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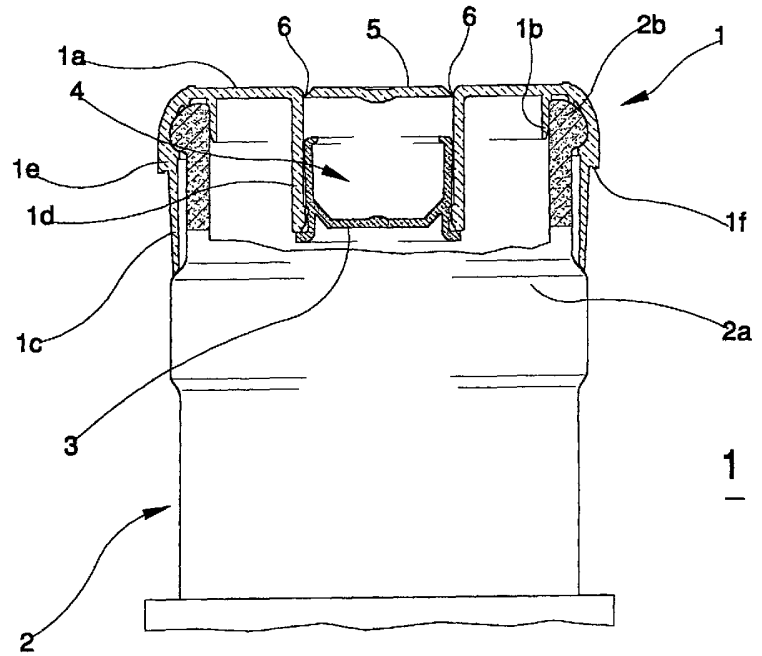
(54) Title: PLASTIC CAPSULE FOR LARGE BOTTLES



(57) Abstract: The plastic capsule, especially for large-volume bottles for use in dispensers, comprises an openable zone (4) which is accessible from the outside and closed by a cap (3) is externally protected by a disc (5) which is made in a single piece with the capsule. The cap (3) is peripherally connected to the openable zone by means of easy-break ribs (6) and also by means of a thin annular skin (6a) which hermetically closes an annular space existing between the upper surface (1a) of the capsule and the disc (5).

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Description

Plastic Capsule for Large Bottles.

Technical Field

The invention relates to a plastic capsule for large bottles with high capacity, destined to be used in drinks dispensers.

Background Art

The prior art has for a considerable time taught large bottles (usually 20 litres) containing water, which are inserted in water dispensers having a tap valve.

In order to be usable with various types of dispenser, however, these bottles have to be of standard shape and size, especially as regards their mouths.

These bottles are generally closed by a single-use capsule, usually made of plastic, which has an opening zone that is accessible from the outside, so that at the moment when the bottle is inserted in the distributor a spout of the dispenser is also inserted, enabling the water in the bottle to be accessed. The openable zone is normally located in the centre of the capsule, and is closed by a cap which is pushed into the bottle itself by the spout when the bottle is inserted in the dispenser. The openable zone of the bottle capsule is externally protected by a guard, usually a cover or a thin paper or plastic disc glued onto the upper part of the capsule, which is removed before inserting the bottle in the dispenser. Internally of the capsule there is a seal disc which, when the capsule is inserted on the bottle, stays at the bottle mouth to guarantee a seal.

Some examples of these known capsules are described in EP 0816283, US 5687867, US 5123555 and US 5222530.

When making these capsules, which are produced and used in considerable

numbers, it is extremely important to limit the unit cost of production. For this reason it is extremely important to limit the number of pieces necessary for manufacturing the capsule, and the quantity of material necessary for realising the various pieces thereof.

The main aim of the present invention is to provide a capsule having a limited number of pieces and which uses a limited quantity of material for realising the various pieces, thus considerably reducing manufacturing costs.

An advantage of the present invention is that it provides a capsule which is extremely easy to use.

A further advantage of the present invention is that it provides a capsule which can be used on standard-sized bottles.

These aims and advantages and more besides are all attained by the capsule of the invention, as it is characterised in the claims that follow.

Disclosure of Invention

Further characteristics and advantages of the present invention will better emerge from the detailed description that follows of a preferred but non-exclusive embodiment of the invention, illustrated purely by way of a non-limiting example in the accompanying figures of the drawings, in which:

figure 1 is a section in vertical elevation of the capsule of the invention applied on a large bottle illustrated partially and with some parts removed;

figure 2 is a view from above of the capsule of figure 1.

