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BOTTLE BREAKER

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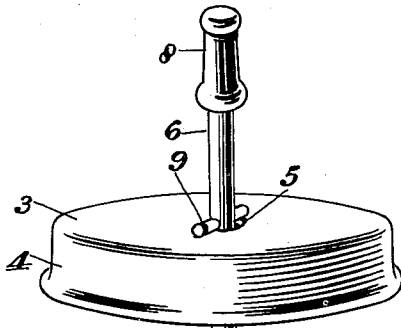


Fig. 2.

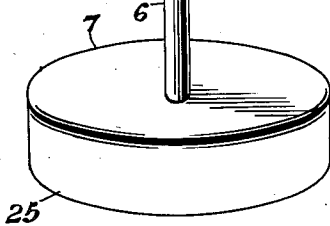


Fig. 3.

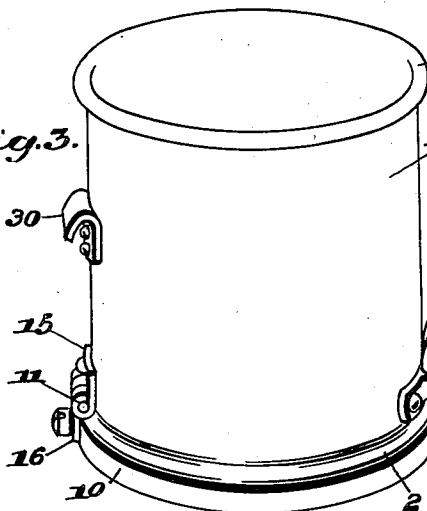


Fig. 4.

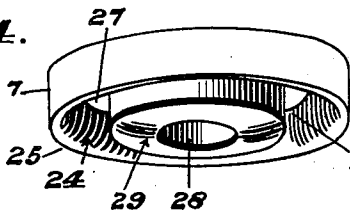
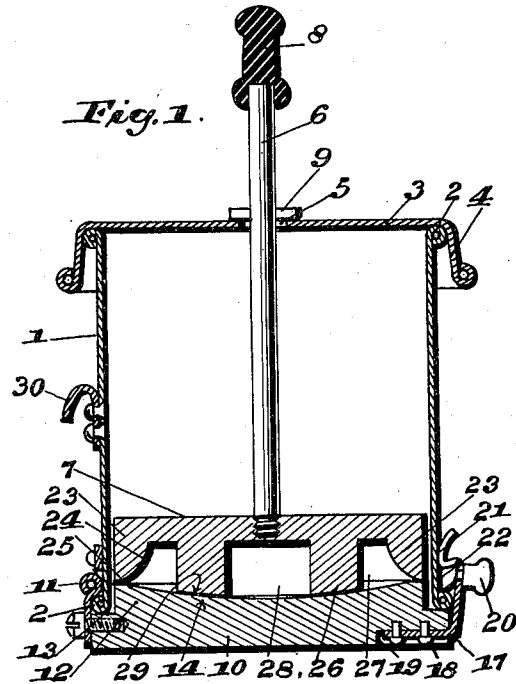


Fig. 1.

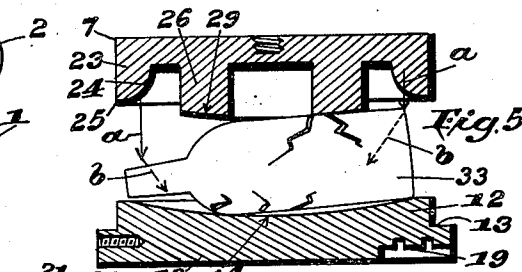


Fig. 5.

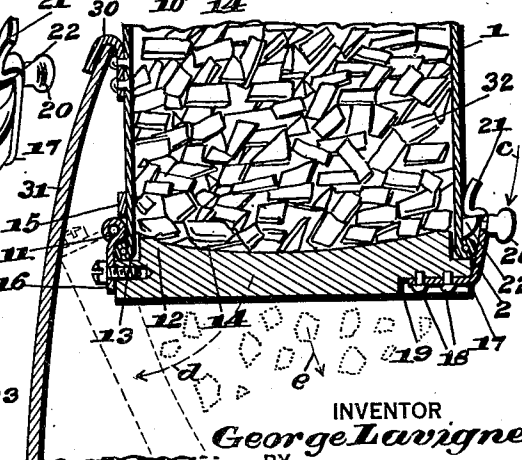


Fig. 6.

