

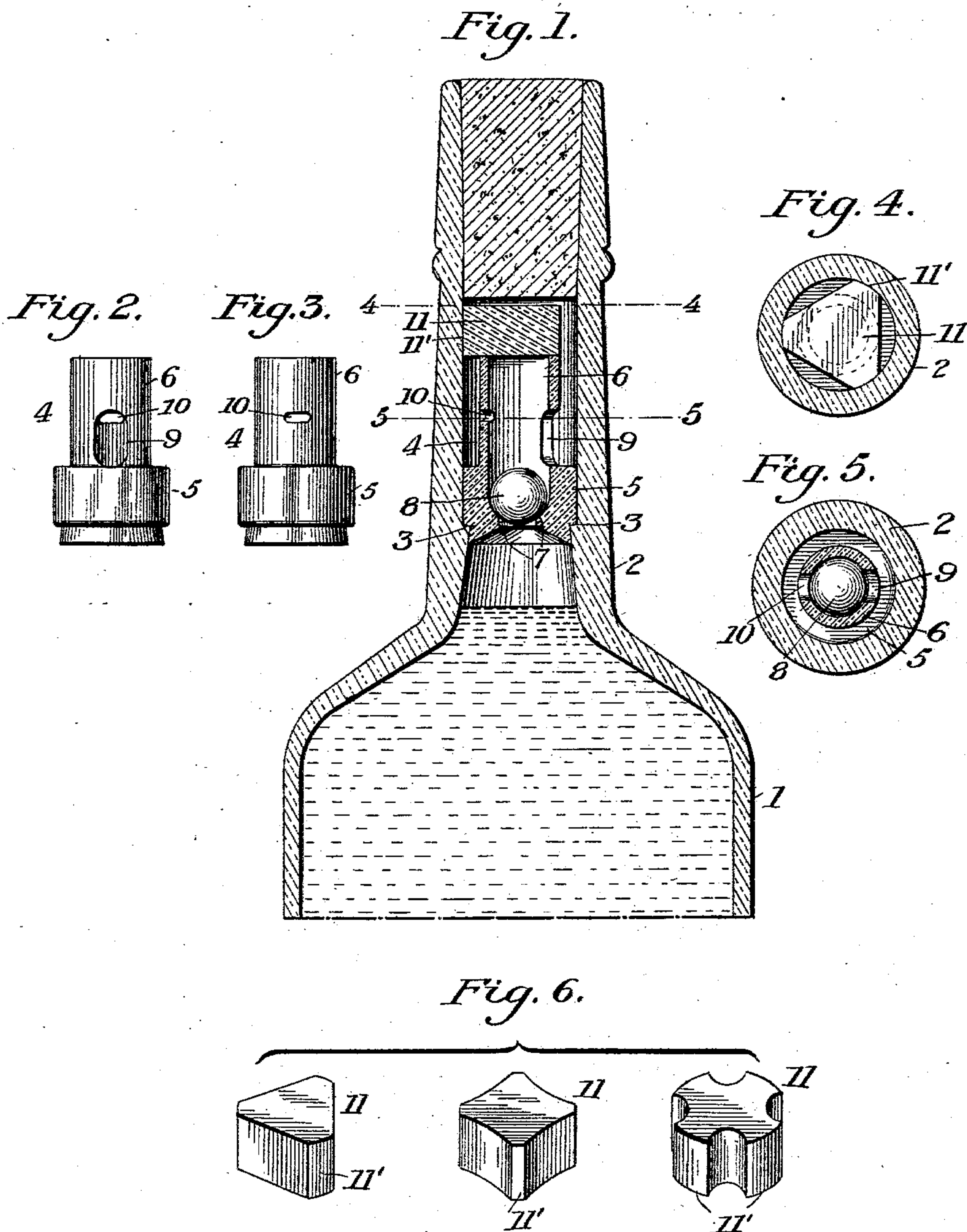
No. 715,348.

Patented Dec. 9, 1902.

W. G. CHRISTIAN & P. J. TIERNEY.
BOTTLE STOPPER FOR PREVENTING THE REFILLING OF BOTTLES.

(Application filed July 18, 1902.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM G. CHRISTIAN AND PATRICK J. TIERNEY, OF NEW ROCHELLE,
NEW YORK.

BOTTLE-STOPPER FOR PREVENTING THE REFILLING OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 715,348, dated December 9, 1902.

Application filed July 18, 1902. Serial No. 116,015. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM G. CHRISTIAN and PATRICK J. TIERNEY, citizens of the United States, residing at New Rochelle, in the county of Westchester and State of New York, have invented a new and Improved Bottle-Stopper for Preventing the Refilling of Bottles, of which the following is a full, clear, and exact description and 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 inserting it in the open mouth thereof, as hereinafter described, 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 further purpose to provide a new and improved bottle-stopper in connection with a bottle provided with a shoulder in its neck, as hereinafter described, which is extremely simple in construction, can be manufactured very cheaply, and so arranged that any liquid substance can easily be emptied from the bottle, but will not permit of its being refilled.

