

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO	
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TRA: 11 PCT-PATENTE DE INVENCION CAPITULOS I Y II	FOLIOS: 6
ACT: 430 REQUERSOLICITA	

DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Abogado(a)/Señor(a)
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Asunto: Radicación: 14-97912- -3
 Trámite: 11
 Evento: 378
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Patente de Invención	X			Patente de Modelo de Utilidad	
Vía Nacional					
Vía PCT (Fase Nacional)	X	Capítulo I	X	Capítulo II	
No. Solicitud Internacional	PCT/GB2012/052780				
Fecha de Presentación Internacional	08/11/2012				

Como resultado del examen de fondo realizado, con fundamento en el Artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

1. Documentos estudiados

Descripción:	Rad. N° 14-097912-00000-0000	07/mayo/2014
Reivindicaciones:	Rad. N° 14-097912-00000-0000	07/mayo/2014
Dibujos:	Rad. N° 14-097912-00000-0000	07/mayo/2014
Prioridad:	GB 1119311.7	08/Noviembre/2011

2. Análisis de la Prioridad

Se acepta la reivindicación de prioridad porque ésta solicitud fue presentada dentro del plazo establecido (Art. 9 D 486) y su contenido técnico corresponde con el de la prioridad reivindicada.

3. Objeto de la invención

De acuerdo con lo establecido en el numeral 1.2.2.2 del Capítulo Primero del Título X de la Circular Única para efectos del examen de patentabilidad, se tendrá en cuenta la tasa pagada por el solicitante al momento de comenzar el examen para las reivindicaciones adicionales; esto es que cuando la solicitud contenga más de diez (10) reivindicaciones y

no se haya pagado la tasa complementaria, sólo se estudiarán las cubiertas por la tasa pagada. Por lo tanto, se estudiarán las reivindicaciones 1 a 15.

Título de la solicitud: “Un cierre inviolable” (Fl. 1).

El problema planteado en esta solicitud consiste en un cierre para envases con el que pueda identificarse si el cierre ha sido abierto por lo menos una vez, con el fin de garantizar que el envase no se halla llenado con contenido no original.

Para resolver este problema técnico, la solicitud en estudio propone un cierre que consta de una primera porción y una segunda porción, las cuales están unidas entre sí por medio de una banda desmontable.

El objeto de la presente solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): B 65 D 49/04, 55/02.

4. Reivindicaciones relativas a un uso o a un segundo uso (Art 14 y 21 D 486)

El hecho de que el cierre inviolable se disponga en un envase determinado se considera la forma en que se utiliza dicho cierre. Se recuerda al solicitante que los usos no son patentables de acuerdo con el artículo 14 de la Decisión 486. En consecuencia, la reivindicación 15 no puede ser tenida en cuenta en el presente estudio.

5. De la solicitud de patente

Título

El título es de carácter general y no define el objeto de la invención. Se sugiere al solicitante modificar el título por uno que exponga dicho objeto, en lo posible refiriéndose a las características constructivas de la invención, por ejemplo, “Cierre inviolable con banda desmontable”

Reivindicaciones (Art 30 D 486, Art 22 PCT)

El capítulo reivindicatorio no es claro porque:

- Las reivindicaciones 5, 6, 10, 11, 12 y las expresiones: “...conectándose o pudiendo conectarse la primera porción a la segunda porción y retirarse de la misma, pudiéndose moverse el cierre (...) en la que están en una segunda relación relativa...”, “...para evitar que las porciones primera y segunda vuelvan a la primera posición...”, “...de tal manera que la banda de precinto desmontable debe retirarse antes de que las porciones primera y segunda puedan separarse la una de la otra.” (reivindicación 1), “...pudiendo moverse las partes interna y externa tras la primer apertura del cierre desde una primera posición a una segunda posición en la que hay un hueco entre al menos una parte de las porciones primera y segunda...”, “...para evitar que la primera porción vuelva a la primera posición con el fin de mantener el hueco...”, “...y mantiene la primera porción cautiva de tal manera que debe retirarse la banda de precinto desmontable antes de que pueda retirarse la primera porción.” (reivindicación 2), “...

puede moverse en relación con la parte interna desde una primera posición...”, “....dicha parte externa puede moverse a una segunda posición en la que hay un hueco no obstruido entre las mismas, en el que las partes interna y externa (...) para cerrar el hueco...”, “....que sujeta las porciones primera y segunda entre sí (...) de la primera porción de la segunda porción.” (reivindicación 3), “...para evitar que la parte interna se mueva en relación con la segunda porción hasta que la otra parte haya alcanzado la segunda posición...” (reivindicación 4), “...está obligada a moverse desde una primera posición retirada a una segunda posición extendida a medida que el cierre se mueve desde la primera a la segunda posición para facilitar la retirada del mismo.” (reivindicación 5), “...para evitar el retorno a la primera posición.” (reivindicación 7), “...entre las que se forma un hueco.” (reivindicación 8), “...cuando el cierre está en estado sin abrir.” (reivindicación 9); describen funciones, efectos, ventajas o resultados a alcanzar, los cuales no son aspectos susceptibles de patente. Para mayor claridad, el producto reclamado se debe definir técnicamente mediante sus características estructurales. Se sugiere al solicitante eliminar la reivindicación y las expresiones citadas.

- Las reivindicaciones 1, 2 y 4 incluyen el término “medios”, el cual es de carácter general y sugiere de forma imprecisa que la protección se extiende a otras posibles variaciones o modificaciones, lo que no permite comparar la invención con el estado de la técnica. Lo anterior, debido a que no se exponen las características estructurales del diseño de los medios del cierre. Es decir, el término citado no es suficiente para comprender la configuración del elemento al que se refiere.
- La expresión: “al menos” (reivindicación 2), es imprecisa, por lo cual no permite distinguir la invención del estado de la técnica. Se sugiere al solicitante eliminarla.

6. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de presentación de la solicitud de prioridad: noviembre 08 de 2011, y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Ítem	Documento	Título	Fecha de Publicación
D1	WO 2008/110917	'Tamper-proof device for closing bottles'	18/Septiembre/2008
D2	FR2'722.478	'Bottle cap with pourer and safety closure'	19/Enero/1996
D3	US 7'703.642	'Tamper evident closure assemblies'	27/Abril/2010

El documento D1¹ divulga un dispositivo para cerrar botellas que comprende una tapa (1), que consiste en una porción superior (7) y una porción lateral (8), un grupo difusor (2, 12), que acopla con la parte superior de la tapa (1) y en el fondo con un cuello de botella (5) (resumen).

¹
<https://www.google.ca/patents/WO2008110917A1?cl=en&dq=wo2008110917&hl=es&sa=X&ei=iEFiVYPRHMrLSASX14HIDA&ved=0CB0Q6AEwAA>

El documento D2² divulga una tapa para botella (22) que encaja sobre el cuello de una botella (16), que tiene un cierre de seguridad en forma de sello en forma de anillo que va alrededor de la tapa y es mantenida en su sitio en el vertimiento (resumen).

El documento D2³ divulga una tapa para botella (22) que encaja sobre el cuello de una botella (16), que tiene un cierre de seguridad en forma de sello en forma de anillo que va alrededor de la tapa y es mantenida en su sitio en el vertimiento (resumen).

7. Examen de Patentabilidad (Art 14 D486)

Novedad (Art 16 D486)

La reivindicación 1 consiste en: “*Un cierre inviolable para un envase, comprendiendo el cierre una primera porción y una segunda porción...*” (Ver página 13 del radicado N° 14-097912-00000-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

Características esenciales	D1	D2	D3
Cierre inviolable caracterizado por:	Dispositivo a prueba de manipulaciones caracterizado por:	Tapa de botella con dispensador y cierre de seguridad caracterizada por:	Cierre a prueba de sabotaje caracterizado por:
Una primera porción y una segunda porción.	Una primera porción (4'') y una segunda porción (4') (Fig. 1).	Una primera porción (22) y una segunda porción (16) (Figs. 1, 2 y 8).	Una primera porción (1) y una segunda porción (9) (Fig. 1).
Banda de precinto desmontable que une las porciones primera y segunda entre sí.	Banda de precinto (6) desmontable que une las porciones primera (4'') y segunda (4') entre sí (Fig. 1).	Banda de precinto (46) desmontable que une las porciones primera (22) y segunda (16') entre sí (Figs. 1, 2 y 8).	Banda de precinto (7) desmontable que une las porciones primera (1) y segunda (9) entre sí (Fig. 1).

De acuerdo con la tabla anterior, las características esenciales del cierre de la reivindicación 1 habían sido divulgadas previamente en los documentos D1 a D3, por lo tanto, la materia reivindicada no es nueva.

Asimismo, los documentos D1 a D3 divulgan las características de las reivindicaciones dependientes así:

- Reivindicación 2: Un trinquete (60) en la porción interna de la porción (4'') (porción externa) que interactúa con el difusor (2) (porción interna) (D1: reivindicación 5). Banda de precinto (6) desmontable que une las porciones primera (4') y segunda (4'') entre sí (D1: Fig. 1).

2 http://worldwide.espacenet.com/publicationDetails/biblio?CC=FR&NR=2722478A1&KC=A1&FT=D&ND=3&date=19960119&DB=EPODOC&locale=en_EP
3 <https://www.google.ca/patents/US7703642?dq=7703642&hl=es&sa=X&ei=vkViVfxK08exBLaUgOgD&ved=0CB0Q6AEwAA>

- Reivindicación 3: la parte externa (4'') es inmediatamente adyacente a la segunda porción (4'). Banda de precinto (6) desmontable que une las porciones primera (4') y segunda (4'') entre sí (D1: Fig. 1).
- Reivindicación 7: Un trinquete (60) en la porción interna de la porción (4'') (porción externa) que interactúa con el difusor (2) (porción interna) (D1: reivindicación 5). Un trinquete (40) (D2: Figs.5 y 6). Un trinquete (30) (D3: Fig. 16).
- Reivindicaciones 8 y 9: Las porciones (4'') y (4') están unidos por una línea frágil (6) (D1: resumen).
- Reivindicación 13 y 14: Un difusor inferior (12) y una válvula (13') equipada con una bola (13) con el difusor superior (2) (Fig. 1; Pág. 11, líneas 3 a 7)

Las reivindicaciones 4, 5, 6, 10 a 12 y 15 fueron afectadas en el numeral 4 de la presente comunicación.

8. Conclusión

Los requisitos de Patentabilidad de la presente solicitud están afectados así:

Ítem	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	WO 2008/110917	1 a 15	Novedad/Nivel Inventivo
D2	FR2'722.478	1 a 15	Novedad/Nivel Inventivo
D3	US 7'703.642	1 a 15	Novedad/Nivel Inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta (60) días contados a partir del día siguiente de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Se invita al solicitante se sirva indicar, si así lo considera, su renuncia al término faltante de sesenta (60) días para dar respuesta a este requerimiento y presentarla por escrito.

Finalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones, no pagará la tasa de modificación voluntaria pero sí la correspondiente al pago por reivindicación adicional.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.



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El anterior requerimiento fue notificado por fijación en lista, de fecha 2015-06-09

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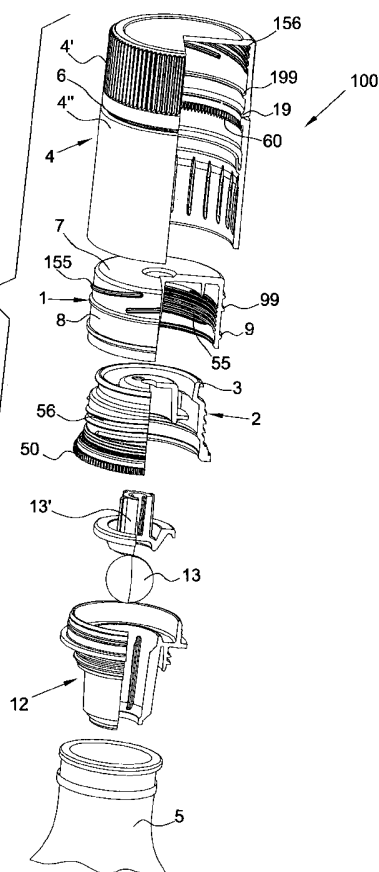
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(54) Title: TAMPER-PROOF DEVICE FOR CLOSING BOTTLES

Fig. 1



(57) Abstract: A device (100) for closing bottles comprising a cap (1), consisting of a top portion (7) and a side portion (8), a diffusing group (2, 12), suitable for coupling at the top with the cap (1) and at the bottom with a neck of a bottle (5), and a covering case (4) for the device (100) divided into a top portion (4') and a bottom portion (4'') joined together along a breaking line (6), wherein the top portion (4') is coupled with the cap (1), and wherein the top portion (4') is mobile with respect to the cap (1) between a first assembly position, in which the top portion (4') entirely covers the side of the cap (1), and a second position, after the first time the device (100) has been opened, in which the top portion (4') partially covers the side of the cap (1) and is irreversibly firmly connected with it in such a partial covering position.

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TAMPER-PROOF DEVICE FOR CLOSING BOTTLES

The present invention refers to a tamper-proof device for closing bottles.

Currently, different devices for closing bottles are
5 known, generally made up of a cap and a pourer or diffuser.

The cap has an internal threading suitable for engaging, to open or close the bottle, with a corresponding threading foreseen on the outer surface of the pourer.

10 The latter is pressure-fixed in the opening of the neck of the bottle or, through known means, to the neck of the bottle.

Moreover, a further case for covering the cap is foreseen, made from aluminium foil or plastic.

15 In general, closing devices known today have devices to make it clear whether the bottle has been opened before with respect to its assembly.

The indication of a bottle having been opened previously is necessary since, once the bottle has been opened, it
20 would be extremely simple to remove the cap to alter the content of the bottle itself. Therefore, a market requirement is that the end user can clearly recognise the state of integrity of the bottle and, consequently, of its content.

25 There are different types of such "tamper-proof" means. For example, some devices for closing bottles comprise

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an annular band provided with a predetermined breaking line to join the cap to the neck of the bottle before it is opened for the first time.

The presence of this annular band acts to make it clear
5 whether the bottle has been opened before. Indeed, the bottle cannot be opened without causing the aforementioned annular band to break, at the predetermined breaking line. Consequently, a broken annular band indicates that the bottle has been opened
10 before.

Other types of "tamper-proof" means consist of suitable surfaces formed on the cap suitable for blocking its reclosing movement. In this way, as the cap cannot go back into the original assembly position, it clearly
15 highlights that tampering has taken place.

However, this last category of closing devices, in which the reclosing stroke of the cap is blocked with respect to the assembly position, has the drawback of not ensuring an optimal seal/closing of the cap itself with
20 the diffuser to which it is connected.

Indeed, by turning the bottle upside down when it is in closed position after the first time it has been opened, precisely due to the fact that to highlight that tampering has taken place the cap is prevented from
25 descending fully onto the relative diffuser, the liquid contained in the bottle comes out from it and reaches

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the spaces left free between diffuser, valve and cap.

In light of the above, it is clear that there is a need to be able to have a device for closing bottles, like the one according to the present invention, which makes
5 it possible to eliminate or in any case reduce the possibility of a violation of the integrity of the bottle, i.e. it being opened and consequently with possible alteration or contamination of its content, not being immediately obvious, at the same time preventing
10 the fact that there can be undesired leaks of liquid in the closing steps of the device after assembly.

Therefore, a purpose of the present invention is to solve the problems of the prior art, providing a device for closing bottles that clearly and obviously shows
15 whether a bottle has been opened at least once after its original manufacture.

Another purpose of the present invention is to provide a device for closing bottles that even when turning the bottle upside down in closed position after the first
20 time of opening, ensures that the liquid contained in the bottle does not come out from it re-establishing the contact between diffuser, valve and cap like the one present in the assembly step.

Finally, another purpose of the present invention is to
25 provide a device for closing bottles that is simple and cost-effective to make.

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These purposes according to the present invention are accomplished by making a tamper-proof device for closing bottles as outlined in claim 1.

Further characteristics of the invention are highlighted
5 by the following claims.

The characteristics and advantages of a tamper-proof device for closing bottles according to the present invention shall become clearer from the following description, given as a non-limiting example, referring
10 to the attached schematic drawings, in which:

Figure 1 is an exploded perspective view of a closing device according to the present invention;

Figure 2 is a side elevation view partially in section of the closing device of figure 1, mounted on the neck
15 of a bottle, in a closed configuration prior to the first time of opening;

Figure 3 is a side elevation view partially in section of the closing device of figure 1, in a closed configuration after the first time of opening;

20 Figure 4 is an enlarged detail of figure 2; and

Figure 5 is an enlarged detail of figure 3.

With reference to the figures, a device for closing bottles according to the present invention is shown, wholly indicated with 100.

25 The closing device 100 comprises a cap 1, a diffusing group 2, 12, equipped with at least one lip 3, and a

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covering case 4.

The case 4, also in a known way, is made up of a top portion 4' and a bottom portion 4'' joined along an annular predetermined breaking line 6 that is
5 necessarily lacerated during the first time of opening of the bottle 5.

Such an annular predetermined breaking line 6, as known today is equipped with a plurality of bridges.

In the figures shown the diffusing group 2, 12 comprises
10 a bottom diffuser 12 and a top diffuser 2, suitable for fixedly connecting respectively to the neck of a bottle 5 and to the cap 1.

In the following description, with reference to the figures shown, we shall refer to the bottom diffuser 12
15 and to the top diffuser 2 separately, but alternatively the diffusing group 2, 12 can also be integral.

In order to ensure a good coupling between the bottom portion 4'' and the top diffuser 2 a tothing 50 is foreseen, arranged in an outer bottom position of the
20 top diffuser 2, and a counter-tothing 60 in the inner top portion of the bottom portion 4''.

Both in the case in which the bottom diffuser 12 is integral with the top diffuser 2, and when it is a distinct element, like in the example embodiment shown
25 in the figures, it can be fixedly connected in a known manner to the neck of the bottle 5.

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During the first time of opening, by acting on the top portion 4', it separates from the bottom portion 4'' of the case 4 along the tearing line 6.

The cap 1, associated on the inside with the diffuser 2 and on the outside with the top portion 4', comprises a flat top portion 7 and a tubular side portion 8 equipped with an internal threading 55, suitable for engaging with a corresponding threading 56 of the top diffuser 2, and with an external threading 155, suitable for engaging with a corresponding threading 156 located on the side of the top portion 4'.

The engagement between the threading 55 of the inner side portion 8 of the cap 1 and the threading 56 of the top diffuser 2 determines the closing of the cap 1 on the top diffuser 2 and consequently of the closing device 100 on the neck of the bottle 5.

The engagement between the threading 155 of the outer side portion 8 of the cap 1 and the threading 156 of the top portion 4' determines the movement of the latter with respect to the cap 1.

Of course, in the invention other types of coupling different to those described above and shown in the figures are also foreseen.

The side portion 8 of the cap 1 extends from the top portion 7 until it reaches the predetermined breaking line 6 with its bottom end part, in such a way the cap 1

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at assembly is entirely covered by the top portion 4'.

According to the invention, the closing device 100 comprises means 9, 19, 99, 199 for restricting the movement of the top portion 4' with respect to the cap 1.

5 In particular, such means 9, 19, 99, 199 ensure that, starting from the closed assembly configuration in which the top portion 4' entirely covers the cap 1, the top portion 4' is initially mobile so that it can irreversibly reach a position in which it is firmly
10 connected with the cap 1.

In particular, in such a second position, which occurs after the first time of opening of the device 100, the top portion 4' only partially covers the side surface 8 leaving a bottom portion 16 thereof uncovered.

15 In the example embodiment shown in the figures, these restriction means 9, 19, 99, 199 are a bottom outer annular projection 9 and a top one 99, formed on the outer side portion 8 of the cap 1, and a bottom inner annular projection 19 and a top one 199 formed on the
20 side portion of the top portion 4'.

As outlined above, according to the invention during the assembly of the closing device 100, the cap 1 is mounted together with the rest of the components of the closing device so that the top portion 4' is mobile and
25 completely covers the cap 1.

In the example embodiment shown in figures 2 and 4, such

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a configuration is reached thanks to the fact that the inner bottom annular projection 19 of the top portion 4', which is initially arranged at the breaking line 6, is located below the outer bottom annular projection 9 of the cap 1.

Moreover, during assembly the inner top annular projection 199 of the top portion 4' is located between the bottom and top outer annular projections 9, 99 of the cap 1, as can be seen in figure 2 and in the enlarged detail of figure 4. In such conditions the top portion 4' is mobile with respect to the cap 1 thanks to the quoted threaded coupling 155, 156 and to the fact that the quoted restriction means 9, 19, 99, 199 do not prevent it from moving.

During the first time of opening, by acting upon the top portion 4', as it is free to do so, it moves with respect to the cap 1, which stays in its assembly position until the restriction means 9, 19, 99, 199 according to the invention force the top portion 4' to be fixedly connected with the cap 1.

In such a condition, with the top portion 4' fixedly connected with the cap 1, a further movement of the top portion 4' forces the cap 1 itself to move with respect to the diffuser 2.

In the example shown, figures 3 and 5, this is accomplished thanks to the fact that the inner top

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projection 199 of the top portion 4', after an initial relative movement on the cap 1, goes into abutment with the outer top projection 99 of the cap 1.

