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Description

This invention relates to the provision of a closure cap for a container and to a container and closure cap assembly. Children often attempt to tamper with containers of pills and the like and try to open such containers to get at the contents. Sometimes children have succeeded in opening a container of pills with tragic results. It is an object of the present invention to provide a container closure cap that is not easy to open simply by upward pressure.

Swiss Patent No. 529676 (Dr. Karl Thomae GmbH) discloses a two part stopper with an inner member having an undercut portion, a body and a stopper disc and an outer member having two locking segments placed at an angle of 90° to each other and including a locking bead forming a locking ring which engages in a groove to secure the outer member, which forms a safety cover, in position on the inner member. The safety cover can if desired be made in one piece with the inner member in which case the ring and the groove would be omitted. A safety bead was formed around the outside of the neck of the container and the locking segments of the outer member fit into the safety bead when the stopper is in position on the container so that the inner part is not visible from the side. When in position the inner member is disposed within an upper part of the outer member with the top of the inner member below the top of the outer member and with the upper part of the outer member engaging with the inner member.

Our own UK Patent No. 1521352 discloses a container and closure assembly in which the closure is in the form of a bung or plug which fits within the mouth of a container, removal of the closure from the container being prevented unless the closure is adjusted into a predetermined position relatively to the container. In the embodiment the closure had a recessed thumb grip and the container had a peripheral cut out at its mouth, so that when the thumb grip registers with the cut out the plug can be pushed out of the container. A protective break-off tab was disposed across the peripheral gap so as to prevent insertion of the thumb until the tab had been broken.

According to the present invention there is provided a closure cap adapted for closing the mouth of a container wherein the closure cap comprises an inner plug member and a coaxially arranged outer leeve member including an upper section and a lower section forming a depending skirt so that when in operative position the plug is seated in or over the mouth of the container so as to close the mouth and the skirt of the sleeve member embraces the outer surface of the container around the mouth with the lower section of the outer member engaging with the outer surface of the container in such a way that the closure cap cannot be removed by a simple upward pull in an axial direction characterised in that when the closure cap is in operative position the upper section of the sleeve member projects above the mouth of the container and that the inner plug is disposed within the upper part of the outer sleeve member with the top of the plug member above the mouth of the container but flush with or below the top of the outer sleeve member and further characterised in that the upper section of the outer member engages with the plug member, the arrangements being that the inner member can be removed from the outer member to open the container only when the inner member is in a predetermined position relative to the outer member.

The outer sleeve member may have a gap or cut-out in its upper peripheral edge and a substantially annular internal bead engaging with an annular external recess in the inner member and the internal bead may be interrupted below or in the region of the gap or cut-out, a thumb grip being provided on the inner member adjacent to its upper edge to facilitate removal of the inner member when it is in the said predetermined position.

The closure cap may be moulded as an inegral unit with the inner member disposed co-axially above the outer member, the two parts being interconnected by a frangible connection which is broken when the closure cap is applied to the container, breaking being effected by downward movement of the inner member into the outer member to an operative position. Alternatively the closure cap may be moulded in two parts, an inner member and an outer member which may be formed simultaneously but separately in the same mould after which an assembly operation is carried out so that complete closure caps are discharged from the moulding machine. Other methods may, if desired, be used, for example with less sophisticated moulds the two parts of the closure cap may be moulded separately and may then be assembled by hand or by a suitable form of press tool or assembly machine.

In order that the invention may be more clearly understood reference is now directed to the accompanying drawings given by way of example in which:—

Figure 1 shows a sectional view of one embodiment of a closure cap in accordance with the invention with the two parts of the closure gap formed separately.

Figure 2 shows the closure cap assembled on a container.

Figures 3 and 4 are respectively perspective sectional view of the closure cap before and after application to a container and

Figure 5 is a sectional view of an embodiment in which the two parts of the closure cap are formed as an integral unit and remain so until the closure cap is applied to a container. In this figure the closure cap is shown in position during application to a container and after it is in operative position.

Figures 6 and 7 are detail views, and Figure 8 is a modification.

