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54 **A multi-use screw-on bottle cap and stopper.**

57 The invention consists of a multi-use cap constituted by a stopper and a screw-on cap.

The cap is screwed on to the neck of the bottle loosely retaining inside it the stopper, that has a conical adjustment surface and a flange that abuts against the screwthreading of said stopper. The latter has, at the inner face of its upper surface, a projection that contacts the upper part of the cap.

A flange in form of a truncated cone is arranged to the lower part of the stopper, attached to it by easy-to-break points and fitting the projection of the neck in the screw-off operation.

The loose fitting of the stopper into the cap allows the obtention of the closing effect.

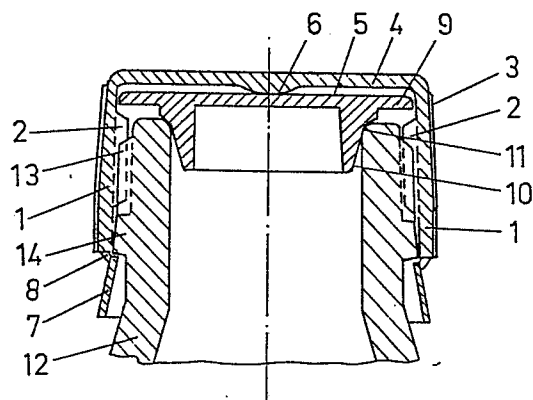


FIG-2

**Description****A MULTI-USE SCREW-ON BOTTLE CAP AND STOPPER.**

The invention consists of a multi-use cap constituted by a stopper and a screw-on cap.

The cap is screwed on to the neck of the bottle loosely retaining inside it the stopper, that has a conical adjustment surface and a flange that abuts against the screwthreading of said stopper. The latter has, at the inner face of its upper surface, a projection that contacts the upper part of the cap.

A flange in form of a truncated cone is arranged to the lower part of the stopper, attached to it by easy-to-break points and fitting the projection of the neck in the screw-off operation.

The loose fitting of the stopper into the cap allows the obtention of the closing effect.

A type of screw-on bottle cap used on bottles containing carbonated drinks, whose edge has a sealing flap, advantageously connected to the body by easy to break points, for the purpose of making it easy to initially open the bottle, is known in the present prior art.

Close to the bottom of this type of cap there is a peripheral stepper for it to sit on the neck of the bottle, as well as a central cylindrical neck, solidly connected to the bottom of the cap and which acts as a stopper of the mouth of said neck.

This complex shape of the cap causes the sealing or fitting of the cylindrical neck on the neck of the bottle to be done by turning it together with the cap. This produces deformation of the neck in contact with the neck of the bottle and this makes the leak-tightness of the seal uncertain, with the subsequent loss of gas from within the bottle.

To overcome these problems, the present invention puts on the market a newly shaped multi-use screw-on bottle cap, having a conventional sealing flap, which has the special feature of including a stopper, independent from the cap and which remains inside it, with the possibility of vertical movement, which causes the sealing of the neck of the bottle, to be done by rectilinear movement of the stopper over the neck.

On the one hand, this manages to prevent the cap from being deformed in its part in contact with the neck of the bottle, when the bottle is being closed, since its surface is not corrugated.

And on the other hand, it has the advantage that the neck of the stopper vertically enters into the neck of the bottle and also that there is vertical fitting to the edge thereof, which ensures leak-tightness of the seal, which is so necessary in containers that contain carbonated liquids.

For this purpose, the screw-on cap, object of this invention, is comprised by a stopper lodged inside it which is mechanically held thereto, by means of ribs and grooves provided in said cap, just as the inside filleting itself of the cap.

Said fitting of the stopper inside the cap is basically done in a loose manner to allow the stopper to move freely with respect to the cap, in such a way that the cap can screw on the mouth of the container, while the stopper moves upon the neck of

the bottle in a rectilinear movement.

Besides, the cap is characterized by the fact that the stopper included therein, is provided with a conical sealing neck, which vertically enters into and fits in an airtight manner inside the neck of the container, when the cap is screwed on to the thread on the outside of said neck of the bottle.

On the contrary, when the cap is screwed off, the cap pulls the stopper by means of its mechanical connection and the latter screws off the neck of the bottle, along with the cap.

Besides, the stopper has a conical stepper in the area between the neck and the flat area or flange of the stopper and this stepper reinforces the sealing on the corresponding top edge of the neck of the bottle.

For a better understanding of the idea put forth a set of drawings wherein the object of the invention has been represented is appended to the present specification as an integral part hereof. It should be understood that the graphical representation alluded to is not a restriction of the special features of this application.

Figure one represents a side elevational view of the cap, with the stopper disconnected from the cap. In the figure it can be seen that on the edge of the cap there is a sealing flap, which is connected thereto by break points. Inside the side walls of the cap there is filleting so that it may screw on the neck of the bottle, while on the outside there is a series of vertical ribs that allow for the gripping of the cap. Between the bottom of the cap and the filleting of its walls there is a space existing for the fitting hereof with the possibility of movement of the stopper. Said stopper has a conical neck which is connected to the flat part by means of a conical stepper.

