Feb. 1, 1966 P. BEHN 3,232,146

CAP REMOVER WITH CONTAINER

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FIG.1

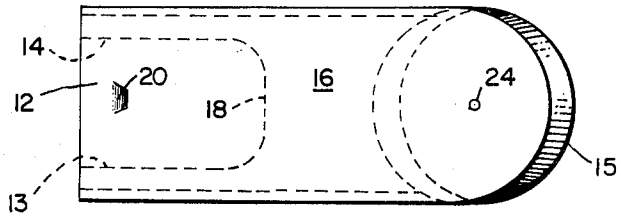


FIG.2

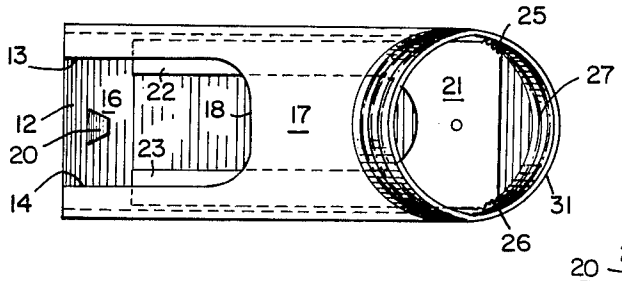
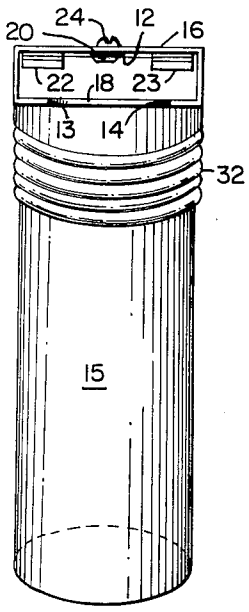


FIG.4



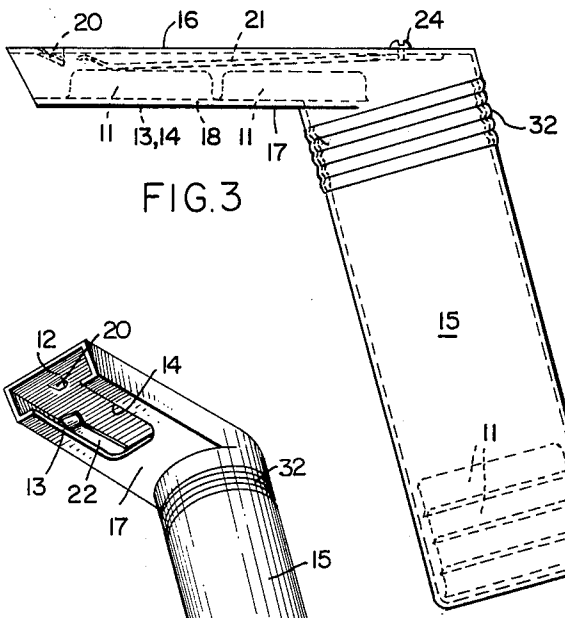


FIG.3

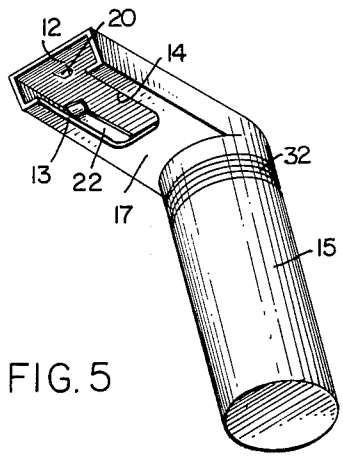


FIG.5

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CAP REMOVER WITH CONTAINER

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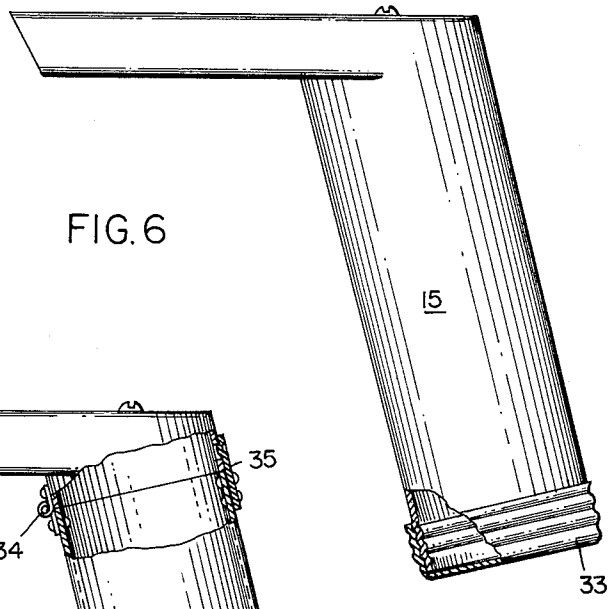