In such a situation by continuing to act upon the top
5 portion 4', precisely due to the aforementioned coupling of projections 99, 199 and the threaded coupling 155-156, it pulls the cap 1 behind it, which, thanks to the threaded coupling 55-56 with the top diffuser 2, shall proceed to free the passage for the liquid contained in
10 the bottle.

Once such couplings are attained, which can be seen in figures 3 and 5, according to the present invention the restriction means 9, 19, 99, 199 force the portion 4' to irreversibly move as a unit with the cap 1.

15 In other words, by acting upon the top portion 4' even during the closing steps of the device 100, one will right away be acting upon the cap 1 without a relative downward movement of the portion 4' onto the cap 1, which only occurs at the first time of opening.

20 In the example embodiment, such a restriction is achieved with the inner bottom projection 19 of the top portion 4' that, after having passed over the outer bottom projection 9 of the cap 1, thanks for example to profiles with recesses, during the first time of opening
25 thereafter remains irreversibly in abutment with it.

In this way the top portion 4' is no longer mobile,

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neither up nor down, with respect to the cap 1 because it is restricted on top by the coupling in abutment of the projections 99-199 and at the bottom by the coupling in abutment of the projections 9-19.

5 Therefore, as stated above, by acting upon the top portion 4', which can no longer move relative to the cap 1, movement shall be given directly to the cap 1 on the relative diffuser 2.

In summary, it should be noted how according to the
10 invention the step of the first time of opening corresponds to two movements in sequence, first of the top portion 4' and then of the cap 1, whereas during the closing and opening steps after assembly, the top portion 4' and the cap 1 are irreversibly fixedly
15 connected to one another in a position such that a bottom portion 16 of the cap 1 is no longer covered, as it was at assembly, by the top portion 4'.

In this condition, the top portion 4' of the case 4 stays separate with respect to the bottom portion 4''
20 making the bottom end part 16 of the side portion 8 of the cap 1 always visible and, consequently, making it clear when the bottle 5 has been opened for the first time.

It should also be noted that in the closing steps after
25 the first time of opening the movement of the cap 1 is not hindered by any geometric coupling and thus is free

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to go back into the position on the diffuser 2 that it had taken up during assembly.

As already stated above, it is possible to associate a bottom diffuser 12 and a valve 13' equipped with a ball
5 13 with the top diffuser 2, as well as to equip the cap 1 with a central pin 14 for the interaction with said bottom diffuser 12.

An advantageous aspect of the present invention is that the opening can be even more obvious by providing the
10 bottom end part 16 of the side portion 8 of the cap 1 with a contrasting colour to the colour of the case 4.

From the description that has been made the characteristics of the system object of the present invention are clear, just as the relative advantages are
15 also clear, which include:

- impossibility for the bottle to be opening without it being obvious that this has occurred;
- repositioning, during closing after assembly, of the cap on the relative diffuser like in the assembly
20 configuration;
- intuitive operation;
- simplicity of construction;
- relatively low manufacturing costs.

It has thus been seen that a tamper-proof device for
25 closing bottles according to the present invention achieves the purposes outlined previously.

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The tamper-proof device for closing bottles of the present invention thus conceived can undergo numerous modifications and variants, all of which are covered by the same inventive concept; moreover, all of the details
5 can be replaced by technically equivalent elements. In practice, the materials used, as well as their sizes, can be whatever according to the technical requirements.

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CLAIMS

1. Device (100) for closing bottles comprising a cap (1), consisting of a top portion (7) and a side portion (8), a diffusing group (2, 12), suitable for coupling at the top with said cap (1) and at the bottom with a neck of a bottle (5), and a covering case (4) for said device (100) divided into a top portion (4') and a bottom portion (4'') joined together along a breaking line (6) equipped with bridges, wherein said top portion (4') is coupled with said cap (1), characterised in that said top portion (4') is mobile with respect to said cap (1) between a first assembly position, in which said top portion (4') entirely covers the side of said cap (1), and a second position, after the first time the device (100) has been opened, in which said top portion (4') partially covers the side of said cap (1) and is irreversibly firmly connected with it in such a partial covering position.

2. Device (100) for closing bottles according to claim 1, characterised in that said side portion (8) of said cap (1) comprises a threading (155) on the outside engaged with a corresponding counter-threading (156) located on the side of said top portion (4').

3. Device (100) for closing bottles according to claim 1 or 2, characterised in that it comprises means (9, 19, 99, 199) for restricting the movement of said top

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portion (4') with respect to said cap (1).

4. Device (100) for closing bottles according to claim 3, characterised in that said restriction means (9, 19, 99, 199) are an outer top annular projection (99) and an
5 outer bottom annular projection (9) located on said side portion (8) and an inner top annular projection (199) and an inner bottom annular projection (19) located on said top portion (4').

5. Device (100) for closing bottles according to any one
10 of the previous claims, characterised in that said diffusing group (2, 12) has coupling means (60) that can be associated with coupling means (50) of said bottom portion (4'') for a firm fastening of said diffusing group (2, 12) with said bottom portion (4'').

15 6. Device (100) for closing bottles according to claim 5, characterised in that said coupling means (50) of said diffusing group (2, 12) and said coupling means (60) of said bottom portion (4'') are two toothings.

7. Device (100) for closing bottles according to claim 1,
20 characterised in that said diffusing group (2, 12) comprises a bottom diffuser (12) and a top diffuser (2).

8. Device (100) for closing bottles according to claim 4, characterised in that in said second position following the first time of opening, said outer top annular
25 projection (99) of said cap (1) interferes with said inner top annular projection (199) of said top portion

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(4'), and said outer bottom annular projection (9) of said cap (1) interferes with said inner bottom annular projection (19) of said top portion (4') preventing the side portion (8) from being completely covered by the case (4) and leaving a bottom portion (16) thereof visible.

9. Device (100) for closing bottles according to any one of the previous claims, characterised in that the side portion (8) of the cap (1) is made with a contrasting colour to the colour of the case (4).

10. Device (100) for closing bottles according to any one of the previous claims, characterised in that said diffuser (2) on top comprises at least one lip (3) that both during said closed assembly position and during said second position following the first time of opening of the device (100), is in contact with said cap (1).

Fig. 1

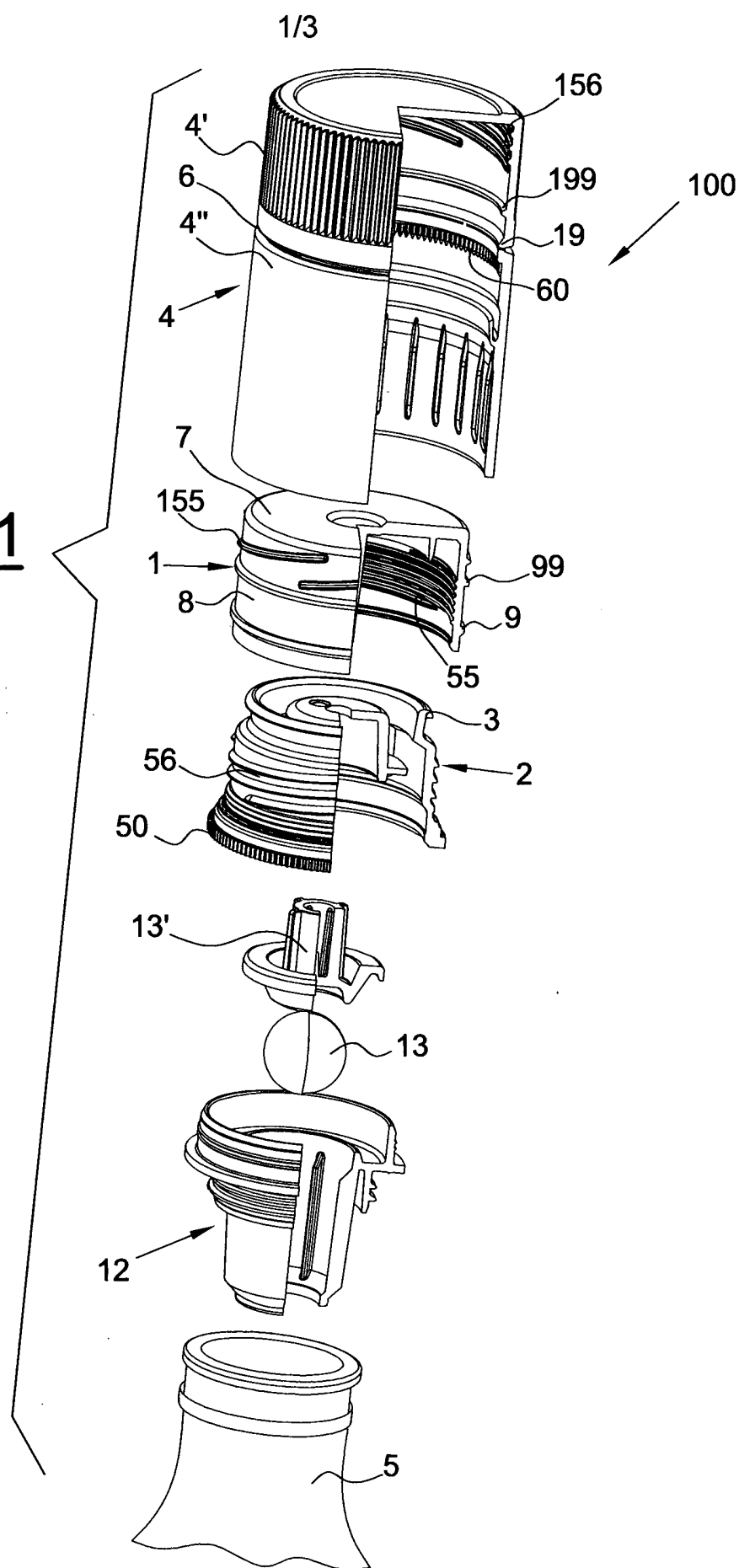


Fig. 2

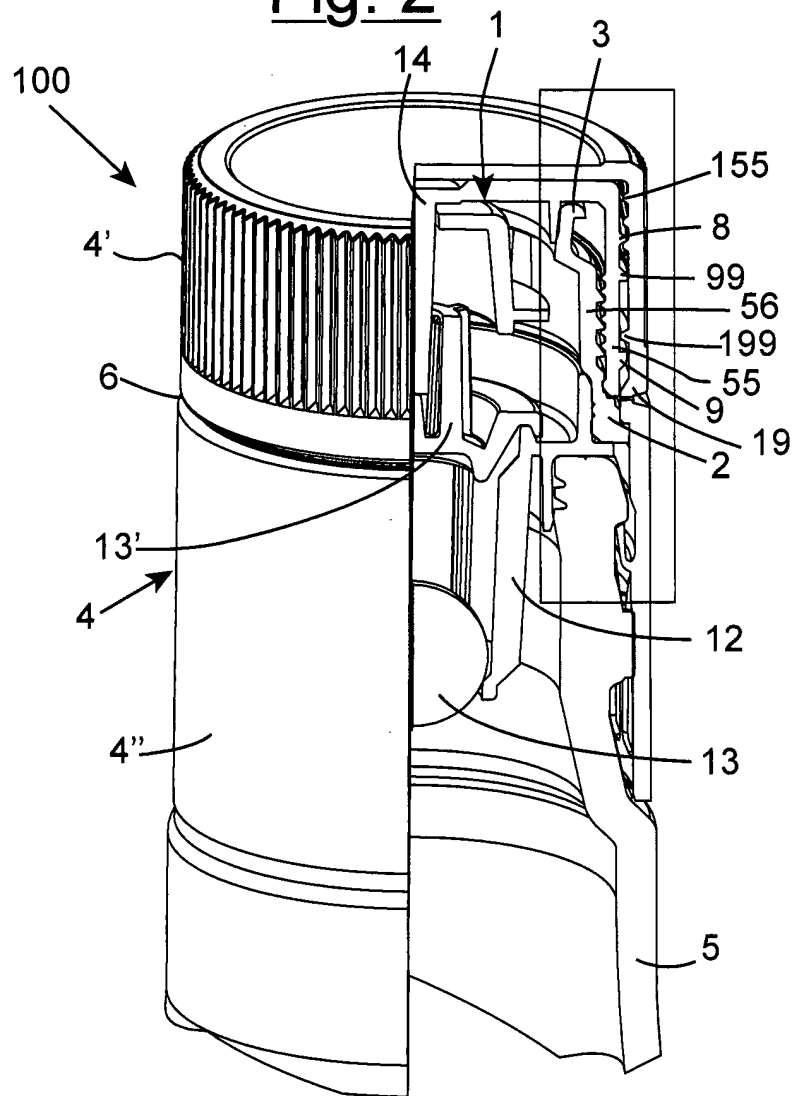
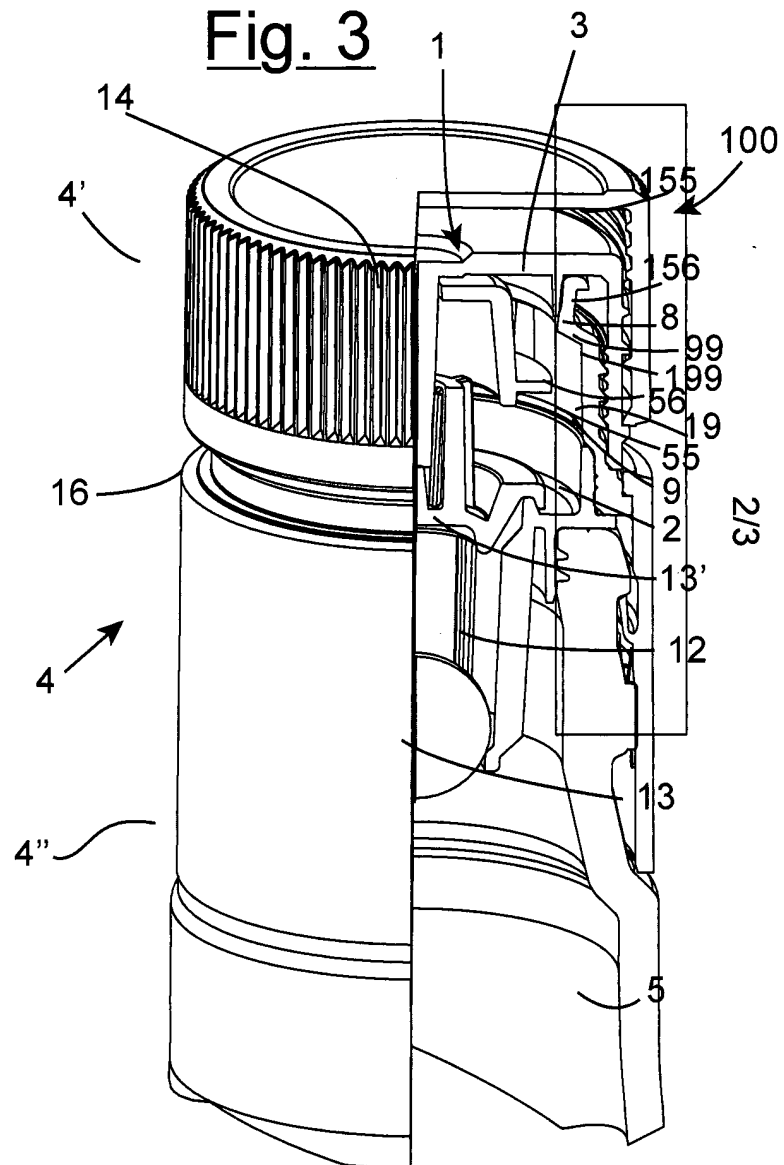


Fig. 3



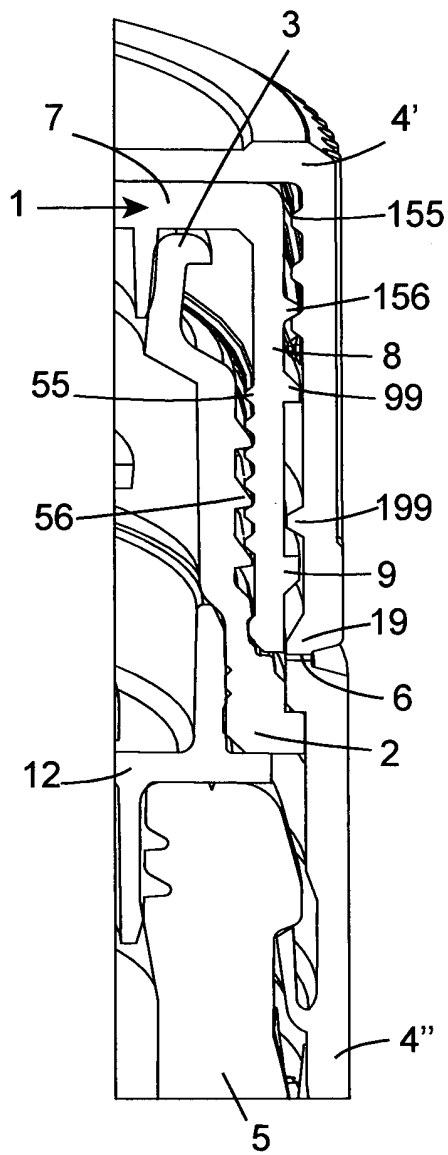


Fig. 4

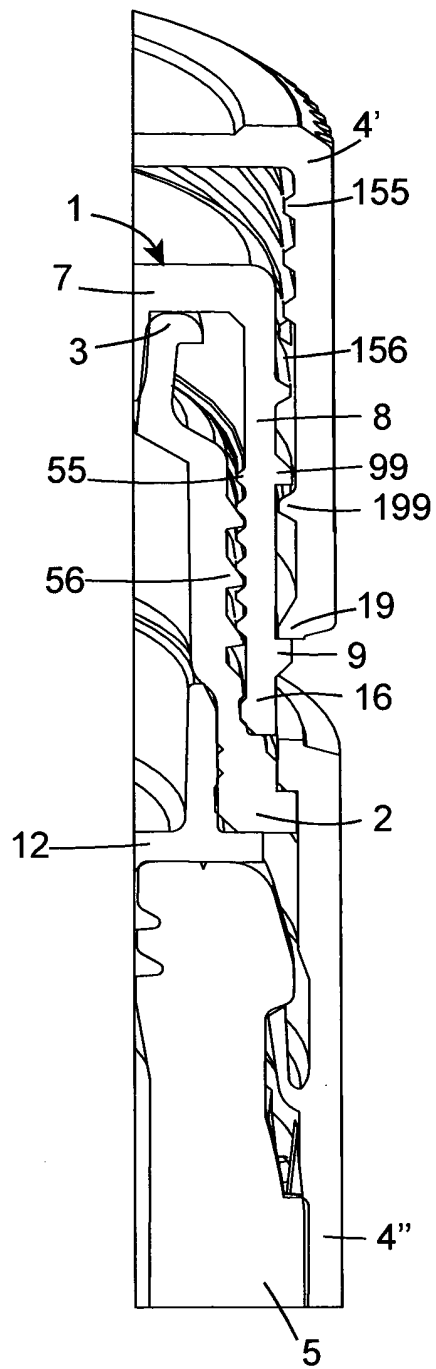


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2008/000638

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D51/18 B65D41/62 B65D55/02

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):

B65D

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.
X	WO 2005/049443 A (CROWN PACKAGING TECHNOLOGY INC [US]; CROWN PACKAGING UK PLC [GB]; RAMS) 2 June 2005 (2005-06-02) page 2, line 20 - page 4, line 14 page 6, line 9 - page 16, line 30; figures 1-14	1-3,5,7, 9,10
A	WO 03/104100 A (MONTGOMERY DANIEL & SON LTD [GB]; THOMSON DAVID WILLIAM [GB]) 18 December 2003 (2003-12-18) page 14, line 29 - page 20, line 23; figures 3-5	1,7,9
A	WO 02/096771 A (MONTGOMERY DANIEL & SON LTD [GB]; THOMSON DAVID WILLIAM [GB]; MEZZADRA) 5 December 2002 (2002-12-05) page 9, line 21 - page 11, line 11; figures 1-4	1,7,9
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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2008/000638

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 602 591 A (CIA DE TAPONES IRRELLENABLES S [ES]) 7 December 2005 (2005-12-07) paragraph [0035] - paragraph [0050]; figures 1,2 -----	1,7,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2008/000638

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2005049443	A	02-06-2005	AT 387382 T BR PI0416014 A ES 2302040 T3 US 2007090110 A1	15-03-2008 02-01-2007 01-07-2008 26-04-2007
WO 03104100	A	18-12-2003	AT 327179 T AU 2003236886 A1 BR PI0311671 A CN 1659084 A DE 60305490 T2 EP 1511677 A1 ES 2261945 T3 GB 2390086 A KR 20050028918 A MX PA04012131 A	15-06-2006 22-12-2003 04-03-2008 24-08-2005 02-11-2006 09-03-2005 16-11-2006 31-12-2003 23-03-2005 24-05-2005
WO 02096771	A	05-12-2002	AT 305420 T BR 0210018 A CN 1524053 A DE 60206374 T2 EA 5536 B1 EP 1392575 A1 ES 2249582 T3 GB 2377699 A MX PA03010696 A PL 367335 A1 US 2004129729 A1	15-10-2005 10-08-2004 25-08-2004 13-07-2006 28-04-2005 03-03-2004 01-04-2006 22-01-2003 07-03-2005 21-02-2005 08-07-2004
EP 1602591	A	07-12-2005	AT 345283 T AU 2003288277 A1 BR 0316573 A CN 1726154 A WO 2004054890 A1 ES 2274292 T3 ES 2234378 A1 ES 2298073 A1 MX PA05005980 A	15-12-2006 09-07-2004 04-10-2005 25-01-2006 01-07-2004 16-05-2007 16-06-2005 01-05-2008 23-08-2005

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⑫

DEMANDE DE BREVET D'INVENTION

A1

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③0 Priorité : 08.07.94 IT 94001432.

