

[54] **BOTTLE CLOSURE ARRANGEMENT**

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[58] Field of Search ..... 215/252, 251, 250, 258, 215/270

[56] **References Cited**

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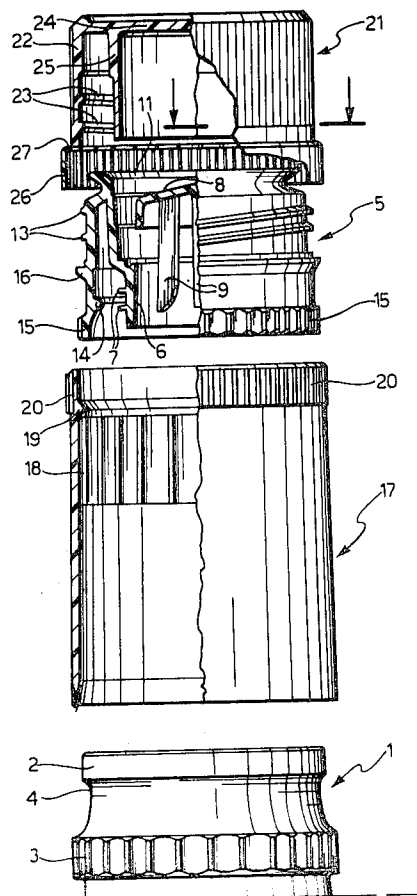
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[57] **ABSTRACT**

A closure arrangement with incorporated guarantee seal for the necks of bottles having two spaced annular ridges one of which is toothed, comprising a pourer body snap engageable on one of the annular ridges of the bottle and extending into the neck, a tubular sleeve engageable over the neck of the bottle and overlapping the pourer body to hold it securely in place, and a screw cap engageable on the pourer body and having a toothed band, which engages cooperating teeth on the overlapping part of the tubular sleeve, joined to the cap by a plurality of frangible stalks which form the guarantee seal and which must be ruptured before the cap can be removed.

**4 Claims, 6 Drawing Figures**



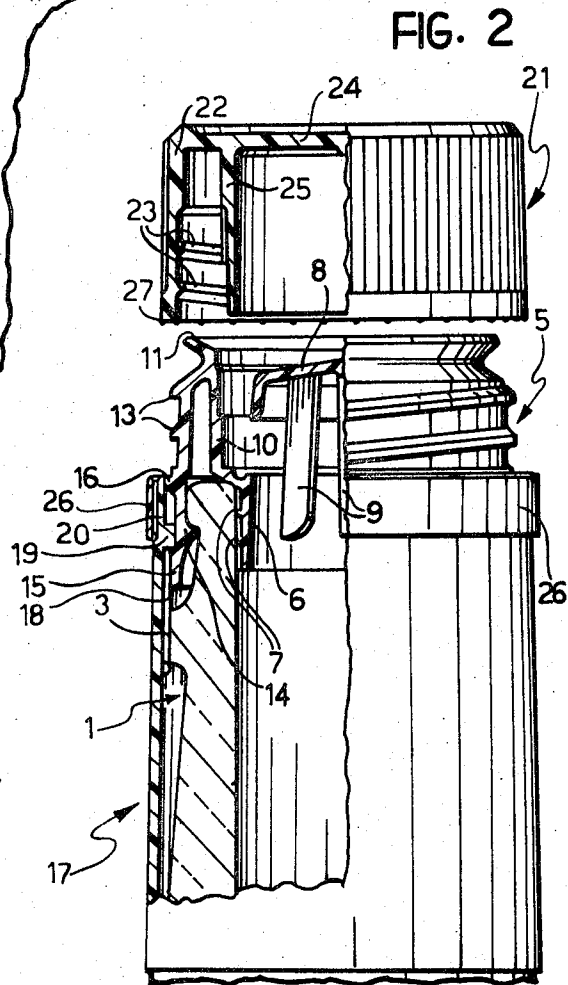
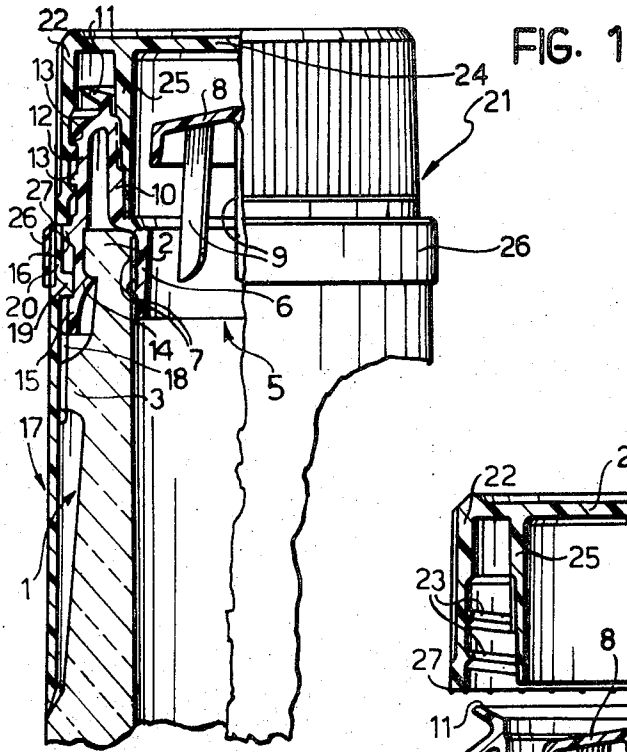




