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(54) **SINGLE-BODY, DISPOSABLE BOTTLE WITH CAP**

(57) A disposable bottle (1) comprising a body (2) with an opening (9) on one side and closed on the opposite side (6), a cap or closing member (3) being adapted to be arranged on such opening (9) to close it in a fluid-tight manner. The body (2) of the bottle (1) is in one piece with the cap (3) so as to form a single-piece assembly.

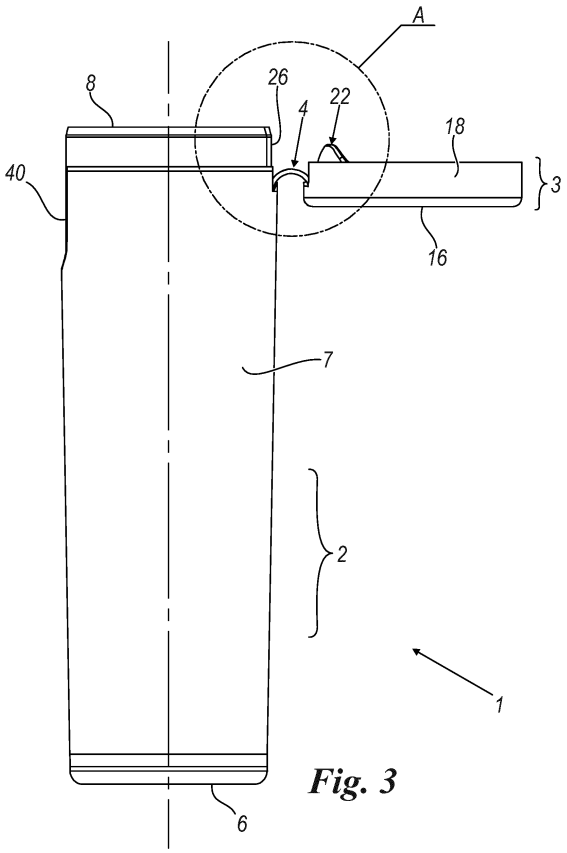


Fig. 3

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Description

[0001] The present invention relates to a disposable bottle provided with a cap or closing member, according to the preamble of the main claim.

[0002] As known, a disposable bottle usually comprises a body which is open on one side and closed on the other. The side with the opening usually comprises a tapered part defining a protrusion or neck at the end of which there is an opening; a liquid or creamy product or the like (such as a soap, a shampoo, a face cream or other), but also a solid product or granulated product, is inserted through the opening and from such an opening the product itself is later extracted by a user.

[0003] The neck of the bottle has coupling means (such as, for example, a threading) adapted to cooperate with coupling counter means associated to the cap or closing member; the latter is usually cup-shaped having the aforesaid coupling counter means (such as, for example, a threading or a plurality of discrete elements defining a sort of thread adapted to cooperate with that of the neck of the bottle) on an inner wall. The disposable bottles are used, for example, in hotels for containing shampoo and/or bath or body soap. The fact that the body of the bottle can be separated from the cap may cause obvious drawbacks to the user who uses it, for example under a shower, which makes such a bottle difficult to use.

[0004] Additionally, the need to create an opening at the end of a narrow portion or neck of the bottle (to which the cap is connected) also makes it difficult to fill the bottle itself. Indeed, the aforesaid opening is necessarily narrow and it is neither easy nor advantageous for the manufacturer to introduce a product into the bottle through it when such a filling is carried out by means of automatically operating machines. Such machines must be provided with nozzles appropriately shaped to couple with the aforesaid opening, a fact that reduces the passage section of the product through them and thus the passage time of the product towards the bottle (and thus the filling times of the latter).

[0005] It is the object of the present invention to provide an improved single-dose bottle with respect to the corresponding known bottles. The invention specifically relates to such a bottle because there is the need to make a single-dose container (the aforesaid bottle) which can be used simply, safely and easily by the user by virtue of its small size.

[0006] It is another object to provide a single-dose bottle or container which can be filled in a simple and rapid manner so as to reduce the production times and costs of the finished bottle.

[0007] Another object is to provide a bottle which can be closely arranged by the side of other similar bottles in a package containing them so as to occupy as much space possible inside the package with said bottles.

[0008] It is another object to provide a bottle of the mentioned type which can be made with plastic material injection methods and techniques which make production rapid, reducing the costs thereof.

[0009] These and other objects which will be apparent to a person skilled in art are reached by a bottle according to the appended claims.

[0010] For a better understanding of the present invention the following drawings are attached by way of non-limiting example only, in which:

figure 1 shows a perspective view of a first embodiment of a bottle or container according to the present invention;
figure 2 shows a perspective view of the bottle in figure 1 in open position;
figure 3 shows a side view of the bottle in figure 2;
figure 4 shows a section view taken along line 4-4 in figure 2;
figure 5 shows a section view taken along line 5-5 in figure 1;
figure 6 shows an enlarged view of the detail indicated by reference letter A in figure 3;
figure 7 shows an enlarged view of the detail indicated by reference letter B in figure 4;
figure 8 shows a perspective view of a second embodiment of a bottle according to the present invention in closed position;
figure 9 shows a perspective view of the bottle in figure 8 but in open position;
figure 10 is a section view taken along line 10-10 in figure 8; and
figure 11 shows an enlarged view of the part indicated by reference letter C in figure 10.

[0011] With reference to the figures from 1 to 7, a disposable container or bottle is generically indicated by reference number 1 and comprises a body 2 provided with a cap or closing member 3 connected to such a body by means of a flexible tongue or connection element 4. In such a manner, the body 2 and the cap 3 form a single piece and are not mutually separable.

[0012] The body 2 has a closed base 6 from the peripheral edge of which a wall 7 elevates ending at a free end 8 with an opening 9 having a section substantially equal to that of the entire body 2. Near such an opening 9, on the wall 7 and inside the body 2, there is a pair of annular recesses 10 and 11 adapted to cooperate with a corresponding pair of annular edges 12 and 13 protruding from an annular relief 15 projecting inside the cap 3 from a closing position 16 of the latter. The cooperation between such recesses 10, 11 and said edges 12 and 13 ensures a fluid-tight closing of the bottle 1 when the cap 3 is arranged over the opening 9 of the body 2 closing it. This, without the need to add specific sealing elements.

[0013] More in particular, the cap 3 comprises the aforesaid closing portion 16 from a peripheral edge of which an annular wall 18 projects. The latter is arranged at a distance from the annular relief 15, which is thus within the aforesaid wall (does not project inside the cap 3). Between them there is a recess 20 in which the end

8 of the wall 7 of the body 2 is positioned when the cap 3 is closed thereon. It is worth noting that said relief 15 has, along a portion thereof, a protruding part 22 adapted to work as stiffening element and "rotation pin" when the cap 3 is brought onto the opening 9 of the body 2.

