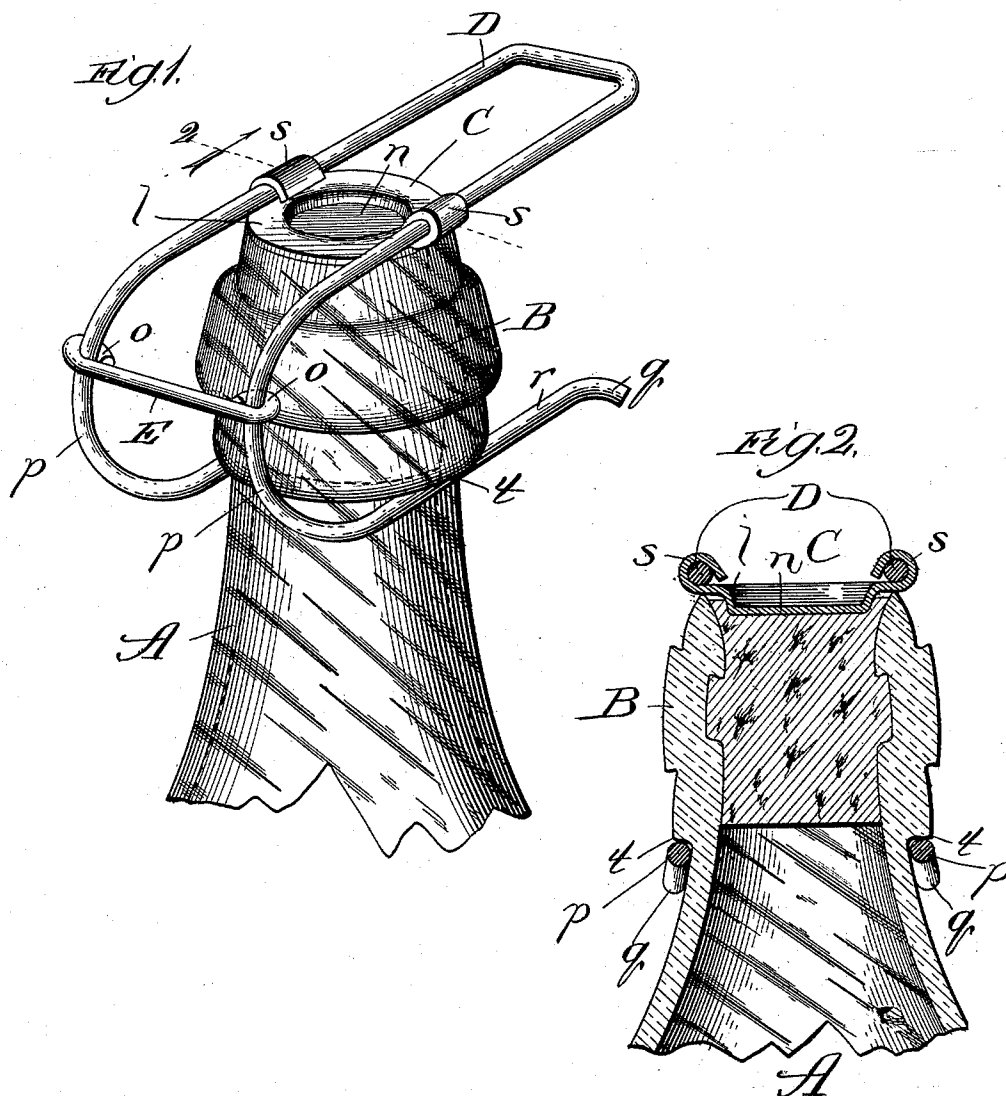


(No Model.)

C. SCHROEDER.
FASTENER FOR BOTTLE STOPPERS.

No. 509,586.

Patented Nov. 28, 1893.



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UNITED STATES PATENT OFFICE.

CONRAD SCHROEDER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF
TO FERDINAND ACHTENHAGEN, OF SAME PLACE.

FASTENER FOR BOTTLE-STOPPERS.

SPECIFICATION forming part of Letters Patent No. 509,586, dated November 28, 1893.

Application filed February 7, 1893. Serial No. 461,356. (No model.)

To all whom it may concern:

Be it known that I, CONRAD SCHROEDER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Fasteners for Bottle-Stoppers, of which the following is a specification.

My invention relates to temporary fasteners employed in securing the stoppers of beer bottles against expulsion under the abnormal pressure due to steaming in the process of pasteurizing; and the object of my invention is to provide a simple and effective device for this purpose.

My invention will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the head and neck of a bottle provided with my improvement; and Fig. 2 a vertical section of the same, taken on the line 2 of Fig. 1, and viewed in the direction of the arrow.

