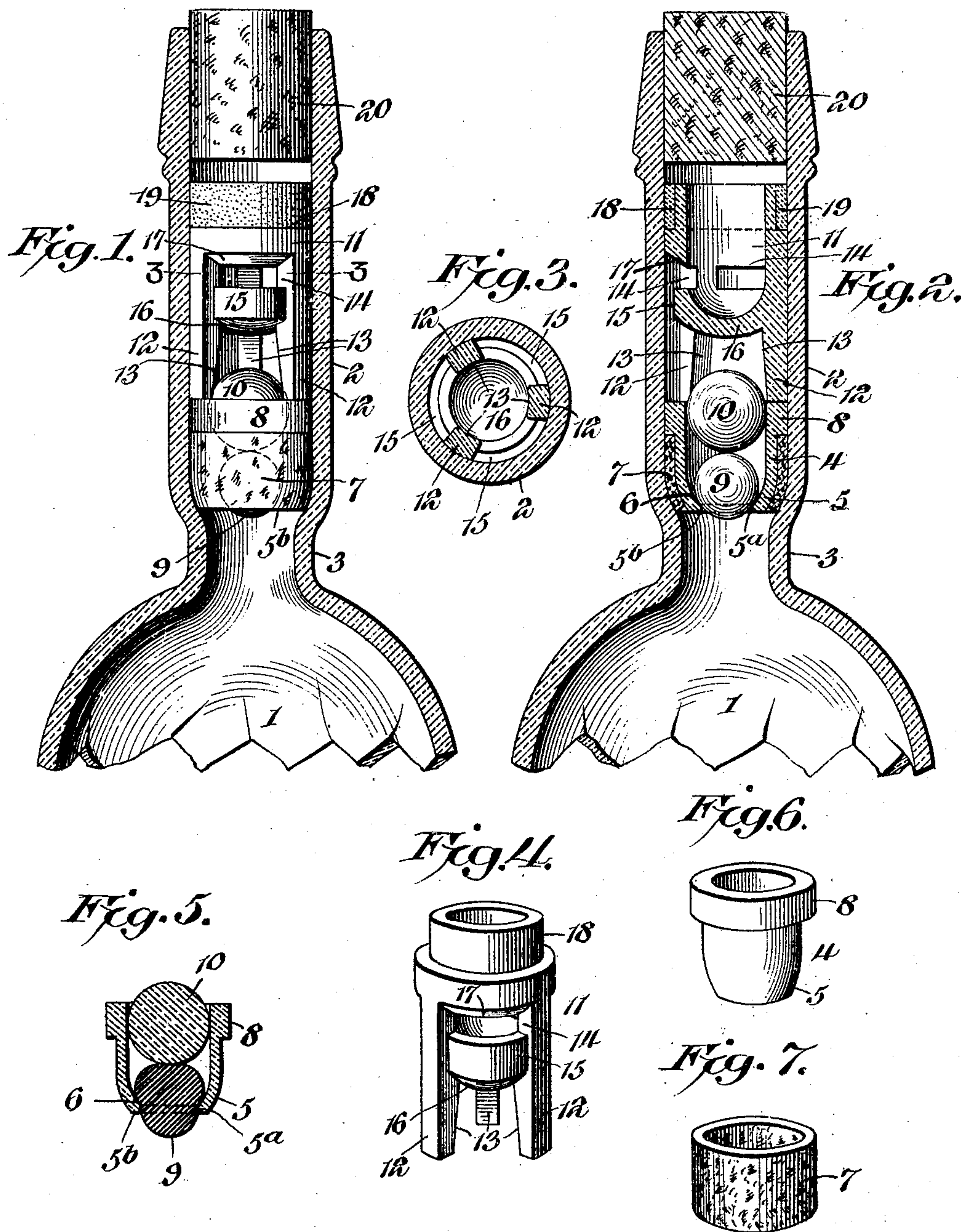


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NON-REFILLABLE BOTTLE.
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912,109.

Patented Feb. 9, 1909.



Witnesses
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NON-REFILLABLE BOTTLE.

