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54 **Improved security closure.**

57 The stopper is of the type comprising an upper portion forming the stopper body (1) as such, configured by a hollow cylinder of revolution open at the lower end and provided on the inner sidewall thereof with an outwardly extending thread. A circular skirt (2) is attached to the stopper body by way of points or threads (3) which may break on unscrewing. The invention relates to the means that said skirt includes for retention below the arcuate ridge with which bottlenecks are provided. These means are formed by protuberances (5) hollowed out in the outside/inside direction. The projection towards the inner side of said protuberances of semispherical or similar shape, can yield when screwing on the stopper, passing over the thread area and the neck ridge, providing on the other hand sufficient strength on unscrewing the stopper to cause the points or threads to break.

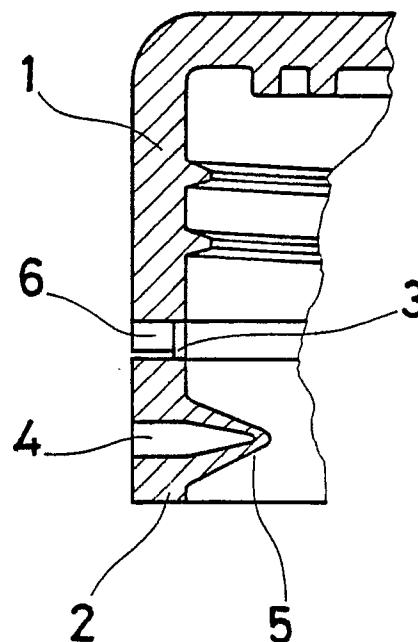


Fig. 2

This invention relates to an improved security stopper, of the type comprising an integral moulded material, preferably plastics, body used as a screw cap.

Security stoppers are known which comprise a portion which may be removed from the rest of the stopper, the parts becoming separated when the stopper is unscrewed. This type of stopper comprises essentially an upper portion forming the main body thereof, and which in practice is the genuine stopper, formed by a hollow cylinder of revolution open at the lower end and provided with an outwardly projecting screw thread on the inner sidewall thereof. A circular skirt is attached to the stopper body. The connection between both components is limited to a number of points or threads which break when the stopper is unscrewed. To this end said skirt includes a number of projections or protuberances located on the inner portion thereof which, when the stopper is screwed on, should be held under the arcuate retaining ridge with which bottlenecks are provided. In this way, when the stopper is unscrewed upwardly, since the skirt cannot follow because of the engagement of the projections or protuberances thereof with the bottleneck ridge, is when the threads joining the seal components break.

It is a necessary condition that the projections localized on the stopper skirt should be able to yield without the joining threads to the stopper as such breaking, so as to become located, when screwing on, below the annular projection of the bottleneck.

At the present time, in bottlenecks where the outside diameter of the ridge and the outside diameter of the thread are the same or very similar, the operation of the stopper skirt projections is hindered because not only do they have to move over, due to their resilience, the ridges of the bottleneck, but also the whole of the thread.

To improve the operation of the traditional security stoppers, the stopper of the present invention has been devised and provides as main advantage the fact that the projections on the inside of the skirt attached to the stopper are formed by protuberances which may take on different forms, but which are essentially characterized in that they are hollowed out in the outside/inside direction that is, on a skirt, for example, 1 mm thick, the inward projection of said protuberances has a wall thickness of 0.3 mm to 0.5 mm, for example, whereby said arcuate or semispherical protuberances, among other advantages, have the power of yielding easily when the stopper is being screwed on and easily pass over the thread area and the ridge area in the opposite direction to the bottleneck, whereas they oppose sufficient resistance when the stopper is unscrewed to cause breakage of the

points or threads joining the skirt to the stopper body.

To facilitate the explanation, the specification is accompanied by drawings wherein one embodiment of an improved security stopper according to the principles of the claims has been shown as an illustrative, non limiting example.

In the drawings:

Figure 1 is a side elevation view, partly in cross section of the stopper of the model.

Figure 2 is a detail in cross section showing the special configuration of the seal skirt protuberances.

With reference to the figures, there is to be seen a security stopper of the type comprising a main body, generally referenced with 1 and a break-away skirt 2, both obtained in the same moulding stage, said components being associated by points or filaments 3, of the same weakened material, said skirt including means devised to be situated below the ridge on the bottleneck.

The stopper is characterized in that the said means included in the skirt 2 are formed by respective holes or hollowed out or portions 4, formed in the outer surface of the skirt, which holes or hollowed out portions generate respective protuberances 5, which extend radially from the inner surface of the skirt, formed by fine thin walls to facilitate yielding, so as to be able to move resiliently without difficulty over the whole of the bottleneck thread and the retaining ridge thereof.

