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 [31] **52098 A/69**

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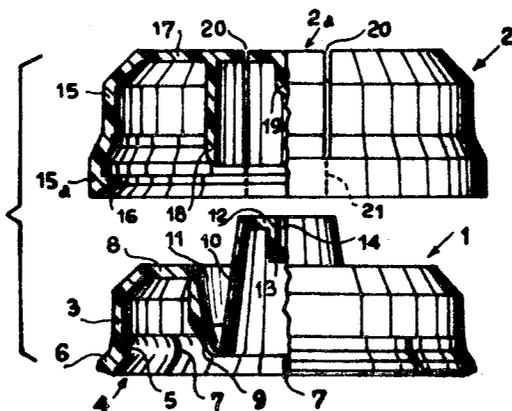
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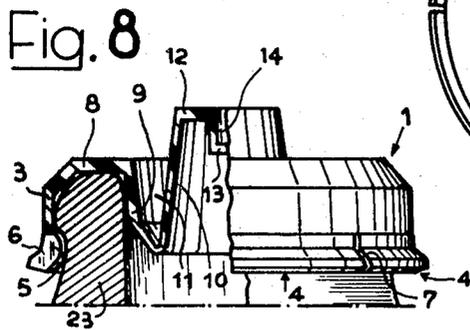
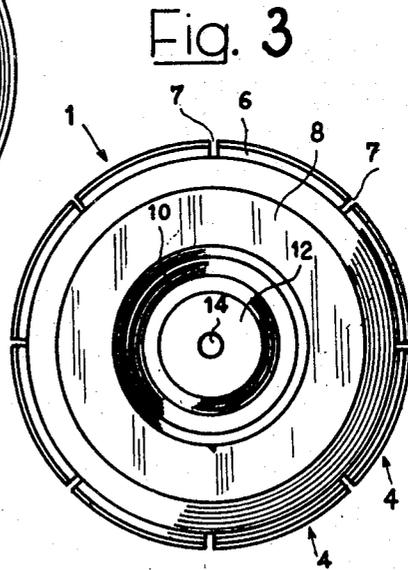
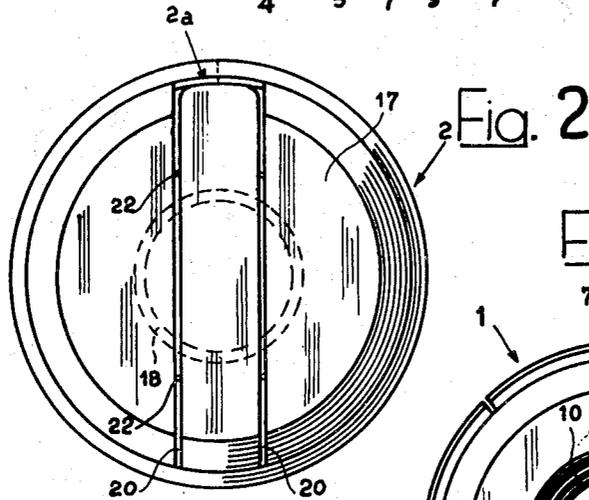
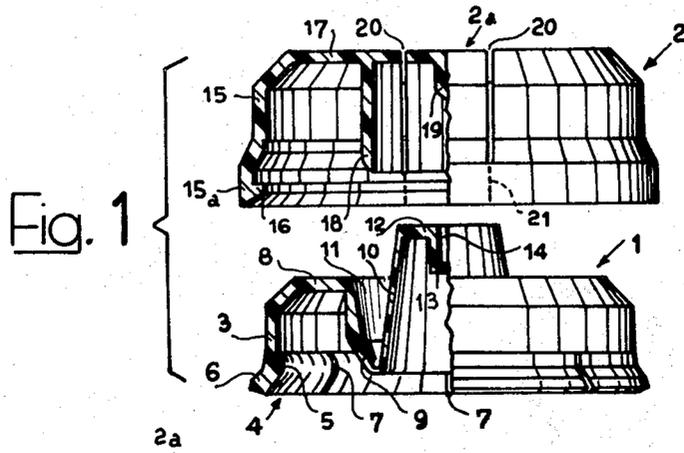
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[54] **CROWN CAP FOR A BOTTLE**
4 Claims, 8 Drawing Figs.
 [52] U.S. Cl..... **215/40,**
 215/41, 215/46 A, 215/83
 [51] Int. Cl..... **B65d 23/00,**
 B65d 53/00

ABSTRACT: A two-piece crown cap with a flexible internal member that seals the neck of a bottle and a rigid external member that covers the internal member and holds it firmly in place. The external member has lines of weakness along which it is broken to give access to the internal member when the bottle is to be opened. Interfitting formations on the cap members cooperate during assembly to ensure sound sealing and a tight fit on the bottle.





