted on the inside of the cover by the contents of a filled container may overcome the friction between the cover and the container, resulting in the cover being pushed from the container.

The object of the invention is to provide a container and cover in which the disadvantages mentioned are avoided.

This has been obtained by the container flange comprising a substantially vertical auxiliary wall, at some distance from the container and externally around the container, which extends along some height in the upper region of the container and which is connected to the container wall by a circumferential connecting wall, the auxiliary wall having a thin wall section beneath the junction with the connecting wall, and by the flange of the cover being formed by a skirt of a hooded cover, which skirt, in the case of a closed container, envelops the auxiliary wall and extends beyond the thin wall section in such a way that below the thin wall section there are two contiguous flange sections of the container and the cover respectively, between which a seal can be provided.

When, with a container and cover designed in this way, the cover has been removed from the container after severage at the thin wall section, it can be placed on the container again, the part of the container flange that was originally located below the thin wall section and that now is part of the cover gripping under the part of the container flange that has remained intact. In this way, even after severage at the thin wall section, which renders the seal ineffective as a means to fasten the cover to the container, still a good grip of the cover on the container is obtained. Further, on account of the vertical position of the flanges room is saved and the thin wall section is less likely to break when upward or downward forces are exerted on the cover.

When there is no seal between the container and the cover, good fastening of the cover to the container can be obtained also by providing a groove on the outside of the auxiliary wall above the thin wall section, with which, when the container is closed, a continuous or discontinuous rib provided along the circumference on the inside of the cover flange interacts, or by turning back the free end of the cover flange inwards in such a way that it grips under the auxiliary wall when the container is closed.

In a preferred embodiment of the invention, the thin wall section is located on the inside of the auxiliary wall and the inside of the cover flange wall is provided with a circumferential, con-

tinuous or discontinuous rib, which, when the container is closed, interacts with the upper wall of a groove present on the outside of the container flange wall as a result of the thinning of the wall. The advantage of this version is that, without additional grooves, good fastening of the cover to the container is possible under all circumstances.

The auxiliary wall may at its top edge be connected to the container wall by means of the connecting wall. No dirt can then collect between the auxiliary wall and the container wall.

An advantageous arrangement is that in which the connecting wall is between the top edges of the auxiliary wall and the container wall. In this way, a reinforcement of the opening rim of the container is obtained.

It is particularly advantageous if, with a closed container, the cover is in direct contact with the opening rim. The thin wall section in the auxiliary wall is then effectively protected from breaking under vertically downward forces exerted on the cover. Especially with stacked containers, this embodiment offers a great advantage.

Advantageously, the groove necessary to obtain the thin wall section is not provided until after the container has been moulded. An injection moulded container, for example, may by cutting or milling be provided with a groove defining a thin wall section. The advantage of not providing the groove until a later stage, e.g. at the user/filler, is that the auxiliary wall is less delicate between injection moulding and use/filling. The user/filler may provide the groove before filling, after filling or after application of the cover. In the last-mentioned case, the groove may be provided simultaneously with the seal. Providing the groove after the cover has been placed on the container is preferred in those embodiments in which the thin wall section is on the outside of the auxiliary wall.

The weld may be obtained by adhesive or heat sealing.

The container and the cover may be designed with a round, oval, triangular or rectangular horizontal cross section.

The invention will now be explained with reference to a few

examples of embodiments represented in the drawing.

In the drawing,

Fig. 1 is a side elevation of a container and cover according to the invention, the left half of which represents an axial cross section, and

Figs.2-4 are side elevations of a few variations according to the invention, axial sections of which are represented on a larger scale in the area surrounded by the interrupted line in Fig. 1.

In the figures, identical parts have been given identical reference numbers as far as possible.

The container 1 has a bottom 2 and a side wall 3. A substantially vertical auxiliary wall 4 is connected to the container wall 3 by a connecting wall 5. There is a thin section 7 in the auxiliary wall below the junction 6 between auxiliary wall 4 and connecting wall 5. The cover, generally designated by 8, has a downwardly extending skirt 9 which envelops the auxiliary wall 4 and extends beyond the thin wall section. A seal 13 has been applied between the flange part 10 of the cover and the flange part 11 of the auxiliary wall.

