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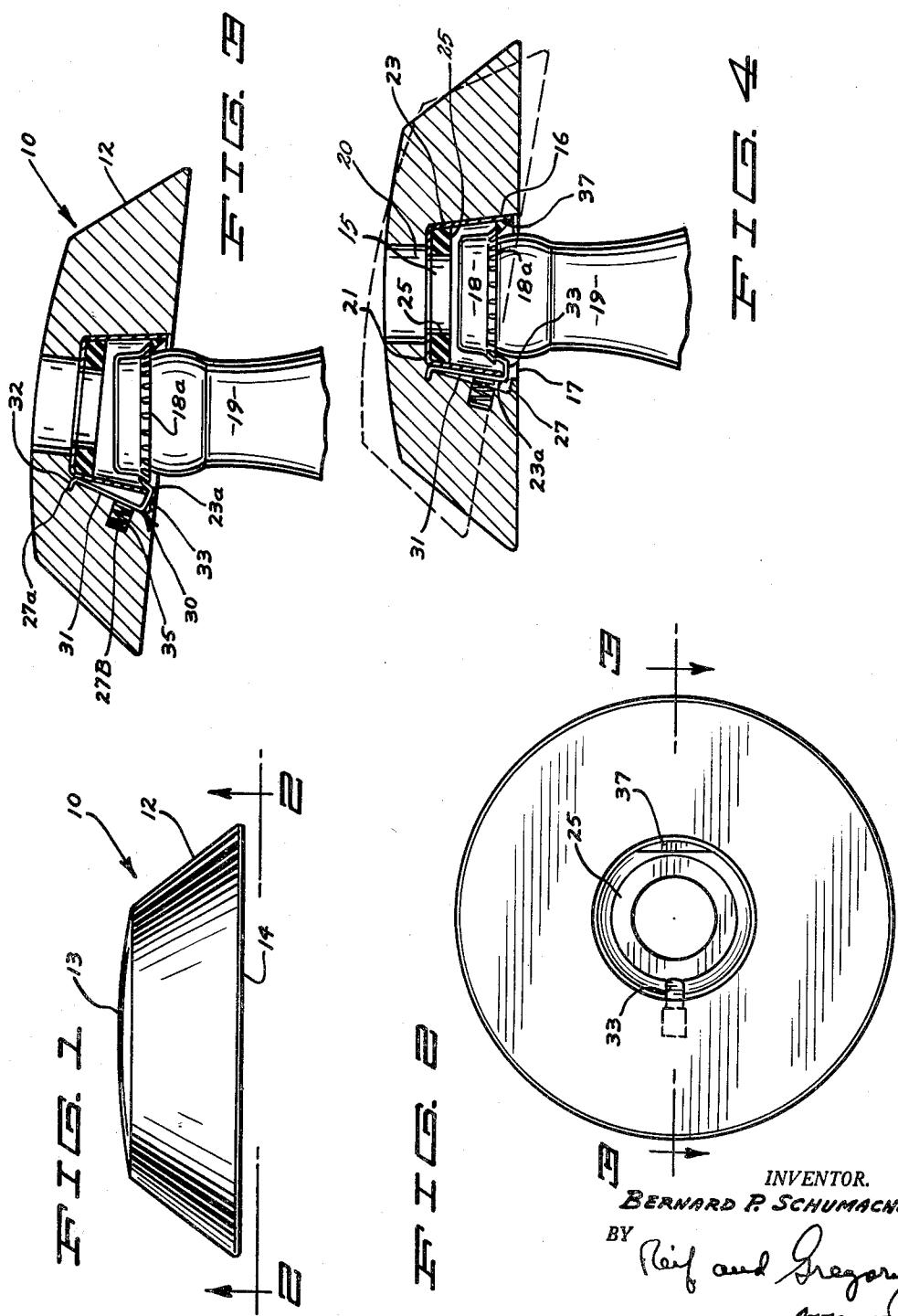
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3,038,178

