(12) UK Patent Application (19) GB (11) 2 375 532 (13) A

(43) Date of A Publication 20.11.2002

(21) Application No 0207472.2

(22) Date of Filing 28.03.2002

(30) Priority Data

(31) 0100174

(32) 04.04.2001

(33) IT

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(51) INT CL7

B65D 49/00 // B65D 49/02

(52) UK CL (Edition T)

B8T TEDV TTB

B8D DFD D60X3 D65B5A

(56) Documents Cited

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(58) Field of Search

UK CL (Edition T) B8D DFD, B8T TCM TCP TEDV TTB

INT CL7 B65D 49/00 49/02 55/02

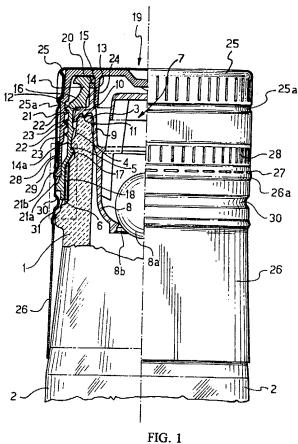
ONLINE: EPODOC, JAPIO, WPI

(54) Abstract Title A tamper-evident anti-refill closure

(57) A closure for containers of liquid, particularly bottles, the closure comprises an anti-tamper pourer member 7 fitted into the container neck, the pourer having a pouring orifice 15 and valve means 8a, 8b, which allow liquid to leave the container 2 but not enter it. A cap 19 with a tubular sleeve 21, the sleeve 21 extends axially along the outside of the container neck 1, for opening and closing the pouring orifice 15, and a security cap 25 disposed over the cap 19 covering the sleeve 21 and extending around the outer wall 4 of the container neck 1. Means 28, 29, 25a, are provided between the outer security cap 25, 26, and said tubular sleeve 21 as well as between the security cap 25, 26, and the pourer 7, 14a, for preventing relative movement and axial displacement. A circumferentially extending weakened zone 27 is provided in the security cap 25, 26, said zone 27 being breakable during the first opening of the cap 25, 26, the pourer is provided with a tubular body 14 which defines orifice 15, which is fitted concentrically on the outer wall of the container neck 1. Axial and radial engagement means 6, 18, 5, 17, are provided between said tubular body 14 and the outer wall of the container neck 1, and threaded means 22, 23, are located between the outer wall of the said tubular body 14 and the inside wall of said tubular sleeve 21 of said cap. The weakened zone 27 of the security cap 25, 26, may be provided with a plurality of cuts located along a circumferential line, said cuts may be connected by breakable bridges. The sleeve 21 of said cap 19 may be provided with a thickened annular portion 21b at its free edge 21a, the annular portion 21b may extend axially between said free edge 21a and a position substantially

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underlying the weakened zone 27, and may increase the thickness of its cross section in the direction towards said free edge 21a of the sleeve 21. The thickened annular portion 21b, may be provided completely on the outer wall of said sleeve 21, and may be provided with a colour different from that of the security cap, and the security cap 25, 26, may be made of metallic sheet, or an aluminium sheet.



