

[54] **STOPPER**

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[51] Int. Cl. **B65d 41/20**

[58] Field of Search 215/42, 46 R, 46 A, 215/47, 55, 73, 100 A; 222/541, 567; 220/27

[56] **References Cited**

UNITED STATES PATENTS

3,459,315 8/1969 Labarre 215/42

3,390,805	7/1968	Khoury	220/27
3,462,035	8/1969	Grussen	215/42
3,297,184	1/1967	Andelin	215/47
2,895,654	7/1959	Rieke	215/73
3,434,620	3/1969	Laurizio	220/27

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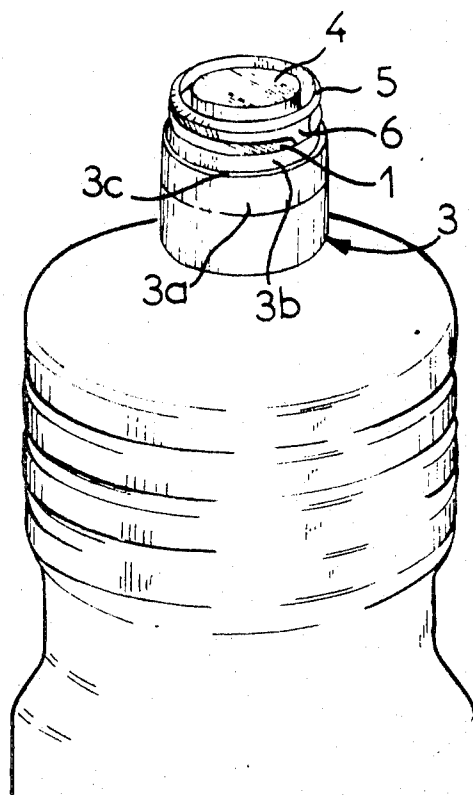
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[57]

ABSTRACT

A stopper having a circular body surmounted by a substantially cylindrical boss having a diameter distinctly less than that of said body, said stopper comprising a gripping ring accommodated within the annular space thus formed above said body and around said boss, this ring being attached to the body by at least one non-detachable tab.

