(No Model.)

# G. W. GARDNER.

## BOTTLE STOPPER EXTRACTOR.

No. 491,306. Patented Feb. 7, 1893.

Fig. 1.

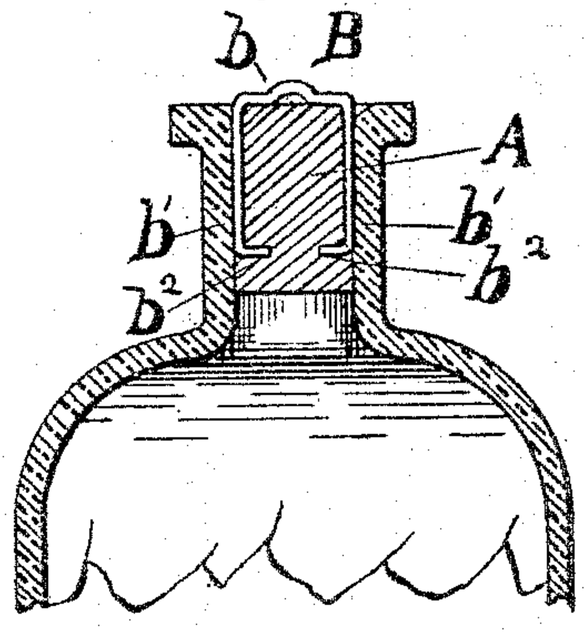



Fig. 2.

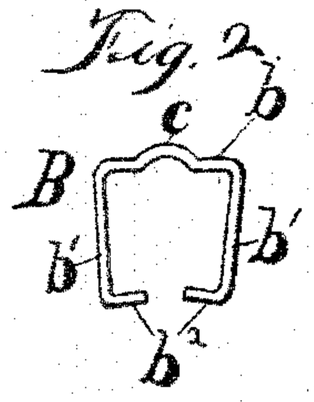



Fig. 3.

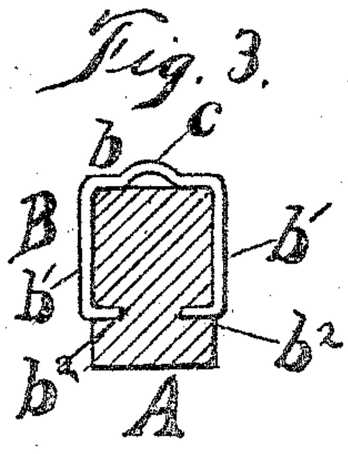



Fig. 4.

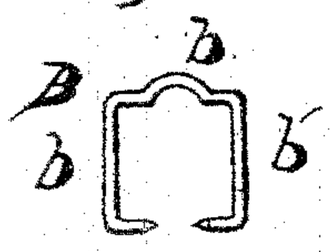
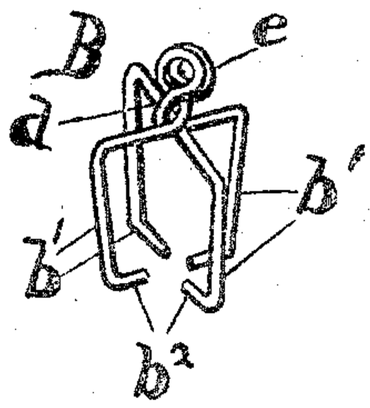



Fig. 5.

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# UNITED STATES PATENT OFFICE.

GEORGE W. GARDNER, OF ROSSVILLE, ILLINOIS, ASSIGNOR TO HIMSELF AND EDMOND PUTNAM, OF SAME PLACE.

## BOTTLE-STOPPER EXTRACTOR.

SPECIFICATION forming part of Letters Patent No. 491,306, dated February 7, 1893.

Application filed May 20, 1892. Serial No. 433,654. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. GARDNER, a citizen of the United States, residing at Rossville, in the county of Vermilion and State of Illinois, have invented a certain new and useful Improvement in Cork or Bottle-Stopper Extractor Attachments, of which the following is a specification.

My invention relates to extracting-devices, which are attached to corks or bottle-stoppers before application of the latter in place, and adapt them to be readily withdrawn without great exertion or danger of mutilation, the construction, arrangement, and operation of which will be fully hereinafter described and particularly pointed out in the claim.

In devices of this kind heretofore constructed, the wire that has been employed for withdrawing the cork has been so small or fine that it could be passed through the cork with a needle and in some instances it had to be covered with gutta percha or other material to add sufficient strength to it to enable it to withstand the strain required to withdraw the cork. In other constructions the wire was of sufficient rigidity to be used without any additional covering but in all cases the device was wholly or partially formed upon the cork and thereby it really became a part of it and was permanently secured to it. But I have discovered a means by which the attachment can be made separate and apart from the cork and applied thereto by simply springing the ends of it apart and then placing the device in position and pushing the ends into the sides of the cork. In this way the devices may be made very cheaply and by machinery and kept in stock and only applied as needed and, if necessary, or desirable they can be detached from the cork at any time and applied to another cork, or the cork can be used again without the device. In order to do this the material from which it is made must have sufficient rigidity to retain its shape and preferably be so resilient that when slightly bent out of shape it will instantly resume its original shape when released.

