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(71) Applicant *(for all designated States except US)*: **DANIEL MONTGOMERY & SON LIMITED** [GB/GB]; Old Mill Park Estate, Kirkintilloch, Glasgow G66 1ST (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **THOMSON, David, William** [GB/GB]; 14 Gartcluesh Gardens, Bannockburn, Stirling FK6 8QA (GB). **MEZZADRA, Egidio** [IT/IT]; Global Cap, Via dell Industria, 1, I-27020 Torre D'Isola (IT).

(74) Agents: **MACDOUGALL, Donald, Carmichael** et al.; Cruikshank & Fairweather, 19 Royal Exchange Square, Glasgow G1 3AE (GB).

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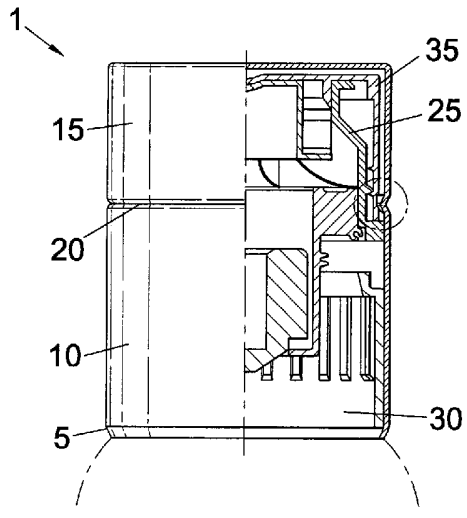
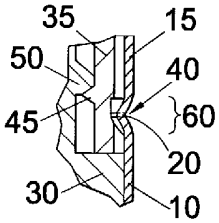
(54) **Title:** TAMPER-EVIDENT DEVICE





(57) **Abstract:** There is disclosed a tamper-evident device (1, 101, 201) for a closure assembly adapted to be applied to a mouth of a container (3), for example, a neck of a bottle. There has been identified a need for an improved tamper-evident device which does not have any parts which are removed upon initial opening and which are liable to be reattached by counterfeits or the like. Accordingly the present invention provides a tamper-evident device (1, 101, 201) comprising a sleeve member (5, 105, 205) which comprises a first portion (10, 110, 220) associated with a second portion (15, 115, 215) by means of a frangible portion (10, 110, 220) therebetween, and wherein said first portion (10, 110, 210) is adapted to be applied to a mouth and neck portion (4) of a container (3), and said second portion (15, 115, 215) is associated with a container closure member (35, 135, 235), and wherein an initial container opening operation causes said frangible portion (20, 120, 220) to fracture or break such that when the container (3) is reclosed said first and second portions (10, 110, 210) are located in a spaced apart relationship to one another.

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TAMPER-EVIDENT DEVICE

FIELD OF INVENTION

The present invention relates to a tamper-evident device for a closure assembly adapted to be applied to a mouth of a container, for example, a neck of a bottle. The invention particularly, thought not exclusively, relates to a tamper-evident non-refillable snap-on fitment.

BACKGROUND TO INVENTION

For various reasons, it may be desirable to ensure that a used container, such as a bottle intended to contain a liquid (eg spirits such as alcoholic beverages), is not re-filled with a replacement quantity of another liquid, the characteristics and quality of which may differ from the original contents. Attempts to provide closures which make such re-filling difficult are not always proof against determined tampering. While it is considered advantageous to provide a tamper-indicating means which provides evidence that the bottle and its original contents are intact, if the bottle is resealable with a substitute cap or closure, there may be little to indicate to a purchaser that the bottle has been tampered with and that the contents may be inferior to the original contents.

It has, therefore, been found desirable to provide a closure which cannot be removed without an extreme level of effort, or breakage being caused to the bottle. Such an arrangement is shown, for example, in GB Patent No 2 274 837 also by the present Applicant, selected merely by way of illustration.

Whilst it is very important that an original closure cannot be removed without visible damage or breakage being caused either to the closure and/or to the bottle, it has been found that a closure that cannot readily be removed will become the target of attempts to re-fill the container by overcoming the feature provided in the closure intended

to hinder or prevent such refilling. Therefore, in addition to providing devices to prevent re-filling of bottles, there is a need to provide such devices with further tamper-indicating features which, while not acting in any preventive role, give a clear irremovable and/or irreversible indication that a bottle has been opened since being originally filled with the genuine contents. Such clear indicators have been somewhat lacking in previous closure designs.

Furthermore, there is a need for simple designs of closure assemblies allowing easy and reliable manufacture, assembly and fitting to bottle necks. Such simplicity has been somewhat lacking in previous closure designs.

It is an object of at least one aspect of the present invention to provide an improved tamper-evident device which does not have any parts which are removed upon initial opening and which are liable to be reattached by counterfeiters or the like.

It is also an object of a least one aspect of the present invention to obviate or at least mitigate at least one of the aforementioned problems/disadvantages in the prior art.

SUMMARY OF INVENTION

According to a first aspect of the present invention, there is provided a tamper-evident device comprising a first sleeve member which comprises a first portion associated with a second portion by means of a frangible portion therebetween, and wherein said first portion is adapted to be applied to a mouth and neck portion of a container, and said second portion is associated with a container closure member, and wherein an initial container opening operation causes said frangible portion to fracture or break such that when the container is reclosed said first and second portions are located in a spaced apart

relationship to one another.

The Applicant has named the device of the invention the "ALUsnap" (Trade Mark) Tamper-Evident device.

Preferably the frangible portion is provided adjacent respective circumferential edges of each of the first and second portions.

Either or both of the respective circumferential edges may retract or recoil away from the other during a container opening operation when the frangible portion fractures or breaks.

The retraction or recoil is preferably accompanied by a concomitant circumferential contraction of at least one of the edges inwardly of the respective first or second portion to provide at least one edge having a smaller circumference than an adjacent portion of the respective first or second portion.

The retraction or recoil movement is important because it advantageously results in a permanent deformation of the first and/or second portions such that when the container is reclosed the circumferential edges, do not abut together thus revealing a void or gap located between the first and second portions. This visual indicator evidences that the container (and tamper-evident device) has been opened.

Preferably, the container closure member includes a circumferential groove which may further provide a circumferential lip portion located below and adjacent to the circumferential groove.

Preferably, during an initial container opening operation, the first circumferential edge recoils/retracts and circumferentially contracts into the circumferential groove to become positioned circumferentially behind the circumferential lip. This action positions the circumferential lip between the first and second circumferential edges in an obstructive manner such that when the container is reclosed by re-applying the closure member, the first and second portions of the first sleeve member are spaced apart by the circumferential lip portion

located therebetween.

The frangible portion is generally located in a circumferential groove provided between or adjacent the first and second portions of the sleeve member.

