A. E. BARTHEL.
Bottle-Stopper.

No. 202,138. Patented April 9, 1878.

Fig. 1.

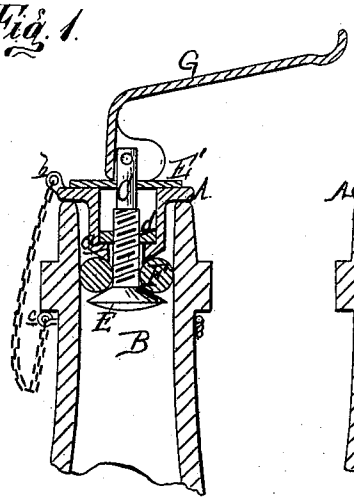


Fig. 2.

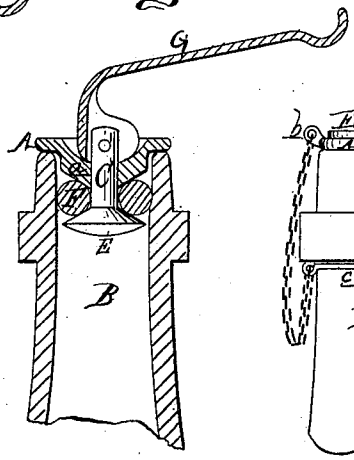
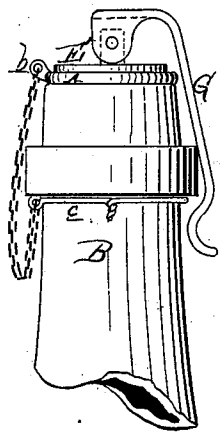


Fig. 3.



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ALBRECHT E. BARTHEL, OF DETROIT, MICHIGAN.

IMPROVEMENT IN BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. **202,138**, dated April 9, 1878; application filed February 8, 1878.

To all whom it may concern:

Be it known that I, ALBRECHT E. BARTHEL, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Bottle-Stoppers; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification.

The nature of my invention relates to new and useful improvements in the construction of bottle-stoppers; and the invention consists in the construction and combination of the various parts, as more fully hereinafter described.

Figure 1 is a vertical section, showing the construction and arrangement of the lower disk, rubber ring, upper disk, recessed to receive a fixed nut, screw, and lever. Fig. 2 is a vertical section, showing a modification wherein the screw is dispensed with. Fig. 3 is a side elevation, showing the stopper in place, and the position of the cam-lever securing the stopper in the bottle.

Like letters refer to like parts in each figure.

In the drawings, A represents a metallic disk, larger than the mouth of the bottle B, upon which it rests when in place. This disk is provided with a stud, *a*, projecting from its under side, the lower end of this stud being somewhat conical in shape, as shown in Fig. 1, or slightly convexed, as shown in Fig. 2. A rod, C, passes through this disk and stud, and terminates in, or has rigidly secured to it, a metallic disk, E, the upper face of which corresponds with the shape of the under face of the stud *a*, reversed, so that when the parts are in place a nearly V-shaped annular space is left, surrounding the rod or stem, to receive a rubber or elastic ring, F. The upper end of this rod or stem is pivoted to the cam-lever G, passing through a disk or plate, E′, placed on top of the disk A, which closes the mouth of the bottle, on which disk E′ the said cam-lever rests.

A cord, wire, or other equivalent device, *b*, secured to the upper disk and to a wire or cord, *c*, around the neck of the bottle, prevents the stopper from being lost.

In use, the stud, lower disk, and elastic ring, being smaller than the bore of the neck, are inserted therein until the upper disk rests upon the mouth of the bottle, the cam-lever being in a nearly vertical position. After insertion the lever is depressed, and by this means the opposite conical faces of the disk and stud are compelled to approach each other, thereby compressing and expanding the rubber ring and filling the bore, so that nothing can escape, while the cam-lever will project downward along the outside of the neck.

In Fig. 1 the upper disk and stud are recessed, as shown, to receive a nut, *d*, rectangular or polygonal in form, and to correspond to the form of the recess. The stem is threaded, and passes upward through the nut, and its upper end pivoted to the cam-lever, as hereinbefore described. The object of this is to enable the operator to still further expand the elastic ring, after it has been expanded as above described, by turning the nut upon the stem, or, rather, by turning the stem in the nut, which is prevented from turning within its recess. This may be sometimes necessary, owing to difference in sizes of the bore of the bottle-neck and of the elastic rings.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a bottle-stopper, the combination, with the disks A and E, elastic ring F, and rod C, of the cam-lever G, pivoted to said rod C, and extending, when the stopper is locked, down the side of the bottle, substantially as and for the purpose set forth.

2. In a bottle-stopper, the combination, with the disk A, of the disk E, having a screw-threaded stem, C, the cam-lever G, plate E′, and the nut *d*, substantially as and for the purposes set forth.

ALBRECHT E. BARTHEL.

Witnesses:

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