July 6, 1943. H. D. PENNEY 2,323,621

TOOL FOR UNSEALING CROWN BOTTLE CAPS

Filed Jan. 14, 1942

Fig. 4.

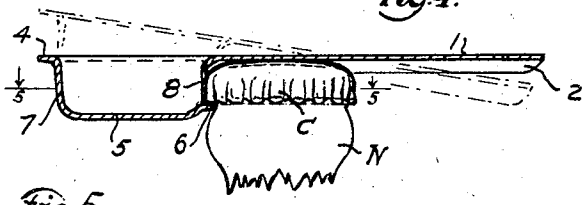


Fig. 5.

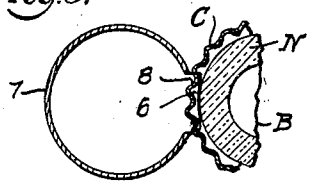


Fig. 1.

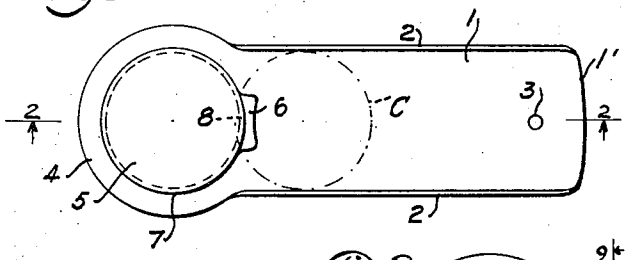


Fig. 3.

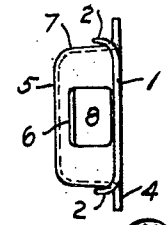


Fig. 2.

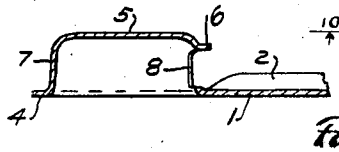


Fig. 8.

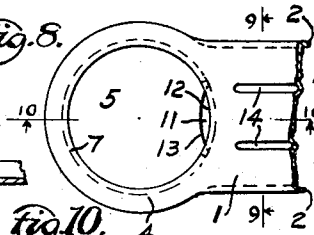


Fig. 9.

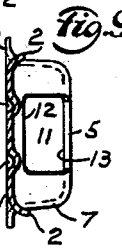


Fig. 10.

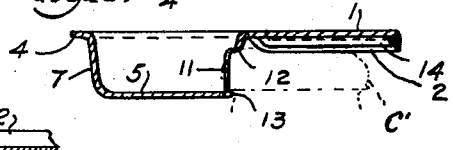


Fig. 7.

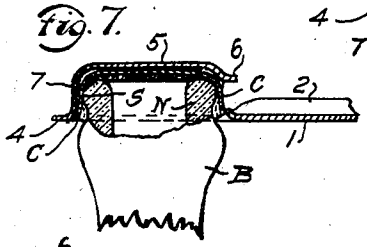
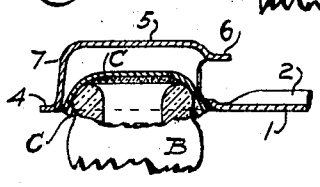


Fig. 6.



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UNITED STATES PATENT OFFICE

2,323,621

TOOL FOR UNSEALING CROWN BOTTLE CAPS

Harold D. Penney, deceased, late of Pelham, N. Y., by Elizabeth Penney, executrix, Stamford, Conn., and Clarence S. Jackson, Brooklyn, N. Y.

Application January 14, 1942, Serial No. 426,764

2 Claims. (Cl. 81—3.46)

The present invention relates to an improvement in beverage containing bottle or can cap removing devices, and is especially directed to devices for removing so-called crown caps from such containers.

A particular object of the invention is to provide a cap removing device which will remove the bottle cap without distortion whereby after a cap is manually removed from the bottle, with only a part of the beverage removed therefrom, the cap may be firmly manually resealed upon the bottle neck and thus preserve the unused contents for later use. This latter feature is particularly valuable in the case of carbonic charged beverages, as it prevents the beverage from going flat. The device may also be adapted for the resealing.

Another object of the invention is to provide a device of this kind which is efficiently guided to cap-removing position.

Other objects are to provide a strong, light weight cap remover which may be economically manufactured and easily and efficiently manipulated.

Simplicity of construction, and other features of advantage will be apprehended as the herein description proceeds, and it will be obvious that modifications may be made in the structure herein, or in the scope of the appended claims, without departing from the spirit thereof.

In the drawing,

Fig. 1 is a plan view of the present cap lifter and sealer, hereinafter to be noted as a cap tool;

Fig. 2 is a fragmental sectional view, taken on the line 2—2, Fig. 1, looking in the direction of the arrows;

Fig. 3 is an end view of Fig. 1;

Fig. 4 is a longitudinal sectional view of the cap tool showing it in cap pulling position in connection with a capped fragmentary bottle neck;

Fig. 5 is a fragmentary sectional view taken on line 5—5, Fig. 4, looking in the direction of the arrows;

Fig. 6 is a partial fragmentary sectional view of a cap tool and a cap on a fragmentary bottle neck, with the cap tool in the act of resealing the previously removed cap;

Fig. 7 is a view similar to Fig. 6, with the cap fully resealed on the bottle neck;

Fig. 8 is a fragmentary bottom view of a modified form of cap tool;

Fig. 9 is a transverse sectional view of Fig. 8 taken on the line 9—9, Fig. 8; and

Fig. 10 is a sectional view taken on line 10—10 Fig. 8, looking in the direction of the arrows.

Briefly described, the cap tool made of a sheet metal stamping comprises a handle portion 1, a plain handle end 1', the opposite end of the handle being formed with a circular flange 4 which is in plane with the handle surface and a drawn cup comprising a drawn circular inner portion 7 and a bottom 5. For imparting leverage strength to the handle portion 4, against leverage forces to be met with, the side edges are bent out of plane to form reinforcing flanges 2—2, said flanges also providing side guiding channels for the corrugated bottle cap C, as indicated at C, Fig. 1, and may merge into the edges of the adjacent flange 4.

In order to provide means for unsealing the cap from the bottle neck, and as illustrated fully in Figs. 1, 2, 3, 4 and 5, a bottle cap edge engaging ledge 6 is struck out from the side wall 7, said ledge being parallel with the plane of handle 1, but spaced just far enough away therefrom, as illustrated in Fig. 4, to permit the cap to contact flatly with the underface of handle 1, and to permit the engagement of the edge of the crown of the cap C as at 6, Fig. 4, whereby the tilting of the cap tool, as shown in dotted lines, in Fig. 4, will lift the cap C from its sealed engagement with the bottle and thereby lift the cap cleanly from its sealed seat. This action removes the cap perfectly from its sealed engagement, without any distortion of the cap proper. In other words, the cap is not "broken" across its top diameter, and its top and spot are left in perfectly flat condition for resealing, as the cap top is not bent, and only its crown or corrugated sealing edge is expanded enough to permit disengagement with the bead. The metal cap C, being somewhat resilient, comes off of its seat with little or no edge deformation, as it contracts, partially, to its original bottle bead engaging dimensions, all of which assist in a perfect manual reseal of the cap for an indefinite number of times.

In the above described operation of cap removal, the crowned or corrugated edge becomes slightly oval, which is compressed again into a true circular engagement with the bottle sealing bead S, when resealed by the cup 4—5—7.

The ledge 6 is blanked out of the circular rim 7, and this leaves an aperture 8 in the adjacent section of the wall 7, best shown in Fig. 2.

A slightly modified form of cap lifter is shown in Figs. 8, 9 and 10. In this modification no extended lifting ledge, like 6, is utilized. In-

stead, an aperture 11, Fig. 9 is blanked in side wall 7, central of the handle flanges 2—2 of handle 1, leaving two spaced edges 12 and 13. The edge 13, may be curved or straight, Fig. 8, and this constitutes the equivalent of the ledge 6, in that it forms a bottle cap edge engaging and lifting ledge, the cap shown dotted, Fig. 10, at C, whereby the cap C, may be slid partially into the contour of the cup 4—5—7, as at 13, Fig. 10, and the cap lifted as described for Fig. 4. Resealing takes place as previously described.

In order to enable the cap to contact, within its dimensions with the lifting edge 13, which is flush with the bottom 5 of the cap 4—5—7, a plurality of indented beads 14 are stamped into the handle 1, Figs. 8, 9 and 10, so that the top of the cap C, Fig. 10, will contact therewith, and cause lifting engagement of the cap edge as at 13, Fig. 10. These beads also reinforce the handle against bending under leverage of cap lifting.

The cup wall 7 being cylindrical provides a much stronger support for the ledge 6 or 12 on the flat handle 1 than would a merely straight wall; and the annular flange 4 helps to strengthen the wall 7.

The struck out portion 6 (Fig. 7) integrally joins said wall approximately at the bottom of the cup, and is disposed substantially parallel to the flat handle and forms a strong narrow ledge extending from margin to margin and having a concaved cap-engaging edge. This ledge 6 and the edge 12 (Fig. 10) are accurately spaced slightly more than cap depth from the plane of the flat handle so that when said ledge or edge is under the edge of the bottle cap, the flat handle will rest on the cap throughout its top face.

The side flanges 2 are turned toward the plane of the bottom slightly more than cap width distance apart and extend to the annular flange 4 and having the multiple function of bracing the annular flange 4 and the cup, strengthening the handle 1 and guiding the cap along the axis of the tool to the margins of the cut out 8 and to the ledge 6 or edge 12 and balancing the tool on the cap during unsealing. The flat handle engages flat against the entire top face of the cap top at all times during unsealing and serves as a flat fulcrum on the cap to avoid cap-distortion during unsealing, to maintain the cap undistorted and in condition for resealing.

Said annular flange 4, wall 7 and bottom 5 serve the function of strengthening the connection between the ledge 6 or edge 12 and the handle 1. The cap top is held flat against the handle 1 while guided by the flanges 2 and engaged between the handle and the ledge 6 or edge 12. The cap top may engage flat against the flat handle at all times as and after it moves to the edge 12 or ledge 6.

The cup-wall 7 may have any diameter and shape which permits the above new functions, or any other suitable diameter or shape. If the cup is deeper than the cap and if the wall 7 tapers toward the bottom 4 and has a diameter to tightly receive the cap, the tool may be used for tightly resealing the caps into tight bottle-head sealing engagement with the bottle neck N, simultaneously resetting the expanded crown edge of the cap into firm engagement under the sealing bead S of the bottle, making a leak proof seal, as illustrated in Fig. 7.

It is to be noted that, when the device is in position to remove the cap as shown in Figure 4, the cup 5 opens upwardly so that one using the device may insert a finger or thumb in the cup and hold the tool against any movement laterally or longitudinally and to force the lug 6 firmly under the edge of the cap and there hold it while tilting the device to remove the cap, the flanges 2 preventing lateral movement of the tool should the finger tend to move the cup laterally. Thus the cup forms what may be termed a finger receiving socket while removing the cap and cooperates with the flanges 2 and remainder of the device during the operation of cap removal to insure that the cap be not distorted.

This application is a continuation in part of the application of Harold D. Penney and Clarence S. Jackson, Serial No. 195,944 filed March 15, 1938.

The invention claimed is:

1. A sheet metal tool for unsealing crown bottle caps, said tool comprising a flat handle and a cup at one end of the handle having its wall joining the cup bottom and said handle; the cup wall having an opening confronting the handle, the cup having near the opening and the cup bottom a cap-removing edge transverse to the handle and spaced slightly more than cap-depth from said handle and parallel to the plane of the handle; said handle being provided with side flanges disposed substantially cap-width distance apart turned toward the plane of the cup bottom and extending to near the cup to guide said cap-removing edge to the cap while the flat handle is flat against the top of the cap, and during unsealing to position said cap-removing edge under the edge of the cap and prevent lateral movement of the tool at the cap; the flat handle during unsealing engaging the entire top face of the cap while thus positioned by the flanges and serving as a flat fulcrum-engaging part on the cap to avoid cap-distortion during unsealing.

2. A sheet metal tool for unsealing bottle caps, said tool comprising a flat handle, and a cup at one end of the handle surrounded by an annular flange in the plane of the handle, the cup comprising a wall joining the cup bottom and said handle; the cup wall adjacent to the longitudinal axis of the tool being struck out to provide a substantially rectangular opening about as long as half the cap diameter and extending to near said plane and bottom and having side margins approximately perpendicular to said plane, and a ledge extending from margin to margin of the opening and having a cap-engaging edge spaced slightly more than cap depth from said plane parallel thereto; said handle having side flanges turned toward the plane of said bottom slightly more than cap-width distance apart and merging into the annular flange and having the multiple function of bracing the annular flange and the cup, strengthening the handle and guiding the cap to said axis, margins and edge, thereby to balance the tool on the cap and position the cap to said edge and margins during unsealing; the flat handle during unsealing engaging flat against the entire top face of the cap during unsealing and serving as a flat fulcrum on the cap to avoid cap-distortion during unsealing; said annular flange, wall and bottom cooperating to strengthen the connection between said edge and handle.

ELIZABETH PENNEY,
Executrix of the Last Will and Testament of Harold D. Penney, Deceased.
CLARENCE S. JACKSON.