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(54) **Bottle stopper.**

(57) A stopper (1) for closing the neck of a bottle comprises a bung (2) and a retaining cap (10) pivotally secured to the bung (2). The cap (10) is provided with radially-inwardly extending projections (11,12) which, in use, locate beneath a ring (13) formed on the neck (14) of the bottle to prevent removal of the bung (2). The cap (10) can be pivoted away from the bottle to permit removal of the bung (2).

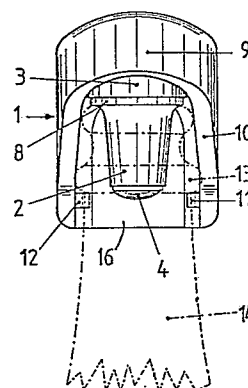


Fig. 2

Description

BOTTLE STOPPER

The present invention relates to a bottle stopper, in particular, to a stopper having a bung for inserting into the neck of the bottle to close it and retaining means. Such removable stoppers are frequently used for re-sealing bottles containing champagne, sparkling wine or similar carbonated liquids once the original cork or cap has been removed.

The stopper of the invention is characterised in that the retaining means is pivotally mounted on the bung and has at least one radially-inwardly extending abutment surface formed thereon, the retaining means being pivotable from a first position in which the bung can be inserted into or removed from the neck of the bottle and a second position in which, in use, the radially-inwardly extending abutment surface locates beneath a ridge extending circumferentially around the neck of the bottle to prevent axial movement of the bung out of the neck of the bottle.

Two stoppers in accordance with the invention will now be described in detail, by way of example, with reference to the drawings, in which:

Figure 1 is a perspective view of a first stopper in accordance with the invention;

Figure 2 is a side elevation of the stopper of Figure 1;

Figure 3 is an underneath plan view of the stopper of Figure 1;

Figure 4 is a sectional view through the stopper of Figure 1 taken on line IV-IV of Figure 4;

Figure 5 is a front elevational view of a second stopper in accordance with the invention; and

Figure 6 is a side elevational view of the stopper of Figure 5.

The stopper 1 shown in the drawings consists of a bung 2 which, in use, plugs the neck of a bottle 14 to seal it, and a retaining cap 10.

The bung 2 consists of a rigid base 3 of generally flat, cylindrical shape which has a pair of diametrically-opposed blind bores formed in it. A narrow spindle 5 extends downwardly, in use, from the base 3 and has a threaded end portion onto which can be screwed a flat retaining member 4 of diameter greater than that of the spindle 5. The retaining member 4 serves to secure onto the base 3 a generally cylindrical resilient sleeve 8 which surrounds the spindle 5 and is trapped between the base 3 and the retaining member 4. Alternatively, the base 3, spindle 5 and retaining member 4 may be moulded as a single unit, the resilient sleeve 8 being added in a further moulding operation. In use, the resilient sleeve 8 forms the circumferential surface of the bung 2 and engages the inside of the neck of the bottle 14 to form a seal.

The retaining cap 10 is of hood-like construction. Its upper part 9 is generally cylindrical and is closed by an inclined upper surface 17. The cap 10 can be formed of moulded plastics material and is provided in its interior surface with two opposed cylindrical stub shafts 6 and 7 which locate in the opposed bores in the base of the bung 2. Thus, the bung 2 can

pivot about the stub shafts 6 and 7 relative to the retaining cap 10. Alternatively, stub shafts may be moulded onto the base 3 of bung 2 for location in appropriately-formed recesses in the retaining cap 10. At one side 20, the cap 10 is cut away to allow the bung 2 to pivot further away from the central position shown in the drawings than would be possible were the cylindrical wall of the cap 10 continuous. At the side opposite the cut away portion, the lower edge of the cap 10 is inclined inwards to form a stop 16.

Also formed on the inside of the retaining cap 10, at positions aligned with the stub shafts 6 and 7 but closer to the lower edge of the cap 10, are two part-annular projections 11 and 12.

In use, the bung 2 is swung outwards towards the cut away portion of the retaining cap 10 and inserted into the neck 14 of the bottle to be resealed. The retaining cap 10 is then pushed towards the neck 14 of the bottle. As it pivots the projections 11 and 12 pass beneath a ring 13 conventionally formed on the neck 14 of the bottle to engage a wire cage or other means which serve to hold the original cork in place. The projections 11 and 12 continue to slide underneath the ring 13 until the stop 16 formed by the inturned lower part of the cap 10, as described above, engages the neck 14 of the bottle to prevent further movement. The projections 11 and 12 are shaped so that they grip the neck 14 of the bottle and prevent the retaining cap 10 being accidentally dislodged.