[0014] The part 22 of the relief 15 has an extremal edge 24 which bends towards the inside of the relief 15 so as to facilitate the closing of the cap 3 on the opening 9.

[0015] As mentioned, the cap 3 is connected to the body 2 by means of a flexible connection element or tongue 4. It is connected to undercut parts 26 and 27 of such a body and of said cap; part 26 is defined by a recess provided in the wall 7 of the body 2, while part 27 is a real opening made in the annular wall 18 of the cap 3.

[0016] In such a manner, by virtue of such a construction of the tongue 4 and of the parts to which it is connected, when the cap 4 is closed on the opening 9, the tongue or closing element is completely inserted in the outer part or recess 26 of the body 2, as shown in figure 5. Thus, the latter does not comprise parts protruding laterally therefrom (i.e. from wall 7) allowing to approach several containers or bottles 1 to one another upon packaging in a container which contains a plurality thereof when they are transported from a production plant thereof to the one where they are filled with a product (for example, liquid soap) and then to the one where such filled containers or bottles 1 are sent to a point of sales.

[0017] The single-use container 1 thus has a single-piece configuration and the cap 4 is not detached from the body 2 when it is opened. Furthermore, it may be obtained by injection molding of plastic material (in polypropylene or polyethylene) and the particular shape of its opening 9 (the section of which is substantially equal to that of the cavity 30 of the aforesaid body) allows it to be separated from the mold in simple manner. Furthermore, the container 1 can be easily recycled by virtue of the fact that it is in one single piece and only one of the aforesaid materials is used.

[0018] Such a wide opening also allows a simple, easy filling of the body 2 as well as a complete emptying after use.

[0019] By virtue of the invention, the use of the single-dose container by users is simple and safe.

[0020] Figures from 8 to 11 show a variant of the invention shown in figures from 1 to 7. In figures from 8 to 11, parts corresponding to those in the previously described figures are indicated with the same reference numerals.

[0021] The main difference between the bottle or container 1 in figures 8 and 11 with respect to the previously described figures is in that the section is circular, while that of the bottle in figures 1-7 is elliptical. The remaining features of the two embodiments are the same.

[0022] Finally, both bodies 2 of the bottles of figures 1-7 and 8-11 have a recessed zone 40 opposite to the tongue 4 for opening the cap 3 on the body 2 by lifting.

[0023] By virtue of the invention a single-dose, single-piece container or bottle may be obtained, meaning with this expression that the cap 3 is in one piece with the body 2 of the bottle 1, such a feature being obtained by injection molding of the bottle and by making the connection tongue 4 between cap and body. This allows to reduce production costs and facilitates its use by a user.

[0024] One or more embodiments of the disclosure may comprise one or more of the following clauses, alone or in combination.

[0025] In particular, an embodiment refers to a disposable bottle 1 comprising a body 2 with an opening 9 on one side and closed on the opposite side 6, a cap or closing member 3 being adapted to be arranged on such opening 9 and adapted to close it in a fluid-tight manner, characterized in that the body 2 of the bottle 1 is in one piece with the cap 3 so as to form a single-piece assembly.

[0026] According to one aspect, the bottle it comprises a flexible connection member 4, adapted to connect said cap 3 to said body of the bottle 2.

[0027] According to another aspect, the flexible connection member 4 is associated to a recessed part 26 of the body of the bottle 2 and to an opening 27 made in an annular wall 18 of the cap 3, said flexible connection member 4 being arranged completely within said recessed part 26 when the cap 3 closes the opening 9 of the body of the bottle 2.

[0028] According to again another aspect, the recessed part 26 is obtained in a wall 7 of the body of the bottle 2 elevating from the closed side 6 of the latter and delimiting the opening 9 of said body 2.

[0029] According to another aspect, the wall 7 of the body of the bottle 2 has a free end 8 delimiting the opening 9 of said body of the bottle 2, near said opening of said free end 8 having coupling means 10, 11 adapted to cooperate with coupling counter means 12, 13 of the cap 3 when closed on said opening 9 in order to close the body of the bottle 2 in a fluid-tight manner.

[0030] According to another aspect, the coupling means are annular recesses 10, 11 made in the wall 7 of the body of the bottle, said counter means being protruding edges 12, 13 made on an annular relief 15 projecting inside the cap 3 from a closing portion 16 thereof.

[0031] According to another aspect, the cap 3 has an annular wall 18 projecting from a peripheral edge of the closing portion 16, said annular relief 15 being inside such a wall 18, a recess 20 being present between the latter and said relief 15, in which the free end 8 of the wall 7 of the body of the bottle 2 is positioned.

[0032] According to a further aspect, the annular ridge 17 has a protruding wall 22 with extremal edge 24 folded towards the inside of the relief itself.

[0033] According to another aspect, connection member 4 is connected to the body of the bottle 2 in a recessed part 26 made on the outside of the wall 7 thereof, said connection member 4 being completely inserted in said recess when the cap is closed on said body.

[0034] According to a further aspect, the bottle it is made by injection molding, said bottle being preferably

made of polypropylene or polyethylene.

[0035] Various embodiments of the invention have been described. Other are possible in light of the description above and are all to be considered as falling within the scope of the following claims.

Claims

1. A disposable bottle (1) comprising;
a body (2) with an opening (9) on one side and closed on the opposite side (6),
a cap or closing member (3) being adapted to be arranged on such opening (9) and adapted to close it in a fluid-tight manner, the body (2) of the bottle (1) being in one piece with the cap (3) so as to form a single-piece assembly,
the bottle comprising a flexible connection member (4), adapted to connect said cap (3) to said body of the bottle (2),
a wall (7) of the body of the bottle (2) having a free end (8) delimiting the opening (9) of said body of the bottle (2), the wall (7) having coupling means (10, 11) adapted to cooperate with coupling counter means (12, 13) of the cap (3) when closed on said opening (9) in order to close the body of the bottle (2) in a fluid-tight manner.

2. A bottle according to claim 1, **characterized in that** said flexible connection member (4) is associated to a recessed part (26) of the body of the bottle (2) and to an opening (27) made in an annular wall (18) of the cap (3), said flexible connection member (4) being arranged completely within said recessed part (26) when the cap (3) closes the opening (9) of the body of the bottle (2).

3. A bottle according to claim 2, **characterized in that** said recessed part (26) is obtained in a wall (7) of the body of the bottle (2) elevating from the closed side (6) of the latter and delimiting the opening (9) of said body (2).

4. A bottle according to claim 1, **characterized in that** said coupling means are annular recesses (10, 11) made in the wall (7) of the body of the bottle, said counter means being protruding edges (12, 13) made on an annular relief (15) projecting inside the cap (3) from a closing portion (16) thereof.

5. A bottle according to claim 4, **characterized in that** said cap (3) has an annular wall (18) projecting from a peripheral edge of the closing portion (16), said annular relief (15) being inside such a wall (18), a recess (20) being present between the latter and said relief (15), in which the free end (8) of the wall (7) of the body of the bottle (2) is positioned.

