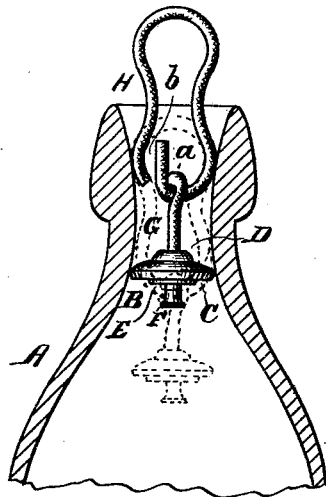


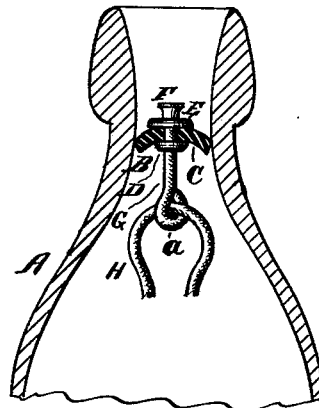
C. G. HUTCHINSON.  
Bottle-Stopper.

No. 219,729.

Patented Sept. 16, 1879.



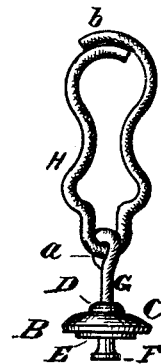
**Fig. 1**



**Fig. 2**



**Fig. 3**



**Fig. 4**

**Attest:**

*Wm H. King* — — —

*Wm J. Reilly* — — —

**INVENTOR:**

*Charles G. Hutchinson*

*By F. F. Warner, his*

*Attorney.*

# UNITED STATES PATENT OFFICE.

CHARLES G. HUTCHINSON, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN BOTTLE-STOPPERS.

Specification forming part of Letters Patent No. **219,729**, dated September 16, 1879; application filed June 28, 1879.

*To all whom it may concern:*

Be it known that I, CHARLES G. HUTCHINSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 represents a vertical central section of a bottle-neck provided with a stopper embodying my invention, showing the stopper in the position it occupies when it closes the neck. Fig. 2 is a like representation, showing the position of the stopper when it is arranged to be drawn from the neck of the bottle; and Figs. 3 and 4 represent modifications in the form of the yielding removable stem or spring of the stopper.

Like letters of reference indicate like parts.

My invention relates to that class of bottle-stoppers provided with a laterally-yielding spring extending upward from the plug, and adapted to hold the latter in its open and closed position, alternately, according to the adjustment vertically of the spring in the neck of the bottle.

My present object is to render the spring and plug capable of being removed from the bottle and of being easily detached from each other after removal; and to that end this invention consists in certain novel features of construction, substantially as hereinafter set forth, relating to the plug and spring, and adapting them to be combined in such a manner that the object above referred to may be accomplished.

In the drawings, A represents the neck of a bottle. B is a plug or stopper proper, which, with the exception hereinafter specified, may be made in the manner usual in the construction of plugs of this class. It may be stated, briefly, that a common way of constructing these plugs is to clamp a disk of rubber, C, or other suitable material between two smaller metallic disks, D and E, the upper metallic disk being smaller than the lower one, and the form of the metallic disk being such as to give to the rubber disk a slightly concavo-convex form, the convex face being upward, as shown, so that a tight joint shall exist between the plug and the neck of the bottle when the plug is drawn up into the neck, and

so that the plug cannot be forced upward out of the neck, the lower metallic disk preventing the rubber from being contracted sufficiently to admit of the plug being withdrawn when arranged in the position shown in Fig. 1, but not large enough to prevent that result when the parts are arranged in the position shown in Fig. 2.

It may also be stated that the concavo-convex form of the plug, or a convex upper face, or rounded or bevel edges, all of which features of construction serve the same purpose, may be given to the rubber disk itself, independently of a corresponding form in the metallic disks, and that even a flat disk of rubber will assume the same form when drawn up into the neck of the bottle.

