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71 Applicant: CURVER VERPAKKINGEN B.V.
Lorentzstraat 6
NL-6710 BD Ede(NL)

72 Inventor: van Raalte, Cornelis
Welysestraat 9
NL-6669 DG Dodewaard(NL)

74 Representative: Hoogstraten, Willem Cornelis
Roeland et al,
OCTROOIBUREAU DSM Postbus 9
NL-6160 MA Geleen(NL)

54 Container with hooded lid.

57 Container 1 with hooded lid 10, both made of plastic, with a groove 11 near the circumference of the lid panel providing a clasping fit on the edge of the container mouth and with the skirt of the lid 12 being capable of being received in a U-shaped channel 5 surrounding the container at some distance from the edge of the mouth and consisting of a bottom flange 6 and an upstanding wall 7 so that a rib 13 extending round the skirt engages under a rib 9 extending round the inside of the upstanding wall and with the upstanding wall being capable from its upright position of being pivoted outwardly about a web (8) under its rib into a downward position. The upstanding wall 7 of the U-shaped channel 5 extends upwards to some distance beyond its rib 9 while forming concentric and opposite portions of the upstanding wall and the skirt if the container is closed.

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FIG. 1

CONTAINER WITH HOODED LID

The invention relates to a container with hooded lid, both made of plastic, with a groove near the circumference of the lid panel providing a clasping fit on the edge of the container mouth and with the skirt of the lid being capable of being received in a U-shaped channel surrounding the container at some distance from the edge of the mouth and consisting of a bottom flange and an upstanding wall so that a rib extending round the skirt engages under a rib extending round the inside of the upstanding wall and with the upstanding wall being capable from its upright position of being pivoted outwardly about a web under its rib into a downward position.

A container like that is known from US-A-4,171,062. It is difficult for that container to be opened by hand, because under the resilience of the plastic material the rib on the upstanding wall is pulled inside. This disadvantage would make itself felt even more if a welded connection were present between the upstanding wall and the skirt. Welded connections are used more and more frequently. The connection may then be continuous or discontinuous for respectively obtaining an airtight seal and/or a safety seal to ascertain the unpermitted opening of the container. A phenomenon frequently occurring with stacked containers having hooded lids is that the lids of the bottom-most containers in particular are pushed into the containers, because the skirt is free to move outwards. Although the skirt of the container according to US-A-4,171,062 is held back by the upstanding wall, the possibility yet continues to be present, because the container and lid have exactly been so designed that the upstanding wall must move away when opened.

The object of the invention is to provide a container with lid of the type described above which substantially eliminates the said disadvantages.

This is obtained in that the upstanding wall of the U-shaped channel extends upwards to some distance beyond its rib while forming concentric and opposite portions of the upstanding wall and the skirt if the container is closed.

A container with lid so designed offers the advantage that the portion of the upstanding wall above the rib of this wall, which portion is concentric with the skirt, can now be used as push wall for bending over the upstanding wall. Between the fairly thin walls of the concentric portions it is now possible to conveniently apply a hot weld. Preferably, in order that the wall will continue to be large enough to be pushed, this welded connection is applied near the point of engagement of the ribs. The possibility remains also to apply a weld between the ribs of the upstanding wall and the skirt, or optionally between a rib of the wall or of the skirt and respectively of the skirt and of the wall. The presence of welded connections further reduces the possibility of the skirt moving outwards when the lid is subjected to a load.

An advantageous embodiment is the one in which the web is situated on a level with the point of engagement between the ribs. Thus a firm basis is created for pivoting the portion of the upstanding wall above the web. The free end with its rib is then below the web, permitting the skirt to push against the non-pivotable portion of the upstanding wall when the lid is under a load.

In order to increase the leverage of the upstanding wall, preference may be given to applying the welded connection in a lower position. Such can be provided by providing at least between the point of engagement of the ribs and the web of the upstanding wall two concentric opposite portions of the upstanding wall and the skirt.