After the thin wall section 7 has been broken, so that the flange part 11 has become part of the cover, the cover can be lifted from the container. When the cover is placed on the container again, part 11 grips under the bottom of the remaining part of the auxiliary wall 4.

The embodiment according to Fig. 2 has a connecting wall 5 between the top edges 14 and 15 of the auxiliary wall 4 and the container wall 3 respectively. The assembly functions as described for Fig. 1.

In order to obtain a good fastening even when the cover is not sealed to the container, the free end of the cover skirt may be provided with an inwardly directed gripping flange, which grips under the auxiliary wall. The user may or may not use a seal, at his discretion.

The inwardly directed flange is indicated by the interrupted

line 16 in Fig. 2.

In the variation according to Fig. 3 there is an auxiliary wall 4 in which a thin wall section 17 has been provided by means of a stepped-out arrangement of part 11 of the auxiliary wall. After breaking of the thin wall section 17, the part 11 can grip under the remaining upper part 12 of the auxiliary wall.

The variation according to Fig. 4 shows an auxiliary wall 4 with a circumferential groove 18 on its outside, with which a circumferential rib 19, on the inside of the cover flange 9, can interact. Fig. 5 represents a variation in which the thin wall section 20 is on the inside of the auxiliary wall 4. The resulting groove 21 on the outside of the auxiliary wall 4 has a ring-shaped upper face 22 with which the rib all around the inside of the cover flange 9 engages.

The radial partitions 24 as drawn in the Figs. 1-5 increase the stiffness of the auxiliary wall above the thin wall section. This is advantageous because this part of the auxiliary wall can resist the forces occurring during severage, so that severage is easier.

The container and cover are so designed that they can be injection moulded using simple moulds that open and close in one line.

The container and cover may be made from the same injection mouldable plastic or from different plastics, for example polyethylene, polypropylene, copolymers of ethylene and propylene or mixtures of these (co)polymers.

CLAIMS

1. Container with cover, both made from plastics, which container can be hermetically closed by providing a seal between two engaging flanges of the container and the cover respectively and can subsequently be opened by breaking a thin wall section in the container flange, characterized in that the container flange comprises a substantially vertical auxiliary wall, at some distance from the container and externally around the container, which extends along some height in the upper region of the container and which is connected to the container wall by a circumferential connecting wall, in that the auxiliary wall has a thin wall section beneath the junction with the connecting wall and in that the flange wall of the cover is formed by a skirt of a hooded cover, which skirt, in the case of a closed container, envelops the auxiliary wall and extends beyond the thin wall section in such a way that below the thin wall section there are two contiguous flange sections of the container and the cover respectively, between which a seal can be provided.

2. Container with cover according to Claim 1, characterized in that the auxiliary wall is at its top edge connected to the container wall by the connecting wall.

3. Container with cover according to Claim 2, characterized in that the connecting wall is between the top edges of the auxiliary wall and the container wall.

4. Container with cover according to any one of the Claims 1-3, characterized in that the inside of the cover flange is provided with a circumferential continuous or discontinuous rib which, when the container is closed, interacts with a circumferential groove on the outside of the auxiliary wall above the thin wall section.

5. Container with cover according to any one of the Claims 1-4, characterized in that the free end of the cover flange is turned back inwards and, when the container is closed, grips under the auxiliary wall.

6. Container with cover according to any one of the Claims 1-5, characterized in that the thin wall section is on the inside of the auxiliary wall section and in that the upper wall of the groove opposite the thin wall section on the outside of the auxiliary wall forms a surface for engagement with which a circumferential continuous or discontinuous rib provided on the inside of the cover flange engages.

7. Container with cover according to any one of the preceding Claims 1-6, characterized in that, in the case of a closed container, the cover is in direct contact with the opening rim of the container.