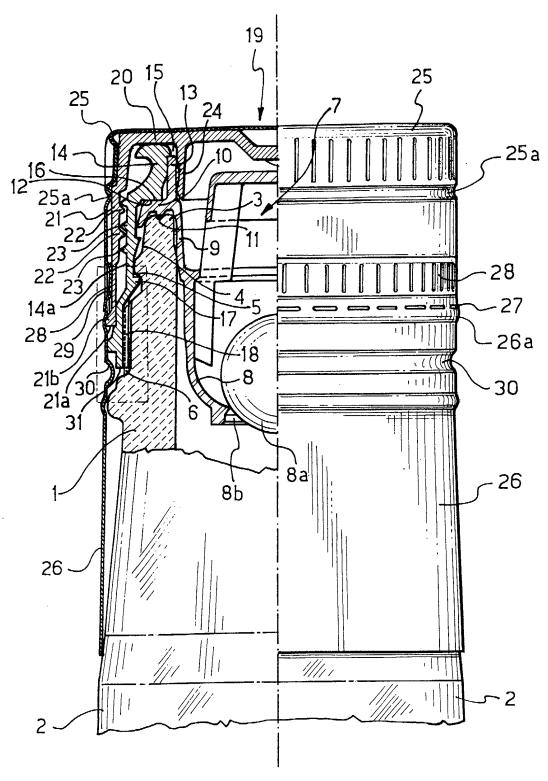


FIG. 1

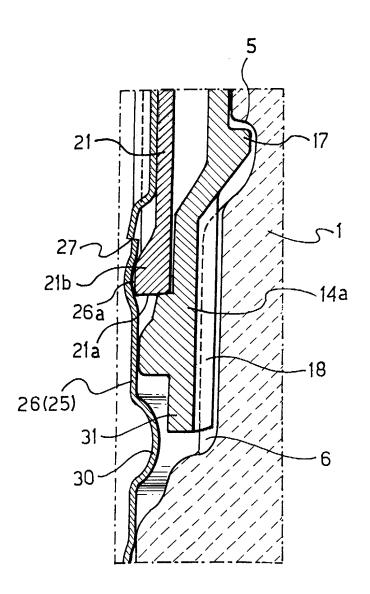
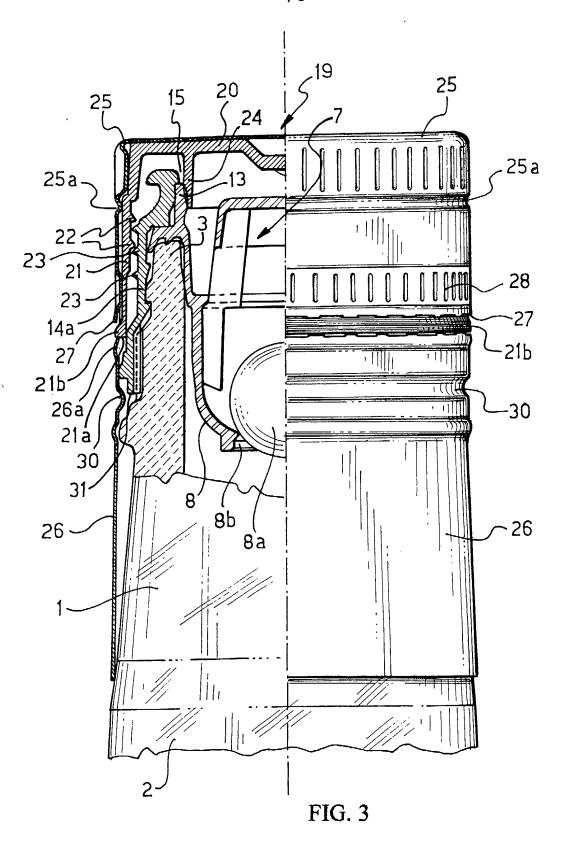


FIG. 2



DESCRIPTION

A bottle closure

The present invention relates to a closure for containers 5 liquids, particularly bottles, having an opening situated at the end of a neck which extends axially from the container body, the closure comprising an anti-tamper pourer member fitted in the container neck, the pourer having a pouring orifice as well as valve means which allow liquid to leave the container but not to enter it, a cap 10 with a tubular sleeve extending axially along the outside of the container neck, for opening and closing the pouring orifice, as well as an outer security cap disposed over the covering axially said tubular sleeve and also extending axially around a portion of the outer wall of the 15 container neck, means located between said outer security cap and said tubular sleeve as well as means located between said outer security cap and said pourer for preventing relative rotation movement and 20 displacement, a circumferentially extending weakened zone in said security cap, said zone being breakable during the first opening of the cap so that the portion of the security cap covering said tubular sleeve is cut out from the remaining portion of the security cap, and in which the pourer body includes at least a tubular body defining said 25

pouring orifice fitted concentrically on the outer wall of the container neck, axial and radial engagement means located between said tubular body and the outer wall of the container neck, as well as threaded means located between the outer wall of said tubular body and the inside wall of said tubular sleeve of said cap.

