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(54) Container provided with a valve closure

(57) A container (2) comprising a body portion (4) and a closure device (6), the closure device (6) being such that the contents of the container (2) are able to be dispensed through the closure device (6), the closure device (6) comprising a movable portion (10) which is slidable in a longitudinal direction from a closed position to an open position, the movable portion (10) having at least one dispensing aperture (12), and the container (2) having at least one obturator member (14) which blocks the dispensing aperture (12) when the movable portion (10) is in the closed position and which does not block the dispensing aperture (12) when the movable portion (10) is in the open position.

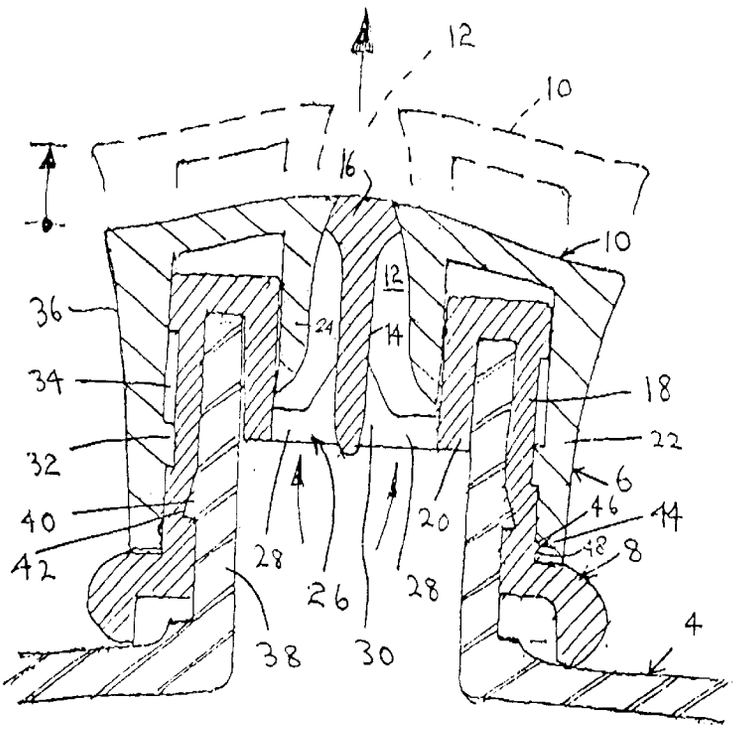

FIG 2

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Description

This invention relates to a container and, more especially, this invention relates to a container having a closure device which is such that the contents of the container are able to be dispensed through the closure device.

There are many different types of known containers. The known containers may be in a variety of shapes and sizes so that, for example, the containers may be in the form of bottles, tubes, cans or boxes. The containers generally comprise a body portion and a closure device. Closure devices for the known containers have traditionally been in the form of a removable cap. More recently, closure devices have become known which the contents of the containers are able to be dispensed through the closure devices. Such closure devices may include flip over lids, or lids having a central aperture which is exposed by twisting a disc. The closure devices are not always satisfactory in that they may be difficult to open and/or close, and they may also tend to restrict the dispensation of the contents of the container.

It is an aim of the present invention to reduce the above mentioned problems.

Accordingly, in one non-limiting embodiment of the present invention, there is provided a container comprising a body portion and a closure device, the closure device being such that the contents of the container are able to be dispensed through the closure device, the closure device comprising a movable portion which is slidable in a longitudinal direction from a closed position to an open position, the movable portion having at least one dispensing aperture, and the container having at least one obturator member which blocks the dispensing aperture when the movable portion is in the closed position and which does not block the dispensing aperture when the movable portion is in the open position.

The container of the present invention is easy to operate with the movable portion forming a variable push-pull movable portion for opening and closing the container. The container is able to afford a variable sized dispensing aperture or apertures for different products of different viscosity.

The container may be one in which the obturator member has a frusto-conical portion which seats in the dispensing aperture.

The container may comprise a fixed portion about which the movable portion slides. The fixed portion may form part of the closure device or it may form part of the body portion.

The container may be one in which the fixed portion has an outer part and an inner part which extends inwardly of the outer part, and in which the movable portion has an outer part which is positioned on and slides over the outer part of the fixed portion, and an inner part which extends inwardly of the outer part.

The obturator member may be centrally positioned on the inner part of the fixed portion. The obturator member may be positioned elsewhere if desired. The obturator member preferably extends from a rib mounting arrangement.

The outer part of the movable portion may have an inwardly directed formation which engages at least one groove in the outer part of the fixed portion when the movable portion is moved between the closed and open positions.

The outer part of the fixed portion will usually be cylindrical but other shapes may be employed. The outer surface of the inner part of the movable portion will also usually be cylindrical but other shapes may be employed.

Preferably, the container is one in which the movable portion increases in size in a direction extending away from the body portion in order to give the movable portion a shape which facilitates movement by hand between the closed and open positions.

Usually, the container will include a neck portion, and in this case the closure device will usually be positioned on the neck portion of the container.

