(No Model.)

J. BYRNE.

BOTTLE STOPPER.

No. 320,457. Patented June 23, 1885.

Fig 1.

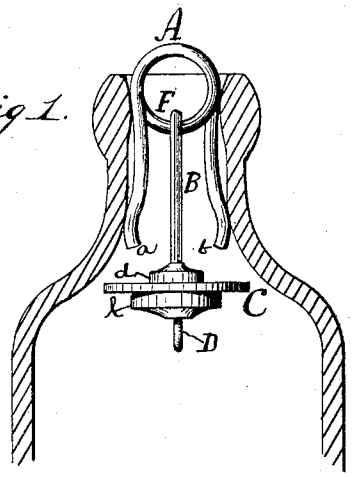


Fig 2.

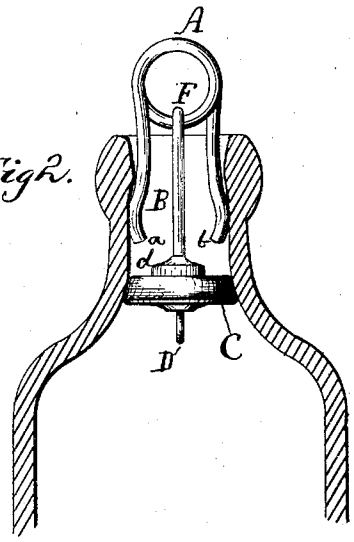


Fig 3

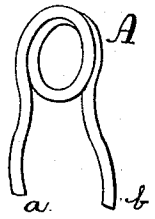
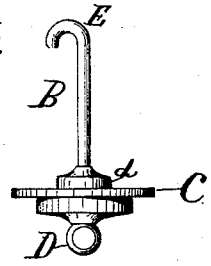


Fig 4.



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UNITED STATES PATENT OFFICE.

JOSEPH BYRNE, OF CHICAGO, ILLINOIS.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 320,457, dated June 23, 1885.

Application filed April 5, 1884. Renewed May 15, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BYRNE, a citizen of the United States, residing in Chicago in the State of Illinois, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is the specification.

The nature and object of this invention is to provide a bottle-stopper effectual in its working and simple and cheap in its construction.

Figure 1 is a vertical section of the neck of a bottle with my improved stopper therein unclosed. Fig. 2 is a vertical section with stopper therein closed. Fig. 3 is a detail of spring. Fig. 4 is a detail of stopper and hook.

Similar letters of reference refer to similar parts in the various figures.

A is the spring, made of any suitable numbered wire, having a single turn at upper end and open at lower end, terminating in the two ends *a b*. B is a stem, having at its upper end the hook E, and at its lower end the washers *d* and *l*, and between them the rubber C, and at its extreme lower end the ring D. The lower washer, *l*, is larger than the upper washer, *d*. The hook E engages with the ring F of the spring A.

When in position for use, the spring A is raised, as shown in Fig. 2. This causes the rubber C to fold over the lower washer, *l*, and as it is pressed against the interior of the neck of the bottle it forms a perfect joint, as shown in Fig. 2. This arises from the fact that the fold of the rubber over the washer *l* makes it too large to pass through the neck.

When desired to pour out the contents of the bottle, the spring A is pressed down, as shown in Fig. 1. This releases the stopper below and allows the contents to be poured out. The ring F is made larger than the neck of the bottle, so that it will not pass down through the neck into the bottle. The stem B being suspended from the lower portion of the ring F, it always brings directly in the center of the neck, which insures the stopper working evenly and squarely against the lower portion of the neck, thus making a perfect seal or joint. To remove the stopper, the spring A is pushed slightly down, just enough to free the hook from the ring, when with a piece of wire or any convenient tool the hook is moved slightly to one side, just enough to escape the ring, when the ring is removed from the bottle and the stem drops down into the bottle. This stem is then reversed by shaking the bottle, when a hooked wire is inserted and engaged with ring D, and the stopper is removed from the bottle. In this act the rubber C folds over the upper or smaller washer, *d*, which is sufficiently small to allow the stopper to pass out of the neck.

I am aware that what might be called a "staple-spring" has been used in bottle-stoppers, with the stopper hung or attached to one or both ends of the lower extremities of the spring.

The hook E is open, as shown in Fig. 4, so it can be released at pleasure from ring F when desired to remove the stopper.

I claim—

A bottle-stopper consisting of spring A, formed at its upper end with a ring, F, the stem B, having hook E at upper end to engage with ring F, and washers *b* and *l* and rubber C at its lower end, substantially as and for the purpose shown.

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