(No Model.)

R. BLOESER.

BOTTLE STOPPER.

No. 407,157. Patented July 16, 1889.

Fig. 1.

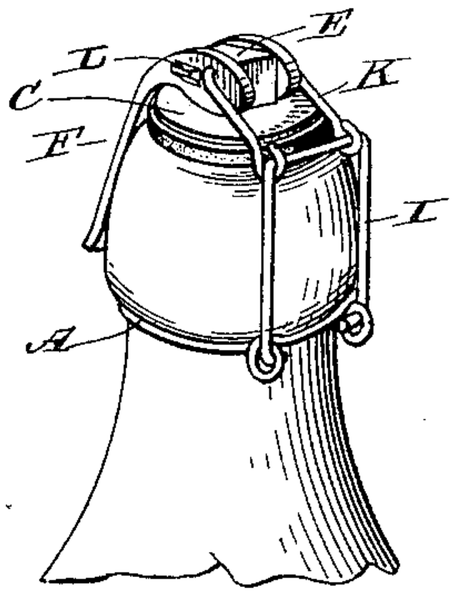


Fig. 2.

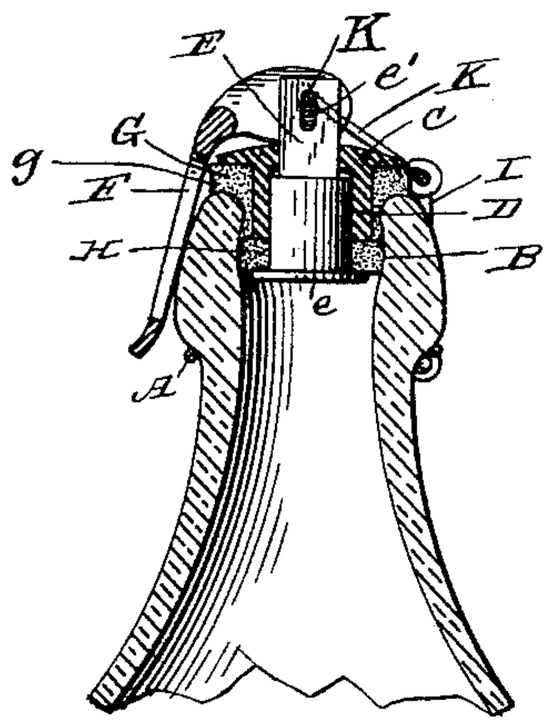


Fig. 3.

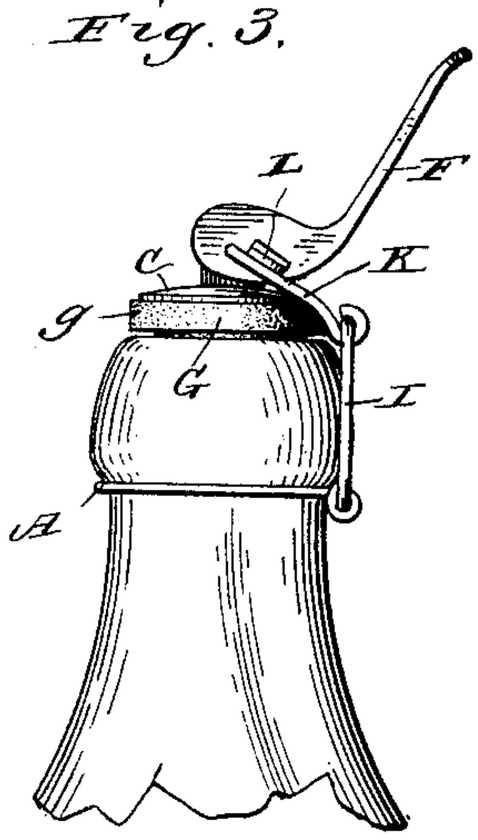
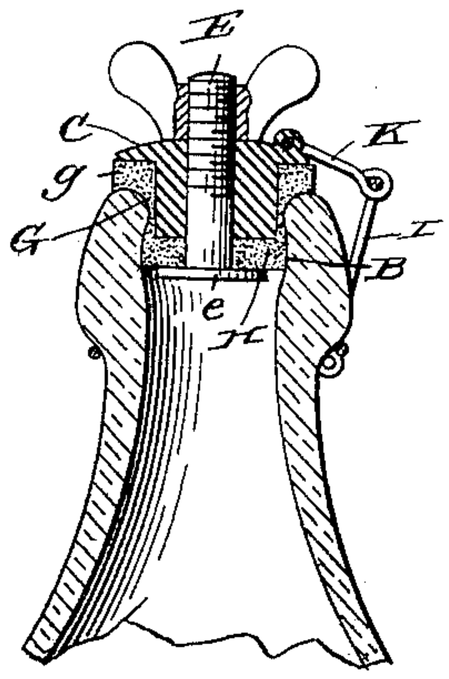


Fig. 4.



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UNITED STATES PATENT OFFICE.

RUDOLPH BLOESER, OF SCRANTON, PENNSYLVANIA.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 407,157, dated July 16, 1889.

Application filed February 15, 1889. Serial No. 299,996. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH BLOESER, of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Stoppers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

The present invention relates to certain improvements in bottle-stoppers, particularly such as are adapted to be expanded within the mouth of the bottle to retain the stopper in place, and has for its object to provide an improved stopper which will remain permanently attached to the bottle-neck, and which may be withdrawn from and inserted within the bottle-mouth with great facility, and which may be firmly and securely locked within the mouth of the bottle.

The invention consists in certain novel details of construction and combinations and arrangements of parts, as will be hereinafter described, and pointed out particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of the top of a bottle having a stopper constructed in accordance with my invention applied thereto. Fig. 2 is a sectional view of the same. Fig. 3 is a side elevation with the locking-lever raised in position for withdrawing the stopper from the mouth of the bottle. Fig. 4 is a sectional view of a modification.