As all of these features of construction are common expedients in making plugs of this class, I do not here intend to be restricted to the precise construction herein shown.

F is a metallic head or knob on the under or outer face of the disk E, and G is a metallic stem extending upward from the disk D, and having an eye or opening, *a*, in its upper end.

In practice the stem G and head F may be made of one continuous piece of flexible wire, passing through the disks C, D, and E, and headed on its lower end, and bent on its upper end, to form the eye *a*, the disks D and E being held in place on the stem G in any suitable way.

H is a laterally-yielding spring, bent to fit the neck of the bottle, so as to be adjustable therein vertically and to retain its position after being adjusted either higher or lower, as may be desirable. I make this spring in one continuous piece, the ends of which are made to pass or lap each other, and both of which are left free or loose, not being connected either to each other or to the plug B, as represented at *b*, and the overlapping parts of the spring may either be in contact with each other, as indicated in Figs. 3 and 4, or they may be slightly apart, as shown in Fig. 1; but in the latter case the upper part or end of the open space thus made should be arranged to be sufficiently high in the neck of the bottle to prevent the spring from being uncoupled from the plug accidentally when both are in

the neck of the bottle, as will hereinafter more fully appear.

To couple the spring and plug together when a space exists between the lapping ends, as shown in Fig. 1, I pass the upturned end of the spring through the eye, when the plug will be freely suspended by spring, as there represented. To apply these coupled parts to the bottle, the plug and spring are pushed down through or into the neck until the plug is free, as indicated by the dotted lines in Fig. 1, the spring remaining in the neck, and, by its lateral pressure, suspending the plug away therefrom sufficiently to keep the bottle open.

In order to close the neck it is only necessary to draw the spring upward until the plug fills the neck, when the spring will also hold it in that position.

It will be observed by reference to Fig. 1 that the upturned end of the spring is high enough to prevent the plug from being accidentally uncoupled therefrom even when the stopper is in its open position.

To remove this stopper wholly from the bottle, the spring must first be pushed down into the body, when the head F may be seized by a pair of nippers, and the stopper entirely withdrawn, being drawn out in the position the reverse of that necessary for its insertion, as indicated in Fig. 2, the comparatively small disk being then underneath the rubber disk, and allowing the latter to be contracted sufficiently to be removed. After the stopper has been removed it will be very easy, as will be perceived, to uncouple and couple the spring and plug, so that a new or repaired part may be substituted for one which may be worn or injured.

The operation of applying, withdrawing, and uncoupling is the same as now described when the lapping ends of the spring are in contact with each other, excepting that in disconnecting the spring from the plug, the former should be expanded laterally until the plug can be released.

It will be perceived that the spring H, though capable of being separated from the plug B, is a part of the stopper, which consists of both of these parts, and that they cannot be uncoupled while the stopper is in the neck of the bottle and in position for use.

It will also be perceived that a separate and independent tool is necessary to withdraw the stopper with facility, and that it is adapted to such a tool by being provided with a part especially adapted to be seized in its inverted position.

When the ends of the spring are arranged in the position shown in Fig. 4 it is not essential that they should overlap each other, as in use they will be held from the eye *a*; but may be carried thereto when the parts are removed from the bottle by slipping the spring longitudinally in or through the eye until the spring and plug can be uncoupled by passing the eye between the ends.

As it is possible to remove the stopper by cutting the disk C away sufficiently for that purpose, I do not here intend to be restricted to a plug, B, when provided with a head, F, excepting as hereinafter specifically claimed, the spring and plug being detachable from each other, in the manner described, whether the head F be made or not.

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

The laterally-yielding spring H, made in one continuous piece, having free or loose ends, and adapted, substantially as described, for automatic suspension at any point in the neck of a bottle, in combination with a plug or stopper provided with an eye, *a*, when the said spring is adapted, substantially as described, to be moved longitudinally in the said eye, for the purposes set forth.

CHARLES G. HUTCHINSON.

Witnesses:

F. F. WARNER,

CHAS. H. TALLMADGE.