

[54] CLOSURE FOR BOTTLES AND SIMILAR CONTAINERS

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[58] Field of Search.....215/48, 52, 46 A; 220/24.5

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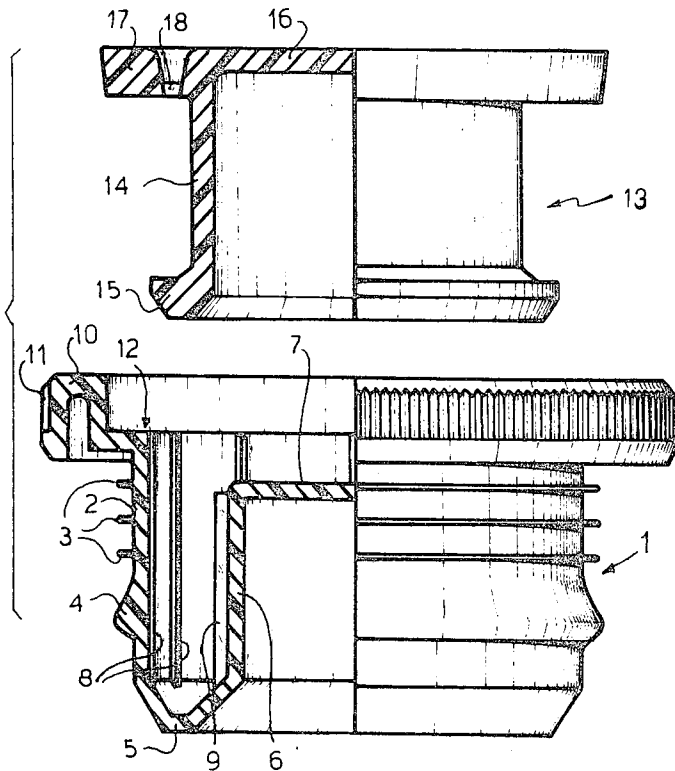
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[57] ABSTRACT

A closure for a container with an internal undercut in its neck consists in a flexible main member and rigid auxiliary member. The main member has a top flange which seats on the mouth of the container and a stopper portion in the form of an inner and an outer coaxial wall, separated by a clearance. A bulge is formed on the outer surface of the outer wall, and when the closure is fitted in place engages in the undercut. The auxiliary member has a tubular wall which extends into the clearance, with an external annular projection near its end. When the closure is in place the two annular projections are aligned, and the closure cannot be removed intact. For removal, the auxiliary member is pressed further in to force the projection on the outer wall of the main member and allow the main member to be deformed and withdrawn.

