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CROWN CLOSURE REMOVING AND COLLECTING DEVICE

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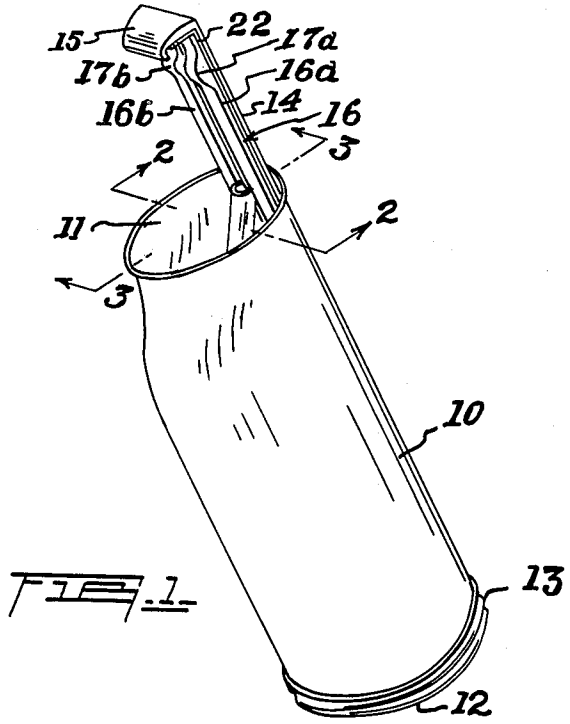


FIG. 1.

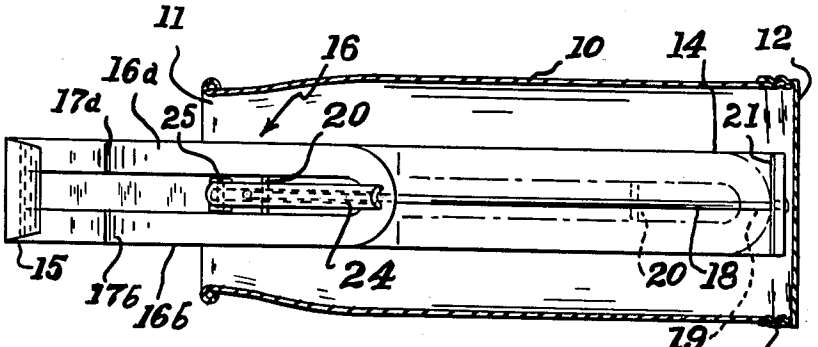


FIG. 2.

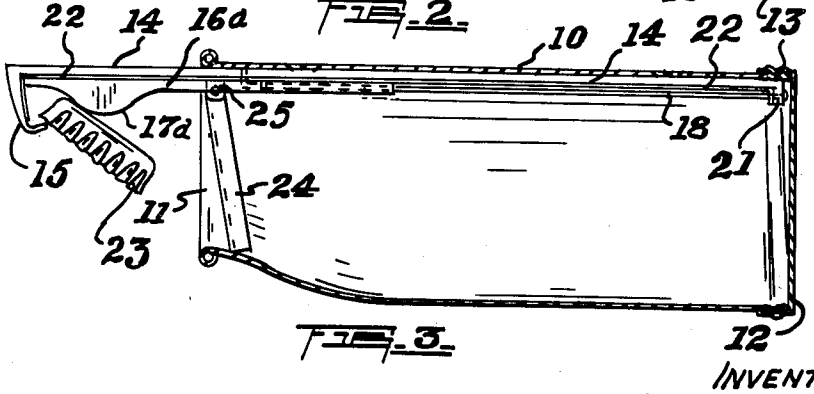


FIG. 3.

INVENTOR
HECTOR L. ROBERT
By Smart & Biggar
ATTORNEYS

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CROWN CLOSURE REMOVING AND COLLECTING DEVICE

Hector L. Robert, Birtle, Manitoba, Canada

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5 Claims. (Cl. 81—3.1)

The present invention relates to a device for removing crown closures and collecting the removed closures.