Preferably, the resilient sleeve 8 is of dimensions such that it is slightly compressed when the retaining cap 10 is in its operative position over the neck 14 of the bottle, so as to ensure a good seal. The stopper 1 will withstand considerable pressures since the pressure force exerted on the stopper acts on the bung 2 to push the stopper 1 axially of the bottle neck 14 and simply pushes the projections 11 and 12 more firmly into engagement with the underside of the ring 13. The pressure force does not have any sideways component which would tend to push the retaining cap 10 sideways to release the bung 2.

No great frictional force is exerted on the projections 11 and 12 by the hard glass ring 13 and, consequently, the retaining cap 10 can easily be pivoted sideways to release the bung 2 even when the pressure force exerted by the contents of the bottle is high. Indeed, once the retaining cap 10 has been moved sideways, the pressure force will positively assist removal of the stopper 1.

Figures 5 and 6 show a second form of stopper 100 in accordance with the invention which is similarly advantageous.

Again, the stopper 100 comprises a bung 102 and a retaining member 110. The bung 102 is of similar construction to the bung 2 shown in Figures 1 to 4 in that it has a central spindle 105 of relatively rigid plastics material around which is a resilient sleeve 108 held in place by means of a threaded member 104. The portion 103 of the bung 102 which is in use

remote from the bottle neck is of bulbous spherical shape and is, for aesthetic reasons, provided with a metallic outer sheath 115. Formed in the upper portion 103 of the bung 102 are a pair of opposed blind bores.

These bores receive a pair of stub shafts 106 and 107 formed on the retaining member 110. The retaining member 110 is of generally horseshoe-like configuration, with the stub shafts 106 and 107 towards the closed end of the horseshoe and inwardly directed. The retaining member 110 is of moulded plastics material and has a metallic strip 120 extending around its outer periphery. The metallic strip 120 is retained in place by its own resilience and through its location in a groove formed in the retaining member 110.

Towards the open end of the horseshoe the retaining member has two depressions 111 and 112 moulded into its inner-facing surface. The end surfaces of these two depressions 111 and 112 form abutment surfaces similar to those on the inwardly directed projections 11 and 12 of the stopper 1 shown in Figures 1 to 4.

In use the bung 102 is pivoted relative to the retaining means 110 about the stub shafts 106 and 107, to the position shown in Figure 6. The bung 102 is then inserted into the neck of a bottle to close it and the retaining member 110 pivoted back into line with the bung 102. In this position the abutment surfaces defined by the depression 111 and 112 locate under the ring conventionally formed on the neck of the bottle to retain the bung 102 in place. The resilience of the material of which the retaining member 110 is made is sufficient to permit it to flex slightly as the ring on the neck of the bottle locates in the depressions 111 and 112.

Claims

1. A stopper (1;100) for closing the neck of a bottle, the stopper having a bung (2;102) for inserting into the neck of the bottle to close it and retaining means (10;110) the stopper being characterised in that the retaining means (10;110) is pivotally mounted on the bung (2) and has at least one radially-inwardly extending abutment surface formed thereon, the retaining means (10;110) being pivotable from a first position in which the bung (2;102) can be inserted into or removed from the neck of the bottle and a second position in which, in use, the radially-inwardly extending abutment surface locates beneath a ridge extending circumferentially around the neck of the bottle to prevent axial movement of the bung (2;102) out of the neck of the bottle.

2. Apparatus according to claim 1 in which the retaining means (10;110) has a pair of diametrically-opposed inwardly-extending lugs (11,12) on which are formed the abutment surface for location beneath the ridge formed on the bottle neck.

3. Apparatus according to claim 2 in which the inwardly-extending lugs (11,12) are shaped to grip the bottle neck and oppose pivoting movement of the retaining means (10) away from the neck of the bottle; the lugs (11,12) being resiliently deformable to permit pivoting movement of the retaining means (10) away from the bottle neck to allow the bung (2) to be removed therefrom.

4. Apparatus according to any preceding claim in which the surface of the bung (2;102) which engages the neck of the bottle is of resilient material and is so dimensioned that when the retaining means (10,110) engage the ridge on the bottle neck it is under compression.

5. Apparatus according to any preceding claim in which a stop (16) is provided on the retaining means (10) to limit movement thereof towards the neck of the bottle.

6. Apparatus according to claim 1 in which the retaining means (110) has formed on it a pair of opposed recesses whose walls form the abutment surface.