BOTTLE CAP REMOVING AND RECAPPING DEVICE

Filed Oct. 10, 1960

2 Sheets-Sheet 1



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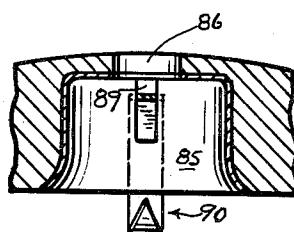
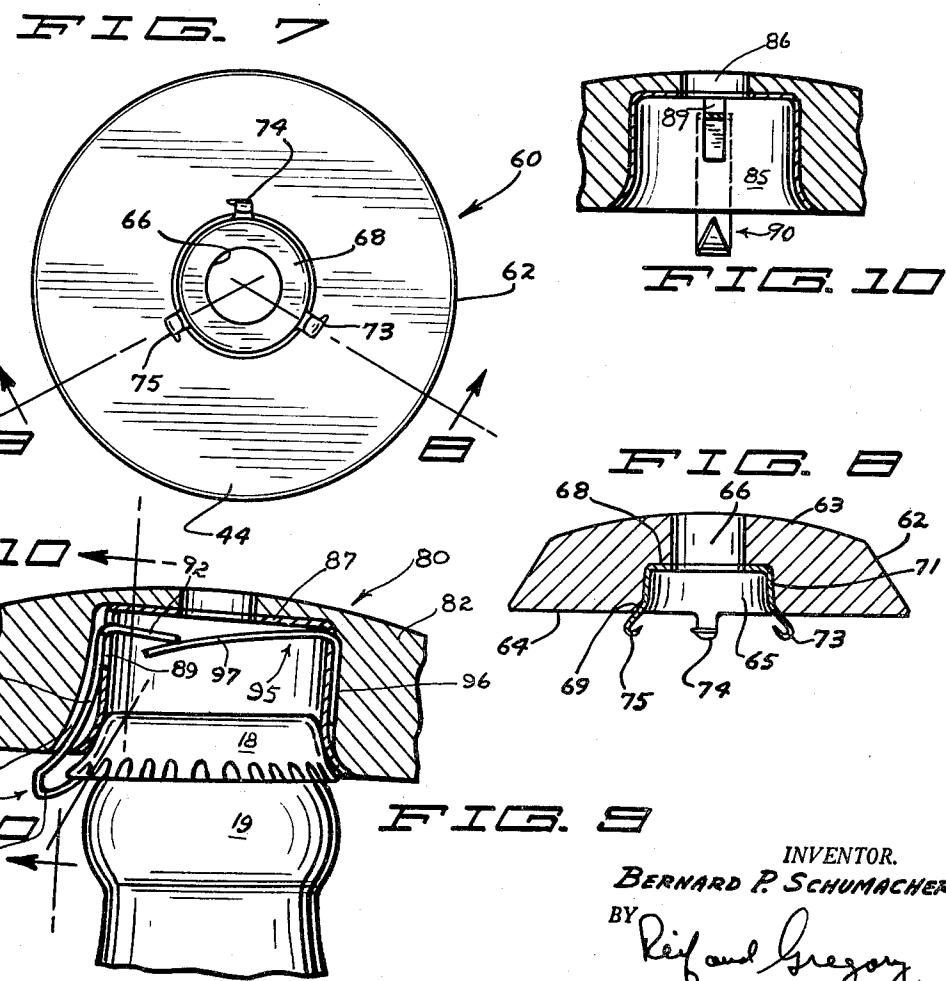
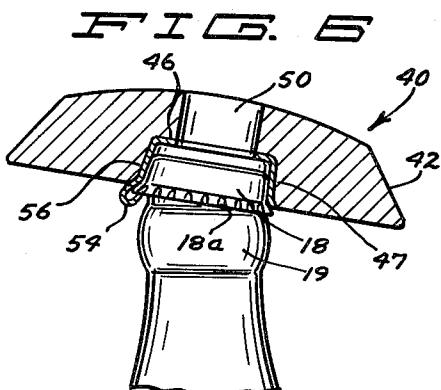
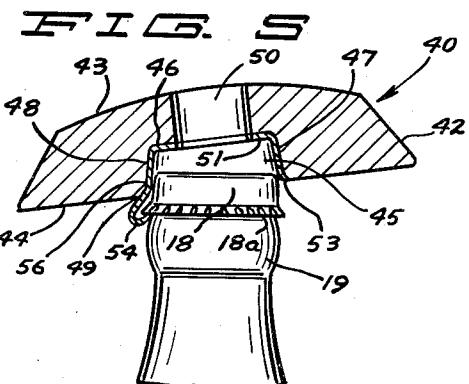


FIG. 8

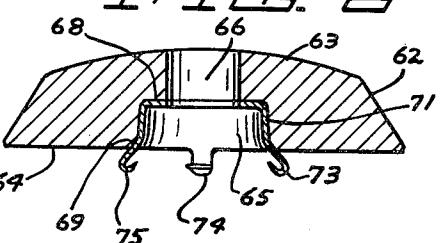


FIG. 9

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BOTTLE CAP REMOVING AND RECAPPING DEVICE

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This invention relates to a novel arrangement and construction of a device comprising in combination a bottle cap removing and recapping device. Particular reference is had to the type of bottle used in connection with beverages, such as soda pop, and using a crimped type of bottle cap.