The outward movement of the skirt when placing the lid under a load can be conveniently prevented in this last-mentioned embodiment by locking the free end of the skirt between portions of the upstanding wall and the wall of the container below the web. To this end the bottom side of the U-shaped channel may be narrower in design, or the free end of the skirt may have a rib, for instance in the form of a flange extending sideways. A combination of the last-mentioned possibilities for locking is also possible.

Owing in part to the optional presence of a welded connection between the upstanding wall and the skirt, which welded connection may be situated between the level of the web in the upstanding wall and the free end of the upstanding wall, relatively great forces will have to be exercised on the upstanding wall in order to break the welded connection, as well as to make the upstanding edge bend down. It is

therefore an advantage for the U-shaped channel to have an extension surrounding the container below the bottom flange. Preferably radial partitions are then provided also between the extension and the container wall. This not only prevents the bottom flange from bending down under load, but the extension also provides the possibility for openings to be made in it to receive the studs of a handle. The extension so designed may further serve also as stacking edge in the nesting of containers. In the nesting, the edges of the container mouths will then be surrounded by the extension. The height of the radial partitions may then be so chosen as to prevent the containers from telescoping too far into each other with the unfavourable side-effect of jamming.

The edge of the container mouth may be designed in the form of a beaded edge clasped with a snap in a groove in the lid adapted to the section of the beaded edge.

Although preferably the groove and the bead should be so designed as to allow the lid after the pivoting of the edge, to be raised by hand without much effort, it may be an advantage to provide the lid with a lug in those circumstances requiring a groove tightly clasping round the beaded edge.

The invention will now be further elucidated with reference to a mode of carrying out the invention shown in the drawing. In the drawing

Fig. 1 is a section of a part of a container and a part of a lid according to the invention;

Fig. 2 a variant of the mode according to Fig. 1, with a locked skirt; Fig. 3 another variant of the mode according to Fig. 1, and Fig. 4 a variant of the mode according to Fig. 3 with a locked skirt.

In the figures the same reference figures refer to the same parts.

The container marked 1 in Fig. 1 has a bottom 2 and, in this case, a slightly conical wall 3 with edge 4 of the mouth. A U-shaped channel 5 surrounding the container is formed by a bottom flange 6 and an upstanding wall 7. The upstanding wall has a web 8 and a rib 9. The upstanding wall 7 can be pivoted downwards about the web into the direction P of the arrow, so that rib 9 is turned away from above rib 13.

The lid marked 10 has a groove 11 providing a clasping fit for edge 4 of the mouth and a skirt 12 which can be received in the U-

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shaped channel 5. Skirt 12 has a rib 13 which engages under rib 9 after pressing the lid. Between the concentric opposite portions of the upstanding wall 7 and skirt 12 a welded connection 14 can be applied. The welded connection can be applied also at ribs 9 and 13. The portion
5 of upstanding edge 7 above rib 9 or welded connection 14 may be used, according to the invention, as push wall for pivoting upstanding edge 7 along web 8 and optionally for breaking an existing welded connection.

The levels between which the welded connections are applied advantageously are marked A, bottom-most level, and B, topmost level, in
10 Figs. 1-4.

The clasp fitting of the edge of the mouth in the groove is understood to comprise also the design in which the circumstances of the recessed portion of the lid in the container is situated against the inside wall of the container to provide a clamping seal. Other embodi-
15 ments are discussed below.

In Fig. 2 web 15 is at a level between ribs 9 and 13. Portion 16 of the upstanding wall cooperates with the bottom flange to form a strengthened base for pivoting the portion of the upstanding wall above web 15. Fig. 2 shows that rib 13 is so designed that it does not push
20 against any part of the upstanding wall designed to be pivoted. So here the skirt is secured against moving sideways when the lid is brought under a load, e.g. in stacked, filled containers.

Fig. 3 shows a mode providing, under the point of engagement of ribs 9 and 13, two concentric opposite portions 17 and 18 of respec-
25 tively the upstanding wall and the skirt. Between said concentric portions a weld 16 can be applied.