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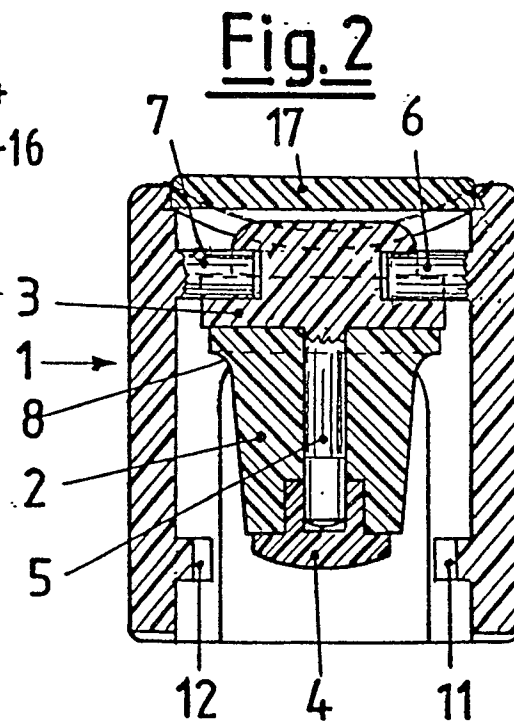
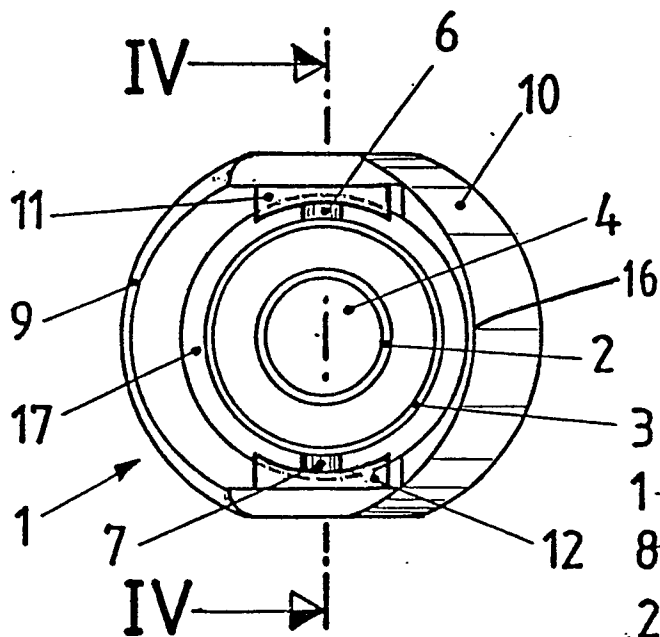
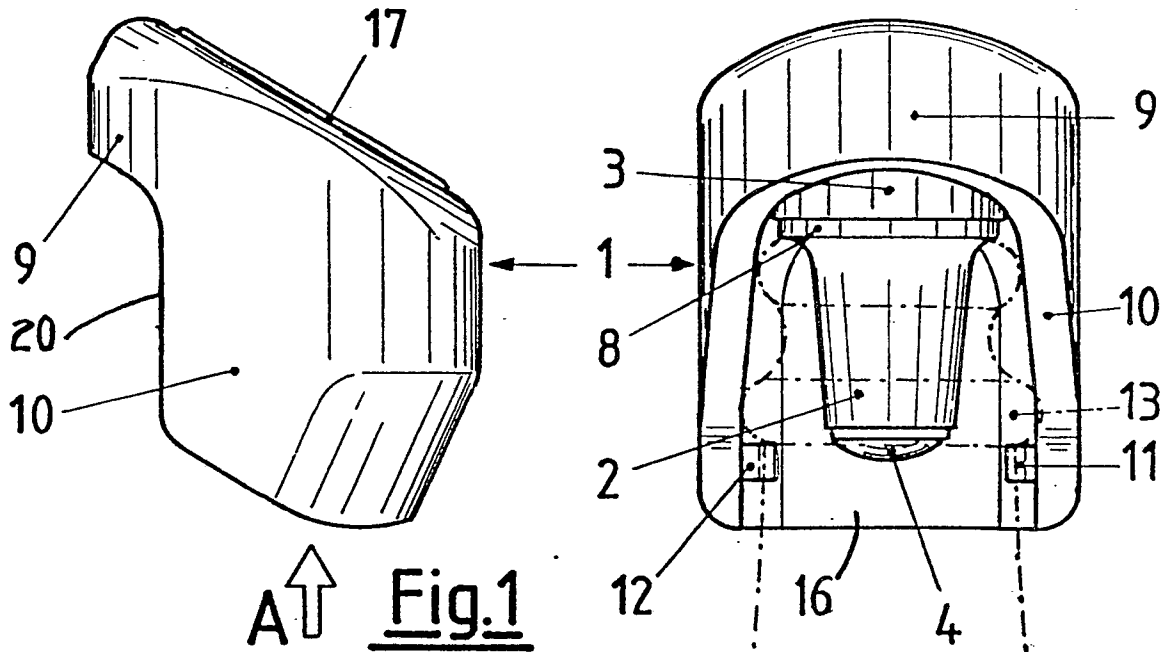
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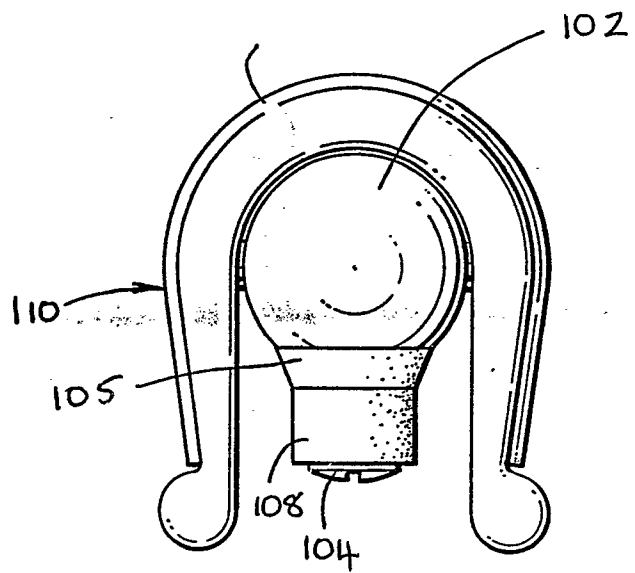