④3 Date de la mise à disposition du public de la
demande : 19.01.96 Bulletin 96/03.

⑤6 Liste des documents cités dans le rapport de
recherche préliminaire : *Ce dernier n'a pas été
établi à la date de publication de la demande.*

⑥0 Références à d'autres documents nationaux
apparentés :

⑦1 Demandeur(s) : GUALA SPA SOCIETA PER AZIONI
— IT.

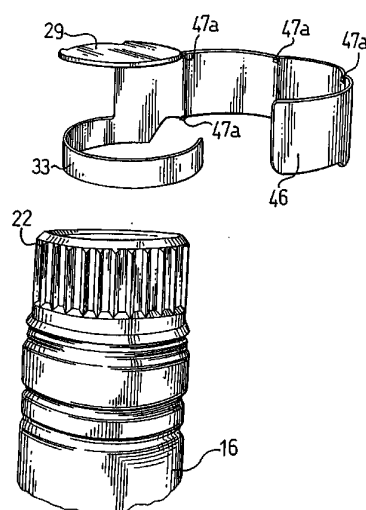
⑦2 Inventeur(s) : BATTEGAZZORE PIERO.

⑦3 Titulaire(s) :

⑦4 Mandataire : RINUY SANTARELLI.

⑤4 **FERMETURE DE GARANTIE POUR BOUTEILLES DE LIQUEURS DE VALEUR.**

⑤7 Une fermeture de garantie (3) pour une bouteille (2)
pour liqueurs de valeur, dans laquelle il est pratiquement
impossible de dissimuler une ouverture non autorisée,
comporte un corps verseur (9) associé à la bouteille (2), un
bouchon (22) associé au corps verseur (9) et un sceau de
garantie (26) entre le bouchon (22) et le corps verseur (9),
le sceau de garantie (26) étant constitué d'un capuchon
(27) emboîté sur le bouchon (22), retenu axialement sur le
corps verseur (9) et muni d'une entaille (45) qui définit une
langue de prise (46) d'une longue ligne d'affaiblissement
(47), s'étendant sur toute la surface du capuchon (27), à
partir de l'entaille (45), pour l'arrachage du sceau de garan-
tie (26).



FR 2 722 478 - A1



La présente invention concerne une fermeture de garantie pour une bouteille, en particulier pour liqueurs de valeur, du type comportant un corps verseur associé à la bouteille, un bouchon associé au corps verseur et un sceau de
5 garantie entre le bouchon et le corps verseur.

On sait que contre les bouteilles qui contiennent des liqueurs de valeur, s'acharnent non seulement les efforts de ceux qui tentent de remplir les bouteilles vides avec des liqueurs de moindre valeur, mais encore et surtout les
10 efforts de ceux qui tentent de prélever de petites quantités de chaque bouteille, en remplaçant la fermeture sur chaque bouteille, de manière à dissimuler l'ouverture non autorisée.

Pour éviter ces prélèvements non autorisés, les fermetures actuellement connues sont pourvues de bandes de
15 garantie qui doivent être enlevées pour permettre l'ouverture de la bouteille. Malheureusement il a été constaté, qu'avec du temps et de la patience, et en exerçant une certaine habileté manuelle, il est possible de recomposer le sceau de garantie de manière qu'il présente à nouveau une
20 configuration approximativement identique à la configuration d'origine. En conséquence l'ouverture pratiquée non autorisée ne peut être décelée par le consommateur.

La présente invention a pour but de réaliser une fermeture de garantie du type spécifié, qui présente des
25 caractéristiques de structure et de fonction, permettant de remédier à l'inconvénient mentionné ci-dessus.

Ce problème est résolu par une fermeture du type précité, qui se caractérise par le fait que le sceau de garantie comprend un capuchon, qui est emboîté sur le bouchon
30 et est retenu axialement sur le corps verseur, une entaille définit une languette de prise et une ligne d'affaiblissement, s'étendant à partir de l'entaille, étant prévue dans ledit capuchon, pour l'arrachage du sceau de garantie.

35 Diverses autres caractéristiques et avantages de la fermeture suivant l'invention ressortent de la description

détaillée qui suit. Une forme de réalisation de l'invention est représentée à titre d'exemple non limitatif sur les dessins annexés.

La figure 1 est une vue en perspective d'une
5 fermeture suivant l'invention,

la figure 2 est une vue en élévation et en coupe de la fermeture de la figure 1,

la figure 3 est une vue en élévation, en coupe et éclatée de la fermeture de la figure 1,

10 les figures 4 et 5 sont des vues, respectivement en élévation et du haut, d'un détail de la fermeture de la figure 1,

la figure 6 est une vue en élévation, en coupe et à plus grande échelle d'un détail de la fermeture de la
15 figure 1, le long de la ligne VI-VI,

la figure 7 est une vue en projection, en coupe et à beaucoup plus grande échelle, d'un détail de la figure 1, le long de la ligne VII-VII et enfin

la figure 8 est une vue en perspective de la
20 fermeture suivant l'invention, dans une autre phase de son fonctionnement.

Par référence aux figures annexées, la référence 1 désigne globalement la combinaison d'une bouteille 2 ou similaire, de préférence une bouteille en verre, pour une
25 liqueur de valeur, et une fermeture de garantie 3 pour cette bouteille.

La bouteille 2 a un bord 4, au niveau duquel sont formées des dents radiales 5, et un col 6, cylindrique, d'axe X-X, à l'extérieur duquel est formé un collier 7. La
30 fermeture 3 comprend un corps verseur 9, de préférence en polystyrène, ayant un bord distributeur 10, avec une saillie annulaire coupe-goutte 11, un filetage extérieur 12 et un rebord 13.

Le corps verseur 9 est monté dans le prolongement
35 du col de la bouteille, par interposition d'une rondelle 14, de préférence en polyéthylène, qui est accouplée par forçage

préfixé avec le corps verseur et enfilée sur le bord de la bouteille et présente des dents radiales 15, s'engageant avec les dents radiales 5.

Une jupe tubulaire 16, de préférence en aluminium, est enfilée sur le col 6 et est destinée à retenir, par son rebord supérieur 17 situé au-dessus du rebord 13, le corps verseur 9 sur la bouteille 2. A cet effet la jupe tubulaire est destinée à être déformée pour suivre le collier 7.

A l'intérieur du corps verseur 9 et de la rondelle 14 est essentiellement formée une cage 18 qui enferme une première sphère 19 en verre, avec fonction de clapet de non-retour, une seconde sphère 20, également en verre, avec fonction de masse, et un élément en forme de verre retourné 21, avec fonction de clapet de non-retour. L'ensemble de ces éléments est destiné à empêcher le remplissage non autorisé de la bouteille.

La fermeture 3 comprend par ailleurs un bouchon 22, de préférence en polypropylène, essentiellement en forme de capuchon qui est pourvu d'un sous-bouchon 23, de préférence en polythène, et d'un filetage intérieur 24.

Le sous-bouchon 23 garantit l'étanchéité avec le bord distributeur 10 et est pourvu d'un appendice 25 faisant saillie axialement dans la cage 18, pour déplacer l'élément en forme de verre retourné 21, à l'occasion des dévissages.

Le bouchon 22, avec son filetage 24, est en engagement vissé avec le filetage 12 du corps verseur.

La fermeture 3 comprend par ailleurs un sceau de garantie 26 qui est placé entre le bouchon 22 et le corps verseur 9. Dans la fermeture selon la présente invention, le sceau de garantie 26 comprend un capuchon 27, qui est emboîté sur le bouchon 22 et qui est retenu axialement sur le corps verseur 9, par des moyens d'arrêt 28.

Dans le capuchon 27 sont définies une paroi de fond 29, ayant une périphérie 30, et une enveloppe cylindrique 31 ayant un bord supérieur 32 qui coïncide

sensiblement avec la périphérie 30 de la paroi de fond et un bord inférieur libre 33.

Les moyens d'arrêt 28 comprennent un anneau 34 qui est monté par déclic dans le corps verseur 9 et qui est
5 rendu solidaire en rotation avec celui-ci, par l'engagement de dents radiales internes 35 formées dans l'anneau avec des dents radiales externes 36, formées dans le corps verseur, et est par ailleurs retenu sur celui-ci axialement, par l'engagement à déclic de dents axiales internes 37, formées
10 dans l'anneau, avec un épaulement 38 défini dans le corps verseur 9, par une gorge 39 formée dans celui-ci.

L'anneau 34 est par ailleurs solidaire en rotation avec le capuchon 27 pour l'engagement de dents axiales externes 40 formées dans l'anneau avec les dents
15 axiales internes 41 formées dans le capuchon. Le capuchon 27 est par ailleurs retenu axialement sur l'anneau 34 par l'engagement à déclic de dents axiales externes 42 formées dans l'anneau avec un épaulement 43, opposé à l'épaulement 38, et défini dans le capuchon par un retrait 44 formé dans
20 celui-ci.

Il est à noter que dans le capuchon 27 suivant l'invention sont prévues une entaille 45, qui définit dans le capuchon une languette de prise 46, ainsi qu'une ligne d'affaiblissement 47, laquelle s'étend à partir de l'entaille
25 45, pour l'arrachage du sceau.

L'entaille 45 est de forme en C, avec un côté 48 qui s'étend axialement, et deux ailes 49 et 50, respectivement supérieure et inférieure, s'étendant périphériquement sur environ 60° d'angle.

30 L'aile supérieure 49 s'étend au niveau de la périphérie 30 de la paroi de fond 29 du capuchon 27 et donc au droit du bord supérieur 32 de l'enveloppe 31 du capuchon. L'aile inférieure 50 par contre s'étend à une courte distance du bord inférieur libre 33 de l'enveloppe 31 du capuchon,
35 sensiblement sur 60° environ d'angle.

La ligne d'affaiblissement 47 comprend un premier tronçon 51 et un second tronçon 52, respectivement supérieur et inférieur.

Le premier tronçon 51 s'étend périphériquement
5 dans le prolongement de l'aile supérieure 49, sur la plus grande partie de la circonférence, par exemple sur 270° d'angle.

Le second tronçon 52 s'étend périphériquement dans le prolongement de l'aile inférieure, sur la plus grande
10 partie de la circonférence, par exemple sur environ 270° d'angle, et possède un tronçon terminal 53 qui est oblique et interfère avec le bord inférieur libre du capuchon.

Il est à noter que la ligne d'affaiblissement 47 a une grande longueur et concerne toute la surface intérieure
15 du capuchon.

Le long de la ligne d'affaiblissement 47 sont prévus des points de plus grande résistance, désignés par 47a, répartis sur la longueur de la ligne d'affaiblissement elle-même, sur ses deux tronçons 51 et 52, de manière que les
20 points 47a sur les deux tronçons se trouvent alignés axialement deux par deux.

Le capuchon 27 est de préférence obtenu par injection d'une matière plastique appropriée, de préférence un copolymère acrylonitrile-butadiène-styrène (ABS).

Pour ouvrir la bouteille, on saisit la languette
25 de prise 46 et on exerce une force de traction suffisante pour déchirer la ligne d'affaiblissement 47. Suite à la déchirure, le capuchon est enlevé de la bouteille et reste développé selon une figure sensiblement ouverte, de sorte
30 qu'il est pratiquement impossible de le recomposer de manière qu'il prenne à nouveau sa forme d'origine et qu'on puisse le maintenir, ainsi recomposé, de façon stable, associé à la bouteille.

Il est à noter que pour obtenir la déchirure de
35 la ligne d'affaiblissement, il est nécessaire d'exercer par instants successifs une plus grande force, au niveau des

points de plus grande résistance 47a, pour en venir à bout et provoquer la rupture.

Il a été constaté que le capuchon, par suite de la déchirure d'une ligne d'affaiblissement de ce type, reste
5 développé selon une figure festonnée dans laquelle des tronçons d'arc, adjacents entre eux, forment un angle au niveau des points de plus grande résistance.

Le principal avantage de la fermeture suivant la présente invention réside dans le fait qu'elle interdit
10 pratiquement de dissimuler l'éventuelle ouverture non autorisée, même en y mettant temps, patience et dextérité.

Un autre avantage de la fermeture suivant la présente invention est que les différentes parties qui la constituent peuvent être montées sans orientation relative
15 particulière.

A la suite du montage des différentes parties, la fermeture se présente comme un tout, manipulable individuellement, qui peut être monté sur la bouteille, après la mise en bouteille, avec une seule opération.

20 Il est à noter en outre que la fermeture suivant la présente invention est d'une construction simple et robuste.

Il est bien évident qu'un homme du métier, afin de satisfaire à des exigences contingentes et particulières,
25 pourra apporter de nombreuses modifications et variantes à la fermeture décrite ci-dessus, qui sont toutefois toutes contenues dans le cadre de protection de la présente invention.

REVENDICATIONS

1. Fermeture de garantie (3) d'une bouteille (2), en particulier pour liqueurs de valeur, du type comportant un corps verseur (9) associé à la bouteille (2), un bouchon (22) associé au corps verseur (9) et un sceau de garantie (26) entre le bouchon (22) et le corps verseur (29), caractérisée en ce que le sceau de garantie (26) comprend un capuchon (27), qui est emboîté sur le bouchon (22) et est retenu axialement sur le corps verseur (9), une entaille (45) définit une languette de prise (46) et une ligne d'affaiblissement (47), s'étendant à partir de l'entaille (45), étant prévue dans ledit capuchon, pour l'arrachage du sceau de garantie (26).

2. Fermeture de garantie (3) selon la revendication 1, caractérisée en ce que la ligne d'affaiblissement (47) a une grande longueur, concerne toute la surface du capuchon (27) et présente des points (47a) de plus grande résistance, répartis sur cette longueur, de manière que le capuchon (27), au moment de l'arrachage et du déchirement de la ligne d'affaiblissement (47), reste développé selon une configuration sensiblement ouverte et festonnée.

3. Fermeture de garantie (3) selon la revendication 2, caractérisée en ce que l'entaille (47) est de forme en C, avec des ailes (49, 50) s'étendant périphériquement.

4. Fermeture de garantie (3) selon la revendication 3, caractérisée en ce qu'une aile (49), supérieure, s'étend au droit de la paroi de fond (29) du capuchon (27) et qu'une aile (50), inférieure, s'étend à une courte distance du bord libre (33) du capuchon (27).

5. Fermeture de garantie (3) selon la revendication 4, caractérisée en ce que la ligne d'affaiblissement (47) comprend un premier tronçon (51), qui s'étend périphériquement dans le prolongement de l'aile supérieure (49), sur la plus grande partie de la circonférence, et un second tronçon (52) qui s'étend périphériquement, dans le

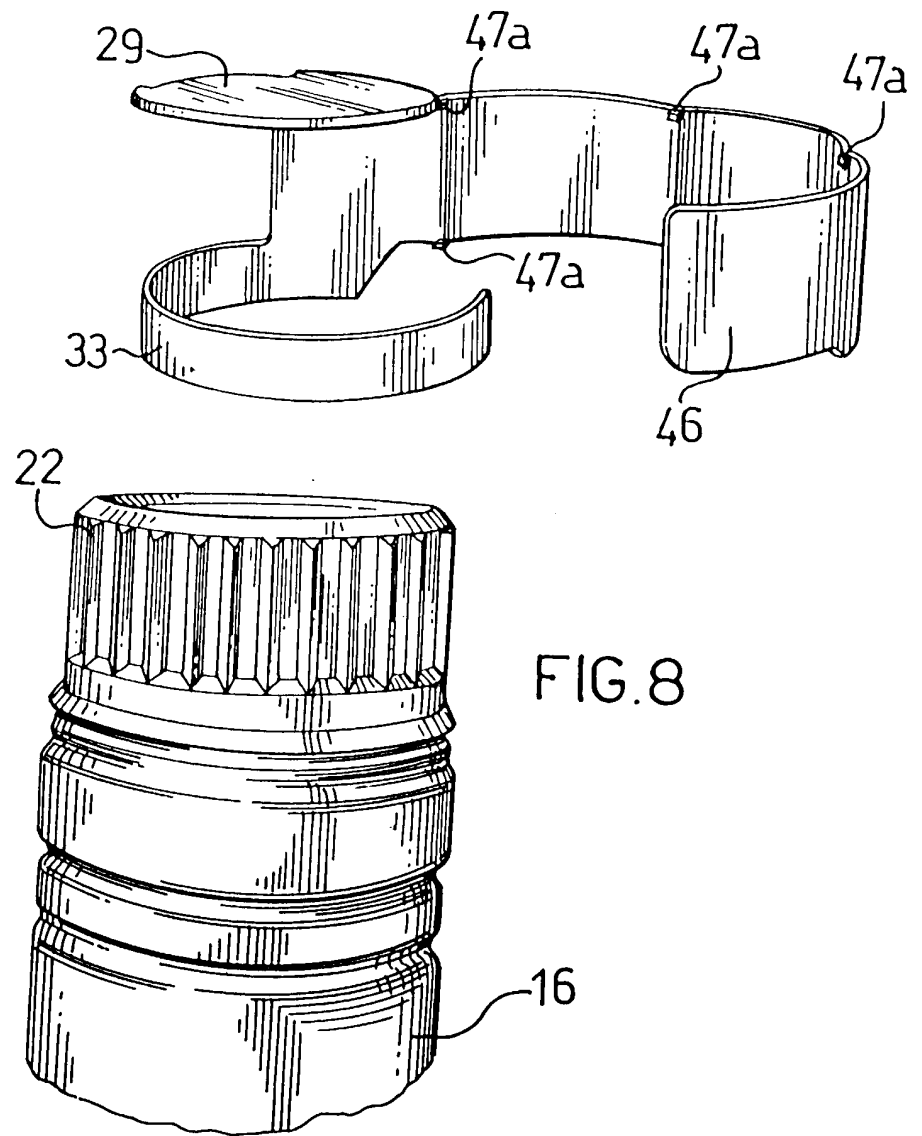
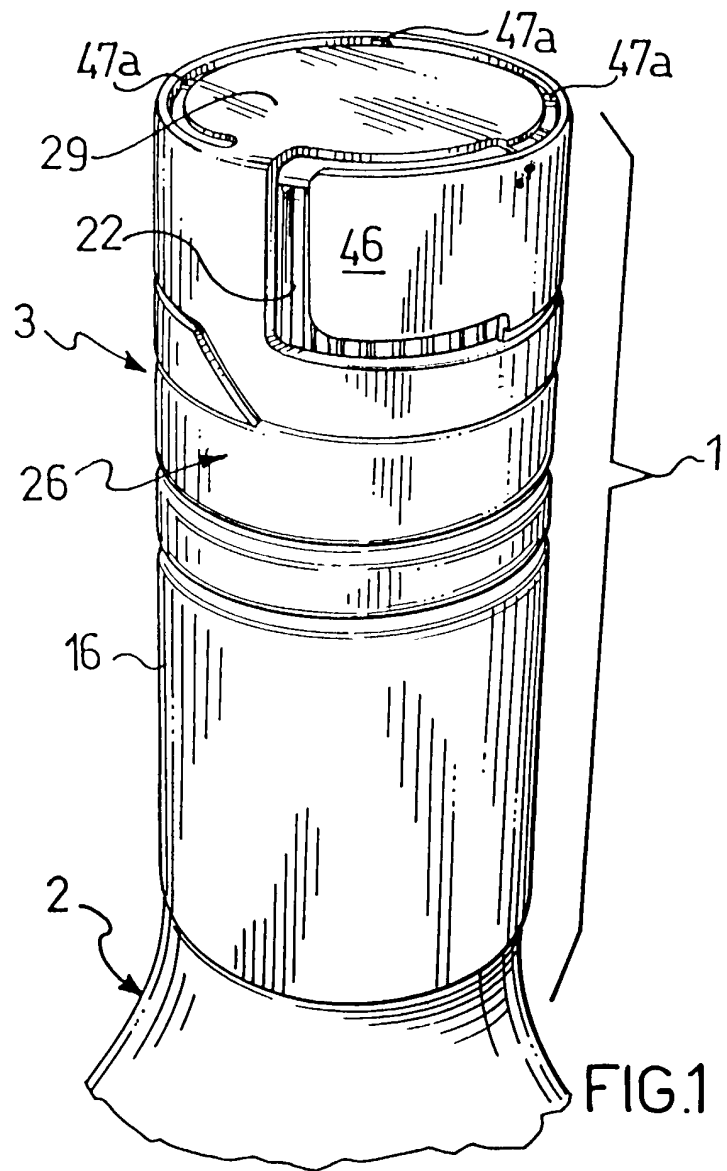
prolongement de l'aile inférieure (50), sur la plus grande partie de la circonférence, et a un tronçon terminal (53) qui interfère avec le bord libre (33) du capuchon (27).

5 6. Fermeture de garantie (3) selon la revendication 5, caractérisée en ce que le capuchon (27) est solidaire en rotation du corps verseur (9).

7. Fermeture de garantie (3) selon la revendication 6, caractérisée en ce qu'elle comporte un anneau (34) ayant des dents radiales internes (35) s'engageant avec
10 des dents radiales externes (36) formées sur le corps verseur (9), et des dents radiales externes (40) s'engageant avec des dents radiales internes (41) formées dans le capuchon (27), pour la solidarisation en rotation du capuchon (27) avec le corps verseur (9).

