W. H. BATE.

Fastening for Bottle-Stoppers.

No. 167,633. Patented Sept. 14, 1875.

Fig. 1.

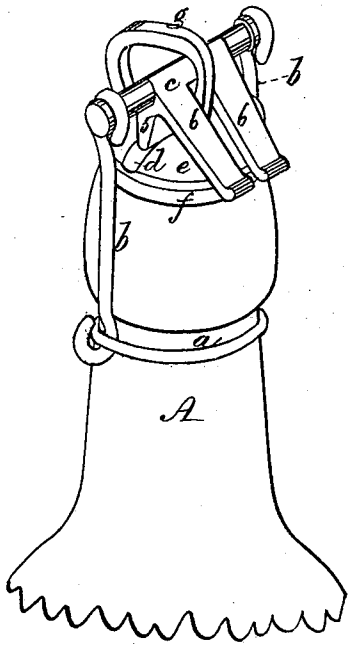


Fig. 2.

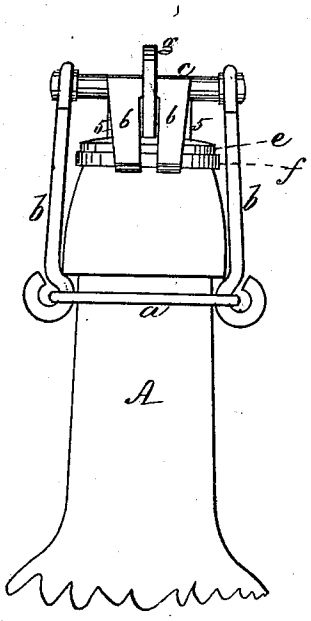


Fig. 3.

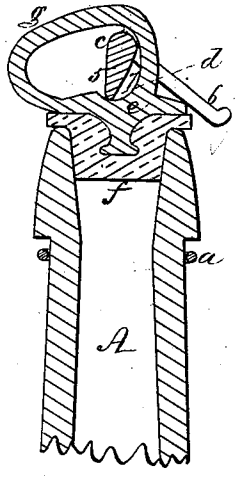
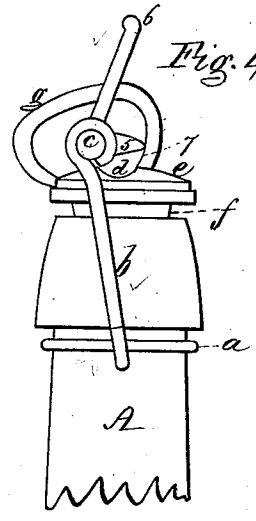


Fig. 4.



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UNITED STATES PATENT OFFICE.

WALLACE H. BATE, OF NORWOOD, ASSIGNOR TO HIMSELF AND MATHIAS RADERMACHER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN FASTENINGS FOR BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. **167,633**, dated September 14, 1875; application filed August 18, 1875.

To all whom it may concern:

Be it known that I, WALLACE H. BATE, of Norwood, in the county of Norfolk and State of Massachusetts, have invented an Improved Fastening for Bottle-Stoppers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved stopper-fastening applied to a bottle. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical section through the same. Fig. 4 is a side elevation of the same, the position of the parts being changed.

My invention has for its object to produce a simple, durable, and reliable fastening for bottle-stoppers, which can be easily and quickly operated by the hand to secure or release the stopper; and my invention consists in a cam-lever pivoted to a swinging frame suitably attached to the neck of the bottle, in combination with a stopper and cap having a looped guide, which extends over the lever, and serves to connect the stopper with the swinging frame, so as to prevent it from becoming detached therefrom.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the neck of a bottle, to which is secured, by means of a wire, *a*, the swinging frame *b*, composed of wire, to the upper ends of which is hinged a cam-lever, *c*, the short arm 5 of which, when the stopper is in place within the mouth of the bottle, rests in a groove, *d*, in the top of a metallic cap, *e*, which is attached to the top of the stopper *f* composed of rubber or other suitable material. *g* is a looped guide, which extends up from the cap *e*, and is formed in one and the same piece therewith, extending over and inclosing the lever *c*, so as to connect the stopper with the frame *b*, and prevent its loss, the long arm 6 of the lever being bifurcated, the bifurcations passing one on each side of the looped guide *g*, and serving to keep the parts in their proper relative positions, the space within the loop *g* being sufficient to allow of the free movement of the lever therein, and the proper operating of the stopper.

To close the bottle, the frame *b* is swung up, and the stopper *f* entered within its mouth, as seen in Fig. 4, after which the long arm 6 of the lever *c* is brought down by the pressure of the thumb or finger, causing the short arm 5 to enter the groove *d*, and exert a downward pressure on the cap *e*, to force the stopper *f* into its place, the rounded portion 7 of the inner surface of the guide *g* serving to direct the lower end of the short arm 5 of the lever *c* to its place at or near the center of the cap *e*, the stopper being locked in place as soon as the fulcrum of the lever *c* has passed over to one side of the center, the edge of the cap *e*, or the inner surface of the guide, serving as a stop to arrest the downward movement of the lever.

The greatest compression of the elastic stopper *f* occurs at the instant that the fulcrum of the lever *c* is on the center, after which the degree of compression is slightly relaxed, allowing the stopper to expand, thus overcoming the tendency of the rubber to "set," which is liable to occur with all other stopper-fastenings where the maximum pressure is continually exerted at all times when the bottle is closed, by which means I am enabled to effect a great saving in stoppers, as they will last for a much greater length of time, and can be made of a cheaper quality of rubber.

If desired, the long arm 6 of the lever *c* may be made without bifurcations; in which case two looped guides, *g*, would be required, one on each side of the lever; but, as this would be more expensive and complicated, I prefer the construction first described. The groove *d* in the the top of the cap *e* may also be dispensed with, if desired.

In opening the bottle, it is merely necessary to raise the lever *c* into the position seen in Fig. 4, which relieves the cap *e* of its pressure, so as to allow of the removal of the stopper, which is effected by the hand, or the pressure of the gas within the bottle.

I do not claim, broadly, a cam or eccentric lever, used in connection with a fastening for

bottle-stoppers, as I am aware that this is not new; but

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

The cam-lever *c*, pivoted to a swinging frame, *b*, suitably attached to the neck of the bottle, in combination with the looped guide *g*, extending over the lever, the cap *e*, with or without the groove *d*, and the stopper *f*, all constructed to operate substantially in the manner and for the purpose set forth.

Witness my hand this 13th day of August, A. D. 1875.

WALLACE H. BATE.

In presence of—
P. E. TESCHEMACHER,
W. J. CAMBRIDGE.