As shown in the drawings my invention is applied to the securing of a cork in a bottle head, constructed in accordance with Letters-Patent of the United States No. 487,452, granted to me on the 6th day of December, 1892, and so inserted as to cause its top to be below the mouth of the bottle. When applied to a cork thus situated with reference to the mouth of the bottle the cap which forms one of the elements of the device is constructed in accordance with the cap shown in exaggerated form in Letters-Patent of the United States No. 451,137, granted to me April 28, 1891; that is to say, with a rim to rest upon the top of the bottle, and with a depressed interior preferably in the form of the frustum of a cone, to enter within the top of the bottle and bear upon the cork. However, my improved fastener is equally adapted for use with stoppers having their tops flush with the mouth of the bottle, or even projecting above the same; and when thus used the interior depression of the cap may be omitted.

In the drawings A represents the neck and B the head of a bottle, the latter having at its lower end the usual shoulder *t*.

My fastener is intended to embrace between its parts a stopper inserted into the top of the

bottle and the shoulder at the lower end of the head, to the end that any abnormal internal pressure exerted against the cork may be resisted. The device consists of a metal cap C to rest upon the cork, this cap having guides *s* to receive a U-shaped spring wire D, the arms of which have return bends affording the branches *r* to embrace the neck of the bottle, and fit beneath the shoulder *t* of the head. The U-shaped wire D slides freely within the guides *s*, and the branches *r* diverge slightly from parallelism with the upper part of the wire D between the return bends and the ends, so that by sliding the wire forward in the guides the pressure is increased. It is an advantage in applying the device to have the ends of the wire curved downward as shown at *q*. For the purpose of strengthening the holder and increasing the lateral spring action the metal tie-brace E is provided, connecting the U-shaped holder D at the vertical portions *t* of the return bends. I prefer to form this tie-brace of a metal bar or wire bent around the wire D, as shown at *o*, and capable of sliding thereon with the exertion of slight force, so that the lateral tension of the branches *r* may be adjusted. By sliding the tie-brace upward the tension of the arms is relaxed, and by sliding it downward the tension is increased.

As shown, the cap C consists of a plate, with its interior depressed as shown at *n*, to enter within the top of the bottle and bear upon the cork, leaving the annular margin *l* to rest upon the top of the bottle. Ordinarily, I make this plate of metal, such as tin, but if desired it may be made wholly or in part of softer material, such as rubber. A desirable function of the cap, in addition to its securing office, is to prevent leakage through the cork under the high internal pressure, and another is to prevent access to the cork of the hot water of the steam tanks during the pasteurizing process, the tendency of which is to impair the quality of the cork. The direct pressure of the cap upon the cork produces the former function, by causing the upper portion of the cork to bear tightly against the inclosing wall of the bottle head, while the sealing effect of the cap produces the latter function. This sealing effect is of

course enhanced if the cap is formed wholly or in part of rubber, but it is obtained ordinarily in a sufficient degree when the cap is made of metal. The curved form of the return-bends shown in the drawings while not an essential, is preferable, since it allows the tie-brace to be self-adjusting. One valuable effect of the tie-brace applied to the return bends of the holder is that it permits the same fastener to be used for bottles of different sizes.

To apply the device to a bottle, the cap is placed over the cork with the ends of the branches *r* below the shoulder of the bottle head, and the wire holder *D* is then slid forward in the guides *s*, the pressure increasing, of course, as the holder advances. To remove the device this operation is reversed.

What I claim as new, and desire to secure by Letters Patent, is—

1. A fastener for bottle-stoppers, comprising in combination a cap to bear upon the stopper and a holding-device sliding longitudinally in guides on the cap, and having arms adapted to pass beneath the shoulder at the base of the bottle-head at opposite sides thereof, substantially as described.

2. A fastener for bottle-stoppers, comprising in combination a cap with a depressed interior portion to enter the mouth of a bottle and bear upon a stopper therein, and a holding device sliding longitudinally in guides on the cap and having arms adapted to pass beneath the shoulders at the base of the bottle-head at opposite sides thereof, substantially as described.

3. A fastener for bottle-stoppers, comprising in combination the cap having the rim *l*, depressed interior portion *n* and guides *s*, and holder *D* of spring wire bent to the form shown, and sliding longitudinally within the guides *s*, substantially as described.

4. A fastener for bottle-stoppers, comprising in combination a cap to bear upon the stopper, a holder *D* of spring wire bent to the form shown, and sliding longitudinally within guides on the cap, and a tie-brace *E* at the return-bend of the holder, substantially as described.

CONRAD SCHROEDER.

In presence of—

M. J. FROST,

W. N. WILLIAMS.