The removal of crown closures with conventional "bottle-openers" is usually, except in the case where the opener is mounted on a cooler or the like having a closure-receiving receptacle disposed below the opener, a two-step process. The first and essential step is of course the removal of the closure, while the second step is the disposal of the closure in a trash can, waste-paper basket, or the like. The first step can be taken with pleasure because it releases the contents of the bottle, but the second step is generally regarded as a chore which is usually reluctantly performed, and is often actually neglected with the result that a littered appearance is imparted to any room where bottled drinks are being dispensed in quantity.

My invention is aimed at eliminating the chore associated with this second step by providing a device which is both a portable closure remover and a means for collecting and retaining the removed closures; the removed closures being caught and held in a receptacle which is capable of holding a large number of closures and therefore requires only occasional emptying.

The invention may be generally defined as a device for removing crown closures and collecting the removed closures comprising a receptacle having an open end for the reception of removed closures, a bar-like element rigidly mounted within said receptacle and extending longitudinally thereof, said element extending outwardly through said opening and terminating in a closure lifting hook, and an elongated permanent magnet mounted adjacent one side of said bar-like element for sliding movement longitudinally thereof, said magnet being shorter than said element and carrying at its outer end a leverage fulcrum shaped to cooperate with said closure lifting hook in the removal of the closure from a capped bottle. The magnet is slidable, under the influence of gravity, from a position in which said leverage fulcrum cooperates with said closure lifting hook to a position in which said leverage fulcrum is wholly retracted within said receptacle. A stop member is swingably mounted within said receptacle to prevent the escape from the receptacle of removed closures carried thereinto by said magnet.

In the appended drawings which illustrate one embodiment of the invention:

Figure 1 is a perspective view,

Figure 2 is a cross-section taken along the line 2—2 in Figure 1, and

Figure 3 is a cross-section taken along the line 3—3 in Figure 1.

Considering the drawings in more detail, reference numeral **10** indicates a receptacle having an open end **11** and a base **12**, the base being removably mounted on the receptacle by means of screw-threading **13**. A bar-like element **14** is rigidly mounted within receptacle **10** and extends longitudinally thereof. Element **14** extends outwardly through opening **11** and terminates in a closure lifting hook **15** of a type known per se. An elongated permanent

magnet **16** is mounted adjacent one side of the bar-like element **14**, and is slidable longitudinally thereof.

The magnet is of an elongated U-shaped formation, and the elongated arms of the U have been labelled **16***a* and **16***b* in the drawings. The free ends of the arms **16***a* and **16***b* are provided with convexly curved raised portions **17***a* and **17***b* respectively, which when the magnet **16** has been caused to slide to its outermost position (as shown in the drawings in full lines), cooperate with the lifting hook **15** in the removal of a closure from a capped bottle, the curved raised portions **17***a* and **17***b* acting as a leverage fulcrum.

The permanent magnet is slidably mounted by means of a fixed rod **18** which runs parallel to, and is slightly spaced apart from, the bar-like element **14**. Rod **18** passes through a bore **19** in the base of the U of the magnet **16**, and also passes through an aligned bore in a web member **20** which extends transversely of the magnet between the arms **16***a* and **16***b* thereof. The limits of sliding travel of magnet **16** are shown in Figure 2. The magnet may, by tilting the whole device, be caused to slide, under the influence of gravity, to the position shown in full lines in Figure 2, in which its outer end contacts closure lifting hook **15** and the surfaces **17***a* and **17***b* are available for cooperation with hook **15** in the removal of a closure. By oppositely tilting the whole device the magnet **16** may be caused to slide to the position indicated in broken lines in Figure 2, in which the base of the magnet bears against a stop **21** provided at the inner end of element **14**, and the surfaces **17***a* and **17***b* which form the leverage fulcrum are wholly retracted within the receptacle **10**.

