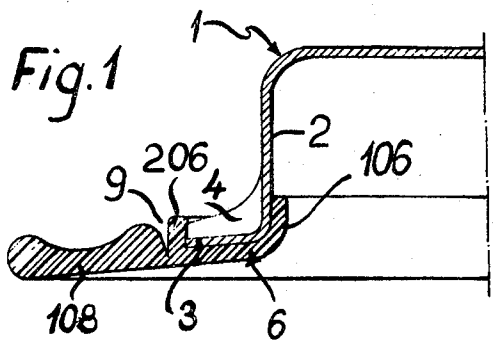
Jan. 13, 1970 A. PODESTA 3,489,308

CAP CLOSURE PROVIDED WITH SLIP-OUT SKIRT PACKING

Filed Dec. 20, 1967

Fig. 1



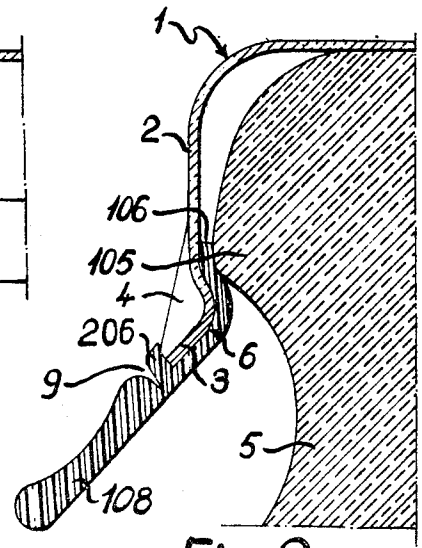


Fig. 2

Fig. 3

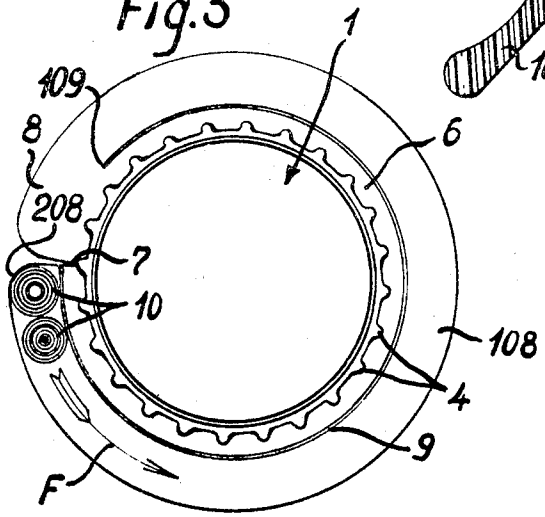


Fig. 5

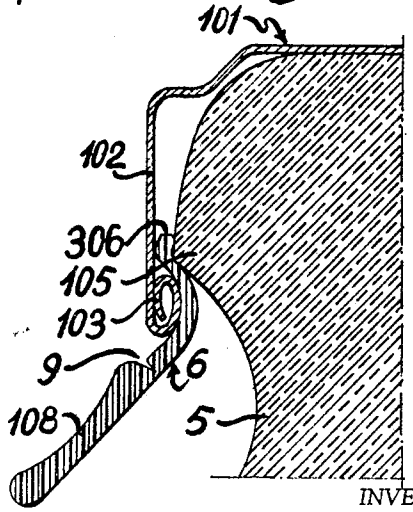
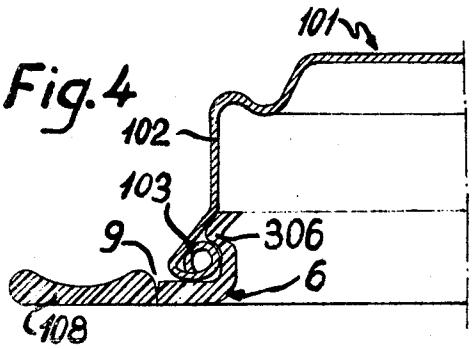


Fig. 4



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CAP CLOSURE PROVIDED WITH SLIP-OUT SKIRT PACKING

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Int. Cl. B65d 41/00, 41/22
U.S. Cl. 215—40 3 Claims

ABSTRACT OF THE DISCLOSURE

A closure cap provided with an annular packing member clamped between the cap skirt and the corresponding part of the container. The cap may be removed without the use of tools by simply slipping out the packing member. For this purpose the packing member is provided with a pulling extension or lap projecting out of the cap skirt.

This invention relates to cap closures for bottles and like containers and particularly to containers provided with a bead under the mouth, and particularly of the so-called crown caps or other caps which are anchored to the container by restricting a part of the skirt under said container bead.

The main object of the invention is to provide a skirt packing for said cap closures which, while greatly improving the tightness of the cap, is provided with means for permitting its slipping out from between the cap skirt and the corresponding container part and after the packing has been so removed, permits the removal of the cap without tools, due to the cap being loosely fitted on to the container mouth after the removal of the skirt packing.

