

R. ZASTROW & L. T. SNOW.
BOTTLE CLOSING DEVICE.
APPLICATION FILED JAN. 29, 1910.

981,965.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

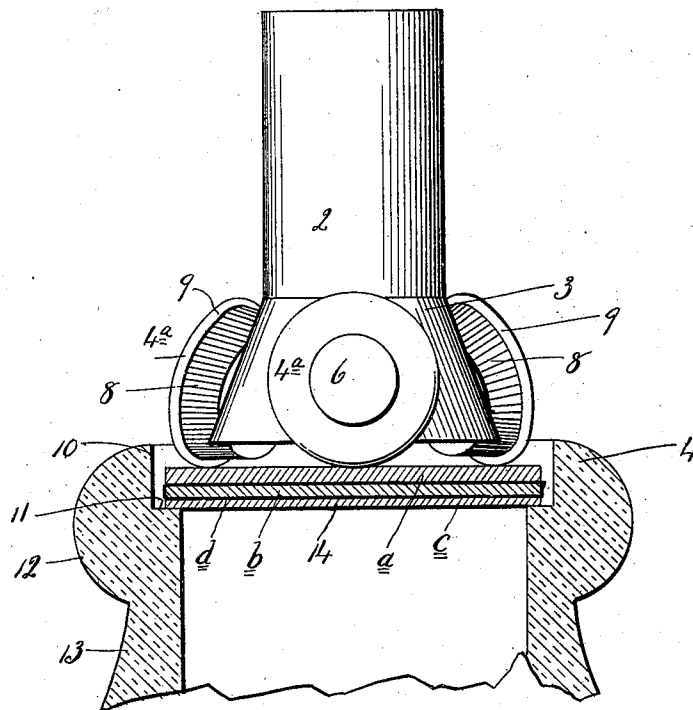
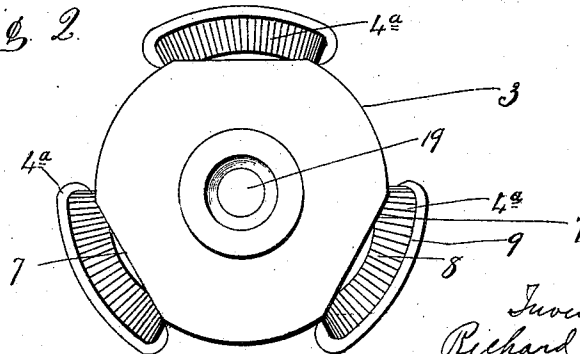


Fig. 2.



Witness
C. J. Reed.
C. L. Reed

Inventors
Richard Zastrow
and Levi T. Snow
by Seymour H. Hare
Attys

R. ZASTROW & L. T. SNOW.
BOTTLE CLOSING DEVICE.
APPLICATION FILED JAN. 29, 1910.

981,965.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 2.

Fig. 3.