15 8. Fermeture de garantie (3) selon la revendication 7, caractérisée en ce que l'anneau (34) comprend des dents axiales internes (37) s'engageant par déclic contre un épaulement (38) formé dans le corps verseur (9) pour retenir axialement l'anneau (34) sur le corps verseur (9) et des
20 dents axiales externes (42) s'engageant par déclic avec un épaulement (43) formé dans le capuchon (27), pour retenir axialement le capuchon (27) sur l'anneau (34) et donc sur le corps verseur (9).

9. Fermeture de garantie (3) selon la revendication 8, caractérisée en ce que le capuchon (27) est
25 obtenu par moulage par injection dans une matière plastique appropriée, de préférence un copolymère acrylonitrile-butadiène-styrène (ABS).



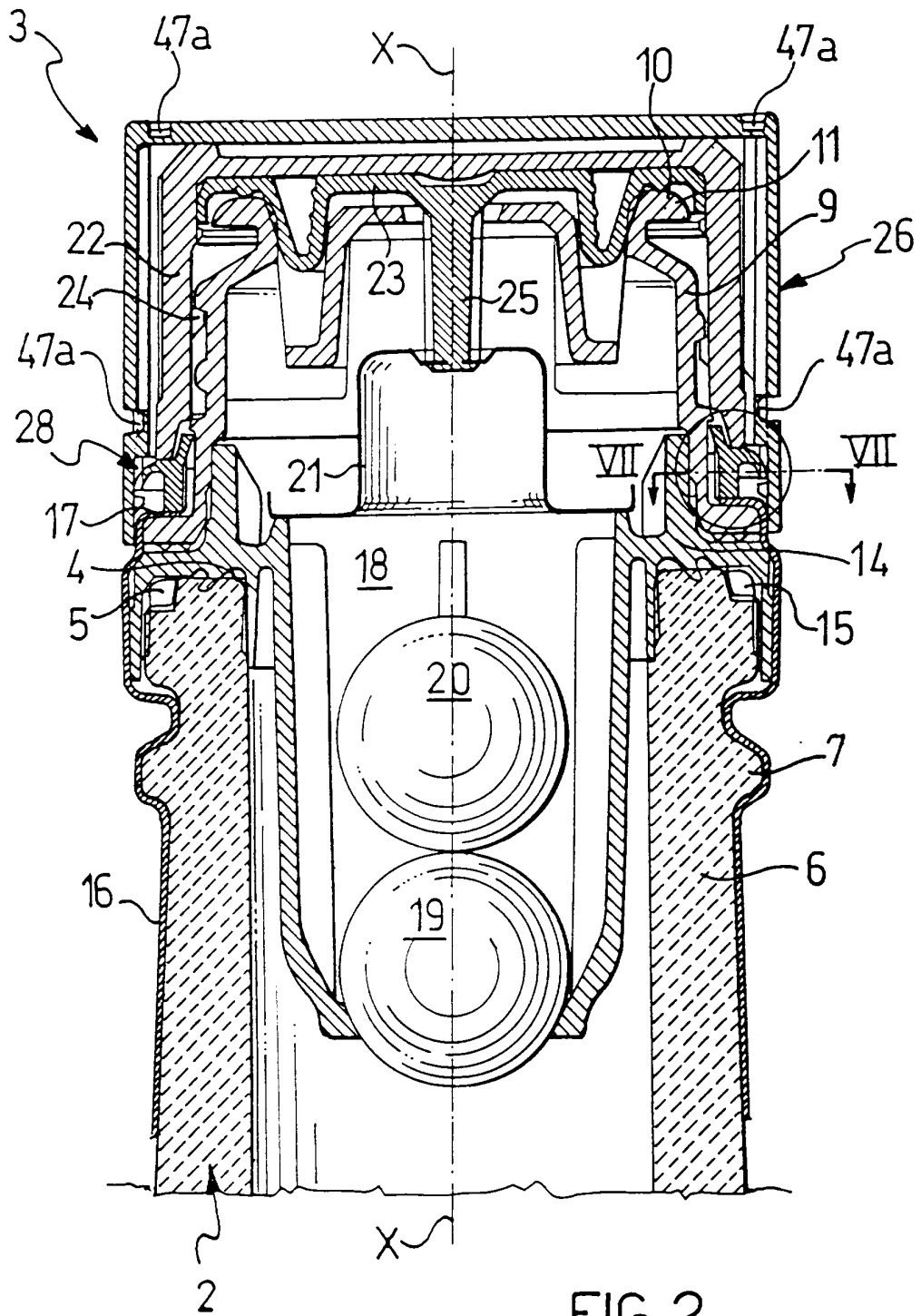
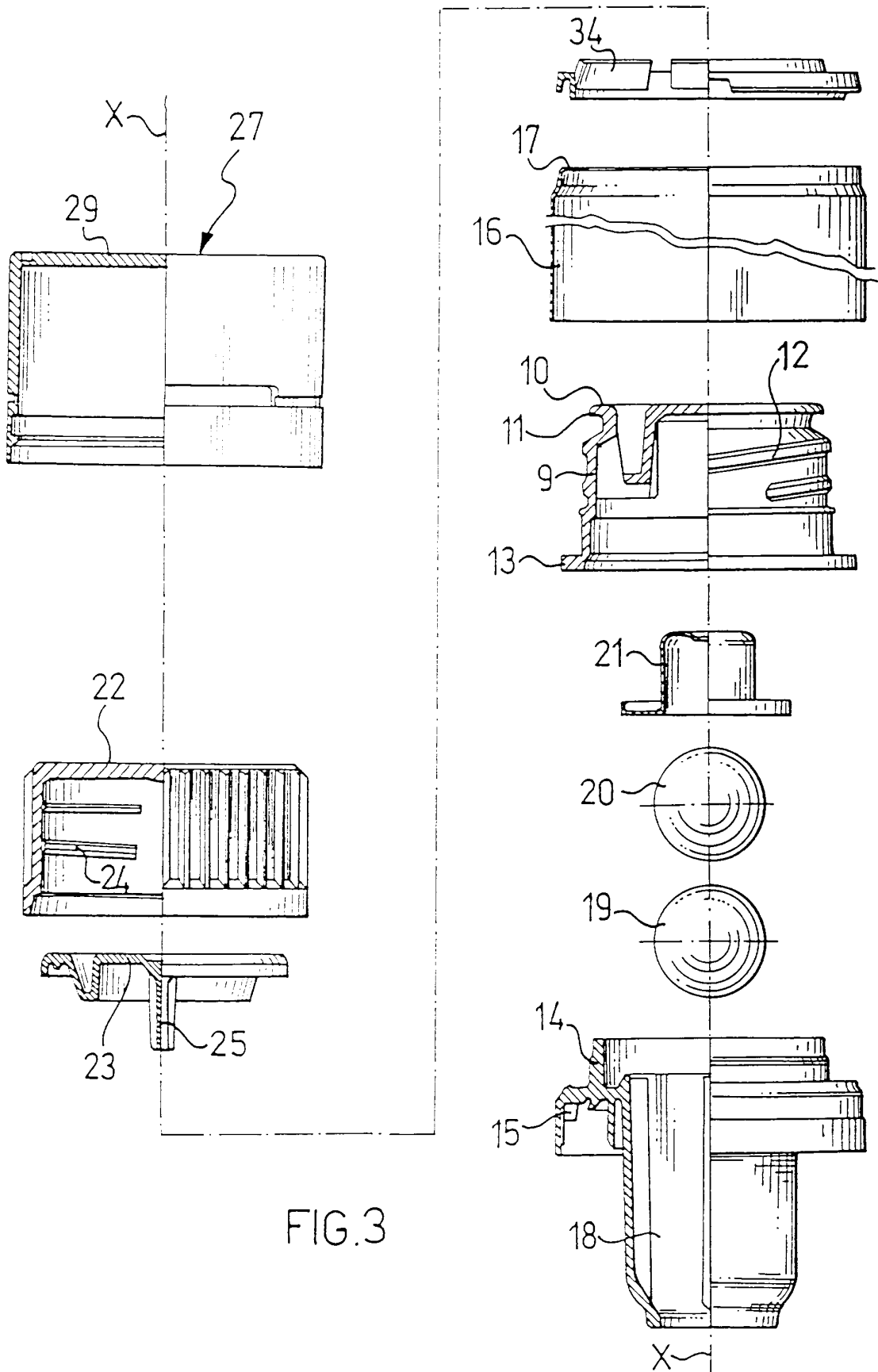
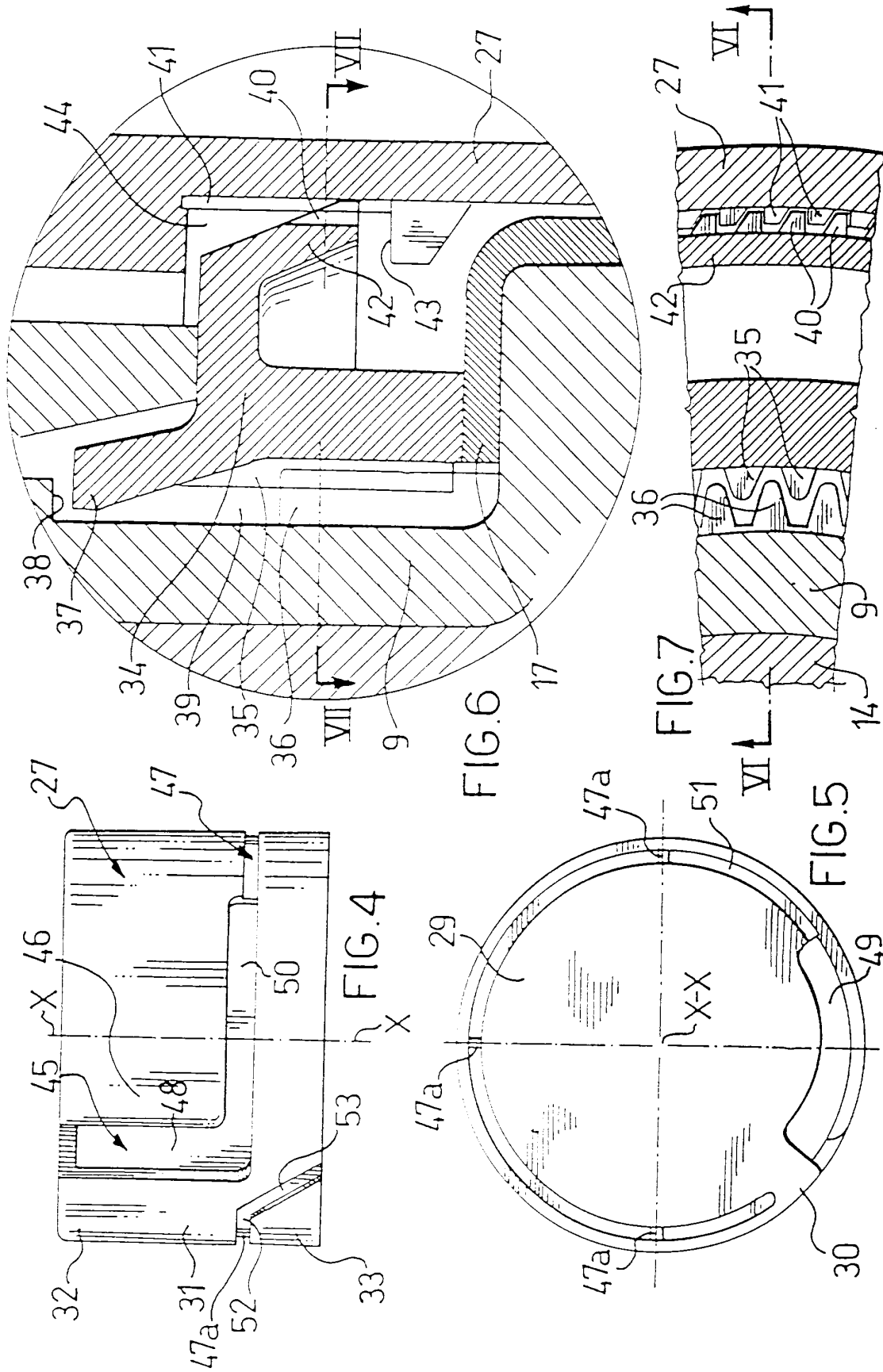


FIG. 2







US007703642B2

(12) **United States Patent**
Scott

(10) **Patent No.:** **US 7,703,642 B2**
(45) **Date of Patent:** **Apr. 27, 2010**

(54) **TAMPER EVIDENT CLOSURE ASSEMBLIES**

(75) Inventor: **Edward Sean Scott**, Auckland (NZ)

(73) Assignee: **Alto Holdings Limited**, Auckland (NZ)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 893 days.

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(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**
B67D 3/00 (2006.01)

(52) **U.S. Cl.** 222/522; 215/254

(58) **Field of Classification Search** 222/522,
222/566–570, 80–83, 83.5, 541.2; 206/222;
215/6, 250–258; 220/521, 277, 278

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,738,545 A 6/1973 Roy 222/525

4,610,374 A *	9/1986	Buehler	.....	222/83
5,456,374 A *	10/1995	Beck	.....	215/251
5,680,965 A	10/1997	Beck	.....	222/153
5,927,549 A *	7/1999	Wood	.....	222/83
D419,447 S *	1/2000	Molloy	.....	D9/449
6,116,445 A *	9/2000	Ikemori et al.	.....	215/301
6,257,436 B1 *	7/2001	McGlaufflin	.....	220/533
6,257,463 B1	7/2001	De Polo	.....	222/525
6,321,924 B1 *	11/2001	Yurkewicz et al.	.....	215/251
6,477,743 B1 *	11/2002	Gross et al.	.....	222/525
6,659,308 B1 *	12/2003	Kelder et al.	.....	222/83
6,772,910 B1 *	8/2004	Coory	.....	222/83

FOREIGN PATENT DOCUMENTS

WO	WO01/36289	5/2001
WO	WO03/051734	6/2003

* cited by examiner

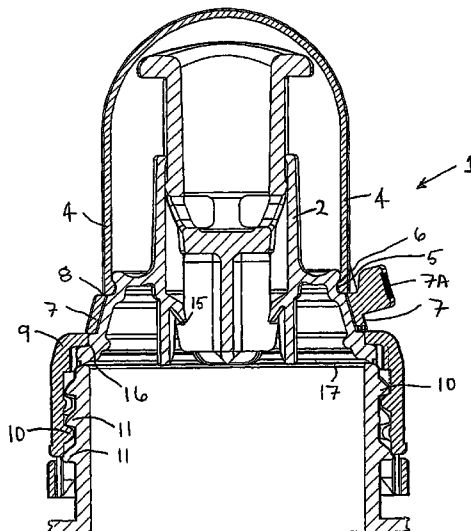
Primary Examiner—Lien T Ngo

(74) Attorney, Agent, or Firm—Jacobson Holman PLLC

(57) **ABSTRACT**

A sipper type capping assembly engageable with a necked container so as not to pool condensation on the disc seal. It has a unitary molding (1) adapted to define a detachable overcap (4) and at least the container engaging skirt (9). An insert (2) and a disc seal member (17) located within molding (1), and a nozzle component (3) above the seal member is carried through the insert yet moveable relative thereto. In a non-dispensing condition, the nozzle component (3) and the insert (2) provide closure. In the dispensing condition of the nozzle component (3) relative to the insert (2) there is defined a liquid egress passageway. The insert and the nozzle component, when in or notionally considered in the non-dispensing condition, define together with the molding a fully enclosed space about part of the nozzle component. When in or notionally considered in at least the dispensing condition, the molding and the disc seal member fully enclose the nozzle component.

