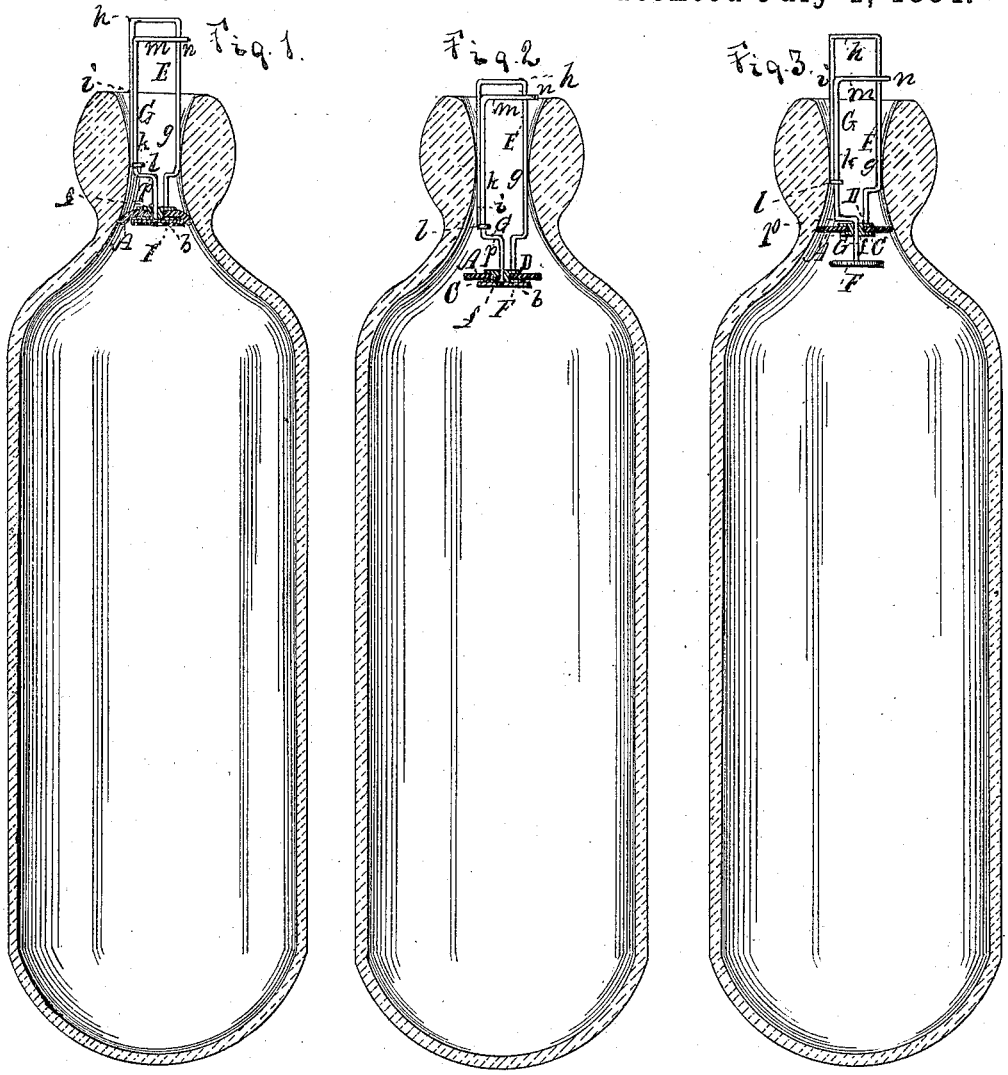
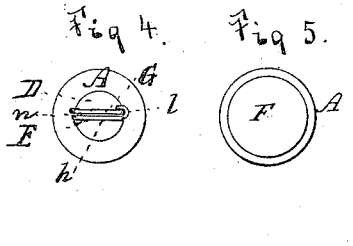
(No Model.)

G. & W. H. CHAMBERLIN.

BOTTLE STOPPER.

No. 301,093. Patented July 1, 1884.





WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE CHAMBERLIN AND WILLIAM H. CHAMBERLIN, OF OLEAN, N. Y.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 301,093, dated July 1, 1884.

Application filed March 7, 1884. (No model.)

To all whom it may concern:

Be it known that we, GEORGE CHAMBERLIN and WILLIAM H. CHAMBERLIN, citizens of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Bottle-Stoppers; and we do declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

Figure 1 is a central vertical section of a bottle provided with our improved stopper, showing the stopper closed in the bottle. Fig. 2 is a similar section, showing the stopper opened for discharging the contents of the bottle. Fig. 3 is a similar section showing the stopper arranged for withdrawing it from the bottle. Fig. 4 is a top view of the stopper. Fig. 5 is a bottom view of the stopper. Fig. 6 is a side view of the stopper, the view being at right angles to the view in Figs. 1, 2, and 3.

Like letters designate corresponding parts in all of the figures.

The purpose of our invention is to make an internal stopper for bottles which shall be perfectly convenient in use and thoroughly efficient and reliable, and which can be easily removed for cleansing the bottle, and again readily inserted in the bottle.

We employ for the stopper a packing disk, ring, or plate, A, which is made large enough to more than cover the interior diameter of the neck *a* of the bottle, so that it will press and pack against the inner flaring part or shoulder of the bottle-neck, as shown in Fig. 1. This packing disk, ring, or plate is made of india-rubber, leather, or other suitable yielding or elastic material. It is suitably held between two flanges or plates, C D, forming the body of the stopper, the plates being made in one piece or connected by an intermediate neck, *b*, and being provided with a wire, E, forming a loop or handle, by which the stopper is manipulated.