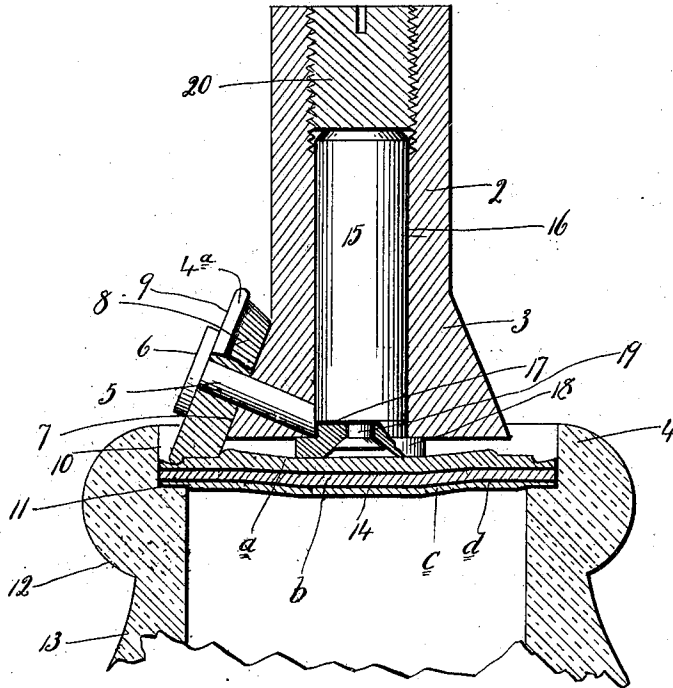


Fig. 4.



Fig. 5.

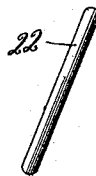


Fig. 6.

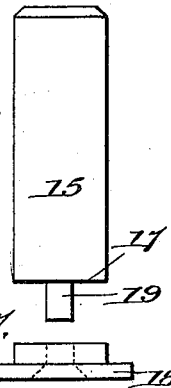
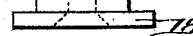


Fig. 7.



Witness
C. J. Reed.
C. L. Weed

Inventor
Richard Zastrow
and Levi T. Snow
by Seymour T. Eason
Att'y.

UNITED STATES PATENT OFFICE.

RICHARD ZASTROW AND LEVI T. SNOW, OF NEW HAVEN, CONNECTICUT; SAID SNOW
ASSIGNOR TO SAID ZASTROW.

BOTTLE-CLOSING DEVICE.

981,965.

Specification of Letters Patent. Patented Jan. 17, 1911.

Application filed January 29, 1910. Serial No. 540,928.

To all whom it may concern:

Be it known that we, RICHARD ZASTROW and LEVI T. SNOW, citizens of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Bottle-Closing Devices; and we do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a view in side elevation of a closing device constructed in accordance with our invention combined with a view in vertical section of a laminated washer in a wide-mouthed bottle, the said device and washer and bottle being shown in the positions which they will have at the beginning of the operation of the device for seating and expanding the washer. Fig. 2 a reverse plan view of the closing device. Fig. 3 a view of the device and bottle and washer in vertical section after the device has seated and expanded the washer in the mouth of the bottle, the lower portion of which is broken away. Figs. 4 and 5 are detached views of modified forms which the rollers may assume. Fig. 6 a detached view in side elevation of the adjustable stem. Fig. 7 a detached edge view of the disk.

Our invention relates to an improved device for seating and expanding the laminated washers employed as closures for wide-mouthed bottles, the object being to produce a device which will perform such work efficiently, rapidly and neatly.

With these ends in view, our invention consists in a closing device having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out our invention, as herein shown, we employ a head consisting of a heavy cylindrical stem 2 and a concentric flaring or conical lower end or base 3, it being understood that the stem 2 is to be inserted into a chuck or equivalent part of a suitable machine adapted also to support a wide-mouthed bottle such as the bottle 4. To the base 3 we apply three beveled seating and expanding rollers 4^a secured in

place by and turning upon short inclined studs 5 having retaining heads 6, which hold the flat inner faces of the rollers down upon inclined flat bearing-faces 7 formed at equal distances apart upon the exterior surface of the base 3. The said rollers are thus inclined with respect to the longitudinal axis of the stem 2 so as to act with an outward thrust. As shown in Figs. 1, 2 and 3, the said rollers are knurled as at 8 and formed upon their outer edges with bead-like rims 9. By tilting the rollers as described and shown, they better clear the vertical side walls 10 of the annular closure-receiving recess 11 formed in the bead 12 terminating the neck 13 of the bottle 4, and also exert a constant effort by this outward thrust to stretch the laminated closure 14 and force the edges thereof against the vertical side wall 10 of the recess 11. The said closure 14 may be of any approved construction, but we prefer to employ such a closure as is shown and described in the concurrently pending application of Richard Zastrow filed July 6th, 1908, Serial No. 442,040.