FIG. 4

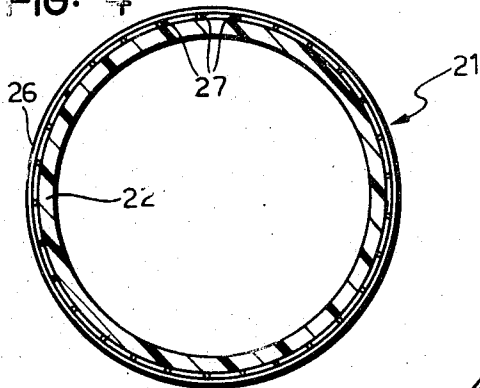


FIG. 5

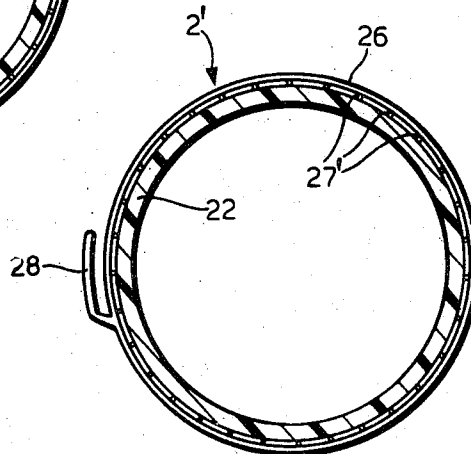
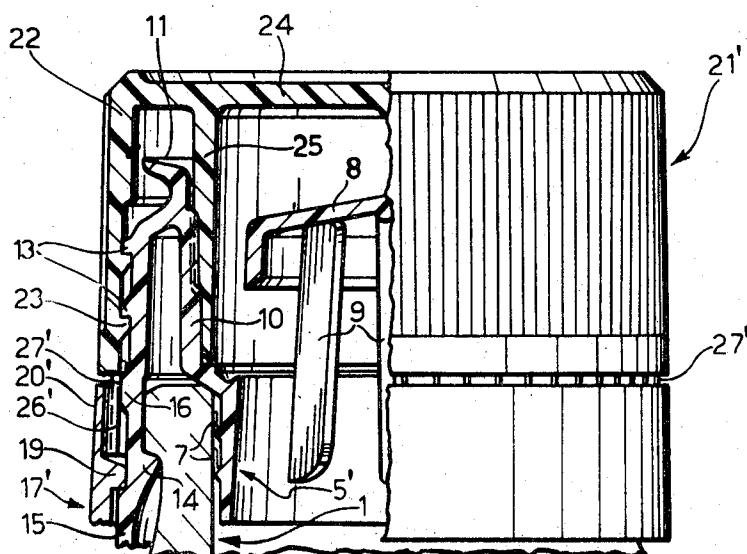


FIG. 6



## BOTTLE CLOSURE ARRANGEMENT

The present invention relates to closure devices for bottles, of the type having a guarantee seal incorporated therein. In particular the present invention relates to closure devices of the type comprising a pourer body which is attachable to the neck of the bottle so as to extend axially from the end, and a removable cap which can be screwed to the pourer body. Upon initial assembly of the closure device there are retaining means between the cap and the pourer body functioning as a guarantee seal, which prevents the removal of the cap except by breakage of the seal itself.