Preferably the frangible portion is located substantially at an apex or base of the groove.

The frangible portion may be provided as a continuous weakened portion such as a circumferential scored line or alternatively the frangible portion may comprise intermittent shearable links which join the first portion to the second portion or a combination of these.

The first edge of the first portion may provide a circumferential first beaded portion on the first portion and in a same manner the edge of the second portion may provide a circumferential second beaded portion on the portion.

The first sleeve member may comprise any suitable material and preferably this material comprises a metal, or metallic based material.

Preferably the metal or metallic based material substantially comprises aluminium, or an alloy thereof particularly rolled aluminium.

Without wishing to be bound by theory, when the first sleeve member comprises rolled aluminium, the retraction, recoil and/or contraction on breakage of the frangible portion is believed to be due to release of a tension introduced into the aluminium during forming of the sleeve member.

Also, advantageously, aluminium provides a good medium for application of printing dyes, inks, paints or the like such that messages, logos, images, names, and other information may be carried by the sleeve member.

The container closure member may be a cap which desirably includes a threaded portion which allows a rotational movement of the cap during a container opening operation.

The container is preferably a bottle.

The tamper-evident device may include a pouring outlet device adapted to be secured to the mouth of a container for liquid, the container closure member may be a cap adapted to close an outlet of the pouring outlet device, and the sleeve member may be adapted to receive at least part of the pouring outlet device.

Preferably the second portion of the sleeve member is adapted to receive at least part of the cap.

The cap is generally received in a tight interference fit to the second portion, but may be optionally rotatable with respect to the second portion of the sleeve member upon application of sufficient force.

The pouring outlet device is desirably a non-refillable and/or a non-removable device.

Desirably the pouring device comprises a further sleeve member which is adapted to lie around the mouth and neck portion of the container and further comprises a valve seat body which is at least partially receivable within at least part of the neck portion of the container, and wherein the valve seat body is at least partially surrounded by the further sleeve member.

At least the first portion of the sleeve member is preferably adapted to receive at least part of the second sleeve member, preferably in a tight interference fit but optionally rotatable with respect to the further sleeve member upon application of sufficient force.

Preferably the circumferential groove of the sleeve member is located within a circumferential groove provided on the cap. This positioning ensures that when the container is opened by twisting the cap, and fracturing or breaking the shearable links, the edge of the second portion of the sleeve member remains within the groove provided on the cap, and the edge of the first portion of the sleeve member progressively moves out of the groove provided on the cap as the cap is removed away from the pouring outlet device and the first portion. On removing

the contact between the cap and the first portion of the first sleeve member, the first edge retracts to cause a contraction of circumference such that the resulting circumference is less than that of a cap portion which is located below the groove therein. This cap portion is preferably provided as a circumferential lip on the cap.

When the cap is re-applied to the pouring outlet device, a stop position is reached when the circumferential lip of the cap rests or sits upon the first edge of the first portion of the sleeve member, thus preventing the cap being returned to its original starting position. A gap or void remains between the first and second portions of the first sleeve member thus exposing the circumferential portion of the cap, which includes the circumferential lip which was originally encased or enclosed within the first sleeve member. A void may also exist between the lower edge of the cap and a cap seating surface of the pouring device.

Advantageously the exposed circumferential portion of the cap may be distinctly coloured and/or printed with information, promotional messages or the like.

According to a second aspect of the present invention, there is provided a container including a tamper-evident device as hereinbefore described.

The container is preferably a container for liquid which further includes a pouring outlet device as hereinbefore described.

The container may be a glass bottle, and may be adapted for containment of liquid, such as alcoholic drinks or beverages, eg spirits such as vodka, whisky, brandy, gin or the like.

According to a third aspect of the present invention there is provided a combination of a container and a tamper-evident device according to the first aspect of the invention.

According to a fourth aspect of the present invention there is provided an alcoholic drinks product comprising an

alcoholic substance packaged in the combination according to the third aspect.

According to a fifth aspect of the present invention there is provided a method of manufacturing a tamper-evident device comprising the steps of:

(a) providing a sleeve member;

(b) providing a pouring outlet device comprising a further sleeve member adapted to be secured to a mouth or neck portion of a container for liquid, and a container closure member releasable securable to the further sleeve member;

(c) disposing the pouring outlet device at least partly within the sleeve member;

(d) forming a substantially circumferential frangible portion around the sleeve member.

This method is particularly advantageous in mass production.

Preferably, the method includes the further step of securing the sleeve member and pouring outlet device one to the other by forming a lip on an open end of the sleeve member so as to entrap the pouring outlet device within the sleeve member.

The tamper-evident device so formed may comprise a unitary assembly for snap-on application to a mouth and neck portion of a container.

BRIEF DESCRIPTION OF DRAWINGS

Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings which are:

Figure 1(a) a partially cut-away side view of a tamper-evident device according to a first embodiment of the present invention prior to initial opening in combination with a pouring outlet device and bottle neck shown

in phantom lines;

Figure 1(b) an enlarged view of the circled part of the tamper-evident device of Figure 1;

Figure 2 a partially cut-away side view of the tamper-evident device of Figure 1(a) in use with the closure member removed;

Figure 3(a) a partially cut-away side view of the tamper-evident device of Figure 1(a) with the closure member re-applied;

Figure 3(b) an enlarged view of the circled part of the tamper-evident device of Figure 3(a);

Figure 4 an exploded perspective view of the tamper-evident device of Figure 1 including a pouring outlet device and in combination with a bottle having a mouth and neck;

Figure 5(a) a partially cut-away side view of a tamper-evident device according to a second embodiment of the present invention in combination with a pouring outlet device and bottle neck shown in phantom lines;

Figure 5(b) an enlarged view of the circled cut-away view of Figure 5(a).

Figure 6 a partially cut-away view of the tamper-evident device of Figure 5(a) in use with the closure member removed;

Figure 7(a) a partially cut-away side view of the

tamper-evident device of Figure 5(a) with the closure member re-applied;

Figure 7(b) an enlarged view of the circled part of the tamper-evident device of Figure 7(a);

Figure 8 a cross-sectional view a tamper- evident device according to a third embodiment of the present invention during initial steps of manufacture;

Figure 9 a cross-sectional view of the tamper-evident device of Figure 8 during an intermediate step of manufacture; and

Figure 10 a cross-sectional view of part of the tamper-evident device of Figure 8 after manufacture and prior to initial opening.