It is an object of this invention to provide a portable hand holding type of device comprising a bottle cap remover and recapper which is comfortably held in the palm of the hand and which permits substantial pressure to be easily exerted in either removing the bottle cap from the bottle top or in recapping said bottle.

It is another object of this invention to provide a device comprising in combination a bottle cap remover and recapper having a portion thereof adapted to spread a cap somewhat for its removal and for restoring said cap to its original condition in replacing the same in recapping the bottle.

It is also an object of this invention to provide a device comprising a portable bottle cap remover and recapper having in operative association with the bottle cap receiving chamber therein a yielding member to engage the free edge or skirt portion of a bottle cap to somewhat spread said skirt portion of the same for easy removal of said cap from a bottle.

It is a more specific object of this invention to provide a device comprising in combination a bottle cap remover and recapper of substantially a cup-shaped form for grasping in the palm of the hand, a bottle cap receiving chamber therein, said chamber being adapted to restore to original condition a deformed cap, and a cap engaging member in operative association with said chamber to engage the skirt portion of a cap in its removal from said chamber for somewhat spreading the edge portion of said cap for an easy removal of the same from a bottle top.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is a view of applicant's device in side elevation;

FIG. 2 is a bottom plan view taken on line 2—2 of FIG. 1, as indicated by the arrows, with a portion thereof shown in dotted line;

FIG. 3 is a view in central vertical section taken on line 3—3 of FIG. 2 as indicated by the arrows, showing applicant's device in one operating position on a broken away portion of a bottle;

FIG. 4 is a view similar to that shown in FIG. 3 showing applicant's device in different operating positions;

FIG. 5 is a view in central vertical section showing a modification of applicant's device in operating position;

FIG. 6 is a view similar to that shown in FIG. 5 showing a different operating position;

FIG. 7 is a bottom plan view of another modification of applicant's device;

FIG. 8 is a view in vertical section taken on lines 8—8 of FIG. 7 as indicated by the arrows;

FIG. 9 is a vertical section still another modification of applicant's device on an enlarged scale shown in operating position with a portion thereof broken away; and

FIG. 10 is a fragmentary view in vertical section taken on line 10 of FIG. 9 as indicated by the arrows.

Referring to the drawings, and more particularly to FIGS. 1—4, applicant's bottle cap removing and recapping

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device 10 is shown comprising a substantially frusto conical shaped member 12 forming the body portion of applicant's device and this will be formed of suitable material, such as of wood or plastic material, and is here shown having a somewhat rounded bottom portion 13 and a flat upper surface 14. Said device is of a size and shape to be comfortably held in the palm of the hand.

Extending centrally transversely of said body portion 12 and being recessed therein is a bottle cap receiving chamber 15 being substantially cylindrical in form but having somewhat outwardly flared sides 16 and having an open front end 17 opening into said surface 14. Said chamber will be of a size to very nicely receive thereinto a bottle cap 18 and the adjacent portion of a bottle 19. Said chamber is here shown having an opening 20 of a reduced diameter extending upwardly through said top portion 13 and forming an offset or shoulder portion 21.

In the embodiment of the invention here illustrated, a lining member 23 of suitably rigid material is disposed in said chamber 15 to line the walls and shoulder portion thereof. Seated at the bottom of said lining member on said shoulder 21 and about said opening 20 is a resilient cushioning member 25 in the form of a washer.

Recessed within said member 12 is a chamber 27 which is shown to be triangular in vertical longitudinal section and being vertically disposed in relation to said chamber 15 and being adjacent a side of said lining member 23 outwardly of said chamber 15. Vertically disposed in said chamber 27 is a cap engaging member 30 substantially in the form of a hook having a straight shank 31 having an upper rearwardly bent end portion 32 disposed in a horizontal recess 27a in said chamber 27 and being pivotally held therein by pressure of the adjacent portion of said lining member 23, as indicated in FIGS. 3 and 4.

The bottom portion 33 of said hook member 30 is forwardly reversely bent to extend through a slot 23a in said lining member 23 adjacent the open end of said chamber 15. Said bottom portion is substantially U-shaped in form with the free end portion thereof being inclined somewhat outwardly and will have a relatively small transverse dimension.

Disposed in a small transverse recess 27B opening into said chamber 27 at the lower central portion thereof is a coil spring 35 pressing against said shank 31 to urge said lower cap engaging portion 33 inwardly transversely of said chamber 15. Said hook member 30 will be formed of a suitably rigid material and it has been found desirable that it have a somewhat narrow width to have its free end portion easily disposable up under the skirt portion 18a of said bottle cap.