The lower edge of the sidewall of the stopper body is provided with castellations 6 which form a stop member with the skirt 2 to prevent deformation by compression of the threads 3 when the stopper is fitted in place.

Claims

1.- Improved security stopper of the type comprising an integral moulded material, preferably plastics, body designed as a screw cap, which comprises an annular skirt associated with the stopper body only by a plurality of points or threads of weakened material which break when unscrewing the stopper, fulfilling the sealing mission thereof which skirt includes protuberances extending outwardly on the inner surface thereof for positioning below the retaining ridge on the bottleneck, characterized essentially in that the said protuberances are formed by respective holes or hollowed out portions configured on the skirt wall in the outward/inward direction, forming on the inner surface of said skirt outwardly extending arcuate or semispherical bodies, of fine thin walls, which may yield elastically or bend without breaking the joining threads, when screwing on the stopper, to

easily pass over the thread area and the retaining ridge area to be located below said ridge, forming the corresponding retainer having a strength superior to the strain the threads undergo on unscrewing the stopper.

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Fig. 1

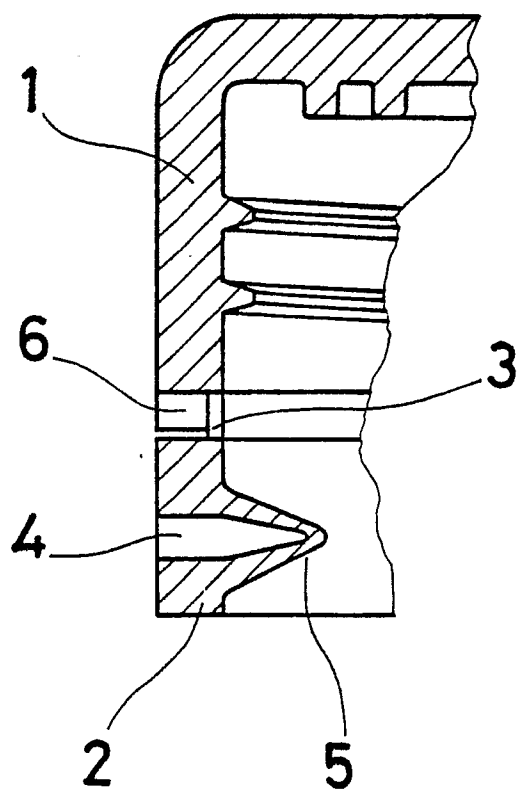
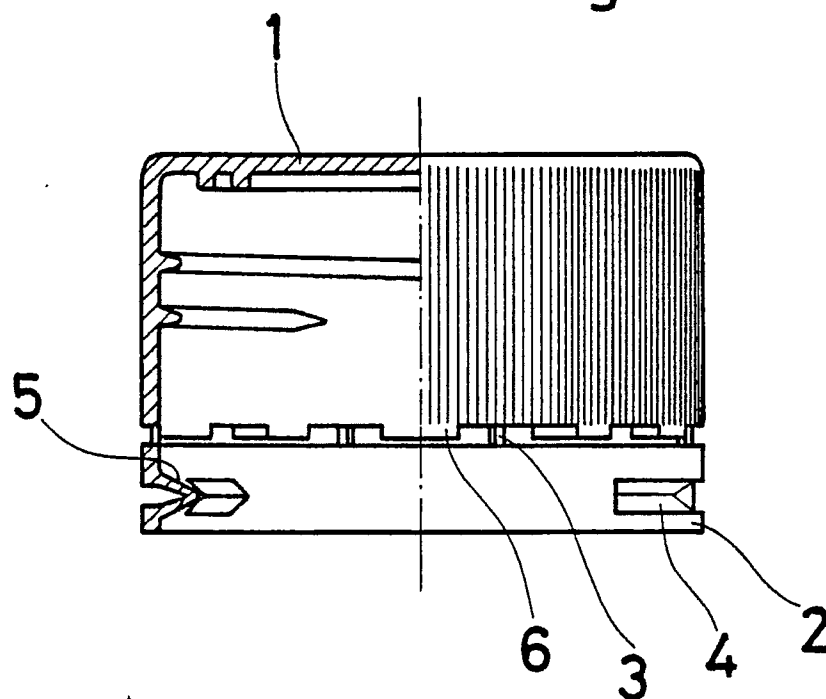


Fig. 2



European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 1134

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.5)
X,P	EP-A-0 343 102 (CROWN CORK.) * Column 4, line 11 - column 5, line 59; figures 1-7 *	1	B 65 D 41/34
P,A	EP-A-0 337 046 (BORMIOLI METAPLAST) * Whole document *	1	
A	FR-A-2 134 264 (SCAL) * Whole document *	1	
A	US-A-4 813 562 (BEGLEY)		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			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 24-07-1990	Examiner MARTENS L.G.R.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		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	