Similar letters of reference in the several figures refer to the same parts.

The top of the bottle is provided with the usual enlarged portion forming the neck, around which the neck-wire A is placed. Within the mouth is formed an enlargement B, into which the elastic portion of the stopper expands to retain the stopper in closed position.

The stopper itself is formed by the top plate or cap C, preferably circular, with an opening in the center having a downwardly-projecting annular projection D around the same. A central standard or bolt E, having a head or plate *e* on the lower end, constituting the bottom plate, passes through the annular projection and extends above the cap, and to its upper end is attached the locking-lever F, having a cam surface or surfaces acting preferably directly against the cap itself.

G is a gasket of rubber surrounding the annular projection D, with the flange *g* projecting from its upper edge to seal and give the proper elastic bearing on the top of the bottle, and immediately below this gasket of rubber, between the head *e* and the end of the annular projection, is what I term the "elastic center portion," formed by a comparatively thick ring of rubber or elastic substance H, which is adapted to be expanded by the locking-lever and fill the enlargement within the bottle-mouth, as shown clearly in Fig. 4.

The downwardly-extending annular projection, it will thus be seen, causes the rubber to expand at the lower end, thus insuring a co-operation with the enlargement in the bottle-mouth, and, if desired, it is obvious that a single gasket of rubber, with the lower end thickened or otherwise suitably formed to expand when compressed, may be employed, as shown, for instance, in Fig. 4.

A serious difficulty heretofore experienced in the employment of stoppers of this class, and which accounts in a large measure for the comparatively small number of them in use, is that the means employed to retain the stopper in permanent engagement with the bottle, and at the same time guide the stopper to its seat in the mouth of the bottle and prevent its turning while the lever is being tightened, have not been adequate. A further difficulty has arisen from the fact that unless the elastic portion is so small as to endanger its efficiency the stopper cannot be easily withdrawn after the lever has been released. To overcome these difficulties, I secure the stopper to the neck-wire by links or bails, preferably two in number, as shown, the one I being pivotally connected to the neck-wire by a hinge-joint, preferably at one side of the center and extended upward to the top of the bottle, and the other K being pivotally connected to the top of link I by a similar hinge-joint, and, preferably, similarly connected to the stopper, thus allowing it to swing in but

two directions and insuring its proper entry into the bottle-mouth. The point of connection between the link K and the stopper may be varied, but is preferably as shown in Figs. 1, 2, and 3, wherein it will be seen that the link passes through the locking-lever, forming the pivot therefor, and through the slot *e'* in the top of the standard or bolt E, thus dispensing with the necessity of a separate connection between the locking-lever and bolt and enabling the link to be placed in position after having been partially or wholly bent to the proper shape, a further advantage arising from the employment of the slot being that pressure from within the bottle will only act directly on the lower portion of the gasket of rubber, leaving the bolt free to move upward a slight distance, thus overcoming in a measure the tendency to force the stopper out, as will be readily understood.

Each of the links may be formed of single pieces of wire bent into substantially **U** shape, as shown, with the eyes or means at the ends for making the pivotal connections.

Small shoulders or lugs L are formed on one or both sides of the locking-lever, as shown in Figs. 1, 2, and 3, which, when the lever is thrown back and the elastic portion released in position for being withdrawn from the bottle-mouth, come in contact with the sides of the link K. Thus as the stopper is withdrawn it will move almost vertically, as the pivotal point will then be between the two links to one side of the stopper, as will be readily understood.

As shown in Fig. 4, the locking device is in the form of a thumb-nut, which engages a co-operating thread on the upper end of the bolt. Thus when the nut is turned the bolt is drawn up, expanding the elastic portion of the stopper, and vice versa, the link K in this instance being applied to the cap-plate itself to prevent the stopper from turning as the thumb-nut is screwed down, and further to, as before explained, correctly position the stopper to facilitate its entrance into the mouth of the bottle.

It is obvious that changes in the details of the structure will at once suggest themselves, and I do not wish to be limited to the exact form of parts shown.

Having thus described my invention, what I claim as new is—

1. In a bottle-stopper, the combination, with the top and bottom plates, the bolt for drawing the plates together, the central elastic portion, and the locking device, of the link passing through the top of the bolt to prevent the withdrawal of the bolt, and a pivotal connection between said link and the neck-wire, substantially as described.

2. In a bottle-stopper, the combination, with the top and bottom plates, the bolt for drawing the plates together, having a slot in the upper end, and the central elastic portion, of the **U**-shaped link passing through the slot in the bolt, a pivotal connection between the ends of said link and the neck-wire, and the locking-lever pivoting on said link, substantially as described.

3. In a bottle-stopper, the combination, with the top plate or cap, the central stud with the enlarged lower end or plate, and the locking-lever, of the link uniting said bolt and locking-lever, and the link pivotally connected to the neck-wire, and also pivotally connected to said first-mentioned link, substantially as described.

4. In a bottle-stopper, the combination, with the top and bottom plates, the elastic center portion, the bolt, and the locking-lever for drawing said plates toward each other, having the shoulder thereon, of the link with which said shoulder engages to withdraw the stopper, connected to the stopper, and a pivotal connection between said link and the neck-wire, substantially as described.

5. In a bottle-stopper, the combination, with the top plate or cap, the central bolt with the enlarged lower end or plate, and the locking-lever having the shoulder thereon, of the link with which the said shoulder engages, uniting the locking-lever and bolt, and the link pivotally connected to said first-mentioned link and also pivotally connected to the neck-wire, substantially as described.

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