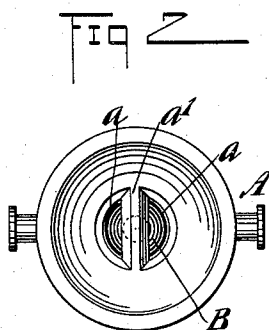
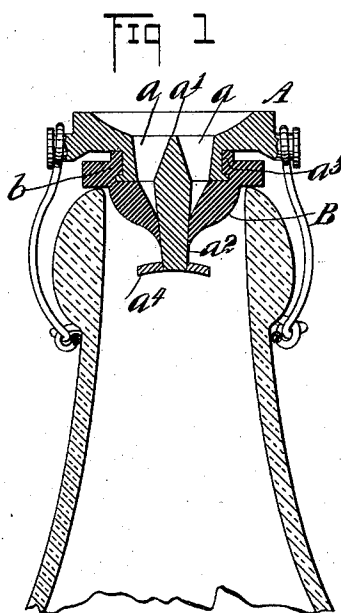


(No Model.)

E. E. FORD & C. SCHLUNDT.
BOTTLE STOPPER.

No. 567,852.

Patented Sept. 15, 1896.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ELIOT E. FORD AND CHARLES SCHLUNDT, OF RAHWAY, NEW JERSEY.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 567,852, dated September 15, 1896.

Application filed December 11, 1895. Serial No. 572,099. (No model.)

To all whom it may concern:

Be it known that we, ELIOT E. FORD and CHARLES SCHLUNDT, of Rahway, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a full, clear, and exact description.

This invention relates to stoppers for bottles for liquids under pressure, such, for instance, as mineral waters; and the object is to provide a stopper through which the liquid may be forced into the bottle and which will retain the original high pressure, as it is well known that by filling bottles in the ordinary manner nearly thirty per cent. of the original pressure is lost.

We will describe a stopper embodying our invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional view of a stopper embodying our invention, and showing the same as applied to a bottle; and Fig. 2 is a top plan view of the stopper.

It may be here stated that the stopper as constructed by us is adapted to be engaged with any of the filling devices now in use. The stopper comprises a metal head portion A, here shown as concaved in its upper side and having openings a through its neck portion, which is of reduced diameter. The openings a are separated by a transverse bridge a' , and extended downward from the bridge a' and into the neck of the bottle is a stem a^2 , which is shown as round in cross-section and tapered.

To the neck of the head portion A a valve-stopper B of yielding material, such as rubber, is affixed. This valve-stopper is tubular, and its upper end is engaged around the neck portion of the head. If desired, for security the neck portion may be provided on its upper side with an annular flange a^3 to engage in an annular channel in the valve portion, as indicated in Fig. 1, but this construction we do not find to be absolutely necessary, as the valve will retain its position without the flange. The outer upper portion of the valve is provided with an annular flange b , designed

to engage the end of the bottle-neck, and the portion of the valve below the flange b and extended into the bottle-neck is substantially cup-shaped, and the open lower end of this cup-shaped portion engages closely against the stem a^2 . The interior of the cup-shaped portion communicates with the openings a , and the outer side of said cup-shaped portion is inclined inward and downward, so that the pressure of the confined gas will force the valve against the stem to prevent the escape of gas.

When water under pressure is forced directly to the bottom of a bottle, it is caused to foam. This is an objectionable feature, and we obviate it by employing a deflector to direct the water against the interior of the bottle-neck. As here shown this deflector consists of a flange a^4 on the end of the stem a^2 below the end of the valve B, and the upper side of the flange a^4 is flared slightly downward and outward.

The stopper is adapted to be swung into and out of connection with the mouth of the bottle substantially in the manner of ordinary beer-bottle stoppers, and it is obvious that a bottle having our stopper may be used for beer or similar material.

In operation the stopper is placed in a closing position on the bottle-mouth and is then engaged with the filler by means of which the water and gas are forced into the bottle. The filling pressure will of course force the rubber valve away from the stem sufficiently to form a passage, and when the bottle is full and removed from the filler the internal pressure will force the valve against the stem and prevent the reduction of gas-pressure by leakage.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A bottle-stopper, comprising a tubular metal head having an immovable depending stem, and a cup-shaped valve portion of yielding material engaged with the head and adapted to engage with its lower open end closely around the stem, the said valve being adapted to be opened by the pressure of the liquid entering the bottle substantially as specified.

2. A bottle-stopper, comprising a tubular metal head having a central and immovable

depending stem, a cup-shaped valve secured to the head and adapted to engage its open lower end closely around the stem, the said valve being adapted to be opened by the pressure of the liquid entering the bottle and a deflector on said stem below the valve, substantially as specified.

3. A bottle-stopper, comprising a concave and tubular metal head adapted to have
10 swinging engagement with a bottle, and having a neck portion, a cup-shaped valve of yielding material engaging said neck and hav-

ing a flange to engage the end of a bottle-neck, the lower portion of said valve having its outer wall inclined downward and inward, 15 a stem rigid with and extending downward from the head and through the open lower end of the valve, and a deflector-flange on the end of said stem, substantially as specified.

ELIOT E. FORD.

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Witnesses:

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