H. P. ROBERTS.

BOTTLE STOPPER.

APPLICATION FILED JUNE 25, 1915.

1,185,542. Patented May 30, 1916.

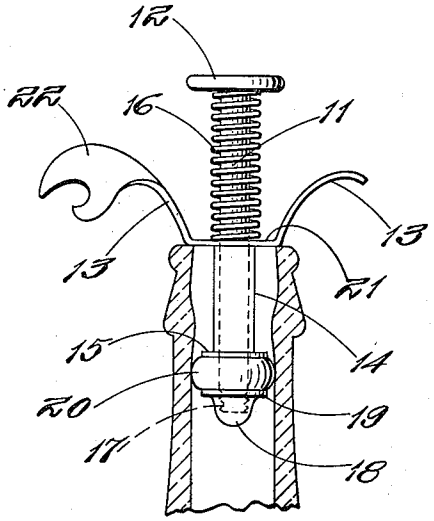


Fig. 1.

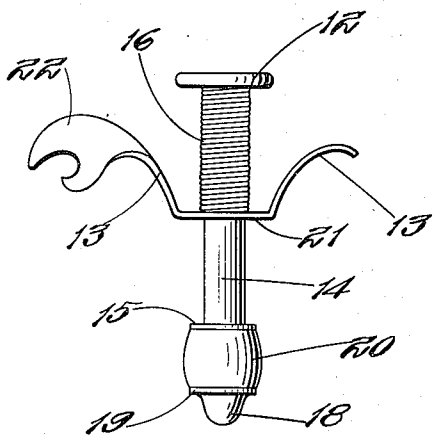


Fig. 2.

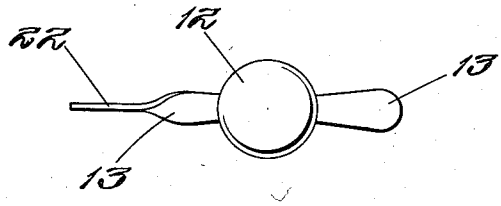


Fig. 3.

INVENTOR:

Henry P. Roberts

by Macleod, Calvin, Copeland & Dike

Attys.

UNITED STATES PATENT OFFICE.

HENRY P. ROBERTS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ALEXANDER T. WALKER, OF BOSTON, MASSACHUSETTS.

BOTTLE-STOPPER.

1,185,542. Specification of Letters Patent. Patented May 30, 1916.

Application filed June 25, 1915. Serial No. 36,358.

To all whom it may concern:

Be it known that I, HENRY P. ROBERTS, citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Bottle-Stoppers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object a new and improved bottle stopper for use particularly as a temporary closure for bottles containing charged liquids such for instance as champagne, effervescent wines, beer, charged waters, mineral waters and other charged drinks. When the permanent cork is drawn from a bottle of charged liquid, or the cap removed, the contents become flat owing to the rapid loss of the carbonic acid gas in solution in the liquid. It is practically impossible to restore the original cork or cap and therefore most frequently the bottle has been left unstoppered. Various temporary stoppers have been employed, but these do not usually make a tight union with the neck of the bottle or are not held in the bottle firmly enough to prevent leakage or the expulsion of the stopper owing to the pressure of the gas. Furthermore they are not readily and instantly insertible in the bottle.

My invention has for its object a new and improved temporary stopper for charged liquid which may be instantly inserted in a bottle regardless of the shape of the interior of the neck of the bottle, which may be withdrawn with equal convenience, and which shall make an absolutely tight closure with the neck of the bottle. The device embodying my invention is capable of continuous use and has only one part which is effected by wear or age and this part is easily and quickly renewable. It is inexpensive to manufacture and may be employed as an advertising novelty if desired.

While I have shown my invention in the form particularly adapted for use in the neck of a charged water bottle it will be understood that I contemplate the use of my temporary stopper as a closure for bottles of various styles including thermos bottles, it only being necessary to make the tubular washer and adjacent parts of a size corresponding to the neck of the thermos or other bottle in which the stopper is to be employed.

The invention will be fully understood by reference to the following description taken in connection with the accompanying drawings, and the novel features thereof are pointed out and clearly defined in the claims at the close of this specification.

In the drawings—Figure 1 is an elevation partly in section of a device embodying my invention inserted in the neck of a bottle. Fig. 2 is a view of the device shown in Fig. 1 but with the spring compressed ready for insertion within the neck of the bottle. Fig. 3 is a top plan view.