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BOTTLE BREAKER

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1 Claim. (Cl. 83—93)

This invention relates to improvements in bottle breakers, the specific purpose of which is to destroy certain kinds of bottles, so as to prevent their reuse. There is a Federal statute which requires that wine, whiskey and similar liquor bottles must be destroyed after they have been once used after a sale to a purchaser.

The evident intention of this provision of the law is to prevent the refilling of the bottle with a spurious substitute, thereby taking advantage of the original label.

A device of this kind to be acceptable by persons having to do with the destruction of such bottles, must meet the requirements of simplicity, ruggedness and effectiveness in smashing a bottle with comparatively little effort. From these statements it will be understood that the objects of the invention are as follows:

First, to provide a bottle breaker which has simplicity as one of its main attributes, the construction being carried out toward this end so as to commend the device to persons whose duty it is to see to the destruction of once-used wine, whiskey and similar liquor bottles.

Second, to provide a bottle breaker which confines all of the fragments of glass, positively preventing the flying of even the tiniest sliver to the possible injury of the operator or others.

Third, to provide a bottle breaker so constructed that the accumulation of glass fragments is easily and safely dumped by hooking the container upon the edge of a barrel and springing the catch to release the bottom.

Fourth, to provide a bottle breaker in which the bottom comprises a combined closure and anvil.

Fifth, to provide a bottle breaker with an improved crusher or pestle, the particular structure and function of which is not only to crack and crush the bottle, but also to urge the fragments toward the center where complete breakage is certain to be accomplished.

Sixth, to provide a bottle breaker in which the confronting working faces of the pestle and anvil are struck on convex and concave arcs respectively to aid the foregoing function of urging the glass fragments toward the center of the device.

Other objects and advantages will appear in the following specification, reference being had to the accompanying drawing, in which:

Figure 1 is a central vertical section of the improved bottle breaker.

Figure 2 is a detail perspective view of the cover and pestle assemblage.

Figure 3 is a perspective view of the container.

Figure 4 is an inverted perspective view of the crusher or pestle.

Figure 5 is a diagrammatic view illustrating the action of the pestle and anvil.

Figure 6 is a fractional sectional view illustrating the mode of dumping the fragments.

In carrying out the invention provision is made of a metal container 1, which is of the cylindrical form shown. The top and bottom edges are beaded at 2 to give the container the desired additional strength. A cover 3 is provided to fit the top of the container (Fig. 1), the flange 4 of the cover extending down far enough to make an adequate closure. The cover has a fairly large central opening 5, in which the rod 6 of a crusher or pestle 7 (Figs. 2 and 4) works.

As shown in Fig. 2, the rod 6 has a handle 8 on its upper end. This handle can be made in any desired form, and by preference it is made of rubber and so flanged as to enable the operator to maintain a firm grip. As seen in Fig. 1 the foregoing opening 5 is larger than the diameter of the rod 6, thereby providing for the free play of the rod. A stop 9, in the form of a cross pin, or some suitable equivalent, limits the inward movement of the pestle so as to avoid the latter from leaving the bottom of the container, as would otherwise occur in the event of the cover 3 being lifted off or in the event of the device being lifted to the dumping position (Fig. 6) without first removing the cover 3.

A bottom 10 is hinged to the container 1 at 11. The bottom includes a large central boss 12, which comprises the anvil. Inasmuch as the anvil rises from what has been distinguished as the bottom 10, it follows that an annular shoulder 13 is formed, and this shoulder is useful in perfecting a fairly tight seal because of its contact with the bottom bead 2. The face of the anvil 12 is made concave at 14 for the purpose of assisting the gravitation of the fragments toward the center of the device.

The hinge 11 is of any ordinary construction, but it is desirably strong. The leaf 15 (Fig. 3) is riveted to the container 1, while the companion leaf 16 is screwed or otherwise secured to the bottom 10. The bottom constitutes a combined closure and anvil as already suggested, it purposely being made heavy so as to withstand the force of the blows of the pestle 7 upon the material to be crushed.