3 Claims, 9 Drawing Figures



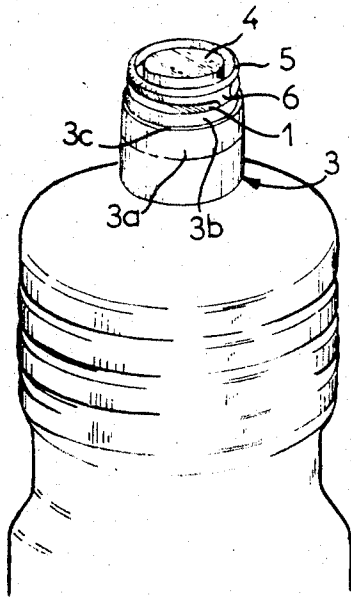


FIG. 1

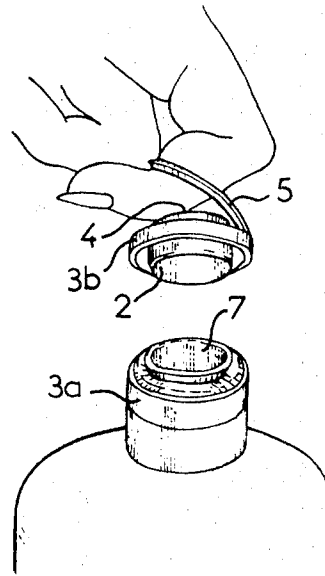


FIG. 2

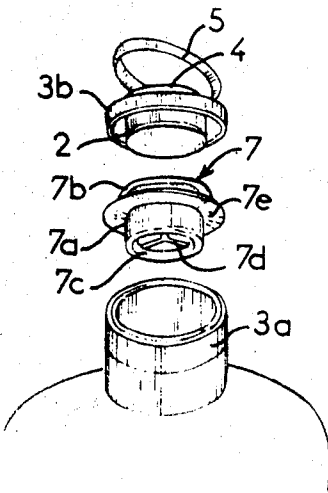


FIG. 3

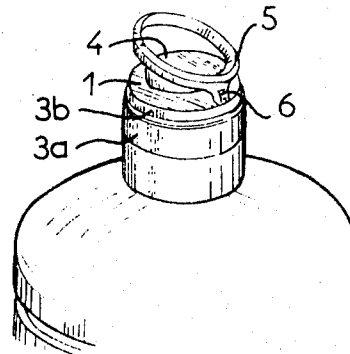
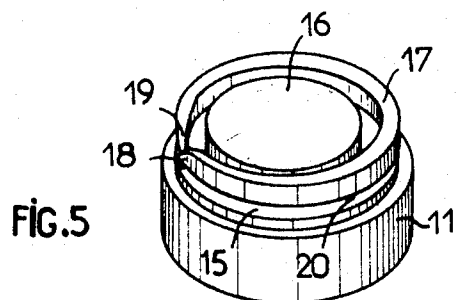
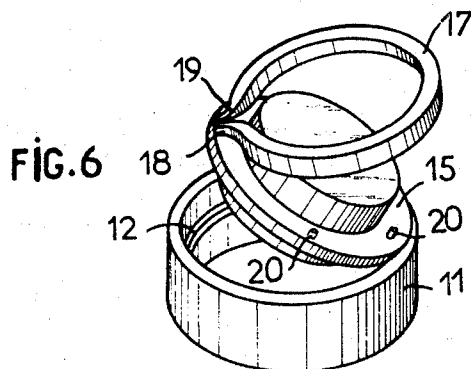
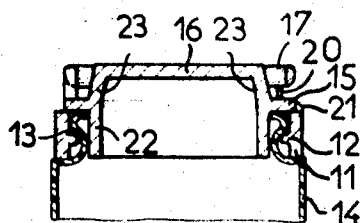
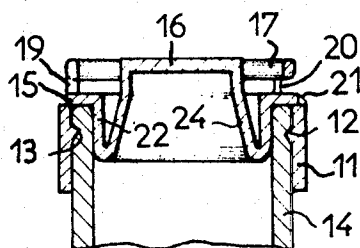
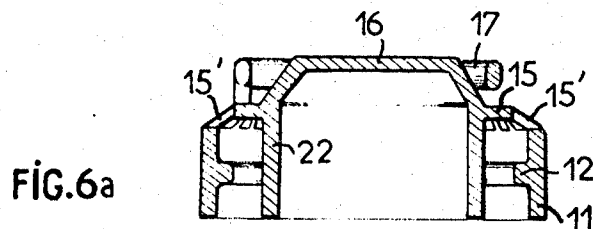


FIG. 4



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STOPPER

The present invention concerns a non-penetrable stopper means of the type comprising a gripping ring enabling the user to remove the stopper.

In known stoppers of this type, the gripping ring is generally difficult of access due to the fact that it is either let into the upper part of the body of the stopper or integral with the lower part of the skirt portion of said stopper. Furthermore, the presence of this ring raises difficulties in the moulding of the stopper and also in positioning it on the mouth of the bottle when the latter is closed with the help of automatic machines.

The invention enables these drawbacks to be reduced. For this purpose, an object of the invention is to provide a stopper having a circular body, surmounted by a substantially cylindrical boss of a diameter less than that of said body. The annular space thus formed above the circular body and around this boss accommodates a gripping ring attached to the body by at least one tab that cannot be detached from the body.

More particularly, the invention concerns a non-penetrable stopper comprising a circular body equipped with an inner sealing sleeve adapted to be fitted into the mouth of the bottle to be closed, and with an outer circular skirt adapted to cap said mouth. The base of the circular skirt has a diameter slightly greater than that of the top of the skirt and thus defines a thin non-penetrable film which can be attached along the line of demarcation between the bottom and top of said skirt. The circular body is also surmounted by a substantially cylindrical, coaxial boss having a diameter less than that of the body so that an annular space is formed above said body and around said boss, in which space is accommodated a gripping ring connected by at least one non-detachable tab to this body at a point situated at the same level as this annular space.

The base of the circular skirt may comprise an inner latching ring for permanently fixing this portion of the stopper to the top of the bottle to be closed.

Also, the gripping ring, instead of being a full ring, may be an incomplete one attached by its two ends to the circular body of the stopper by means of two tabs.

In one modified embodiment of the invention, the stopper is associated with a pouring spout comprising a cylindrical tubular body having an outside diameter at least equal to the inside diameter of the mouth of the bottle to be closed, into which mouth it can be fitted by force. The upper part of this tubular body terminates in a pouring edge which is slightly turned over towards the exterior, while its lower portion terminates in an edge turned over towards the interior and carrying a dividing cross-member. Furthermore, said body is provided with an exterior circular collar forming a stop for limiting the depth to which the pouring spout can be pushed into the mouth of the bottle.

