G. GOEBEL.

STOPPER EXTRACTOR.

APPLICATION FILED APR. 12, 1919.

1,395,103. Patented Oct. 25, 1921.

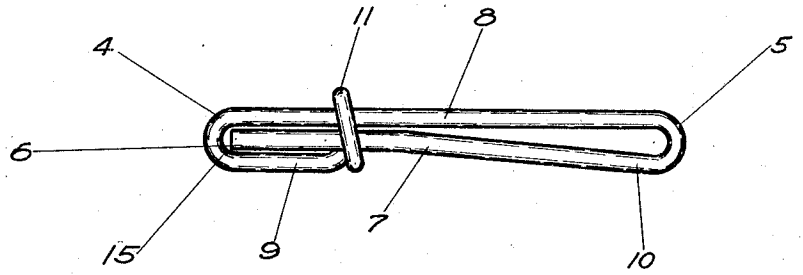


FIG. 1

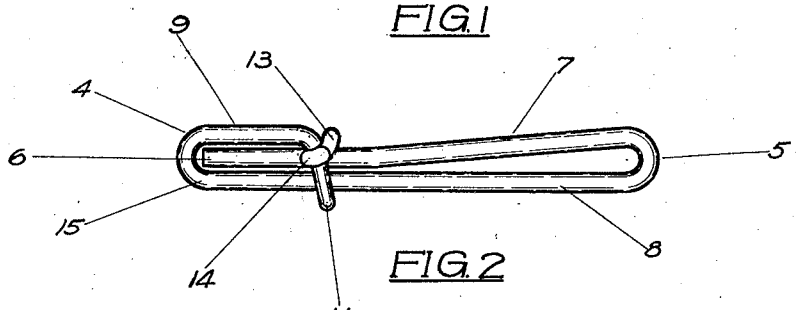


FIG. 2

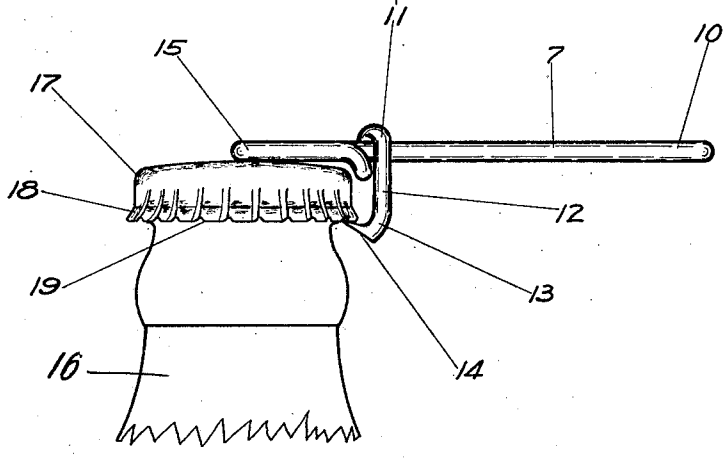


FIG. 3

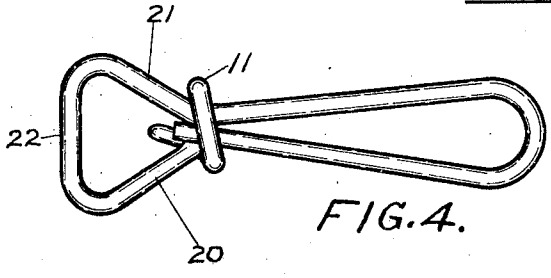


FIG. 4.

INVENTOR.

George Goebel

BY

Mann & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE GOEBEL, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY OF BALTIMORE CITY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

STOPPER-EXTRACTOR.

1,395,103. Specification of Letters Patent. Patented Oct. 25, 1921.

Application filed April 12, 1919. Serial No. 289,620.

To all whom it may concern:

Be it known that I, GEORGE GOEBEL, a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Stopper-Extractors, of which the following is a specification.

This invention relates to an improved stopper extractor and is especially designed for the extraction or removal of bottle closures of the crown type.

The object of the invention is to provide an improved extractor that may be formed from a strand of wire and which shall have sufficient stability and strength to enable the necessary leverage to be applied to the crown to effect its removal from a bottle neck.

Another object of the invention is to provide an improved construction of extractor that will reliably engage the crown and which will not accidentally slip or become disengaged during the operation of extracting the crown, with the accompanying liability of injuring the hand of the operator.

A further object is to provide an improved wire crown-extractor wherein the engaging member, when under extracting strain, will tend to more closely bind the several bars of wire together and thereby produce a greater rigidity of the parts when strains are applied thereto.

With these, and other objects in view, the accompanying drawing illustrates the invention.

In the drawing,—

Figure 1, shows the improved extractor in top view.