In a previously known device of this type the screw cap has an axial extension of tubular form, which surrounds the neck of the bottle and is anchored to the pourer body; the lower part of the extension is connected to the pourer body by means of a strip which acts as a guarantee seal.

The present invention seeks to provide a further improved closure arrangement of the above mentioned types, in which manufacture is easier, assembly is more convenient, and opening can be effected more easily without detracting from the efficacy of the guarantee seal.

One feature of embodiments of this invention is that any attempt at opening the closure by separating the cap from the bottle without breaking the seal is readily detectable.

According to this invention a closure arrangement with a guarantee seal for bottles the neck of which is provided with two spaced annular ridges, at least one of which is provided with teeth, comprises a pourer body snap engageable over one of the annular ridges of the neck of the bottle, and having an externally toothed ridge, a cap of plastics material, engageable by cooperating screw threads to the pourer body and having a toothed annular band connected to the lower edge thereof by a plurality of frangible stalks, the toothed annular band of the cap being engaged, upon assembly of the closure arrangement, with a toothed ridge at the top of a tubular sleeve of rigid plastics material mountable on the neck of the bottle so as to engage the lower part of the pourer body and to prevent its removal from the neck of the bottle, the tubular sleeve being provided with internal teeth engageable with the teeth on the said one of the annular ridges on the neck of the bottle and also with the toothed ridge of the pourer body so as to lock all the parts of the closure arrangement against relative angular movement with respect to the bottle, such that removal of the cap from the pourer body is not possible without rupturing the frangible stalks which connect the cap to the lower band thereof.

Two embodiments of this invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a diagrammatic partially sectioned side view of a closure arrangement for bottles formed as one embodiment of the invention and shown in the initial assembled position;

FIG. 2 is a partially sectioned side view similar to FIG. 1, but showing the arrangement with the screw cap removed;

FIG. 3 is a partly sectioned exploded side view of the embodiment of FIGS. 1 and 2, showing the components before initial assembly on the bottle;

FIG. 4 is a diagrammatic cross section taken on the line IV—IV of FIG. 3;

FIG. 5 is a cross sectional view, corresponding to FIG. 4, of a second embodiment of the invention; and

FIG. 6 is a partially sectioned side view of an arrangement formed as a third embodiment of the invention.

The embodiments will be described, for convenience, in the orientation shown in the drawings, on a bottle standing on its base. References to "upper" and "lower" parts will be construed accordingly.

The bottle closure arrangement shown in FIGS. 1 to 4 comprises three main parts to be fitted to the neck 1 of a bottle having a first outwardly projecting annular ridge 2 and a second annular ridge 3 spaced from the first with an annular groove in between, and having a plurality of axially extending radially projecting teeth.

The closure arrangement comprises a pourer body 5 made of soft plastics material which is flexible, and which has a first tubular portion 6, provided with two narrow outer annular ridges 7. The tubular portion 6 is of a size to be forcibly fitted inside the neck of a bottle 2 of a given size. Inwardly from the tubular portion 6 extend a plurality of axially extending radial fins 9 which support a dome screen 8 which serves to moderate the flow of a liquid contained in the bottle when this is poured out. The tubular portion 6 is connected to a further tubular portion 10 of greater diameter than the portion 6, which extends axially beyond the neck of the bottle and terminates in an outwardly flared lip 11 which prevents drips. To the lip 11 is connected an outer cylindrical sleeve 12 which extends coaxially to the two tubular portions 6 and 10 around the top part of the neck of the bottle. The outer sleeve 12 has a helical ridge 13 forming screw threads for cooperation with an inner threaded part of a cap 21. At the lower end of the threaded portion 13 of the sleeve 12 there is an outer annular ridge 16.

Near the lower end of the sleeve 12 there is an internal annular ridge 14 engageable resiliently in the annular recess 4 between the two ridges of the neck of the bottle, and at the lower end of the sleeve 12 there is a toothed outer annular ridge 15.