In a further modification, the base of the boss is formed by a planar ring, the outside diameter of which is substantially equal to the inside diameter of said body or cylindrical skirt of the stopper and which is connected to the upper edge of said skirt by a thin tear-off zone, the gripping ring being attached to said planar ring by one or two non-detachable tabs.

The invention will now be described by reference to the accompanying drawings, in which:

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FIG. 1 is a perspective view showing a preferred form of the non-penetrable stopper of the invention, placed on the bottle to be closed.

FIG. 2 is a perspective view showing a pouring stopper embodying the invention and after the stopper has been removed.

FIG. 3 is an exploded view showing the capsule for re-closing the bottle, the pouring spout and the lower part of the skirt which rests on the bottle after the stopper has been removed.

FIG. 4 is a perspective view showing the re-closed bottle.

FIG. 5 is a perspective view of a modified form in which the base of the boss is formed by a planar ring connected to the upper edge of the skirt by a thin tear-off zone.

FIG. 6 is a view similar to that of FIG. 5, showing the phases in the tear-off action.

FIG. 6a is a schematic view of a further modified form.

FIG. 7 is a section through the article shown in FIG. 5 on a diametral plane passing between the two tabs for attaching the gripping ring, the stopper being fitted on the mouth of the bottle.

FIG. 8 is a further embodiment, illustrated in the same manner as in FIG. 7.

Referring to the drawing, the non-penetrable stopper of the invention comprises a circular body 1 (FIGS. 1 to 3) provided on the one hand with an inner sealing sleeve 2 adapted to be pushed into the mouth of the bottle to be closed, and, on the other hand, an outer circular skirt 3 adapted to cover said mouth. The body is surmounted by a central cylindrical boss 4 having a diameter less than that of this body, so that an annular space is formed above this body and around the boss, in which space is accommodated a gripping ring 5 attached by a tab 6 to said body at the same level as this annular space.

The base 3a of the circular skirt has a diameter slightly greater than that of the top 3b of the skirt, and thus defines a thin non-penetrable film 3c which can be torn along the line of demarcation between the bottom and top of the skirt.

In the embodiment illustrated in FIGS. 2 and 3, the stopper is associated with a pouring spout 7 comprising a cylindrical tubular body 7a having an outside diameter slightly greater than the inside diameter of the mouth of the bottle to be closed. The spout is force-fitted into this mouth. The tubular body 7a terminates at its upper part in a pouring edge 7b which is slightly turned over towards the outside, while at its lower part it terminates in an edge 7c turned over towards the interior and carrying a dividing cross-member 7d. The tubular body is also provided with an outer circular collar 7e which forms a stop for limiting the extent to which the pouring spout can be pushed into the mouth of the bottle.

The ring disposed exteriorly of the stopper and on the upper portion thereof is readily accessible to the user who is enabled to detach the stopper (FIGS. 2 and 3) using one finger only by pulling on said ring to break the thin film 3c without coming into contact with the product contained in the bottle. After the stopper has been removed, the base 3a of the skirt remains permanently on the mouth of the bottle and for this purpose it may comprise one or more inner latching rings, the function of which is to latch the stopper assembly in a

non-penetrable manner to the mouth of the bottle which may advantageously comprise a shoulder on which the base of the skirt of the stopper comes to bear, so that it becomes impossible to extract the stopper other than by pulling on the ring (not illustrated in the drawing). The detached portion of the stopper can be used as a capsule for reclosing the bottle (FIG. 4). The gripping ring 5, deformed by the pulling action, assumes a raised position, whereas the top and bottom of the skirt are no longer joined, thus indicating that the closure means has been interfered with.

The purpose of the central boss 4 is to protect the ring (which may be co-planar with the top surface of this boss but should not extend beyond it), to strengthen the stopper and also to constitute a means upon which pressure is applied when fitting the stopper on the neck of the bottle, as well as a place for carrying printed advertising matter.

In the arrangement shown in FIGS. 5 to 7, it will be seen that the stopper comprises an outer cylindrical skirt 11, the inner wall of which has a rib 12 adapted to engage a complementary groove 13 in the neck 14 of a flask or bottle, (not illustrated). Attached to the upper edge of the skirt 11 by means of a thin film of plastics material is a planar ring 15, the outside diameter of which is the same, or substantially the same as the diameter of the skirt 11. The ring 15 constitutes the base of a substantially cylindrical boss 16, and in the space thus defined between the planar ring 15 and the boss 16 there is located a gripping ring 17 surrounding the boss 16 and attached to the planar ring 15 by two tabs 18 and 19 that cannot be detached from the latter. The gripping ring 17 is also attached to the planar ring 15 by means of one or more thin stems 20, and preferably two such stems are situated one on each side of the diametral plane passing between the two tabs 18 and 19, and on the side opposite these tabs. Also, if required, the tear-off film is reinforced at 21 by a thickened zone of plastics material adapted to form a hinge between the planar ring 15 and the outer skirt 11. Finally, the inner face of the planar ring 15 carries an inner cylindrical skirt 22, which is centred on the boss 16 and forms an extension of the lateral wall 23 of the latter, said skirt being adapted to be inserted in a fluid-tight manner in the mouth 14 of the bottle.