Container closures of the above mentioned type are known in the art and are used particularly on bottles for holding good quality liquors or beverages.

10 An example of this prior art is described in the publication WO 96/08421.

According to the prior art mentioned above, during the first opening of the closure with the rotation of the upper part of the metallic security cap and, as a consequence, of the underlying cap, the brakeage of the circumferential weakened zone of the security cap is achieved.

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The brakeage of said zone is the evidence that the opening of the bottle occurred.

However, because the weakened zone is commonly made of a circumferential line of cuts and bridges which are broken during the unscrewing movement the cap, it is often possible to place the cap in such a way that, although the bridges of the weakened zone are broken, the cut away parts of the security cap look like to be correctly aligned giving rise to the visible impression of a single body and

then of an untouched closure.

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The object of the present invention is to eliminate the above mentioned inconvenience by providing a closure in which, when the first opening occurred, the repositioning of the cap, together with the respective part of the metallic security cap, on the neck of the bottle for the usual closing of this latter, can not give rise to a visible condition which may be confused with that offered by an untouched closure never opened before.

10 This object is achieved by a closure made in accordance with the appended claim 1.

The invention will now be described in greater detail with reference to its preferred embodiment, given purely by way of non-limiting example and illustrated in the appended drawings, in which:

-figure 1 is a partially-sectioned side view of the closure according to the invention, in its closed position and in untouched conditions;

-figure 2 shows a portion of figure 1, in an enlarge scale;
20 -figure 3 is a partially-sectioned side view of the closure according to the invention, with the cap positioned on the neck of the bottle after its first opening.

With reference to the above-mentioned drawings and in particular to figure 1, the neck of a container is indicated 1 and the container body is indicated 2.

The neck 1 has a free rim 3 and an outer wall 4 with an annular step 5, below which there is at least one set of axial knurling, distributed around the periphery of the outer wall and generally indicated 6.

5 In particular, the container is a liquor bottle with a tapered or elongate neck of known type.

The closure comprises a pourer body, generally indicated 7, constituted by a first sleeve 8 facing the inside of the neck 1, with a portion 9 force-fitted in the neck.

10 The valve means, which are constituted by a ball 8a and by an orifice 8b, are housed inside the sleeve 8 in wholly conventional manner.

The pourer body has a flange 10 integral with the first sleeve and bearing frontally against the rim 3 of the neck 1 by means of a rib 11 of the flange 10.

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The flange 10 also defines a surface 12 from which a second sleeve 13, integral with the flange, extends in the opposite direction to that in which the sleeve 8 extends.

The sleeve 8 with the flange 10 and the sleeve 13 are made 20 of soft plastics material such as, for example, polyethylene.

The closure further comprises a tubular body 14 which, although it is an element separate from the sleeves 8 and 13, it constitutes a component part of the pourer body 7.

25 The tubular body 14 defines the pouring orifice 15 in the

region of its free end and has an abutment 16 which is in frontal engagement with the surface 12 of the flange 10. The same tubular body 14 is also in radial engagement with said second sleeve 13 and in axial engagement with the neck 1 of the bottle by means of an annular rib 17 carried by a portion 14a and fitted under the step 5 of the outer wall 4 of the neck 1 of the bottle.

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Finally, the same tubular body 14 is in engagement with the corresponding knurling 6 of the neck 1, by means of a plurality of axial ribs 18 also carried by the portion 14a, preventing any possibility of rotation around the neck 1. The tubular body 14, including the portion 14a, is made of rigid plastics material such as, for example, polystyrene. A cap, generally indicated 19, is positioned over the pourer body 7 and comprises a transverse wall 20 and a tubular sleeve 21. The sleeve 21 has a thread 22 facing the portion 14a of the tubular body 14, for engaging a complementary thread 23 formed in the outer wall of the portion 14a of the tubular body 14.