When assembled, the lower part of the pourer body 5 and the end of the neck of the bottle are covered by a tubular sleeve 17 of rigid plastics material in the manner of a capsule. The sleeve 17 has a plurality of internal longitudinally extending radially projecting teeth 18 engageable with the teeth of the second annular ridge 3 of the bottle, and also with the teeth of the terminal toothed ridge 15 of the pourer body, so as to lock the pourer body to the bottle against relative angular movement. The tubular sleeve 17 also has, at the top, an internal annular ridge 19 engageable over the terminal ridge 15 of the pourer body so as to prevent removal of the pourer body 5 from the bottle. The top of the tubular sleeve 17 has an outer annular toothed portion 20.

The third part of the closure arrangement is a cap 21 of plastics material, having an outer tubular wall 22 provided internally with a helical ridge 23 forming a screw thread for engagement by screwing to the helical thread 13 on the outer sleeve 12 of the pourer body 5. The cap 21 also has a transverse upper wall 24 from which projects downwards an inner tubular portion 25

of a size such as to be a tight fit into the further tubular portion 10 of the pourer body 5.

To the lower end of the outer wall 22 of the cap 21 there is connected, by means of frangible stalks 27 an annular band 26 having longitudinal internal teeth engageable, upon assembly, with the teeth of the outer toothed portion 20 of the tubular sleeve 17, so as to lock the cap 21 and the tubular sleeve 17 against relative angular movement unless the stalks 27 are broken. All the elements of the closure assembly are thus angularly locked with respect to the neck of the bottle upon initial assembly.

The three elements of the closure arrangement are assembled together before mounting on the neck of the bottle, which latter is effected by pressing axially from the top to cause elastic deformation of the annular ridge 14 of the pourer body such that it snap engages in the circular groove 4 after which the arrangement is effective to seal the bottle and prevent removal of the cap unless the stalks 21 are broken to separate the band 26, which is engaged with the teeth on the portion 20 of the sleeve 17, from the cap 21 to which it is connected by the stalks.

To break the seal it is merely necessary to forcibly unscrew the cap 21 which is provided with fine axial ridges to assist in gripping it.

In the alternative embodiment shown in FIG. 5 the band 26 is provided with a circumferential weakened breakage line and a tub 28 for gripping and pulling one end of the weakened portion to break the seal.

In the third embodiment, shown in FIG. 6 the guarantee band 26' of the cap 21' has external teeth and is inserted inside the terminal annular portion 20' of the tubular sleeve 17' which has internal teeth which engage the external teeth of the band 26'. In this case breakage of the seal may be effected only by turning the cap with respect to the sleeve 17'.

It is understood that while the principle of this invention remains the same, the manner of operation and details of construction may be widely varied with respect to what has been described and illustrated, without thereby departing from the scope of this invention.

We claim:

1. A closure arrangement with incorporated guarantee seal for bottles of the type having first and second spaced annular ridges on the neck thereof, said second annular ridge having teeth thereon, said closure arrangement comprising:

a pourer body snap engageable over said first of said annular ridges,  
an externally toothed ridge on said pourer body,  
a screw threaded portion on said pourer body,  
a screw cap engageable on said screw threaded portion of said pourer body,  
a toothed annular band,  
a plurality of frangible stalks interconnecting said toothed annular band and the lower edge of said cap,  
a tubular sleeve engageable on the neck of said bottle,  
a toothed portion at the upper end of said tubular sleeve, said teeth of said toothed annular band engaging said teeth of said toothed portion of said tubular sleeve,  
means interengaging said tubular sleeve and said pourer body to prevent relative separating axial movement thereof,  
internal teeth on said tubular sleeve engageable with said teeth on said second circumferential ridge of the neck of the bottle and also with said teeth on said externally toothed ridge on said pourer body whereby said cap, said pourer body and said tubular sleeve are all locked together against relative angular movement and against angular movement with respect to said bottle, removal of said cap being possible only by rupturing said frangible stalks to separate said cap from said annular band.

2. The closure arrangement of claim 1 wherein said annular band is provided with a tab and a weakened line whereby removal of said band and rupture of said frangible stalks can be effected without unscrewing said cap.

3. The closure arrangement of claim 1 wherein said toothed band has internal teeth and said toothed portion of said sleeve has external teeth whereby said annular band surrounds said toothed annular ridge on said sleeve when said closure arrangement is assembled.

4. The closure arrangement of claim 1 wherein said toothed band has external teeth and said toothed portion of said sleeve has internal teeth, said annular band being housed within said toothed annular portion of said sleeve when said closure arrangement is assembled.

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