DETAILED DESCRIPTION OF DRAWINGS

With reference initially to Figure 1(a), there is shown a tamper-evident device, generally designated 1, according to a first embodiment of the present invention. The device 1 comprises a first sleeve member 5 which comprises a first portion 10 associated with a second portion 15 by means of a frangible portion 20 therebetween. The sleeve member has a closed distal end and an open proximal end. The first portion 10 is adapted to receive a further sleeve member 30 which is part of the pouring outlet device 25 which in this embodiment is a non-refillable and non-removable device. A lower section of the further sleeve member 30 fits within the first portion 10 in a tight interference fit but rotatable with respect to the first portion 10.

The second portion 15 is associated with a container closure member, shown as cap 35, which is received within

the second portion 15 in a tight interference fit but rotatable with respect to the second portion 15.

Referring to Figure 1(b), the first portion 10 of the sleeve member 5 is shown associated with the second portion 15 of the first sleeve member 5 by means of the frangible portion 20. Portions 10 and 15 are in a close interference fit with further sleeve member 30 and cap 35 respectively.

The frangible portion 20 is located within groove 40 on the sleeve member 5, which is provided between the first and second portions 10, 15. Groove 40 is shown located within a further groove 60 provided on cap 35. Also shown is a threaded portion 45 on cap 35 which engages with a corresponding threaded portion 50 provided on the further sleeve member 30.

In use, the cap 35 is rotated (normally anti-clockwise) in an initial container opening operation which causes the frangible portion 20 to break as described below.

Referring to Figure 2, the cap 35 and second portion 15 associated therewith is shown in a removed or open position away from the pouring device 25 which clearly shows the first portion 10 still associated with the second sleeve 30.

Referring to Figure 3(a), the cap 35 and second portion 15 associated therewith is shown re-applied or reclosed to pouring outlet 25, and the first and second portions 10, 15 respectively are clearly shown in a spaced apart relationship to one another due to the appearance of gap 55.

Referring to Figure 3(b), there is shown groove 60 provided on cap 35 and edge 80 of the second portion remaining within groove 60. Edge 75 of first portion 10 is shown in a circumferential contracted state having moved out of groove 60 upon removal of cap 35 from pouring outlet device 25. A portion of the cap 35 which is located below groove 60, shown as lip 65, rests upon the first edge 75

resulting in a void 70 which remains between the lower edge 85 of cap 35 and the cap seating surface 90 of second sleeve member 30. Lip 75 is clearly visible to an observer because it is positioned in gap 55 between the first and second portions 10 and 15.

In this embodiment the first sleeve member 5 is made from rolled aluminium, and the frangible portion 20 is formed from nine shearable links (not shown) which shear on relative twisting of cap 35 (and associated second portion 15) and the pouring outlet device 25 (and associated first portion 10).

Furthermore the aluminium sleeve 5 may be coated with inks or paint or the like, and may be further provided with printed matter and advantageously good reproducibility of colours is obtained when using coloured printed matter.

Referring now to Figure 4, there is shown an exploded perspective view of tamper-evident device 1 comprising sleeve member 5, cap 35, pouring outlet device 25 and also shown is a mouth and neck portion 4 of a container or bottle 3.

The pouring outlet device 25 comprises of a further sleeve member 30 having apertures 27a, 27b and 27c (27c not shown) with projection means 33a, 33b and 33c (33c not shown) located on the lower edges of the apertures 27a, 27b and 27c respectively. The further sleeve member 30 further has a pouring lip 34, inner surface ribs 37 and a thread portion 50.

The projection means 33a, 33b and 33c are movable radially of the further sleeve member 30 in a stiffly resilient manner, and are resiliently engagable with an outer lip portion of the container which in this embodiment is shown as shoulder 6 of the bottle neck portion 4.

In this embodiment twenty-four ribs 37 are formed and arranged circumferentially on an inner surface of the second sleeve member 30. When the pouring outlet device 25 is applied to bottle neck 4, in use, these ribs 37 co-act with raised ridges 7 on the outer surface of the bottle

neck 4 to help prevent undesired rotational movement of the second sleeve member 30. Some minor rotational play in either a clockwise or anticlockwise direction may occur until a stop position is found by a rib or ribs 37 acting against a raised ridge or ridges 7. However, continued application of force will cause the first portion 10 and/or second portion 15, to rotate relative to the further sleeve member 30 and/or cap 35, respectively.

A valve seat body 42 and a valve member 44 are also shown. A tubular portion 43 of the valve seat body 42 is adapted to be received within the mouth portion 6 of the bottle.

The first portion 10 and second portion 15 of the first sleeve member 5 are attached by a frangible portion 20 which breaks and allows the cap 35 to be removed with the second portion 15 when it is twisted away from the pouring outlet device 25 by a user in an opening operation.

The first sleeve member 5, cap 35 and the pouring outlet device 25 are conveniently assembled to give a single unit ready for simple application to a bottle neck, thus enhancing the efficiency of the manufacture, bottle filling and assembly process. The valve seat body 42 is held in association with the further sleeve member 30 by resilient rib 91 on the valve seat body 42 co-acting with inner facing detect means carried within the further sleeve member 30, eg an annular rib - not shown.

Typically, the bottle 3 is made from glass or alternatively a plastics material, the first sleeve member 5 from aluminium, the cap 35 from low density polyethylene, the further sleeve member 30 from a stiffly resilient plastics material such as polypropylene or polystyrene and which in this embodiment is a polystyrene obtainable under the trade name, Styrolux, the valve member 44 from crystal polystyrene and the valve seat body 42 from low density polyethylene.

A non-return valve is formed from the valve seat body 42 and valve member 44 which is closed in a normally

upright position of the bottle 3, which while allowing liquids to flow from the bottle 3 in a pouring operation, restricts in-flow of liquid into the bottle 3 by rudimentary unauthorised filling operatons or even more sophisticated methods which may involve insertion of objects, tubes or the like into the bottle mouth 4.

Referring now to Figure 5(a), there is shown a tamper-evident device generally designated 101 according to second embodiment of the present invention. The device 101 is similar in many respects to the device 1 of the first embodiment, like parts being identified by like numerals but increased by 100.

Device 101 comprises a first sleeve member 105 having a first portion 110 and a second portion 115 associated by means of frangible portion 120.

Figure 5(b) clearly shows a first beaded portion 130 provided on the first portion 110 and a second beaded portion 135 provided on the second portion 115.

Referring to Figure 6, in the same manner as described hereinbefore regarding the first embodiment, cap 135 and associated second portion 115 may be removed by twisting away from the pouring outlet device 125 and first portion 110 associated therewith.

Referring to Figure 7(a), cap 35 and second portion 115 are shown reapplied (reclosed) to the pouring outlet device 125 and a gap 140 remains between the first and second portions 110 and 115.