Figure two represents a side elevational view of the screw-on cap on the neck of a bottle. In the figure it can be seen that the stopper has been previously lodged inside the cap and the stopper is held in the space formed by the inside filleting of the cap and the bottom thereof. The thickness itself of the screwthread prevents it from coming out of said lodging. The stopper remains lodged in said space with play which allows the stopper to be able to move vertically, when the cap is being screwed on the neck of the bottle. While said cap is being screw on, the conical neck of the stopper will vertically enter into the neck of the bottle. It is pressed to the maximum by the central raised part existing on the bottom of the cap and the neck remains fit inside the neck of the bottle. The conical stepper of the neck also remains fit upon the top edge of the neck of the bottle.

Once the figures which the set of drawings consists of have been specified in detail, the different parts making up the object of the invention are now going to be stated.

The multi-use screw-on cap is comprised by a tube-shaped body, whose vertical walls (1), have on the inside thereof a helical filleting (2), while on the

outside thereof, there are some longitudinal ribs (3) which make it easy to fit in place.

Said screwthreads form with the wall (4) which comprises the bottom of the cap, a lodging (5) advantageously placed so that a stopper fits therein with free movement.

In the center of the bottom of said cap there is a convex raised part (6), which will help the stopper to seal on the neck of the bottle.

Said cap also has on its edge a sealing flap (7), joined to the body by easy to break points (8.)

The stopper which is lodged inside the cap is comprised of a flat part like a flange (9) one of whose surfaces extends into a conical neck (10). In the middle thereof, there is a peripheral stepper which is likewise conical (11.)

This is all arranged in such a way that the stopper fits inside the lodging (5) of the cap with free movement and the stopper is held in the lodging by the thickness itself of the screwthread of the cap which will abut against the flange (9) in its vertical movement with respect to the cap.

Once the stopper is lodged inside the cap, the latter will be arranged so that it remains coupled to the neck (12) of a bottle, which has outside filleting (13), as well as a peripheral rib (14) close to the mouth of the neck.

For such a purpose, the cap will screw on the outside filleting (13) of the neck of the bottle, at the same time that the conical neck (10) of the stopper will vertically enter into the neck of the bottle, until it fits inside it in a leak-tight manner.

When the conical neck (10) has entered entirely into the neck of the bottle, the conical stepper (10) of the stopper will remain adapted to the top edge of the neck of the bottle and will thus reinforce the leak-tightness of the seal.

On the contrary, when the cap is screwed off, the cap pulls the stopper, upon the inside screwthread (2) abutting against the flange (9) of the stopper, which causes said stopper to become loose from the neck of bottle and comes out with the cap.

In short, the Patent of Invention which is being applied for should protect the following:

**Claims**

1. A MULTI-USE SCREW-ON BOTTLE CAP AND STOPPER, comprised of a screw-on cap whose edge has a sealing flap that is connected to the body of the cap by an easy to break point, essentially comprised of the lodging therein of a stopper mechanically connected thereto by means of ribs and grooves for the stopper provided on the body of the cap, said fitting being loose to allow for independent free movement of the stopper with respect to the cap, and also comprising the fact that the stopper is provided with an essentially conical sealing neck, which vertically enters into and fits into the neck of the bottle in a leak-tight manner when the cap is screwed on the screwthread provided on the outside of said neck of the

bottle, while in the opposite operation, in other words, when the cap is being screwed off, the cap pulls the stopper and the latter comes loose from the neck of the bottle along with the cap, existing for such a purpose a conical rib, which reinforces the sealing upon the corresponding top edge of the neck of the bottle, on the stopper in the area between the neck and the flat part of placement of the stopper itself.

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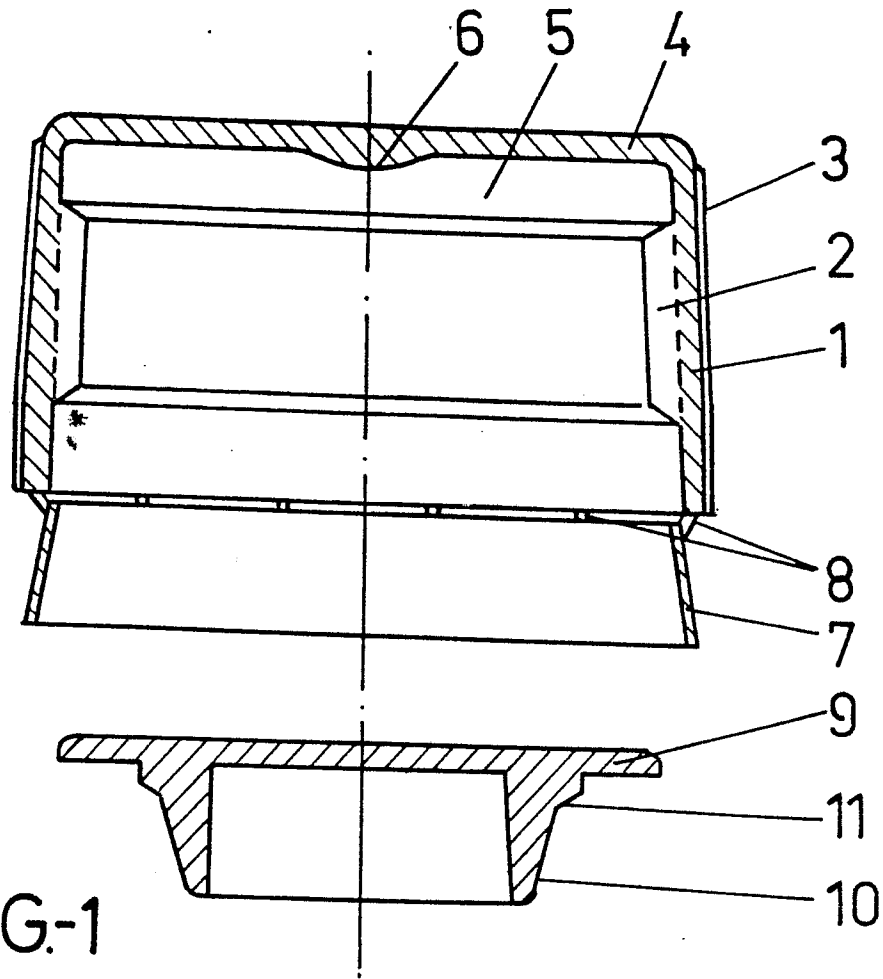