The bar-like element **14** should either be formed from a non-magnetic material or clad with a non-magnetic material at least on the side thereof adjacent the magnet **16**. In the illustrated embodiment it has been assumed that the element **16** is formed of a ferrous (magnetic) material. Therefore a strip **22** of non-magnetic material has been applied to the side of element **14** which lies adjacent magnet **16**, so that the magnetic nature of the element **14** will not interfere with the desired sliding of the magnet.

From the description of the device thus far provided it is believed that those familiar with the art will appreciate that a crown closure, such as the one illustrated at **23** in Figure 3, may be removed from a bottle by first tilting the device so that the magnet **16** slides to the outermost position and then, after catching the crimped lower edge of the closure with the lifting hook **15**, pressing downwardly on the receptacle. This prying action, wherein surfaces **17***a* and **17***b* act as a leverage fulcrum, removes the closure with ease. The removed closure is held upon the surfaces **17***a* and **17***b* by magnetic attraction, and the whole device is then tilted to a generally upright position, causing the magnet **16** to slide downwardly into the receptacle **10**, the magnet carrying the removed closure with it.

It will be appreciated that some means must be provided to prevent the removed closure (or closures) held in the receptacle from escaping through the opening **11** as the device is tilted preparatory to the removal of a further closure. I found that this problem could be effectively solved by pivotally mounting a swingably retractable weighted stop member **24** just in advance of the outer end of rod **18**. The means for pivotally mounting stop member **24** is shown at **25**. It is believed that the functioning of the stop arm will be clear. When the device is tilted downwardly preparatory to removing a closure the stop member will swing downwardly to meet the opposite wall of the receptacle, thus preventing removed closures held within the receptacle from escaping through mouth **11**. When the device is tilted upwardly to slide the magnet and the removed closure carried thereby into the receptacle, stop member **24** will swing back into general parallelism

with the rod **18** and thus not interfere with the delivery of the closure into the receptacle. Stop member **24** is preferably U-shaped in cross-section so that it can lie flushly against rod **18** when in its inoperative position; and member **24** must, of course, be narrower than the distance between the arms **16***a* and **16***b* of magnet **16** since it must be capable of swinging through said arms as it is moved between its operative and inoperative positions.

When it becomes necessary to empty a load of closures accumulated in the receptacle **10**, this may be done either by removing the screw-threaded base **12** or by inverting the device while holding stop member **24** in its inoperative position by inserting a finger through opening **11**.

The receptacle **10** could, of course, be quite differently shaped from the strictly utilitarian shape illustrated in the drawings. It might for example be shaped like a bottle, in which case it might be used as an advertising medium, or it might be made more attractive by forming the receptacle as a figurine.

What I claim as my invention is:

1. A device for removing crown closures and collecting the removed closures comprising a receptacle having an open end for the reception of removed closures, a bar-like element rigidly mounted within said receptacle and extending longitudinally thereof, said element extending outwardly through said opening and terminating in a closure lifting hook, an elongated permanent magnet mounted adjacent one side of said bar-like element for sliding movement longitudinally thereof, said magnet being shorter than said element and carrying at its outer end a leverage fulcrum shaped to cooperate with said closure lifting hook in the removal of the closure from a capped bottle, said

magnet being slidable, under the influence of gravity, from a position in which said leverage fulcrum cooperates with said closure lifting hook to a position in which said leverage fulcrum is wholly retracted within said receptacle, and a stop member swingably mounted within said receptacle to prevent the escape from the receptacle of removed closures carried thereinto by said magnet.

2. A device as defined in claim 1, in which said magnet is slidably mounted on a fixed rod which runs parallel to, and is slightly spaced apart from, said bar-like element.

3. A device as defined in claim 2, in which said bar-like element is formed of non-magnetic material.

4. A device as defined in claim 2, in which said bar-like element is clad with a non-magnetic material at least on the side thereof adjacent said magnet.

5. A device as defined in claim 2, in which said magnet is of elongated U-shaped formation, and in which said stop member is pivotally mounted on said bar-like element just beyond the outer end of said rod, said stop member being narrower than the distance between the arms of the U-shaped magnet, and the position of pivotal mounting of said stop member on said element being arranged to permit said stop member to swing between the arms of said magnet.

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