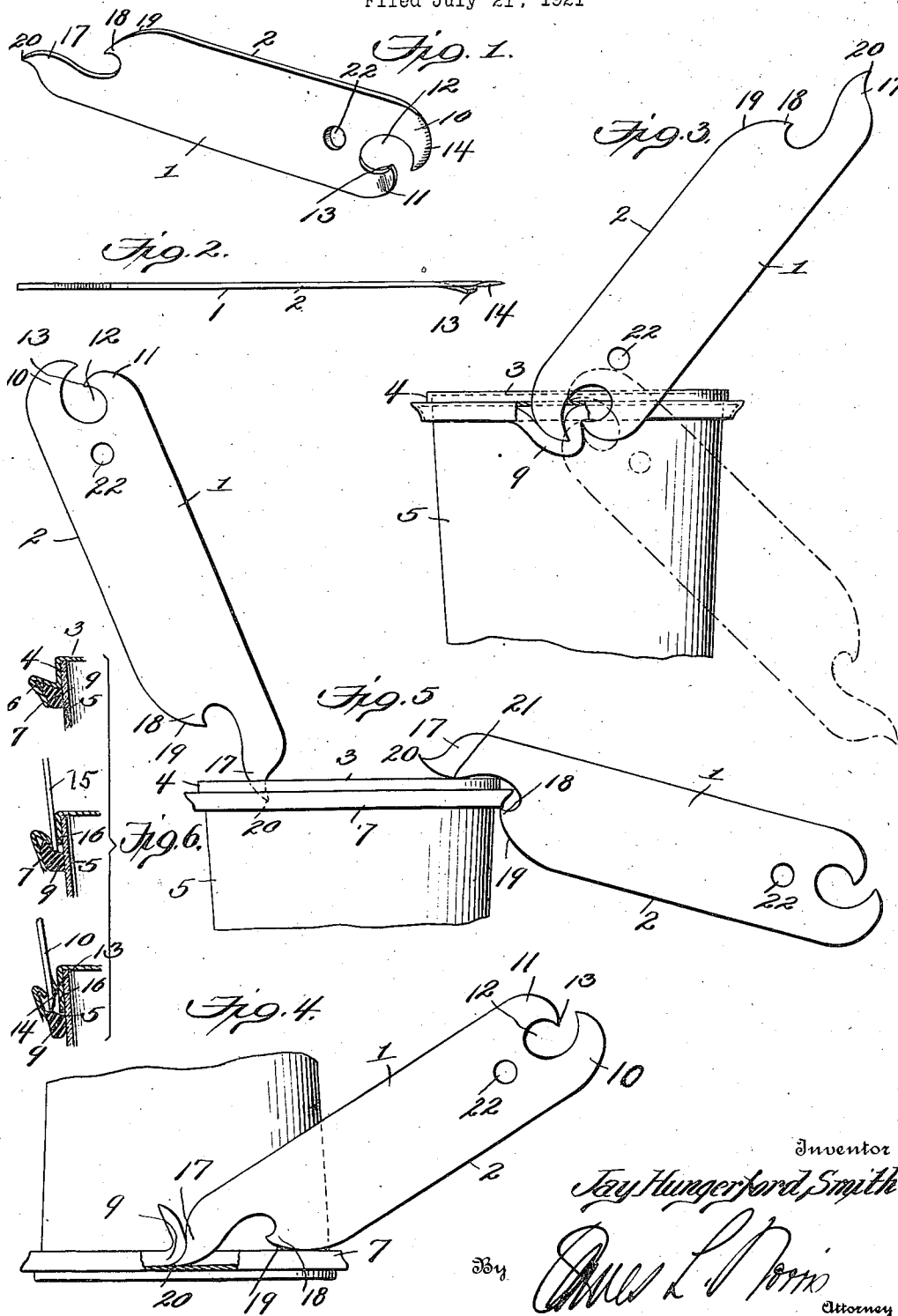


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J. H. SMITH
RECEPTACLE OPENER

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RECEPTACLE OPENER.

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To all whom it may concern:

Be it known that I, JAY HUNGERFORD SMITH, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented new and useful Improvements in Receptacle Openers, of which the following is a specification.

My invention relates to receptacle openers and has for one of its objects the provision of a device of this character which is particularly adapted to the removal of a closure commercially known as the "anchor" top.

A further object of the invention is to provide a receptacle opener which is cheap to construct, simple in operation, and universal in its adaptability to closures of well known types.

In the drawings:—

Figure 1 is a perspective view of my improved receptacle opener;

Fig. 2 is a top plan view of the device;

Fig. 3 illustrates the use of my device applied to a container having an "anchor" top when held in an upright position;

Fig. 4 is a view of the same container in inverted position showing another use of the device;

Fig. 5 illustrates additional uses of the receptacle opener applied either as a puncturing means or as a lifter for crown caps; and

Fig. 6 shows three related detail views in cross-section of a portion of an "anchor" top and the method of unsealing the same.