No. 912,109.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY GEHMAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

The invention relates to improvements in non-refillable bottles.

The object of the present invention is to improve the construction of non-refillable bottles, and to provide a simple non-refillable bottle, adapted to be blown with the same facility as an ordinary bottle, whereby it is adapted to be easily and cheaply manufactured.

A further object of the invention is to provide a non-refillable bottle of this character having a valve mechanism, capable of effectually preventing a bottle from being fraudulently refilled, or its contents adulterated, and adapted, should it be subjected to exterior pressure, to close the neck of the bottle and prevent a liquid from being either poured from the bottle or into the same.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a vertical sectional view of a non-refillable bottle, constructed in accordance with this invention, the valve mechanism and the guard being shown in elevation. Fig. 2 is a similar view, the valve mechanism and the guard being shown in section. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a detail perspective view of the guard. Fig. 5 is a detail sectional view, illustrating the manner in which the valve is interlocked with the valve casing when the bottle is subjected to external pressure. Fig. 6 is a detail perspective view of the casing. Fig. 7 is a detail view of the elastic sleeve.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

1 designates a bottle provided with a cylindrical neck 2, having a reduced lower portion 3, forming a seat or stop for a valve casing 4, constructed of glass, or other suitable material. The neck of the bottle is provided with a smooth interior, and is adapted to be blown with the same facility as an ordinary bottle, and the device is applicable to bottles of various sizes, and may be applied to all kinds of receptacles having a neck. The upper portion of the valve casing is cylindrical, and its lower portion 5 is tapered to form a valve seat 6, the tapered portion being slightly rounded and conforming to the configuration of and spaced from the reduced portion 3 of the neck of the bottle. An elastic sleeve or packing ring 7 of cork, rubber, or other suitable material is arranged on the exterior of the valve casing, and is interposed between the lower portion of the same and the neck of the bottle, as clearly illustrated in Figs. 1 and 2 of the drawing, to form an air tight connection. The upper portion of the valve casing is provided with an exterior annular boss or flange 8, forming a shoulder and receiving the upper edge of the elastic sleeve or ring 7. The elastic sleeve or ring 7 is placed on the valve casing before the latter is introduced into the bottle, and when the liquid contents of the bottle come in contact with the cork sleeve or ring, the latter swells and forms a liquid and air tight connection, and at the same time prevents any lack of uniformity in the necks of the bottles from affecting the perfect fitting of the valve casing within the same.

The valve casing receives a soft elastic ball valve 9 of less specific gravity than water, preferably constructed of highly elastic rubber, and adapted to be readily opened by the liquid contents of the bottle, when the latter is inverted, and capable also of forming a liquid tight closure when arranged on the seat of the valve casing. The highly elastic ball valve is adapted to follow the flow of the liquid, should an attempt be made to refill the bottle, and any liquid entering the neck of the bottle will carry the valve to its seat, and if pressure be resorted to for forcing the liquid into the bottle, the valve will be forced partially through the inner end of the valve casing, as illustrated in Fig. 5 of the drawing, and the protruding portion will expand beyond the inner end of the valve casing, and will operate to lock the valve on the

same after the external pressure has been removed. This will close the neck of the bottle and prevent the passage of a liquid in either direction, so that nothing can be
 5 poured into or out of the bottle. Should an attempt be made to refill the bottle before its original contents have been consumed, the valve, if locked in the manner above described, will operate to render the bottle use-
 10 less and prevent any liquid remaining in the same from being decanted therefrom. The lower tapered portion 5 of the valve casing is provided below the seat with an interior wall 5^a, adapted to engage the ball valve,
 15 when the latter is forced inward and forming a lower comparatively sharp edge, beyond which the protruding portion of the ball valve expands and engages the lower flat edge 5^b of the valve casing. This con-
 20 struction enables the ball valve to be firmly retained in its position, when it is forced partially through the lower or inner end of the valve seat.