Fig. 4 shows that the free end of portion 18 of skirt 12, which is concentric with upstanding wall 7, is so designed, here with a rib 19, and that the place of web 15 has been so chosen that, when
30 loading the lid, the skirt does not push against any pivotable part of upstanding wall 7.

In Figs. 1-4 20 indicates an extension under bottom flange 6 surrounding the container. Between extension 20 and container wall 3 there are radial partitions 21. Two diametrically opposite openings 22
35 in extension 20 serve as openings for the insertion of the studs of a handle.

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Fig. 4 further shows a mode of clasping the mouth of the edge in the groove of the lid. After having been pushed through a narrowed part 24, the bead-shaped edge 23 of the mouth is a tight and clasping fit in the opening of groove 25. In order to facilitate the removal of the lid held down in a very tight fit after the pivoting of the upstanding wall, a lug may be provided on the lid. An embodiment advantageous within the scope of the invention may consist also in a lid provided on its outer circumference with a lugged edge extending horizontally to above the U-shaped channel as indicated for instance in Figs. 3 and 4 with 26 and drawn in a dotted line. This lugged edge may then be pulled in order to lift the lid, but it also has the advantage that the upstanding wall is protected against forced exerted from above and causing the uninvented pivoting of the upstanding wall.

In Figs. 1-4 A and B always indicate the levels between which the welded connections may be applied advantageously. Between these levels preferred levels can yet be indicated. Thus the weld in Fig. 1 or 2 may be applied between ribs 9 and 13, or between rib 9 and skirt 12, while in Fig. 1 the weld may be applied also between rib 13 and upstanding wall 7.

For reasons of clearness some space has been left in Figs. 1-4 between the edge of the mouth and the lid. In actual practice the intention is in this area for the surface of contact between the container and the lid to be continuous on all sides. In this area sealing lips etc. known per se may be applied.

The height of partitions 21 need not be the same as the height of extension 20 as shown in the drawings, but may be adjusted to the desired telescoping effect of the containers in nesting.

As stated, upstanding wall 7 of a standing container can be pushed down easily into the direction of arrow P (see Fig. 1)

Ergonomically, this is highly advantageous, because the container stands firmly and both hands can be used for exercising a substantially vertical downward force on the upstanding wall. This advantage particularly manifests itself if in the process a welded connection must be broken.

It is to be recommended under circumstances providing only little space between upstanding wall 7 and skirt 12 for the top of the upstanding wall to be slightly widened, locally or annularly, to provide

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a little more space for the fingers.

The fact that, with the container with lid according to the invention, it is possible to prevent the skirt from moving sideways under a load and the lid from consequently sinking into the containers
5 offers the advantage that the wall thickness of the lid may be smaller and/or that a plastic can be used more pliant than customary.

The container and lid may both be made from the same or different plastics, such as polyethylene, polypropylene, copolymers of ethylene and/or propylene, as well as mixtures of said plastics.

10 The container according to the invention offers a wide range of uses and is particularly suitable as packaging pail in e.g. the food and paint industries, where it is important to have pails that can be produced cheaply with re-usable lids providing a good or airtight seal that can be put on and taken off easily.

