(No Model.)

# E. GERLACH.

## DEVICE FOR PREVENTING REFILLING OF BOTTLES.

No. 600,492. Patented Mar. 8, 1898.

Fig. 1.

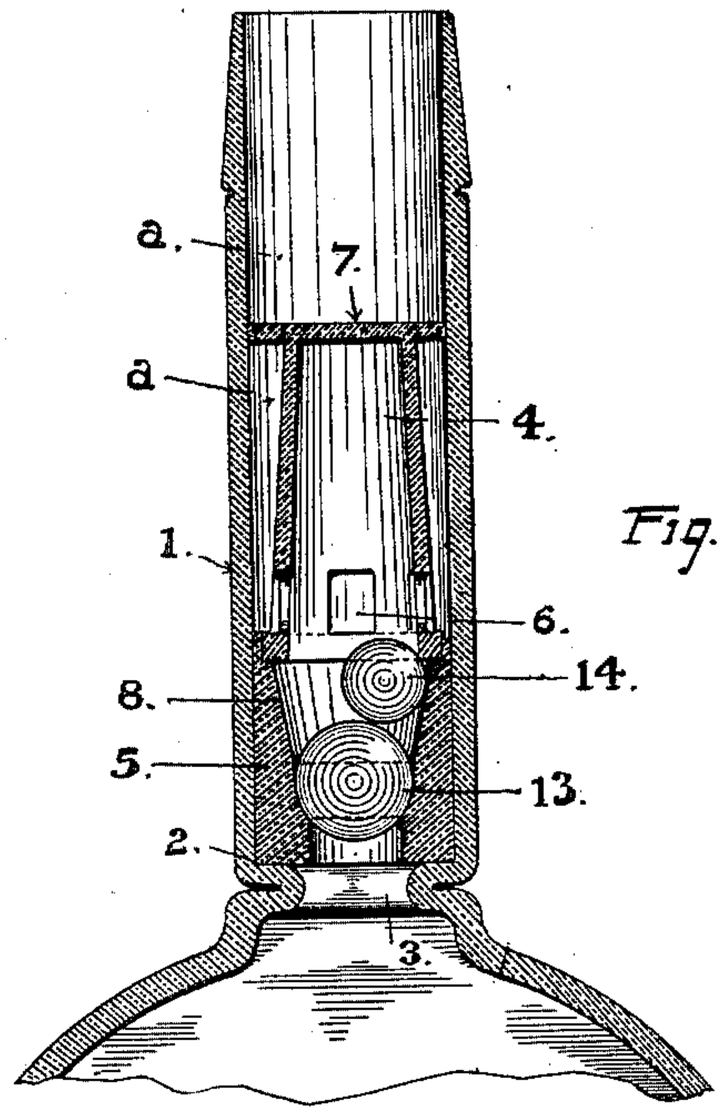



Fig. 3.

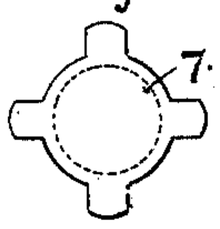



Fig. 2.

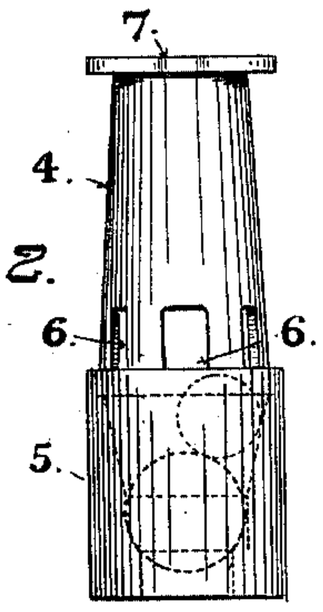



Fig. 4.

