(No Model.)

# C. SCHROEDER.

## CORKING BOTTLES.

No. 487,452. Patented Dec. 6, 1892.

Fig. 3.

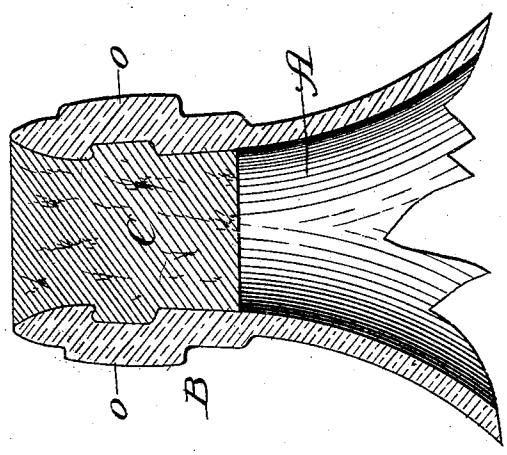



Fig. 2.

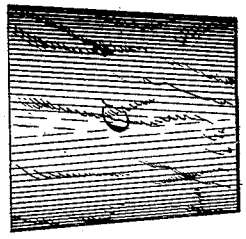
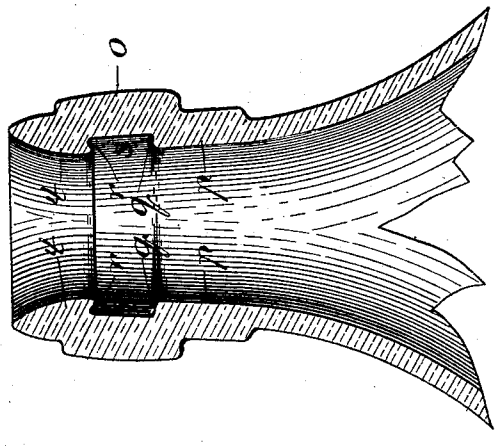



Fig. 1.

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# UNITED STATES PATENT OFFICE.

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## CORKING BOTTLES.

SPECIFICATION forming part of Letters Patent No. 487,452, dated December 6, 1892

Application filed September 13, 1892. Serial No. 445,767. (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 Corking Bottles, of which the following is a specification.

The object of my invention is so to construct a bottle-head that the bottle may be effectually stoppered by means of a small ordinary cork alone without the aid of any auxiliary securing agent.

The term "cork," as used by me, refers specifically to a stopper made from the bark of the cork tree, and the particular construction of my bottle-head hereinafter described has been devised with special reference to the properties of this material. Chief among the results aimed at are, first, to permit the cork employed to be of the ordinary tapered form, thus avoiding the extra cost and other objections always incident to a special manufacture; second, to adapt it for insertion with its smaller end foremost, so that the corking may be easily done in the ordinary way, and, third, to permit the cork to be of the smallest practicable dimensions, partly for economy and partly for other reasons which will be explained.

All the above results are fully secured by means of my invention, a description of which is as follows, reference being had to the accompanying drawings, of which—

Figure 1 is a vertical section of the bottle neck and head; Fig. 2, a side elevation of the cork; and Fig. 3, a view similar to Fig. 1, showing the cork in place.

A is the neck of an ordinary bottle, and B the head, embodying my improvements, the effects of which are to promote facility of insertion and difficulty of withdrawal of the tapering cork C. The upper portion of the interior of the head is made flaring, as shown at *t*. Just below the part *t* is a recess *s*, extending entirely around the interior of the head. The upper end of this recess is undercut, as shown at *r*, and the lower end is preferably inclined slightly downward from the side wall of the recess, as shown at *q*. The side wall is nearly straight. The portion *p* of the interior of the head, which is the part below the recess, is made flaring, the lower diameter being the greater; but the smallest diameter of the flaring part *p* slightly exceeds the smallest diameter of the flaring part *t*, so that the point of greatest constriction is at or near the lower end of the latter. To prevent cutting of the cork, all corners within the head are rounded, as shown.

