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(54) **Metallic container**

(57) The invention provides a can (1), in particular for foodstuffs in powder form such as milk powder or baby food, which can comprises:

a round bottom;

a body (3) connected to this bottom;

a ring (5) defining a mouth opening which is connected to the body (3) on the side remote from the bottom and which can be covered with a cover (10), the outer diameter of which ring (5) is at least roughly the same as the outer diameter of the bottom, wherein the circles defined by said outer diameters together define at least approximately an imaginary cylinder;

which body (3) comprises four side surfaces (11,12), namely

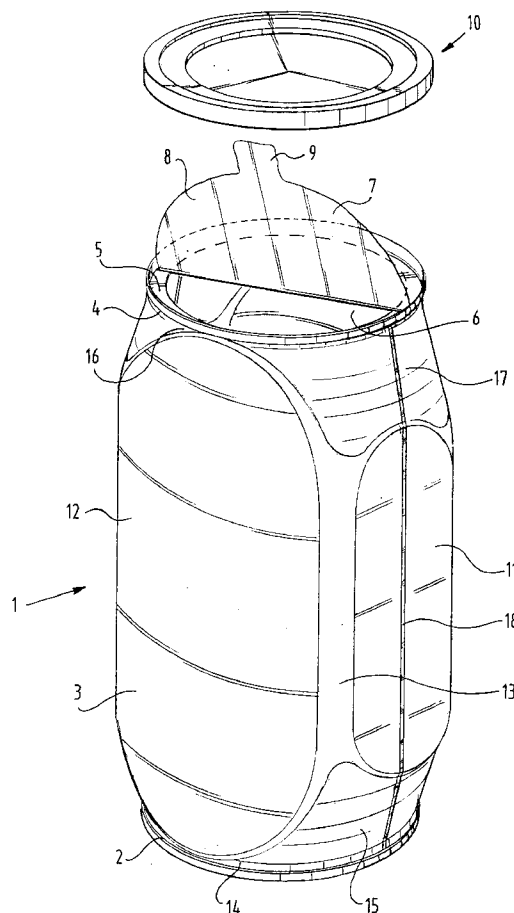
two substantially identical, relatively small first side surfaces (11) located mutually opposite, and

two substantially identical, relatively large second side surfaces (12) located mutually opposite and placed in interwoven relationship with said first side surfaces;

which side surfaces (11,12) connect smoothly to each other, to the bottom and to the ring (5) via respective transition zones (13,14,15);

which first side surfaces (11) are located at a distance outside said imaginary cylinder; and

the middle zones of which side surfaces are located in the region of said imaginary cylinder and their remaining parts are located outside thereof.

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Description

The invention relates to a can.

A can is known in many embodiments. Most cans are generally prismatic, i.e. the cross-sectional shape is substantially the same at any axial position.

The invention provides a can, in particular for food-stuffs in powder form such as milk powder or baby food, which can comprises:

a round bottom;
 a body connected to this bottom;
 a ring defining a mouth opening which is connected to the body on the side remote from the bottom and which can be covered with a cover, the outer diameter of which ring is at least roughly the same as the outer diameter of the bottom, wherein the circles defined by said outer diameters together define at least approximately an imaginary cylinder;
 which body comprises four side surfaces, namely two substantially identical, relatively small first side surfaces located mutually opposite, and two substantially identical, relatively large second side surfaces located mutually opposite and placed in interwoven relationship with said first side surfaces;
 which side surfaces connect smoothly to each other, to the bottom and to the ring via respective transition zones;
 which first side surfaces are located at a distance outside said imaginary cylinder; and
 the middle zones of which side surfaces are located in the region of said imaginary cylinder and their remaining parts are located outside thereof.

The can according to the invention is not prismatic and is embodied such that the distance between the relatively large second side surfaces is smaller than the distance between the relatively small first side surfaces. Diverse advantages are realized due to this form.

Owing to said relatively small form the can may also be held by users with relatively small hands, in any case much more easily than a round or square can with the same content.

Because the bottom and the cover are relatively small, less material is required for these components.

The appearance of the can is more attractive than the typical cylindrical can.

The relatively large second side surfaces result in a relatively large visible decoration surface which moreover has a less pronounced curvature than a typical cylindrical can with the same content. The decoration, text or any other information on the relevant surface is thereby less deformed.

Compared with a round can with the same content, more cans according to the invention can be placed per square metre. This is important in the presentation of cans in retail stores and during transport.