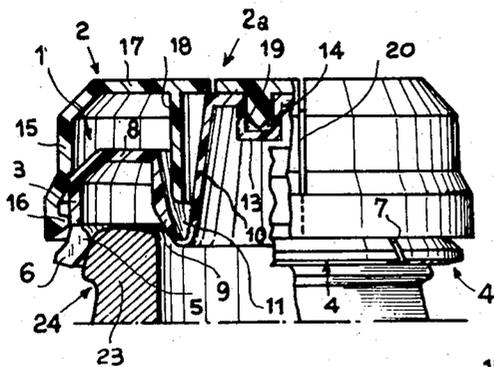


Fig. 4

Fig. 5

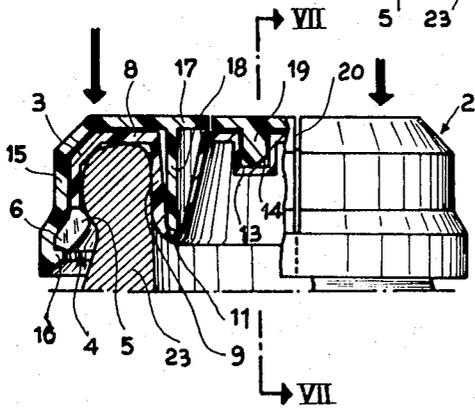
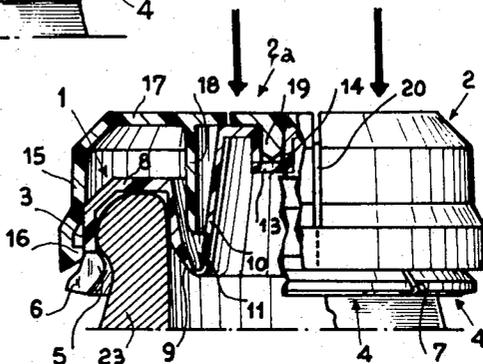
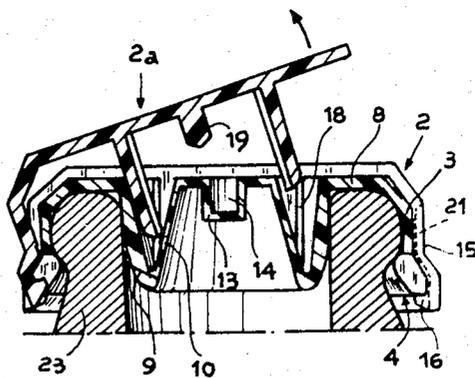


Fig. 6

Fig. 7



CROWN CAP FOR A BOTTLE

The invention relates to crown caps of plastics material for bottles and the like.

As is well known, crown caps either of metal or plastics require the use of a suitable tool for opening the bottle, since removal of the cap requires an appreciable effort that cannot be exerted by the hands only.

An object of this invention is to provide a crown cap for a bottle which does not require any special tool for removal from the bottle, being removable by hand or by the use of an everyday tool such as a lever.

A further object of the invention is to provide a crown cap of the above-mentioned type which adequately seals the bottle to prevent escape the gases under pressure and after opening can be reused to close the bottle, if not to retain any remaining gas pressure.

A further object of the invention is to provide a crown cap of the above-mentioned type which is simple and tough in construction and is easily fitted to the bottle in the first place.

The invention provides a crown cap of plastics for a bottle having an external groove on its neck, comprising an internal member of flexible plastics adapted to be fitted on the neck of the bottle and having an outwardly projecting edge which is made readily yieldable by a plurality of radial notches, the edge being adapted to be engaged in the annular groove in the bottle neck, and a deformable central projection adapted to fit into the bottle neck to close the bottle, and an external member of rigid plastics adapted to snap on the internal member in order to cover the internal member and to prevent deformation of the annular edge of the internal member after the annular edge has been engaged in the bottle neck groove, the external member being moreover provided with an annular extension extending downwardly and adapted to engage the projection on the internal member in order to press the projection against the bottle neck and seal the bottle, the external member being formed with lines of weakness along which it can be fractured and removed from the bottle to give access to the internal member for removal of the internal member.

Further features and advantages of the invention will be understood from the following detailed description referring to the accompanying drawings, in which:

FIG. 1 is a partly sectioned exploded side view of a crown cap according to the invention;

FIG. 2 is a plan view of an external member of the cap of FIG. 1;

FIG. 3 is a plan view of an internal member of the cap of FIG. 1;

FIG. 4 is a partly sectioned side view showing the cap of FIGS. 1 to 3 in an initial position for assembly on a bottle;

FIGS. 5 and 6 are views similar to FIG. 4 showing an intermediate stage and the final stage, respectively, of assembly of the cap of FIGS. 1 to 4 on the bottle;

FIG. 7 is an axial sectional view on line VII—VII of FIG. 6, showing an initial stage of removal of the cap to open the bottle; and

FIG. 8 is a partly sectioned side view of the internal member of the cap of FIGS. 1 to 7, fitted on the bottle.

The drawings show a crown cap for a bottle comprising an internal member 1 of flexible plastics and an external member 2 of rigid plastics adapted to be fitted on the internal member to prevent its removal from the bottle.

The flexible internal member 1 comprises a tubular wall 3 having a lower edge 4 that projects slantingly outwardly and is subdivided into a plurality of sectors by radial notches 7 which increase the flexibility of the sectors.