The flaring cork should have its smallest diameter about equal to the greatest diameter of the flaring part *t* and should be of such length as to reach, when inserted, from the top of the head to the choke. For application the cork is dipped in water to lessen friction and is then forced into the head, the result being that it expands wherever pressure is relieved and tightly fits every portion of the interior above the choke.

With the construction of parts above described the cork is readily inserted; but when once in place it will successfully withstand any expelling pressure to which it can be subjected in ordinary use. The upward incline of the recess, the approximately-vertical side wall thereof, and the relative diameters of the flaring portions of the head are all conducive to these results, because by reason of the upward incline of the recess the cork easily undulates as it is forced inward, and by reason of the slight excess in the diameter of the top of the flaring part *p* over that of the lower portion of the flaring part *t* and the incline of the lower shoulder of the recess there is no direct obstruction to the inward progress of the cork, while, on the other hand, everything that contributes toward facility in inserting the cork adds fresh difficulty in the matter of withdrawal, and this is most conspicuously so in the case of the recess, the effect of which is to cause the cork entering it to act as a barb. The above advantages are obtained in the highest degree when the several features of my invention are all employed conjointly. In order that the head shall not be weakened by the recess, I prefer to reinforce it by means of a corresponding external enlargement, as shown at *o*.

By means of my invention great advantages are obtained, especially in the case of effervescent liquids, such as beer and mineral waters. For such liquids natural cork is the most desirable material known for stopper-

ing the bottles. Attempts have been made to substitute india-rubber; but this material produces a deleterious effect upon the beverage by imparting an unpleasant taste. The difficulty heretofore encountered, however, in the use of natural cork has been that to be at all effectual the cork has been necessarily long, security against expulsion being largely dependent upon the swelling of the cork below the choke. With such a cork there are serious objections, well known to all persons skilled in the art. For example, the water absorbed by the cork in the preliminary soaking is liable to enter the bottle in the operation of corking, and a few drops only are sufficient to cause distinct precipitation of sediment, and in the operation of pasteurizing beer the long cork being immersed is injured by the heat, and by its expansion contributes to the breakage of bottles. All difficulty is overcome by my invention. The cork which I employ, being so short as to extend only to the choke, deposits little, if any, absorbed water into the interior of the bottle, and having only its lower surface in contact with the liquid it cannot be injuriously affected by the pasteurizing process. Moreover, by reason of my described construction the small cork fits accurately within the confines of the bottle-head throughout its whole length, thus obviating leakage, and the construction of the groove compensates for the smallness of the cork, causing it to be held with a degree of firmness fully equal to that of a long cork inserted in an ordinary bottle and expanding below the choke.

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

1. A bottle having its head provided with an internal annular recess undercut at its upper end, substantially as described.

2. A bottle having its head provided internally with the flaring part *t* and annular recess below the same, undercut at its upper end, substantially as described.

3. A bottle having its head provided internally with an annular recess having the under-cut *r* at its upper end and inclined shoulder *q* at its lower end, whereby the recess has an upward incline, substantially as and for the purpose described.

4. A bottle having its head provided internally with the annular recess *s*, having its inner wall approximately straight and having the under-cut *r* at its upper end and inclined shoulder *q* at its lower end, substantially as described.

5. A bottle having its head provided internally with an annular recess having the under-cut *r* at its upper end and inclined shoulder *q* at its lower end, whereby the recess has an upward incline, and with the flaring part *t* above and flaring part *p* below the recess, substantially as described.

6. A bottle having its head provided internally with an annular recess, a flaring part *t* above the recess and a flaring part *p* below the recess, the smallest diameter of the lower flaring part exceeding the smallest diameter of the upper flaring part, substantially as described.

7. A bottle having its head provided with the upwardly-inclined recess *s* and with the flaring part *t* above and flaring part *p* below the recess, in combination with the cork C, fitting closely within the head throughout its whole extent and extending to the choke, substantially as described.

CONRAD SCHROEDER.

In presence of—
J. W. DYRENFORTH,
M. E. WINN.