Referring to the drawings, 1 is a container

which has a smooth inner surface 2 and an outer annular projecting ring 3. A two part closure cap comprises an inner member 4 in the form of a plug and an outer member 5 in the form of a sleeve, the inner member 4 being disposed co-axially within the outer member 5. The outer member 5 has an internal annular recess 7 shaped to receive the annular projecting ring 3, the shape of the recess 7 and the ring 3 being such that it is relatively simple to push the outer member 5 downwardly over the ring 3 so that the ring 3 engages in the recess 7 but it is almost impossible to remove the member 5 again by a simple upward movement. The outer member 5 has an internal substantially annular bead 8 for engagement within an annular recess 9 in the outer surface of the inner member 4 and the outer member 5 also has an interruption 13 in the bead 8 forming a gap therein as indicated in Figure 7. The inner member 4 has a thumb grip 11 and an embossed arrow or other mark on the top to indicate the position of the thumb grip 11. The interruption 13 in the substantially annular bead 8 is directly below or in the region of a gap or cut-out 10 in the peripheral top edge of the outer member 5 so that when upward pressure is applied to the thumb grip 11 of the inner member 4 through the gap or cut-out 10 the inner member 4 may be removed or pushed out of the outer member 5 in a tilting movement. It will be understood that pressure can be applied to the thumb grip 11 only when the inner member 4 is manipulated to bring the thumb grip 11 into registration with the gap or cut-out 10.

When upward pressure is applied to the thumb grip 11 to push the inner member 4 out of the outer member 5 to open the container 1 the inner member 4 first tilts because upward pressure on the thumb grip raises the near side of the inner member 4 so that the top of the inner member 4 inclines downwardly away from the gap or cut-out 10. In the opening movement therefore the inner member 4 may be described as being flicked out of the outer member 5. The assembly of the parts of the closure cap may be effected in such a way that the thumb grip 11 is out of registration with the gap or cut-out 10 in the periphery of the outer member 5 so that if the closure cap be applied automatically to a container, i.e. by machine, the closure cap will be seated on the container in a child-resistant position. Then, in operation, to open the container a user moves the inner member 4 angularly relative to the outer member 5 until the thumb grip registers with the gap or cut-out 10 and then flicks out the inner member. To facilitate correct positioning of the inner member for opening the arrow or other indication referred to above may be provided on the top of the inner member, the inner member beind pushed angularly around until the indicator points to the gap or cut-out 10. In this position a thumb of the user can be inserted through the gap or cut-out 10 and upward pressure then forces or flicks the inner member 4 out of the outer member 5. The outer surface of the inner member 4 is smooth except at the thumb grip 11 where it is stepped or otherwise shaped to enable a user to apply the required upward pressure to flick out the inner member 4. When the closure cap is in operative position as shown e.g. in Figure 2 a ledge 14 at the lower end of the inner member 4 sits on the edge 15 around the mouth of the container 1 while an annular depending portion 16 of the inner member 4 enters the mouth of the container 1 so that the inner member 4 of the closure cap turns on the edge of the mouth of the container 1 when the inner member 4 is manipulated relatively to the outer member 5.

Referring now to Figure 5 is will be noted that before application to the container 1 the closure cap is in the form of a one piece moulding comprising the inner member 4 and the outer member 5 interconnected by a frangible connection 6. In full lines in Figure 5 the closure cap is shown in one piece before application to a container 1 and in dot and dash lines the closure cap is shown in its operative position. The closure cap as an integral unit is applied to a container 1 in a normal manner and top pressure is exerted on the closure cap to push the inner member 4 into the outer member 5, to break the frangible connection, to push the outer member 5 into a position to embrace the surface of the container around its mouth and to seat the inner member 4 on or in the mouth.

If desired a tamper-resistant feature may be incorporated by providing a web or webs 12, as shown in Figure 6 connecting the top of the inner member to the outer member. The web or webs 12 must be broken before the inner member can be removed and breaking can readily be effected during rotation of the inner member to bring the thumb grip into registration with the gap or cut out. A broken web in the closure cap of what should be an unopened container gives a clear visual indication that the contents of the container may have been tampered with.

In a modification shown in Figure 8 the outer member 5 has a continuous annular bead 8 on its inner surface i.e. without the interruption 13 and the inner member has a substantially annular bead 20 below a recess 22 on its outer surface with an interruption 21 therein as shown in Figure 8, below the thumb grip 11. When the closure cap is in operative position the bead 20 is below the bead 8 which is within recess 22 and the thumb grip 11 is out of registration with the gap 10. When the inner member is manipulated to bring the thumb grip 11 into registration with the gap 10 the interruption 21 is below the gap 10 so that beads 8 and 20 are not in engagement below the gap 10 and the inner member can be tilted and flicked out of the outer member.