8. A bottle according to claim 6, **characterized in that** said annular relief (15) has a protruding wall (22) with extremal edge (24) folded towards the inside of the relief itself.

9. A bottle according to claim 1, **characterized in that** said connection member (4) is connected to the body of the bottle (2) in a recessed part (26) made on the outside of the wall (7) thereof, said connection member (4) being completely inserted in said recess when the cap is closed on said body.

10. A bottle according to claim 1, **characterized in that** it is made by injection molding, said bottle being preferably made of polypropylene or polyethylene.

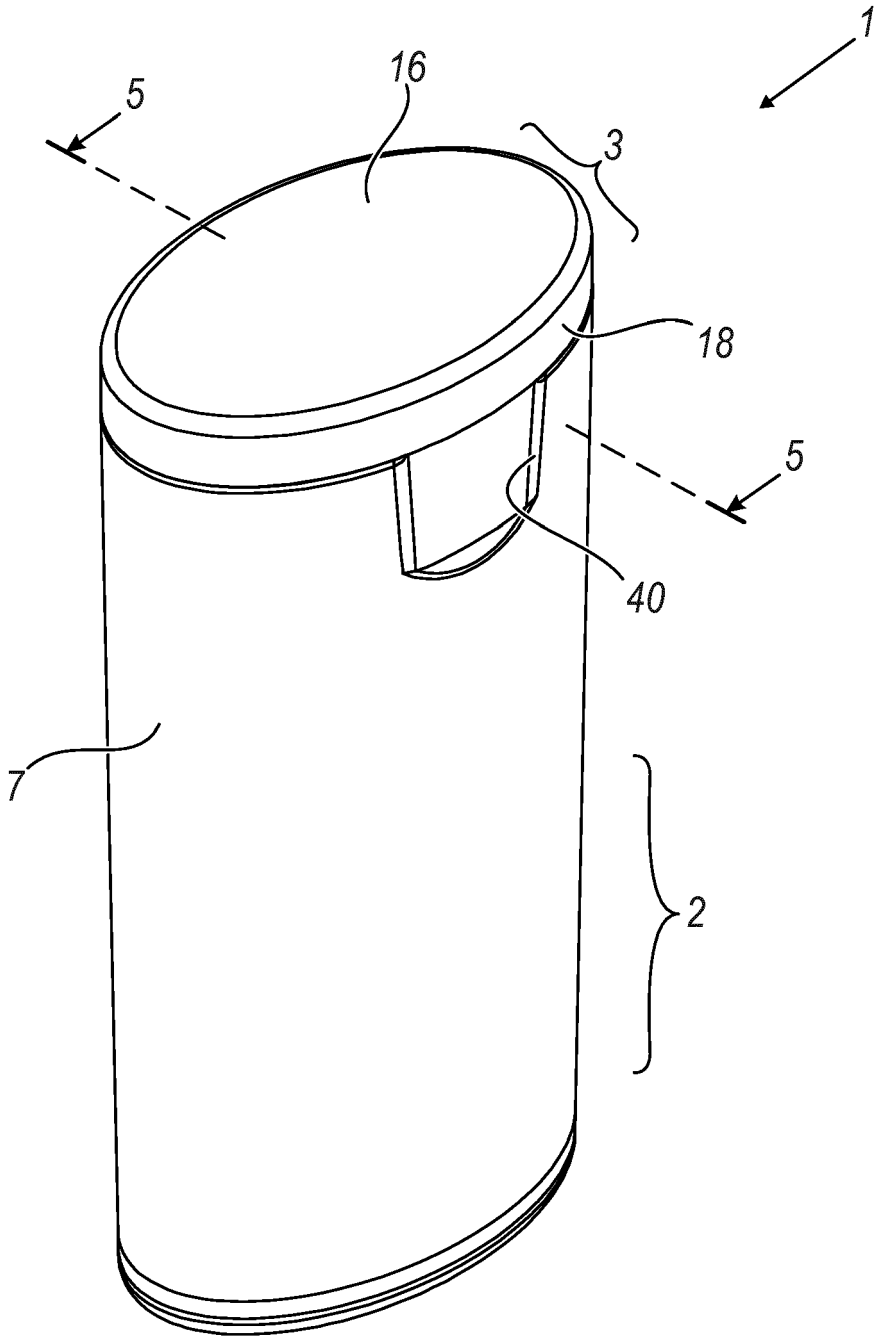


Fig. 1

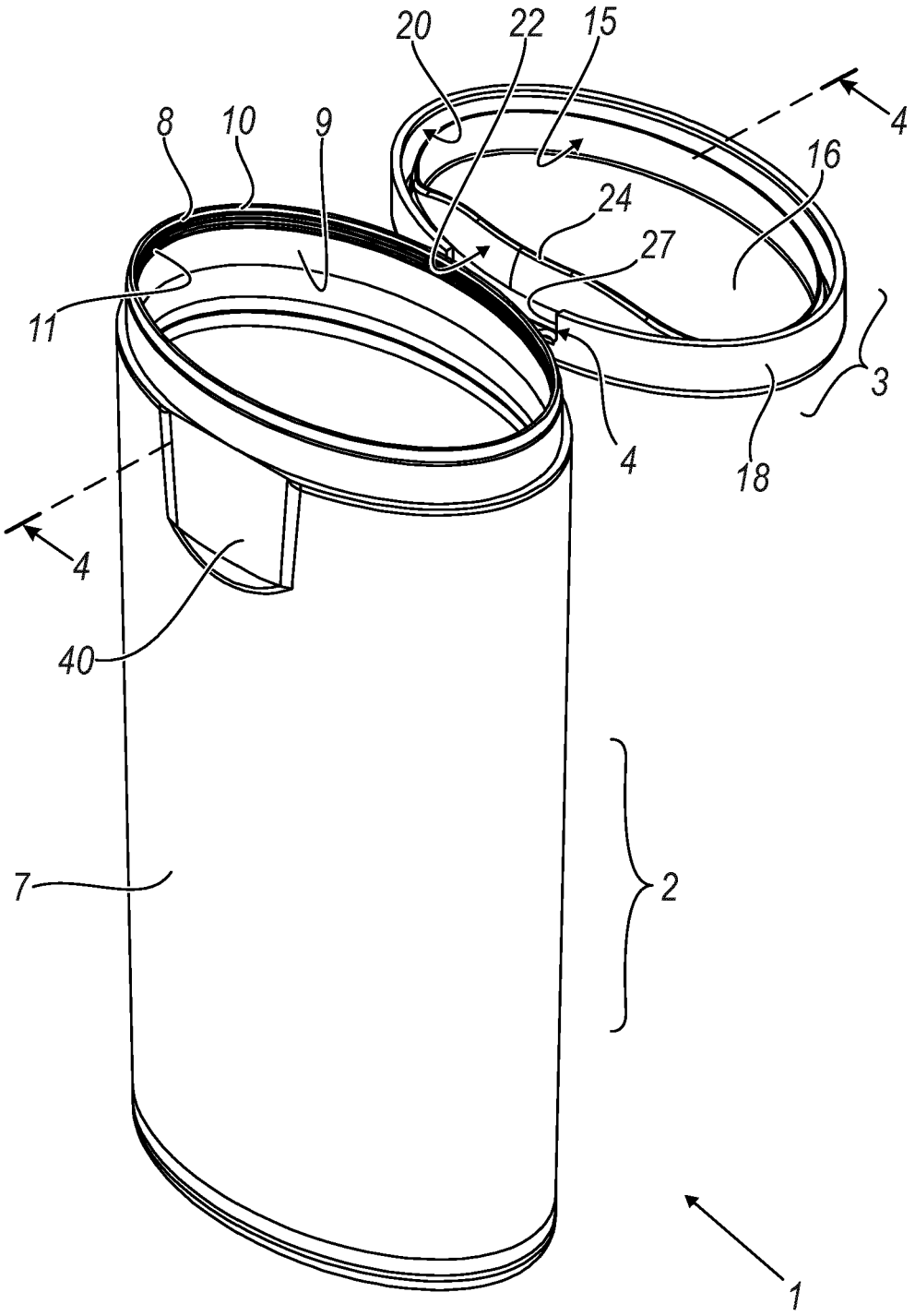


Fig. 2