According to the invention, the skirt packing is of the annular type, split or weakened in one position, in correspondence with a predetermined tear line, and provided with a lap or other means for gripping a part of the packing and pulling same out of the cap skirt.

According to a preferred embodiment of the invention, in order to reduce the size of the projecting grip lap, while providing a sufficient grip when the skirt packing has to be pulled out of the cap skirt, the grip lap proper is provided at the end of a packing strip extending around the major part of the exterior skirt packing and connected thereto by a tear line, whereby by seizing the grip lap and pulling same outwardly, first the exterior packing lap is detached from the skirt packing proper and then the detached packing strip having a sufficient length for constituting a sufficiently strong grip member, is employed for pulling out with a sufficient strength the skirt packing from beneath the cap skirt.

The above and other characteristic features of the invention will appear from the following specification of some preferred embodiments of the invention, which will be described with reference to the accompanying drawings, in which:

FIGURE 1 shows a radial section through one-half of a so-called crown cap provided with a skirt packing according to the invention, before applying to a bottle;

FIGURE 2 shows also in radial section the same cap shown in FIGURE 1, but after the crimping of its corrugated edge over the mouth of a bottle, also shown in vertical section;

FIGURE 3 is a plan view of a crown cap provided with the skirt packing according to the invention, after its fitting onto a bottle; and

FIGURES 4 and 5 show in radial section and in enlarged scale another type of closure cap provided with the skirt packing according to the invention, before and after of its edge all around a bottle neck, which is also shown in section in FIGURE 5.

With reference to FIGURE 1 of the drawing, **1** denotes a metallic closure cap, of the crown type, having a skirt **2** provided with a corrugated edge **3**, **4** projecting substantially radially from the skirt proper **2**.

Under the corrugated edge **3**, **4** of the cap a skirt packing **6** made of soft plastic material is fitted, which, in the embodiment as shown in FIGURE 1 has upstanding edges **106**, **206** which, together with the intermediate skirt packing section form a channel-like member which, when the cap is not applied to a bottle, remains clamped under the cap **1** and does not fall during its applying onto a bottle. This sticking of the skirt packing **6** to the cap **1** may be enhanced by applying within the channel-like member or under the corrugated cap edge **3**, **4** a mastic or putty.

When the cap is applied onto a bottle neck **5** whose mouth is provided with a projecting bead **105**, FIG. 2, it is anchored thereto by crimping over the projecting bead **105** the corrugated lower cap edge **3**, **4** so that the cap comes to be anchored onto the bottle mouth with a tight fit, so as to resist external and internal pressures and, as is apparent, the skirt packing **6** and prevalently its inner part **106** constitutes both a packing member and an intermediate anchoring member of the cap upon the bottle mouth.

The said skirt packing is provided with transversal slit **7**, or even with a corresponding weakening or tearing line, which however do not prejudice the tightness of the cap, due to the clamping action which is effected by the crimping of the cap edge **3**, **4** when anchoring the cap **1** to the bottle mouth **5**.

The skirt packing **6** is provided all around with an external lap **8** which is integral thereof. When, as shown, the lap **8** is short, it is provided with a lateral extension **108** which extends, from the side of the lap **8** opposite to the transversal slit **7**, circumferentially all around said packing **7** until it reaches again the transversal cut **7**, from the opposite side of lap **8**. Thus the lap **8** together with its side extension **108** form upon the annular packing **6** a flap which extends for almost 360° and projects externally of cap **1**, below the lower edge thereof and is interrupted in correspondence of the transversal slit **7**, as it appears from FIGURE 3. The circumferential extension **108** of the lap **8** is integral with both of lap **8** and packing **6** and may be detached only from this latter along a weakening and predetermined tearing line **9** which extends along almost the whole circumference of the packing **6**, from the point **109**, on the side of the lap **8** opposite to the transversal packing slit **7** circumferentially all around said packing **6**, until it reached the opposite side of the transversal slit **7**.

For opening the bottle thus closed the end **208** of the peripheral extension **108** of the lap **8** is seized and pulled so as to sever same from the packing **6** along the weakening line **9**, by progressively proceeding in the direction of arrow F all around the cap **1**, to the end **109** of the predetermined tearing line **9**, by the lap section **8**. When the lap extension **108** is severed from the packing **6**, it constitutes, together with the lap **8**, a very long and easily and strongly seizable means for slipping the packing **6** out, from between the corrugated cap edge **3**, **4** and the underlying annular bead **105**, by pulling said lap **8** and extension **108** downwardly. By this downward pull, the skirt packing **6** is slipped progressively out of its seat between cap **1** and container mouth **5**, **105**, by proceeding in a circumferential direction opposite to arrow F.