In all cases the interruption should be of sufficient size to permit easy removal of the inner member e.g. 30° long. The gap 10 may be the same size or of different size so long as it is big enough to receive the thumb of a user.

Claims

1. A closure cap adapted for closing the mouth of a container (1) wherein the closure cap comprises an inner plug member (4) and a coaxially arranged outer sleeve member (5) including an upper section and a lower section forming a depending skirt so that when in operative position the plug (4) is seated in or over the mouth of the container (1) so as to close the mouth and the skirt of the sleeve member (5) embraces the outer surface of the container (1) around the mouth with the lower section of the outer member engaging with the outer surface of the container (1) in such a way that the closure cap cannot be removed by a simple upward pull in an axial direction when the closure cap is in operative position and the upper section of the sleeve member (5) projects above the mouth of the container (1) and the inner plug member (4) is disposed within the upper part of the outer sleeve member (5) with the top of the plug member (4) above the mouth of the container (1) but flush with or below the top of the outer sleeve member (5) the upper section of the upper sleeve member (5) engaging with the plug member (4) characterised in that the arrangement is such that the inner plug member (4) can be removed from the outer sleeve member (5) to open the container (1) only when the plug member (4) is in a predetermined position relative to the outer sleeve member (5).

2. A closure cap according to claim 1 wherein the outer sleeve member (5) has a gap or cut-out (10) in its upper peripheral edge and a substantially annular internal bead (8) engaging with an annular external recess (9) in the inner plug member (4) and wherein the internal bead (8) is interrupted below or in the region of the gap or cut-out (10), a thumb grip (11) being provided on the inner plug member (4) adjacent to its upper edge to facilitate removal of the inner plug member (4) when it is in the said predetermined position.

3. A closure cap according to claim 1 or 2 moulded as an integral unit the two parts of the cap being interconnected by a frangible connection (6) which is broken when the closure cap is applied to a container (1).

4. A container closure cap according to claim 3 wherein the closure cap is applied to the container (1), which has an open mouth, by downward pressure so that the outer member (5) is secured around the mouth of the container in the manner of a sleeve and the inner member (4) is pressed into the outer member so as to seat in or on the mouth of the container (1) by movement relatively to the outer member (5) so that the frangible connection (6) is broken by the act of applying the closure cap to the container (1).

Revendications

1. Capuchon de fermeture apte à fermer l'embouchure d'un conteneur (1), du type comportant un élément intérieur formant bouchon (4) et un élément extérieur formant manchon (5) disposé coaxialement à l'élément précédent et comportant une section supérieure et une section inférieure formant une collerette descendante de sorte que, lorsqu'il est dans sa position opérationnelle, l'élément formant bouchon (4) est appliqué dans ou par-dessus l'embouchure du conteneur (1) de manière à fermer cette embouchure, et la collerette de l'organe formant manchon (5) enserre la surface extérieure de conteneur (1) autour de l'embouchure, la section inférieure de l'élément extérieur contactant la surface extérieure du conteneur (1) de telle manière que le capuchon de fermeture ne peut pas être retiré sous l'effet d'une simple traction ascendante suivante une direction axialle lorsque le capuchon de fermeture est dans sa position opérationnelle, et que la section supérieure de l'élément formant manchon (5) fait saillie au-dessus de l'embouchure du conteneur (1), et l'élément intérieur formant bouchon (4) est disposé à l'intérieur de la partie supérieure de l'élément extérieur formant manchon (5), avec la partie supérieure de l'élément formant bouchon (4) disposée au-dessus de l'embouchure du conteneur (1), mais en étant de niveau ou plus bas que la partie supérieure de l'élément formant manchon extérieur (5), alors que la section supérieure de l'élément extérieur formant manchon (5) engrène avec l'élément formant bouchon (4), caractérisé en ce que l'agencement est tel que l'élément intérieur formant bouchon (4) peut être retiré de l'élément extérieur formant manchon (5) de manière à ouvrir le conteneur (1) uniquement lorsque l'élément formant bouchon (4) est dans une position prédéterminée par rapport à l'élément extérieur formant manchon (5).