FIG. 6

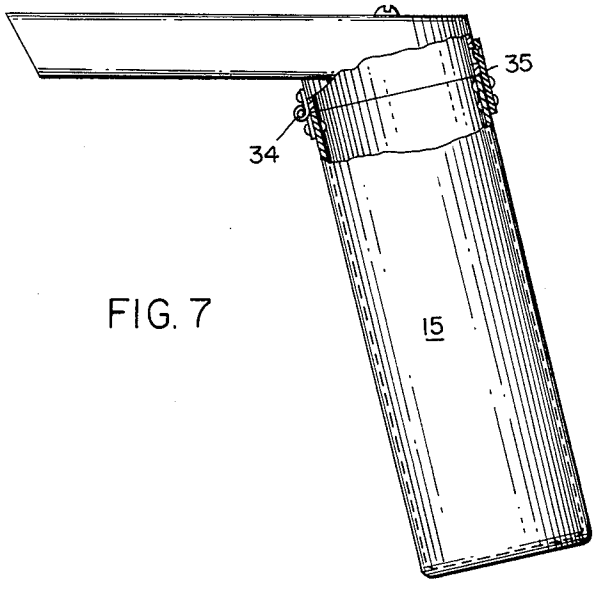

FIG. 7

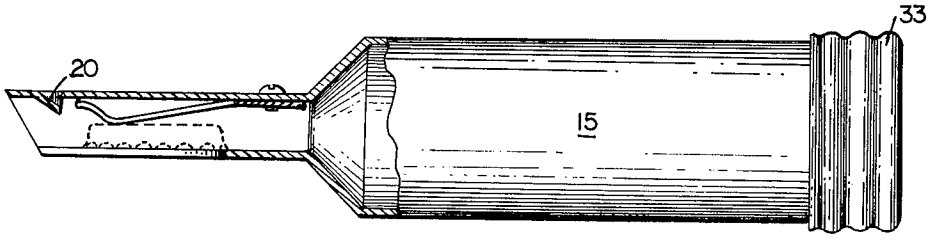

FIG. 8

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CAP REMOVER WITH CONTAINER

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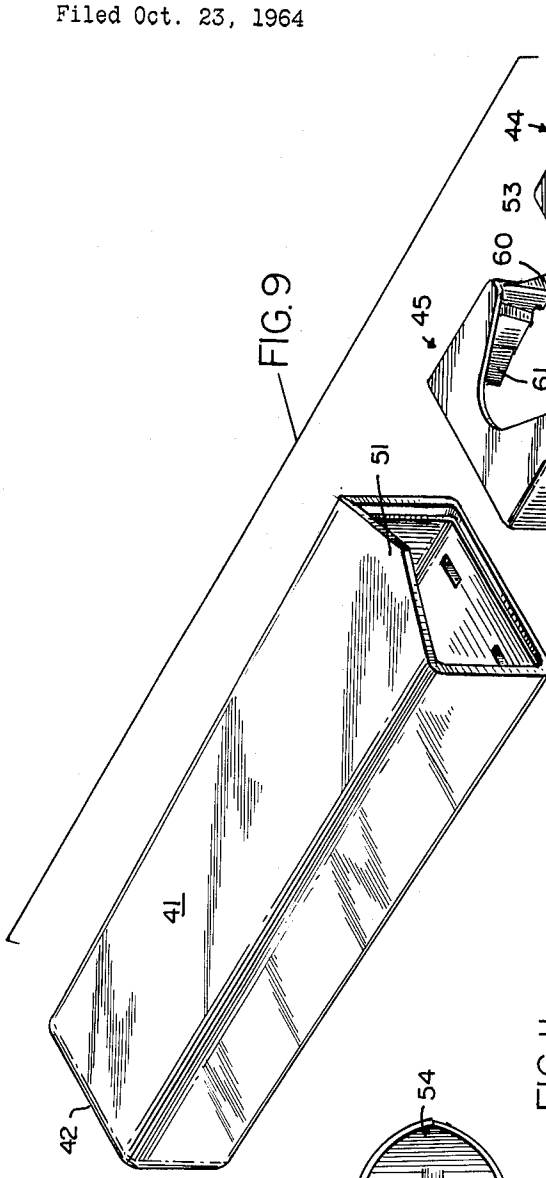