Secured to said lining member 23 and extending inwardly of said chamber 15 substantially oppositely of said cap engaging portion 33 is a resilient flange member 37 adapted to removably retain a bottle cap within said chamber 15 for bottle recapping purposes.

In use, said member 10 will be held in the palm of the hand and will fit very comfortably therein. It will be held very firmly by somewhat closing the fingers thereabout and thus the operator is enabled to very easily exert a substantial amount of pressure for the removal of a bottle cap. The bottle 19 may either be held in hand or be supported on a surface.

Said portion 12 will be placed into an operational relationship with a bottle cap by having said cap moved inwardly of said chamber 15. As indicated in FIG. 3, the lower outwardly flared skirt portion of the bottle cap will be easily pressed past the yielding flange member 37 and the lower hook portion 33 of the cap engaging member 30 will be moved inwardly of said chamber 27 by being pressed against said spring 35. As the skirt portion of said bottle cap is moved beyond the lower end portion 33 of said cap engaging member 30 within

said chamber 15, said cap engaging member will be automatically urged outwardly by spring 35 to engage the skirt portion of said bottle cap.

Said member 10 will be tilted as indicated in dotted line in FIG. 4 by a twist of the hand of the operator, which action will cause said portion 33 to exert leverage against the adjacent skirt portion of the cap. The fulcrum point for the leverage will be the point of engagement of the opposite upper outer edge portion of the bottle cap against the adjacent inner portion of the chamber 15 and against a portion of the shoulder 21. Thus the bottle cap will be very nicely and quickly removed and will be retained within said chamber 15 by said lower cap engaging portion 33 and the flange member 37.

The action of removing a cap from a bottle results in the skirt portion of the cap being somewhat pulled away from the bottle or in being spread. To more easily remove the bottle cap, the bottle may be rotated to rotate the skirt portion of the cap in engagement with said portion 33 to pull away the lower edge portion of the cap from the bottle either partially or all the way thereabout.

If it is desired to recap the bottle, the open end of the bottle will simply be moved within said chamber 15 against the bottle cap therein and a downward pressure will be exerted through the palm of the hand against the upper rounded portion of said member 10 to press said bottle cap downwardly whereby said bottle will be easily and quickly recapped. The bottle with the cap thereon will be removed from the chamber 15 by being angled past the resilient flange 37 and will thus be slipped by the portion 33 of the cap engaging member 30. The chamber 15 will be of a width whereby the skirt portion of the bottle cap will be pressed to re-form the cap into substantially its original form in cases where the skirt portion of the cap is spread to any extent.

With reference to FIGS. 5 and 6, a modification 40 of applicant's device is shown comprising a member 42 forming the body portion of the device which is here shown to be substantially identical in the form of said member 12 and having a rounded bottom portion 43 and a flat upper surface 44.

Extending inwardly substantially centrally transversely of said member 42 is a substantially cylindrical recess 45 forming a chamber extending inwardly of said member 42 a distance equal to approximately the height of the bottle cap 18 here shown in connection with the bottle 19. Said chamber 45 has a somewhat flared opening 49 into the surface 44 and has a portion 50 of reduced diameter extending oppositely through the bottom 43 whereby an annular shoulder portion 51 is formed.

Disposed within said chamber 45 is a lining member 53 of suitably rigid material. Said lining member 53 has formed at one side 48 as an extension of a portion thereof an outwardly flaring hook portion 54. Said hook portion 54 extends outwardly of said member 42 and of said surface 44. The inner diameter of said chamber 45 with the lining member 53 therein will be of a size to just nicely receive therein a bottle cap of regular form and is adapted to re-form a deformed bottle cap.

With reference to FIG. 5, to remove a bottle cap, a bottle and cap will be positioned as indicated with the hook portion 54 engaging the skirt portion 18a of the bottle cap 18 and with the adjacent upper portion of said bottle cap being pressed against said lining member 53 on the rounded shoulder 56 formed at the side just above the hook portion 54, which point of engagement will serve as a fulcrum point with the bottle itself being pulled in a direction away from the hook 54 or the member 40 held in the palm of the hand being pressed to tilt in a direction away from said point of engagement.

Here again if it is desired to more easily remove said bottle cap, the bottle may be partially rotated to cause said hook portion 54 to spread a circumferential portion of the skirt of said bottle cap away from its gripping engagement with the bottle.

In recapping a bottle, the cap may first be partially placed within the chamber 45 or positioned just on top of a bottle with applicant's device 40 then being pressed thereonto forcing the cap onto the bottle, and as the cap is also pressed into the chamber 45, the snug fit of said chamber will press the cap into its original form for tight engagement about the bottle.