When the fixed portion forms part of the closure device, then the fixed portion is preferably a snap fit in position. If desired, the fixed portion may be a screw fit in position.

When the fixed portion forms part of the closure device, the container may be one in which the neck portion has an outwardly extending circumferential formation, and in which the inner surface of the outer part of the fixed portion has a complementarily shaped groove, the formation and the groove being such that the formation is a push snap fit into the groove and is then not removable from the groove.

The container may be one in which the closure device has a reservoir portion for holding dispensed contents of the container and for affording an easy wipe out facility from the reservoir portion so that the reservoir portion is easily kept clean and the dispensed contents are effectively used.

The container may include tactile indicator means for indicating when the removable portion has been moved from the open position to the closed positicn. The tactile indicator means may be a bead and a groove formation. Preferably, the bead is on the fixed portion and the grocve is on the movable portion but the reverse arrangement may be employed if desired.

The container may include tamper evident means. Preferably, the tamper evident means is a pull tag but other types of tamper evident means may be employed.

The container may be any type, shape and size of container. Thus, for example, the container may have rigid or flexible walls. Also, for example, the container may be in the form of a bottle, tube, can or box. The tube can be a tube which lies flat when it is not in use, or alternatively, the tube can be one with a closure device formed to allow the tube to stand vertically on the closure device when the tube is not in use.

The closure device can be made of any suitable and

appropriate materials. Usually, the closure device will be made from a plastics material. The remainder of the container can be made from those materials currently used for making containers so that, for example, the remainder of the container may be made from a plastics material, board or a metal such for example as tin or aluminium. The container may contain any suitable and appropriate material including liquids, gels, pastes and powders. With some materials, for example powders, the container will normally have more than one of the dispensing apertures and more than one of the obturator members. Thus, for example, a container for talcum powder may have from 3 - 5 of the dispensing apertures and the obturator members.

Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 is a front view of part of a container of the present invention;
Figure 2 is an enlarged section through part of the container shown in Figure 1;
Figure 3 is a section through a second container;
Figure 4 is a plan view of part of the container shown in Figure 3;
Figure 5 shows part of a third container;
Figure 6 is a section through part of a fourth container;
Figure 7 is a perspective view of part of the fourth container as shown in Figure 6; and
Figure 8 is a section like Figure 6 but shows part of a fifth container.

Referring to Figures 1 and 2, there is shown a container 2 comprising a body portion 4 and a closure device 6. The closure device 6 is such that the contents of the container 2 are able to be dispensed through the closure device 6.

The closure device 6 comprises a fixed portion 8 which forms a fixed part of the container 2, and a movable portion 10. The movable portion 10 is slidable with respect to the fixed portion 8 in a longitudinal direction from a closed position as shown in full lines in Figure 2 to an open position as shown in broken lines in Figure 2.

The movable portion 10 has a dispensing aperture 12. The fixed portion 8 has an obturator member 14 which blocks the dispensing aperture 12 when the movable portion 10 is in the closed position, and which does not block the dispensing aperture 12 when the movable portion 10 is in the open position. As can be seen from Figure 2, the obturator member 14 has a frusto-conical portion 16 which seats in the dispensing aperture 12.

The fixed portion 8 has an outer part 18 which is positioned on the outside of the container 2, and an inner part 20 which is positioned on the inside of the container 2. The movable portion 10 has an outer part 22 which is positioned on and slides over the outer part 18 of the fixed portion 8, and an inner part 24 which is positioned on and slides over the inner part 20 of the fixed portion 8. The obturator member 14 is centrally positioned in the inner part 20 of the fixed portion 8. The obturator member 14 extends from cne end of the inner part 20 as shown, along a longitudinal axis of the inner part 20. The obturator member 14 is mounted on a rib mounting arrangement 26. The rib mounting arrangement 26 comprises three ribs 28 which extend inwardly from the inner part 20 and which join together at a central portion 30.

The outer part of the movable portion 10 has an inwardly directed formation 32 which slides in a groove 34 in the outer part 18 of the fixed portion 8. This sliding takes place when the movable portion 10 is moved between the closed and open positions.

The inner and outer parts 20, 18 of the fixed portion 8 are cylindrical. The outer surface of the inner part 24 of the movable portion 10 is also cylindrical.

As can be seen from both Figures 1 and 2, the outer surface 36 of the outer part 22 of the movable portion 10 increases in size in a direction extending away from the body portion 4 in order to give the movable portion 10 a shape which facilitates movement by hand between the closed and open positions. The illustrated shape is easy to grip for a variable push-pull action.

The fixed portion 8 is a snap fit in positicn. More specifically, the container 2 has a neck portion 38 and the closure device 6 is positioned on the neck portion 38. The neck portion 38 has an outwardly extending circumferential formation 40. The inner surface of the outer part 18 of the fixed portion 8 has a complementarily shaped groove 42. The formation 40 and the groove 42 are such that the formation 40 is a push snap fit into the groove 42, this being effected by pushing the fixed portion 8 downwardly over the top of the neck portion 38. Once the formation 40 is in the groove 42, the formation 40 is shaped such that it is then not removable from the groove 42 so that the fixed portion 8 is then fixed to the neck portion 38.