In the figures of the drawings, 1 denotes a capsule destined to be used for closing large bottles 2, normally with a 20-litre capacity and destined to contain water. The bottles are inserted in special distributors which dispense water through a tap valve. In order to be inserted in the various types of distributors, the bottles are of a standard size and shape, especially around the area of their mouths, which exhibit a cylindrical annular projection 2a fashioned on the neck of the bottle at

a predetermined distance from the mouth of the bottle, and a specially-shaped external annular projection 2b made on the external surface of the bottle 2 close to the mouth. Both the cylindrical annular projection 2a and the external annular projection 2b have standard locations and dimensions in the various bottles.

As with known capsules of this type, the capsule of the invention comprises an openable zone 4 which is delimited by a cylindrical wall 1d which projects coaxially and internally of the capsule from the upper surface 1a of the capsule itself.

The openable zone 4 is, as will be described in more detail herein below, accessible from the outside. The openable zone is inferiorly closed by a cap 3 which is inserted sealingly in the cylindrical wall 1d. Water is removed through the openable zone 4, as will be better described herein below.

The capsule of the invention comprises a protection element for the openable zone 4 which in turn comprises a disc 5 which is fashioned superiorly of the openable zone 4 and made in a single piece with the capsule. The disc 5 is peripherally connected with the opening of the openable zone 4 by means of easy-break ribs 6, and is coplanar to the upper surface 1a of the capsule. For reasons that will be better explained herein below, two opposite ribs are preferable as illustrated in the figure of the drawings, though three could also be provided.

To complete the protection of the openable zone, the protection element of the capsule further comprises a thin annular skin 6a which is made in a single piece with the capsule during its injection-forming. The skin 6a is very much thinner than the upper surface 1a, the disc 5 and the ribs 6. The skin 6a provides a hermetic closure of the annular space between the upper surface 1a of the capsule and the disc 5. As the capsule 1 is made by injection-moulding for food use, the thin annular skin 6a is manufactured as a sort of fin or burr, which is very easily

obtained by leaving, in the zone corresponding to the annular skin 6a, a slight distance between the upper die and the lower die used for making the capsule. The capsule further comprises an external annular hoop 1c which effectively constitutes the lateral wall of the capsule. The dimensions of the hoop 1c are such that, when the capsule is mounted on the container, the hoop 1c rests on the annular projection 2a of the bottle neck and does not laterally project from the neck of the bottle. In this way the capsule remains very small with respect to known capsules. Furthermore, the arrangement of the hoop 1c means that the capsule is difficult to remove from the neck of the bottle, as it is both difficult to grip the bottle by hand and difficult to introduce tools between the hoop 1c and the neck of the bottle.

The capsule of the invention also comprises an internal hoop 1b which is fashioned internally of the capsule 1 and coaxially thereto. The internal hoop 1b projects from the internal surface of the capsule 1 and is so dimensioned as to fit sealingly internally of the mouth of the bottle 2 when the capsule 1 is inserted on the bottle. The internal hoop 1b is obtained directly during the moulding of the capsule, and guarantees the seal of the capsule, eliminating the need for seal discs internally of the capsule.

The capsule further comprises an internal annular projection 1e which is internally fashioned on the capsule 1; the annular projection 1e defines, with the internal annular hoop 1b, a seating in which, when the capsule is inserted on the bottle, the external annular hoop 2b made on the external surface of the bottle neck 2 inserts. In this way a good and solid grip of the capsule on the bottle neck 2 is obtained.

The upper part of the capsule has a slightly larger diameter than the diameter of the external hoop 1c and defines, in the connection zone between the external hoop 1c and the upper part of the capsule, an annular projection 1f having a

hook-shape. This resulting hook means that the capsule is easily gripped by known-type machines typically used in bottling plants.

The capsule of the invention is press-inserted on the bottle in the bottling plant. Up until moment of use, the capsule remains solidly anchored to the bottle and its removal is particularly difficult because the external hoop 1c constitutes a sort of single surface with the external surface of the annular projection 2a of the neck of the bottle, making a manual extraction (even using tools) of the capsule from the bottle difficult.

The openable zone 4, which as in known capsules is inferiorly sealingly closed by the cap 3, is protected superiorly by the disc 5 and the annular skin 6a which completely close the openable zone 4, preventing any external agents such as dust or the like from penetrating inside the capsule.

Furthermore, the bottle cannot be opened without signal thereof due to the presence of the easy-break ribs 6 and the skin 6a, which constitute a sort of anti-tamper security device. Note that, both the protection in the openable zone and the security device are obtained directly during the manufacturing of the capsule, without any need, as there is in known capsules, to add further elements, such as glued-on discs and the like.