2. Capuchon de fermeture selon la revendication 1, dans lequel l'élément extérieur formant manchon (5) possède un évidement ou une découpe (10) dans son bord périphérique supérieur et une nervure intérieure essentiellement annulaire (8) engrenant avec un renfoncement extérieur annulaire (9) ménagé dans l'élément intérieur formant bouchon (4), et dans lequel la nervure intérieure (8) est interrompue au-dessous ou dans la région de l'évidement ou de la découpe (10), un organe (11) pour la préhension avec un pouce étant prévu sur l'organe formant bouchon intérieur (4) au voisinage de son bord supérieur de manière à faciliter l'enlèvement de l'élément formant bouchon intérieur (4) lorsqu'il se trouve dans ladite position prédéterminée.

3. Capuchon de fermeture selon la revendication 1 ou 2, moulé sous la forme d'une unité d'un seul tenant et dont les deux parties sont interconnectées par un élément de liaison cassant (6), qui est rompu lorsque le capuchon de fermeture est appliqué sur un conteneur (1).

4. Capuchon de fermeture pour conteneur selon la revendication 3, dans lequel le capuchon de fermeture est appliqué au conteneur (1) qui

posède une embouchure dégagée, par application d'une pression dirigée vers le bas de sorte que l'élément extérieur (5) est fixé autour de l'embouchure du conteneur à la manière d'un manchon et que l'élément intérieur (4) est enfoncé dans l'élément extérieur de manière à être appliqué dans ou sur l'embouchure du conteneur (1) moyennant un déplacement par rapport à l'élément extérieur (5), de sorte que l'élément de liaison cassant (6) est interrompu par l'action d'application du capuchon de fermeture sur le conteneur (1).

Patentansprüche

1. Verschlußkappe für das Schließen der Mündung eines Behälters (1), wobei die Verschlußkappe ein inneres Stöpselelement (4) und ein koaxial angeordnetes äußeres Hülsenelement (5) mit einem oberen Abschnitt und einem unteren, einen herabhängenden Rand bildenden Abschnitt derart aufweist, daß der Stöpsel (4) in der Einsatzstellung in oder über der Mündung des Behälters (1) zum Verschließen des Behälters gesetzt ist, und daß der Rand des Hülsenelements (5) die Außenfläche des Behälters (1) um die Mündung herum umgibt, wobei der untere Abschnitt des äußeren Elements sich im Eingriff mit der äußeren Fläche des Behälters (1) derart befindet, daß die Verschlußkappe nicht durch ein einfaches Aufwärtsziehen in axialer Richtung entfernt werden kann, wenn sich die Verschlußkappe in der Einsatzstellung befindet und daß der obere Abschnitt des Hülsenelements (5) über der Mündung des Behälters (1) vorragt, und wobei das innere Stöpselelement (4) innerhalb des oberen Abschnitts des äußeren Hülsenelements (5) so angeordnet ist, daß die Oberseit des Stöpselelements (4) über der Mündung des Behälters (1) liegt, jedoch mit der Oberseite des äußeren Hülsenelements (5) fluchtet oder unterhalb desselben leigt, wobei der obere Abschnitt des oberen Hülsenelements (5) sich im Eingriff mit dem Stöpselelement (4) befindet, gekennzeichnet durch eine derartige Anordnung, daß das innere Stöpselelement (4) von dem äußeren Hülsenelement (5) zum Öffnen des Behälters (1) nur dann entfernbar ist, wenn das Stöpselelement (4) sich in einer vorbestimmten Lage relativ zu dem äußeren Hülsenelement (5) befindet.

2. Verschlußkappe nach Anspruch 1, dadurch gekennzeichnet, daß das äußere Hülsenelement (5) einen Spalt bzw. einen Ausschnitt (10) in seinem oberen Umfangsrand und einen im wesentlichen ringförmigen inneren Wulst (8) aufweist, der sich im Eingriff mit einer ringförmigen äußeren Ausnehmung (9) in dem inneren Stöpselelement (4) befindet, und daß der innere Wulst (8) unterhalb oder in dem Bereich des Spaltes bzw. Ausschnitts (10) unterbrochen ist, wobei ein Daumengriff (11) an dem inneren Stöpselelement (4) nahe dessen oberen Rand zur Erleichterung des Entfernens des inneren Stöpselelements (4) vorgesehen ist, wenn es sich in der vorbestimmten Stellung befindet.

3. Verschlußkappe nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Verschlußkappe als einstückige Einheit gebildet ist, wobei die beiden Teile der Kappe durch eine zerbrechliche Verbindung (6) miteinander verbunden sind, welche beim Anbringen der Verschlußkappe an einem Behälter (1) zerbrechbar ist.