The container 2 includes tactile indicator means 44 for indicating when the movable portion 10 has been moved from the open position to the closed position. The tactile indicator means 44 comprises a bead 46 on the fixed portion 8, and a groove 48 on the movable portion 10. When the bead 46 moves into the groove 48, this can be felt and heard by a person holding the movable portion 10. When the bead 46 is in the groove 48, it does not permanently hold the movable portion 10 to the fixed portion 8 and so it is easily possible to push or pull the movable portion 10 to the open position shown in broken lines in Figure 2 with the bead 46 easily coming out of the groove 48.

The container 2 includes tamper evident means 50 as shown in Figure 1. The tamper evident means 50 includes a pull tag 52.

The container 2 shown in Figures 1 and 2 is in the form of a bottle but it may be any other type of container.

Referring now to Figures 3 and 4, there is shcwn a

container 2 which is in the form of a tube and which has a closure device 6 which is such that it enables the tube to be mounted vertically on its end. Such tubes which are mounted vertically on their dispensing ends are sometimes known as tottles. The container 2 shown in Figures 3 and 4 has been given the same reference numerals as in Figures 1 and 2 for ease of comparison and understanding. As will be seen, the closure device 6 shown in Figures 3 and 4 is substantially the same as the closure device 6 shown in Figures 1 and 2 except that in Figures 3 and 4, the end of the closure device 6 is concave as shown in Figure 3 to allow the closure device 6 to stand on a surface 54 and to provide a reservoir to hcld dispensed contents.

Referring now to Figure 5, there is shown part of a container 2 in which the outer part 18 and the groove 34 have the shapes shown. A peg 56 locates in appropriate parts of the stepped groove 34 and enables operation with a click twisting action, in order to provide height movement and increase in the size of the aperture 12. This allows the opening 12 to be set at different flow rates, either at filling by the manufacturer or later by the customer. The ability to set the opening 12 at different flow rates allows the easy dispensing of products of variable viscosity.

Referring now to Figures 6 and 7, there is shcwn part of a container 2 in which the outer part 22 is provided with an inwardly projecting bead 56. The bead 56 is engagable as shown in one of three recesses 58, 6(), 62. In the position shown, the bead 56 is in the recess 58 which means that the movable portion 10 is in its closed position. The movable portion 10 can then be slid longitudinally so that the bead 56 engages either the recess 60 to open the dispensing aperture 12 by a first amount, or the recess 62 to open the dispensing aperture 12 by a second and larger amount. If desired, more of the recesses may be provided.

In order to ensure that the bead 56 slips easily over the triangular portions 64 defining the recesses 58, 60, 62, the triangular portions 64 only extend part way around the circumference of the outer part 18 as best shown in Figure 6. The outer part 22 has a locally thinned wall and is thus able to deflect outwardly to facilitate the passage of the bead 56 over the triangular portions 64.

The movable portion 10 has a part 66 which slides against an outer face part 68 of the outer part 18. The parts 66, 68 form a sliding seal which prevents the contents of the container 2 being dispensed through the dispensing aperture 12 from getting between the parts 66, 68, and thus into the area of the recesses 58, 60, 62 and out from between the parts 18, 22.

Figure 8 shows a similar arrangement to that shown in Figures 6 and 7 except that the outer part 18 is formed as the neck 38 of the body portion 4 of the container 2.

It will be seen from Figures 6, 7 and 8 that the movable portion 10 has a concave top 70. This concave top 70 is available for forming a slightly dished portion for receiving container contents such as hand cream or body lotion which can then easily be wiped up with a finger to apply on to the face or body from the concave top 70.

The containers 2 shown in the drawings are easily operated and they allow easy dispensation of the contents of the container through the dispensing aperture 12. The sealing arrangement afforded by the obturator member 14 helps to prevent products blocking and being wasted in the closure device 6. The frusto-conical portion 16 provides good sealing, whilst at the same time permitting easy opening. When the movable portion 10 is in the open position, the obturator member 14 does not unduly restrict the flow of contents from the container 2. The similarly shaped aperture 12 helps to return product and air back into the containers 2 when a user's hand releases the flexible sided containers 2, thus preventing a hollow appearance on closure.

It is to be appreciated that the embodiments of the invention described above with reference to the accompanying drawings have been given by way of example only and that modifications may be effected. Thus, for example, the features shown in the different drawings can be used in any suitable and appropriate different combinations. With a product such as talcum powder, a plurality of the dispensing apertures 12 and a plurality of the obturator members 14 may be employed. Also, the fixed portion 8 could be other than the illustrated snap fit in position so that, for example, the fixed portion 8 could be secured in position with a screw thread arrangement combined with a rotateable snap fit arrangement. Instead of the grooves 34 shown in Figure 5, a helical arrangement which gives the ability to set the opening 12 for different flow rates may be employed.