Referring now to Figure 7(b) in the same manner as hereinbefore described regarding the first embodiment, edge 150 remains in groove 60 of cap 135 and lip 165 rests upon edge 145 of the first beaded portion 130 of the first portion 110, resulting in void 155 formed between lower edge 185 of cap 135 and the cap seating surface 190.

Referring finally to Figures 8, 9 and 10, there is illustrated sequential steps in a method of manufacturing a tamper-evident device 201 according to the present invention. The device 201 may be the same as or similar to

the device 1 or the device 101 of the first or second embodiments, like parts being identified by like numerals but increased by 100 or 200, respectively.

The method comprises:

(a) providing sleeve member 205;

(b) providing pouring outlet device 225 comprising further sleeve member 230 adapted to be secured to mouth and neck portion of a bottle (not shown), and container closure member 233 releasably securable to further sleeve member 230 (see Figure 8);

(c) disposing the pouring outlet device 225 within the sleeve member 205 (see Figure 9); and

(d) forming substantially circumferential frangible portion 220 around sleeve member 205 (see Figure 10).

Further, either before or after step (d), but preferably substantially simultaneously with step (d) the method further comprises:

(e) forming an annular lip 297 at an open end 298 of the sleeve member 205 so as to entrap the pouring outlet device 225 within the sleeve member 205.

It will be appreciated that other end 299 of the sleeve member 205 is closed.

The frangible portion 220 and annular tip 297 may be formed using respective blades on a machine tool.

It will be understood that modifications may be made to the embodiment as herein described without departing from the scope of the present invention, for example, the sleeve member 5, 105 may be applied to various different designs of pouring device adapted to be applied to a variety of containers including bottles.

In a modification, for example, the second portion 15,115 and/or the first portion 10,110 may include knurred surfaces to assist in gripping in opening and reopening of the device 1,101.

It will further appreciated that the present invention

provides a particularly desirable one piece snap on fitment have functional advantages over the prior art as well as enhanced aesthetic appeal.

CLAIM

1. A tamper-evident device comprising a first sleeve member which comprises a first portion associated with a second portion by means of a frangible portion therebetween, and wherein said first portion is adapted to be applied to a mouth and neck portion of a container, and said second portion is associated with a container closure member, and wherein an initial container opening operation causes said frangible portion to fracture or break such that when the container is reclosed said first and second portions are located in a spaced apart relationship to one another.

2. A tamper-evident device as claimed in claim 1, wherein the frangible portion is provided adjacent respective circumferential edges of each of the first and second portions.

3. A tamper-evident device as claimed in claim 2, wherein either or both of the respective circumferential edges retracts or recoils away from the other during an initial container opening operation when the frangible portion fractures or breaks.

4. A tamper-evident device as claimed in claim 3, wherein the retraction or recoil is accompanied by a concomitant circumferential contraction of at least one of the edges inwardly of the respective first or second portion to provide at least one edge having a smaller circumference than an adjacent portion of the respective first or second portion.

5. A tamper-evident device as claimed in 4, wherein the retraction or recoil results in a permanent deformation of the first and/or second portions such that when the container is reclosed the circumferential edges, do not

abut together and thus reveal a void or gap located between the first and second portions, such visual indicator evidencing that the tamper-evident device has been opened.

6. A tamper-evident device as claimed in any of claims 1 to 5, wherein the container closure member includes a circumferential groove which provides a circumferential lip portion located below and adjacent to the circumferential groove.

7. A tamper-evident device as claimed in claim 6, wherein during an initial container opening operation the first circumferential edge recoils/retracts and circumferentially contracts into the circumferential groove to become positioned circumferentially behind the circumferential lip.

8. A tamper-evident device as claimed in 7, wherein in use, after initial opening the circumferential lip is positioned between the first and second circumferential edges in an obstructive manner such that when the container is reclosed by re-applying the closure member, the first and second portions of the sleeve member are spaced apart by the circumferential lip portion located therebetween.

9. A tamper-evident device as claimed in any preceding claim, wherein the frangible portion is located in a circumferential groove provided between or adjacent the first and second portions of the sleeve member.

10. A tamper-evident device as claimed in claim 9, wherein the frangible portion is located substantially at an apex or base of the groove.

11. A tamper-evident device as claimed in any preceding claim, wherein the frangible portion is selected from one of, or a combination of a continuous weakened portion, a

circumferential scored line, or a plurality of intermittent shearable links which join the first portion to the second portion.

12. A tamper-evident device as claimed in claim 2 or any of claims 3 to 11 when dependent upon claim 7, wherein the edge of the first portion provides a circumferential first beaded portion on the first portion and the edge of the second portion provides a circumferential beaded portion on the second portion.

13. A tamper-evident device as claimed in any preceding claim, wherein the sleeve member substantially comprises a metallic based material or metal.

14. A tamper-evident device as claimed in claim 13, wherein the metallic based material or metal substantially comprises aluminium.

15. A tamper-evident device as claimed in any preceding claim, wherein the container closure member is a cap including a threaded portion allowing a rotational movement of the cap during a container opening operation.

16. A tamper-evident device as claimed in any preceding claim, wherein the container is a bottle.

17. A tamper-evident device as claimed in any preceding claim, wherein the tamper-evident device include a pouring outlet device adapted to be secured to the mouth of the container for liquid, and wherein the container closure member is a cap adapted to close the outlet of the pouring outlet device and wherein the sleeve member is adapted to receive at least part of the pouring outlet device.

18. A tamper-evident device as claimed in claim 17, wherein the second portion of the sleeve member is adapted to receive at least part of the cap.

19. A tamper-evident device as claimed in claim 18, wherein the cap is received in a tight interference fit to the second portion, but is optionally rotatable with respect to the second portion of the sleeve member upon application of sufficient force.

20. A tamper-evident device as claimed in any of claims 17 to 19, wherein the pouring outlet device is desirably a non-refillable and/or a non-removable device.

21. A tamper-evident device as claimed in any of claims 17 to 20, wherein the pouring device comprises a further sleeve member which is adapted to lie around the mouth and neck portion of the container and further comprises a valve seat body which is at least partially receivable within at least part of the neck portion of the container, and wherein the valve seat body is at least partially surrounded by the further sleeve member.

22. A tamper-evident device as claimed in any of claims 17 to 21, wherein the sleeve member is adapted to receive at least part of the further sleeve member, in a tight interference fit but optionally rotatable with respect to the further sleeve member upon application of sufficient force.

23. A tamper-evident device as claimed in claim 6 or any of claims 7 to 22 when dependent thereon, wherein the circumferential groove of the sleeve member is located within a circumferential groove provided on the cap.