9 Claims, 15 Drawing Sheets



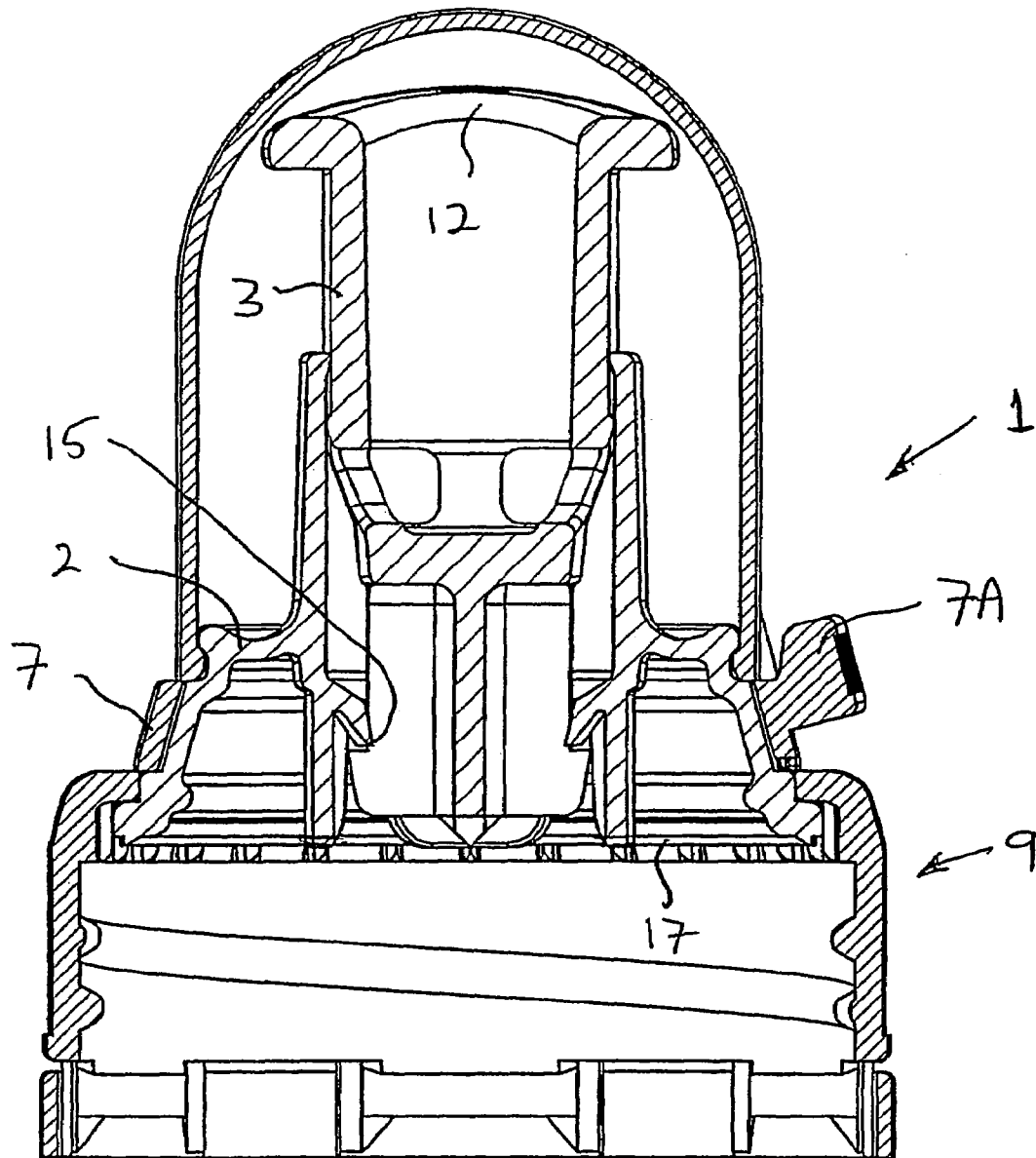


FIG 1

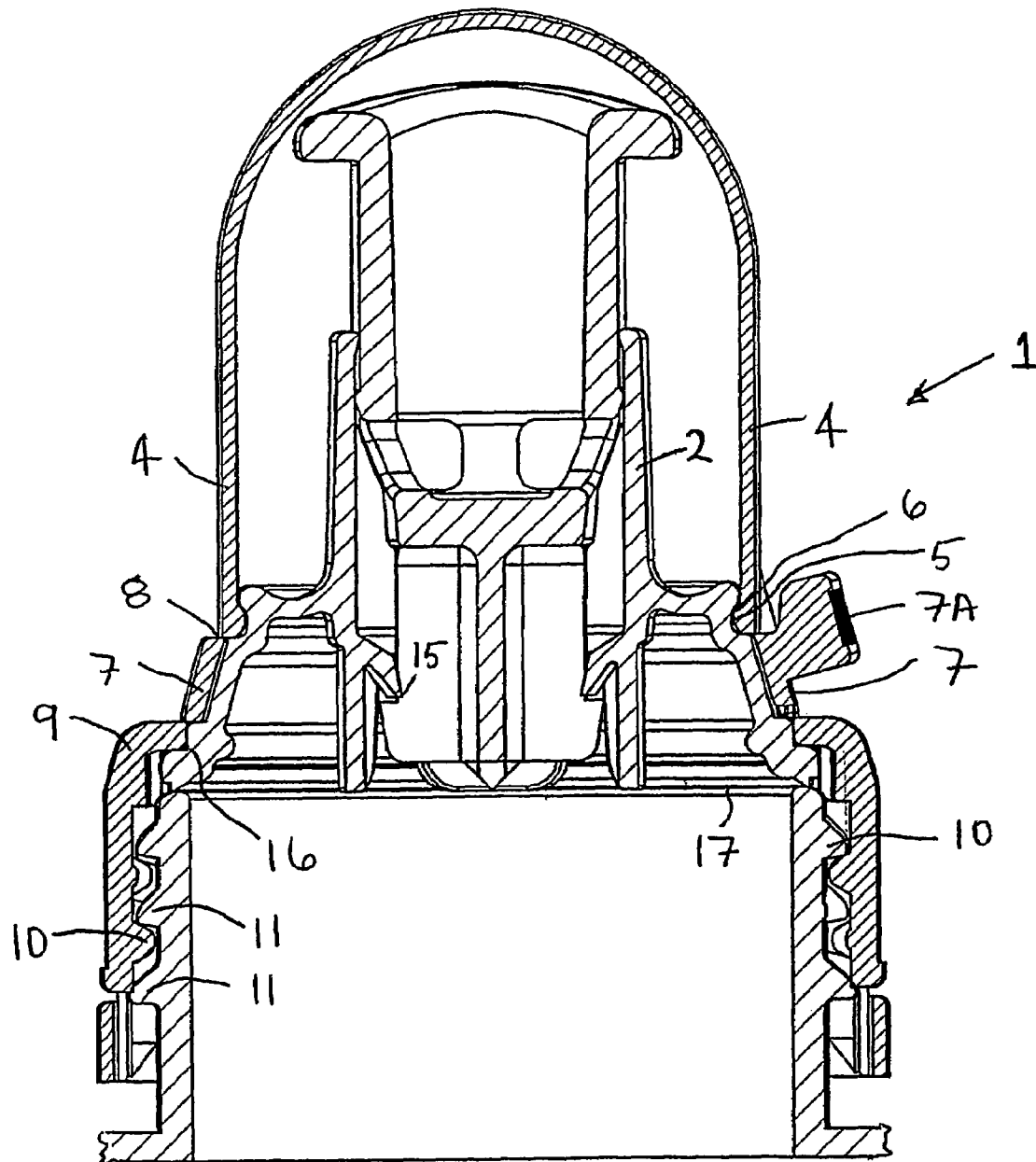


FIG 2

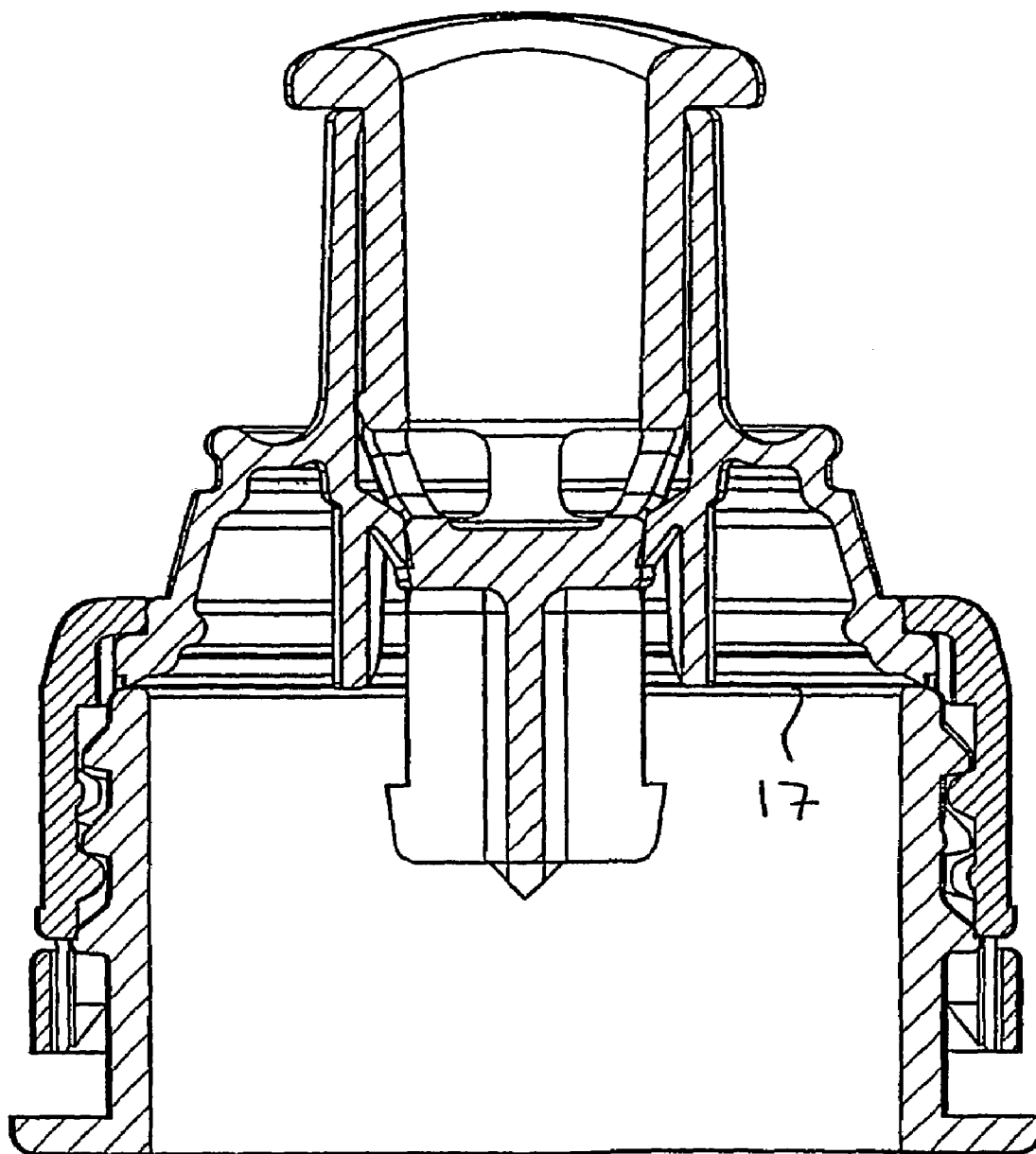


Fig 3

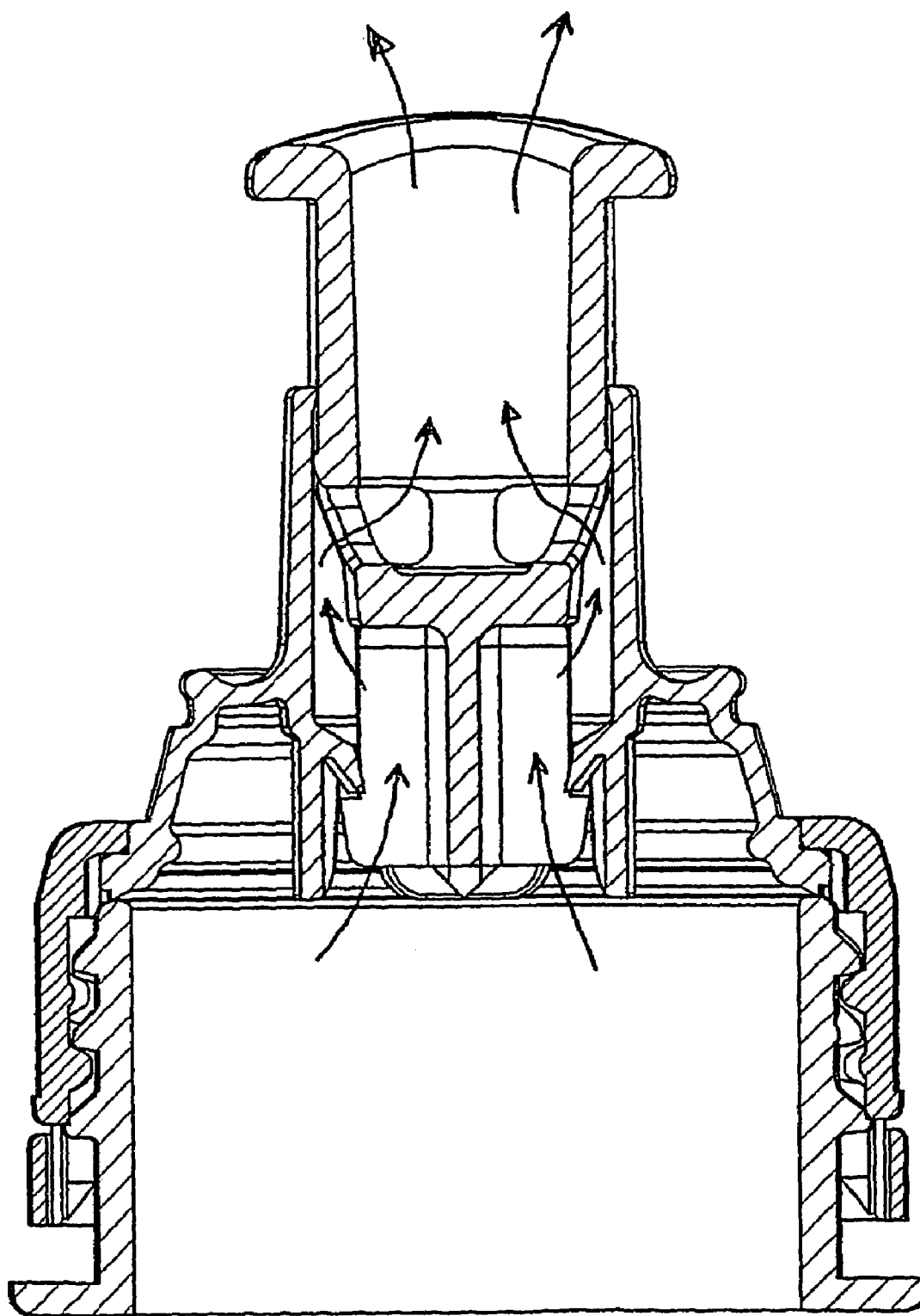


FIG 4

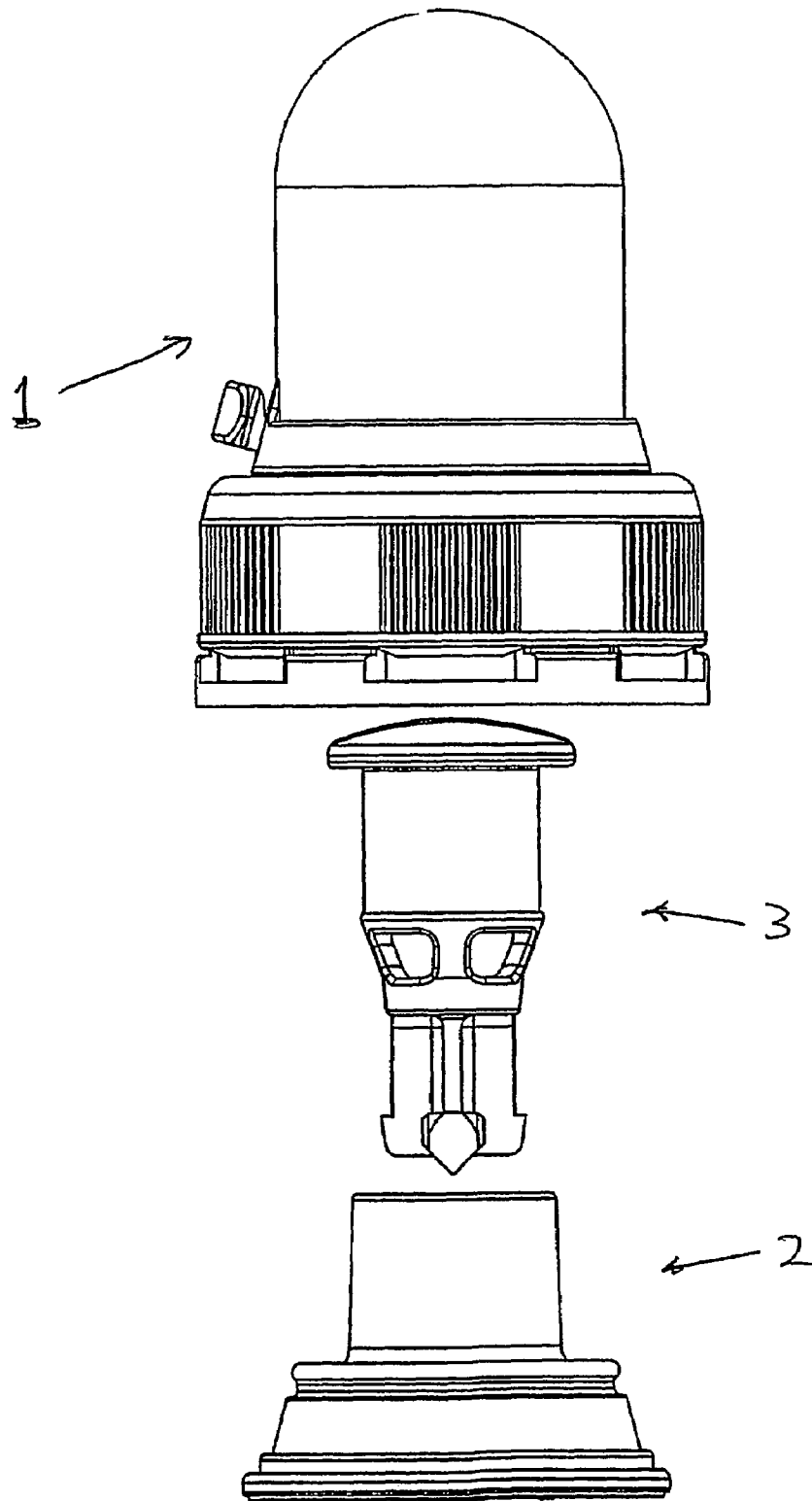


FIG 5

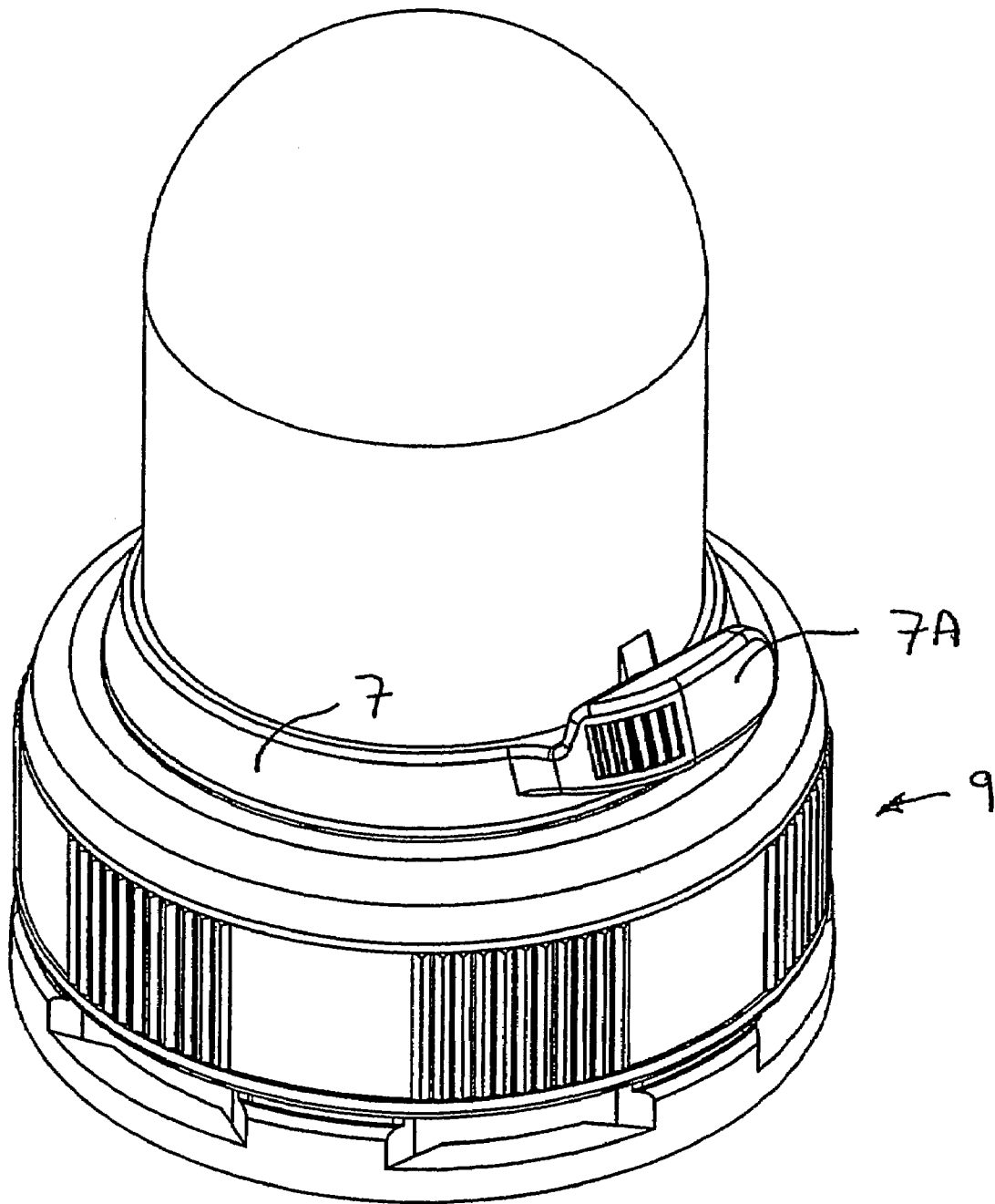


FIG 6

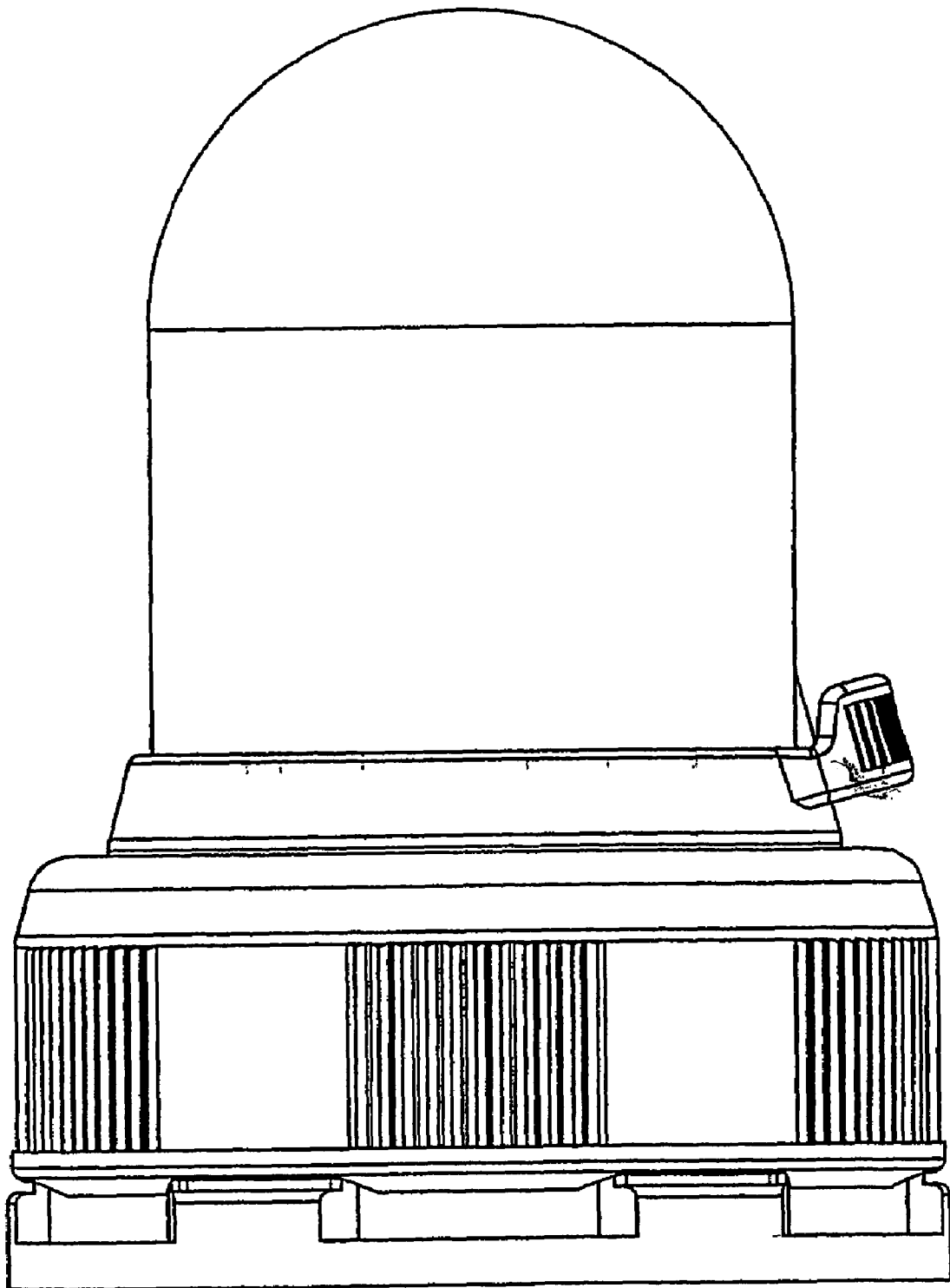


FIG 7

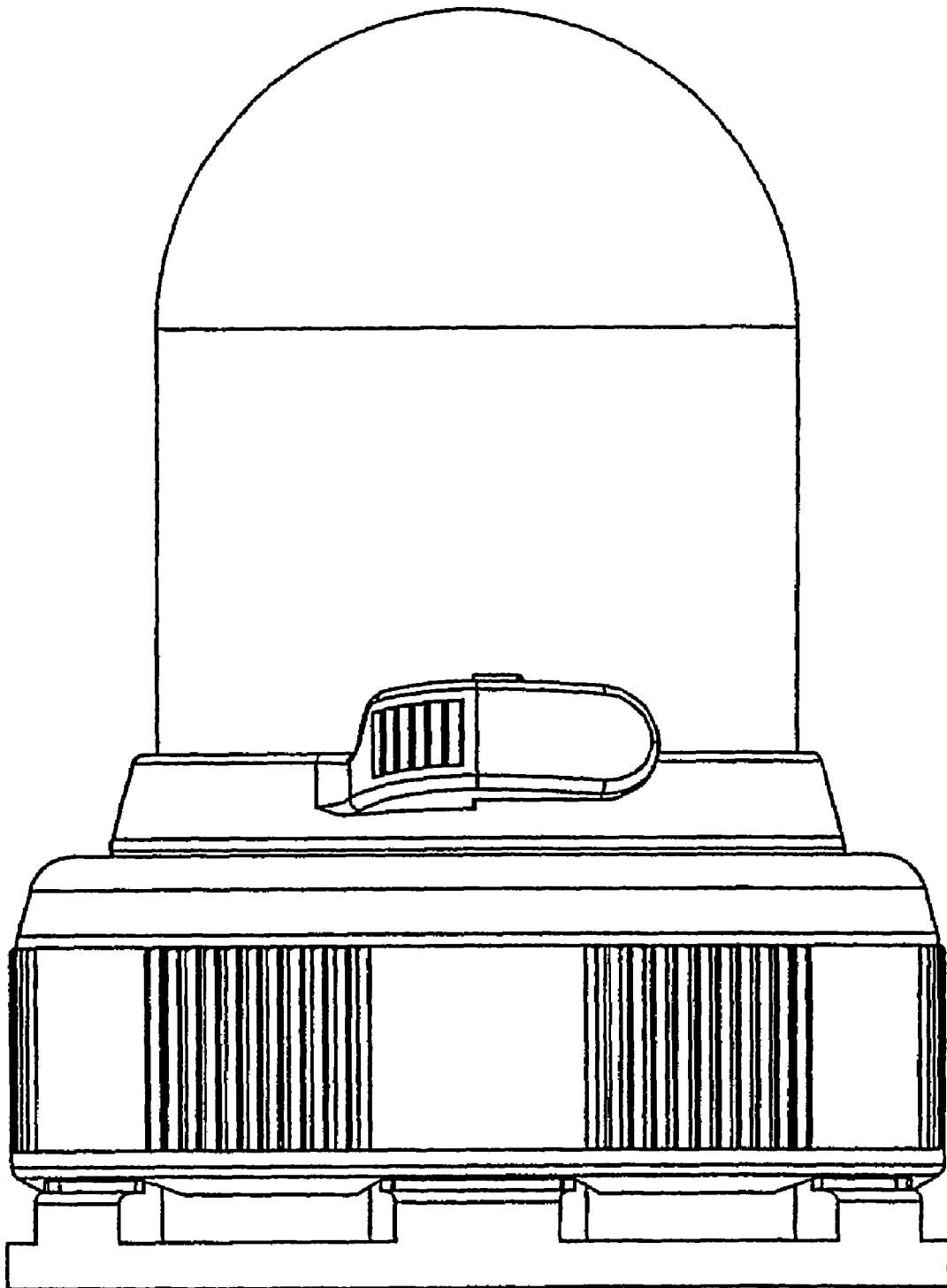


FIG 8

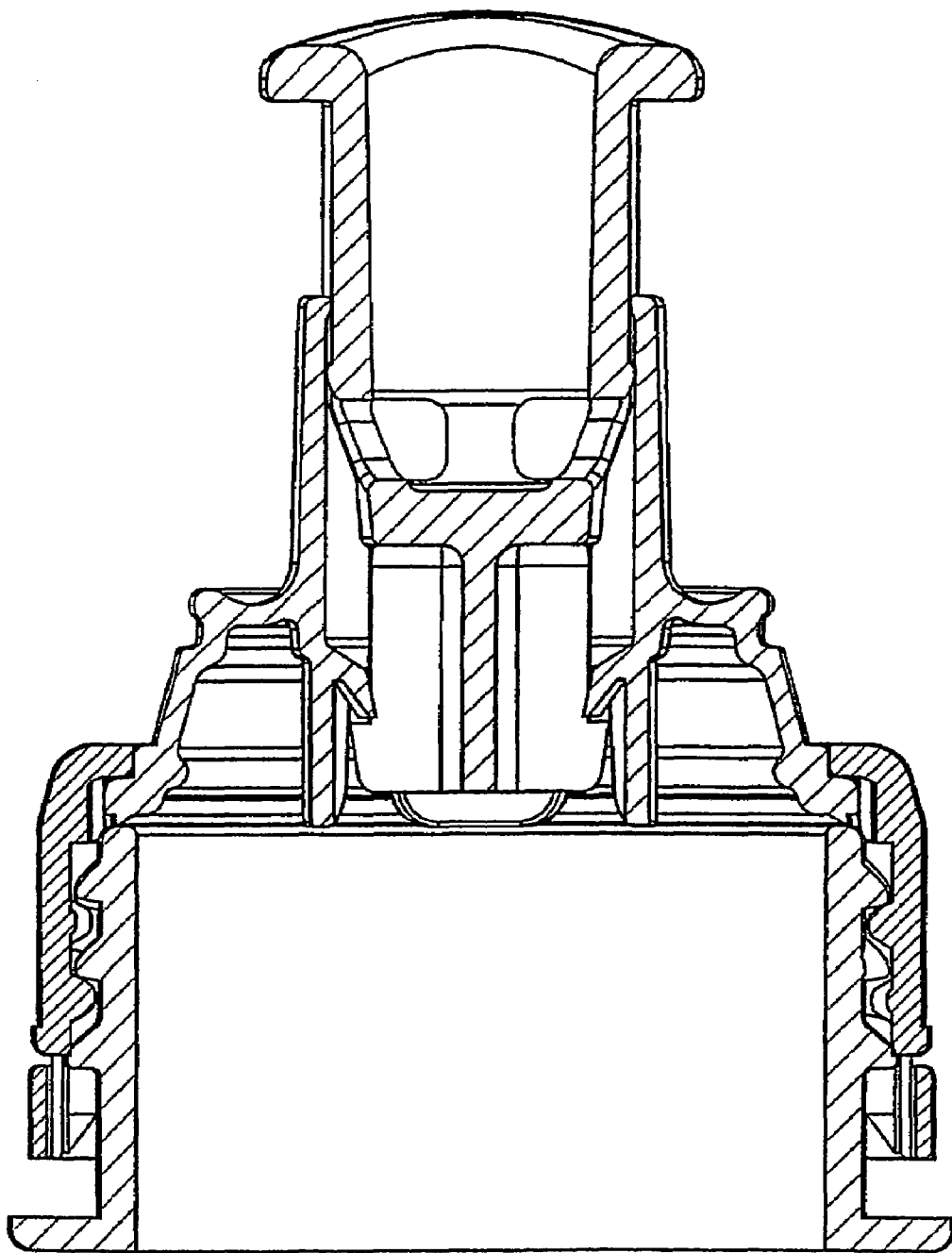


Fig 9

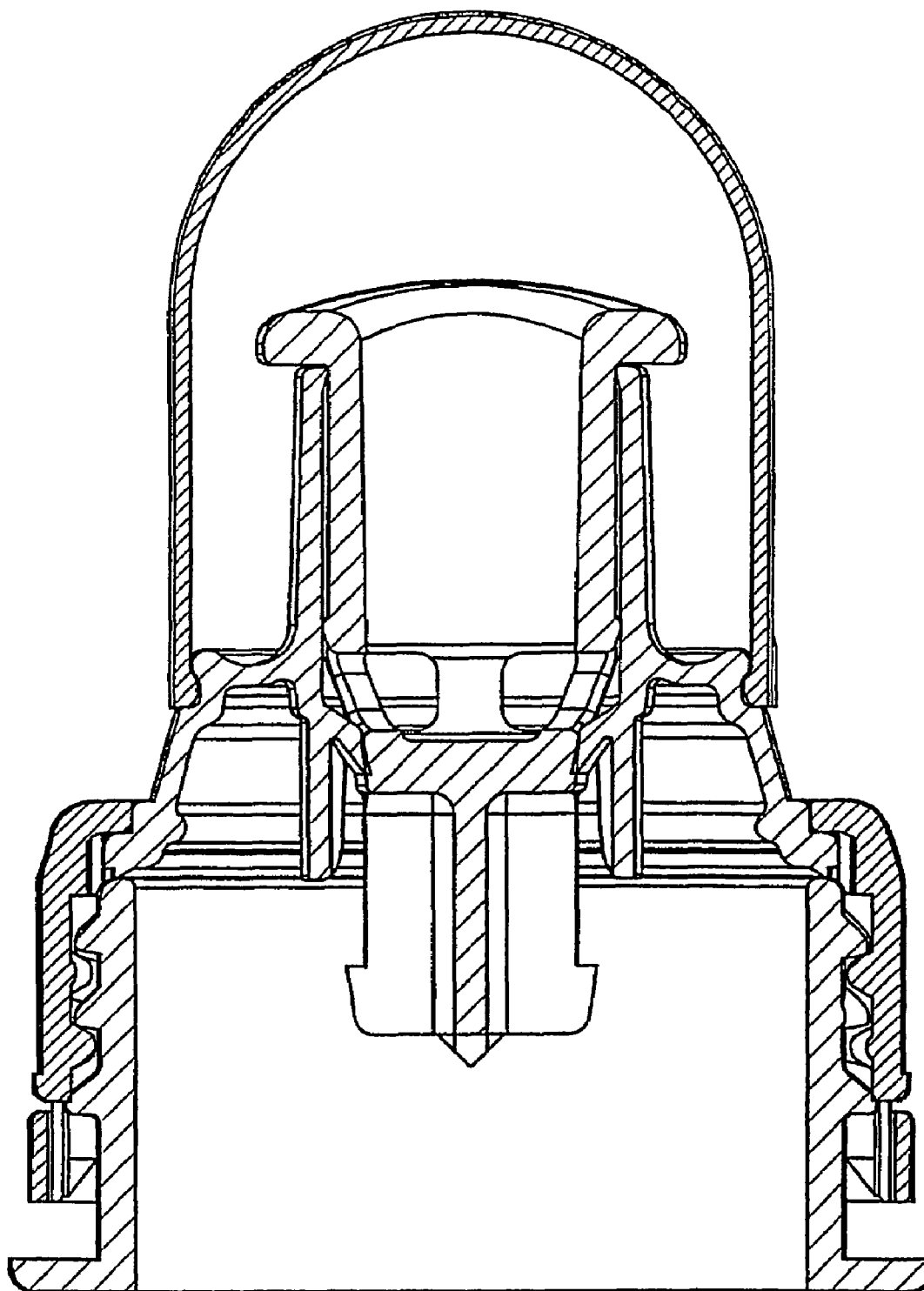


FIG 10

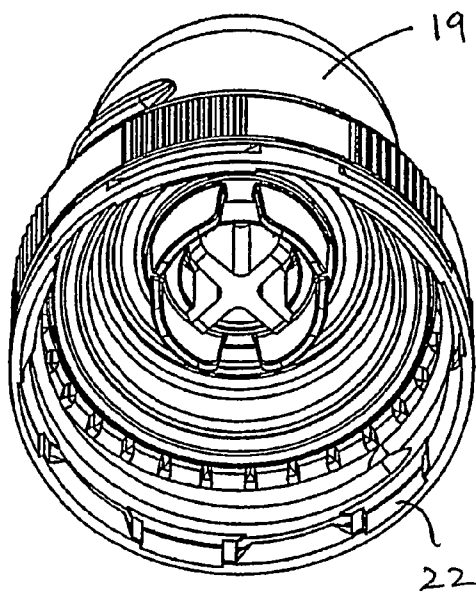


FIG 11

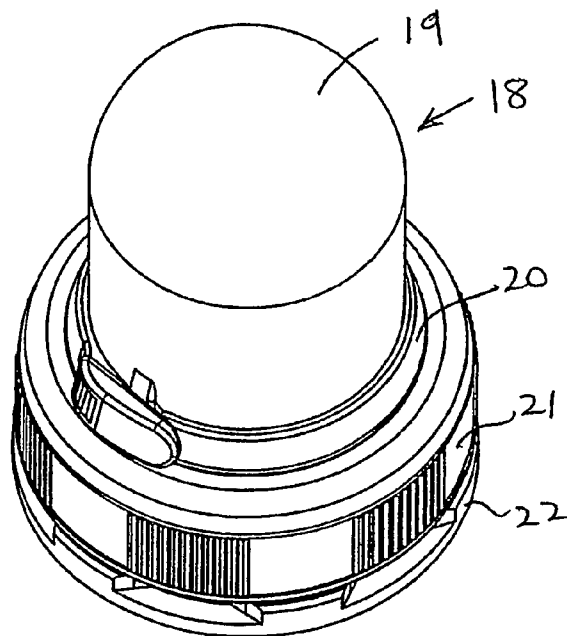


FIG 12

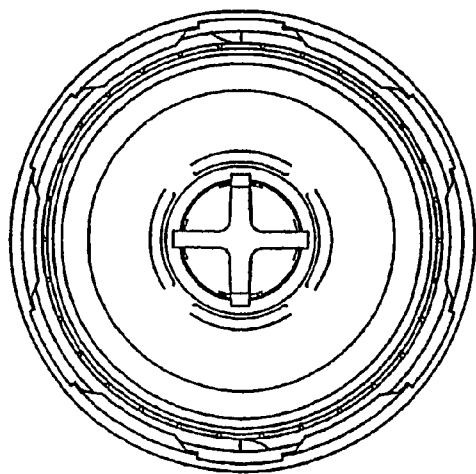


FIG 13

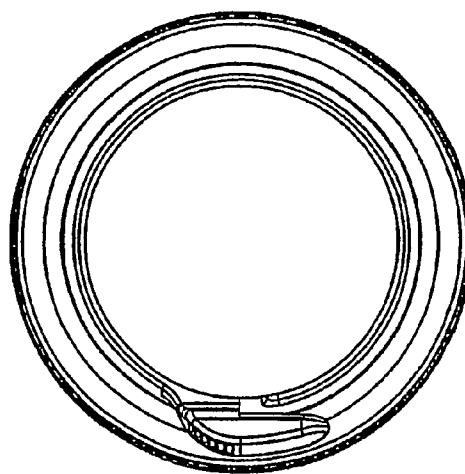


FIG 14

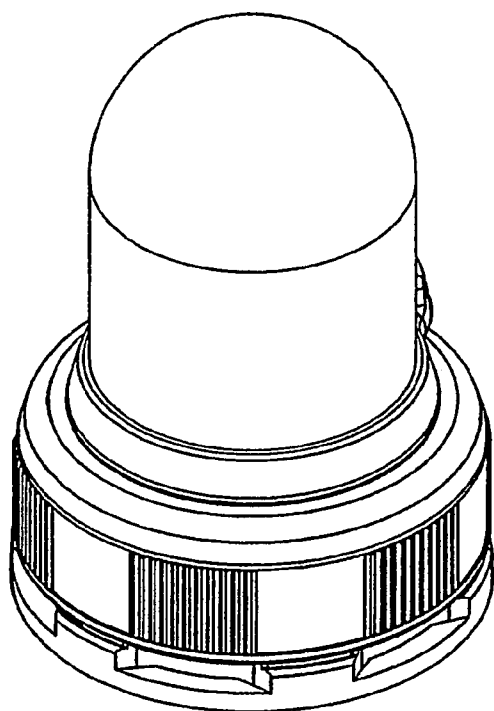


FIG 15

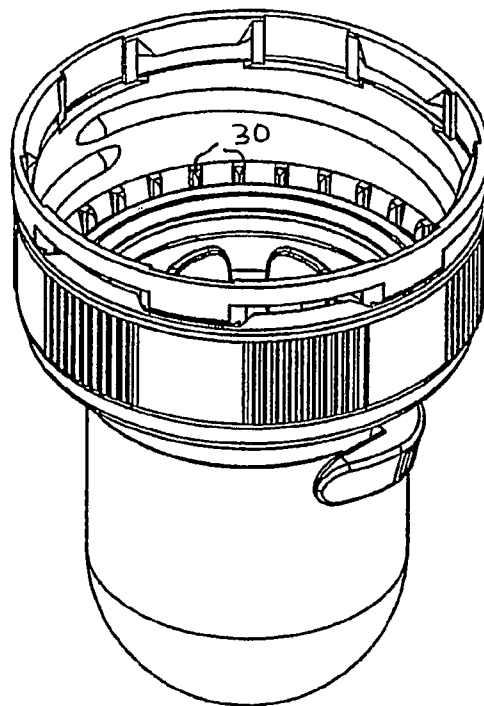


FIG 16

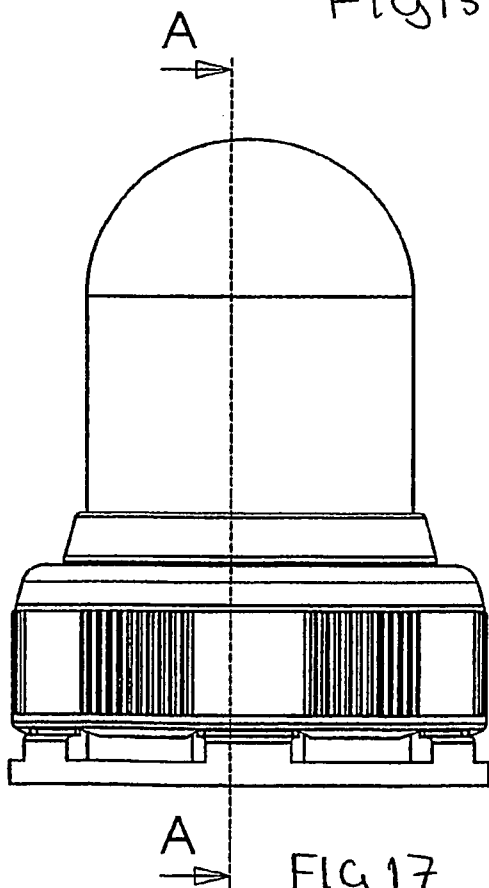


FIG 17

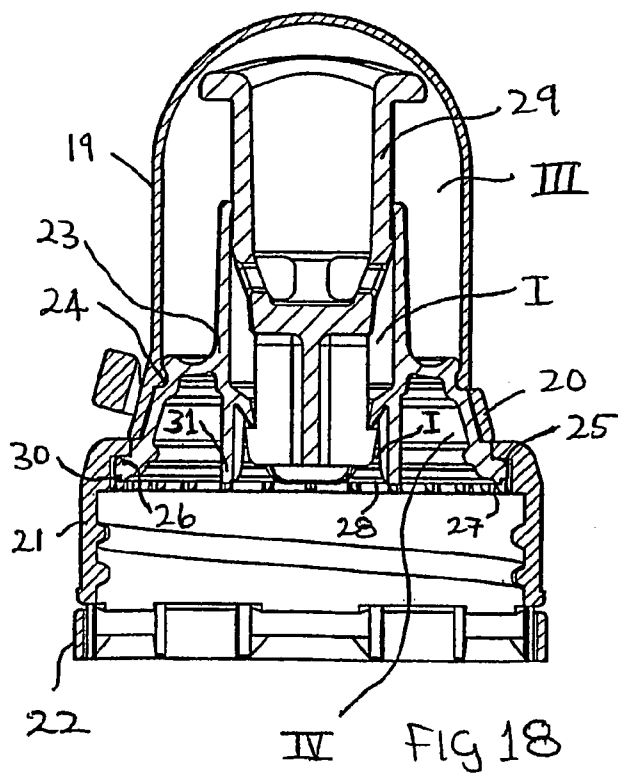


FIG 18

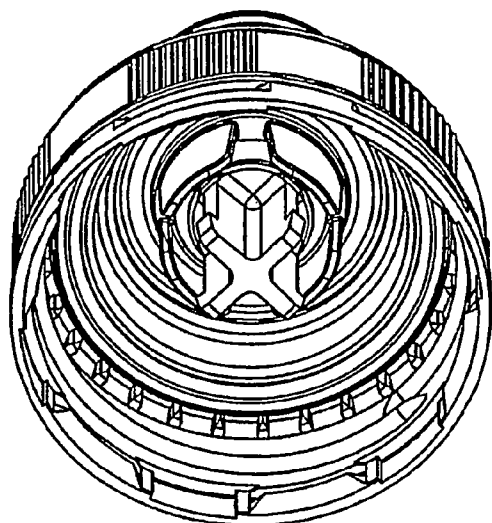


FIG 19

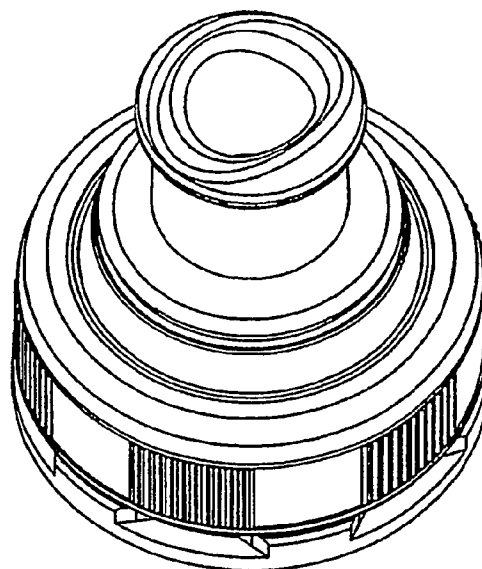


FIG 20

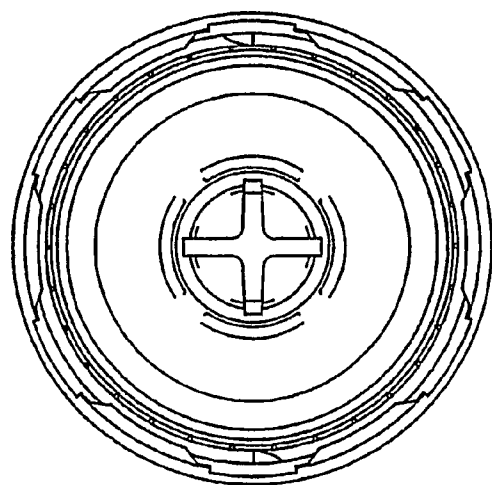


FIG 21

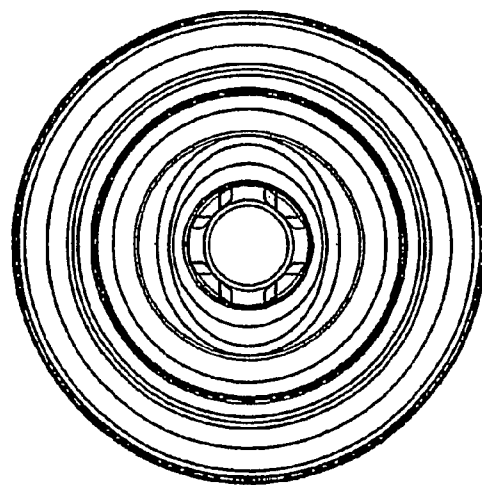


FIG 22

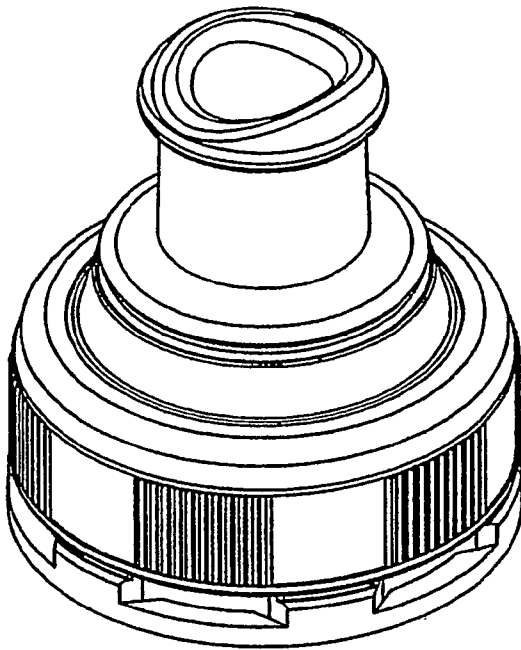


FIG 23

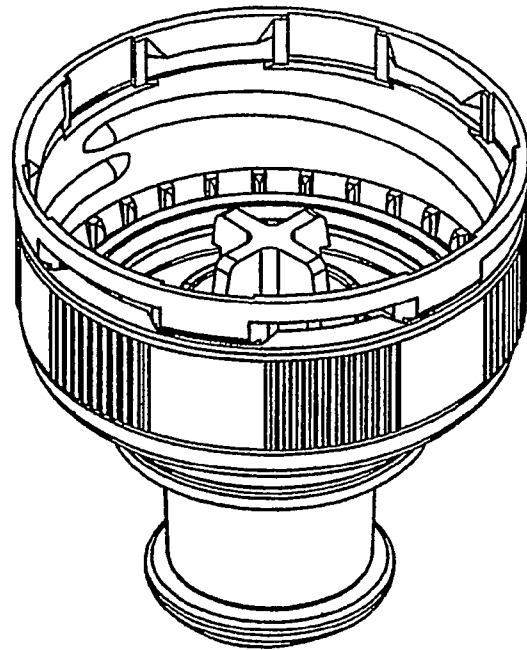


FIG 24

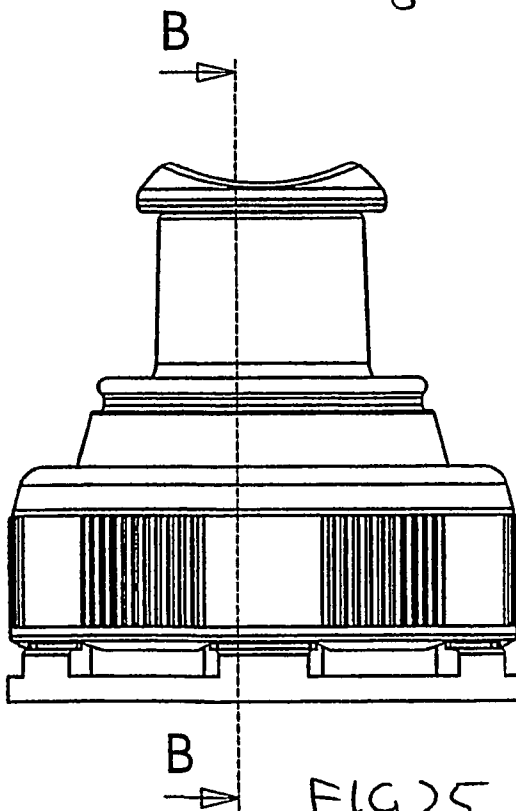


FIG 25

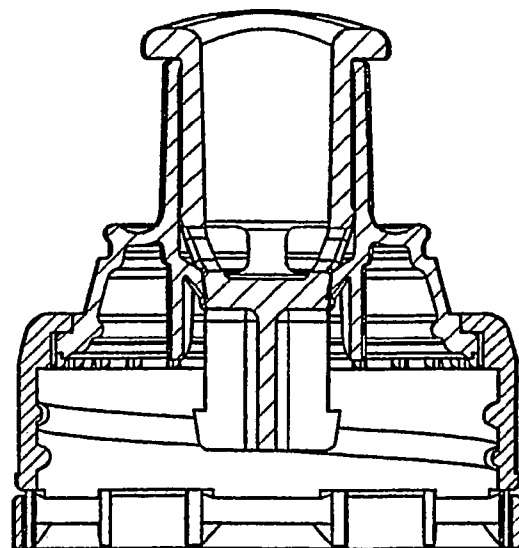


FIG 26

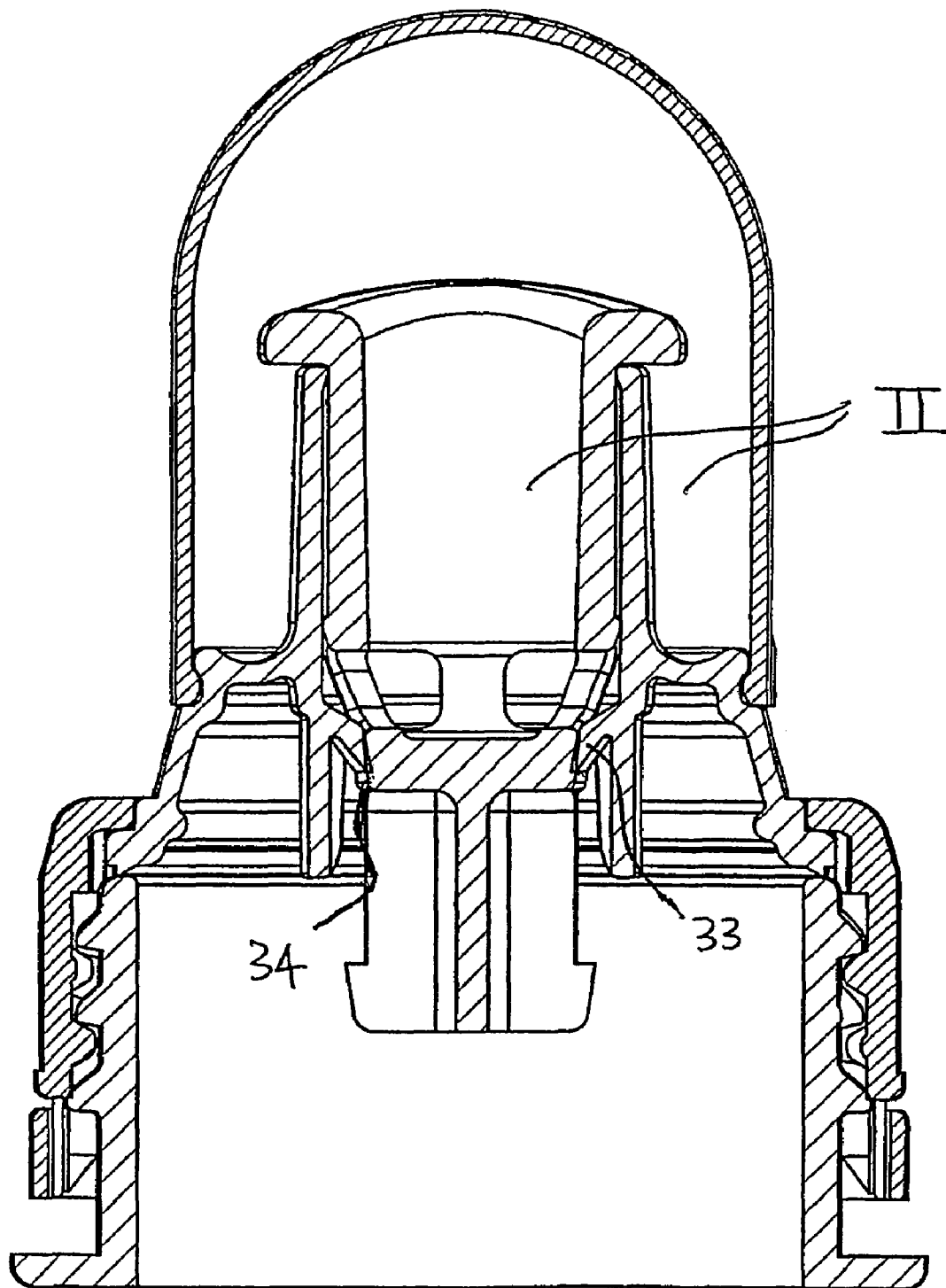


FIG 27

TAMPER EVIDENT CLOSURE ASSEMBLIES

This is a nationalization of PCT/NZ03/000291 filed Dec. 19, 2003 and published in English.

FIELD OF INVENTION

The present invention relates to improvements in or relating to tamper evident closure assemblies and to related components, products, methodologies and the like.

BACKGROUND

There has been a trend towards liquid dispensing containers (hereafter "containers") of a kind having a liquid content capable of being dispensed (e.g. including by pouring, sucking and/or squeezing) reliant on a pull out or the equivalent outlet nozzle of a closure assembly.

It is usual with all such containers to provide some semblance of protection for the outlet nozzle if the container is not to be one to be filled by the purchaser himself or herself, i.e. where a container is being sold as a throwaway or a potential container for reuse.

With such a nozzle outlet assembly it is also usual for some form of seal system to be utilised to prevent contamination of the liquid content of the bottle and/or accidental or deliberate egress of liquid therefrom without evidence of tampering. Usually such a seal system involves a form of removable seal (e.g. whether of a foil, a laminate or a polycell material or otherwise (e.g. "polycell liners")). Such seals can be provided with a tab such that upon removal of, for example, a closure assembly which carries the outlet nozzle, the seal can be removed. Other forms involve a foil or other pierceable membrane capable of being broken without any removal of all of the closure assembly, i.e. it can be punched through by an appropriate manipulation of the outlet nozzle itself and/or some inner extension thereof.

Such containers usually have a neck with an external thread engageable by part of the closure assembly. The containers usually in the form of a bottle or flask and at least most components of the closure assembly are usually manufactured from a fast cycle injection plastics material such as a suitable food grade polypropylene or polyethylene. Reference herein therefore to "moulded components" preferably refers to materials of a plastics type but where appropriate such materials can be substituted by other materials (whether metal or otherwise) or other conventional materials used for cap making. Likewise, membranes as referred to herein as being used to provide a seal of the bottle itself can be of any suitable material whether adapted for tear off, piercing or otherwise.

The present invention recognises an advantage arising from a capability of defining in a preassembled form of such a tamper evident closure assembly (e.g. in a controlled environment) a space not capturing much moisture prior to association with a container, such association, particularly where there is to be a hot filling of the container, being in an environment where the container is exposed to moisture and air. In so doing the volume of moisture and air captured between any such assembly and the sealed container can be minimised.

BRIEF DESCRIPTION OF THE INVENTION

In a first aspect the present invention consists in a capping assembly engageable with or engaged with a necked container, said assembly being or having

a first component in the form of a unitary moulding adapted to define a detachable overcap and at least a skirt (e.g. separated by frangible means), the skirt being adapted to engage or engaging the exterior of the neck of a suitable said container,

a second component located within said first component, and

a nozzle component carried through the second component yet moveable relative to the second component such that,

in one relative condition, the nozzle component together with the surrounding second component, is adapted to provide closure of the mouth of a suitable said container or provides closure of the container (the "non-dispensing condition"), and