The edge 4 is provided with an internal projection 5 engageable in a shaped groove 24 in the neck of a bottle 23 and with an external projection 6 which will be discussed later.

The member 1 is closed at the top by a flat annular wall 8 and a sloping outer edge that joins the outer tubular wall 3. The top wall 8 is provided at its center with a deformable annular projection comprising an annular outer wall 9 that con-

verges downwardly and an inner wall 10 that converges upwardly. These walls forming an annular recess 11 open at its top.

The inner wall 10 projects above the top wall 8 and is closed by a flat annular end wall 12 surrounding a hollow downward extension 13 that forms an axial recess 14 open upwardly.

The rigid external member 2 comprises a tubular wall 15 having a bottom portion 15a of enlarged radius provided with a radially inward annular projection 16 engageable over the flexible edge 4 of the internal member 1 to prevent deformation of that flexible edge 4.

The external member 2 is closed at the top by a flat wall 17 having a central annular extension 18 extending downwardly and adapted to fit into the annular recess 11 of the internal member 1, and a central pin 19 engageable in the recess 14 in the internal member 1 to interconnect the two cap members before they are fitted to the bottle.

The external member 2 is subdivided into two or three portions connected by lines of weakness to facilitate fracture. In the embodiment shown the external member 2 is provided with a striplike intermediate region 2a separated by slits 20 from the two remaining regions to which it is connected by tabs 22 bridging the slits 20 and by lines of weakness 21. The intermediate region 2a has a free end, seen at the top of FIG. 2, for easy gripping by the operator.

For assembly of the cap on the bottle, the two members 1 and 2 are juxtaposed as shown in FIG. 4, without being closely pressed into engagement with each other, and the internal member 1 is then fitted on the shaped top edge of the bottle neck 23. In this position the pin 19 locks in the recess 14 and holds the two cap members together.

A first downward pressure on the external member 2 causes the internal member 1 to engage on the bottle neck, as seen in FIG. 5, the flexibility of the bottom edge 4 of this member enabling it readily to take up its operative position.

On further downward pressure, the external member 2 slides onto the internal member 1 as seen in FIG. 6 and the projection 16 extends below the flexible edge 4 of the internal member to clamp this edge in the bottle groove 24. The internal member 1 cannot be deformed so that the cap is safely held on the bottle.

While the outer member 2 is being forced towards the internal member 1, the annular extension 18 on the external member 2 penetrates into the annular recess 11 in the internal member. This causes lowering of the central portions 10, 12 of the internal member 1 and the recess 11 consequently elongates. The outer wall 9 of the recess 11, pressed by the extension 18, is deformed outwardly and is forced into contact with the wall of the bottle neck, thereby affording a tight closure.

Under these conditions the cap cannot be accidentally removed from the bottle because the rigid external member 2 prevents deformation of the internal member 1.

The cap can be removed to open the bottle only after fracture of the external member 2. For this purpose it is sufficient to grip and tear off the intermediate portion 2a of the outer member as seen in FIG. 7, and break the connections between the two lateral regions of the external member along the lines of weakness. In this way the external member is severed into a number of portions which automatically draw away from the bottle, leaving the internal member 1 exposed. The internal member can easily be lifted off the bottle by virtue of its flexibility.

The external member may be subdivided into two symmetrical halves by a single middle line of weakness, without an intermediate portion. In this case, a notch can be formed between the two halves for insertion of the operator's fingernail or a lever adapted to promote separation of both portions. A coin, for instance, may be used as a lever.

After opening of the bottle, the internal member 1 can be refitted for closure of the bottle. It will not seal the bottle against internal pressure but will protect the contents against access of foreign bodies.

What I claim is:

1. A crown cap of plastics for a bottle having an external groove on its neck, characterized by comprising an internal member of flexible plastics adapted to be fitted on the neck of the bottle and having an outwardly projecting edge which is made readily yieldable by a plurality of radial notches, the edge being adapted to be engaged in the annular groove in the bottle neck, and a deformable central projection adapted to fit into the bottle neck to close the bottle, and an external member of rigid plastics adapted to snap on the internal member in order to cover the internal member and to prevent deformation of the annular edge of the internal member after the annular edge has been engaged in the bottle neck groove, the external member being moreover provided with an annular extension extending downwardly and adapted to engage the projection on the internal member in order to press the projection against the bottle neck and seal the bottle; the external member being formed with lines of weakness along which it can be fractured and removed from the bottle to give access to the internal member for removal of the internal

member.

2. A crown cap as claimed in claim 1, characterized by the fact that the internal member is provided on its flexible lower edge with an inner projection adapted to be engaged in the groove in the bottle and with an outer projection adapted to cooperate with a radially inward annular projection on the external member.

3. A crown cap as claimed in claim 1, characterized by the fact that the external member is subdivided into a number of portions held together by a removable intermediate portion adapted to be gripped by the operator to enable the external member to be fractured by hand.

4. A crown cap as claimed in claim 1, characterized by the fact that the external member is centrally provided with an axial pin extending downwardly and adapted to engage in a recess in the internal member in order to interconnect the two cap members before the cap is fitted to the bottle.

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