(No Model.)

J. F. PERRY.

BOTTLE STOPPER.

No. 605,908. Patented June 21, 1898.

Fig. 1.

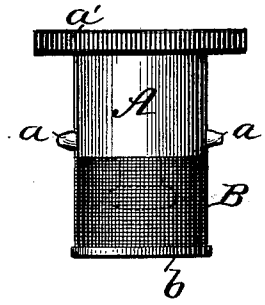


Fig. 2.

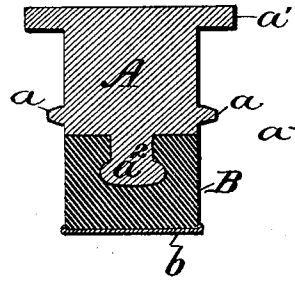


Fig. 3.

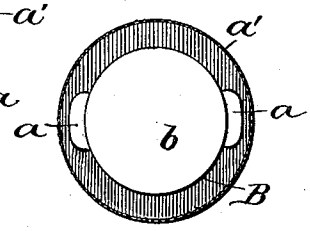


Fig. 4.

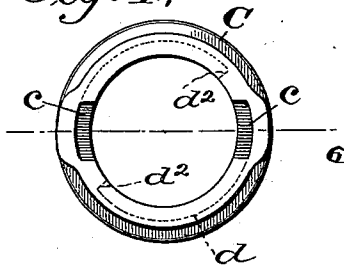


Fig. 5.

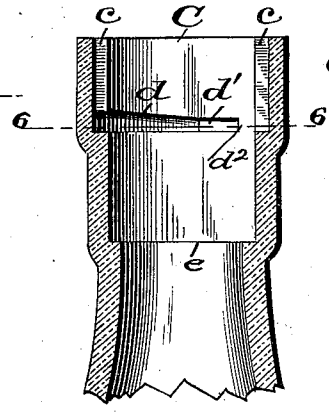


Fig. 6.

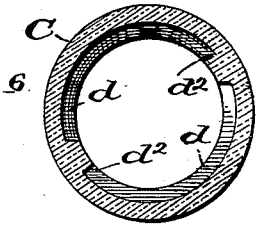
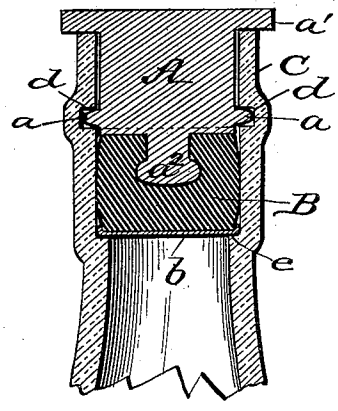


Fig. 7.



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JOHN F. PERRY, OF CHICAGO, ILLINOIS.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 605,908, dated June 21, 1898.

Application filed August 5, 1897. Serial No. 647,214. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. PERRY, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bottle-Stoppers, of which the following is a specification.

The object of my invention is to provide a bottle-stopper of simple, cheap, and easily-operated construction and which shall neither require the use of external wires or bails nor a corkscrew and which shall tightly close the bottle against an internal pressure and without allowing the contents of the bottle to come in contact with cork or rubber.

To these ends it consists in the peculiar construction and arrangement of the stopper or plug and its combination with the special form of the bottle-neck adapted to receive it and lock it in place, as hereinafter fully described.

Figure 1 is a side view, Fig. 2 a longitudinal section, and Fig. 3 an inside end view, of the stopper or plug. Fig. 4 is a plan view of the bottle-neck; Fig. 5, a longitudinal section of the bottle-neck. Fig. 6 is a cross-section on the line 6 6 of Fig. 5, and Fig. 7 is a longitudinal section of the bottle-neck with the stopper in place.

The stopper-plug is made in two principal parts A and B, of which A is made of metal, with lugs or ears *a a* on its opposite sides, a milled head or flange *a'* at the upper edge, and a headed stud a^2 at the bottom. This headed stud is buried into and forms an anchorage for the lower section B of the stopper, which is made of soft rubber, cork, or any other compressible and elastic material or combination of materials. This lower elastic section is not a washer, but a laterally-expansible plug extending entirely across the lower end of the stopper and about equal in vertical depth or thickness to the diameter of the stopper. Over the lower end of the elastic section there is a protecting-disk *b*, of aluminium, porcelain, or any other material, which is unaffected by the contents of the bottle.