Claims

1. A container comprising a body portion and a closure device, the closure device being such that the contents of the container are able to be dispensed through the closure device, the closure device comprising a movable portion which is slidable in a longitudinal direction from a closed position to an open position, the movable portion having at least one dispensing aperture, and the container having at least one obturator member which blocks the dispensing aperture when the movable portion is in the closed position and which does not block the dispensing aperture when the movable portion is in the open position.

2. A container according to claim 1 in which the obturator member has a frusto-conical portion which seats in the dispensing aperture.

3. A container according to claim 1 or claim 2 and comprising a fixed portion about which the movable por-

tion slides, the fixed portion forming part of the closure device or part of the body portion.

4. A container according to claim 3 in which the fixed portion has an outer part and an inner part which extends inwardly of the outer part, and in which the movable portion has an outer part which is positioned on and slides over the outer part of the fixed portion, and an inner part which extends inwardly of the outer part.

5. A container according to claim 4 in which the outer part of the movable portion has an inwardly directed formation which engages at least one grocve in the outer part of the fixed portion when the movable portion is moved between the closed and open positions.

6. A container according to any one of the preceding claims in which the movable portion increases in size in a direction extending away from the body portion in order to give the movable portion a shape which facilitates movement by hand between the closed and open positions.

7. A container according to any one of the preceding claims in which the closure device has a reservcir portion for holding dispensed contents of the container and for affording an easy wipe out facility from the reservoir portion so that the reservcir portion is easily kept clean and the dispensed contents are effectively used.

8. A container according to any one of the preceding claims and include tactile indicator means for indicating when the movable portion has been moved from the open position to the closed position.