FIG-1

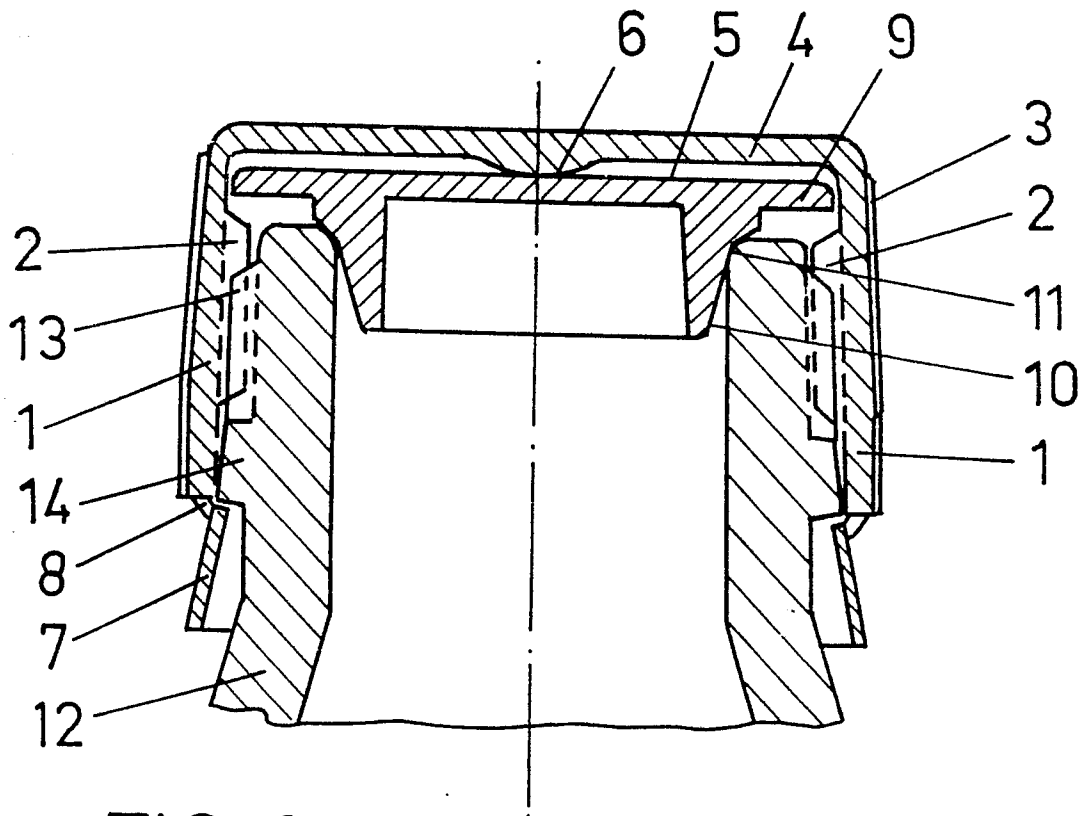


FIG-2



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)
X	FR-A-2 528 393 (STERICRIC) * Page 2, line 34 - page 3, line 35; figures 2,3 *	1	B 65 D 41/58 B 65 D 41/34
A	FR-A-1 074 507 (VOSSELLE) * Whole document *	1	
A	US-A-4 386 712 (DeWALLACE) * Column 3, lines 55-68; column 4, line 33 - column 5, line 4; column 5, line 16 - column 6, line 4; figures 1-4 *	1	
A	US-A-2 175 350 (HAMMER) * Page 2, left-hand column, lines 40-75; figures 3,4 *	1	
A	FR-A-2 086 518 (CAPTOCAP) * Figure 8 *	1	
A	FR-A- 955 487 (FREEMAN)		
			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 11-12-1987	Examiner MARTENS L.G.R.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
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