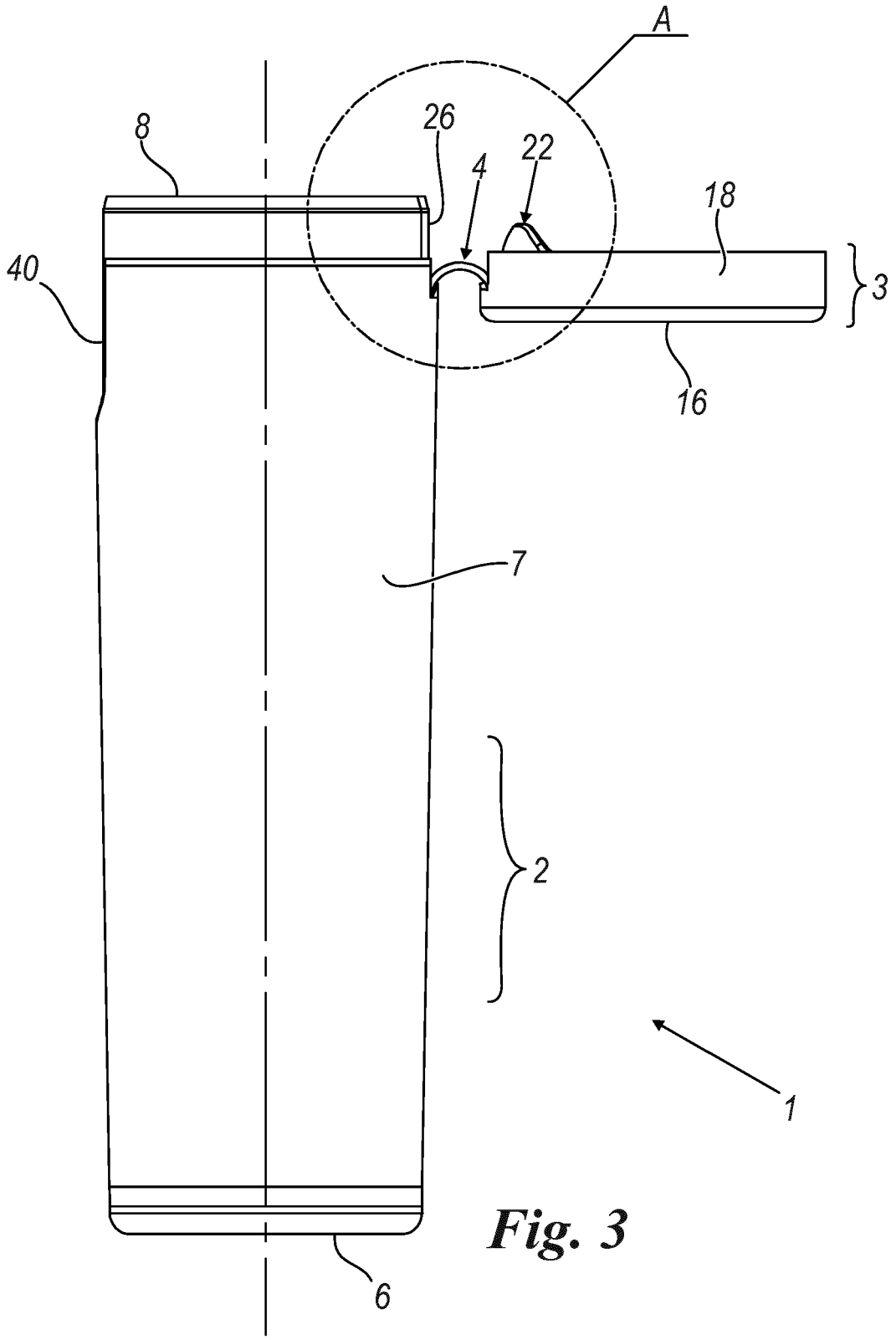


Fig. 3

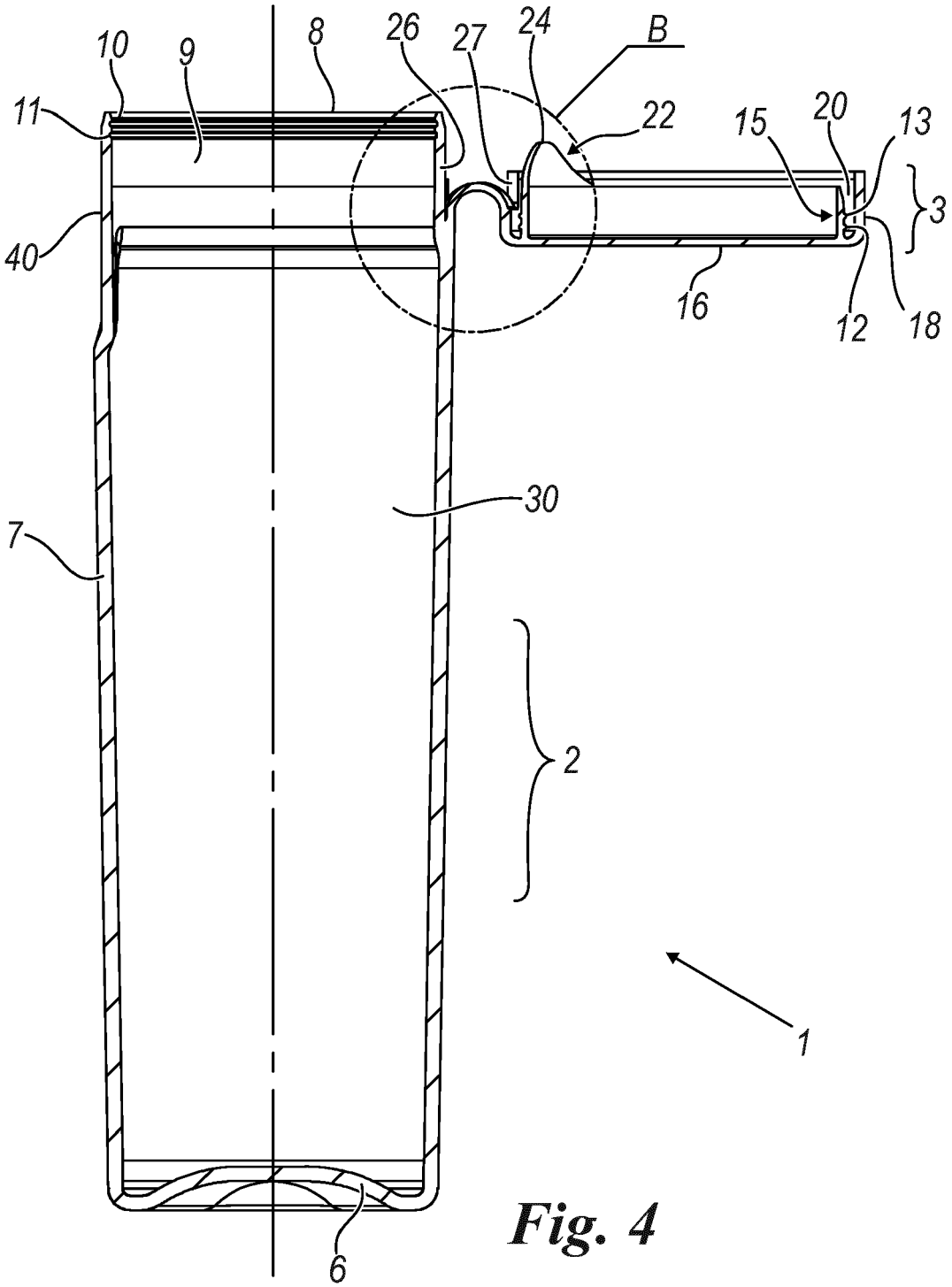


Fig. 4

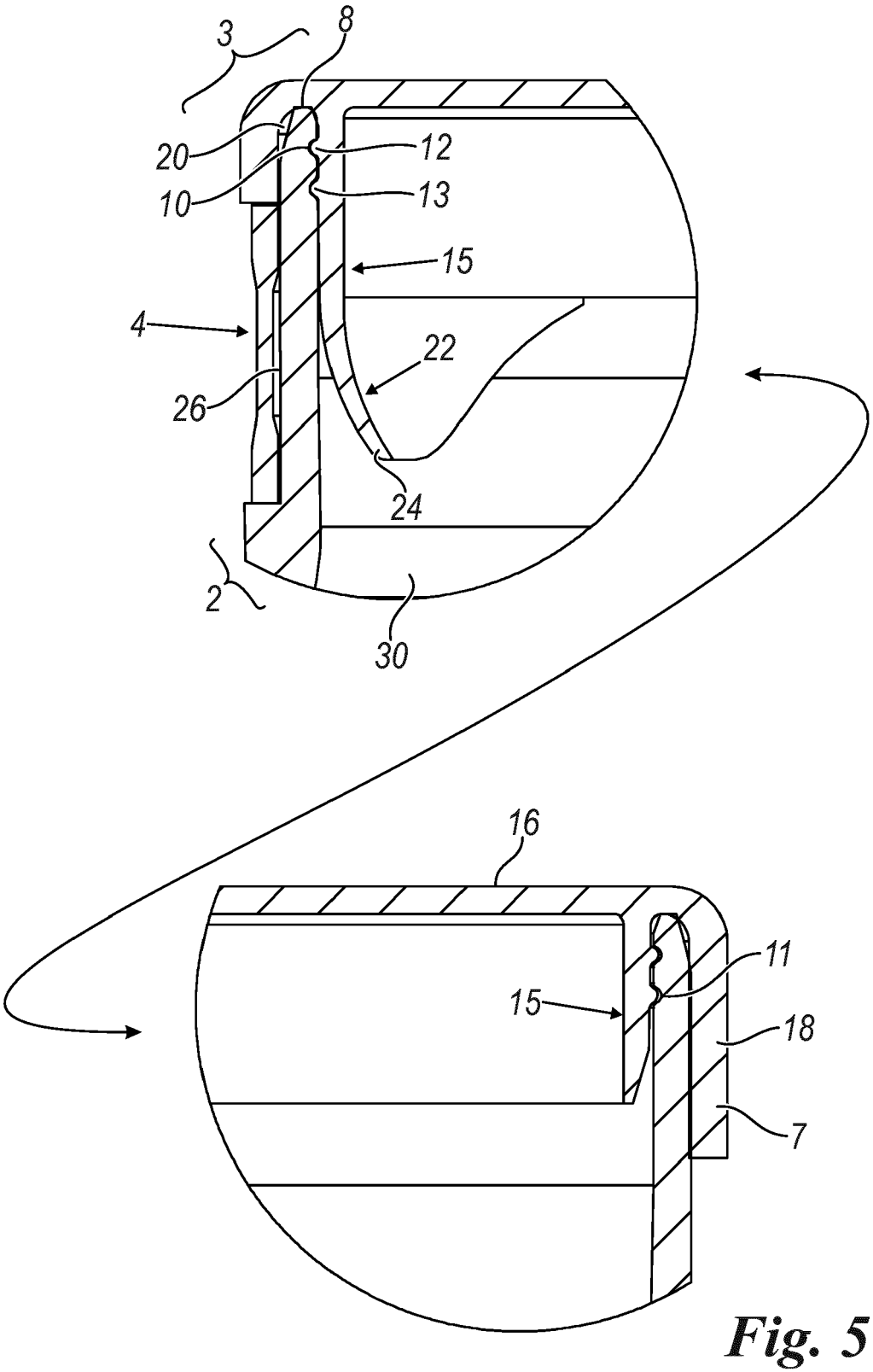


Fig. 5

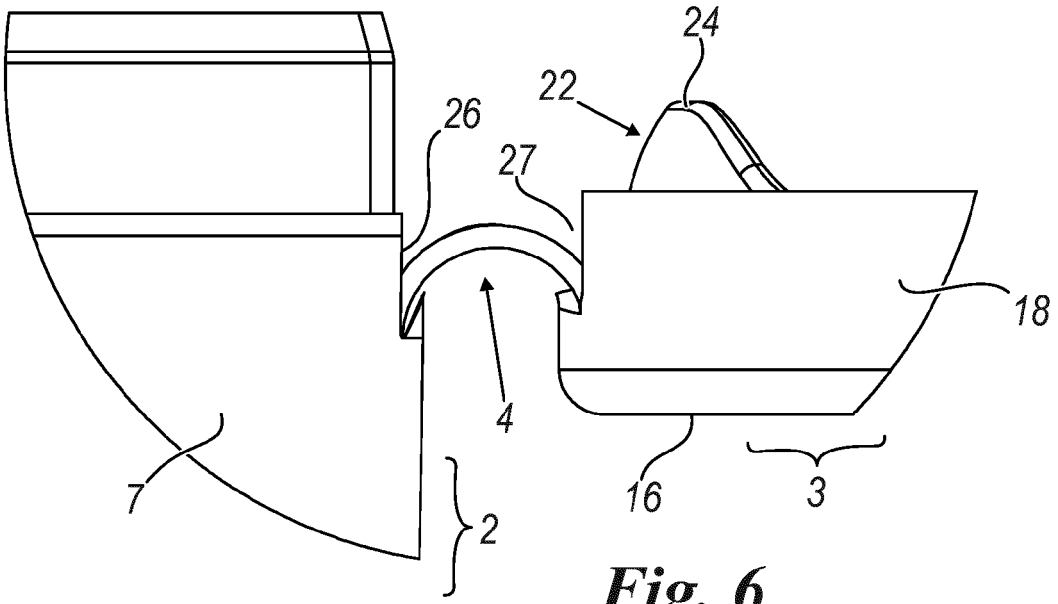


Fig. 6

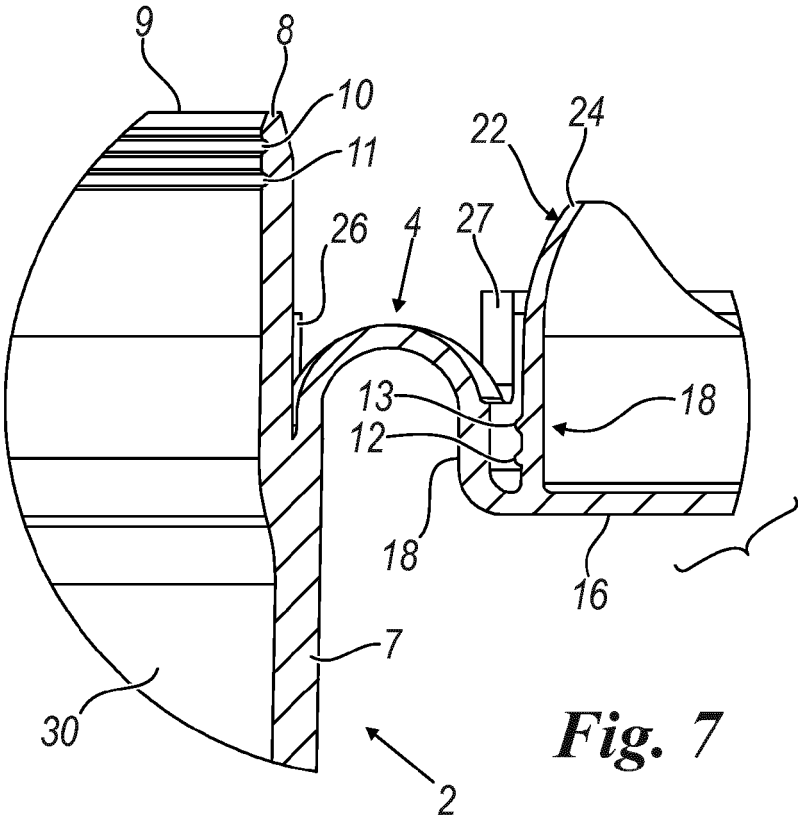


Fig. 7

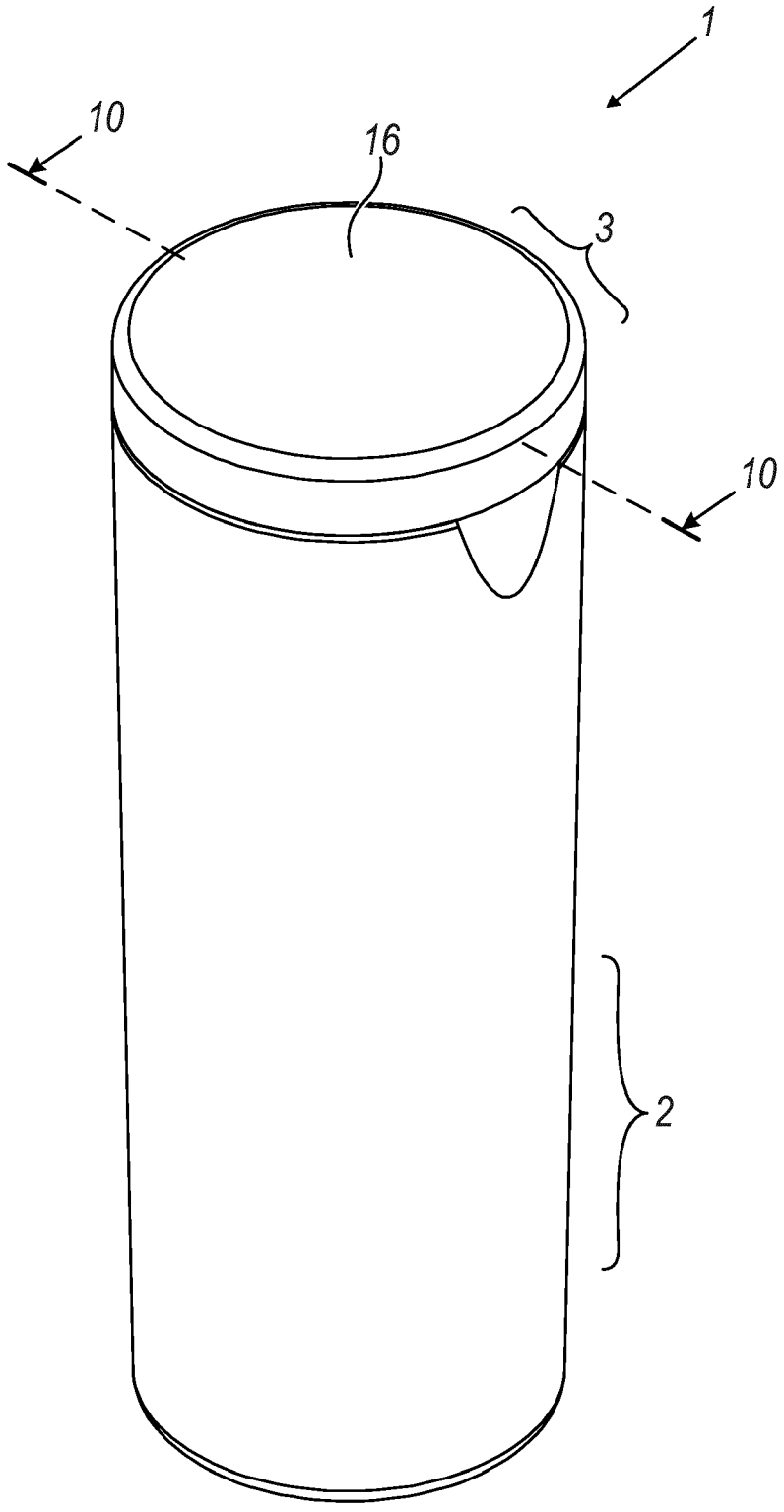


Fig. 8

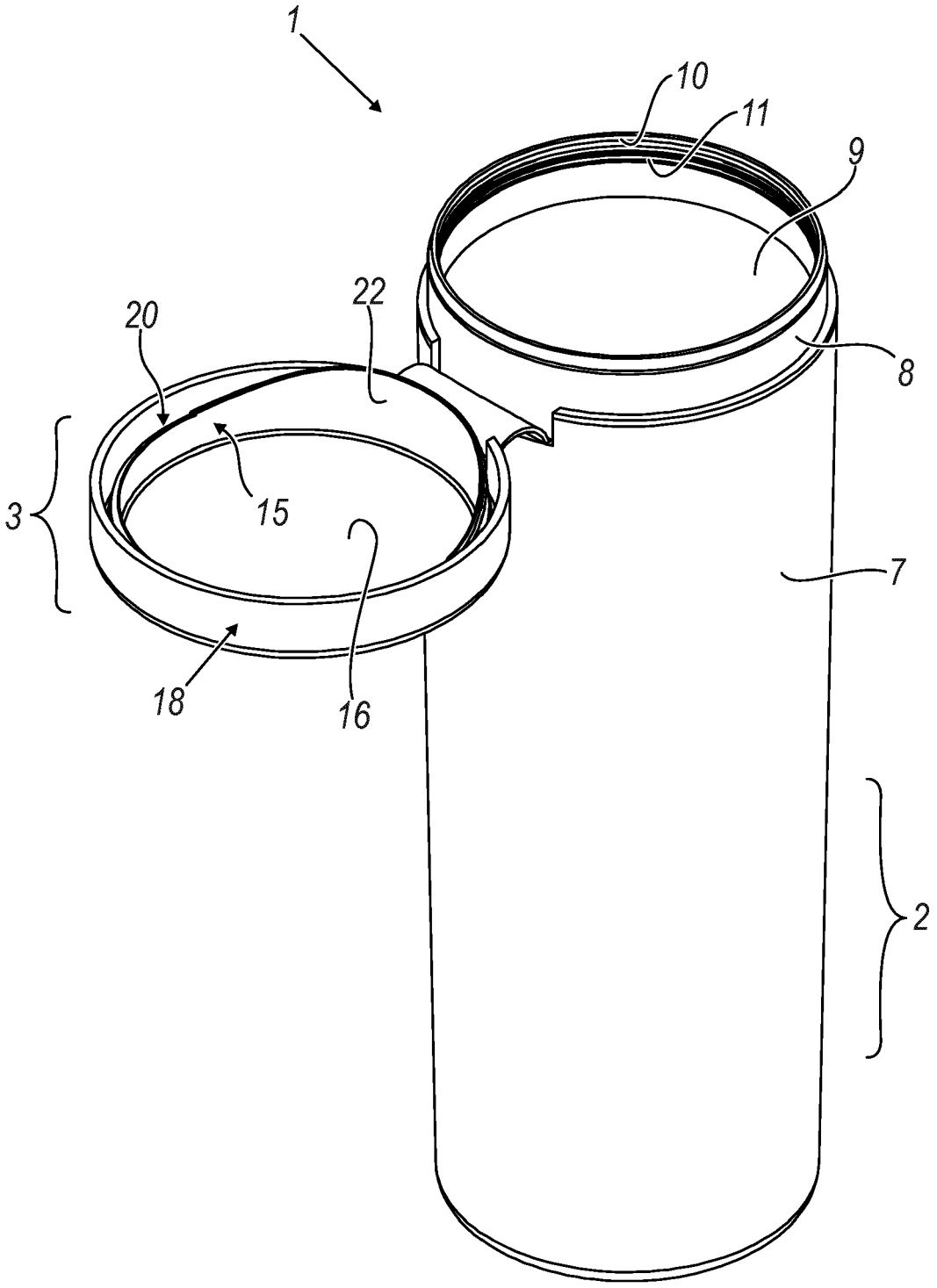


Fig. 9

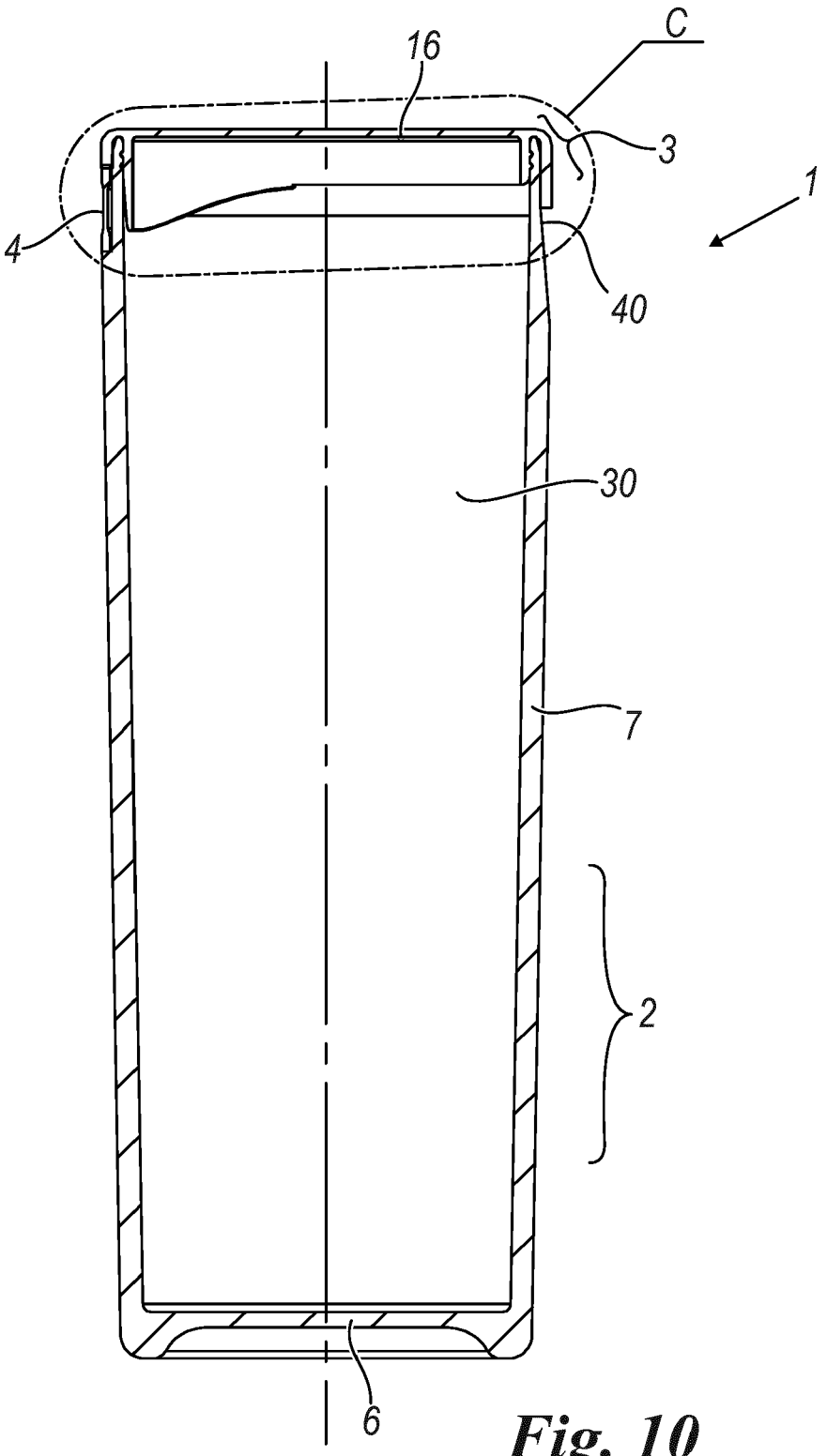