FIG. 5.

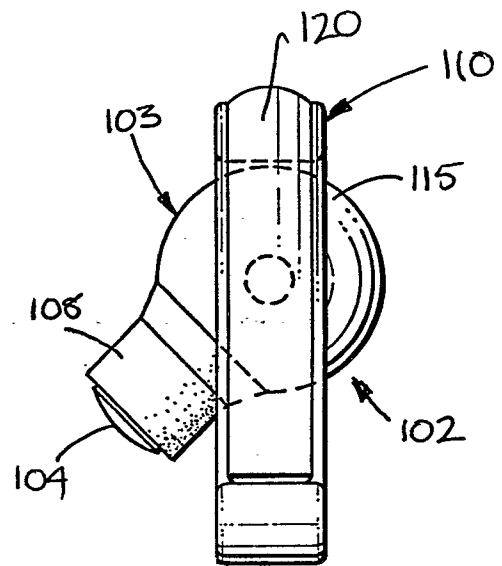


FIG. 6.



EP 89 30 0012

DOCUMENTS CONSIDERED TO BE RELEVANT															
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)												
Y	FR-A- 801 994 (PHILIBA) * Page 2, lines 33-54; figures * ---	1-5	B 65 D 45/20												
Y	FR-A-1 098 086 (MILTAT) * Page 1, column 2, lines 25-37; figures * -----	1-5													
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)												
			B 65 D												
The present search report has been drawn up for all claims															
Place of search THE HAGUE		Date of completion of the search 31-03-1989	Examiner CLARKE A.J.												
<table border="0"><tr><td>CATEGORY OF CITED DOCUMENTS</td><td>T : theory or principle underlying the invention</td></tr><tr><td>X : particularly relevant if taken alone</td><td>E : earlier patent document, but published on, or after the filing date</td></tr><tr><td>Y : particularly relevant if combined with another document of the same category</td><td>D : document cited in the application</td></tr><tr><td>A : technological background</td><td>L : document cited for other reasons</td></tr><tr><td>O : non-written disclosure</td><td>.....</td></tr><tr><td>P : intermediate document</td><td>& : member of the same patent family, corresponding document</td></tr></table>				CATEGORY OF CITED DOCUMENTS	T : theory or principle underlying the invention	X : particularly relevant if taken alone	E : earlier patent document, but published on, or after the filing date	Y : particularly relevant if combined with another document of the same category	D : document cited in the application	A : technological background	L : document cited for other reasons	O : non-written disclosure		P : intermediate document	& : member of the same patent family, corresponding document
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