9. A container according to claim 8 in which the tactile indicator means is a bead and a groove formation.

10. A container according to any one of the preceding claims and including tamper evident means.

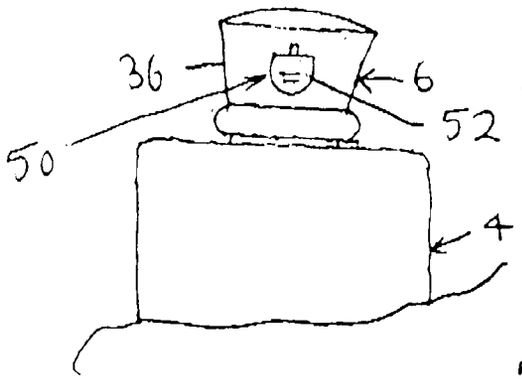


FIG 1

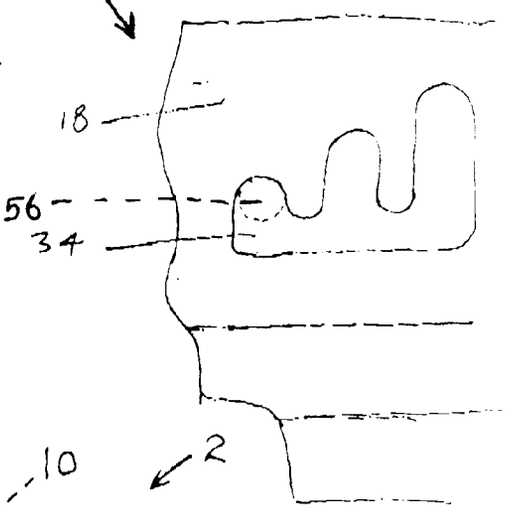


FIG 5

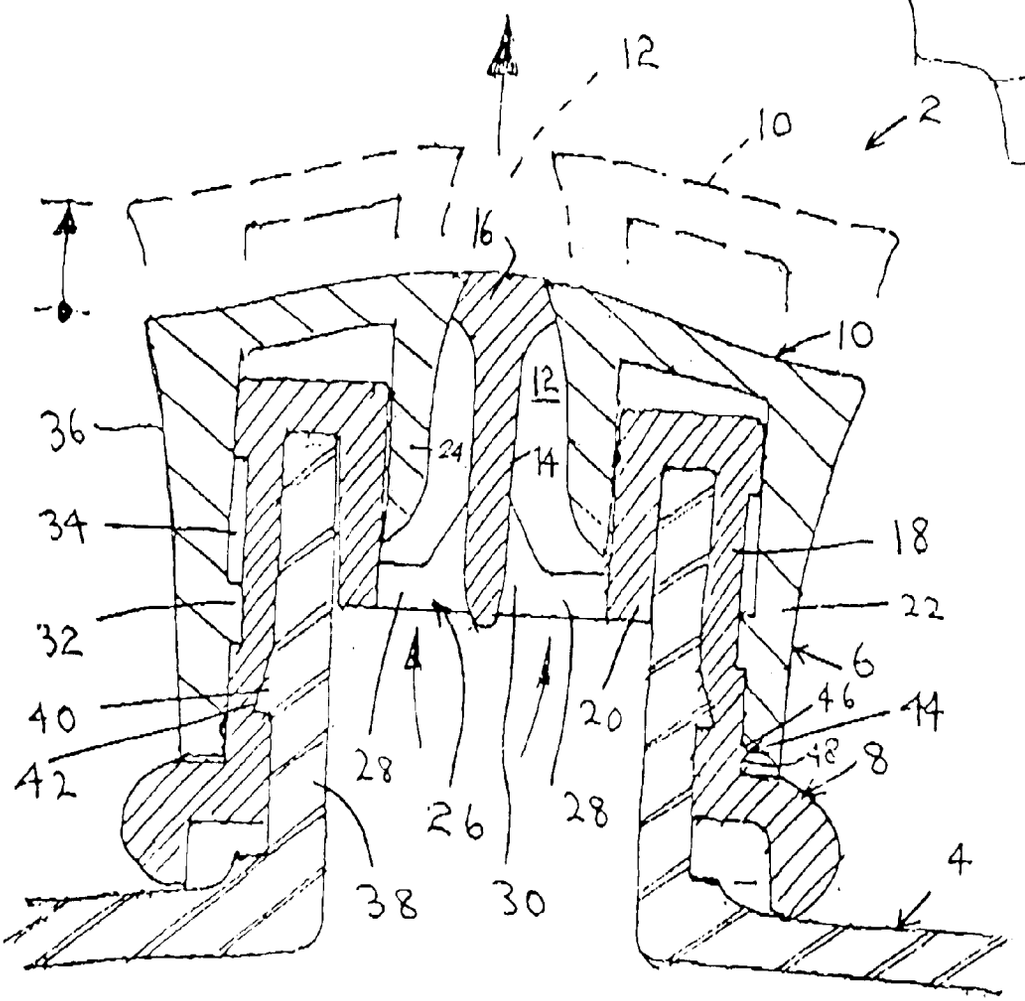


FIG 2

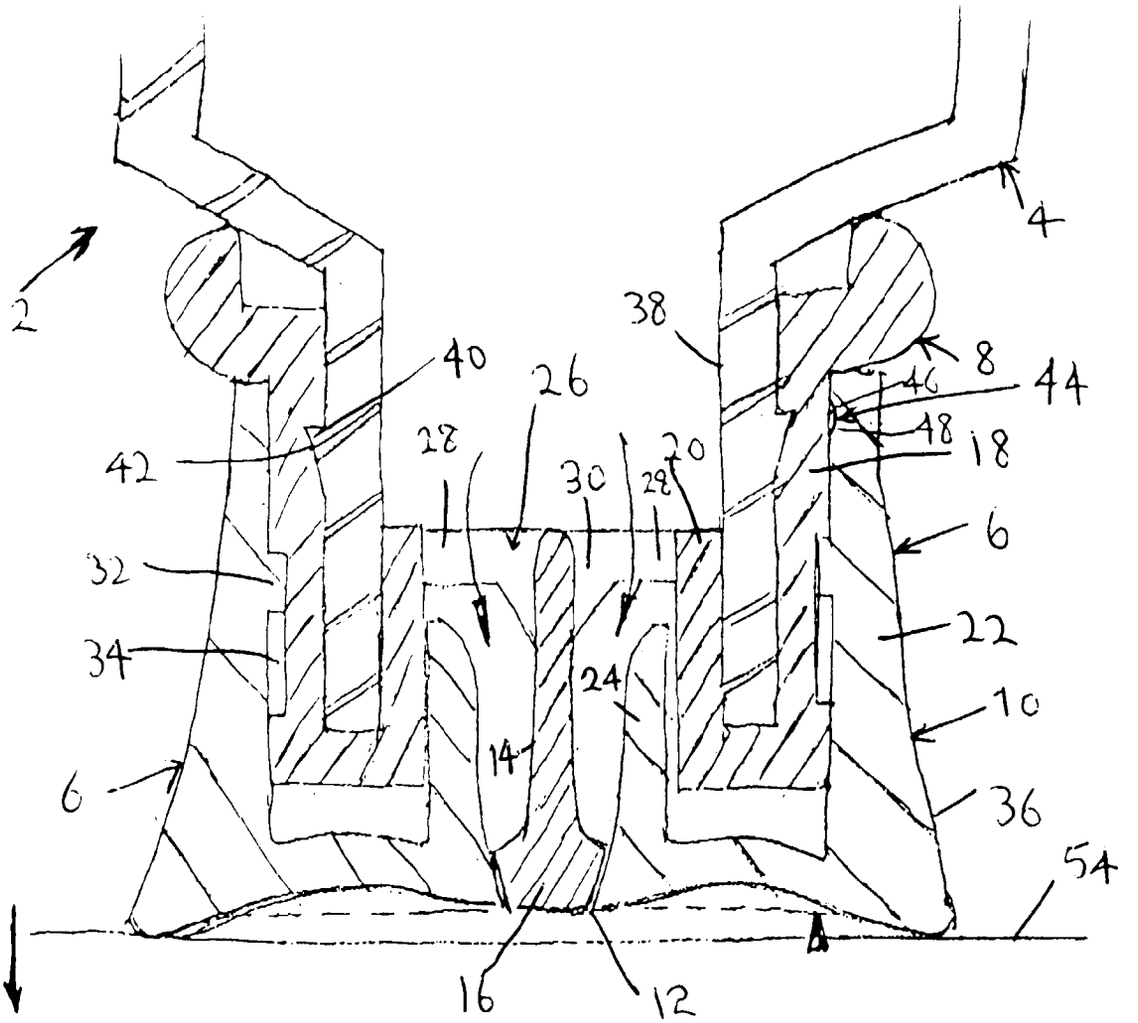
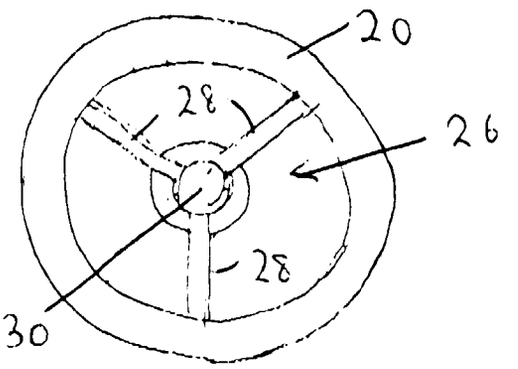

