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(54) Container with a lid

(57) The invention provides a combination (21) of a substantially prismatic can (502) and a lid (503), which can comprises:

a bottom;

a standing wall (506) connected to said bottom along the periphery thereof; and

a ring (507) which defines an opening to be closed by the lid, which ring is fixedly connected with a beaded edge (9) to the free end edge of the said wall and further comprises:

- a first part (510) connecting to the said beaded edge and co-acting sealingly with the inner surface of the wall;

- a second part (511) connecting at an acute angle to said first part; and
- a third part (512) connecting to said second part and extending outward in at least more or less longitudinal direction;
- which three parts bound a peripheral recess;

which lid comprises:

a central part; and

an axially extending peripheral part (514) which fits into the said peripheral recess and co-acts clampingly and sealingly with at least said third part.

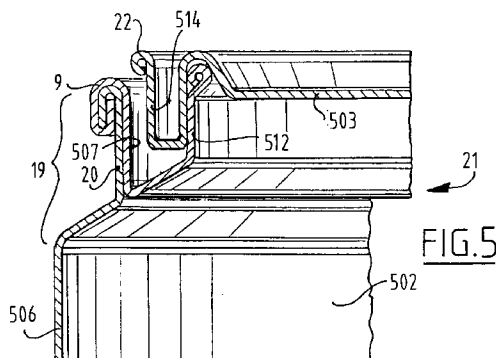


FIG.5

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Description

The invention relates to a can, in particular a paint can, with a lid.

It is an object of the invention to provide a combination of a can and a lid which offers the possibility of completely emptying the can without the danger of materials with a possible environmental impact present in the can being left behind in the can after emptying.

It is a further object of the invention to embody the said combination such that the sealing is maintained even under the most diverse and heavy conditions.

In respect of the above the invention provides a combination of a substantially prismatic can and a lid, which can comprises:

a bottom;
a standing wall connected to this bottom along the periphery thereof; and
a ring which defines an opening to be closed by the lid, which ring is fixedly connected with a beaded edge to the free end edge of the said wall and further comprises:

- a first part connecting to the said beaded edge and co-acting sealingly with the inner surface of the wall;
- a second part connecting at an acute angle to that first part; and
- a third part connecting to that second part and extending outward in at least more or less longitudinal direction;
- which three parts bound a peripheral recess;

which lid comprises:

a central part; and
an axially extending peripheral part which fits into the said peripheral recess and co-acts clampingly and sealingly with at least said third part.

Attention is drawn to the fact that by the word "prismatic" is understood a structure wherein the can has the same cross-sectional form at any axial position.

A specific embodiment has the special feature that the wall zone adjoining the said second part is substantially collinear with that second part in any longitudinal section transversely of the wall.

The combination can have the special feature that the end zone of the wall is narrowed. In this embodiment the combination is stackable.

Yet another embodiment has the feature that the end zone of the wall has an outward widening form.

This latter embodiment can preferably have the special feature that in any longitudinal section transversely of the wall the said end zone forms an angle of about $(4 \pm 2^\circ)$ with the longitudinal direction of the can.

In the case where the peripheral recess of the lid

co-acts clampingly with only the third part, the lid can be removed comparatively easily. A firmer closure in which the lid is more difficult to remove has the special feature that said peripheral part co-acts clampingly with both said first part and said third part. The advantage of this invention is that unintentional opening of the combination, for instance in the case of a fall, is also effectively prevented.

The invention will now be elucidated with reference to the annexed drawings. Herein:

figure 1 shows a longitudinal section transversely of the wall of a known combination of a can and a lid; figure 2 shows a partial view corresponding with figure 1 of a first embodiment of the invention; figure 3 shows a view corresponding with figure 2 of a second embodiment; figure 4 shows a view corresponding with figure 2 and figure 3 of a third embodiment; and figure 5 shows a view corresponding with figure 4 of a fourth embodiment.

Figure 1 shows a combination 1 of a cylindrical can 2 and a lid 3 according to the prior art.

Can 2 comprises a bottom 4 and a standing wall 6 connected along the periphery to this bottom 4 by means of a beaded edge 5. The can further comprises a ring 7 which defines an opening 8 to be closed by lid 3, which ring 7 is fixedly connected with a beaded edge 9 to the free end edge of said wall 6 and comprises:

- a first part 10 connecting to beaded edge 9 and co-acting sealingly with the inner surface of wall 6;
- a second part 11 modelled as a step and connecting to said first part; and
- a third part 12 connecting to that second part and extending outward in at least more or less longitudinal direction. The second part 11 and the third part 12 together bound a peripheral recess.