4. Behälterverschlußkappe nach Anspruch 3, dadurch gekennzeichnet, daß die Verschlußkappe an dem eine offene Mündung aufweisenden Behälter (1) durch einen nach unten gerichteten Druck derart angebracht ist, daß das äußere Element (5) um die Mündung des Behälters in der Art einer Hülse befestigt und das innere Element (4) in das äußere Element derart gedrückt ist, daß es in oder auf der Mündung des Behälters (1) durch eine Bewegung relativ zu dem äußeren Element (5) derart sitzt, daß die zerbrechliche Verbindung (6) durch das Anbringen der Verschlußkappe an dem Behälter (1) zerbrochen ist.

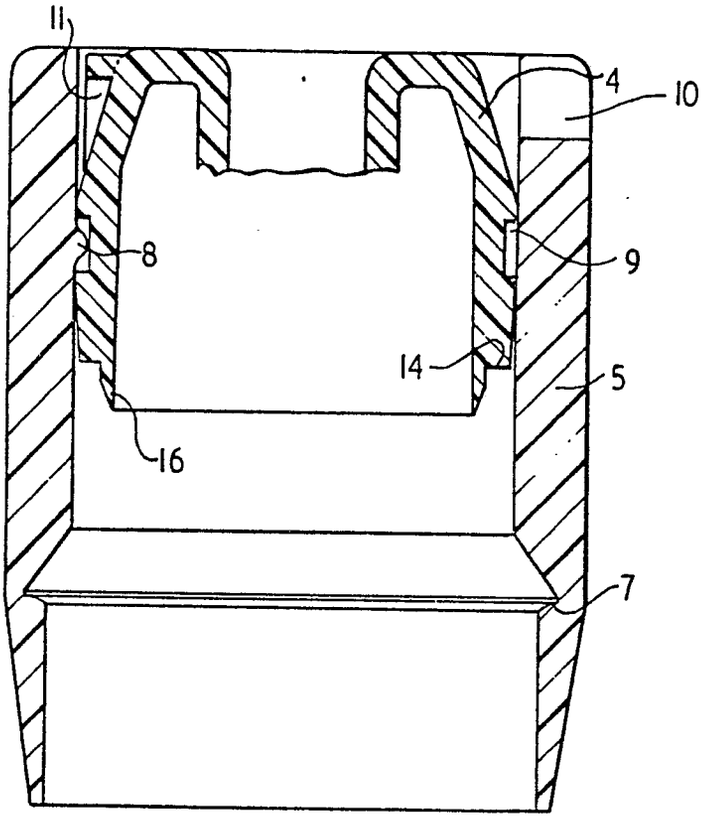


Fig.1.

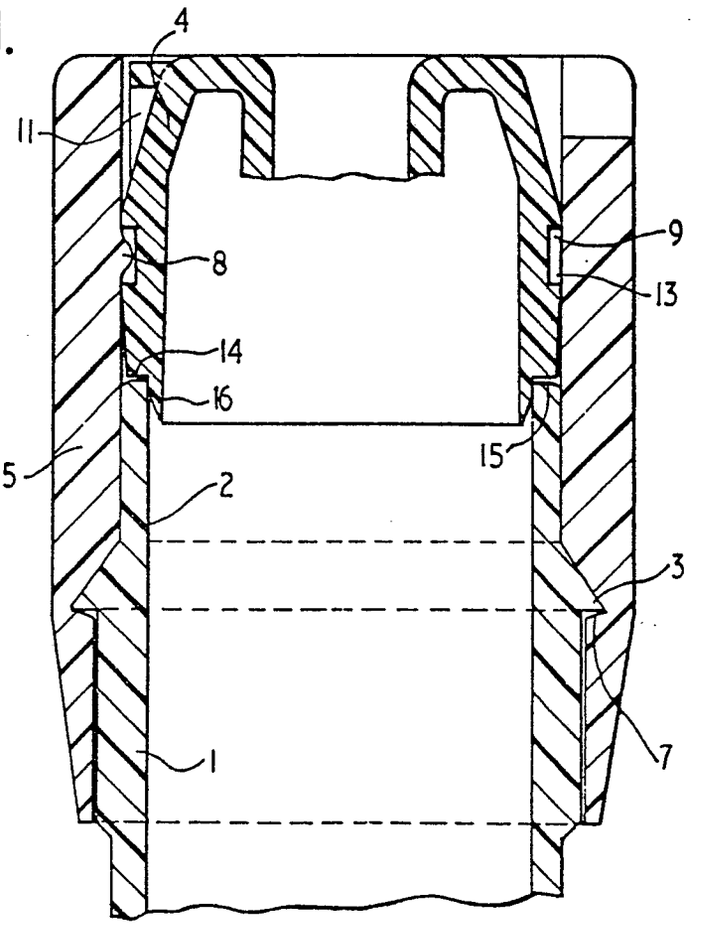


Fig.2.