With reference to FIGS. 7 and 8, a modification 60 of applicant's device is shown comprising a member forming a body portion 62 identical in construction to said body portion 42 and having a chamber 65 formed therein similar to said chamber 45 with said chamber having a portion 66 of reduced diameter extending through the upper curved portion 63 of said member 62 forming an annular shoulder 68 therebetween. Said chamber 65 has a somewhat flared opening 69 through the flat surface portion 64 of said member 62.

Disposed within said chamber 65 is a lining member 71 formed of suitably rigid material being seated on the shoulder 68 and having a plurality of hook portions 73, 74 and 75 extending outwardly of said surface 64. Said hook portions 73-75 are reversely curved, as indicated in FIG. 8, to engage the skirt portion of a bottle cap whereby a bottle held in the hand of the operator upon being rotated will result in said hook portions 73-75 spreading said skirt portion of the bottle cap away from the bottle for a very easy removal of the bottle cap.

The cap is easily removed from or placed within said chamber 55 by being tilted with reference to said chamber. For recapping a bottle, the same operation will be followed as described in the operation above.

With reference to FIGS. 9 and 10, a modification 80 of applicant's device is shown comprising a member 82 forming a body portion similar to said body portion 42 and having a cylindrical chamber 85 formed therein with a flared lower end portion and being similar to said chamber 45, with an upper portion 86 of reduced diameter extending upwardly through said member 82. Disposed within said chamber 85 is shown a lining member 87 of suitably rigid material.

At an outer side of said lining member 87 is a substantially narrow vertically disposed chamber 88 communicating with said chamber 85 through a vertical slot 89 formed in the adjacent wall portion of said lining member 87. Disposed in said chamber 88 is a hook member 90 having a somewhat curved vertically extending shank portion 91 and a right-angled upper portion 92 extending through said slot 89 into said chamber 85. At the lower end of said hook portion 90 is a forwardly reversely bent cap engaging portion 92 arranged and constructed to extend inwardly of said chamber 85 sufficiently to engage the skirt portion of a bottle cap therein to remove the same from a bottle.

Disposed in said chamber 85 at the upper portion thereof is a plate spring member 95 having a vertically extending portion 96 disposed through a small slot in said lining member 87 to be anchored adjacent the outer side of said lining member. Extending inwardly of said chamber 85 from a point diametrically opposite of said hook member 90 is a resilient or spring-like arm 97 which normally will be disposed in a horizontal position and underlies the inwardly extending portion 92 of said hook 90.

In operation, when a bottle 19 with a cap 18 thereon is positioned in said chamber 85, as indicated in FIG. 9, the cap engaging portion 92 will engage the under portion of the skirt of the bottle cap 18. The bottle will then be levered at an angle in a direction away from said hook 90 to pry the bottle away from said cap 18. This pressure will cause said hook 90 to ride downwardly against the tension of the spring arm 97. The cap will be pried off of the bottle and will drop freely out of said chamber 85 with said hook 90 being urged upwardly in its starting operating position by the tension of said arm 92.

75 When it is desired to recap a bottle, the cap may be

positioned over the open end of the bottle and the applicant's device will then be positioned onto the cap and by a downward pressure the lower outwardly flared portions of the chamber 85 will cause the cap to be tightly seated to seal the bottle. The bottle and cap are readily removed by being angled in the direction of the hook and thus easily removed from the chamber 85.

Thus it is seen that I have provided a very simply made bottle cap remover and recapper which nicely fits in the palm of the hand and permits a very easy and efficient removal of a bottle cap from a bottle or a re-capping of said bottles.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention which, generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A bottle cap removing and recapping device having in combination, 20
a hand held body member having a chamber recessed therein and open at one side thereof, 25
a unitary lining member of substantially rigid material disposed in said chamber, said unitary member having a cylindrical inner portion terminating in an inner end angled annular shoulder and having a flared outer free end portion, said unitary member having a depth substantially the height of a bottle 30

cap and a transverse dimension to very snugly receive a bottle cap therein, and spaced hook portions unitary with said flared portion extending outwardly thereof as an extension thereof and having inwardly curved hook portions terminating at the points which would represent an outward extension of the cylindrical portion of said lining member, whereby said hook portions engage the under skirt portion of a bottle cap for removing the same, and said lining member receives a bottle cap therein to crimp the same onto a bottle to recap said bottle.

2. The structure set forth in claim 1, said hand held body member comprising a substantially cup-shaped member and said cup-shaped member having an aperture extending from said chamber through the other side thereof.

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