Fig. 2, illustrates the same in inverted or bottom plan, and

Fig. 3, shows the device in side elevation and in engagement with the corrugated edge of the crown flange,—the latter being attached to a bottle neck, and

Fig. 4, illustrates a modified form of extractor also embodying the invention.

In the several views of the drawing, the structures are shown on a scale at least full size.

Referring to the drawing it will be noted that the entire extractor device in both forms illustrated is formed from a single piece of wire which latter is folded intermediate its ends to produce two folds or return bends, designated in the drawing 4 and 5 respectively.

These two folds or bends in the wire form the two opposite or extreme ends of the extractor,—the folded end 4, being the fulcrum-end while the fold or bend 5, may be termed the leverage or hand-grasp end.

One extreme end 6, of the wire strand terminates at or is located in the fold 4 of the fulcrum end of the extractor, and from said end the wire extends laterally and forms one stretch 7 of the hand-grasp part, and is then bent to produce the fold 5. The wire then returns in the form of a second lateral stretch 8 to the bend or fold 4; passes around the free end 6, and extends around to the opposite side of said free end, at 9.

The stretches 7 and 8 of wire are preferably gradually separated as they extend to the fold or return bend 5, in the hand-grasp end of the extractor whereby to produce a broadened hand-grasp part 10.

From the inner end of the stretch 9, the wire strand is curved to a form that will cause it to extend over the top of the side stretch 8 and also over the top of the free end 6.

Preferably, this bend in the wire has the form of a complete loop 11, which first passes under the free end 6; then under, around and over, the top of the side stretch 8, and also over the top of the said free end 6, and then down at the side of the side stretch 7, immediately at the rear of its starting point.

This latter, downwardly-extending portion, designated 12 in the drawing, depends below the wire stretches 7 and 8 for a distance at least equal to the depth of the flange on the crown seal. The extreme lower end of said depending portion 12 of the wire has an up-turned hook 13, with a beveled face 14,—the hook being so shaped as to readily enter the lower end of one of the corrugations on the crown-flange and thereby take a firm hold on said flange during the extracting operation, as will presently be explained.

It is to be noted that the strands 8 and 9 and the free end 6 of the wire, form a three strand fulcrum-end 15, for the extractor and that these three strands are all rigidly bound together by the encircling loop 11.

In the form of extractor illustrated in

Fig. 4, of the drawing the construction is substantially the same as shown in Figs. 1 to 3 inclusive, with the exception that from the curved portion or loop 11, the wires are extended in diverging directions as at 20 and 21, and are connected by a comparatively straight crown-stretch at 22, instead of the sharper return bend 4, that is employed in the other views.

This modified form of fulcrum-end gives a broader bearing surface on the crown than does the fulcrum-end of the structure shown in the Figs. 1 to 3, but in other respects this form is substantially the same as the other.

The operation of the extractor is illustrated in Fig. 3, of the drawing wherein a bottle-neck 16, is shown with a crown seal 17, thereon whose flange 18, is provided with the well-known corrugations 19. The fulcrum-end 15, of the extractor is seated on the upper face or top of the crown with the depending portion 12, extending downwardly at the side of the corrugated flange 18. The beveled edge 14, of the hook 13, is entered beneath one of the corrugations 18, and in practice is of such shape and size as to project slightly into one of the recesses which the corrugations form around the lower edge of the crown-flange. This engagement is such as to eliminate all possibility of the hook slipping from its engagement when the hand-grasp end 10, of the extractor is swung up to extract the cap. This upward pull on the extractor-end 10, when the hook 14, is engaged, tends to draw the loop more closely about the strands 7 and 8 and the free end 6, during the actual strains of the extracting operation and this tendency of the loop to tighten renders the fulcrum-end 15, more stable and rigid at the moment such rigidity is most desired.

Having described my invention, what I claim is,—

1. An extractor for metallic bottle crowns said extractor being formed of wire which is folded to form a loop at each end said loops and between the two end-loops the wire being looped to tie the strands together and to produce a depending portion which depending portion is provided with a hook that extends laterally toward one of the end-loops but in a plane below the latter whereby said latter end-loop may be seated on top of a bottle crown while the lateral hook on the depending portion may be engaged with the crown-flange.

2. An extractor for bottle closures said extractor being formed of a single piece of wire with a two-ply operating-end and a three-ply fulcrum-end and between the said two and three-ply ends said extractor having a loop to bind the strands together said loop forming a depending portion with a hook extending laterally from the depending portion and in a place below the three-ply end.

3. An extractor for crown bottle closures said extractor being formed with a loop at each end the wire strand from one loop and the wire strand from the other loop extending toward each other and lapping and at the lapping point the wire being coiled to tie the lapped strands together and one end of the wire depending from the coil and having a hook at its lower end.

In testimony whereof I affix my signature.

GEORGE GOEBEL.