A catch 17 temporarily secures the bottom 10 to the container 1 in its closed position (Fig. 1). This catch comprises a length of stout spring

metal which is riveted or otherwise secured at 18 in a recess 19 in the bottom 10. This recess is not always required because actually the depth represented by the thickness of the catch and the heads of the rivets will not offset the device enough to make it unstable. However, the recess 19 does enable the bottom 10 to set perfectly level.

A finger-piece 20 is secured to the catch 17 near its free end. The extremity of the latter is bent to form a detent 21 which engages a lug 22 that is secured to the side of the container. Outward pressure upon the fingerpiece 20 will flex the catch so that it springs away from the lug and releases the bottom 10.

Reverting to the pestle 7 it is to be observed that this has a special formation on its underface. There is an annular outer flange 23, the inner wall 24 of which is either struck on a curve as shown, or is beveled to a fairly sharp edge 25. The purpose of this edge is to crack the bottles, but the most important function of this construction is to employ the inner wall 24 as a deflector means which serves to urge and drive the fragments toward the center.

An inner annular flange 26 is arranged concentrically to the flange 23, but is made much heavier and therefore becomes the actual crushing flange. The annular recess 27 and central opening 28 resulting from the making of the flanges 23, 26 provide spaces into which the fragments can be displaced when the cracking and crushing occurs, thereby facilitating the work of the flanges. The face 29 of the pestle 7 is struck on a convex arc, thereby matching the concavity 14 of the bottom 2. At one side of the container a hook 30 is riveted or otherwise secured in place as shown. This hook is intended to be rested upon the rim of the barrel 31 (Fig. 6) or similar container, into which the cracked fragments 32 are to be dumped.

The operation of the bottle breaker is as follows. The bottom 2 is normally caught in place upon the container 1 in its closing position (Fig. 1). Upon having some bottles to break the operator grasps the handle 8 and lifts the entire assemblage in Fig. 2 out of and away from the container. The bottles are thrown in and the foregoing assemblage is then replaced. A few downward strokes of the pestle 7 will crack and break the bottle.

Consider the bottle 33 in Fig. 5. This lies in the concavity 14 of the bottom 2. When the pestle 7 is brought down, the crushing flange 26 will probably be the first element to strike the

bottle. The collapse of the bottle will immediately bring the flange 23 into operation. As the curved walls 24 advance in the direction of the arrows *a* (Fig. 5), their contact with the nearest fragments will direct the latter toward the center of the device as indicated by the arrows *b*. The matching confronting faces of the bottom 2 and pestle 7, in other words the concavity 14 and convexity 29, also contribute toward urging the fragments toward the center so that the crushing is done with the thoroughness desired.

After the container has been filled to the extent that the pestle 7 cannot be used with the effectiveness desired, the whole device is lifted from the ground and hooked onto the barrel 31 (Fig. 6). The operator either reaches down with his hand, or with a stick, to displace the finger-piece 20 in accordance with arrow *c*, whereupon the release of the bottom 2 by the springing of the catch 17 lets the bottom swing in the direction of arrow *d* so that the fragments are discharged (arrow *e*).

In this operation the cover 3 and pestle 7 are not necessarily removed. They would be removed if the operator wishes to avoid lifting the extra weight of the pestle 7. But if they are left in place the pestle 7 will simply follow the load down until it is limited by the stop 9.

After the container has been emptied it is lifted from the barrel and by giving it a motion in the proper direction the bottom 2 will be swung over toward the closing position. Then upon suddenly setting the device down the swinging of the bottom will be completed and the catch 17 will engage its detent 21 with the lug 22.

I claim:

A bottle breaker comprising a cylindrical container, a bottom for one end of the container, said bottom including an anvil, the working face of the anvil having a smooth, centralized concavity assisting in the gravitation of glass fragments toward the center of the container, a co-acting pestle in the container having an operating rod, said pestle having an annular outer flange, the inner wall of which is curved inwardly from an edge at the periphery of said flange to provide inward deflector means, said pestle also having a crushing flange spaced from the outer flange, the space being confronted by said curved wall so that the fragments are deflected into the space, said flange extending beyond the plane of said edge and having a convex working face the curvature of which substantially coincides with said edge.

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