in another condition of the nozzle component relative to the second component, is adapted to provide for such a suitable said container, or provides for the container, a liquid egress passageway ("the dispensing condition"),

and wherein the second component and the nozzle component, when in the dispensing condition, define together with the first component a fully enclosed space about part of said nozzle component.

Preferably, said skirt of the first component is internally threaded as the adaptation to engage or the means by which it is engaged with the exterior of the neck of a suitable said container.

When used herein "when in the dispensing condition", or indeed "when in the non-dispensing condition", can include a notional condition, e.g. it may be that such a condition is not achievable without removal or rupture of the overcap and/or a seal. Accordingly, as used herein "notional" or "notionally" includes other than "actual" or "actually" yet remains a possibility albeit with some tampering in some instances.

As used herein the term "preferably" refers to an option.

As used herein "and/or" means "and" or "or".

As used herein the term "(s)" following a noun means the singular and plural forms of that noun.

As used herein the term "comprising" or "comprises" means consists only of or includes.

Preferably said first component includes a tear strip or other frangible feature whereby the overcap can be separated from the skirt thereby to allow access to that part of said nozzle component hitherto presenting to said closed space.

Optionally, in the dispensing condition, the nozzle component is to be or is above a disc seal of the mouth of a container to which it is associated.

Preferably, the assembly prior to fitting to a said container is in the dispensing condition, as a disc seal for a container for which the assembly is adapted is carried below the nozzle component and the second component within the first component.

Preferably an interference fit with the first component provides peripheral releasable retention of the disc seal.

Preferably a lower axial seal of the second component provides or can provide an annular seal on said disc seal.

Preferably, once separated from at least the skirt, the overcap is adapted to engage with said second component or skirt.

Preferably said overcap is adapted to engage with the second component whereby the second component and the nozzle component, when in the dispensing condition, define together with the overcap a fully enclosed space about part of said nozzle component.

Preferably the skirt has a shoulder peripherally overlapping as a hold down a complementary shoulder of the second component.

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Preferably the first component unitary moulding defines a tamper evident collar ("tamper band") dependent from said skirt and/or as an extension of the skirt.

In another aspect the invention is a capping assembly engageable with or engaged with a necked container, said assembly being or having

a first component in the form of a unitary moulding adapted to define a detachable overcap and at least a skirt, the skirt being adapted to engage or engaging from above the exterior of the neck of a suitable said container,

a second component located within said first component from below,

a disc seal member located within said first component below said second component, and

a nozzle component carried through the second component yet moveable relative to the second component such that,

in one relative condition (the "non-dispensing condition"), the nozzle component together with the surrounding second component, is adapted to provide closure of the mouth of a suitable said container or provides closure of the container, and

in another condition ("the dispensing condition") of the nozzle component relative to the second component, is adapted to provide for such a suitable said container, or provides for the container, a liquid egress passageway, and wherein the second component and the nozzle component, when in or notionally considered in the non-dispensing condition, actually or notionally define together with the first component a fully enclosed space about part of said nozzle component,

and wherein the second component and the nozzle component, when in or notionally considered in the dispensing condition or some other condition, together with the disc seal member and the first component actually or notionally fully enclose the nozzle component.

Preferably the detachable overcap after separation from the skirt can engage retainably the second component thereby, when the nozzle component and the second component are in the non-dispensing condition, to provide a closed space about the upper part of the nozzle component.

Preferably the nozzle component shuttles only between limits of movement corresponding to the dispensing and non-dispensing conditions. Alternatively, said nozzle component and the second component has a said other condition beyond the shuttling limits of movement of the nozzle component between the dispensing and non-dispensing conditions.

In another aspect the present invention consists in a container closed by a capping assembly of the present invention wherein the disc seal member interposed between said second component and the container provides a closed space about all of that part of said first component within which said nozzle component is disposed.