7 Claims, 7 Drawing Figures



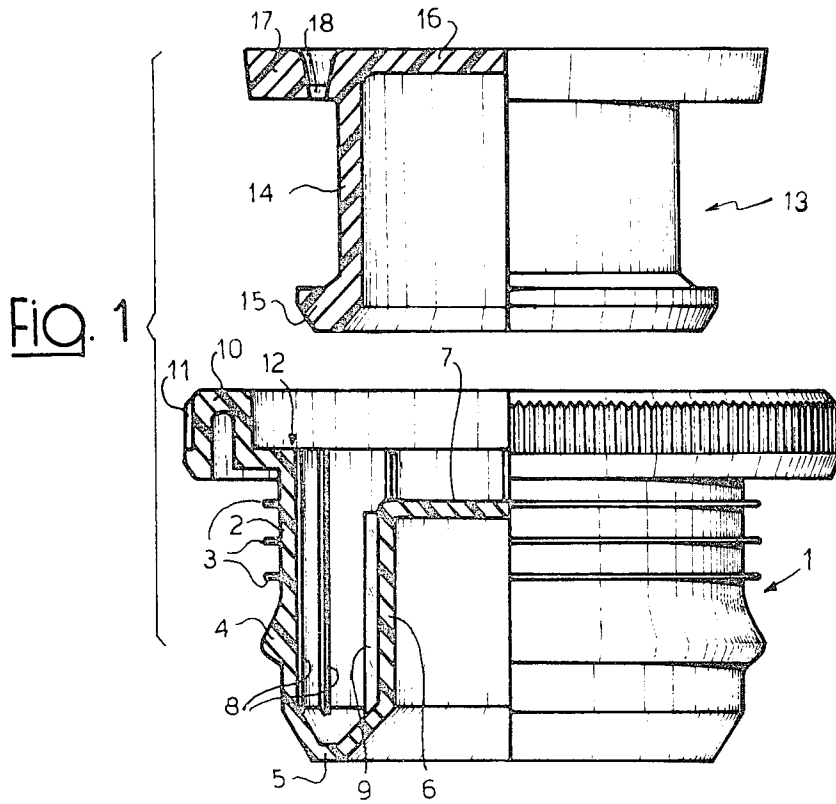


FIG. 2

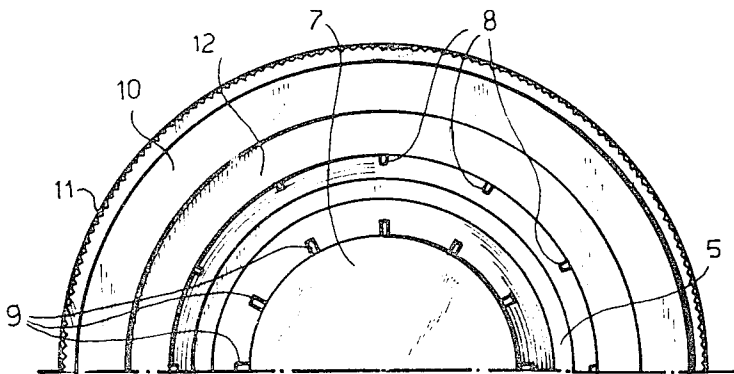


Fig. 3

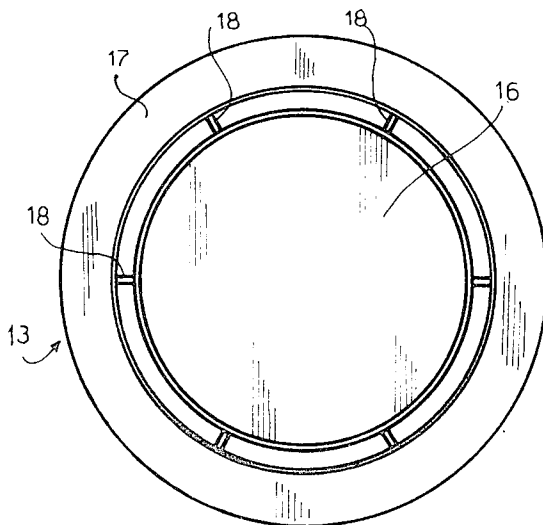


Fig. 4

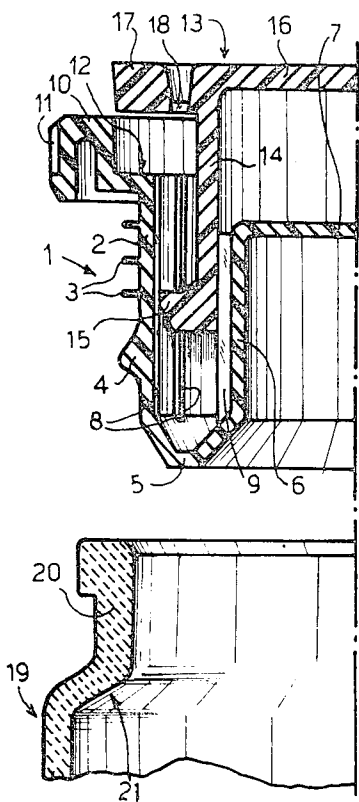


Fig. 5

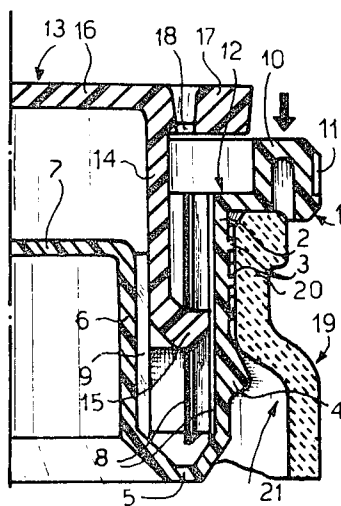


Fig. 6

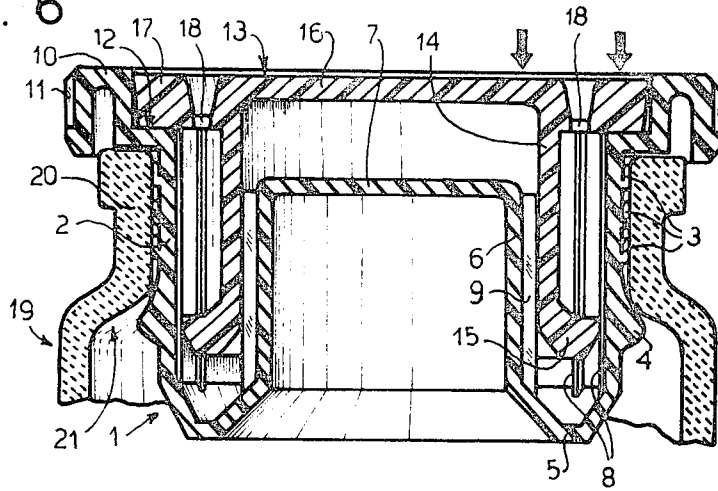
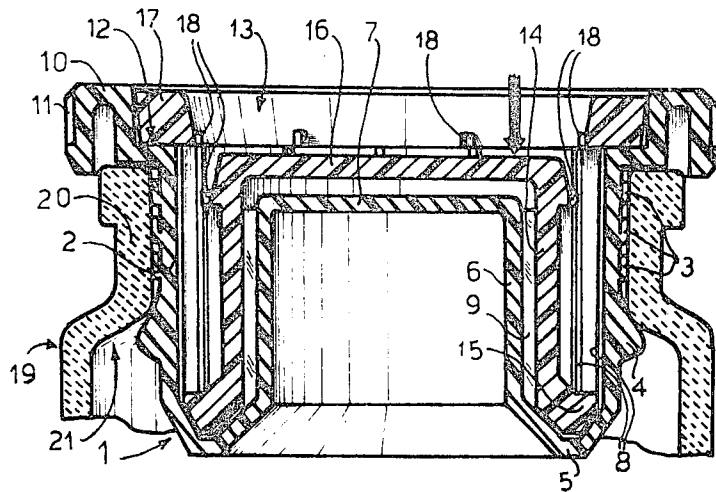


Fig. 7



## CLOSURE FOR BOTTLES AND SIMILAR CONTAINERS

The invention relates to a closure for a container such as a bottle of a type in which the container neck has an internal undercut.

An object of the invention is to provide a closure for a container of this type which is simple, tough and inexpensive in construction and sealingly closes the container even if it contains an aerated drink, and is provided with a safety seal which must be severed before the closure can be removed.

A further object of the invention is to provide a closure of the above-mentioned type which is easily fitted to the container, and the seal of which can easily be severed, even by hand, in order to open the container initially.

A further object of the invention is to provide a closure of the above-mentioned type which may be used for reclosing the container after the first opening, and so protect the contents.

The invention provides a closure for a container having a mouth and a neck with an internal undercut, the closure comprising a main member of flexible plastics having a top flange adapted to seat on the container mouth and a stopper portion adapted to seat on the container neck, the stopper portion comprising an outer and an inner wall separated by a clearance, the outer wall being joined at its upper end to the top flange and at its lower end to the lower end of the inner wall, the outer wall having a shaped external circumferential projection adapted to engage in the undercut in the container; and an auxiliary member of rigid plastics comprising a top cover and a tubular wall connected at its upper end to the top cover and having at its lower end a shaped external circumferential projection; the tubular wall of the auxiliary member being adapted on closing of the container to extend into the clearance between the outer and inner walls of the main member to a position in which the circumferential projections on the main and auxiliary members register with one another to avoid removal of the closure; and on opening of the container to extend further into the clearance to a position in which the circumferential projection on the auxiliary member is located below the circumferential projection on the main member to permit removal of the closure.