The lid 3 comprises a plate-like central part 13 and an axially extending peripheral part 14 which fits into the peripheral recess bounded by the parts 11 and 12 and co-acts clampingly and sealingly therewith.

It can be seen from the structure shown in figure 1 that when the can is emptied a part of the content of can 2 cannot be prevented from remaining in the annular space between wall 6 and second part 11. This space is designated with reference numeral 15.

The structure according to the invention to be described hereinbelow with reference to figures 2, 3 and 4 is free of such a space, whereby the associated cans can be completely emptied.

The combination 16 according to figure 2 comprises a can 202 which is closed by means of the lid 3. The combination 16 differs from the combination 1 in the differing embodiment of the ring designated with reference numeral 207, which is connected to wall 6 via beaded

edge 9. Ring 207 comprises a first part 210 connecting to said beaded edge 9 and having a considerably increased length compared to the part 10, which part 210 co-acts sealingly with the inner surface of the wall. A second part 211 connects to part 210 at an acute angle, in this case roughly 60°, while a third part 212 extending outward in substantially longitudinal direction connects onto this second part 211. The three parts 210, 211 and 212 bound a peripheral recess with the same radial dimensions as shown in figure 1 such that the same lid 3 fits clampingly and sealingly therein.

The combination 17 according to figure 3 corresponds in greater part with the combination 16 of figure 2. In this embodiment the wall 306 has an end zone 18 with an outward widening form. In this embodiment the end zone 18 forms an angle of about 4° with the longitudinal direction of can 302 in any longitudinal section transversely of the wall 306. The first part 310 of ring 307 and the peripheral part 14 of lid 3 co-acting therewith have the same angle of 4°, so that the associated surfaces can co-act clampingly and sealingly with each other. The third part 312 is identical to the third part 212.

Figure 4 shows a combination 18, the closure of which corresponds with that of figure 2. In this embodiment the end zone 19 of wall 406 is narrowed. In the region of the ring 407, which can be identical to ring 207, the end zone 19 has a cylindrical portion 20.

Figure 5 shows a combination 21 largely corresponding with the combination 18 of figure 4. In this embodiment the end zone 19 of wall 506 is also narrowed. In the region of the ring 507, which can be identical to rings 207 and 407, the end zone 19 has a cylindrical portion 20.

At variance with the combination 18 of figure 4, the peripheral part 514 is embodied such that it coacts clampingly and sealingly only with the substantially cylindrical third part 512 of ring 507. The peripheral part 14 has a beaded edge 22 on its free periphery. By making use of for instance a screwdriver, a pin or the like which is inserted into the free space between beaded edge 9 and beaded edge 22 an upward directed force can be exerted on this latter beaded edge 22, whereby the lid 503 can be removed easily.

The shown and described cans can be manufactured from any suitable material. Tin can for instance be envisaged.

Because the content of the cans according to the invention can be removed entirely and the cans can thus be completely emptied, the emptied cans do not become chemical waste. It is noted that the invention is not therefore limited to paint, which is only given by way of example, but also relates to other substances such as oil, fats, lacquers, inks etc.

Claims

1. Combination of a substantially prismatic can and a

lid,

which can comprises:

a bottom;
a standing wall connected to said bottom along the periphery thereof; and
a ring which defines an opening to be closed by the lid, which ring is fixedly connected with a beaded edge to the free end edge of the said wall and further comprises:

- a first part connecting to the said beaded edge and co-acting sealingly with the inner surface of the wall;
- a second part connecting at an acute angle to said first part; and
- a third part connecting to said second part and extending outward in at least more or less longitudinal direction;
- which three parts bound a peripheral recess;

which lid comprises:

a central part; and
an axially extending peripheral part which fits into the said peripheral recess and co-acts clampingly and sealingly with at least said third part.

2. Combination as claimed in claim 1, wherein the wall zone adjoining the said second part is substantially collinear with said second part in any longitudinal section transversely of the wall.
3. Combination as claimed in claim 1 or 2, wherein the end zone of the wall is narrowed.
4. Combination as claimed in claim 1, wherein the end zone of the wall has an outward widening form.
5. Combination as claimed in claim 4, wherein the said end zone forms an angle of about $(4 \pm 2^\circ)$ with the longitudinal direction of the can in any longitudinal section transversely of the wall.
6. Combination as claimed in claim 1, wherein the said peripheral part co-acts clampingly with both said first part and said third part.

