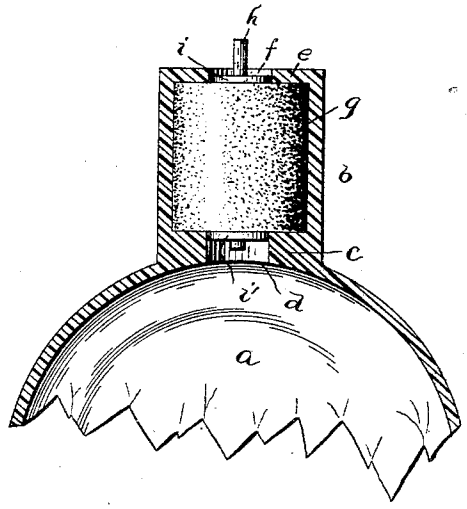
(No Model.)

C. L. CRAWFORD.

BOTTLE STOPPER.

No. 450,766. Patented Apr. 21, 1891.

Fig. 1.



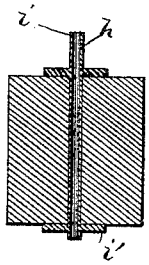


Fig. 2.

Fig. 3.

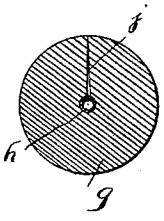
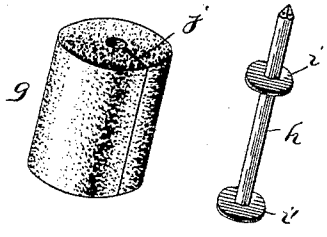


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

CLINTON LEE CRAWFORD, OF BALTIMORE, MARYLAND.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 450,766, dated April 21, 1891.

Application filed September 18, 1890. Serial No. 365,333. (No model.)

To all whom it may concern:

Be it known that I, CLINTON LEE CRAWFORD, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Stoppers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in bottles and stoppers therefor.

The object of the invention is to provide improved means whereby the stopper, after having once been placed in the bottle, cannot be removed therefrom without breaking the bottle or destroying its usefulness, thereby preventing bottles made for and having the name and containing the product of a manufacturer being fraudulently or otherwise refilled with other goods. These objects are accomplished by and this invention consists in certain novel features of construction and in combinations of parts more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a section of the upper portion of a bottle, showing the stopper therein. Fig. 2 is a detail longitudinal section of the stopper. Fig. 3 is a detail cross-section of the stopper. Fig. 4 is a detail perspective showing the cork or stopper proper and the discharging-tube separated.

In the drawings, the reference-letter *a* indicates a bottle having the neck *b*. A chamber is formed in this neck or the upper part of the bottle by the lower inwardly-extending annular flange or shoulder *c*, through which the liquid passes by aperture *d*, and by the upper substantially similar and corresponding flange or shoulder *e*, forming discharge-aperture *f*. The stopper is permanently located in the chamber thus formed and consists of the stopper *g*, formed to fit snugly in and completely fill said chamber, and this stopper (or cork) is preferably composed of cork or some equivalent substance capable of being contracted and then expanding. The stopper is provided with a longitudinal aperture or bore, in which the small discharge-tube *h* is snugly fitted and from the ends of which it extends outwardly. This tube has collars *i i'* formed integral therewith to fit and bear against opposite ends of the stopper *g*, as clearly shown, to prevent longitudinal movement of the tube in the stopper and also to prevent leakage through the bore of the stopper around the tube. As shown, the ends of the tube project through the apertures *d* and *f*.

In order to place the tube within the stopper, the stopper is provided with the radial slit *j*, through which the tube is passed into the bore of the stopper, as is clearly obvious.

Before placing the stopper within the bottle it can be and usually is treated to a bath of suitable chemicals, so that it will expand after being placed in the bottle. A suitable machine (or other means) is employed which forces the stopper through the aperture *f* into the chamber between the shoulders, and as soon as the stopper completely enters said chamber it expands and snugly fills the same. Of course the liquid which the bottle contains is placed therein before the stopper is forced into place, and this liquid keeps the stopper expanded to tightly fill its chamber.

The liquid can be discharged from the bottle in desired quantities through the tube *h* by reversing the bottle and shaking it, and after all of the liquid has been extracted it will be readily seen that the stopper cannot be removed without breaking the bottle, and a manufacturer can place his goods upon the market without fear of having his bottles refilled and used by other persons.

For certain purposes the upper end of the discharge-tube can be permanently closed and provided with several small apertures, as shown in Fig. 4.

The extreme simplicity and cheapness and great utility of this device are obvious. It can be cheaply and quickly manufactured and rapidly and easily placed in the bottles.

It is obvious that various slight changes might be made in the form and arrangements of the parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the precise construction herein set forth.

Having thus fully described my invention, what I claim is—

1. A bottle having a cylindrical chamber

in its neck, contracted at both ends, in combination with the permanent stopper, consisting of the cylindrical stopper proper, larger than said chamber and composed of prepared cork forced into said chamber and permanently expanded therein, and the open tube extending longitudinally through said cork and provided with collars bearing on the same, substantially as set forth.

2. A bottle having a chamber beneath its contracted discharge-opening, in combination with a stopper permanently expanded in said chamber, and consisting of the stopper proper filling said chamber and provided with the longitudinal bore and radial split thereinto, and the tube extending through said bore and provided with collars bearing on opposite ends of said stopper proper.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CLINTON LEE CRAWFORD.

Witnesses:
E. C. DUFFY,
C. M. WERLE.