If pull is applied to the gripping ring 17, the stems 20 are first broken, then the planar ring 15 is detached from the outer skirt in the portion of the film adjacent that in which the two tabs 18 and 19 of the gripping ring 17 are situated. The planar ring 15 then becomes progressively detached along the film in the direction of the hinge 21 whereby the planar ring 15 remains attached to the outer skirt 11 of the stopper, so that the planar ring 15 and the gripping ring 17 remain captive. However, the hinge 21 is not essential, and if it is not provided, the planar ring can be entirely detached from the skirt. In both cases the part of the stopper detached from the skirt can be used for closing the flask or bottle.

FIG. 6a is a schematic illustration of a modified form in which the tear-off film is discontinued and formed by radial teeth or stems 15', connecting the skirt 12 to the periphery of the planar ring 15, which may be of a diameter less than that of the skirt, it being understood that these radial stems can extend over a substantial portion in the peripheral direction. In the modified form shown in FIG. 8, in which the elements identical

with those of the stopper shown in FIGS. 5 to 7 are designated by the same reference symbols, the planar ring 15 is connected to the boss 16 by an annular channel formed by the inner skirt 22 and by a tapered wall 24. This arrangement imparts to the stopper a certain degree of resilience offering the advantages indicated above.

All the stoppers illustrated are each made in one piece from plastics material, preferably formed by injection-moulding.

Apart from the advantage of enabling the user to manipulate the stopper of the invention more easily, the said stopper offers technical advantages when it is being handled in the bottling station and fitted, automatically or otherwise, on a bottle.

Often, the stoppered bottles are gripped by their stoppers, for example for the purpose of placing them in crates. If the boss were not present there would arise the risk of destroying the gripping ring and even of tearing the film if the force applied to the ring were too great. The presence of the boss enables this danger to be avoided, since, assuming that a bottle is gripped at a point level with the tear-off ring, the latter is prevented from being crushed; the boss also prevents the film from being torn, since the boss limits such crushing in the radial direction.

On the other hand, the boss constitutes a large surface for the application to the stopper of the force required to insert it, when it is being fitted on the neck of a bottle either manually or with the help of an automatic machine. Furthermore, the relatively large area provided by the top of the boss can be used for carrying any necessary or desirable lettering, etc. It will, of course, be appreciated that the arrangement shown in FIGS. 1 to 4 can incorporate the features of the arrangements shown in FIGS. 5 to 8, such as, for example, the thin stems 20, the reinforced face 25 and the radial teeth or stems 15'. There can be inclined to varying extents but are in general vertical, in which case the ring 15 should be of a diameter substantially the same or precisely the same as that of FIG. 1.

I claim

1. A non-penetrable stopper comprising a circular body, an inner sealing sleeve provided on said body and adapted to be fitted into the mouth of a bottle to be closed, an outer circular skirt on said body and adapted to cover said mouth, base and top portions on the circular skirt, said base portion having a diameter slightly greater than the top portion of the skirt, a thin non-penetrable film defined between the base portion and the top portion of said skirt, a substantially cylindrical coaxial boss, said boss being mounted on the circular body and having a diameter less than that of said body, an annular space defined above said body and around the boss, a gripping ring accommodated in said space, at least one non-detachable tab attached to the gripping ring and said body, said tab being attached to the body at a point situated at the same level as said annular space.

2. A stopper according to claim 1, comprising an inner latching rib on the base portion of the circular skirt for permanently fixing a part of the stopper on the mouth of the bottle to be closed.

3. A stopper according to claim 1, wherein the gripping ring is an incomplete ring, first and second ends on said incomplete ring, and first and second tabs for attaching said ends to the circular body of the stopper.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,750,820 Dated August 7, 1973

Inventor(s) MAURICE LABARRE

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Heading to the Patent, item "[30] Foreign Application Priority Data", the second French application should be changed from "March 4, 1970 France 7007411" to read --March 4, 1971 France 7107411--.

Signed and sealed this 18th day of December 1973.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents