Beer and soft drinks, which are often carbonated, are usually packaged in bottles. These bottles are customarily sealed by a cap which has a convexly crowned center portion and a downwardly extending cramped flange which engages the bottle. It frequently happens that a person does not wish to consume all the contents of a bottle. In such cases, it is desirable to have at hand means for recapping or closing the bottle. If the cap has not been distorted, when it was removed from the bottle, the cap itself can be used to resell the bottle.

It is an object of my invention to provide means for removing the cap from the bottle without distorting the cap, so that the cap may be used to resell the bottle. Such means comprise a pair of pliers having a pair of jaws which are pivoted together. One of these jaws is adapted to engage the top of the bottle. The other of these jaws is adapted to engage the side of the flange of the cap and to extend along the cap over an arc of more than 180 degrees and not substantially less than 90 degrees. By the provision of such a jaw, the cap is pried off the bottle without distortion and, therefore, the cap may be re-used.

The various features of novelty which characterize this invention are pointed out with particularity in the claim annexed to and forming a part of this specification. For a better understanding of the invention, however, its advantages and specific objects obtained with its use, reference should be had to the accompanying drawings and descriptive matter in which is described a preferred embodiment of the invention.

In the drawings:
Figure 1 is a perspective view of a bottle opener according to my invention.
Figure 2 is a side-elevation with the cap and the upper portion of the bottle shown in dashed lines.
Figure 3 is a top or plan view with the cap shown in dashed lines.
Figure 4 is a view in side elevation on an enlarged scale of a portion of the lower jaw.
Figure 5 is a view in side elevation of an enlarged scale of a portion of the lower jaw forming a modification of my invention.

In that embodiment of my invention selected from among others for illustration in the drawings and description in the specification, there is shown a bottle generally indicated at B and having a crown finish head BB and a reinforcing ring R. The cap or closure for this bottle is generally indicated at C and has a convexly crowned center portion T and a downwardly extending cramped flange F which engages the crown finish bead BB on the bottle.

The means for removing cap C from bottle B comprises a pair of pliers. A first lever, designated I as a whole, has, at one end, a hand-engaging portion 2 and a generally rectangular opening 3 through it intermediate the ends thereof and a first jaw at the opposite end. This first jaw has an arcuate vertical surface 4 at its outer end. Surface 4 is adapted to engage the reinforcing ring R of the bottle B. This first jaw also has a flat horizontal surface 6A adjacent said vertical surface 4 and adapted to engage the underside of the cramped flange F. The first jaw thinly has a pair of arcuate vertical surfaces 5 and 5A adjacent said horizontal surface 6A and spaced from and parallel to that vertical surface 4 which engages the reinforcing ring R. Arcuate vertical surface 5A is adapted to engage the rim of the cramped flange F.

The engagement between the surface 4 and reinforcing ring R and between surface 5A and the rim of flange F extends over an arc of not less than ninety degrees.

The pliers also comprise a second lever, generally indicated at 7, having, at one end, a hand-engaging portion 8. The intermediate portion 9 of the second lever 7 is locked in the opening 3 through the first lever 1 by a hinge pin 12 which permits free, rocking movement of the first and second levers about the hinge pin as a pivot by engagement of the hand of the user of the pliers with the hand-engaging portions 2 and 8 thereof.

Second jaw 7 has a flat, vertical surface 10 confronting and spaced from the vertical surfaces 4 and 5A of first jaw 1. Surface 10 is adapted to engage the side wall of the bottle closer C. Second jaw 7 also has a flat, horizontal surface 11 confronting and spaced from the flat surfaces of first lever 1. Surface 11 engages the top T of bottle closer C over an arc of not less than thirty degrees.

If desired, second lever 7 may be given a decorative configuration, such as the shape or outline of a Scotty dog, as shown in the drawings.

The operation of this opener for removing a bottle closure C from bottle B is as follows. The bottle B is grasped firmly in one hand and held with its bottom in engagement with a horizontal surface. The other hand holds the opener, comprising the pair of pliers. The opener is advanced toward the bottle until the vertical surface 4 engages the side of the reinforcing ring R and the vertical surface 5A of first jaw 1. Since the bottom of bottle may be pressed firmly against a horizontal surface and the opener may be pressed firmly against the sides of the bottle, the opener is located exactly in the right position and a firm support for its operation is provided. The fingers of the hand of the user in engagement with the hand-engaging surfaces 2 and 8 are then lifted toward hand-engaging portion 2 and cause the second lever 7 to turn about pivot 12. This turning movement causes the jaws to move relative to each other while still located accurately with respect to bottle B. Closure C is thus removed from bottle B with a minimum of distortion. The cap or bottle closure C, therefore, is available immediately to seal up any contents of the bottle B which are not used when the bottle is opened first.

It is my opinion, based on experiments with bottle caps and pliers made in accordance with this specification, that the reason that the pliers of my invention are able to remove the caps from bottles without distorting the caps is this. The lower jaw engages a substantial portion of the circumference of the flange on the bottle cap. By substantial portion, I mean not less than ninety degrees. The horizontal and vertical faces on the upper jaw also engage a substantial portion of the circumference of the side of the flange and of the top of the bottle cap. By substantial portion, I mean in this instance not less than thirty degrees. Moreover, these horizontal and vertical faces on the upper jaw are at an angle of substantially ninety degrees to each other. This permits the bottle cap to pivot about the corner between these vertical and horizontal faces as the cap is removed from the bottle.

At the same time, the arcuate length of the contact surface between the upper surface of the lower jaw and the lower face of the flange on the cap is so large that the
outer edge of the flange is gently spread away from the bottle and permits the crown finish bead to slip from under the edge of the flange without extending the flange beyond its elastic limit at any point. Since the flange has not been stretched or bent beyond its elastic limit, the flange returns to its original, unbent shape. In this condition the cap can readily be reapplied to the bottle by hand or other convenient means. When so reapplied the cap will seal the contents of the bottle as well as it could do when first applied.

Figure 5 shows a modification of this jaw in which the horizontal surface 6A and the vertical surface 5A are omitted. This results in a simpler structure in that the vertical surface 5 engages with the reinforcing ring R on the bottle B or the edge of the bead BB on the bottle and flat surface 6 engages with the undersurface of the flange F on the cap C. This simplified form is perfectly satisfactory.

While in accordance with the provisions of the statutes, I have illustrated and described the best form of the invention now known to me, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from the spirit of the invention as set forth in the appended claim, and that in some cases certain features of the invention may sometimes be used to advantage without a corresponding use of other features.

What I claim as new and desire to protect by United States Letters Patent is:

An opener for use with a bottle having a neck with a crown finish bead and a reinforcing ring immediately therebelow and a bottle closure having a convexly crowned center portion and a downwardly extending crimped flange, said opener comprising, a first jaw having at one end a hand-engaging portion and having at the other end a first jaw and having an opening therethrough intermediate said ends, said first jaw having at its outer end an arcuate vertical surface adapted to engage the reinforcing ring of the bottle and a flat horizontal surface adjacent said vertical surface and adapted to engage the under side of said crimped flange and an arcuate vertical surface adjacent said horizontal surface and spaced from and parallel to said reinforcing-ring-engaging vertical surface and adapted to engage the rim of said crimped flange, said surfaces of said first jaw engaging said bottle and said bottle closure over an arc of not less than ninety degrees, a second lever having at one end a hand-engaging portion and having at the other end a second jaw and having an intermediate portion adapted to be located in the opening through said first lever and to permit free rocking movement between said levers, said second jaw having a flat, vertical surface confronting and spaced from the vertical surfaces on said first jaw and adapted to engage the side wall of the bottle closure and having a flat horizontal surface confronting and spaced from the flat surfaces of said first lever and adapted to engage the upper surface of the bottle closure, said surfaces of said second jaw engaging the bottle closure over an arc of not less than thirty degrees and a hinge pin connecting said first lever and said second lever together to form a pair of pliers which can be turned about said hinge pin as a pivot by the engagement of the hand of the user with said hand-engaging portions.

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