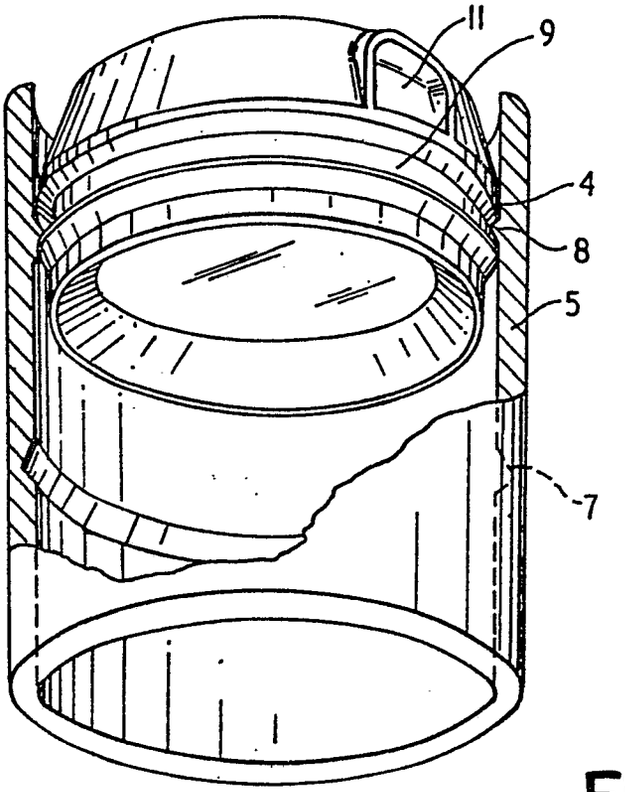
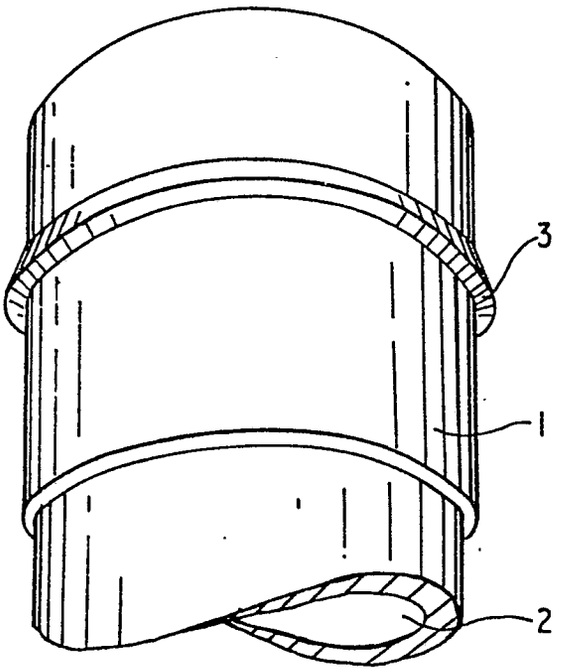


Fig.3.