24. A tamper-evident device as claimed in claim 23 when dependent upon claim 15, wherein in use, the container is initially opened by twisting the cap, and the edge of the second portion of the sleeve member remains within the groove provided on the cap, and the edge of the first

portion of the sleeve member progressively moves out of the groove provided on the cap as the cap is removed away from the pouring outlet device and the first portion, and on removing the contact between the cap and the first portion of the first sleeve member, the first edge retracts to cause a contraction of circumference such that the resulting circumference is less than that of a cap portion which is located below the groove therein.

25. A tamper-evident device as claimed in claim 24, wherein the cap portion is provided as a circumferential lip on the cap.

26. A tamper-evident device as claimed in claims 24 or 25, wherein when the cap is re-applied to the pouring outlet device, a stop position is reached when the circumferential lip of the cap rests or sits upon the edge of the first portion of the sleeve member, thus preventing the cap being returned to its original position, and such that a gap or void remains between the first and second portions of the sleeve member thus exposing the circumferential portion of the cap, which includes the circumferential lip which was originally enclosed within the first sleeve member.

27. A tamper-evident device as claimed in claim 26, wherein a further gap exists between the lower edge of the cap and a cap seating surface of the pouring device.

28. A tamper-evident device as claimed in claims 26 or 27, wherein the exposed circumferential portion of the cap is distinctly coloured and/or printed with information, promotional messages or the like.

29. A container including a tamper-evident device as claimed in any of claims 1 to 28.

30. A container as claimed in claim 29, wherein the container is a glass bottle for containment of an alcoholic drink.

31. A combination of a container and a tamper-evident device according to any of claims 1 to 29.

32. An alcoholic drinks product comprising an alcoholic substance packaged in the combination of claim 31.

33. A method of manufacturing a tamper-evident device comprising the steps of:

(a) providing a sleeve member:

(b) providing a pouring outlet device comprising a further sleeve member adapted to be secured to a mouth or neck portion of a container for liquid, and a container closure member releasably securable to the further sleeve member;

(c) disposing the pouring outlet device at least partly within the sleeve member; and

(d) forming a substantially circumferential frangible portion around the sleeve member.

34. A method of manufacturing a tamper-evident device as claimed in claim 33, wherein the method includes the further step of securing the sleeve member and pouring outlet device one to the other by forming a lip on an open end of the sleeve member so as to entrap the pouring outlet device within the sleeve member.

35. A tamper-evident device comprising a first body part associated with a second body part by means of a frangible portion therebetween, and wherein said first body part is adapted to be applied to a mouth and neck portion of a container, and said second body part provides a container closure member, and wherein an initial container opening

operation causes said frangible portion to break, and wherein further when the device is reclosed at least part of the first body part originally adjacent the frangible portion, and at least part of the second body portion originally adjacent the frangible portion are spaced apart from one another so as to provide a visual indication of reclosure.

36. A tamper-evident device as claimed in claim 35, wherein the first body part includes means for non releasable and substantially immovably fixing the first body part to a mouth or neck portion of a container.

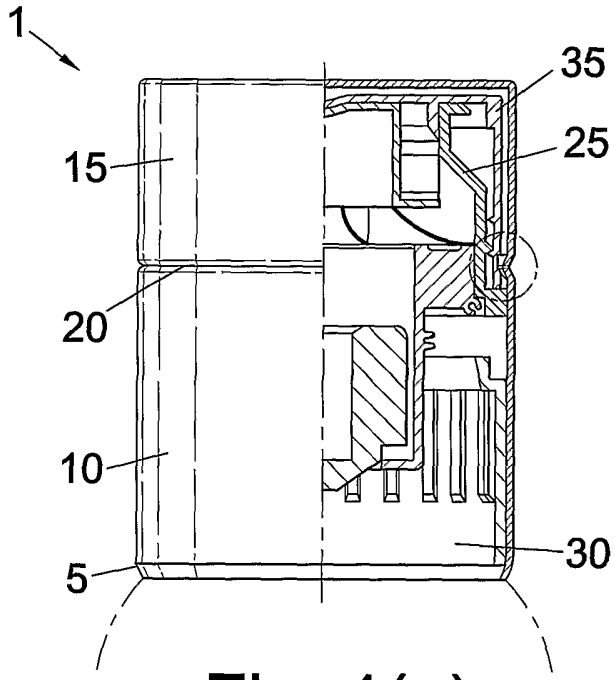

Fig. 1(a)

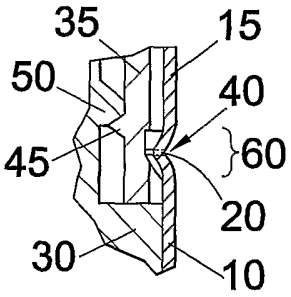

Fig. 1(b)