2
4
38
40
26
8
44
46
48
18
42
28
30
28
20
6
32
22
34
24
10
14
6
36
54
16
12

FIG 3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28
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FIG 4

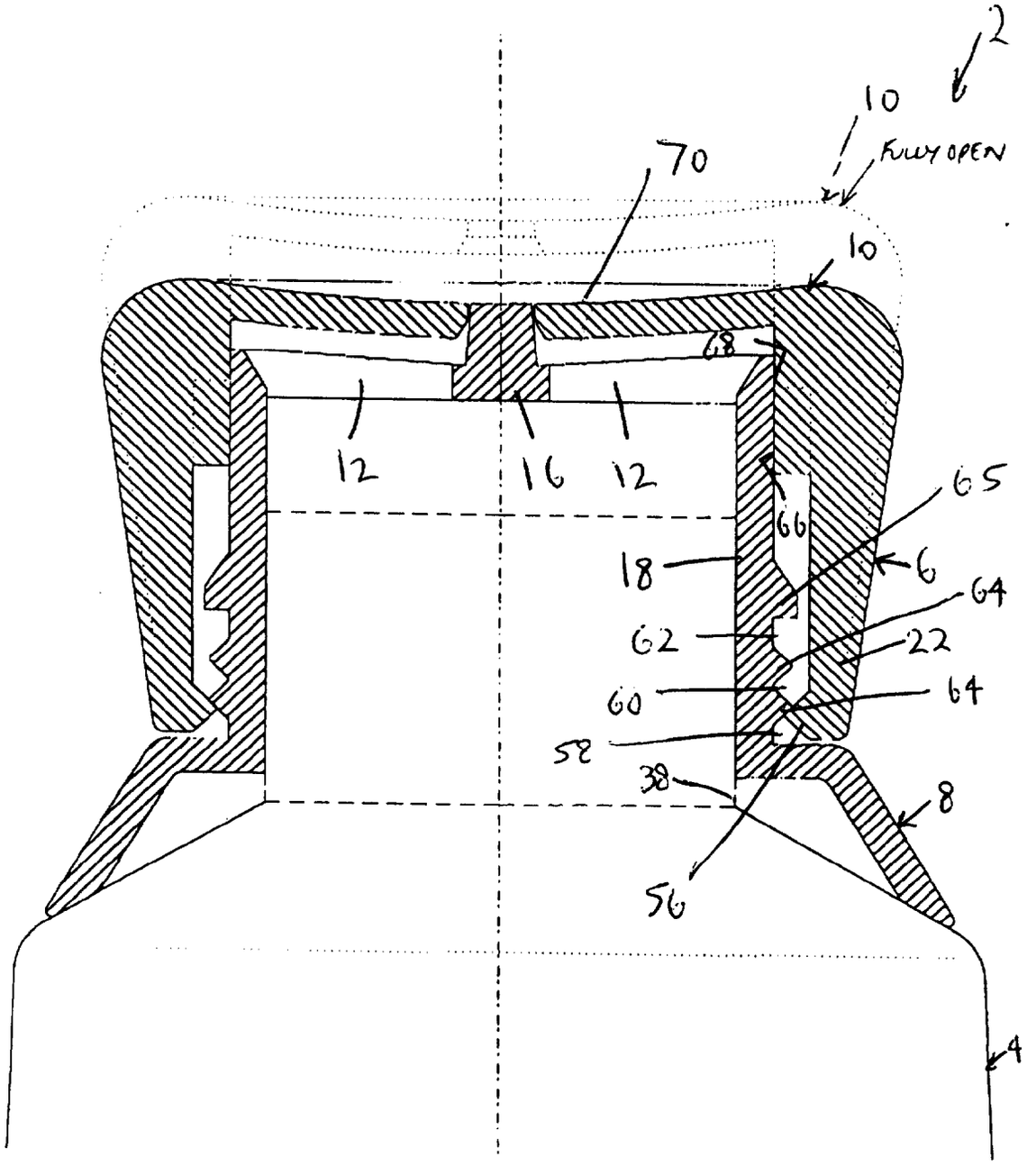

FIG 6

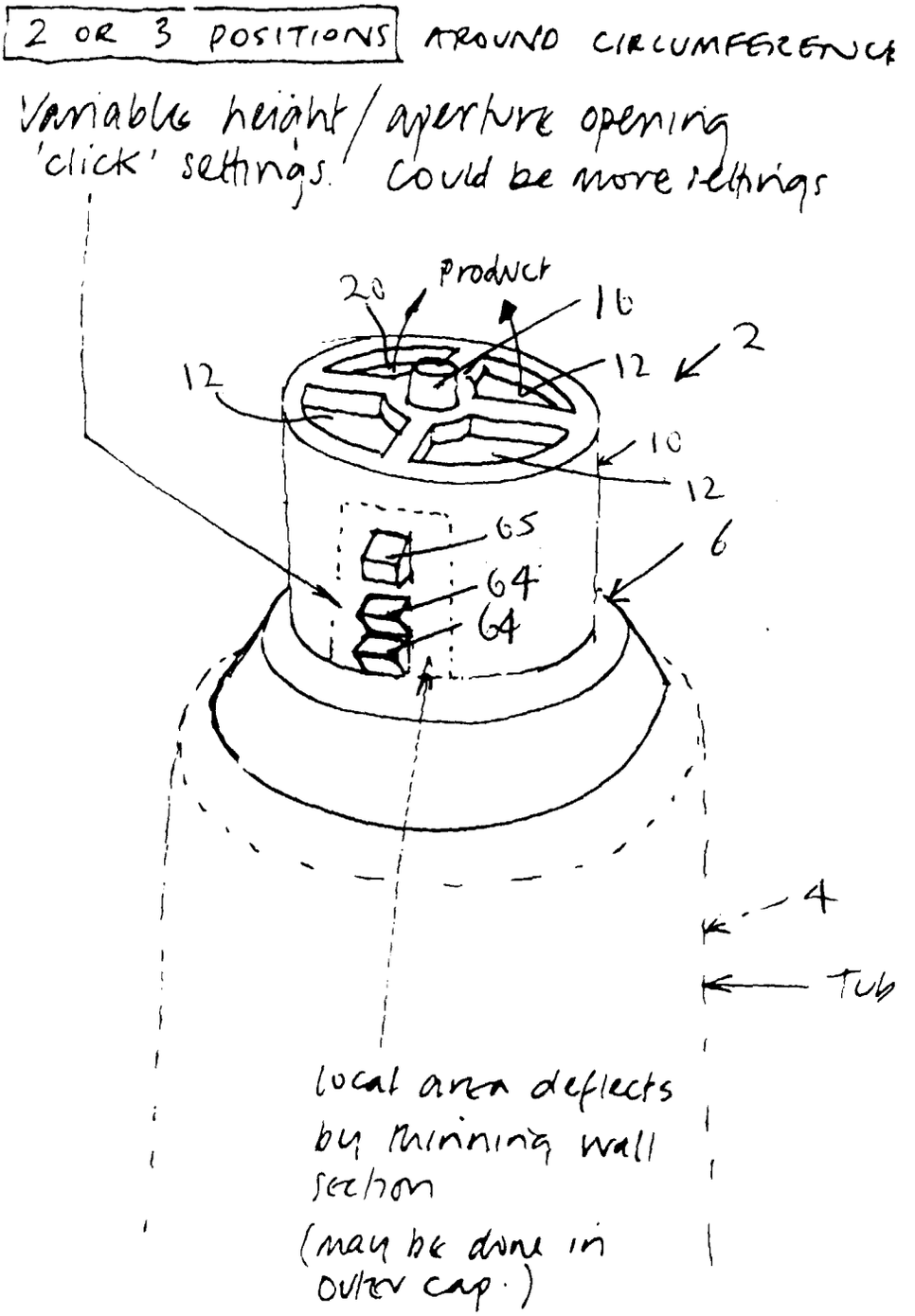
2 OR 3 POSITIONS AROUND CIRCUMFERENCE
Variable height / aperture opening 'click' settings. Could be more settings
Product
20
16
12
12
2
12
10
12
65
64
64
6
4
Tub
local area deflects by thinning wall section
(may be done in outer cap.)