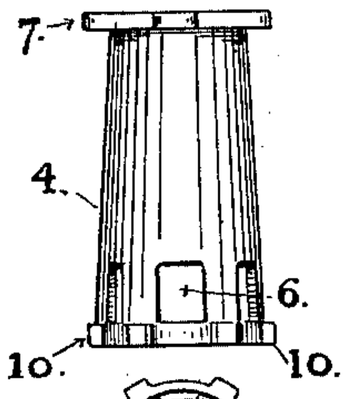



Fig. 4a.

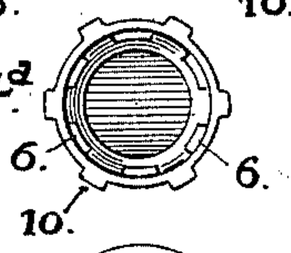



Fig. 5a.

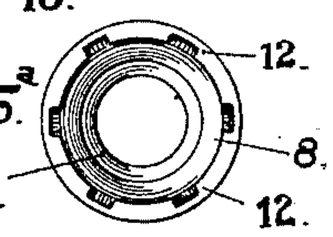



Fig. 5.

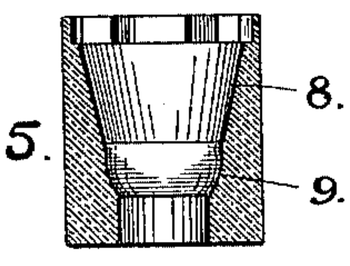



Fig. 6.

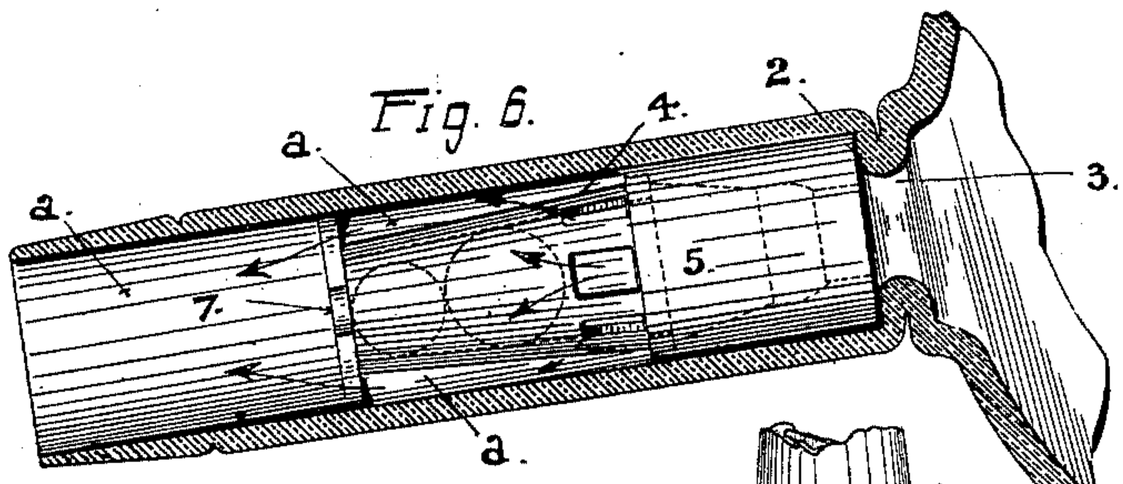



Fig. 7.

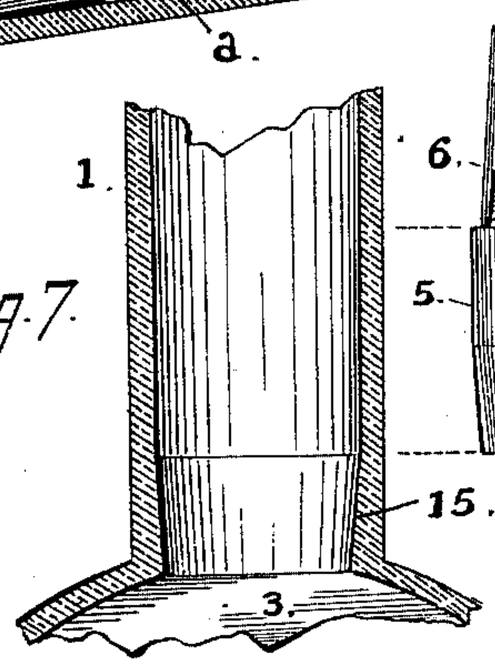
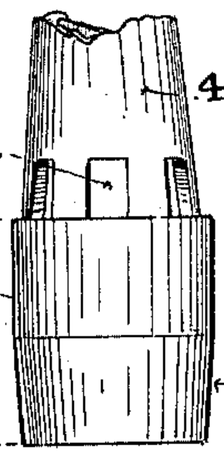