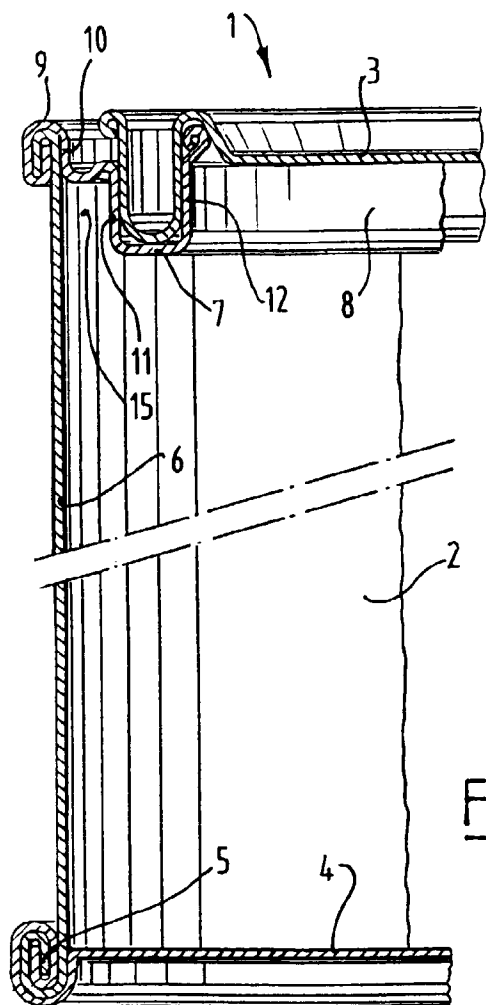


FIG. 1

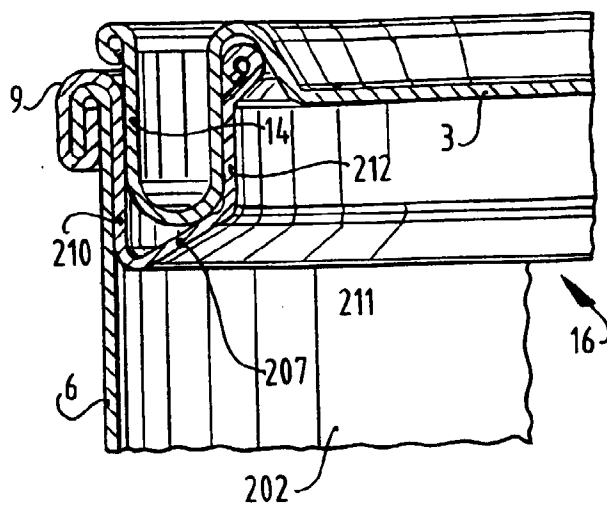


FIG. 2

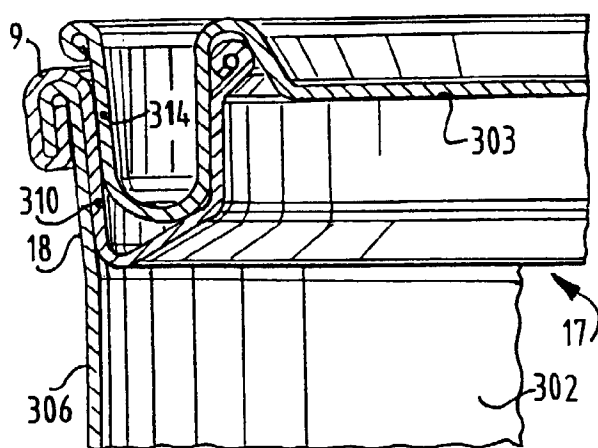
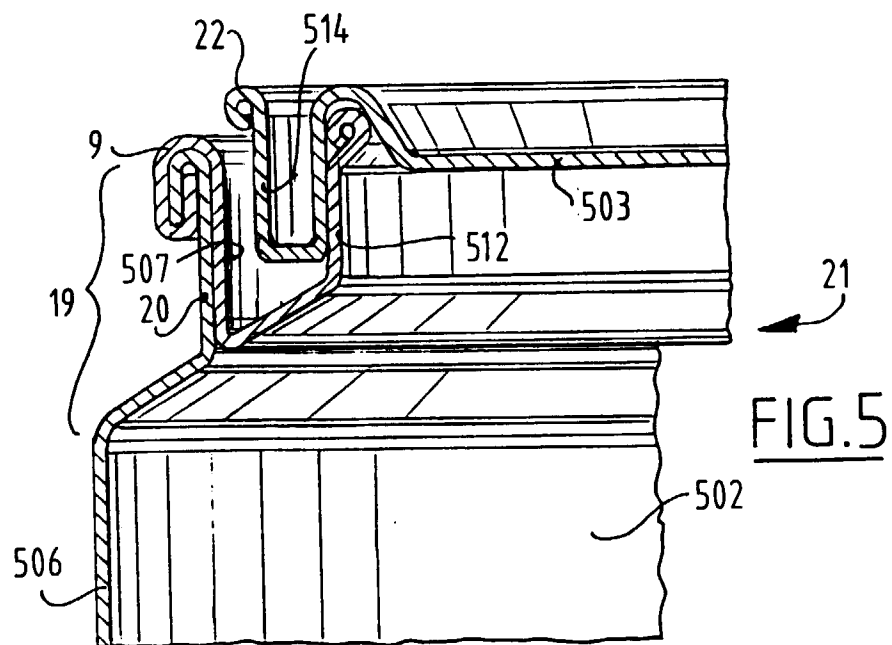
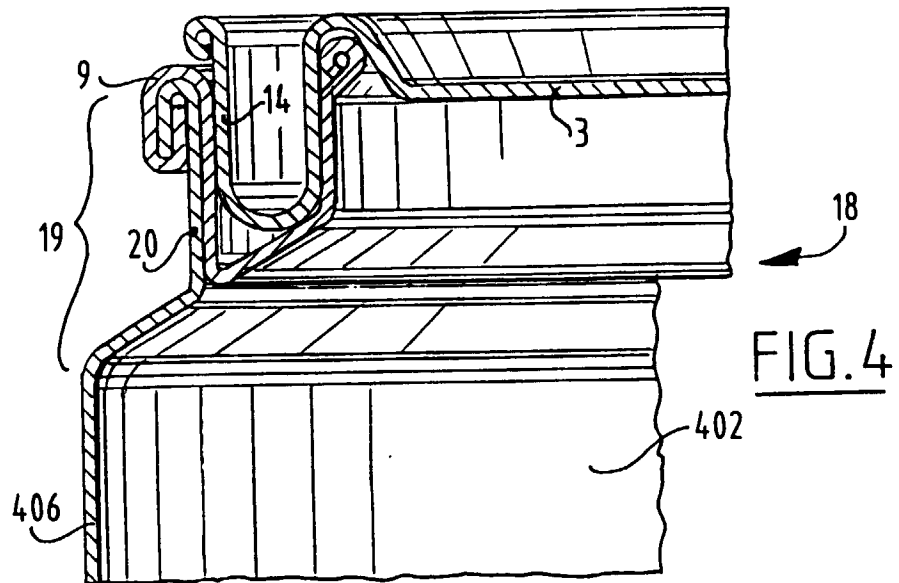


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number
EP 96 20 0919

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.6)
X	US-A-3 944 115 (W. MOONAN) 16 March 1976	1,2	B65D43/06
Y	* figures *	4,6	
Y	US-A-3 341 107 (O.J. POUPITCH) 12 September 1967 * figures 3,6 *	4,6	
X	FR-A-1 047 309 (COMPT. D'EMBALLAGES MÉT.) 14 December 1953	1,2	
Y	* figure 1 *	3,6	
Y	GB-A-304 159 (A. FORSYTH) 7 February 1929 * figures 4,5 *	3,6	
X	US-A-2 141 184 (J.M. HOTHERSALL) 27 December 1938	1,2	
Y	* figures *	6	
Y	US-A-1 568 625 (D.P. ROBINSON) 5 January 1926 * figures *	6	
A	FR-A-1 063 640 (M.L.-C. LONGCHAMP) 5 May 1954 * figure 5 *	1	
A	US-A-2 734 654 (I.F. ROBERSON) 14 February 1956 * figures *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Place of search THE HAGUE		Date of completion of the search 8 July 1996	Examiner Leitner, J
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