April 15, 1952 E. M. SPRICH 2,593,358

PIVOTED LEVER CROWN CAP REMOVER

Filed April 5, 1949

FIG. 1

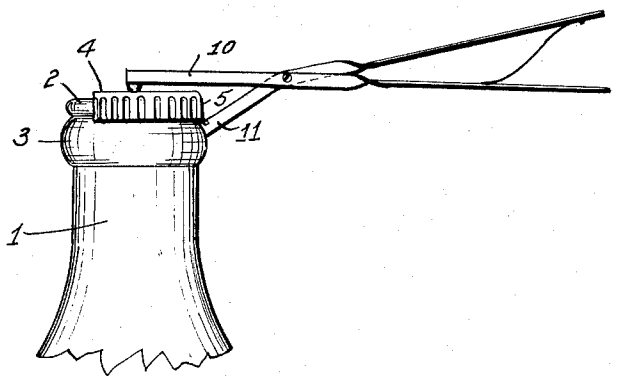


FIG. 2

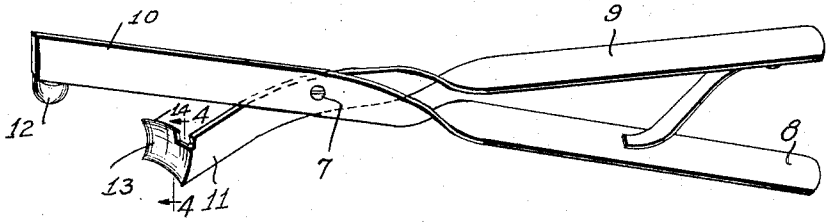


FIG. 4

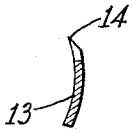
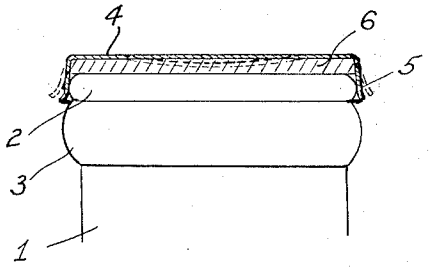


FIG. 3



INVENTOR
EMIL M. SPRICH
BY: Ben V. Zillman
ATTORNEY

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PIVOTED LEVER CROWN CAP REMOVER

Emil M. Sprich, St. Louis, Mo.

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3 Claims. (Cl. 81—3.46)

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My invention relates to improvements in bottle openers generally, but more especially to those bottles that are hermetically sealed with a crown type of cap, and has among its general objects the production of an opener that will be simple in construction and operation, relatively inexpensive, of few parts, that will be extremely safe in operation so as to minimize any injury to the hand of the operator during such removal, and that will be strong and sturdy, and which will be otherwise satisfactory and efficient for use wherever deemed applicable.

One of the principal objects of this invention is to so construct a bottle opener that slippage and accidental cutting, scratching and similar injury to the hand is minimized in the operation of uncapping a bottle.

Another important object of the invention is to devise an opener of this kind, that will seat firmly and snugly against the bottle neck, to permit of ready and easy operation of the opener so as to reduce the amount of manual effort ordinarily employed for such an operation.

An added object of my invention is to provide, in a bottle opener of the kind described, means for deforming the bottle cap so as to lessen its frictional engagement with the top end of the bottle, substantially simultaneously with the lifting operation of the cap, and to thereby reduce the effort needed to effect removal.

Yet another object of the invention is to so construct a bottle opener of the sort described, that will have means to engage between the bottle neck and the annular rim of the crown cap and which will substantially follow the contour of the bottle thereat, in the operation of lifting the removing tool, as to retain proper footing of the tool during operation of the same.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art to which this invention appertains, as will be more clearly apparent from the disclosures hereinafter given.

To this end, my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and as will be more clearly hereinafter pointed out in the claims that are appended.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure 1 is a side elevation of the tool as applied to a capped bottle;

Figure 2 is a perspective view of the tool itself;

Figure 3 is an enlarged sectional view of the bottle cap, both as it appears initially and as deformed by the tool to unseat the cap from its hermetic seal; and

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Figure 4 is a cross-sectional detail, taken substantially along the line 4—4 of Fig. 2.

Referring more particularly to the drawings, wherein I have illustrated a preferred embodiment of my invention, there is shown the upper portion of a well-known and universally used bottle whose neck portion is indicated at 1. These bottles are most often employed for cooled or refrigerated liquids, and need not be further described, except perhaps to add that they have a pair of radially projecting beads or rings 2 and 3, one immediately beneath the other, the upper bead or lip being at the terminal end of the bottle neck and the other ring merging into the topmost bead. The topmost bead 2 is known in the trade as the "crown finish" bead or lip, because of the fact that the crown cap is forced thereon to seal the bottle. The lower ring is somewhat wider than the top ring and acts as a reinforcing rib for the bottle thereat, as well as forming a limit stop against movement of the cap therepast.