The bottle-neck C is formed on its inner walls with two diametrically opposite vertical channels or grooves *c c*, arranged parallel and of a width adapted to receive the lugs or ears *a a* of the stopper. These channels *c c* terminate at their lower ends in transverse channels *d d'*, each running nearly half-way around the inner circumference of the bottle-neck. These channels *d d'* form locking cam-grooves for the lugs *a a* of the stopper, and for this purpose the parts *d* of each transverse channel next to the vertical channels *c* are made with inclined upper edges, while the part *d'* is made straight or at right angles to the longitudinal axis of the bottle. The parts *d'* of these cam-grooves terminate or stop at the point d^2 a little less than a semicircumference from the vertical channels *c c*. A little below the cam-grooves the bottle-neck is contracted to form a square shoulder *e*.

The action of this stopper is as follows: The stopper A B is inserted in the bottle-neck, with its lugs *a a* in the grooves *c c* of the neck, and is forced down until the lugs *a a* reach the cam-grooves *d d'*, when a quarter-turn is given to the stopper by its milled head. This rotary movement of the stopper brings its lugs against the inclined upper edges *d d* of the cam-grooves and draws the stopper into the bottle farther, the effect of which is to bring the aluminium-faced end *b* of the stopper against the shoulder *e* in the neck of the bottle and to compress the soft-rubber plug B between said shoulder and the rigid part A of the stopper. This rigid disk *b* causes the elastic plug to be mashed or expanded laterally to a greater diameter, as seen in Fig. 7, which makes a very tight and close fit which hermetically seals the bottle even against considerable pressure within. The rigid disk *b* not only prevents the liquid from coming in contact with the rubber, but it also forms a bridge or backing that compels the elastic plug to bulge out laterally when brought to bear against the shoulder in the bottle-neck, instead of simply compressing the lower edge of the rubber on the shoulder, which would not give the result desired. The object in having the part *d'* of the cam-grooves at right angles or not inclined is to give a final seat to the lugs *a* when they strike the stop d^2 or end of the grooves, so that the lugs have no tendency to

jolt back and become loosened from their hold, as they might if stopped at a point on the incline.

I am aware that it is not broadly new to provide a bottle-stopper with lugs that enter vertical parallel grooves in the interior of the bottle-neck and lock by a rotary movement underneath shoulders formed by transverse grooves and that elastic washers have been employed in connection therewith. My invention is distinguished by the fact that the transverse grooves have the portions next to the vertical channels inclined and terminating in portions at right angles to the longitudinal axis of the bottle, so that these terminal portions form seats, in which the lugs rest and are not liable to jar loose and come out, as they would if left on an inclined surface.

I am also aware that an elastic plug on the lower end of a stopper has been provided with a metal facing or shield, and I do not claim this, broadly. The aluminium facing in my invention performs the double function of not only separating the rubber from the contents of the bottle, but it also forms a rigid bridge-piece with the deep rubber plug that holds the lower surface against bulging downward when turned hard down against the seat *e* in the bottle-neck, and thus compels the elastic plug to expand laterally to tightly fill the bottle-neck.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bottle-stopper consisting of a rigid top portion with lugs on its sides and a lower elastic plug portion with a rigid facing on its lower end, combined with a bottle-neck having vertical channels and transverse locking-grooves, and a shoulder lower down in the bottle-neck adapted to receive the rigid facing on the lower end of the elastic plug to compel the lateral expansion of said plug substantially as and for the purpose described.

2. A bottle-stopper consisting of a rigid top portion with lugs on its sides and a lower elastic plug portion with a rigid facing on the lower end, combined with a bottle-neck provided with vertical channels and transverse locking-grooves having their entering portions inclined and terminating in locking-seats *d'* substantially as and for the purpose described.

JOHN F. PERRY.

Witnesses:
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WILLIAM T. TURNER.