

(No Model.)

A. SCHNEIDER & D. W. BROMLEY.
BOTTLE STOPPER.

No. 527,726.

Patented Oct. 16, 1894.

Fig. 1.

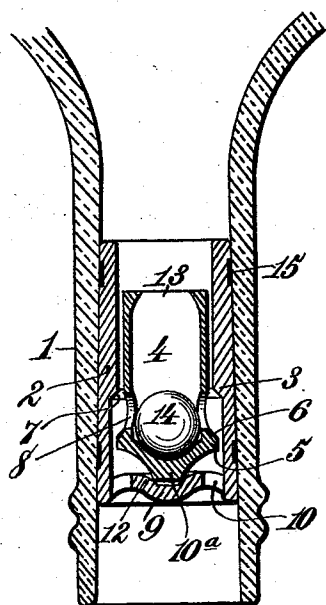


Fig. 2.

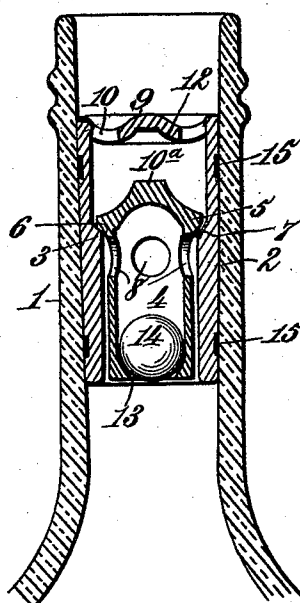
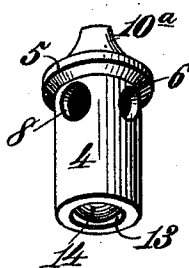


Fig. 3.



Witnesses:
Robert G. Smith,
G. W. Rea.

Inventors:
August Schneider,
Daniel W. Bromley,
By *James L. Norris,*
Atty.

UNITED STATES PATENT OFFICE.

AUGUST SCHNEIDER AND DANIEL W. BROMLEY, OF LEXINGTON, KENTUCKY,
ASSIGNORS OF ONE-THIRD TO BYRON McCLELLAND, OF SAME PLACE.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 527,726, dated October 16, 1894.

Application filed April 3, 1894. Serial No. 506,197. (No model.)

To all whom it may concern:

Be it known that we, AUGUST SCHNEIDER and DANIEL W. BROMLEY, citizens of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

Our invention relates to bottle-stoppers, and the purpose thereof is to provide a device of this character which may be readily applied to a bottle by merely inserting it in the open mouth thereof, from which it shall be incapable of removal and shall, by its presence, prevent the bottle from being refilled, although the contents may, at any time, be obtained by pouring them out of the bottle in the ordinary manner. It is our purpose, also, to provide a stopper for bottles of the kind indicated, which shall be made wholly of glass, china, or similar material of a vitreous nature, and with which there shall be combined a gravity cylindrical valve and a gravity ball-valve, the former having longitudinal movement within the stopper, by which the exit-passages therein are opened and closed, while the ball-valve is free to move in the cylindrical valve by its own gravity and thereby open and close the central, or main channel therein.

The invention consists in the several novel features of construction and new combinations of parts hereinafter fully described and then more particularly pointed out and defined in the claims which form part of this specification.

To enable others skilled in the art to which our invention pertains to fully understand and to make, construct and use the same, we will proceed to describe said invention in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical-section showing a bottle-stopper constructed in accordance with our invention, the parts being shown in the position occupied when the contents of the bottle are being withdrawn. Fig. 2 is a similar section showing the parts of the

bottle-stopper closed, and in their normal position. Fig. 3 is a detail view of the cylindrical valve, removed from the stopper.

In the said drawings, the reference-numeral 1 indicates the neck of a bottle of ordinary construction, such, for example, as those used for containing whisky, or other liquors, although the invention is also applicable to any other form of bottle, used for containing other liquids which are intended to be sold in the original packages, or in the bottles to which our bottle-stoppers are applied.

The neck 1 of the bottle preferably has a slight and uniform contraction in diameter from its mouth downward, and within said neck is inserted a similarly tapered shell 2, formed wholly of china, glass, or like material, and having a length less than that of the neck of the bottle. From the lower end of this shell the wall thereof is thickened up to a point at, or not far from the middle, where an interior, circular shoulder 3 is formed, above which the wall is of reduced, and substantially uniform thickness, to the upper end of the shell 2.

Within that portion lying below the interior shoulder 3 is arranged a substantially cylindrical, hollow valve 4, fitting closely within the lower portion of the shell 2, but not so closely as to prevent free longitudinal movement. The cylindrical valve 4 is also made entirely from glass, china, or the like, and is provided, at its upper closed end, with an outwardly projecting collar 5, having a beveled circular face 6, which lies, when the cylindrical valve 4 drops to its lowest limit, upon a beveled circular seat 7, just beneath the shoulder 3. When the cylindrical valve is in this position, the collar 5 seats so closely upon the beveled seat 7 that the bottle is entirely closed, so far as the admission of liquor is concerned.