When in use, the disc 5 is manually removed; the operation is particularly easy because, following a slight pressure, the disc 5 rotates around the ribs, after rupturing the thin skin 6a, and can therefore be gripped by hand and pulled to break the ribs.

Thereafter, as happens with known capsules, a spout is introduced into the openable zone of the capsule, which, after having pushed the cap 3 into the bottle, penetrates into the bottle and enables the water to be removed. Note that the cap 3 exhibits no contamination from external agents because, up until the moment of use, the cap 3 is hermetically protected.

When the empty bottle is returned to the bottling plant, removal of the old capsule is made extremely easy by virtue of the presence of the annular projection 1f which enables the capsule to be easily gripped by the handling machines.

Claims.

1). A plastic capsule (1) for large bottles (2), comprising: an openable zone (4), delimited by a cylindrical wall (1d) projecting coaxially from an upper surface (1a) of the capsule, which openable zone (4) is accessible from outside and is closed by a cap (3), and through which openable zone a liquid, usually water, is removed from the bottle; further comprising a protection element for the openable zone (4); wherein a disc (5) is provided, located superiorly of the openable zone (4) and made in a single piece with the capsule, which disc (5) is peripherally connected to the cylindrical wall (1d) of the openable zone (4) by means of easy-break ribs (6), and is coplanar to the upper surface (1a) of the capsule (1); the disc (5) comprising a thin annular skin (6a), made in a single piece with the capsule and being much thinner than the upper surface (1a) of the disc (5) and the easy-break ribs (6), which annular skin (6a) hermetically closes an annular space existing between the upper surface (1a) of the capsule and the disc (5) and together with the disc (5) constitutes the protection element.

2). The capsule of claim 1, comprising an external annular hoop (1c) which, when the capsule is mounted on the bottle, rests on an annular projection (2a) of a neck of the bottle in such a way as not to project laterally from the neck of the bottle.

3). The capsule of claim 1, comprising: an internal annular hoop (1b), afforded internally and coaxially of the capsule (1), which projects from an internal surface of the capsule (1) and inserts sealingly internally of a mouth of the bottle (2) when the capsule (1) is applied on the bottle (2).

4). The capsule of claim 3, comprising an internal annular projection (1e), afforded internally of the capsule (1), which internal annular projection (1e),

together with the internal annular hoop (1b), defines a seating in which an external annular projection (2b) fashioned on an external surface of the neck of the bottle (2) inserts when the capsule is mounted on the bottle (2).

5). The capsule of claim 2, wherein an upper part of the capsule (1) has a slightly smaller diameter than a diameter of the external annular hoop (1c) and defines, in the connection zone between the external annular hoop (1c) and the upper part of the capsule (1), an annular projection (1f) having a hook-shaped section.

6). The capsule of claim 1, wherein the capsule (1) is manufactured by injection-moulding, and is made of plastic for use with foodstuffs.

7). The capsule of claim 1, comprising two easy-break ribs (6) which are in diametrically opposed positions.