A particular embodiment has the special feature that the bottom and the body are integral.

A preferred embodiment has the special feature that the bottom and the body are manufactured separately and mutually connected.

Particularly in a further development hereof the can may be embodied such that the bottom has a greater thickness than the body.

A particular embodiment has the special feature that the first side surfaces are predominantly convex, flat or concave. Alternatively or in combination a variant can have the special feature that the second side surfaces are predominantly convex, flat or concave.

The two latter formulations should be understood to mean that at least a considerable part of the first side surfaces and/or the second side surfaces have said convex, flat or concave form. The convex or concave character may imply a two-dimensional, for instance more or less spherical spatial pattern but also a one-dimensional character with in that case a more or less cylindrical form.

The body can be manufactured, optionally integrally with the bottom, in many suitable ways. A particular embodiment has the special feature that at least the body is manufactured by making use of a mould cavity and a medium under pressure, for instance compressed air or an exploding gas mixture or an expanding mandrel.

A can with very suitable dimensioning is embodied such that the can is $(25 \pm 10)\%$ larger through the middle zones of the first side surfaces than the distance between the middle zones of the second side surfaces.

Another embodiment has the special feature that the height of the can amounts to 1.4-2.7 times, preferably 1.9-2.3 times the distance between the middle zones of the second side surfaces.

By way of example, the largest mutual distance between the middle zones of the first side surfaces can amount to about 125 mm. The mutual distance between the middle zones of the second side surfaces can amount in this embodiment to about 100 mm, while the height amounts to about 200-210 mm. Particularly in an embodiment where the second side surfaces have a convex form, the end zones of the second side surfaces adjoining the respective first side surfaces will have a smaller mutual distance than that stated. It will be apparent in the light of this example that also users with relatively small hands will easily be able to grasp such a relatively large can.

Yet another embodiment has the special feature that the outer diameters of the bottom and of the ring are a maximum amount of 5% larger than the distance between the middle zones of the second side surfaces. The advantage of this embodiment is that cans placed in a pattern, for instance for transport or for retail purposes, can come into mutual contact via the outer surfaces of the bottom and the ring, whereby the information carried by the second side surfaces has a reduced chance of being damaged.

The described variant preferably has the special feature that the amount is 1-3%.

Yet another embodiment has the feature that after filling of the can the ring is covered by a foil adhered thereto.

In order to obtain access to the interior of the can and the contents after removal of the cover, the user can cut the foil loose along its edge for instance with a knife or remove the foil in other manner.

A variant is however recommended in which the foil has a pull-tab.

By taking hold of the pull-tab and exerting an outward directed pulling force the adhesion between the foil and the ring can be broken.

After removal of the foil the can may be reclosed by arranging the cover which can consist for instance of flexible plastic.

The can may in principle consist of any suitable material. An inexpensive embodiment is that in which the can consists substantially of metal.

The invention will now be elucidated with reference to the annexed drawing of a perspective view of a random embodiment.

The drawing shows a can 1 for foodstuffs in powder form. It comprises a round bottom (not shown) which is connected by means of a folded seam 2 to a body 3, which body 3 bears on its other end a ring 5 connected thereto by means of a folded seam 4. Ring 5 defines a mouth opening 6. A round foil 7 covers mouth opening 6 after filling of the can 1. For this purpose the foil 7 is adhered with an edge zone 8 to the ring 5. By exerting a pulling force on a pull-tab 9 the foil 7 can be removed in the manner indicated in the drawing. A cover 10 of flexible plastic fits tightly, and by exerting a certain force, over the ring 5 and folded seam 4. An opened can may thus be reclosed with the cover 10.

The body 3 comprises four side surfaces, namely two mutually opposite, substantially identical relatively small first side surfaces 11 (only one of which is shown) and two mutually opposite, substantially identical relatively large side surfaces 12 (only one of which is drawn) placed in interwoven relationship with said first side surfaces 11.

The side surfaces 11, 12 connect to each other via transition zones 13, to the annular seamed edge 2 via respective transition zones 14, 15 and to the ring via respective transition zones 16, 17.

The outer diameter of seamed edge 4 is substantially the same as the outer diameter of seamed edge 2. These outer diameters define circles which together define their imaginary cylinder with which the middle zone of the second side surfaces 12 almost coincides, albeit that the imaginary cylinder is located a little more to the outside. As can be seen from the convex form of the second side surfaces 12 shown in the drawing, the remaining parts of the second side surfaces 12 lie outside said imaginary cylinder.