FIG. 9

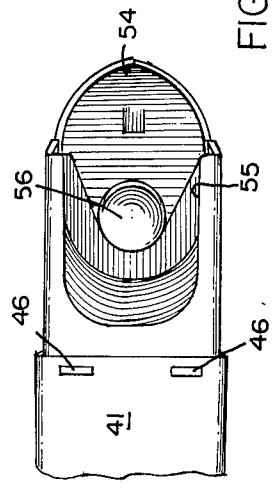

FIG. 11

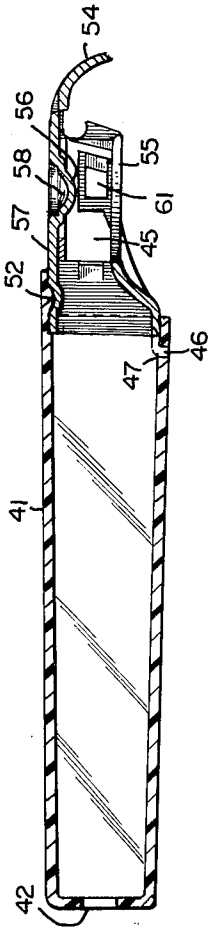

FIG. 10

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United States Patent Office 3,232,146 Patented Feb. 1, 1966

3,232,146

CAP REMOVER WITH CONTAINER

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Filed Oct. 23, 1964, Ser. No. 407,614
10 Claims. (Cl. 81—3.1)

This is a continuation-in-part of application Serial No. 215,598, filed August 8, 1962, now abandoned.

The present invention relates in general to bottle openers and more particularly concerns a novel portable bottle opener which facilitates removing bottle caps with great ease while storing the removed bottle caps to keep the area of the bar neat and safe.

Opening soda bottles and the like with a conventional hand opener presents a number of problems. The bottle caps frequently fall on the counter and the floor. There are disadvantages from the standpoint of maintaining a neat area and preserving a flat countertop to keep glasses and bottles from tipping. Bottle caps lying on the floor present a serious hazard, for a person may step on a loose bottle cap, slip and fall, or cut bare feet.

Accordingly, it is an important object of this invention to provide a portable bottle opener which facilitates removing bottle caps with great ease while retaining a number of consecutively removed bottle caps in an attached container serving as a lever-handle for the device and arranged to be conveniently emptied, thereby maintaining the area around the bar neat and safe.

It is another object of the invention to achieve the preceding object with a relatively inexpensive, compact and low cost structure.

According to the invention, there are means defining a hollow container for receiving and storing removed bottle caps. Additional means define a channel having a pair of spaced lips defining a bottom opening and adapted to engage the underside of a bottle cap. Lips are spaced wide enough to allow the de-capped bottle to pass downward between them but closely enough to retain the cap. The channel defining means also include means defining a top member adapted to press against the top of a bottle cap to hold it in place after its removal. The channel defining means and containing defining means are substantially rigidly interconnected with the channel communicating with the interior of the container defining means so that removed bottle caps may slide into the container. The channel and container communicate with each other so that the container defining means functions not only to store removed bottle caps, but also as a convenient handle for transmitting forces from the hand of an operator through the channel defining means to a bottle cap being removed.

Other features, objects and advantages of the invention will become apparent from the following specification when read in connection with the accompanying drawing in which:

FIG. 1 is a top view of an embodiment according to the invention;

FIG. 2 is a bottom view of the channel defining means;

FIG. 3 is a side view of the structure according to the invention;

FIG. 4 is a front view of an embodiment according to the invention;

FIG. 5 is a perspective view of an embodiment of the invention;

FIG. 6 shows a modification of the invention having a removable cap at the bottom;

FIG. 7 shows still another modification of the invention in which the removed cap container is hinged to the rest of the structure;

FIG. 8 shows still a further modification of the invention with the removed cap container in line with the rest of the structure;

FIG. 9 is an exploded view of a preferred embodiment of the invention;

FIG. 10 is a lengthwise sectional view of the preferred embodiment of FIG. 9; and

FIG. 11 is a view of the underside of a portion of the opener head in the preferred embodiment.