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

FIG. 1 is an exploded partly sectioned side view of a closure for a bottle or similar container;

FIG. 2 is a partial plan view of one member of the closure of FIG. 1;

FIG. 3 is a plan view of a second member of the closure of FIG. 1;

FIGS. 4, 5, 6 and 7 are axial sectional views showing various steps in the fitting of the closure to a bottle and in the initial opening of the bottle.

In the drawings, a closure for a bottle or similar container comprises a main member 1 molded from flexible plastics and an auxiliary member 13 molded from rigid plastics.

The closure can be fitted to a bottle or similar container 19 formed with a neck 20 which is sharply restricted to form an annular internal undercut 21.

The main member 1 of the closure comprises a stopper portion in the form of an outer annular wall 2 and an inner annular wall 6 coaxial with each other and connected to each other at their lower ends by a shaped bottom portion 5 of high flexibility.

The inner wall 6 is closed at its upper end by a transverse top wall 7. The outer wall 2 is provided with external flexible annular tabs 3 adapted to improve sealing of the closure against the neck of the bottle so as to withstand any gas pressure evolving from the contents. In addition to the annular tabs 3, the outer cylindrical wall 2 is provided near its bottom with a circumferential projection in the form of a shaped annular bulge 4 adapted to engage in the undercut 21 on the bottle when the closure is forced into the neck 20.

The two coaxial walls 2, 6 of the main member 1 are separated by an annular clearance that is open upwardly. Longitudinally extending ribs 8, 9 project into this clearance from the inner wall faces to facilitate sliding of a member to be described below.

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The main member 1 is provided at the top with a flange 10 having an outer milled region 11 for easy gripping in order to open the bottle, the flange 10 surrounding a shallow inner annular rebate 12. The outer wall 2 is joined at its upper end to the top flange 10.