CLAIMS

1. Container with hooded lid, both made of plastic, with a groove near the circumference of the lid panel providing a clasping fit on the edge of the container mouth and with the skirt of the lid being capable of being received in a U-shaped channel surrounding the container at some distance from the edge of the mouth and consisting of a bottom flange and an upstanding wall so that a rib extending round the skirt engages under a rib extending round the inside of the upstanding wall and with the upstanding wall being capable from its upright position of being pivoted outwardly about a web under its rib into a downward position, characterized in that the upstanding wall of the U-shaped channel extends upwards to some distance beyond its rib while forming concentric and opposite portions of the upstanding wall and the skirt if the container is closed.
2. Container with lid according to claim 1, characterized in that the web in the upstanding wall is on a level with the point of engagement of the ribs.
3. Container and lid according to claim 1, characterized in that at least between the point of engagement of the ribs and the web of the upstanding wall two concentric and opposite portions of the upstanding wall and the skirt are provided.
4. Container and lid according to claim 2 or 3, characterized in that the free end of the skirt is situated against the inside of the upstanding wall of the U-shaped channel below the web in the upstanding wall.
5. Container with lid according to any one of claims 1-4, characterized in that between the upstanding wall of the U-shaped channel and the skirt of the lid there is a welded connection surrounding the container between a bottom-most position level with the web in the upstanding wall and a topmost position between the point of engagement of the ribs and the free end of the upstanding wall.
6. Container with lid according to claim 5, characterized in that the topmost position is above but near the rib in the upstanding wall.
7. Container with lid according to any one of claims 1-6, characterized in that below the bottom flange of the U-shaped channel the U-shaped channel has an extension surrounding the container.

8. Container with lid according to claim 7, characterized in that between the extension and the container wall there are radial partitions.
- 5 9. Container with lid according to claim 7 or 8, characterized in that the extension is provided with openings for the insertion of the studs of an handle.
- 10 10. Container with lid according to any one of claims 1-9, characterized in that the top edge of the container is in the form of a beaded edge and is a snapping fit in a groove in the lid made to fit the beaded edge.
11. Container with lid according to any one of claims 1-10, characterized in that the lid is provided with a horizontal circumferential edge extending to above the U-shaped channel.
- 15 12. Container with lid according to any one of claims 1-11, characterized in that the upstanding wall has been widened in its upper reaches.

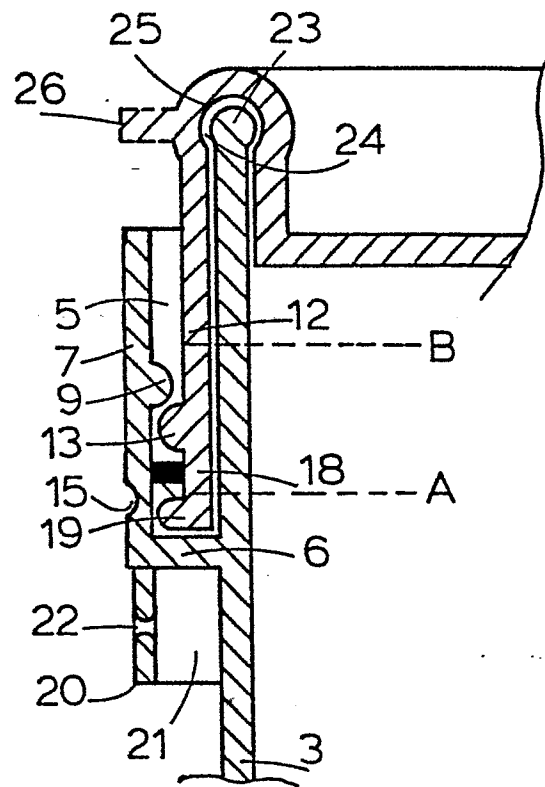


FIG. 4



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)
D,A	US-A-4 171 062 (ALLEN) * Whole document *	1	B 65 D 43/06 B 65 D 55/02 B 65 D 43/10
A	GB-A-2 086 862 (NORPLASTA-STROMBERG) * Whole document *	1	
A	FR-A-2 180 819 (CONTINENTAL CAN CY) * Figures 1,2 *	7,8,9	
A	FR-A-2 164 503 (MOREL) * Figure 1 *	10,11	
P,A	EP-A-0 132 897 (NIELSEN) * Page 4, line 6 - page 5, line 25; figures 1-3 *	1	TECHNICAL FIELDS SEARCHED (Int. Cl.4)
A	US-A-3 858 748 (MARCO)		B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15-11-1985	Examiner MARTENS L.G.R.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	