July 11, 1950 C. CAPRICCIO 2,514,566

BOTTLE CAP REMOVER AND APPLICATOR

Filed Oct. 16, 1946

Fig. 1

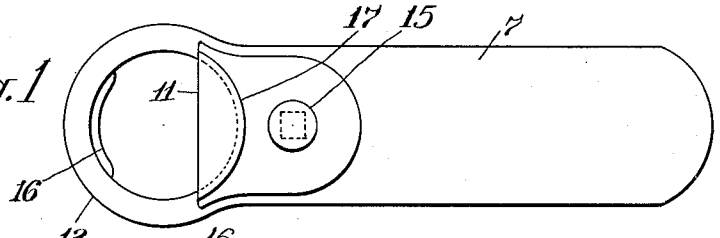


Fig. 2

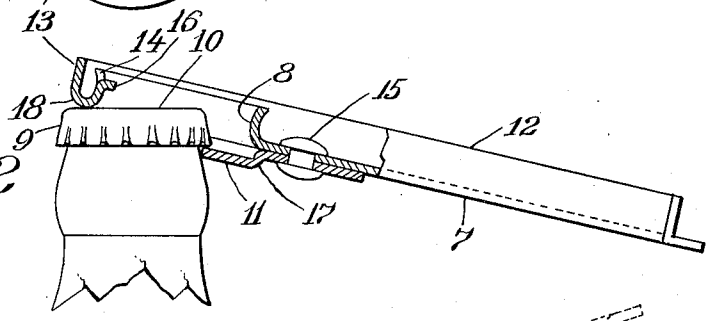


Fig. 3

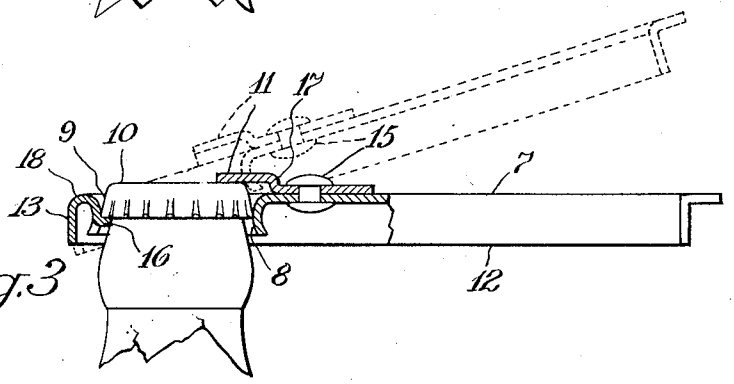


Fig. 4

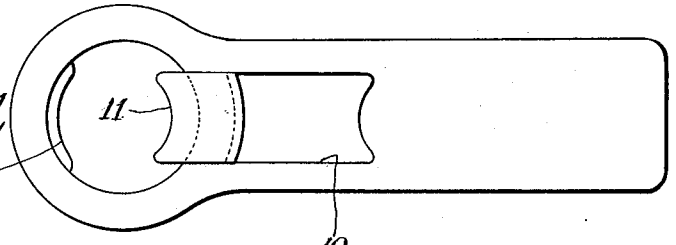
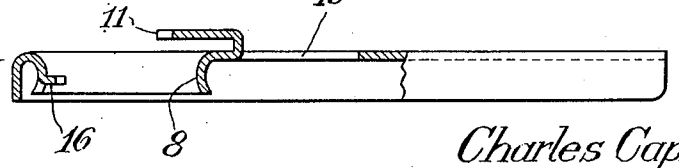


Fig. 5



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BOTTLE CAP REMOVER AND APPLICATOR

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3 Claims. (Cl. 226—84)

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The invention here disclosed relates to devices for removing bottle caps, and one of the principal objects of the invention is to provide a device of this character which will remove a bottle cap without injuriously bending the same, and which may be used to conform and reapply the cap in close sealing engagement with the bottle.

Special objects are to provide a tool of this character which will be of relatively simple, inexpensive construction and easily operable both to remove and to reapply the cap.

Other desirable objects and the novel features of construction through which the purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates certain practical embodiments of the invention. The structure, however, may be modified and changed as regards the present illustrations, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a plan view of the combination tool;

Fig. 2 is a side elevation and part sectional view illustrating the tool as in use in removing a bottle cap;

Fig. 3 is a similar view showing the tool reversed and used in applying a bottle cap;

Figs. 4 and 5 are plan and broken sectional side views, respectively, of a modified form of the invention.

As shown in the several views, the device consists of a lever handle 7 having a truncated conical socket 8 in one end, of a size and shape to fit down over the flange or skirt portion 9 of a bottle cap 10 and provided, at the side opposite the wider, open end of the socket, with a claw 11 projecting into the circular contour of the socket far enough to engage beneath the edge of a cap flange.

The lever 7 may be formed of sheet metal with angularly turned edge flanges 12 stiffening the same, and these flanges may be extended in a circular continuation 13 about the end of the handle and about the circular socket 8.

The conical, cap conforming wall of the socket may be provided by forming the material of the head in a circular bange 14 inside and substantially coaxial with the rounded edge flange 13 about the end of the lever. This provides a stiff and strong head structure in relatively light gauge metal.

The convergent cap conforming flange 14 is

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shown as smoothly rounded in cross section to apply a smooth rolling flange closing pressure on the cap adapted to gradually close the cap flange about the bead of the bottle neck.

The claw 11 may be applied as a separate piece riveted or otherwise secured at 15 to the lever handle. If a rivet is employed, this may be of square or angular cross section to prevent the claw from twisting on the handle.

To assist in the cap closing action the wall of the socket, at the far end of the lever and at the opposite side from the claw, is shown as having an inwardly extending lip or ridge 16 which will engage beneath the cap flange to serve as a fulcrum when the tool is being used for squeezing the cap down in place on the bottle neck.

For effecting the re-sealing operation the cap may be pressed by hand over the neck of the bottle. It is thus positioned and lightly held ready for application of the closing tool. The fulcrum lug 16 projecting as it does into or within the boundary of the closing socket, practically makes it necessary to apply the tool in the right way, that is, in the downwardly inclined relation indicated by the broken lines in Fig. 3, so as to locate the lug beneath the edge of the cap flange. In so locating the tool that portion of the socket adjacent the lug will apply pressure to the flange and thus start the action of closing the flange into holding engagement with the bead of the bottle neck. Thus, before the lug actually is used for fulcrum purposes the cap is initially gripped to the bottle neck and therefore ready to serve as a fulcrum as the tool is rocked downwardly into the full line position. As the action progresses the cap is gradually and progressively more securely gripped to the bead and consequently is put into condition to serve as a stronger fulcrum as the need for such strength arises. That is, as more pressure is required to accomplish the progressive and final closing action the fulcrum strength is there for application of the required flange closing force.

The claw 11, as appears in Fig. 2, is offset from the flat plane of the lever, at 17, sufficiently to engage beneath the edge of the cap flange when the circular end portion of the lever is rested on top at the far side of the cap.

In such relation this circular and somewhat rounded end portion of the lever at 18 forms an arcuate fulcrum bearing on the rim of the cap. The arcuate extent of engagement and the fact that this fulcrum bears on the reenforced flange portion of the cap, prevents deformation or injury to the cap when lifting force is applied.

The extension of the cap lifting claw into the circular outline of the cap socket, the offset of the claw at 17 and the location of this claw opposite the fulcrum lip 17, all contribute to enable the claw to serve as a stop, in the act of applying the cap, Fig. 3, preventing downward movement of the tool beyond that required to fully close the cap flange about the bottle neck. This is important to prevent crushing of the corrugated portion of the flange and to prevent the cap closing socket from rocking down below the edge of the flange where it might catch and interfere with free removal of the tool from the recapped bottle.

Figs. 4 and 5 show how the lifting claw 17 may be made as an integral part of the lever handel by cutting the material for it out of the top of the handle at 19 and then bending it, as shown, substantially to the conformation of the claw, as previously described.

While the tool may be produced inexpensively in sheet metal, it is contemplated that it may be molded, die cast or otherwise formed.

