UNITED STATES PATENT OFFICE

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SCREW CAP FRICTION WRENCH
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1 Claim. (Cl. 81—3.4)

1 This invention relates to an article of extremely simple construction and which is especially adapted for removing screw type bottle caps or the like with a minimum of discomfort to the fingers which normally occurs in attempting to twist a tightly secured bottle cap with sufficient force for dislodging or breaking the seal thereof.

More particularly, it is an object of the present invention to provide a bottle cap remover which will form a yieldable bushing between the cap and the thumb and fingers employed for removal thereof and which is sufficiently resilient and which possesses a relatively high coefficient of friction for frictionally engaging the cap, to prevent slippage of the remover relatively thereto when a twisting force is applied. Still a further object of the invention is to provide a remover which is capable of expansion for fitting bottle caps within a range of sizes and which is provided with finser or thumb engaging portions to facilitate the manual grasping of the remover.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawing, illustrating a preferred embodiment thereof, and wherein:

Figure 1 is a side elevational view showing the remover in applied position;

Figure 2 is a similar view, showing the remover attached and taken substantially at a right angle to Figure 1;

Figure 3 is a top plan view of the remover;

Figure 4 is an enlarged perspective view thereof;

Figure 5 is a horizontal sectional view of the remover, taken substantially along a plane as indicated by the line 5—5 of Figure 1 and illustrating one manner of engaging the remover for applying a twisting and clamping force thereto, and

Figure 6 is a similar view and illustrating another manner of grasping and applying a twisting and clamping force thereto.

Referring more specifically to the drawing, the screw type cap remover in its entirety is designated generally 1 and comprises a ring or annulus which may be formed of various materials, such as rubber or plastic and which preferably possess the characteristics of being relatively soft and having a relatively high coefficient of friction and elasticity; the degree of softness substantially approximating that of a conventional rubber eraser.

The ring or annulus constituting the remover 1 is preferably of a length, in a direction at right angles to its diameter, somewhat in excess of the length of an ordinary screw type cap, as illustrated in Figure 1, and is also relatively thick or wide radially between its periphery and bore, as best seen in Figures 3 and 4.

The body of the ring is cut through between its periphery 8 and bore 9 and from end to end thereof along a line 10 which is curved slightly in a direction generally toward conformation with the curvature of the bore and periphery and which merges substantially tangentially with the bore 9, as best seen in Figures 3, 5 and 6.

The periphery 8 is undercut from the lower end of the ring, forming the remover 1, to adjacent the upper end thereof, as best seen in Figure 4, and throughout a substantial portion of its circumference, as best seen in dotted lines in Figure 3, so that only a small portion of the periphery 8, contiguous with the slit 10 is recessed. The recessed portions, on either side of the unrecessed portions thereof, comprise substantially complementary concave recessed portions 11 and 11a and said periphery also includes substantially complementary recessed portions 12 and 12a, which are likewise concave and which extend from the ends of the recessed portions 11 and 11a which are remote to the unrecessed part of the periphery 8. Between the adjacent ends of the recessed portions 12 and 12a is a recessed portion 13 which is concaved in a direction longitudinally of the ring and convex in a direction circumferentially thereof.

The cap remover 7 is adapted to be applied over a threaded cap, as indicated in dotted lines at 14 in Figure 1 for removing the cap from a container such as a bottle or jar, partially shown at 15 in Figure 1. The cap 14 is received in the bore 9 and through expansion of the remover as provided by the slit 10, it is possible for the remover 1 to be utilized with caps of various diameters. For instance, if the bore 8 is ½" in diameter, it will readily fit a cap having a ⅜" external diameter and by being spread may be utilized with caps up to approximately ¾" in diameter. Also, the remover may be made in larger sizes or smaller sizes for fitting screw type caps within various ranges of sizes. Assuming that the remover 1 is applied, as illustrated in Figure 1, the exterior or periphery thereof can be grasped by the index finger and thumb of either hand in any one of several ways, two of which are illustrated in Figures 5 and 6. In Figure 6 the thumb or index finger is shown engaging the recess 11a,
A gripping pressure when applied with the thumb and index finger on the parts 11 and 11a will cause contraction of the bore 9 for drawing it into clamping engagement with the cap 14 so that when the twisting or torsional force is applied thereto, the cap 14 can be readily turned and unscrewed from the neck of the container 15. A better grasp may be obtained on the periphery of the remover 7 by applying, for example, the thumb to the recessed surfaces 11a and 12a and the index finger to the recessed surfaces 11 and 12 as illustrated in Figure 6, so that when a gripping pressure is applied, a more uniform clamping action will be brought to bear on the annulus or ring of the remover for moving it into frictional clamping engagement with the periphery of the threaded cap 14 so that said cap can be readily unscrewed by a twisting force on the remover 7. Likewise, it will be obvious that the thumb could engage the surfaces 11a and 12a and the index finger the surfaces 11 and 12, in the manner as illustrated in Figure 6. In addition to the remover 7 functioning to provide a better gripping engagement with the cap 14 for protecting the fingers from being injured by directly grasping the cap in attempting to twist it loose from its container, said remover 7 also functions as a bushing between the fingers and cap for enlarging the area capable of being grasped by the fingers and thus enabling a greater amount of torsional or twisting force to be applied through the hand.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit and scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

A remover for threaded caps or the like, comprising a ring or annulus having a bore of a diameter of approximately two-thirds of the exterior diameter of the ring adapted for receiving a cap and engaging around the periphery thereof, said ring or annulus being formed of a relatively thick yieldable material and being provided with recesses in the periphery thereof forming finger holds adapted to be engaged by a thumb and finger for compressing the ring into clamping engagement with the cap, whereby the cap will be turned with the remover when a twisting or torsional force is applied to the latter, said ring or annulus being provided with a curved slit extending from the periphery to the bore thereof providing normally abutting curved surfaces substantially conforming to the curvature of the bore and disposed in sliding engagement with each other for expanding and contracting the bore of the ring.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,910,866</td>
<td>Schacht</td>
<td>July 25, 1933</td>
</tr>
<tr>
<td>2,003,983</td>
<td>Thener</td>
<td>June 4, 1935</td>
</tr>
<tr>
<td>2,015,565</td>
<td>Loebner</td>
<td>Sept. 24, 1935</td>
</tr>
<tr>
<td>2,246,649</td>
<td>West</td>
<td>June 24, 1941</td>
</tr>
</tbody>
</table>