The stopper thus far described does not differ from others in use, except in the following important particular: As such stoppers have previously been made, the inner flange or plate, C, has been made nearly as large in diameter as the interior diameter of the bottle-neck, so that when it presses outward against the packing disk or plate A it will be large enough to prevent both the flange and disk being forced out through the bottle-neck by the great outward pressure of the liquid in the bottle. Therefore such a stopper cannot be withdrawn from the bottle after it is once inserted, the outer flange or plate, D, being made small enough to allow the packing-plate to bend over it and permit the insertion of the stopper in the bottle. Now, we make both flanges or plates C D small enough to allow the packing disk or plate A to bend over them either one way or the other, and permit both the insertion and withdrawal of the stopper, as required; or, in whatever way the packing disk or plate is held, the construction is to be such as to allow the said packing disk or plate to bend over sufficiently for the ready insertion or withdrawal of the stopper. Then, in order to complete the stopper, so that it will properly pack in the neck of the bottle, and that it cannot be forced out of the bottle by the pressure of the liquid, we employ a separate pressure disk, plate, or equivalent form of presser, F, of sufficient diameter to press against the inner surface of the packing disk or plate A and perform the office of holding the said packing disk or plate to the neck of the bottle by the outward pressure of the liquid in the bottle. Thus this separate pressure disk or plate performs the office which the inner flange or plate, C, has usually done. As it is evident that this pressure disk or plate would not allow the withdrawal of the stopper if it were constantly held in position close to the packing disk or plate, we provide for moving it inward far enough away from the packing disk or plate to allow room for the said packing disk or plate to bend inward over the inner flange or plate, C, when the stopper is to be withdrawn, as shown in Fig. 3. In order to effect this movement of the pressure disk or plate away from and again toward the packing disk or plate, we provide means for moving it from the outside of the bottle. We show in the drawings a wire, G, attached

to the said pressure disk or plate, and extending outward through the flanges or plates C D and packing disk or plate A, and into or through the neck of the bottle. When the plates C D are made, as shown in the drawings, in one piece, with a connecting-neck, *b*, around which is the packing disk or plate A, a simple perforation, *f*, through the center of the stopper serves to allow the wire or stem of the pressure disk or plate to extend outward for reaching it to manipulate the pressure disk or plate. This hole *f* does not cause any leakage through the stopper, since the pressure disk or plate closes air-tight against the packing disk or plate all around. The wire E of the stopper extends outward at *g* through the neck of the bottle, near one side, thence is bent over laterally, as shown at *h*, and then is extended inward, as at *i*, into the neck of the bottle near the side opposite to the outward extension, *g*. The inner end is free and formed to spring outward against the neck of the bottle, so that the two parts *g i* press apart against the sides of the bottle-neck to hold the stopper open while pouring the liquid from the bottle. These two opposite parts of the wire E serve also as guides for holding and guiding and controlling the movements of the wire or stem G of the pressure disk or plate. For this purpose this wire is extended outward at *k*, near the part *i* of the wire E, this part being clasped by a hook or bend, *l*, on the extremity of the wire E; thence the wire G is bent laterally at *m* across to the other part, *g*, of the wire G, and finally terminating in a hook or bend, *n*, which clasps the part *g*. Thus the wire G is held in position by the wire E, which, however, allows it to freely slide inward and outward. The inward movement of the pressure disk or plate F may be limited by a bend, P, on the wire G, which strikes the outer flange or plate, D, or by other suitable means. The open loops or bends *l n* allow room for the springing inward and outward of the wire E, as above specified. When the pressure disk or plate F is in place, the outer bend, *m*, of the wire G is or may be near the outer bend, *h*, of the wire E, so that both the stopper and pressure disk or plate may be drawn outward together; but when the stopper is to be taken from the bottle the pressure-plate F is first to be pushed inward by its wire G, and then the whole drawn outward by drawing on the wire E.

We claim as our invention—

1. In an internal stopper for bottles, the combination, with the body of the stopper and a packing disk or plate, of a separately-movable pressure disk or plate, substantially as and for the purpose herein specified.

2. The combination, with the body of the stopper, of a packing disk or plate, A, held therein, and a separately-movable pressure disk or plate, F, and means for moving the pressure disk or plate toward and from the packing disk or plate, substantially as and for the purpose herein specified.

3. The combination of the packing disk or plate A, flanges or plates C and D, a separately-movable pressure disk or plate, F, of larger diameter than the flanges C D, and means for operating the said movable pressure-disk, all substantially as and for the purpose herein specified.

4. The combination of the packing disk or plate A, holding flanges or plates C D, having an aperture, *f*, and interior movable pressure disk or plate, F, provided with a wire or stem, G, extending outward through the aperture in said holder, substantially as herein specified.

5. The combination, with the stopper-body, of the stopper-wire E, having opposite parts, *g i*, pressing outward against the sides of the bottle-neck, and the wire G of the pressure disk or plate F, provided with opposite parts, *l n*, guided by the wire E, substantially as and for the purpose herein specified.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE CHAMBERLIN.
WILLIAM H. CHAMBERLIN.

Witnesses:
W. N. JOHNSON,
HENRY W. CHAMBERLIN.