This pulling out of the packing **6** promotes the loosening of the cap **1** from the mouth **5**, in view of the fact that, as described above, the packing **6** constitutes the intermediate anchoring member of the cap **1** to the mouth bead **105**. Therefore, after the slipping out of the packing **6**, the cap may be removed manually from the bottle or

other container mouth, without effort and without the help of tools.

The end **208** of the circumferential extension **108** of lap **8** presents preferably seizing sections **10** having a non-smooth, and for example a rough, wrinkly, rifled, ribbed, shagreened or other surface, in order to ensure a strong gripping of said end **208**.

The embodiment as shown in FIGURES 4 and 5 corresponds substantially to that shown in FIGURES 1 through 3 as regards the construction and function of the packing **6** made of plastic material, equal or like parts being indicated by the same reference numerals. The essential difference consists in the realization of the closure cap and in the manner of anchoring same to the container mouth **5**. In fact, in the embodiment as shown in FIGURES 4 and 5 the skirt **102** of the metallic cap **101** is provided with a lower section **103** which is pre-coiled towards the interior and which, initially projects outwardly, as shown in FIGURE 4. The skirt packing **6** surrounds from the interior said pre-coiling **103** and presents a tooth-shaped part **306** which overlies the pre-coiled part **103** and thus connects the packing **6** to cap **101**. Cap **101** is fastened onto the container mouth **5** by radially pushing inwardly the lower pre-coiling **103**, either in a continuous or a discontinuous manner upon its circumference and in such a manner as to engage same from below against the outer annular bead of the container mouth **5**, with the interposition of the packing **6**, as shown in FIGURE 5. Also in this case the cap **101** is therefore anchored to the mouth so as to resist either against external or internal pressures and the packing **6**, being clamped between the anchoring coiling **103** of cap **101** and the bead **105** of the container mouth **5**, constitutes both a packing member and an intermediate anchoring member of said cap **101**. Furthermore the packing **6** is provided, also in this embodiment, with a transversal slit or a weakening and predetermined tearing line and the opening of the container mouth takes place in like manner as described, by progressively slipping the packing **6** out of its seat between cap **1** and mouth **5** by means of the pulling lap **8** provided one end of the packing sidewise of said slit.

According to another characteristic feature (not shown) of the invention, the packing **6** may constitute an integral part of an internal closure member (cap or plug) made of plastic material and fitted upon or inserted into the container mouth below the outer metallic cap **1**, **101**. In this case the packing **6** will be made in one piece with said internal closure member and will be detachable therefrom along a circumferential weakening or pre-determined tearing line. Particularly, the packing **6** and the pulling lap **8** integral thereto and provided or not with a circumferential extension **108** may be formed by the lower part of the skirt or an internal cap made of plastic material, or else by the outer top flange of an inside tumbler stopper, also made of plastic material. By the first opening of the container by slipping out of the packing **6** and taking away of the outer metallic cap **1**, **101**, as hereinbefore described, the packing **6** is torn away from the inside closure member and this may be employed for the successive closures of the container.

Of course, the invention is not limited to the embodiments as just described and as shown, but may be amply varied and modified, principally as to its construction. Thus for example, in order to obtain the slipping out of the packing **6**, this may be provided, on one or both its ends, sidewise of the transversal slit **7**, with a simple lap **8** having a sufficient length and without a circumferential extension **108**. On the other hand, this circumferential extension **108** of the lap **8** may extend for any desired angle around the packing **6**, and particularly for an angle less or even in excess of 360°, in which latter case the extension **108** of the lap **8** will extend spirally around the packing **6**. The method of opening according to the invention may be applied to any closure caps whatsoever, independently from their kind of anchoring to the container, provided it guarantees a tight closure which is resistant both to internal and external pressures and be effected with the interposition of an annular packing.

I claim:

1. A combination closure cap and packing adapted to be clamped onto a container having a beaded mouth, said combination comprising, a closure cap having a closed end, a skirt projecting from the closed end, said skirt having a cylindrical portion projecting from said closed end, said cylindrical portion having an out-turned flange extending from the free end thereof, a soft plastic skirt packing mounted on the skirt, said skirt packing comprising an annular packing portion carried on and in contact with the cylindrical and out-turned flange portions of the skirt, said annular packing portion being provided with a transverse weakened section through its annular cross section, a marginal lip portion extending integrally from the outer circumference of the annular packing portion, said marginal lip commencing at the transverse weakened portion and terminating at a point less than 360° therefrom, and said marginal lip having a circumferential weakened portion extending from its termination to a point short of the transverse weakened portion in the annular packing portion.

2. The invention as set forth in claim **1** and wherein the annular packing portion includes gripping means for securing the skirt packing to the skirt.

3. The invention as set forth in claim **2**, and wherein the gripping means for securing the skirt packing to the skirt comprises flange means on the annular packing portion to engage and grip the outer edge of the out-turned flange and the cylindrical skirt portion adjacent the out-turned flange.

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