The valve is positively held on its seat
 25 when the bottle is in any position between a horizontal and a vertical position, by means of a weight 10, which is in the form of a ball of the same diameter as the interior of the cylindrical portion of the valve casing. The
 30 ball-shaped weight, which may be constructed of any suitable material, is relatively heavy while the ball valve is relatively light, and owing to its snug fit within the upper portion of the valve casing, it will be impossible
 35 through any lateral shaking of the bottle to cause any liquid to percolate through the valve casing and enter the body portion of the bottle. Also as the valve is relatively
 40 light, any attempt to introduce a liquid into the bottle by shaking it vertically will be equally ineffectual to displace the valve from its seat.

The outward movement of the weight and the valve is limited by a guard 11, con-
 45 structed of glass, porcelain, or any other suitable material, and consisting of a substantially cylindrical body portion, open at the top and closed at the bottom and provided with depending supporting legs 12, which
 50 rest upon the upper edge of the valve casing. The depending supporting legs are provided with upwardly and inwardly inclined inner edges 13, which converge towards the bottom of the body portion of the guard and which,
 55 when the bottle is in a horizontal position, present an inclined supporting face to the ball-shaped weight for causing the same to roll inwardly to maintain the valve on its seat, when the bottle is in such position.
 60 This will prevent any liquid from entering the bottle should it be partially submerged in a horizontal position in a vessel containing the liquid. The body portion of the guard is provided with horizontally disposed open-
 65 ings 14, and it is recessed below the opening

at 15, the openings 14 occurring between the spaces above the supporting legs, and the uncut intervening portions between the recesses forming continuations of the said legs. The openings 14 communicate with the in-
 70 terior of the guard, and tortuous passages are thus formed, which permit a free discharge of the contents of the bottle, and at the same time prevent a wire, or other instru-
 75 ment, introduced into the neck of the bottle, from reaching and interfering with the operation of the valve and the weight. The bot-
 tom 16 of the guard has a concave upper face, as clearly illustrated in Fig. 2 of the drawing. This will tend to bend the end of a wire up-
 80 ward should it come in contact with the bottom. The openings 14 are located above the concave bottom, and the guard is pro-
 85 vided above the openings with beveled edges 17, extending upwardly and outwardly from the interior of the guard. This construction serves to direct an instrument away from the valve mechanism, should an attempt be made to tamper with the same.

The openings 14 space the bottom 16 from
 90 the cylindrical body portion of the guard 11, and the legs 12 are connected with and support both the cylindrical body portion and the bottom 16, which is located above the
 95 open upper end of the valve casing to limit the upward movement of the ball and the ball valve.

The guard is provided at its upper end with an exterior annular recess 18, and it is re-
 100 tained in the neck of the bottle by cement 19, or other suitable adhesive material, which is placed in the annular recess of the guard after the parts have been assembled.

The guard member has a cylindrical ex-
 105 terior to conform to the configuration of the neck of the bottle, and is spaced from the upper end of the same to permit an ordinary cork or stopper 20 to be inserted in the neck. The bottle is adapted to be sealed in the usual
 110 manner, and the liquid may be freely decanted, when the bottle is inverted. The open-
 ings 14 form a vent to permit air to enter the bottle as the liquid is poured therefrom, so that a free discharge of the contents of the
 115 bottle is assured.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the class described, the combination with a neck, of a valve casing
 120 arranged within the neck and formed with a valve seat, an elastic valve arranged within the casing and adapted to be forced partially through the same by external pressure, said
 125 valve casing having its lower end constructed and arranged for engaging and holding the valve should the same be forced inwardly, and a weight operating above and engaging the valve for retaining the same normally on
 130 its seat.

2. In a device of the class described, the combination with a neck, of a tubular valve casing arranged within the neck and having a tapered lower end forming a valve seat, 5 said lower end being provided below the seat with an inner vertical valve engaging wall and having a lower horizontal edge, an elastic valve adapted to be forced partially through the lower end of the valve casing by 10 external pressure, whereby it will be held in

a closed position, and a weight located above the valve for normally retaining the same on its seat.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature 15 in the presence of two witnesses.

HARRY GEHMAN.

Witnesses:

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