20 A collar 24 extends from the transverse wall 20 of the cap 19, towards the pouring orifice 15.

In the embodiment of figure 1, the collar 24 is fitted axially, with slight forcing, in the second sleeve 13 which extends from the flange 10 as far as the vicinity of the pouring orifice 15, thus being fitted between the tubular

body 14 and the collar 24.

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An outer security cap 25, made of metallic sheet or of aluminium sheet, is placed over the outside of the cap 19 and is extended axially along the outer wall 4 of the neck 1 of the bottle by a tubular portion 26.

The outer cap 25 with the tubular portion 26 has a conventional circumferential tear zone for the initial opening of the closure device.

Particularly, said tear zone according to the embodiment shown in the drawings, is made of a plurality of cuts and bridges placed along a circumferential line 27, which is therefore weakened.

The same outer cap 25 is also anchored firmly, with regard to rotational movements relative to the underlying cap 19, by virtue of the engagement of axial knurling 28 which is carried by the tubular portion 26 and distributed around its circumference and which engages corresponding and underlying axial knurling 29 carried by the tubular sleeve 21 of the cap 19 and also distributed around its circumference.

Moreover, in order to prevent axial displacements, the cap 25 is provided with a groove 25a, which is obtained by means of a rolling operation and gives rise to a connection with the underlying sleeve 21 of the cap 19.

25 Finally, the outer sheet-metal cap 25 is anchored to the

portion 14a of the tubular body 14 by means of an annular indentation 30 projecting towards the neck of the bottle and engaging under the rim 31 of the portion 14a.

With reference to figure 2, which shows a part of figure 1 in an enlarged scale, it can be seen that the weakened line 27 of the tubular part 26 of the security cap 25 is provided in an axial position which is overlapping the tubular sleeve 21 of the cap 19 and which is located at a predetermined axial distance from the free edge 21a of tubular sleeve 21.

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The same tubular sleeve 21 is provided, at its free edge 21a, with a thickened annular portion 21b, whose cross section shows a thickness increasing in the direction towards said free edge, which is entirely made on the outer wall of the sleeve 21.

Said thickened annular portion 21b, when the closures has not yet been opened for the first time, founds its housing in the annular groove 26a of the tubular part 26 of the cap 25 which groove is made in a position underlying the weakened tear line 27.

From what has been described above, it is clear that, when the first opening of the closure is carried out by unscrewing the cap 19, the weakened line 27 of the tubular part 26 of the cap 25 is cut due to the rotation of the cap.

With the removal of the cap, the thickened annular portion 21b gets out from the annular groove 26a by virtue of its elastic deformability and of that of the groove 26a.

As a consequence, it remains projecting beyond the line 27 at which the circumferential cut of the tubular part 26 of the cap 25 occurred.

When the cap is positioned anew on the neck of the bottle for closing it and it is screwed on it, as it is shown in figure 3, the thickened annular portion 21b can not enter anymore the annular groove 26a and it remains visible as a ring between the security cap portion covering the cap and the security cap portion which, by virtue of the indentation 30, remained attached to the part 14a of the tubular body 14 and which, by means of said body, remained attached to the bottle neck after the first opening.

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The sleeve 21 or at least the thickened annular portion 21b can be made, advantageously, with different colour than the metal sheet security cap, rendering in such a way much more evident the fact that the first opening of the closure has been already carried out.

It will of course be understood that the present invention has been described above purely by way of example, and modifications of detail can be made within the scope of the invention.

In the appended claims, reference numerals have been included to assist the reader in an understanding of the claims. It must be appreciated, however, that the presence of the reference numerals is not intended in any way to limit the scope of the claims.