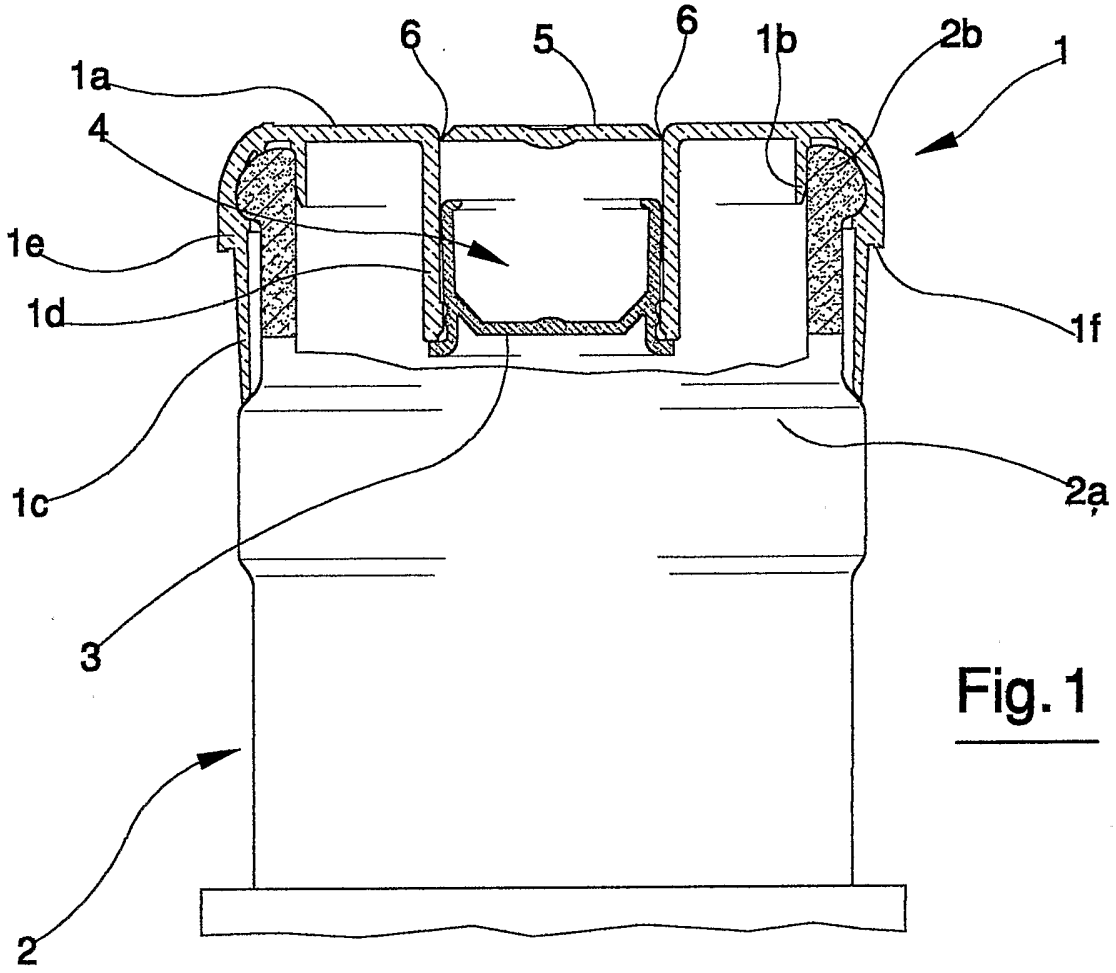

Fig. 1

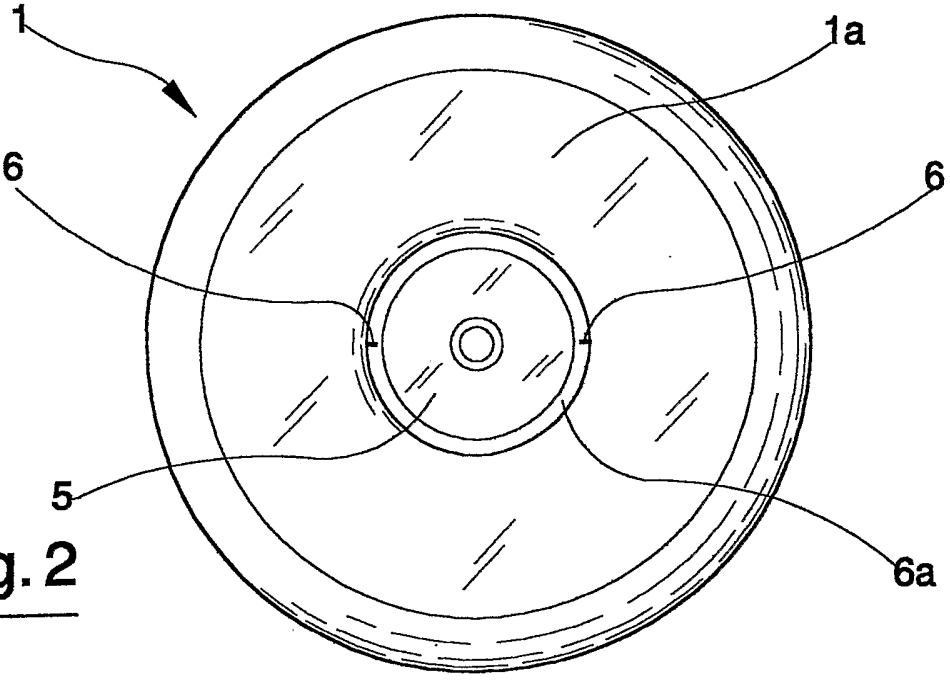

Fig. 2

INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D47/36 B67D3/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65D B76D B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	EP 0 816 283 A (HIDDING DOUGLAS J ;HIDDING WALTER E (US)) 7 January 1998 (1998-01-07) cited in the application abstract; figure 2	1-7

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
15 January 2003	24/01/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Segerer, H

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/IT 02/00320

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 687 867 A (LAMOUREUX RICHARD) 18 November 1997 (1997-11-18) cited in the application claim 1; figures 1,2	1-7
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IT02/00320

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