Referring to the drawings, at 11 is shown a stem provided with a cap or thumb piece 12 which affords a convenient surface on which to place advertising matter. Surrounding the stem is a finger piece composed of a pair of wings, 13, 13, curved as shown in Figs. 1 and 2 and secured to a sleeve 14, the lower end of which terminates in a flange or washer 15. One of said pair of wings is turned at right angles to the plane of the flange and is formed into a hooked bottle cap remover as shown at 22. The finger piece is provided with a circular portion 21 adapted to rest against the end of the neck of the bottle. Interposed between the finger piece and the cap 12 or thumb piece is a spiral spring 16. The lower end of the stem 11 is screw threaded as shown at 17 for engagement with a nut or cap 18 provided with a flange 19. Interposed between the flange 15 on the sleeve 14 and the flange 19 on the nut 18 is located a compressible tubular washer 20 of rubber or other suitable elastic material. This rubber washer is conveniently formed from a section of a rubber tube, one end resting against the nut 18 and the other against the flange 15. The sleeve 14 which is connected to the finger pieces 13, 13 is slidable longitudinally of the stem 11. The movement in one direction is produced by the user who places his thumb on the thumb piece 12 and his forefinger against one finger piece 13 and middle finger against the other finger piece 13. The movement in this direction compresses the spring 16. The movement in the other direction is produced by the expansion of the spring 16.

To insert the temporary stopper in the

bottle the finger piece and attached parts are moved upwardly toward the cap 12 thereby allowing the tubular rubber washer 20 to assume its normal position, as shown in Fig. 2. This portion of the stopper is then inserted in the neck of the bottle until the finger piece rests against the top of the neck of the bottle, and the parts are then released; the spring 16 pushes the flange 15 toward the flange 19 thereby compressing the tubular washer 20 and causing it to expand sidewise against the inner wall of the bottle as shown in Fig. 1. The tubular washer is held firmly against the side of the bottle by the pressure of the spring 16.

As stem 11 is long enough to reach into the bottle to a point slightly below the point of largest diameter of the bore of the bottle it will be seen that it is practically impossible for the stopper to be forced out of the bottle by any pressure from within, and the pressure from within the bottle tends to force the tubular washer more firmly against the constricted walls of the neck of the bottle and to form a tighter union with the walls of the bottle. It will be seen that the improved bottle stopper can be instantly inserted or removed; it comprises only five parts, none of which are of complicated shape and therefore may be cheaply and easily manufactured. When the tubular rubber washer becomes worn it may be easily and quickly replaced by unscrewing the nut 18.

What I claim is—

1. A bottle stopper comprising a stem, a flange head for each end of the stem, the flange for the lower end being detachable, a tubular washer of elastic, flexible material loosely surrounding said stem and seated on said lower flange, a sleeve surrounding said stem above said tubular washer, said stem being longitudinally slidable with relation to said sleeve, a flange on the lower end of said sleeve which engages the upper end of said tubular washer, a flange on the upper end of said sleeve provided with a finger piece, and a spring coiled around said stem above the sleeve, one end of said spring bearing against the upper head of the stem and the other end of said spring being seated upon the upper flange of the said sleeve.

2. A bottle stopper comprising a stem, a flange head for each end of the stem, the flange for the lower end being detachable, a short tube of elastic, flexible material loosely surrounding the stem and seated upon said lower flange, a sleeve of rigid material above said elastic tube and through which the stem passes loosely, said stem extending above the top of the sleeve, said sleeve having a flange on each end, the lower flanged end of the sleeve resting on the upper end of the elastic tube, a coiled spring surrounding the said upwardly extending portion of said stem, one end of the spring being seated upon the upper flange of the sleeve and the other end bearing against the upper flange of the stem, said spring being normally under tension and pressing the said sleeve against the said elastic tube in a manner to swell the middle of the said elastic tube.

3. A bottle stopper comprising a stem, a flange head for each end of the stem, the flange for the lower end being detachable, a tubular washer of elastic, flexible material loosely surrounding said stem and seated on said lower flange, a sleeve surrounding said stem above said tubular washer, said stem being longitudinally slidable with relation to said sleeve, a flange on the lower end of said sleeve which engages the upper end of said tubular washer, a flange on the upper end of said sleeve provided with a finger piece, and a spring coiled around said stem above the sleeve, one end of said spring bearing against the upper head of the stem and the other end of said spring being seated upon the upper flange of the said sleeve, said finger piece having a portion formed into a hooked bottle cap remover.

In testimony whereof I affix my signature, in presence of two witnesses.

HENRY P. ROBERTS.

Witnesses:
GEORGE P. DIKE,
ALICE H. MORRISON.