The "anchor" top which the device of my invention is particularly designed to remove is shown somewhat diagrammatically in Fig. 3 and more in detail in Fig. 6. It comprises a flat disk 3 having a peripheral flange 4 fitting over a container 5 which is turned downwardly against the exterior of the vessel 5 to which it is applied, in the present instance shown as a glass jar. The flange portion of the disk is turned outwardly at 6 as best shown in Fig. 6 and again downwardly as at 7 forming an annular groove between the flange portion 7 and the surface of the glass. Within this groove is placed a rubber sealing ring 9, and the depending portion 7 of the flange is then spun or peened inwardly toward the glass compressing the rubber between itself and the glass in sealing relation thereto. The top is ordinarily removed by forcing a table fork between the inturned edge and the glass and into the

rubber in order to break out a short end of the rubber. The remainder of the rubber is then pulled out with the fingers. This has obvious disadvantages both as regards the damaging effect on the fork and its crudeness and inconvenience in opening the top. By my receptacle opener the closure may be expeditiously removed in either of two ways, the opposite ends of said opener being formed with means for accomplishing this purpose. One end may be used as shown in Fig. 3, for puncturing the lid from the upper side and for forcing the rubber from beneath the inturned flange in a loop which is then pulled out with the fingers. The other end of the opener is designed to be used on the jar inverted as shown in Fig. 4, the rubber being cut and pried out as far as need be with the opener and then manually withdrawn.

In the drawing numeral 1 represents the handle part of the device which is preferably stamped out from a flat piece of metal having a uniform thickness as shown at 2 and provided at one end with two inwardly facing pointed projections 10 and 11 which terminate substantially in a line parallel to the median longitudinal line through the device. The projection 11 terminates a short distance inwardly of the projection 10. These projections are formed each with an external convex contour which merges respectively in the outer longitudinal edges of the body portion and an inner concave contour having a spiral curvature extending from the point of one projection to that of the other leaving a cutout portion 12 back of said projections.

The point 13 of the projection 11 is bent a little to one side of the plane of the flat surface of the blank as shown at 13 in Fig. 2 and is preferably beveled outwardly so that when placed against a container as shown in the dotted line position of Fig. 3 the beveled pointed end 13 will lie against the joint between the edge of the flange 7 and the wall of the container 5 in a position to enter slightly into said joint when the device is swung upwardly forming a fulcrum upon which the device is swung to the solid line position of Fig. 3 during which movement the projection 10 penetrates the outwardly extending edges of the flanged portion of the "anchor" top and continuing through said top engages the rubber on its cam surface or convex edge 14 and forces the

rubber outwardly of the inturned edge of the flange in a loop as shown at 9 which may then be conveniently grasped by the fingers. The cutout portion 12 between the two projections 10 and 11 of the device allows room during the turning operation of the device for the intervening material between the fulcrum and the point of puncture.

The convex surface of the projection 10 is ground to an approximate edge by beveling off the surface on the side of the blank which is intended to be placed adjacent the receptacle as shown at 14. This edge is a dull edge being only sufficiently sharp to puncture the metal of the top but not so sharp as to cut the rubber against which it bears to force the same out of the groove between the flange 7 and the container.

An important feature of the invention is the direction of the bevel on edge 14 which, as stated in the prior paragraph, is on the side adjacent the jar, leaving that surface of the projection which is remote from the jar unbeveled or flat in the plane of the side surface of the opener. The value of this feature may be appreciated from Fig. 6 which shows in the upper view a detail of the "anchor" top and jar with the parts in sealed relationship. The middle view shows the same elements with the transverse flange punctured by a hypothetical opener 15 which differs from the device of this invention in that it has no beveled edge. Said hypothetical device, because of the absence thereof of a beveled edge, will draw down a burr of metal 16 on each side of the perforation. The rubber 9 being resilient, the opener will sink into it some distance before the rubber begins to move. That is to say, the rubber will lag relative to the downward pressure of the opener so that the burr will overtake the rubber and compress it before it can move out of the way. Now as will be seen from the upper view of Fig. 6 the angle between the transverse portion 6 of the flange and the inturned portion 7 is acute so that the burr 16 on the outside of the puncture, in compressing the rubber, will pinch it between the burr and the inturned portion 7, the result being that the rubber will not come out readily but the end of the hypothetical opener will cut it through or break it so that it can only be gotten out piecemeal.