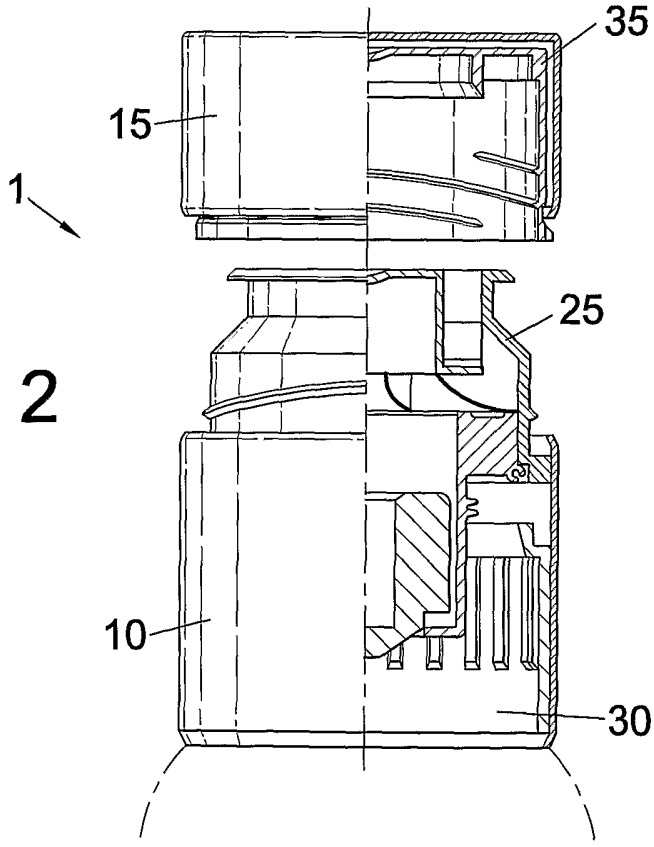

Fig. 2

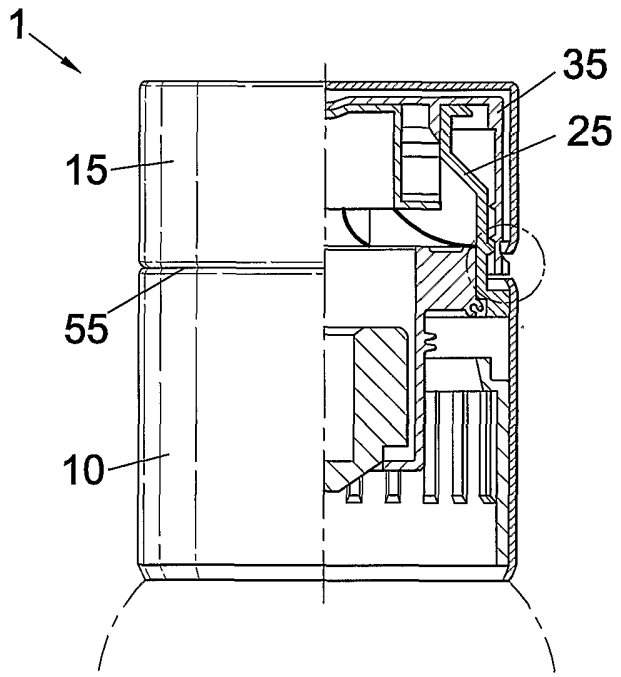

Fig. 3(a)

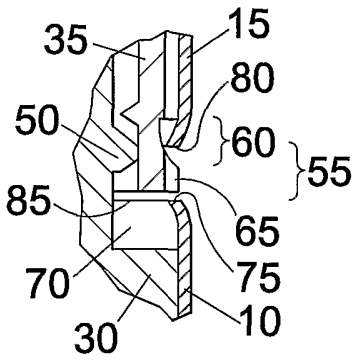

Fig. 3(b)

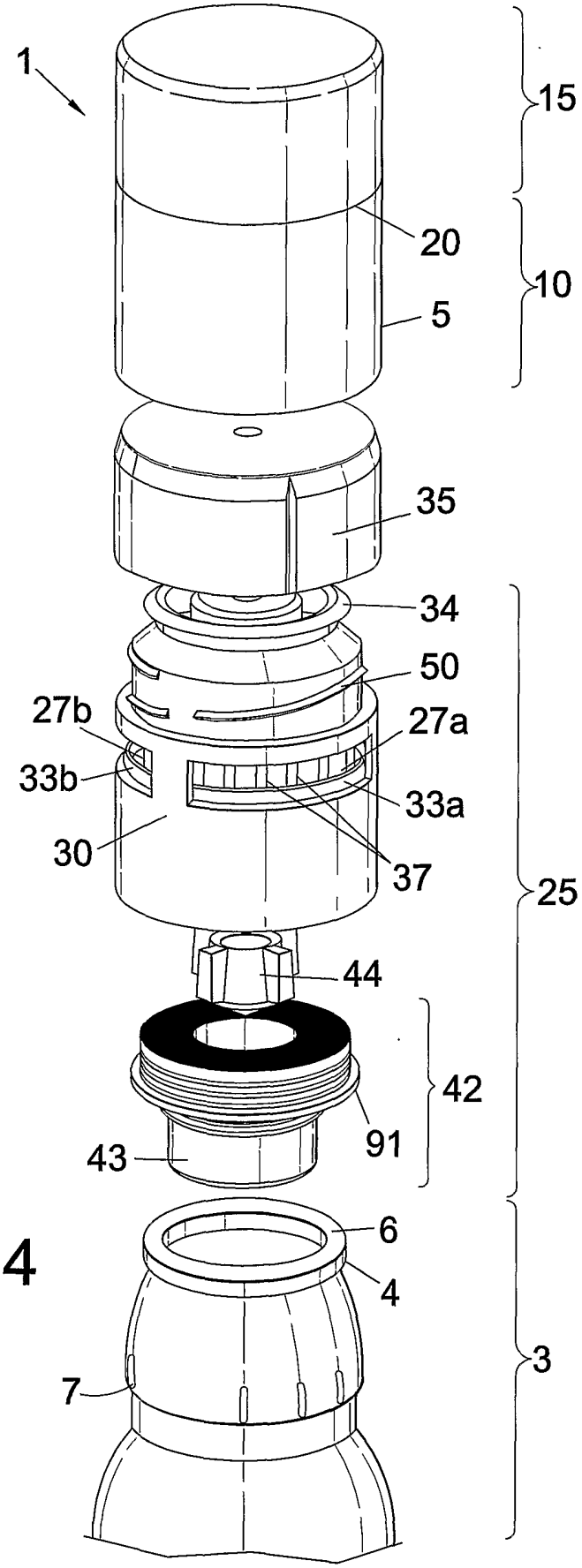

Fig. 4

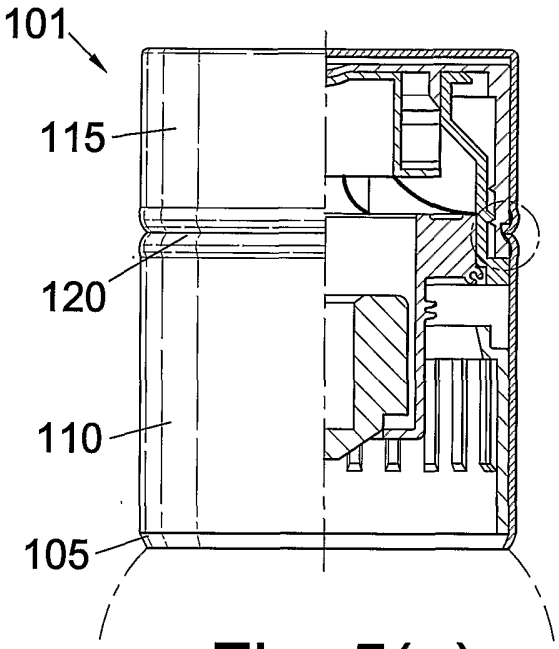

Fig. 5(a)

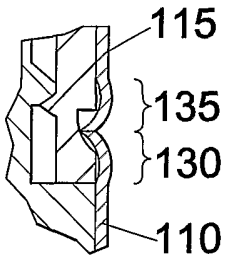

Fig. 5(b)