The auxiliary member 13 of rigid plastics comprises a tubular wall 14 which is provided near its lower end with a circumferential projection 15 in the form of a ridge with a cylindrical edge. The cross section of the ridge is in the form of an outwardly projection tooth. The annular wall 14 is closed at its upper end by a flat top wall 16.

The above portion of the auxiliary member 13 is connected to a surrounding ring 17 by a plurality of frangible radial webs 18 collectively forming a safety seal.

The above-described closure is preassembled as shown in FIG. 4 so that the auxiliary member 13 extends part way into the clearance between the two coaxial walls 2, 6 of the main member 1.

Under these conditions the outer annular projection 15 on the rigid auxiliary member 13 is spaced longitudinally away from the outer annular projection 4 on the outer wall 2 of the main member 1.

On fitting of the preassembled closure into the neck 20 of the bottle 19, the outer wall of the main member 1 is deformed to permit the annular projection 4 to engage in the undercut 21 (FIG. 5). This step is carried out by exerting an axial thrust on the flange 10 of the main member 1. The device is naturally so dimensioned that, when the flange 10 of the main member 1 contacts the edge of the mouth of the bottle 19, the annular projection 4 has previously been engaged in the undercut 21.

The closure is subsequently completed by exerting an axial thrust on the auxiliary member 13 to move it relatively into the main member 1.

Upon this movement, the ring 17 of the auxiliary member accurately fits into the rebate 12 formed in the flange 10 of the main member. The outer annular projection 15 on the tubular wall 14 of the auxiliary member extends to the same level as the annular projection 4 on the outer cylindrical wall 2, as shown in FIG. 6.

Under these conditions the closure cannot be removed intact from the bottle since the annular projection 15 on the rigid member prevents resilient deformation of the outer wall 2 of the main member, this deformation being necessary for removal of the closure from the bottle.

The tight fit of the closure is enhanced by bending of the radial tabs 3 which extend from the outer wall 2 of the main member 1.

During assembly, the tubular wall 14 of the auxiliary member 13 slides over the ridges 8, 9 in the clearance between the two coaxial walls of the main member 1.

In order to open the bottle, a forceful axial thrust is exerted downwardly on the central portion of the auxiliary member, more particularly on the top wall 16, in order to fracture the webs 18. The central portion formed by the top wall 16 and tubular wall 14 can then be displaced downwardly as shown in FIG. 7.

Under these conditions the annular projection 15 on the auxiliary member is no longer in register with the annular projection 4 on the flexible wall on the main member and the closure can be removed as a whole from the bottle by gripping the main member at its milled collar 10, 11 and manipulating it away from the container.

Fracture of the webs 18 reveals the fact that the closure has been opened, so that tampering with the container cannot pass unnoticed.

The closure may be used after the first opening for reclosing the container without, however, reestablishing the former safety closure conditions.

What I claim is:

1. A closure for a container having a mouth and a neck with an internal undercut, the closure comprising a main member of flexible plastics having a top flange adapted to seat on the container mouth and a stopper portion adapted to seat on the container neck, the stopper portion comprising an outer and an inner walls separated by a clearance, the outer wall being joined at its upper end to the top flange and at its lower end to the lower end of the inner wall, the outer wall having a shaped external circumferential projection adapted to engage in the undercut in the container; and an auxiliary member of rigid plastics comprising a top cover and a tubular wall connected at its upper end to the top cover and having at its lower end a shaped external circumferential projection; the tubular wall of the auxiliary member being adapted on closing of the container to extend into the clearance between the outer and inner walls of the main member to a position in which the circumferential projections on the main and auxiliary members register with one another to avoid removal of the closure; and on opening of the container to extend further into the clearance to a position in which the circumferential projection on the auxiliary member is located between the circumferential projection on the main member to permit removal of the closure.

2. The closure of claim 1 in which the top flange of the main member is formed with an upwardly open annular rebate and

the top cover of the auxiliary member is surrounded by an outer ring connected to the top cover by frangible web means, the outer ring being adapted to seat in the rebate in the top flange of the main member when the closure is fitted on the container, fracture of the frangible web means being necessary to allow the tubular wall of the auxiliary member to be forced further downward into the clearance between the outer and inner walls of the main member for removal of the closure.

3. The closure of claim 1 in which the outer and inner walls of the main member are provided on their surfaces defining the clearance with longitudinal ribs to facilitate sliding of the tubular wall of the auxiliary member in the clearance.

4. The closure of claim 1 in which the inner wall of the main member is closed at its upper end by a top wall.

5. The closure of claim 1 in which the circumferential projection on the outer wall of the main member is an annular bulge.

6. The closure of claim 1 in which the circumferential projection on the tubular wall of the auxiliary member is an annular ridge having a cylindrical outer surface.

7. The closure of claim 1 in which the top flange of the main member has a milled edge surface.

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