The distance between the middle zones of the first

side surfaces 11 is in this embodiment about 25% greater than the distance between the middle zones of the second side surfaces 12. It is noted that in the embodiment shown the first side surfaces 11 are predominantly flat so that it is possible to refer to the distance between the first side surfaces 11 instead of referring to the distance between the middle zones. The second side surfaces 12 are largely cylindrical wherein the radius of curvature is considerably larger than the radius of curvature of said imaginary cylinder.

The diameter of the imaginary cylinder amounts in the shown embodiment to about 102 mm, while the mutual distance between the middle zones of the second side surfaces amounts to about 100 mm. When the cans 1 are placed in a row such that respective second side surfaces 12 face each other, it is not these side surfaces 12 but the seamed edges 2, 4 of adjoining cans which make mutual contact.

In the drawn embodiment the body 3 is formed from sheet metal and has a welded seam 18. It will however be apparent that other methods of manufacture can also be applied. Since the can is particularly intended for foodstuffs in powder form such as milk powder or baby food, the plastic cover 10 will be manufactured from material, in particular a plastic, which is compatible with food products and which does not produce any discernible odour. Attention is drawn to the fact that the number of side surfaces is not limited to four but may amount to another number.

If desired, the can may further be provided internally with a coating, which may be desirable to avoid direct contact of the food product with metal. Such a coating may consist of lacquer, a suitable plastic or other material.

Claims

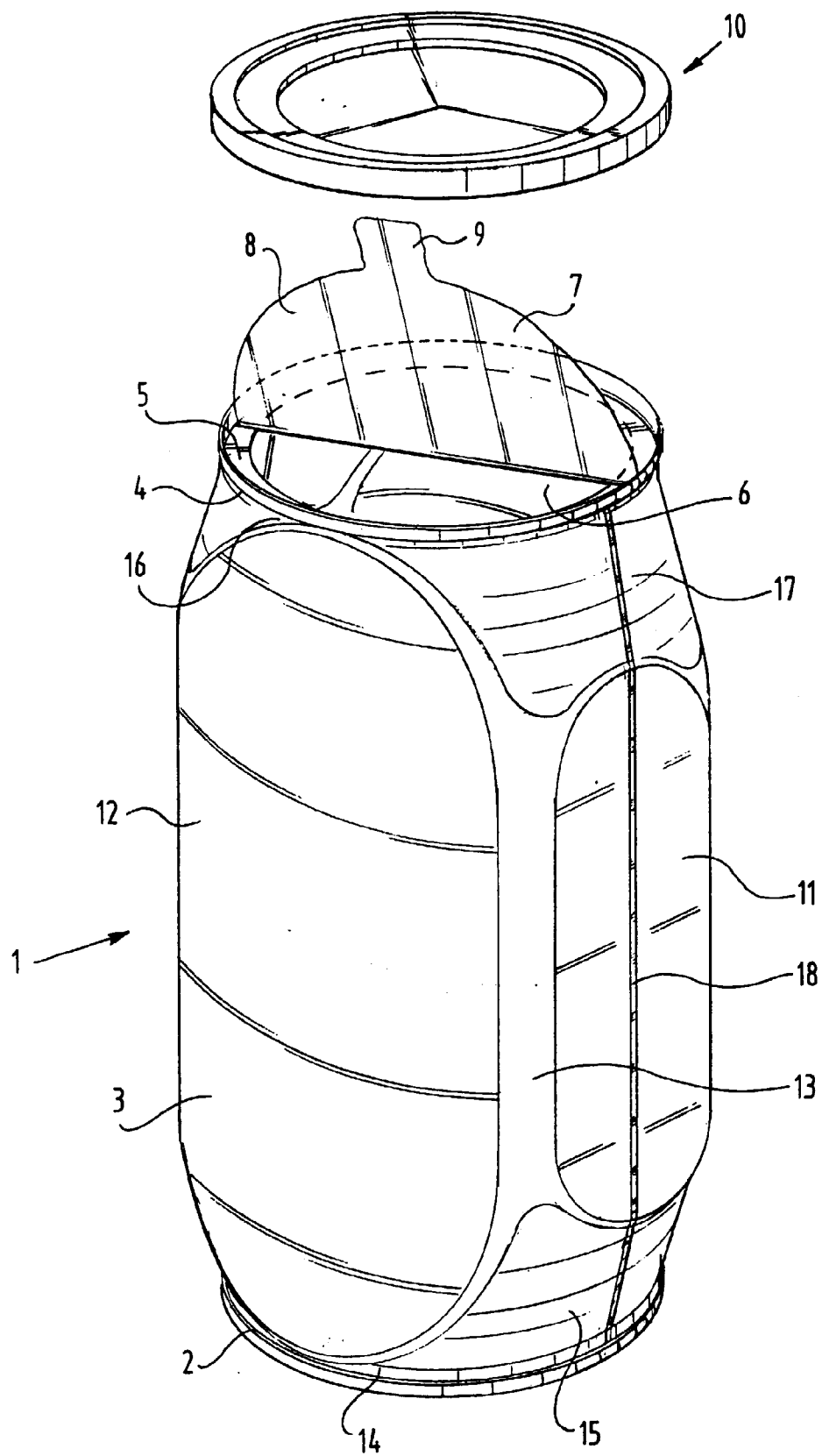
1. Can, in particular for foodstuffs in powder form such as milk powder or baby food, which can comprises:

- a round bottom;
- a body connected to this bottom;
- a ring defining a mouth opening which is connected to the body on the side remote from the bottom and which can be covered with a cover, the outer diameter of which ring is at least roughly the same as the outer diameter of the bottom, wherein the circles defined by said outer diameters together define at least approximately an imaginary cylinder;
- which body comprises four side surfaces, namely
 - two substantially identical, relatively small first side surfaces located mutually opposite, and
 - two substantially identical, relatively large second side surfaces located mutually opposite and placed in interwoven relationship with said

first side surfaces;
 which side surfaces connect smoothly to each other, to the bottom and to the ring via respective transition zones;
 which first side surfaces are located at a distance outside said imaginary cylinder; and
 the middle zones of which side surfaces are located in the region of said imaginary cylinder and their remaining parts are located outside thereof.

substantially of metal.

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- 10
2. Can as claimed in claim 1, wherein the bottom and the body are integral.
- 15 3. Can as claimed in claim 1, wherein the bottom and the body are manufactured separately and mutually connected.
- 20 4. Can as claimed in claim 3, wherein the bottom has a greater thickness than the body.
5. Can as claimed in claim 1, wherein the first side surfaces are predominantly convex, flat or concave.
- 25 6. Can as claimed in claim 1, wherein the second side surfaces are predominantly convex, flat or concave.
- 30 7. Can as claimed in claim 1, wherein at least the body is manufactured by making use of a mould cavity and a medium under pressure, for instance compressed air or an exploding gas mixture or an expanding mandrel.
- 35 8. Can as claimed in claim 1, wherein the can is $(25 \pm 10)\%$ larger through the middle zones of the first side surfaces than the distance between the middle zones of the second side surfaces.
- 40 9. Can as claimed in claim 1, wherein the height of the can amounts to 1.4-2.7 times, preferably 1.9-2.3 times the distance between the middle zones of the second side surfaces.
- 45 10. Can as claimed in claim 1, wherein the outer diameters of the bottom and of the ring are a maximum amount of 5% larger than the distance between the middle zones of the second side surfaces.
- 50 11. Can as claimed in claim 10, wherein said amount is 1-3%.
12. Can as claimed in claim 1, wherein after filling of the can the ring is covered by a foil adhered thereto.
- 55 13. Can as claimed in claim 12, wherein the foil has a pull-tab.
14. Can as claimed in claim 1, wherein the can consists





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EUROPEAN SEARCH REPORT

Application Number
EP 97 20 1355

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)
A	AT 375 614 A (BOKHOLT-HANREDDER) 27 August 1984 * page 2, line 25 - page 3, line 28; figures 1-3 *	1,3,5,6, 9,14	B65D6/02 B65D1/14
A	NL 7 211 235 A (NAPHTACHIMIE) 21 February 1973 * page 3, line 18 - line 35; figures 1,2 *	1,2,5-7, 9	
A	US 4 023 679 A (HAMMES) 17 May 1977 * column 3, line 15-28; figures 1-4 *	1,2,5,7	
A	EP 0 599 583 A (CARNAUD METALBOX PLC) 1 June 1994 * column 3, line 33-49; figures 1-11 *	13	
A	EP 0 097 399 A (THOMASSEN & DRIJVER-VERBLIFA NV.) 4 January 1984 -----		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 28 August 1997	Examiner Vollering, J
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		I : 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	

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