Preferably said nozzle component with respect to said second component is in either a dispensing condition or some other condition that does not equate to the same condition as said non-dispensing condition, the dispensing and non-dispensing conditions being those conditions between which the nozzle component is adapted to shuttle.

In another aspect the present invention consists in a closed container assembly containing a liquid, said assembly comprising or including

a container with the liquid, the container having a neck with an open mouth,

a seal member over and sealing the open mouth, and

a closure assembly engaged to the container about the neck and extending over the seal member sealed mouth,

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wherein the closure assembly is defined by

(i) a first moulding providing

(a) an overcap,

(b) a frangibly removable region or frangible connection ("frangible region") connecting to a lower periphery of the overcap,

(c) an internally threaded skirt connecting to the overcap via the frangible region, and

(d) (optionally) a tamper evident collar (e.g. "tamper band") severable from the internally threaded skirt,

(ii) an outlet component ("nozzle component"), and

(iii) an insert component to hold the nozzle component so that it can be manually shuffled between a dispensing and non-dispensing condition relative thereto, said insert component

(I) releasably retaining a or the lower periphery of the overcap, and

(II) peripherally sealing internally of the first moulding below the frangible region and above the internally threaded region of the skirt,

and wherein when the seal member is no longer sealing the open mouth (whether through removal or rupture), in one condition (the dispensing condition), the nozzle component and insert component allows liquid egress and, in a second condition (the non-dispensing condition), the nozzle component and insert component allows at least substantially no liquid egress.

Preferably the liquid egress is first between part of the nozzle component and the insert and thereafter, after entry into at least one inlet in the nozzle out of an outlet of the nozzle.

Preferably the tamper evident collar is present and preferably it severs from the internally threaded skirt upon any substantial attempt to unscrew the threaded skirt from the externally threaded neck of the container.

Preferably the seal member has been brought into juxtaposition prior to sealing the open mouth by having being carried by the first moulding, i.e.; preferably the first moulding (i) includes or has included the seal member.

Preferably provision is made for unscrewing the closure assembly from the container thereby to allow the peel removal of the seal member.

In other forms of the present invention some rupturing capability can be provided whereby the nozzle component itself can be used in moving between the dispensing condition to the non-dispensing condition that will allow the egress of liquid to rupture the sealing member.

Other forms of removal of the seal member however can be provided.

The present invention therefore includes the use of a closure assembly as previously defined with a container of a kind as previously defined thereby providing the potential of a closed container assembly as aforesaid.

In yet a further aspect the present invention consists in a method of closure of a container so as to provide a closed container assembly as aforesaid, said method including the steps of applying a closure assembly as aforesaid to the container after filling the container at least to a substantial extent with a liquid and prior to, during or subsequent to such application sealing the seal member to the mouth of the container.

Preferably the sealing is by induction welding. It can instead as another preferred embodiment involve the use of adhesive.

In another aspect the present invention consists in a closed container assembly containing or to contain a liquid, said assembly comprising or including

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a container with the liquid, the container having an externally threaded neck with an open mouth, and a closure assembly screw engaged to the container about the neck and extending over the mouth,

wherein the closure assembly is defined by

(iv) a first moulding providing

(a) an overcap,

(b) a frangible region connecting to a lower periphery of the overcap,

(c) an internally threaded skirt connecting to the overcap via the frangible region, and

(d) (optionally) a tamper evident collar severable from the internally threaded skirt,

(v) a nozzle component, and

(vi) an insert component to hold the nozzle component so that it can be manually shuttled between (at least) a dispensing and non-dispensing condition relative thereto, said insert component

(I) releasably retaining a or the lower periphery of the overcap, and

(II) peripherally sealing internally of the first moulding below the frangible region and above the internally threaded region of the skirt,

and wherein in one condition (the dispensing condition), the nozzle component and insert component allows liquid egress and, in a second condition (the non-dispensing condition), the nozzle component and insert component allows at least substantially no liquid egress.