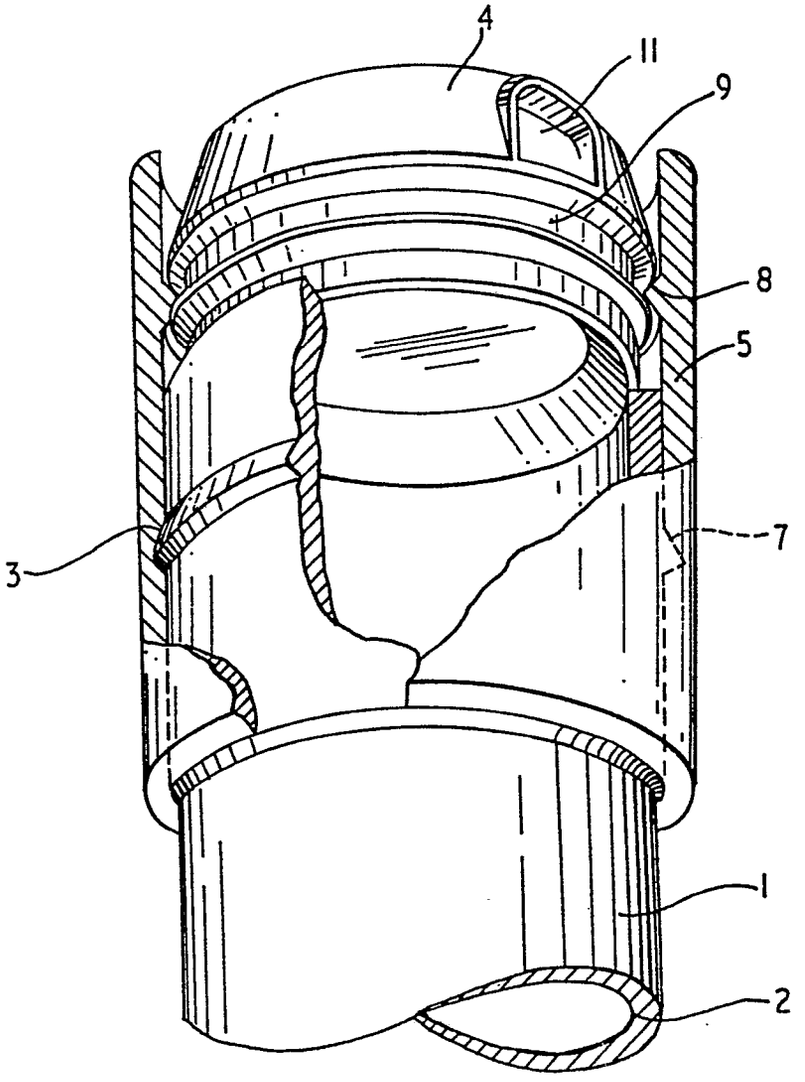


Fig.4.

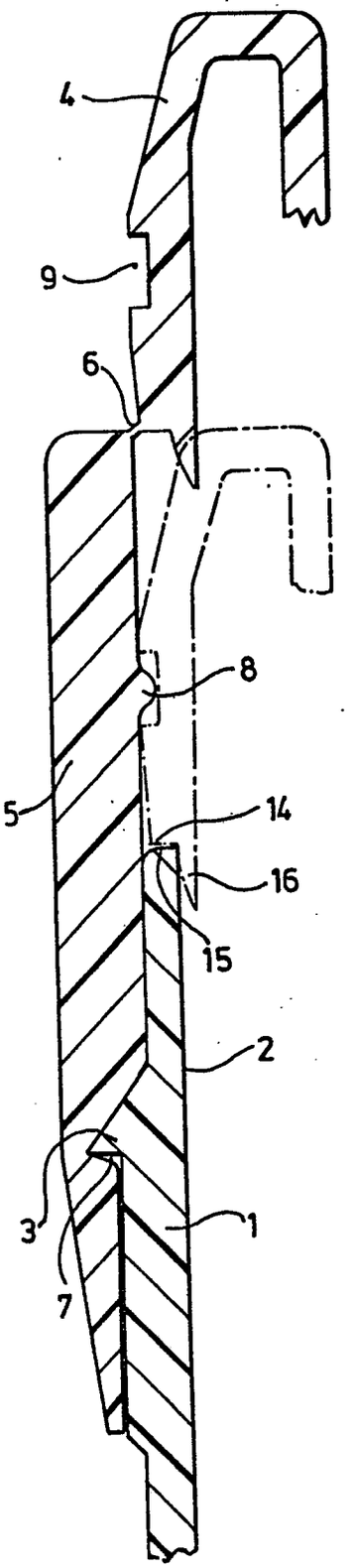


Fig.5.

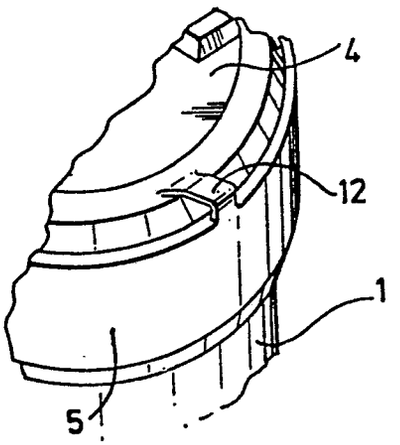


Fig.6.