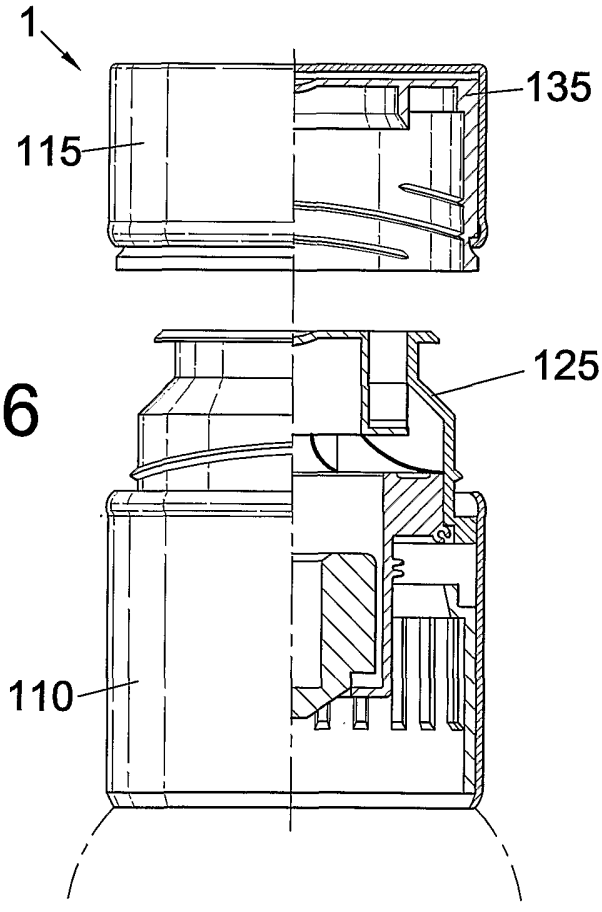

Fig. 6

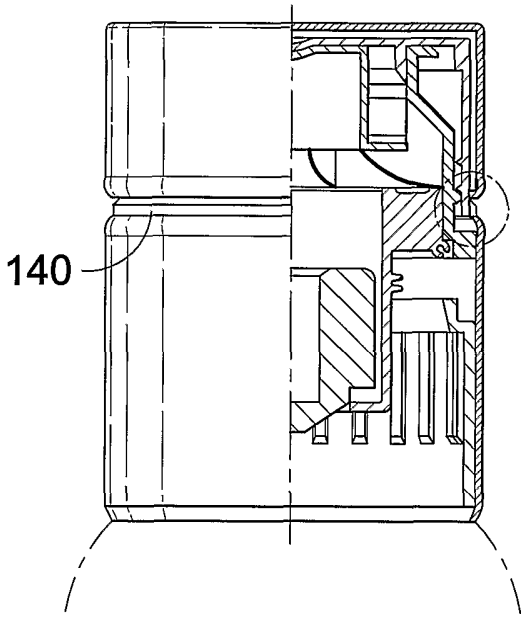

Fig. 7a

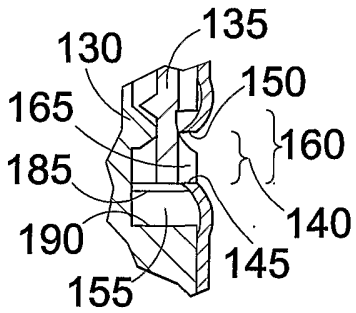

Fig. 7b

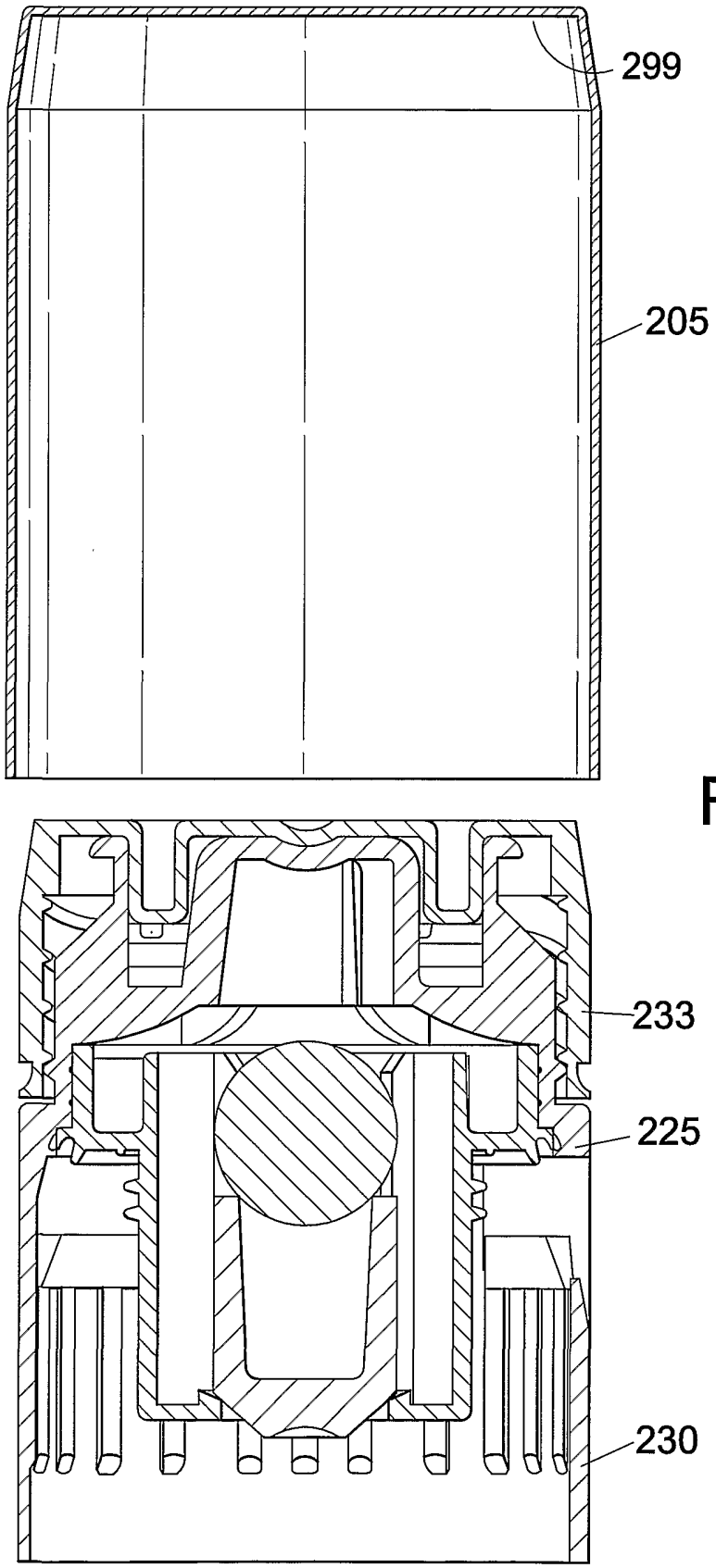

Fig. 8

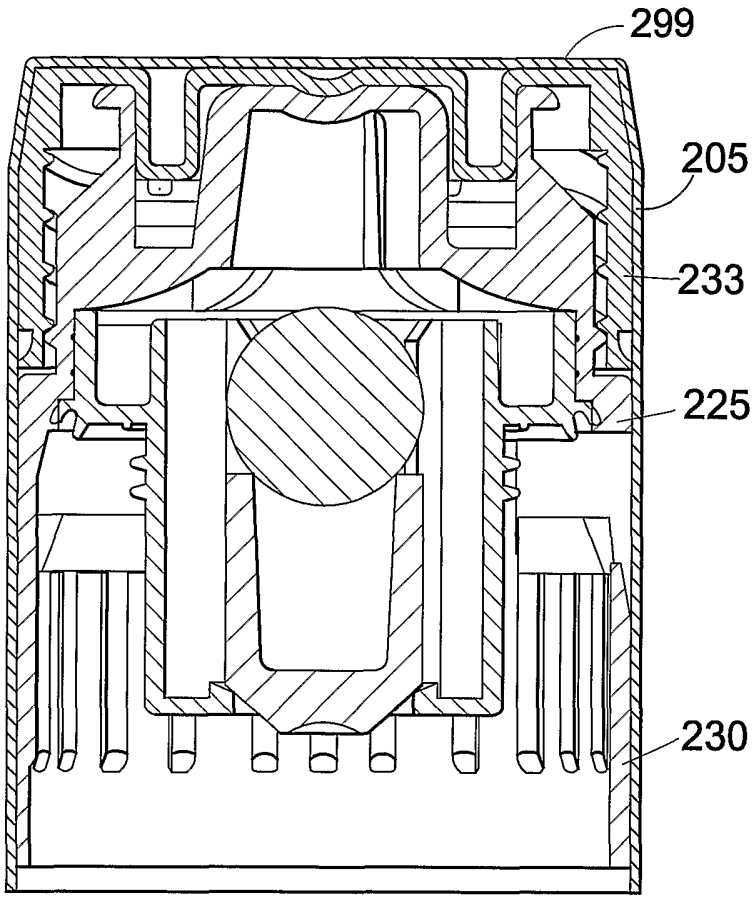

Fig. 9

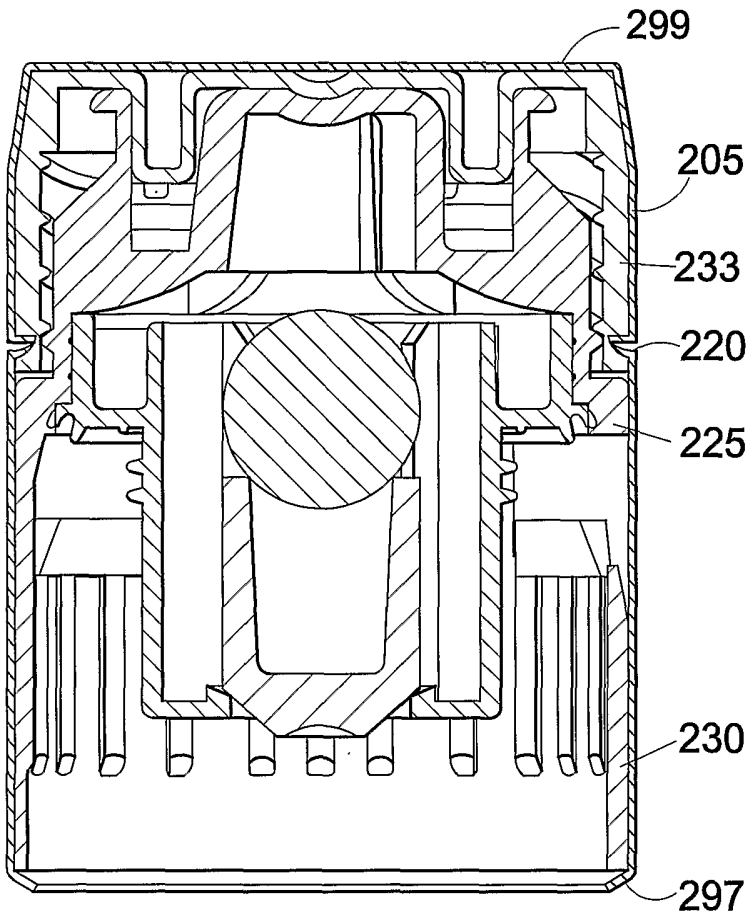

Fig. 10

INTERNATIONAL SEARCH REPORT

In ıtional Application No
PCT/GB 02/02404

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D49/04 B65D55/08

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

B. FIELDS SEARCHED

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

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 847 930 A (ALUCAPVIT SPA) 17 June 1998 (1998-06-17) column 4, line 31-55 figure 2	1,2,11, 13,16, 29,31, 35,36
Y	column 3, line 12-17	9,10, 20-22
X	US 4 000 824 A (HAN HAK RHIM) 4 January 1977 (1977-01-04) column 1, line 21-30 column 2, line 26-52 figures 2,3	1,2,11, 16, 29-32,35

-/--

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

[X] Patent family members are listed in annex.

° Special categories of cited documents :

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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 September 2002	18/09/2002

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

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INTERNATIONAL SEARCH REPORT

Ir itional Application No
PCT/GB 02/02404

