

UNITED STATES PATENT OFFICE.

ALBERT LIEBER, OF INDIANAPOLIS, INDIANA.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 622,376, dated April 4, 1899.

Application filed December 4, 1897. Serial No. 660,724. (No model.)

To all whom it may concern:

Be it known that I, ALBERT LIEBER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Sealing Devices or Stoppers for Bottles, Fruit-Jars, &c., of which the following is a specification.

The object of my invention is to improve the construction of movable stoppers or sealers, whereby at comparatively small cost means for hermetically sealing bottles may be provided and such means as are adapted to be reused whenever required for an indefinite period.

In the accompanying drawings, Figure I is a central vertical longitudinal section of a portion of the neck of a bottle adapted to receive and provided with one form of embodiment of my stopper. Fig. II is a view similar to Fig. I, showing another form of embodiment of my invention. Fig. III is a section on the line III III of Fig. I. Fig. IV is a section on the line IV IV of Fig. I.

Referring to the figures on the drawings, 1 indicates a cap that may be made of any suitable material—for example, glass.

2 indicates a disk which may be made of any suitable yielding or compressible and preferably elastic material, which being a little larger than the interior of the cap 1 and which on account of its yielding character may be forced into the cap affords means within itself when inserted within the cap of remaining securely in place. It also affords means when forced into the cap of holding firmly in position the spring 3, that is provided with two legs having hooked ends that are adapted to engage threads upon a bottle made to accommodate the cap, and thereby to securely but detachably unite the cap to the bottle. The disk 2 serves, therefore, not only as a means of holding the spring 3 in place within the cap, but also serves as a sealer for the end of the bottle when the cap is applied thereto.

4 indicates a threaded sleeve or collar that is provided with inturned resilient edges 6 and 7, adapted to enter annular grooves provided for them, respectively, in the neck 8 of

the bottle. The sleeve 4 is provided with suitable screw-threads 9, said threads being preferably of ratchet form in cross-section.

To provide for the necessary movement of the hooked ends or catches 10 of the spring 3, I prefer to make the wall 11 of the cap 1 outwardly divergent toward its lower edge.

In practice, the sleeve 4 having been secured upon the neck 8 of the bottle and the spring 3 having been secured in place within the cap by aid of the disk 2, in order to secure the cap to the bottle all that is necessary is to force the cap upon the end of the bottle. By that operation the catches 10 of the spring 3 easily slip over one or more of the threads 9. Then by turning the cap slightly upon the neck of the bottle the cap is, through engagement of the catches 10 with the threads 9, drawn in the direction of the bottle until a close joint is formed between the end of the bottle-neck and the disk 2 within the cap.

In removing the cap from the bottle it is only necessary to unscrew it.

When a metallic element similar to the sleeve 4 is employed, I prefer to use the form of cap above described with reference to Fig. I, because in that form of embodiment of my invention the sleeve 4 being upon the outside of the neck of the bottle the metal of which it is made cannot come into contact with the contents of the bottle. In Fig. II, however, I illustrate a modified form of embodiment of my invention, in which the threads are formed within the neck of the bottle and of the same material of which the bottle is made. Referring to the reference-numerals in that figure, 12 indicates a section of a bottle-neck provided with interior screw-threads 13. 14 indicates a cap that fits over the end of the bottle and which is provided with a spring 15, having outwardly-projecting hooks or catches 16, adapted to engage the threads 13 of the bottle-neck. The spring is secured in place, as by a disk 17, corresponding to the disk 2, previously described. Inasmuch, however, as the spring 15 is smaller than the cavity of the stopper it is necessary to embed it within the material of the disk in order to secure it by aid of the disk to the cap. For that reason the material of which the disk 17 is composed

is preferably such as may be reduced to the condition of a pulp and may be introduced within the cap around the spring in that state and afterward allowed to harden.

- 5 The spring 13 may be provided with a central projection 18, which being inserted within a concentric recess provided for it in the cavity of the cap 14 affords means for properly locating the spring during the introduction of
10 the material of which the disk 17 is composed and while said material is setting or hardening. After the spring is secured in place within the cap 14 the mode of applying and of removing the cap is precisely similar to
15 that described with reference to Fig. I.

I claim—

1. A sealing device for bottles comprising a hollow cap, a rectangular spring conforming to the inner contour of the cap and provided with terminal catches and a compressible disk fitting within the stopper constituting securing means for the spring and a seal for the mouth of the receptacle to which the device is applied, substantially as specified.
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25 2. A sealing device for bottles, comprising a cap having a concentric cavity the walls of which diverge toward the lower annular edge of said cap, a spring-band located diametrically within said cavity and having spring
30 ends terminating at the edge of the cap and provided with inwardly-directed terminal catches, and a compressible disk located at the bottom of the cavity and of less width

than the depth of said cavity, substantially as specified.

3. The combination with a hollow cap, a plurality of spring-catches therein, and a compressible disk constituting securing means for the catches, of a bottle provided with annular grooves in its neck, and a threaded band encircling the neck and having its edges bent into the annular grooves, substantially as specified.

4. The combination with a cap provided with a central cavity the walls of which diverge to the lower edge of said cap, of a band extending diametrically across the bottom of the cavity and having spring ends conforming to the walls thereof and terminating in catches at the edge of the cap, a compressible disk of less width than the depth of the cavity and serving to secure the band in place, a bottle provided with annular grooves in its neck, and a threaded ring encircling the neck of the bottle and having its edges pressed into the annular grooves therein, the threads of said ring being of ratchet form in cross-section, substantially as specified.

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

ALBERT LIEBER.

Witnesses:

THOS. W. BROWN,
FRED. C. GROSSART.