CLAIMS

A closure for containers of liquids, particularly 1. bottles, having an opening situated at the end of a neck (1) which extends axially from the container body (2), the closure comprising an anti-tamper pourer member (7) fitted in the container neck, the pourer (7) having a pouring orifice (15) as well as valve means (8a, 8b) which allow liquid to leave the container (2) but not to enter it, a cap (19) with a tubular sleeve (21) extending axially along the outside of the container neck (1), for opening and closing the pouring orifice (15), as well as an outer security cap (25) disposed over the cap (19), covering axially said tubular sleeve (21) and also extending axially around a portion of the outer wall (4) of the container neck (1), means (28, 29, 25a) located between said outer security cap (25, 26) and said tubular sleeve (21) as well as means (30, 31) located between said outer security cap (25, 26) and said pourer (7, 14a) for preventing relative axial displacement, movement and rotation circumferentially extending weakened zone (27) in said security cap (25, 26), said zone (27) being breakable during the first opening of the cap so that the portion of the security cap covering said tubular sleeve (21) is cut out from the remaining portion of the security cap, and in

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which the pourer body (7) includes at least a tubular body defining said pouring orifice (15) concentrically on the outer wall of the container neck (1), axial and radial engagement means (6,18; 5,17) located between said tubular body (14) and the outer wall of the container neck (1), as well as threaded means (22,23) located between the outer wall of said tubular body (14) and the inside wall of said tubular sleeve (21) of said cap, characterized in that said weakened zone (27) is provided on said security cap (25,26) in a position overlapping said tubular sleeve (21) and at a predetermined axial distance from the free edge (21a) of said sleeve.

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- 2. A closure according to Claim 1, characterized in that said weakened zone (27) of the security cap (25,26) comprises a plurality of cuts located along a circumferential line said cuts being connected by breakable bridges.
- 3. A closure according to Claims 1 and 2, characterized in that said sleeve (21) of said cap (19) is provided with a thickened annular portion (21b) at its free edge (21a), said thickened annular portion (21b) extending axially between said free edge (21a) and a position substantially underlying said weakened zone (27) of said security cap.
- 4. A closure according to Claim 3, characterized in that 25 said thickened annular portion (21b) increases the

- thickness of its cross section in the direction towards said free edge (21a) of the sleeve (21).
- 5. A closure according to Claims 3 and 4, characterized in that said thickened annular portion (21b) is provided completely on the outer wall of said sleeve (21).
- 6. A closure according to Claim 1 to 5, characterized in that said security cap (15,26) comprises an annular groove (26a) suitable for housing said thickened annular portion (21b), when the closure is still untouched.
- 7. A closure according to Claims 1 to 6, characterized in that said security cap (25, 26) is made of metallic sheet.

 8. A closure according to Claims 1 to 6, characterized in that said security cap (25, 26) is made of aluminium sheet.
- that at least said thickened annular portion (21b) of said sleeve (21) is provided with a colour other than that of said security cap (25,26).

9. A closure according to Claims 1 to 8, characterized in

10. A closure for a container, said closure being substantially as hereinbefore described with reference to the accompanying drawings.







Application No:

GB 0207472.2

Claims searched: 1-10

/2 Examiner:
Date of search:

Darren Williams 11 September 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.T): B8T (TCM, TCP, TEDV, TTB, TTC)

Int Cl (Ed.7): B65D 49/00, 49/02, 55/02

Other: WPI, JAPIO, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2334707 A	(GUALA) see whole document, especially fig 1	1, 3-5
X	GB 2302867 A	(GUALA) see whole document, especially figs 1 & 4	1-5
X	GB 2285623 A	(MONTGOMERY) see whole document, especially fig 1	1-4
Х	EP 0670271 A1	(ALUCAPVIT) see whole document, especially fig 1	1, 2, 6, 7,
X	US 4382520	(ALEFF) see whole document, especially fig 2	1

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