With reference now to the drawing and more particularly FIGS. 1–5 thereof, there is shown an embodiment of the invention in which bottle caps **11** entering the bottom opening **12** defined by the lower lips **13** and **14** are stored in container **15**.

The channel defining means includes a top surface **16** with an inside stud **20** and a bottom surface **17** having a back lip **18** so that a bottle cap being removed may be gripped on three sides by lips **13**, **14** and **18** during removal while stud **20** keeps the removed cap from falling out. The opening on the bottom, shown as U-shaped, may take other forms, including V-shaped.

Top surface **16** supports a generally U-shaped spring **21** having legs **22** and **23**. A screw **24** secures spring **21** to top surface **16**, and the serrated corners **25** and **26** pressing against the inside wall **27** help keep the spring firmly in place.

The short stem **31** is formed with rolled threads arranged for mating relationship with the rolled threads at the top **32** of the container **15**. In the alternative, container **15** may be integrally formed in a straight line with the channel defining means as shown in FIG. 8 or permanently attached to the short stem portion **31** as shown in FIG. 6 with a cap **33** attached to the bottom of container **15**. Another alternative is to hinge the channel defining means to the container by a hinge **34** so that no cap on the container is needed. Emptying the container is accomplished by folding the two pieces together, thus opening the top of the container, a snap catch **35** keeping container **15** in its normal position as shown in FIG. 7.

Operation is as follows. You slide the opener over a bottle cap so that lips **13**, **14** and **18** grip the underside of the bottle cap **11** and the top of the newly inserted bottle cap **11** presses legs **22** and **23** of spring **21** upward. At the same time the newly inserted cap **11** urges the previously removed cap back toward the short stem **27** so that at least one of the previously removed caps **11** drops to the bottom of container **15**. You then lift container **15** backward and upward to remove the bottle cap. Spring **21** and stud **20** keep the just-removed bottle cap in the channel until it is pushed backward by the next bottle cap to be removed.

Stud **20** is large enough to stop a cap during removal, but not so large as to prevent entry of the cap attached to the bottle before opening. Stud **20** is preferably made with a sloping face pointing toward the entrance opening at the left to facilitate entry of the cap attached to the bottle. Stud **20** preferably has a sharp-edged vertical or undercut face on the side away from the entrance opening to better engage the cap when removing the cap from the bottle. Stud **20** is preferably located to allow a cap attached to a bottle to fit between it and the working lip **18** without wedging, but preferably within $\frac{1}{32}$" of the cap when it is positioned for removal. During actual operation of a working model of the invention, stud **20** applies enough force to the cap being removed to put a dent in the cap just below the rounded corner of the cap.

It may be advantageous for container **15** to be at least translucent so that you can observe when it is filled. The

container may be emptied by unscrewing it and emptying the filled container into a waste basket.

In the embodiment of FIG. 6, the cap 33 is preferably unscrewed while the container 15 is held over a waste basket.

Referring to FIG. 9, there is shown an exploded view of a preferred embodiment of a bottle opener according to the invention having a number of additional advantages from the standpoint of operation and ease of fabrication. The container 41, which also functions as a handle, is a hollow unitary structure of generally rectangular cross section closed at the end 42 and open at the end 43. Container 41 may be made of plastic material such as Implex F or Cycolac. The opener head 44 telescopes over the spring member 45. Opener head 44 is formed with a pair of lower projections such as 46 that reside in lower slots 47 when the bottle opener is assembled.

Container 41 is formed with a protruding upper lip 51 formed with a depending bump 52 that engages the mating recess 53 in head 44 when the bottle opener is assembled. This method of construction allows opener head 44 to pivot about the effective hinging means formed by the slots 47 and the legs 46 so that the head 44 may be snapped open and shut with little effort while remaining firmly in the closed position shown in FIG. 10 when opening a beverage container.

Opener head 44 is formed with a curved beak 54 which coacts with hook portions like 50 for opening beverage cans and is also formed with lower side lips 55 for gripping the underside of bottle caps. Opener head 44 is formed with a protrusion 56 extending below the upper surface 57 that may press against the top of a bottle cap being removed and act as a fulcrum, facilitating removal of the cap. The recession 58 thus formed also serves as a convenient place for placing a thumb when opening a bottle or can.