In the wall of the cylindrical valve 4, beneath the collar 5, are formed exit-passages 8. When the said valve rises, or moves toward the open mouth of the bottle, as it will readily do under the pressure of the contained fluid when the bottle is tilted, or inverted, the said

fluid will readily flow through the exit-passages 8 into the upper part of the shell 2, whence it will escape between the edge of the collar 5 and the wall of the shell, the slight increase in diameter of the upper portion of the latter providing ample space for this purpose.

The longitudinal, outward movement of the cylindrical valve 4 is arrested by a diaphragm 9, which extends over the outer end of the shell 2, and is provided with exit-openings 10. Upon the under, or inner side of this diaphragm a projection 12 is preferably formed, to prevent the closed end of the cylindrical valve from coming in contact with the diaphragm and thereby closing, or obstructing, the exit-openings 10. The closed end of the cylindrical valve is also provided with a boss, or point 10^a, which strikes the projection 12 and preserves a suitable space between the closed end of the valve 4 and the diaphragm 9.

The lower end of the cylindrical valve 4 is provided with an opening 13, which is normally closed by a ball-valve 14, having a diameter less than that of the interior of the cylindrical valve. This ball is, like the other part of the stopper, formed of glass, china, or like material, and, by reason of its size, will roll freely from end to end of the interior of the hollow, cylindrical valve 4, its impact against the closed upper end of the same insuring the unseating of the said valve, when the bottle is tilted, or inverted.

The shell 2 is formed with an external taper, as already mentioned, which adapts it to fit accurately within the neck of the bottle with which it is to be used, the stoppers being made in different sizes, according to the bottles for which they are intended. In order to secure a close fit and prevent all possibility of leakage, we may, and preferably do, apply to the exterior of the shell 2, one or more yielding, or elastic bands 15, set within suitable depressions, or channels, molded in the glass. These bands may be composed of any well known material suitable for the purpose; such, for example, as cork, wood, rubber, or any other substance.

It is evident that the form of the several parts composing the bottle-stopper may be varied without departing from our invention, and that it may be constructed from any material used in the manufacture of this class of devices.

We prefer, as already set-forth, that the neck of the bottle shall have a slight contraction in diameter, from the open mouth downward, this being the opposite of the form, or shape, ordinarily used. This feature is shown in Figs. 1 and 2, of the drawings, and constitutes, in connection with the stopper, one feature of our invention.

What we claim is—

1. A bottle-stopper formed entirely of vit-

reous material and consisting of an externally tapered shell and an interiorly arranged cylindrical valve having an exterior collar formed upon its closed upper end and adapted to seat upon an interior circular shoulder, said valve being provided with exit passages in its wall below said collar, substantially as described.

2. A bottle-stopper formed wholly of vitreous material and consisting of an externally tapered shell having an interior, cylindrical valve longitudinally movable therein and provided upon its upper, closed end with an outwardly projecting collar seating upon an interior circular shoulder, and a ball-valve loose within said cylindrical valve, the latter being provided with exit passages below the closed upper end, substantially as described.

3. The combination with a bottle of an insertible stopper, formed entirely of vitreous material and consisting of a shell tapered to fit the neck of the bottle, a movable cylindrical valve contained within said shell, and a ball-valve contained within the cylindrical valve, substantially as described.

4. The combination with a bottle of a stopper insertible within the neck and provided with a perforated diaphragm upon its upper end, a cylindrical valve arranged below said diaphragm, its upper closed end provided with an outwardly projecting collar adapted to seat upon an inner circular shoulder, and a ball-valve loose within the cylindrical valve and adapted to seat within and close an opening in the lower end of the cylindrical valve, the latter being provided with exit-passages below its upper closed end, substantially as described.

5. The combination with a bottle of a bottle stopper insertible in the neck of said bottle, the stopper consisting of a shell tapered externally to fit the neck of the bottle, and provided with an interior circular shoulder and a beveled seat below said shoulder, a cylindrical valve movable in said shell and provided upon its upper closed end with an outwardly projecting collar having a beveled face adapted to close upon the beveled seat in said shell and provided with exit-passages below said collar, and a ball-valve loose within said cylindrical valve and adapted to seat within and close an opening in the lower end of said cylindrical valve, substantially as described.

6. In a bottle-stopper, the combination with an externally tapered shell having a perforated diaphragm in or upon its upper end, of a cylindrical valve movable within the lower part of said shell, its upper end closed and provided with an outwardly projecting collar having a beveled face which is adapted to close upon a beveled circular seat within said shell, the wall of said valve being provided with exit passages, and a ball-valve loose

within the cylindrical valve and adapted to close an opening in its lower end, substantially as described.

5 7. The combination with a bottle having a neck which is contracted from its open end downward, of a bottle-stopper consisting of a shell externally tapered to fit said neck, an interior, cylindrical valve and a ball-valve within the latter, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

AUGUST SCHNEIDER.
DANIEL W. BROMLEY.

Witnesses:

T. T. FORMAN,
M. H. BOURNE.