Fig. 10

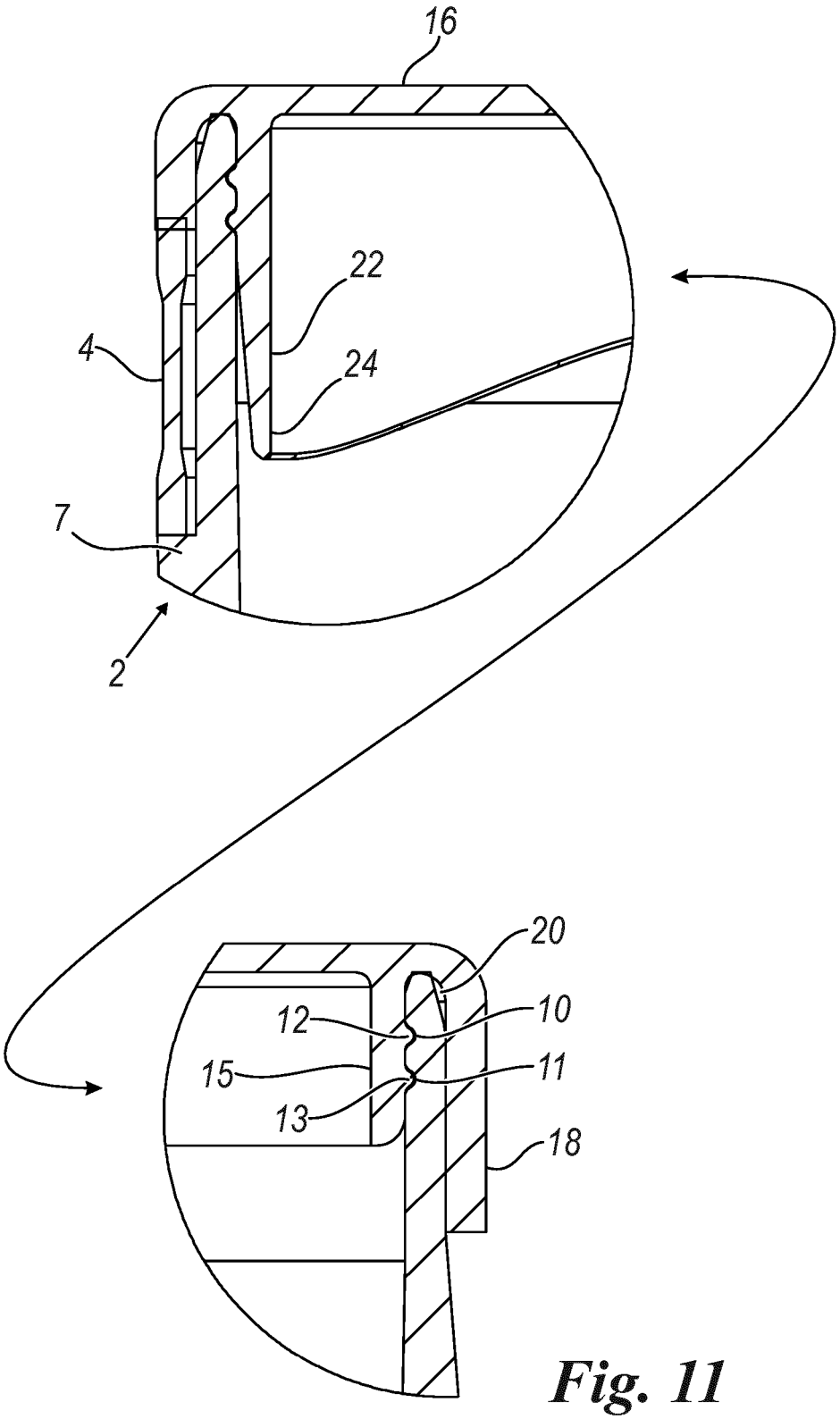


Fig. 11

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EUROPEAN SEARCH REPORT

Application Number
EP 15 16 9056

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 139 165 A (HARA YOSHIO [JP]) 18 August 1992 (1992-08-18)	1,9,10	INV. B65D43/16
A	* column 7, line 9 - line 11; figure 7 * * column 4, line 67 *	2-5,8	

A	WO 2012/084795 A1 (LUIGI ZAINI S P A [IT]; ZAINI LUIGI [IT]) 28 June 2012 (2012-06-28) * page 8, line 5; figure 2 *	2	

A	US 5 016 777 A (MARVIN MORLEY [US]) 21 May 1991 (1991-05-21) * figures 2,3 *	2,9	

TECHNICAL FIELDS SEARCHED (IPC)
B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23 September 2015	Sundell, Olli

CATEGORY OF CITED DOCUMENTS

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23-09-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5139165 A	18-08-1992	JP 2676272 B2	12-11-1997
		JP H04118645 A	20-04-1992
		US 5139165 A	18-08-1992
WO 2012084795 A1	28-06-2012	CN 103391885 A	13-11-2013
		EP 2655207 A1	30-10-2013
		WO 2012084795 A1	28-06-2012
US 5016777 A	21-05-1991	NONE	

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