Fig. 7a.




Witnesses:
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Wm. Moerer

Inventor:
Emil Gerlach
By Smith & Osborn, his Attys.

# UNITED STATES PATENT OFFICE.

EMIL GERLACH, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE ONLY PERFECT NON-REFILLABLE BOTTLE COMPANY, OF SAME PLACE.

## DEVICE FOR PREVENTING REFILLING OF BOTTLES.

SPECIFICATION forming part of Letters Patent No. 600,492, dated March 8, 1898.

Application filed September 24, 1896. Renewed September 7, 1897. Serial No. 650,842. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL GERLACH, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Devices for Preventing the Refilling of Bottles, as fully set forth in the following specification, in which reference is had to the accompanying drawings, in which—

Figure 1 represents a central longitudinal section of the neck of a bottle with my improved device fixed therein; Fig. 2, an external view of the device before it is fixed in the bottle; Fig. 3, a plan of the top end of the same; Figs. 4 and 5, elevations in detail of the two parts composing the plug or part in which the ball-valve works, the part Fig. 5 being a longitudinal section; Fig. 4ª, a bottom plan of the upper part or section of the plug; Fig. 5ª, a top plan of the lower part; Fig. 6, a view showing the position of the valve when the bottle is tipped to discharge the liquid, with the neck of the bottle shown in section; Fig. 7, a detail view of a bottle-neck, showing a slight modification in the manner of fitting the plug in the neck; and Fig. 7ª, the form of the lower part of the plug in such modification.

My invention relates to improvements in antirefilling devices for bottles, in which a hollow plug having a passage through it for the liquid and a ball-valve controlling such passage is adapted for insertion into the neck of a bottle and to be permanently fixed therein, whereby the outlet is closed, excepting that afforded by the valve-controlled passage through the plug; and the improvements have for their object, mainly, to enable the body of the device to be made of glass and to be produced at such small cost that they can be furnished complete at small expense and applied without difficulty by an ordinary workman.

To this end my invention consists in the described construction and combination of parts producing a hollow plug or casing for holding and operating in conjunction with a ball-valve, the said parts being specially designed to be made of glass for use in bottles to contain liquids that might be affected injuriously if the device or parts of the device were made of metal.

The construction and application of this device I will proceed to describe in detail and will then point out more definitely in the claim the special parts and features which I believe to be new.

1 indicates the neck of a bottle of the kind generally employed for bottling liquors. 2 is a ledge or shoulder in the neck at the bottom of the passage, and 3 is the opening at the bottom of the neck communicating with the interior of the bottle. The part fixed in the neck above this opening, which I have designated as the "plug," is made in two pieces or sections, one of which is generally cylindrical on the outside and of the full diameter of the inside of the bottle-neck at its lower portion to fit closely therein, while the other is made of smaller diameter and of a conical shape, whereby a space is left between such upper part of the plug and the surrounding walls of the bottle-neck above the cylindrical portion of the plug. This upper tapering section 4 and the lower cylindrical section 5 are united together circumferentially by small lugs or projections 10 10, formed on the bottom of one section around its margin, and slots or recesses 12 12, made in the rim of the other section, into which the lugs are fixed by means of cement, and a tight joint is produced when the two parts are set together. The two sections are easily cast or molded and are firmly united by this means after the balls are inserted. The top end of the tapering section has a solid head 7, on the marginal edge of which are formed radial arms or lugs of suitable length to rest against the surrounding wall of the bottle-neck when the plug is set in position to brace the top end of the plug. Between these points of support the liquid flows from the annular space between the tapering part of the plug and the bottle-neck. The space or passage within this part of the plug communicates directly with the space within the body of the bottle through the central opening in the bottom of section 5, controlled by the ball-valve, and also with the space between the conical section and the surrounding neck through a number of ports or apertures 6 6 in the sides