The crown cap is a sheet metal stamping to have a covering or plate portion 4, bounded by an annular flange or rim 5 that is corrugated to permit of the necessary flexing of the rim in sealing, and may be provided with some sort of a resiliently compressible gasket fitted into the plate portion as indicated generally at 6.

It is not a rare occurrence to cut, scratch or otherwise bruise one's hand when using a tool to detach the crown cap from such a bottle, and the tool which is now to be described is designed principally to avoid such accidents, as well as to make opening easier.

The tool is so constructed as to engage the cap at substantially its central portion, inwardly from its neck-engaging edge, and to engage the rim of the cap and act as a wedge between said rim and the adjacent neck portion of the bottle.

Such a tool may be made in two parts, if so desired and as shown most clearly in Fig. 2, each member having a jaw at one end and a handle at the other end, said members being pivotally interconnected at 7 intermediate their ends.

The tool parts or members have their trailing ends to form handles 8—9, for operating the tool, the jaw element of one such member being indicated at 10 and the cooperating jaw of the other member being indicated at 11.

Said jaw elements have protuberances or projections 12 and 13, respectively, directed toward

one another somewhat as shown, the protuberance 12 on the jaw 10 being at a greater distance from the pivotal axis of the tool than is the projection 13, so that as the latter abuts against the neck of the bottle immediately below the cap, the other projection 12 will engage against approximately the central portion or area of the cap, the latter projection being sufficiently smaller than the diameter of the cap to enable the cap to be distorted or deformed downwardly into the mouth of the bottle somewhat as indicated diagrammatically in Fig. 3.

The projection 13 is preferably in the shape of a flange whose bottle-contacting face is curved not only in the same curvature as the ring 3 at its engagement with the same, but is curved in the vertical direction too, so that the face of the projection or flange 13 will have substantially the same contour as that of the ring 3.

The upper edge of the projecting flange is tapered in thickness or sharpened at 14, and this flange is of a relatively extended bearing about the periphery of the ring 3 so that when the flange is applied against said ring, there is ample seating engagement therebetween to better anchor the tool thereat and minimize slippage.

In operation, the jaws of the tool are applied to the bottle, so that the undermost jaw is in the space between the rim of the cap and the ring 3, immediately below the cap, while the projection 12 bears on approximately the central area of the top of the cap. Pressure is applied to the tool so that the last-mentioned protuberance presses downwardly on the cap to deform or distort the metal thereof, to form it into the shape as indicated generally in dotted lines in Fig. 3 wherein it will be noted that the rim of the cap is sprung away from the bead or ring 2, to thereby break the hermetic seal, this deformation being anywhere from several thousandths of an inch upwardly.

At about the same time, so as to be substantially simultaneous therewith, the knife edge of the lower jaw acts as a wedge element to work upwardly between the annular rim of the cap and the adjacent ring, to jack it off its seat, said knife flange riding firmly on the short travel on the lower ring required for this stripping of the cap, the lifting together of the handles of the tool completing the removal of the cap clear of the bottle.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the

spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, arrangement, combination and shape of the parts, except is limited by the state of the art to which this invention appertains, and by the claims hereunto appended.

What I claim as new and desire to secure by Letters Patent is:

1. A tool for moving a bottle cap of the crown type and comprising a pair of cooperating movably interconnected elements an end of one of which engages with the central area of the cap and the end of the other element having a sharpened edge positioned to engage between the bottle and the rim of the cap, and handles on said elements for moving said ends together in unison against said cap to remove the latter.

2. For a bottle having a neck with a crown finish to receive a crown type cap thereon, and with a reinforcing bead immediately therebelow, a tool for removing said cap therefrom and comprising a pair of movably interconnected jaws one of which has a sharpened edge projecting upwardly beyond the adjacent portion thereof to wedge between the bottle and the rim of said cap and of a curvature circumferentially of said bead substantially equal to that of said bead so as to seat snugly thereagainst, and the other jaw engageable with the top of the cap approximately at its central area.

3. For use with a bottle having a neck with a crown finish bead and a reinforcing ring immediately therebelow and adapted to be sealed with a crown type cap, a tool for removing said cap and comprising pivotally interconnected upper and lower jaw means, said upper jaw means to engage and distort the cap to expand the same to loosen it from its seat, and said lower jaw means projecting upwardly beyond the adjacent portion thereof, for wedging between said cap rim and said ring, whereby tilting of said tool upwardly will removably lift said cap.

EMIL M. SPRICH.

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