8. Container with cover according to any one of the Claims 1-7, characterized in that radial partitions are present between the auxiliary wall and the container wall above the thin wall section.

9. Process for manufacturing a container according to any one of the Claims 1-8, characterized in that first a container without a thin wall section is made and afterwards a wall section is made thin.

10. Container with cover, substantially as described and/or drawn and/or explained with reference to the drawing.

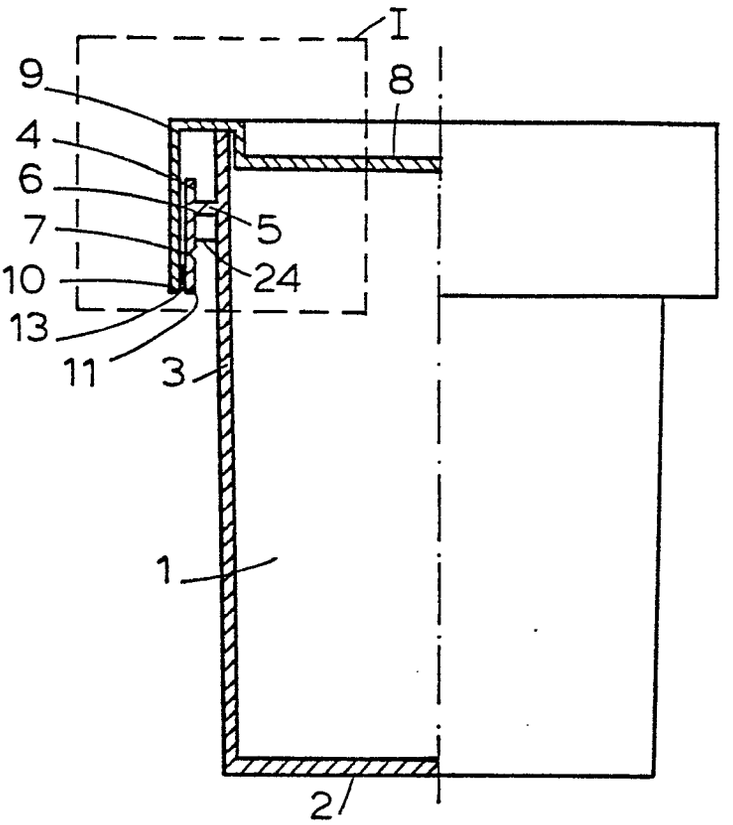

FIG. 1

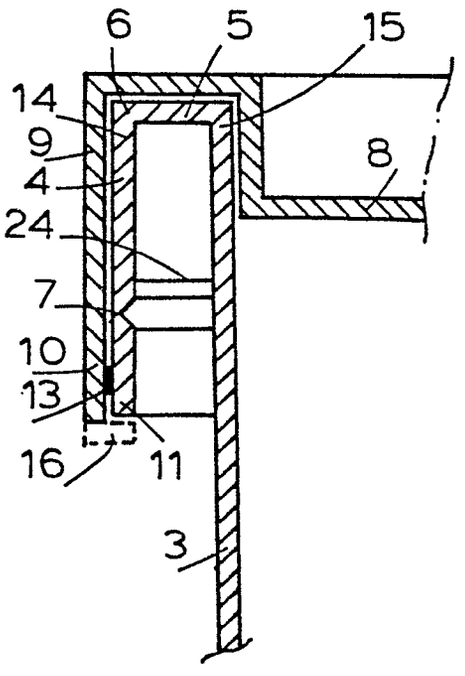

FIG. 2

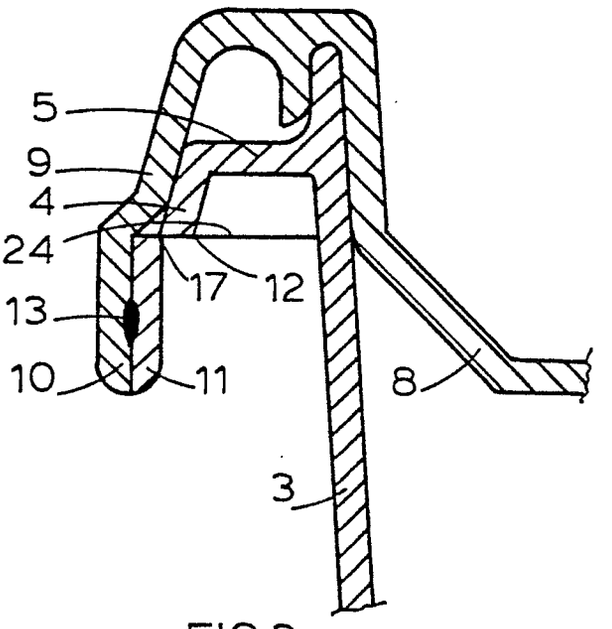

FIG.3

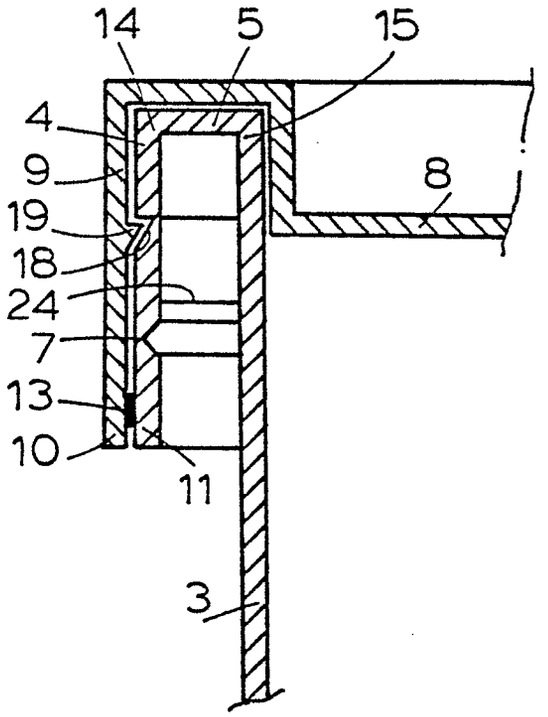

FIG. 4

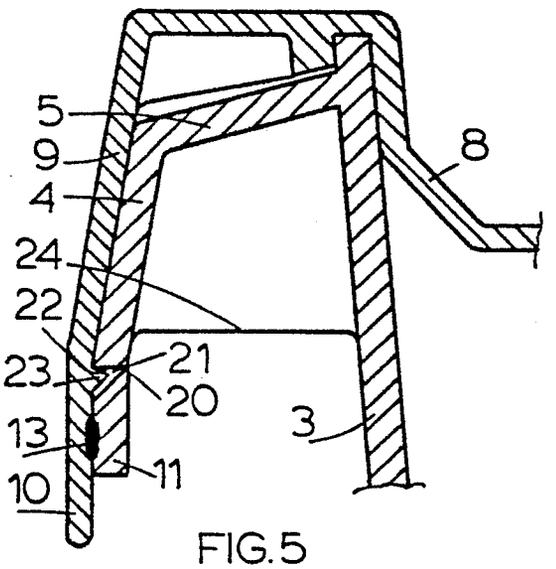

FIG.5

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EUROPEAN SEARCH REPORT

Application number
EP 85 20 1379

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.4)
X	US-A-2 998 158 (TUPPER) * Column 6, lines 16-34; column 7, lines 26-39,51-73; figures 9,18,20 *	1-3,7, 9,10	B 65 D 43/06
Y		5	
Y	GB-A-2 010 788 (DUCHATEAU) * Page 1, lines 57-91; figures 1-3 *	5	
A	US-A-3 817 420 (HEISLER) * Column 10, line 52 - column 11, line 37; figures 14-18 *	4	
A	US-A-3 688 942 (MITCHELL) * Column 2, lines 58-62; figures 1-4 *	8	TECHNICAL FIELDS SEARCHED (Int. Cl.4) B 65 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	15-11-1985	VANTOMME M.A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
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O : non-written disclosure
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