In this invention injury to the cap is avoided by constructing the tool to fulcrum over the flange reenforced rim of the cap at the far side from the lifting claw, as indicated in Fig. 2. By such removal the cap is in effect sprung over the bead of the bottle neck by a simple stretching and more or less uniform expansion of the cap flange.

After such removal the cap is in condition to be easily pressed down over the bead of the bottle neck. Then the tool, reversed to locate the flange contracting socket over the cap, may be pressed down on the cap in the inclined position indicated in broken lines, Fig. 3, to start the flange closing action and to carry the fulcrum ledge 16 down into engagement beneath the edge of the cap flange. When thus located over the cap the lever may be fulcrumed downward about the center 16 to the full line position shown, in which movement the tapering socket formed by the convergent flange 14 gradually and progressively closes the flange of the cap inwardly about the bottle neck. As this action proceeds the cap becomes locked the more securely, enabling heavier pressure to be applied if or as that may become necessary to fully close the securing flange.

In some instances the contraction of the securing flange is made more complete by pressing the lever down over the cap in one position and then rotating the lever to different positions over the cap and applying the closing pressure.

Gradual closure of the cap flange over the bead of the bottle neck avoids deformation or injury to the cap, accomplishes a firm, secure, gas-tight seal and leaves the cap in a smooth, symmetrical condition, in which it can be readily removed again, and again be replaced.

The cap closing socket 8 being open through both sides of the lever, affords full view in both the cap removing and cap applying operations, enabling a person to use the tool to best advantage and permitting a person to apply finger pressure to the cap when desired, as in the act of placing the tool to start the flange closing operation—the dotted line position in Fig. 3.

The flare of the tapered cap contracting socket may be gradually widened and deepened from the outer, fulcrum side toward the inner, leverage applying side of the socket, to facilitate easy engagement and contracting action over a more or less opened or spread bottle cap.

What is claimed is:

1. The herein disclosed tool for re-sealing a bottle cap, comprising a bottle cap closing socket sized to constrict the flange of a bottle cap into holding engagement with the bead of a bottle neck when forced down over a cap seated on a bottle neck, a leverage applying handle extending from one side of said bottle cap closing socket and a fulcrum at the opposite side of said bottle cap closing socket projecting radially inward of the boundary of said socket and positioned to engage beneath the edge of the flange of a cap seated on the bottle neck when the closing socket is lowered over the cap in inclined position with said fulcrum lug lowermost and whereby said lug will then serve as a fulcrum to enable said handle to be rocked as a lever to force the cap closing socket downward in flange contracting engagement over the cap.

2. The herein disclosed tool for re-sealing a bottle cap comprising a cap closing socket sized to contract the flange of a bottle cap into holding engagement over the bead of a bottle neck, a fulcrum lug projecting from the periphery of said socket radially inwardly into said socket at one side and positioned to engage beneath the flange of a bottle cap when lowered in inclined relation over the top of such a cap seated on a bottle neck and a leverage extension projecting from said cap closing socket for rocking the said socket from the inclined position with the lug engaged with the bottle cap flange to thereby utilize said lug as a fulcrum while applying the force required to cause the socket to close the flange of the cap into holding engagement with the bead.

3. The herein disclosed tool for re-sealing a bottle cap comprising a cap closing socket sized to contract the flange of a bottle cap into holding engagement over the bead of a bottle neck, a fulcrum lug projecting into said socket at one side and positioned to engage beneath the flange of a bottle cap when lowered in inclined relation over the top of such a cap seated on a bottle neck and a leverage extension projecting from said cap closing socket for rocking the said socket from the inclined position with the lug engaged with the bottle cap flange to thereby utilize said lug as a fulcrum for applying the force required to cause the socket to close the flange of the cap into holding engagement with the bead and means for limiting said rocking flange closing movement of the cap closing socket about the fulcrum center provided by said lug and including a lug projecting over the end of the socket substantially diametrically opposite said fulcrum forming lug, engageable with the top of the cap to limit the rocking cap flange contracting movement of the socket.

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