As herein shown the closure 14 consists of a top disk or body *a*, middle disk or seal *b*, and a bottom or seal-protecting disk *c*, the middle disk or seal *b* being treated with a proofing substance *d* chemically resistant to the contents of the bottle, sufficing to adhere the three disks together and exuding from the edge of the closure when the same is subjected to pressure. When such a closure is positioned in the recess 11 and subjected to the action of our improved closing device, the closure will be stretched and increased in diameter until its edges are brought into as close contact as may be with the vertical side walls 10 of the said recess 11, the proofing material *d* being at the same time exuded around the edge of the closure so as to lie between the edges of the same and the walls 10 and so as to penetrate any interstices or firecracks however small in the glass. For heightening the effect of the closure, we prefer to give it a slightly convex form, its convexity being inward on the side of the contents of the bottle. We give it this form by employing a longitudinally adjustable stem 15 located within a circular central passage 16 which extends throughout the length of the stem 2 and base 3. The said

stem 15 is provided at its lower end with a heavy concentric rivet-like pivot 19 upon which we mount a rotatable disk 18 larger in diameter than the passage 16, and bearing upon the lower face of the stem 2, as clearly shown in Fig. 3. A threaded plug 20 entered into the threaded upper end of the chamber 16 provides for the adjustment of the plunger 15 so that the projection of the disk 18 below the flat lower face of the base 3 to a greater or less extent, may be regulated as desired. The action of the washer 18 is to depress the center of the closure as shown in Fig. 3, whereby it presents a generally convexed face to the contents of the bottle.

In using our device, it will be understood that the contents of the bottle having been placed in it, a closure is set into the closure-receiving recess 11 after which our improved closing device is brought into contact with the upper face of the closure either by the depression of the closing device or the lifting of the bottle. The closing device being now rotated the closure is seated and expanded into the recess 11 as shown by a comparison of Figs. 1 and 3, the operation being effectively, quickly and neatly done.

If desired we may employ plain beveled rollers like the roller 21 shown by Fig. 4, or thin rollers like the roller 22 shown by Fig. 5, but we prefer to employ knurled and headed rollers like the rollers 4.

If preferred the closure may be coated with proofing on both sides to increase the security. In that case it would be modified accordingly.

We claim:—

1. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head, of studs fixed in inclined positions in the lower end of the said head, and rollers mounted upon the projecting outer ends of the said studs and extending beyond the lower edge of the head with respect to which they are inclined and upon which they have bearing.

2. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head terminating at its lower end in a conical base, of studs fixed in inclined positions in the said conical base, and rollers journaled upon the projecting outer ends of the said studs and extending

beyond the lower edge of the said conical base upon which they have bearing.

3. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head consisting of a cylindrical stem and a flaring or conical lower end or base, of studs fixed in inclined positions in the said conical base, and rollers journaled upon the projecting outer ends of the said studs and extending beyond and below the lower edge of the said conical base upon which they have bearing.

4. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head having a conical base, of studs fixed in inclined positions in the said conical base, and rollers mounted upon the projecting outer ends of the said studs, each roller being beveled and knurled and formed upon its outer edge with a bead and each roller having bearing upon the said conical base.

5. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head having a concentric base, of one or more rollers applied to the said base, and means applied to the lower face of the base for giving inward convexity to the closures.

6. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head, of one or more rollers applied to the said head, and adjustable means projecting below the lower face of the head for giving inward convexity to the closures.

7. In a closing device for seating and expanding closures in wide-mouthed bottles, the combination with a head, of one or more rollers applied to the said head, a plunger located in the said head, and a rotatable washer applied to the lower end of the plunger and projecting beyond the lower face of the head for imparting inward convexity to the closures.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses.

RICHARD ZASTROW.
LEVI T. SNOW.

Witnesses:

CLARA L. WEED,
GEORGE D. SEYMOUR.