To accomplish this object, our invention consists of the features and details of construction or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, which make a part of this specification, and in which—

Figure 1 is a central vertical section of the upper part of a bottle having a shoulder or seat for the purpose of supporting and fitted with our new and improved stopper and illustrating the position of the various parts thereof when the bottle is in its normal or upright position. Fig. 2 is an elevation of our new and improved stopper removed from the neck of the bottle, showing the exit or outlet for the fluid. Fig. 3 is another elevation showing the vent. Fig. 4 is a transverse section taken on the line 4 4 of Fig. 1, showing the retaining-cap. Fig. 5 is a similar sectional view taken on the line 5 5 of Fig. 1, showing the outlet, vent, and valve or ball; and Fig. 6 illustrates in perspective modified forms of the retaining-cap.

Similar numerals of reference indicate similar parts throughout the several views, 1 representing the bottle, having a neck 2, preferably straight, said neck being provided with a shoulder 3, which forms a seat for the valve-casing 4, having a central bore forming a valve-chamber, said bore being contracted at its lower end to provide a valve-seat. The valve-casing is preferably constructed of glass or similar material and is designed to be secured in the neck of the bottle by a non-soluble cement. The valve-casing includes a base portion 5 and an extension 6, projecting axially therefrom. In the cylindrical portion 6 of the valve-casing is formed a port or outlet 9, through which the contents may readily pass when the bottle is in an inverted position. In the wall of the valve-casing, and preferably opposite the outlet 9, is a vent 10, which admits air to the bottle in sufficient quantities to enable the contents to be drawn out. The lower end of the valve-chamber is normally closed by the ball-valve 8 resting on the flange or seat 7, and said ball-valve is of a diameter slightly smaller than that of the valve-chamber, so that it has a free movement when the bottle is inverted. The top of the valve-chamber is securely closed by a retaining-cap 11, which may be of any desired form, as indicated in Figs. 4 and 6, and is permanently secured in the neck of the bottle by a non-soluble cement or other known means at the point 11'.

In practice the bottle should be first filled with whatever liquid it is intended to contain. The stopper is then placed in the neck of the bottle provided with the shoulder, as hereinbefore mentioned, said shoulder being sufficiently low to permit of the insertion of a cork above it. Before placing the stopper in the bottle the outer surface of its base 5 and the retaining-cap 11 should be treated with a good coating of non-soluble cement, preferably one which will expand greatly and break the glass neck, if heat is applied to loosen the stopper. Any cement containing fish-glue, rubber, or lime expands under heat and is well suited for this purpose and is especially adapted to be used in cementing glass. When it is desired to remove the contents of the bottle, the mouth of the bottle is turned

down, as usual, the ball-valve is unseated by gravity, and permits the liquid to pass through the port or outlet 9. As soon, however, as the bottle is righted the ball-valve will immediately reseal itself, and thereby prevent any liquid being introduced into the bottle a second time. If an attempt should be made to place the bottle on its side in such a position as to bring the ball-valve out of its seat and then fill by immersing the bottle in liquid, it will be found that such fraudulent attempt will be completely checked by capillary attraction, the ball-valve being forced back into its seat, owing to the fact that the air inside has no vent.

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.

Having thus described our invention, what we claim is—

1. The combination with a bottle-neck having an annular internal shoulder, of a tubular valve-casing, comprising a base portion of relatively large diameter fitting the neck of said bottle and finding a seat on the annular shoulder thereof, and an axial extension of less diameter than said bottle-neck having a relatively large discharge-opening leading through the wall thereof at one point, and a relatively small vent-opening leading through the wall at another point, a permanent closure for one end of the valve-chamber and a movable ball for closing the opposite end of said chamber, substantially as described.

2. The combination with a bottle-neck having an annular internal shoulder, of a valve-casing having a base portion accurately fitting said neck and finding a seat upon said shoulder, a cylindrical extension projecting axially from said base and of less diameter than the neck of the bottle, said casing having a central bore extending entirely through the same and contracted or of reduced diameter within the base to provide a valve-seat, a valve contained in said bore, and a cap closing the end of said cylindrical extension, said extension having a large discharge-opening through its wall at one point, and a relatively small vent-opening through its wall at a diametrically opposite point, substantially as described.

3. The combination with a bottle-neck, of a valve-casing of vitreous material located therein, having a discharge and a vent opening through the wall thereof, a valve contained within said casing, a cap for closing one end of the casing, and a cement capable of expanding when subjected to heat interposed between said casing and bottle-neck and said cap and bottle-neck for permanently securing said parts in position, substantially as described.

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

WILLIAM G. CHRISTIAN.
PATRICK J. TIERNEY.

Witnesses:

R. A. BALDERSON,
D. W. EDELIN.