FIG 7

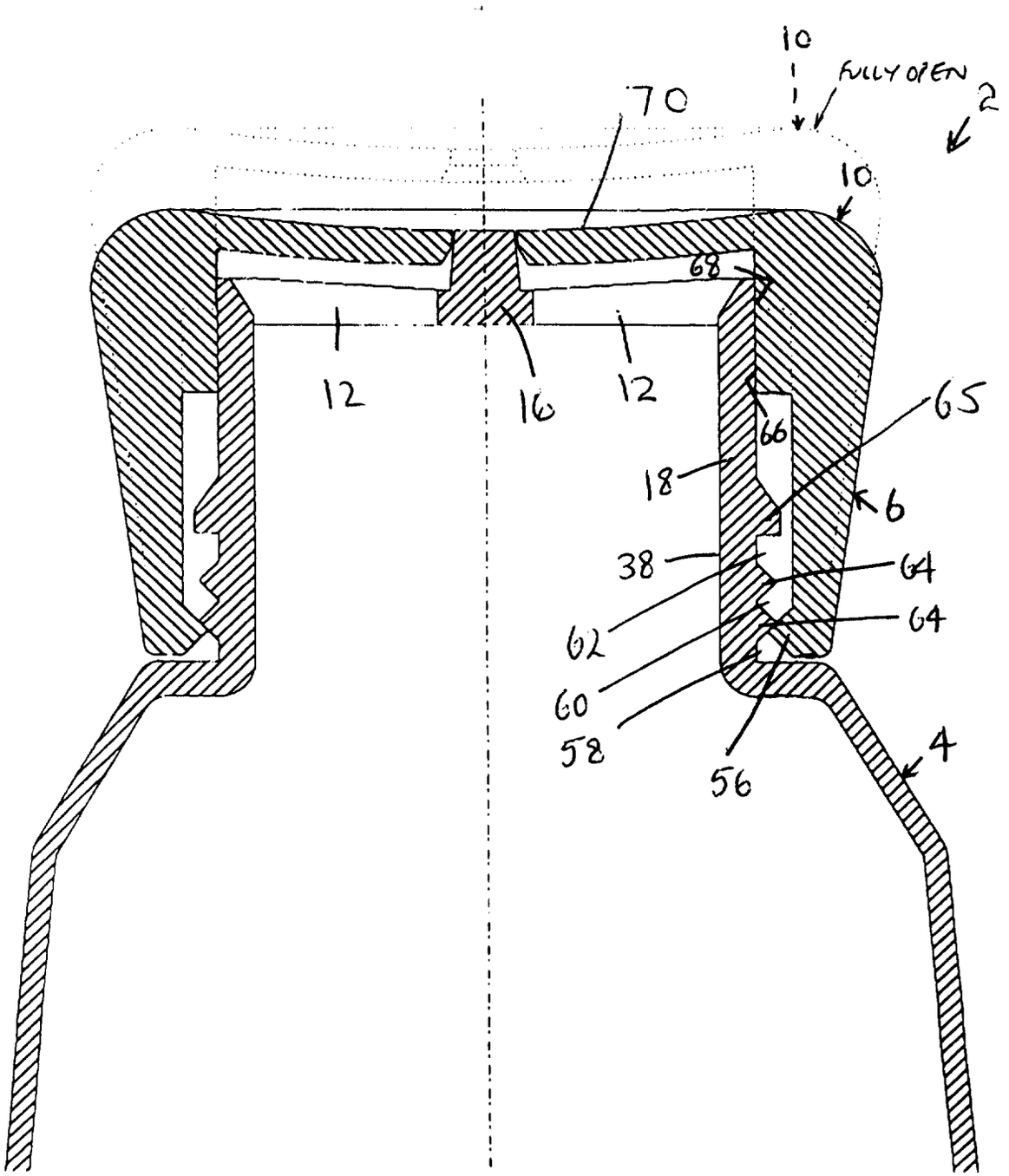

FIG 8

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 9420

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	DE 34 33 158 A (GEORG MENSHEN & CO) * page 9, line 20 - page 16, line 9; figures 1-6 *	1-3,10	B65D47/24
X	GB 951 553 A (HOLLOWAY LTD) * page 1, line 50 - page 2, line 9; figures 1,2 *	1-7	
X	US 5 429 282 A (STEBICK) * column 2, line 54 - column 6, line 64; figures 1A-5C *	1,3,8-10	
X	FR 2 067 282 A (AMERICAN CAN CO.) * figures 1-7 *	1,3,6,7	
X	US 4 967 941 A (BECK) * column 4, line 64 - column 5, line 52; figures 2,5,6 *	1,8,9	
X	US 1 970 505 A (PARKIN) * page 1, line 54 - line 72; figures 1-4 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
X	EP 0 374 049 A (LUCAS) * column 1, line 55 - column 3, line 25; figures 1,2 *	1-4	B65D
X	GB 1 049 300 A (PRODUCT DESIGN & ENGINEERING) * figures 1-3 *	1-4	
X	DE 93 03 734 U (SIGG AG) * figures 1,2 *	1,3,4	
A	DE 33 10 447 A (BRAMLAGE GMBH) * page 17, line 15 - page 18, line 14; figures 1-15 *	1	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	9 April 1998	Berrington, N

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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