In the accompanying drawings—Figure 1 is a central, sectional elevation of the upper end of an ordinary bottle, showing a cork therein with my device applied thereto, said cork being inserted its full depth for sealing or similar purpose requiring the cork to be flush with the mouth of the bottle; Fig. 2 an elevation of my device detached. Fig. 3 is a sectional view of a cork with my device applied thereto. Fig. 4 an elevation of my device with its side-bars perpendicular (instead of at an angle inwardly, as in Fig. 2), and showing the inwardly-turned ends pointed for ready insertion; and Fig. 5 a perspective view showing my device provided with four arms, instead of two as in the preceding views, and also an upper extracting handle or ring.

A represents an ordinary bottle-stopper composed of cork, rubber or other suitable material, used for closing bottle, can, and other vessel openings.

B represents my extractor-attachment, taken as a whole, and composed of the following integral elements, viz: a horizontal top-bar $b$, two vertical bars $b'$, $b'$, and a pair of short horizontal arms or points $b^2$, $b^2$, projecting or turned inwardly at the lower ends of said bars $b'$. In other words, my device is simply a wire in a substantially rectangular staple form, with the ends turned inwardly, and applied to the outer face and into the opposite sides of the cork, as clearly shown in Figs. 1 and 3.

I prefer to make my attachment so that the horizontal bar $b$ has a central arch or bow $c$, with its vertical bars $b'$ disposed inwardly, the wire being suitably tempered to impart elasticity thereto. The device can thus be quickly spread open and sprung into place over the cork, the short ends or points $b^2$ entering into the cork-substance, from the side or peripheral face thereof and the elasticity of the wire readily and properly seating said points and the vertical bars $b'$ in said cork-substance, said short points each entering but a slight distance or part way through as shown in Fig. 1, so that the cork can be properly inserted in the mouth of the bottle or other vessel. As corks are usually made on a slight taper, the upper ends are larger than the lower, and my wire devices are made slightly narrower at the top than the corks to which

they are applied, the said deep-seating of the vertical bars $b'$ allowing for the compression of said corks in the bottle-mouths. By forming an angle at the junction of the ends of the horizontal bar and of the vertical bars, a gage is formed for determining the point at which the ends or points at the lower ends of the vertical bars will enter the cork, for, in placing the device on the cork the horizontal bar is placed against the top of the cork and as the length of the vertical bars is made of a relative proportion to the length of the horizontal bar therefore the lower ends of the bars will always be above the bottom of the cork.

The arch or bow $c$ is provided for the insertion of any convenient implement, such as a knife-blade, nail, ice-pick, or the like, whereby the stopper may be readily withdrawn.

It is obvious that the bars $b'$ could be arranged at right angles with the top-bar $b$, as shown in Fig. 4. The inwardly turned ends $b^2$ may be blunt as shown in all the views except Fig. 4, or pointed, as shown in said Fig. 4, the latter being probably the better way, but slightly more expensive than the former, as said ends would more readily enter the cork-substance.

In Fig. 5, I have shown how my device may be composed of four vertical bars $b'$ instead of two, for use especially in connection with large stoppers, where greater strength and exertion in extracting is requisite. This four-legged device is composed of two of the others arranged at right angles, the top-bars containing more wire and twisted together at their centers to form a twist $d$ and small ring or eye $e$, which latter forms a loop for receiving the drawing-implement, or, if made larger, can be used as an extracting-handle itself, without the necessity of an additional implement.

Corks supplied with my device can be applied in the usual manner in bottling-machines without detriment, and, as the ends $b^2$ project inwardly, from the side or circumferential face only part way toward the center of the cork, they form positive anchors which do not and cannot mutilate the cork in any manner, nor is the cork weakened in the least by their presence. As the said ends $b^2$ are anchored in the cork somewhat above the lower end thereof, the contents of the bottle cannot come in contact therewith, or be affected thereby, nor vice versa, which is a desideratum, especially where acids, inks, and similar fluids are charged in the bottles. Neither can the attachment cause any leakage as it is properly deep-seated in the cork-substance, as hereinbefore stated.

My device, especially in the form shown in Figs. 1, 2, 3 and 4, does not interfere with sealing the stopper, if desired, and it is certainly very simple, cheap, and effective, and can be used in connection with any stopper made of flexible material such as cork-bark, rubber, or a similar soft composition used in making bottle and other stoppers.

It is obvious that my wire-attachment could be made without the vertical bars $b'$ being tempered and inwardly disposed, the said bars being arranged at right angles with the top-bar $b$, as shown in Fig. 4, and formed out of ordinary flexible wire, that would be somewhat cheaper and more easily made, but really not so efficient.

I claim—

The combination with a cork, of an attachment detachably secured thereto, said attachment consisting of a single piece of flexible wire formed into a substantially rectangular staple, the ends of the top or horizontal portion of which rests upon the top of the cork, and the central portion is formed into an arch or bow which projects above the top of the cork and the side bars are bent at an angle to the top portion and are of less length than the length of the cork, and rest against the sides thereof, and are each provided at its lower end with an inwardly projecting foot which extends into the side of the cork at a distance above the lower end thereof, substantially as set forth.

In testimony of which invention I have hereunto set my hand.

GEORGE W. GARDNER.

Witnesses:
A. M. DAVIS,
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