In another aspect the present invention consists in an assembly engageable with an externally threaded necked container, said assembly having (at least)

an overcap defining moulding having an extended skirt with an internal thread adapted to screw engage the external thread of a suitable said container,

an insert component retained or retainable by an array of splines, an array of splines of the overcap defining moulding, or the overcap defining moulding, and

an outlet nozzle component carried by the insert component and movable relative thereto between at least two conditions, and

(optionally) a seal member for the mouth of an appropriate complementary said container,

wherein the overcap defining moulding, insert component, nozzle component are preassembled or associated such that at least part of the nozzle component and at least some (preferably most or all) of the insert component is in a substantially enclosed space between part of the overcap defining moulding and the seal member yet the internal thread of the skirt can screw engage the external-thread of an appropriate complementary said container to have its mouth sealed by the seal member,

and wherein the overcap defining moulding defines an overcap frangibly detachable in a region of its skirt in a tamper evident manner from at least the insert component retaining region and the internally threaded region of its skirt,

and wherein, when so fitted to an appropriate said container, the overcap can be removed in a tamper evident manner thereby enabling the nozzle component to be moved relative to the insert component to thereafter be capable of being shuttled between dispensing and non-dispensing conditions.

Preferably the overcap defining member is moulded in a plastics material.

Preferably a circular periphery of the insert component engages in a press or tight fit, welded, glued, or other manner with the interior of the overcap defining moulding.

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Preferably that engagement for the purpose of retaining the insert component within the overcap prior to engagement thereof with a said container.

Preferably a peripheral lower region of the overcap part of the overcap defining moulding itself is engageable with a complementary part of the insert component such that after frangible detachment in a region of its skirt (in a tamper evident manner) the overcap can be removed therefrom and can, if desired, be replaced or relocated.

Preferably the means of frangible detachment includes a peripheral tear strip between the lower extremity of the overcap part of the overcap defining moulding and that part of the skirt (whether as a unitary part or otherwise) of the skirt. Alternatively the frangible detachment can be by twisting off or squeezing off of the overcap.

Preferably the overcap defining moulding includes as a lower most extension of its skirt a collar defining region adapted to be frangibly detachable as a tamper evident collar or tamper band from that region of the skirt with the internal thread such that should there be unauthorised loosening of the assembly from an appropriate container there is a tamper evident separation of at least of the collar or tamper band from the remainder of the skirt.

In another aspect the present invention consists in an assembly engageable with or engaged with a necked container, said assembly having

an overcap defining moulding having an extended skirt with an internal means adapted to engage or engaging the exterior of the neck of a suitable said container,

an insert component retained or retainable by an array of splines and/or the overcap defining moulding, and

an outlet nozzle component carried by the insert component and movable relative thereto between at least two conditions one of which effects a seal with the insert component to effect closure of a liquid passageway, and

(optionally) a seal member for an otherwise open mouth of or of a said necked container carried in or having been carried in the overcap and/or insert component.

In a further aspect the present invention consists in a method of providing a liquid dispensing assembly having a container and a closure assembly with an overcap feature for a nozzle component, said method comprising or including

filling said container having an externally threaded neck with a liquid, and

engaging with the external thread of the container a preassembled closure assembly to effect closure, the closure assembly having the following features:

(vii) a first moulding providing

(a) an overcap,

(b) a frangible region

(c) an internally threaded skirt connecting to the overcap by the frangible region, and

(d) (optionally) a tamper evident collar dependent from the internally threaded skirt,

(viii) a nozzle component, and

(ix) an insert component to hold the nozzle component so that it can be manually shuttled between a dispensing and non-dispensing condition relative thereto, said insert component

(I) being capable of releasably retaining a or the lower periphery of the overcap, and

(II) peripherally sealing internally of the first moulding below the frangible region and above the internally threaded region of the skirt,

wherein optionally said tamper evident collar engages with complementary engagement means of the container such that

should thereafter, the assembly be unscrewed such collar will be retained or will rupture at least in part from the skirt,

and wherein in a tamper evident way the overcap can be released reliant on the frangible region.

Preferably the preassembled closure assembly includes a seal member adapted to be juxtaposed over an open mouth of the container.

Preferably said seal member seals to the container as a result of a welding or like procedure.

Preferably said insert component in any of the forms of the present invention seals to the overcap defining moulding reliant upon one or more of a press or tight fit, a shoulder retention, adhesive fixing, and a suitable welding (e.g. induction, friction, ultrasonic, etc.).

In another aspect the invention is a closed container assembly comprising or including a necked container closed by a capping assembly as previously defined.

A capping assembly, closure assembly or closed container assembly substantially as herein described with reference to any one or more of the accompanying drawings.

In another aspect the present invention consists in a one piece overcap moulding having

an overcap region,

a internally threaded skirt region, and

a frangible link between the overcap and the threaded skirt region, and

(optionally) a tamper evident tamper band dependent from the threaded skirt region,

wherein there is no perforation in the overcap region, the threaded skirt region nor the frangible link.

In another aspect the present invention consists in a one piece overcap moulding of or for a drink dispensing container (eg bottle) having

an overcap region,

a internally threaded skirt region, and

a frangible link between the overcap and the threaded skirt region, and

(optionally) a tamper evident tamper band dependent from the threaded skirt region

wherein where there is or is to be a fluid tight seal between the overcap and other closure assembly component(s) of and/or of the container itself, at least the overcap region and its frangible link to the internally threaded skirt region is or will be fluid tight.

Preferably the frangible link is a band that completely circumvents or substantially completely circumvents below the bottom periphery of the overcap region (i.e. if it only substantially circumvents there may for the rest of the periphery be a simple frangible connection between the overcap region and part of the internally threaded skirt region).

Preferably the bottom periphery of the overcap region internally includes a bead, lip, shoulder or the like adapted to act as a retention feature. In less preferred forms it can be a channel form to coact with a complementary bead, lip or the like that is carried by a separate component.

In still a further aspect the present invention consists in a closed container which includes a one piece overcap moulding in accordance with any form of the present invention providing protection for a dispensing nozzle of drink container, e.g. bottle.

In still a further aspect the present invention consists in a one piece overcap moulding having one or more or all of the features substantially as hereinafter described with reference to any one or more of the accompanying drawings.

In another aspect the invention is a capping assembly engageable with a necked container, said assembly being or having

a first component in the form of a unitary moulding adapted to define a detachable overcap and at least a skirt, the skirt being threaded to engage the exterior of the neck of a suitable said container,

a second component located within said first component,

a nozzle component carried through the second component yet moveable relative to

the second component such that,

in one relative condition, the nozzle component together with the surrounding second component, is adapted to provide no liquid egress passageway (the "non-dispensing condition"), and

in another condition of the nozzle component relative to the second component, is adapted to provide a liquid egress passageway (the "dispensing condition"),

a seal member carried within the first component which provides at least substantial closure of the passageway,

wherein the second component and the nozzle component, when in the dispensing condition, define or could define together with the first component a fully enclosed space about part of said nozzle component,

and wherein said nozzle component is or can be wholly to one side of the seal member (eg when the nozzle component and second component are in the dispensing condition).

Persons skilled in the art will appreciate the other aspects of the present invention within the scope of the present invention. These include commodities of commerce being such filled containers. Other uses include the recycling of such containers for casual use by a purchaser of it in an original form.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred forms will now be described with reference to the accompanying drawings in which.

FIG. 1 shows a closure assembly of an embodiment in accordance with the present invention in section from one elevation, there being shown also a sealing member carried by the one piece overcap internally of its skirt,

FIG. 2 is a similar view of the arrangement shown in FIG. 1, both FIGS. 1 and 2 showing the nozzle component in a condition relative to the insert component as applied to a container in a hot fill line, FIG. 2 however showing the sealing member as lowered onto and preferably induction welded through the overcap moulding to the mouth regions of a suitable complementary container shown in part,

FIG. 3 is a similar view to that of FIG. 2 but showing the nozzle assembly moved downwardly relative to the insert component (as would only in use occur after removal of the overcap after removal of the frangible link or band), the relative position between the nozzle component and the insert component as shown in FIG. 3 being a non-dispensing condition which seals between the two reliant upon what otherwise are retention shoulders as described with respect to the purchased condition of FIG. 2,

FIG. 4 is a similar view to that of FIG. 3 but showing the container in the dispensing condition, showing the overcap removed, etc.,

FIG. 5 is an exploded view that shows the three preferred components each provided as a moulding (preferably the assembly also being provided with a disc sealing member), showing how the nozzle outlet moulding can be inserted down into the insert moulding to the condition as shown in FIGS. 1 and 2 prior to association of the insert carrying the nozzle component within the one piece overcap moulding,

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FIG. 6 is a perspective view from the outside of a one piece overcap defining moulding in accordance with the present invention, there being shown a tag adapted to be gripped to allow the removal of the frangible link as a band around the lower periphery of the overcap between the overcap and the skirt, FIG. 6 also showing how a tamper band is preferably integrally provided at the bottom of the knurled or otherwise grip enhanced periphery of the internally threaded skirt,

FIG. 7 is a side elevation of the moulding as shown in FIG. 6,

FIG. 8 is a further elevation of the moulding shown in FIGS. 6 and 7,

FIG. 9 shows the assembly as in FIG. 4 or some approximation thereto in the dispensing condition, (c.f. the non-dispensing condition of FIGS. 3, 26 and 27)

FIG. 10 is a similar view to that of FIG. 3 but with the nozzle component relative to the insert component in its non-dispensing condition that seals against liquid egress and with the overcap replaced,

FIG. 11 shows prior to fitment to a threaded container, a capping or closure assembly of the present invention without a disc seal when viewed in perspective from below,

FIG. 12 is the same assembly as shown in FIG. 11 but shown in perspective from above,

FIG. 13 is a view in plan from below of the assembly of FIGS. 11 and 12,

FIG. 14 is a view from above in plan of the assembly shown in FIGS. 11 to 13,

FIG. 15 is a similar view to that of FIG. 12 but with the assembly rotated by 180°,

FIG. 16 shows the assembly of FIGS. 11 to 15 in perspective when viewed inverted so as to see it from below,

FIG. 17 is a side elevation of the assembly of FIGS. 11 through 16,

FIG. 18 is a section at AA of the assembly of FIG. 17 showing the presence of a disc member adapted to seal the mouth of a necked container to which it is to be fitted, said disc seal being carried by an interference fit seen in FIGS. 11 and 16, FIG. 18 also showing the liquid egress passageway defining condition of the nozzle component with respect to the second component such that a closed space would be defined about part of the nozzle component were the nozzle component (notionally owing to the disc member presence) to assume its non-dispensing condition, such space being defined by the first component (preferably at least primarily the overcap thereof), at least part of the second component and at least part of the nozzle component, and FIG. 18 also showing, with the fitment of the disc seal, a closed space "I" about the bottom part of the nozzle component in communication with the space "III",

FIG. 19 is a similar view to that of FIG. 11 but after removal of the overcap and in the non-dispensing condition,

FIG. 20 is a similar view to that of FIG. 12 but after removal of the overcap by tear removal of the tear strip (i.e frangible means) of the first component and the lifting free of the overcap from the second component to which may or may not engage independently and in the non-dispensing condition,

FIG. 21 is a similar view to that of FIG. 13,

FIG. 22 is the plan view from above of the assembly of FIGS. 19 to 21,

FIG. 23 is a perspective view from above of the assembly as in FIGS. 19 through 22,

FIG. 24 shows inverted and from below in perspective, the assembly of FIGS. 19 through 23 showing the nozzle assembly fully depressed to its limit as allowed between itself and the second component or insert thereby to assume the non-dispensing condition,

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FIG. 25 is a side view of the arrangement of FIG. 24,

FIG. 26 is a section BB of the arrangement shown in FIG. 25, and

FIG. 27 shows the actual or notional closed space "II", when the overcap has been replaced and the nozzle component and second component or insert are in the non-dispensing condition.

DETAILED DESCRIPTION OF THE INVENTION

In the preferred form of the present invention the seal member can be of any of the conventional types used with or without welding to the top of the mouth of a container. It can be provided with a tang, tab or the like to allow its easy peel removal in whole or in part once the cap assembly has been disengaged (albeit while leaving the tamper band behind). In other forms, if desired, a seal piercing provision can be provided to the nozzle component such that it has the ability to rupture any seal member (whether polycell, foil, plastics, or otherwise) closing the top of a mouthed container.

In the preferred form of the present invention each of the components is of polyethylene or polypropylene. As can be seen in FIG. 5 there are three main moulded components namely, the overcap defining moulding 1, the insert 2 (itself a moulding), and the nozzle component 3 (again preferably a moulding). Not shown in FIG. 3 is a standard or more or less standard polycell or other type disc seal 17 to be carried in a manner hereinafter described.

As can be seen in FIG. 2, in the preferred form of the present invention the component 1 includes an overcap 4 with a retention shoulder or bead 5 adapted to underlie a retention shoulder 6 of the insert 2. This provision is to allow the removal and replacement of the overcap 4 as and when required after removal of the band 7 under the action of the pull tab 7A which likewise is part of said frangible region. As can be seen this region 7 connects frangibly a bottom peripheral region 8 of the overcap 4 through to a frangibly connected peripheral skirt 9 with its internal thread 10 to engage the external thread 11 of a neck of a suitable container.

In the condition shown in FIG. 2, and for that matter FIG. 1, the nozzle component 3 is in its preferred as supplied condition. In the condition shown in FIGS. 1 and 2 the nozzle component 3 is retained against removal by the interaction at 15. It is this, as supplied, condition with that component 3 above the disc seal 17 carried by the region 9 internally thereof, that would be supplied to a hot line user of the overall assembly and would still be the relative condition between the nozzle component 3 and the insert 2 when on sold together with a sealed liquid containing bottle (of any appropriate shape) but with complementary features for engagement with the internal thread of the skirt 9.

The insert 3 however is movable relative to the insert 2 through and/or to at least two conditions, one of which is shown in FIG. 3 being a condition that pierces the foil and which also is the non-dispensing condition (see FIG. 10) at which stage, if desired, the overcap can be replaced after having previously having been removed after the removal of the band 7.

In use, the outlet 12 of the component 3 only allows outflow of liquid as shown in FIG. 9 and this requires the region 18 of the nozzle component to be clear of the retention shoulder 14 (preferably the lower region of a frustoconical flange). In the condition as shown in FIGS. 3 and 10 there is a liquid tight abutment occurring between 14 and 15.

Providing a seal in all assembled conditions is the interface 16 between the threaded skirt 9 of the moulding 1 and the

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insert **2**. This can be achieved in any appropriate way including friction welding, induction welding or the like.

It is envisaged that an assembly in a condition as shown in FIG. **1** will be supplied to a bottler. This would include the disc seal member **17** appropriately positioned by a tight fit or other means within the interior of the skirt **9**. Thereafter that product in hot fill conditions can then be directly screwed on to a complementary container and induction welding will allow the collapse and seal of the disc seal member **17** on to the open mouth of a container, i.e.; as in the condition shown in FIG. **2**. This can be a consequence of induction or ultrasonic welding through the overcap moulding.

With the seal member as carried during such closure fitment and the substantially enclosed volume of much of the as supplied unit, little moisture or air to pool condensate is available to cause concern.

Once a bottle is purchased with the assembly closing the container in a condition as shown in FIG. **2** removal of the band **7** under the pulling action of the pull tab **7A** allows the removal of the overcap **4** and thereafter the depression of the nozzle assembly to the condition as shown in FIG. **3**. This can occur either without removal of the remainder of the closure assembly or not.

If the seal member **17** is to be pulled free prior to the use of the closure assembly between the conditions shown in FIG. **3** (non-dispensing condition) and FIGS. **4** and **9** (the dispensing condition) unscrewing and thus evidence of tampering will ensue.

If however otherwise the nozzle component is simply pressed down from its as supplied condition as in FIGS. **1** and **2** to the condition as in FIG. **3** there will be rupturing of the seal **17**.

The present invention is applicable to the assembly and the overcap defining moulding irrespective of whether or not there is to be piercing or peel removal.

In FIGS. **11** through **26** there is seen as the first component, the unitary moulding **18** which defines an overcap **19**, the removable tear strip **20**, the skirt **21** and the tamper band **22**.

As best can be seen by reference to FIG. **18** the second component **23** locates in a peripheral groove in a manner an annular bead **24** of the overcap **19**. This is to allow its removal from the second component or insert **23** when the tear strip **20** or its equivalent has been removed, ruptured or otherwise. Such removal still leaves the skirt **21** threadingly engaged with a container (not shown) when in use, the skirt **21** holding with its shoulder **25** the lower complementary shoulder **26** of the second member **23** against withdrawal. This is of importance since the crab claw like annular flange **27** will be held down on to the rim of a suitable container when the disc seal **28** has either been removed or been ruptured.

In the condition shown as in FIG. **18** the nozzle component **29** relative to the second component **23** is in the dispensing condition, i.e. it defines a liquid egress passageway which is shown by the arrows in FIG. **26** provided the seal **28** (still being shown by a broken line in FIG. **26**) has been removed or ruptured. Please note that either possibility can be employed for breaking the seal.

To be noted in FIG. **18** is the at least substantially closed zone (I) resulting from the presence of the disc seal **28** even precapping of a suitable container. This member, held preferably by the interference fit providing projections **30** at the periphery of the disc seal **28** (as shown in FIG. **18**) ensures at least substantial contact with the annular inner skirt **31** of the second component **28**.

This means that by the time product is in its form as in FIG. **18**, notwithstanding the fact that the liquid egress passageway is in the dispensing condition (i.e. the nozzle component and

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the second component are in the dispensing condition), or could in some variant be in some other condition (i.e further raised beyond the normal shuttling limits if allowed by the flange **33** to skeletal shoulder **34** abutment), there is still a seal around the zone (III) provided by the inner moulding and there is no easy route of access into the space (I) (or its actual or notional residue) nor indeed even the peripheral space (IV) or its actual or notional residue.

Please note however it is still within the scope of the present invention were the nature of the nozzle component and the second component such that at the normal relative limits of movement, were there to be a closure condition thereby enclosing spaces, the liquid egress passageway could be defined by some intermediate relative condition. Most preferred however is the arrangement as depicted as a user need simply pull the nozzle **29** to the condition shown in FIG. **18** once the sealing disc **28** has been removed from the container to which it will have been preferably high frequency induction welded after fitment of the assembly as in FIG. **18** to such a container. Of course in order to remove the assembly or at least the majority of the assembly as shown, the tamper band **32** will be broken free from the skirt **21** thereby evidencing tampering if unauthorised, and leaving behind for easy removal the disc seal **28** from the top of the container prior to re-engagement of the threaded skirt **21** to the container.

At any suitable time the tear off strip **20** can be pulled free thus allowing the over cap **19** to be removed and liquid to egress in the manner depicted by the arrows of the liquid passageway in FIG. **4** when the nozzle component is in the dispensing condition.

It can be seen therefore with the prospect of preassembly of the closure assembly together with a seal member there is the prospect that the enclosed regions of the closure assembly are not susceptible to the intrusion of the moisture and air at a hot fill line when liquids (at for example 80° C.) are dispensed into the containers prior to association with the seal member. This means therefore there is little water vapour beyond the ordinary available to condense within the enclosed space of the closure member itself. Also, with the closure assembly being capable of being coupled to the seal member itself (even if only a loose fit) and with little space having been confined by the seal member above itself when in non humid conditions, and no space below it once it has been sealed about the mouth of the container, there is little in the way of moisture and air being confined that can lead to condensation and thus water pooling on the seal member. This water pooling occurs in other conventional overcaps and sipper bodies where a vacuum is formed that pulls water through the mating faces of such conventional overcaps and sipper bodies.

Such pooling in the past has been considered undesirable owing to the impression it provides to a consumer and of course the prospect that it could be a pool supportive of bacteria.

It is believed that the present invention will therefore find widespread acceptance.

I claim:

1. A capping assembly engageable with or engaged with a necked container, said capping assembly comprising
 - a first component in the form of a unitary moulding adapted to define a detachable overcap and at least a skirt, the skirt being adapted to engage or engaging an exterior of a neck of said container,
 - a second component at least in part located within said first component, and
 - a nozzle component carried through the second component yet moveable relative to the second component such that,

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in one relative condition, the non-dispensing condition, the nozzle component together with the surrounding second component, is adapted to provide closure of the mouth of said container or provides closure of the container, in another condition, the dispensing condition, of the nozzle component relative to the second component, is adapted to provide said container, or provides for the container, a liquid egress passageway, the second component and the nozzle component, when in the non-dispensing condition, define together with the first component a fully enclosed space about part of said nozzle component, said first component including a tear strip or other frangible feature whereby the detachable overcap is separated from the skirt thereby to allow access to a part of said nozzle component presenting to said fully enclosed space about part of said nozzle component.

2. The capping assembly of claim 1, wherein said skirt of the first component is internally threaded as the adaptation to engage or the means by which it is engaged with the exterior of the neck of said container.

3. The assembly of claim 1, wherein when not in the non-dispensing condition the nozzle component is above a disc seal of a mouth of the container.

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4. The assembly of claim 1, wherein in the non-dispensing condition, the container is carried fully below the nozzle component and the second component within the first component.

5. The assembly as claimed in claim 1, wherein said detachable overcap, once separated from a remainder of the first component is adapted to engage with said second component or skirt.

6. The assembly of claim 5, wherein said overcap is adapted to engage with the second component whereby the second component and the nozzle component, when in the non-dispensing condition, define together with the overcap a fully enclosed space about part of said nozzle component.

7. The assembly of claim 1, wherein the skirt has a shoulder peripherally overlapping as a hold down of a complementary shoulder of the second component.

8. The assembly of claim 1 wherein the first component unitary moulding defines a tamper evident collar or a tamper band dependent from said skirt and/or as an extension of the skirt.

9. The closed container assembly comprising a necked container closed by a capping assembly of claim 1.

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