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 262 743 A (LE BOUCHAGE MECHANIQUE) 2 February 1972 (1972-02-02) page 2, line 18-27	33,35,36
A	page 1, line 10-16 page 2, line 42-51 page 2, line 106-113	1,2, 11-14, 16,20
X	EP 0 627 359 A (JUNQUERAS GUERRE JOAQUIN) 7 December 1994 (1994-12-07) column 3, line 54 -column 4, line 36	33,35,36
Y	figure 2	9,10, 20-22
A		1,2,11, 16,17
A	WO 00 75033 A (STETA GUILLERMO H ;CATALA ESTEBAN (MX); PLASTICOS DUMEX S A DE C V) 14 December 2000 (2000-12-14) abstract	21,22
P,X	GB 2 366 287 A (MONTGOMERY DANIEL & SON LTD) 6 March 2002 (2002-03-06) page 10, line 22 -page 11, line 9 page 16, line 10 -page 17, line 24 figures 4,5	1,2,11, 13-22, 29,31, 33,35,36

INTERNATIONAL SEARCH REPORT

ernational application No.
PCT/GB 02/02404

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-36

1.1. Claims: 1-32, 35, 36
Tamper-evident sleeve comprising first and second portions which are spaced apart after initial opening

1.2. Claims: 33, 34
Method of manufacturing a tamper-evident device not limited to sleeves having portions which are spaced apart after initial opening

2. Claims: 37-40

xxx

Please note that all inventions mentioned under item 1, although not necessarily linked by a common inventive concept, could be searched without effort justifying an additional fee.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No
PCT/GB 02/02404

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
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