The spring member 45 is formed with a pair of outwardly extending closure tabs 60 that keep the front of the spring pressing against the side of opener head 44 to form a neat assembly that stays clean. The back edges of spring 45 are forced over the inwardly extending side ears like 61 during assembly to lock the spring member 45 in the position shown in FIG. 10. Spring member 45 is formed with a pair of resilient inwardly extending leaves 62 that retain the removed bottle cap and prevent by ratchet action previously removed caps from dropping out.

The preferred circumferential dimension of container 41 about its longitudinal axis corresponds to a circumferential distance comfortably grasped by the average human hand. The inside width is preferably slightly greater than the bottle cap diameter while the preferred inside height is slightly greater than twice the height of a bottle cap but less than the diameter of a bottle cap. These inside dimensions result in container 41 storing bottle caps in several stacks of three. The separation between bump 58 and side lower lips 55 is preferably slightly greater than the height of a bottle cap.

There has been described a novel portable bottle opener which retains removed bottle caps while facilitating removing the caps with great ease. The device is compact, sturdy and relatively low in cost. It is evident that those skilled in the art may now make numerous modifications of and departures from the specific embodiments described herein without departing from the inventive concepts. Consequently, the invention is to be construed as limited only by the spirit and scope of the appended claims.

What is claimed is:

1. A bottle opener comprising,
means defining a channel open at one end for receiving a bottle cap attached to a bottle and having a pair of side lips for gripping the underside portions of said bottle cap and having a top member for pressing against the top of said bottle cap upon removal and having spring means for retaining the bottle cap in the channel after removal from the bottle,
said channel defining means being formed with a cross section perpendicular to the axis of said channel defining means slightly larger than the cross section of a bottle cap along the cap diameter,
hollow container defining means,
means rigidly interconnecting and establishing communication between said channel defining means and said container defining means so that the latter functions both as a handle for transmitting forces to said channel defining means for removing the bottle cap and functions to store removed bottle caps while said channel defining means functions both to transmit removing forces to a bottle cap and guide the removed cap to said container defining means with said spring means functioning to allow a removed cap to move toward said container defining means and to prevent a previously removed cap from moving away from said container defining means,
said hollow container defining means communicating with said channel defining means through means defining an opening of area large enough to embrace a bottle cap to allow bottle caps to enter said container defining means from said channel defining means while restricting the transfer of bottle caps in said container defining means to said channel defining means,
whereby insertion of a bottle cap through said open end urges a previously removed bottle cap toward said container defining means.

2. A bottle opener in accordance with claim 1 and further comprising means for screwably attaching said container defining means to said channel defining means.

3. A bottle opener in accordance with claim 1 and further comprising means for hinging said container defining means to said channel defining means.

4. A bottle opener in accordance with claim 3 and further comprising,
a fastener opposite the means for hinging said container defining means to said channel defining means to maintain the two in normal relative fixed position while allowing relative movement therebetween about the hinging means axis upon release of said fastener.

5. A bottle opener in accordance with claim 1 and further comprising,
cap means removably attached to the end of said container defining means farther away from said channel defining means.

6. A bottle opener in accordance with claim 1 wherein said channel defining means and said container defining means are in substantially in line relationship.

7. A bottle opener in accordance with claim 6 wherein said container defining means is of generally rectangular hollow cross section with the length of said rectangular hollow cross section slightly greater than the diameter of a bottle cap and the height of said cross section greater than twice and less than thrice the height of a bottle cap.

8. A bottle opener in accordance with claim 7 wherein said channel defining means includes an opener head portion of generally rectangular cross section substantially congruent at one end with the generally rectangular hollow cross section of said container defining means,
said opener head portion having said top member formed with a downwardly extending depression that accommodates a thumb and functions as a fulcrum during removal of a bottle cap,
and further comprising a spring member situated snugly within said head portion and having a pair of opposed resilient leafs cantilevered about respective axes generally parallel to said height and generally perpendicular to said length dimensions for gripping the sides of a bottle cap to be removed and providing ratchet action that allows a removed bottle cap to

move from said leafs toward said container defining means but prevents a previously removed bottle cap from moving into the region between said leafs.

9. A bottle opener in accordance with claim 8 wherein said head portion is formed with means for gripping the underside of a beverage can rim and means for punching an opening in a beverage can whereby with said means for gripping the underside of a beverage can, upward movement of said container defining means causes said means for punching to move toward and through the top of the beverage can.

10. A bottle opener in accordance with claim 7 wherein the perimeter of the cross section of said container defining means corresponds substantially to the perimeter of the cross section surrounded by a closed hand.

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