The lowest view of Fig. 6 shows the same detail of the "anchor" top as the other views. In this the transverse flange has been punctured by the projection 10 of my device with the bevel on the edge 14 on the side next to the jar. In this instance the cut is clean on the side opposite the glass and substantially the entire burr will be turned down adjacent the glass. As will be noted from the top view of Fig. 6 the angle between the transverse portion 6 of the flange and the glass

is an obtuse angle so that the burr will have to travel through much greater distance than in the former case to assume a puncturing relation with the rubber against the glass by which time the rubber will have been forced entirely out of the way of the burr.

It will be noted that the puncture in the top is made in the flange alone and does not destroy the top which may be subsequently used to cover the jar in a dust-tight manner or to prevent evaporation of the contents therefrom.

The other end of the opener is provided with a pointed projection 17 which extends outwardly in a longitudinal direction and has an external contour of S-shaped curvature and is slightly concave adjacent the point to enable the point to be inserted beneath the rubber 9 as shown in Fig. 4, and then convex in order that it may turn the rubber upwardly to a position where it may be manually grasped. Somewhat inwardly of the projection 17 the opener is provided with a projection 18 having a convex outer edge forming a rocking fulcrum adapted to rest upon the inturned portion 7 of the "anchor" top when the jar is in inverted position as shown in Fig. 4 and to form a purchase for the device when forcing the projection 17 beneath the rubber. The convex surface 19 of the projection 18 serves also as a traction surface for the opener as it is slid around the jar along the edge of the flange 7 to dislodge the desired length of rubber. To the end that the convex surface 19 shall not readily slip off the edge of the flange 7 it is left the full thickness of the blank and cut at right angles thereto. The point 20 of the projection 17 is slightly beveled to permit easy entrance between the flange 7 and the container but left with sufficient of a chisel edge to cut the rubber, as it is pressed in engagement with it.

In Fig. 5 is shown means for opening closures other than the "anchor" top. To the right is shown the opener in the act of removing an ordinary crown cap, for which purpose the pointed end 18 is extended slightly in a hook form to prevent its slipping under the edge of the top. The lower edge of the projection 17 is used as a fulcrum 21 on top of the cap. To the left in Fig. 5 is shown the pointed end 20 of the projection 17 in position to puncture the top of a vacuum closure in order to relieve the differential air pressure on the outside of the closure so as to effect its ready removal.

The flat shape of the device adapts it to be conveniently packaged with the receptacle in connection with which it is to be used. The device may also have a perforation 22 by means of which it may be hung up when not in use.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A receptacle opener for forcing the rubber from "anchor" tops, comprising a handle portion having curved pointed projections facing inwardly toward one another, one projection terminating within the curvature of the other and being offset to one side thereof, said inwardly terminating projection being used as a fulcrum against the edge of the flange of an "anchor" top, and the outer projection constituting a puncturing element for the transverse portion of said flange when the opener is swung on its fulcrum.

2. A receptacle opener for forcing the rubber from "anchor" tops, comprising a handle portion having at one end curved pointed projections facing inwardly toward one another, one projection terminating within the curvature of the other, the inwardly terminating projection being adapted to co-act as a fulcrum against the edge of the flange of an "anchor" top, and the outer projection forming a puncturing element for the transverse portion of the flange, said outer projection being provided with a convex cam surface and being adapted to successively puncture said flange and to displace the rubber of said "anchor" top against said cam surface when the opener is swung on its fulcrum.

3. A receptacle opener for forcing the rubber from "anchor" tops, comprising a handle portion having at one end curved pointed projections facing inwardly toward one another, one projection terminating within the curvature of the other, the inwardly terminating projection being adapted to use as a fulcrum against the flange of a top, and the outer projection forming a puncturing element for the transverse portion of said flange, said outer projection being provided with a convex cam surface

beveled to a dull edge for puncturing said flange and constructed to displace the rubber of said "anchor" top when the opener is swung on its fulcrum.

4. A receptacle opener for forcing the rubber from "anchor" tops, comprising a handle portion having at one end curved pointed projections facing inwardly toward one another, one projection terminating within the curvature of the other, the inwardly terminating projection being adapted to use as a fulcrum against the flange of a top, and the outer projection forming a puncturing element for the transverse portion of said flange, said outer projection being provided with a convex cam surface beveled to a dull edge on the side lying adjacent the container when the opener is applied to an anchor top and unbeveled on the opposite side for puncturing said flange and constructed to displace the rubber of said "anchor" top when the opener is swung on its fulcrum.

5. A receptacle opener comprising a flat metallic blank having at one end two inwardly facing pointed projections having a concave inner edge forming a cut-out portion between them, one of said projections terminating within the arc of curvature of the other, the inwardly terminating projection being bent slightly to one side of the plane of the blank, and the outwardly terminating projection lying in the plane of the blank and having a convex outer edge beveled to a dull edge on the same side of the blank as that toward which the inwardly terminating projection is bent.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAY HUNGERFORD SMITH.

Witnesses:

JOHN RANDOLPH DEAN,
JAY ELWOOD SMITH.