of the section, that give a relatively large area of discharge into the neck of the bottle, sufficient material being left between the apertures to give a suitable degree of strength to the walls of this conical portion.

The valve-seat 9 around the margin of the aperture is made of concave shape to conform to the size of the ball and furnish a close seat for it. The internal walls or sides above this seat are flared upwardly, and at the upper portion, where the conical section joins the bottom section at the outlet-apertures 6, the diameter is nearly that of the interior of the bottle-neck. From the aforesaid aperture upward or to the top end of the conical section the internal diameter of the section is reduced as much as the size of the ball-valve will allow and large enough in diameter to let the ball-valve pass beyond the apertures 6 and rest in the tapering portion above them while the bottle is inclined to pour out the liquid. By that means it will be seen that the valve rolls entirely out of the passage leading from the valve-seat to the apertures in the sides of the plug, and an unobstructed discharge is secured through the plug when the bottle is tipped.

Within the plug and upon the valve-ball 14, before the sections are united, a ball 15, of smaller diameter, is placed that has two offices or functions, one of which is to hold the valve to its seat in the bottom of the lower chamber when the bottle is laid in a horizontal position and the other to prevent the valve from getting stuck or wedged in the smaller end of the conical chamber or above the apertures 6 when the bottle is inclined and thus be held improperly away from its seat in the lower section. In the first-mentioned function or operation this valve-governing ball, being of proper diameter to touch the valve and also to rest against a shoulder or circular ledge 16, formed for that purpose by the difference between the diameter of the lower and the upper conical chambers at the junction of the two sections, acts to keep the valve 14 from leaving its seat, which otherwise it would do because of the inclination in the walls of the valve-chamber 8, while in its other function, the smaller ball being interposed between the ball-valve and the head or closed end of the upper conical section of the plug, it acts to keep the ball-valve from becoming wedged in the smaller part of the conical chamber when the bottle is tipped, the length of such chamber beyond the apertures 6 6 and the diameter of the two balls being properly proportioned and regulated to obtain such results.

The device as thus constructed is fixed in the neck of the bottle by applying a small quantity of cement to the surface of the plug at and near the lower end and then pushing it down to its seat in the lower part of the neck.

In the slight modification illustrated in Figs. 7 and 7ª of the drawings such seat is produced by forming the neck with a contracted and slightly-tapered wall at the lowest portion of the passage and making the surface of the lower end of the cylindrical section of corresponding taper to fit that contracted portion, so that when the plug is dropped into the neck the cylindrical lower section will close up the passage and a tight joint will be produced.

Suitable length of neck above the top end of the plug is provided to receive the cork and allow the same to be driven and extracted without injuring the device.

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

In combination with the cylindrical lower section having a central aperture in the bottom, a seat for a valve above said aperture, a passage with flaring walls above said valve-seat and a circular ledge around the top of the section on the inside having spaced slots or recesses; the hollow tapering top section provided with spaced lugs around the rim of the larger end adapted to fit and make a close joint with the recessed top end of the lower section, apertures in the walls of the tapering section above the line of union with the lower section, a closed body without openings above said spaced apertures, a solid top closing the upper end of the tapering section and laterally-projecting arms or lugs adapted to rest against the surrounding walls of the neck in which the plug is inserted, constructed for operation as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

EMIL GERLACH. [L. S.]

Witnesses:
EDWARD E. OSBORN,
M. REGNER.