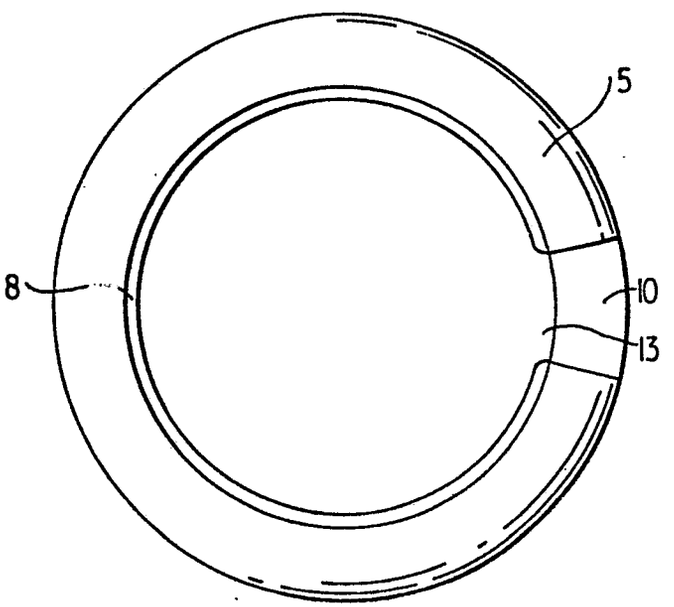


Fig.7.

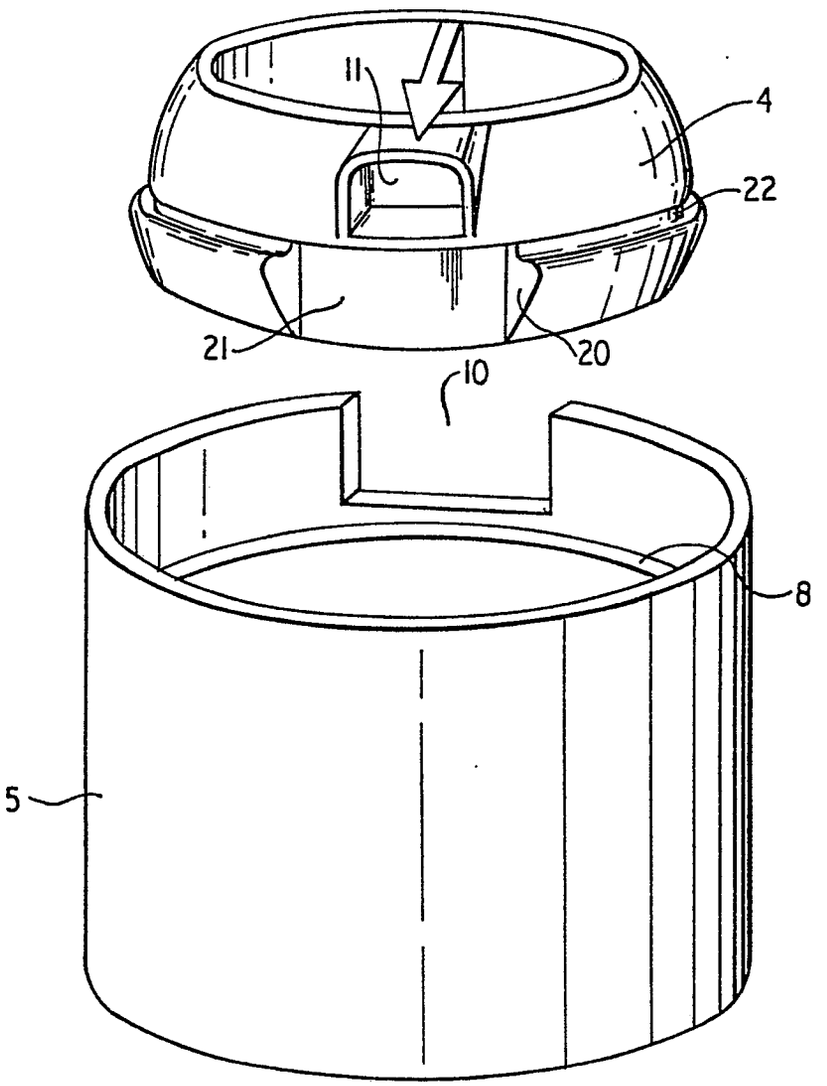


Fig.8.