

No. 865,710.

PATENTED SEPT. 10, 1907.

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NON-REFILLABLE BOTTLE.  
APPLICATION FILED MAR. 23, 1905.

Fig. 3.

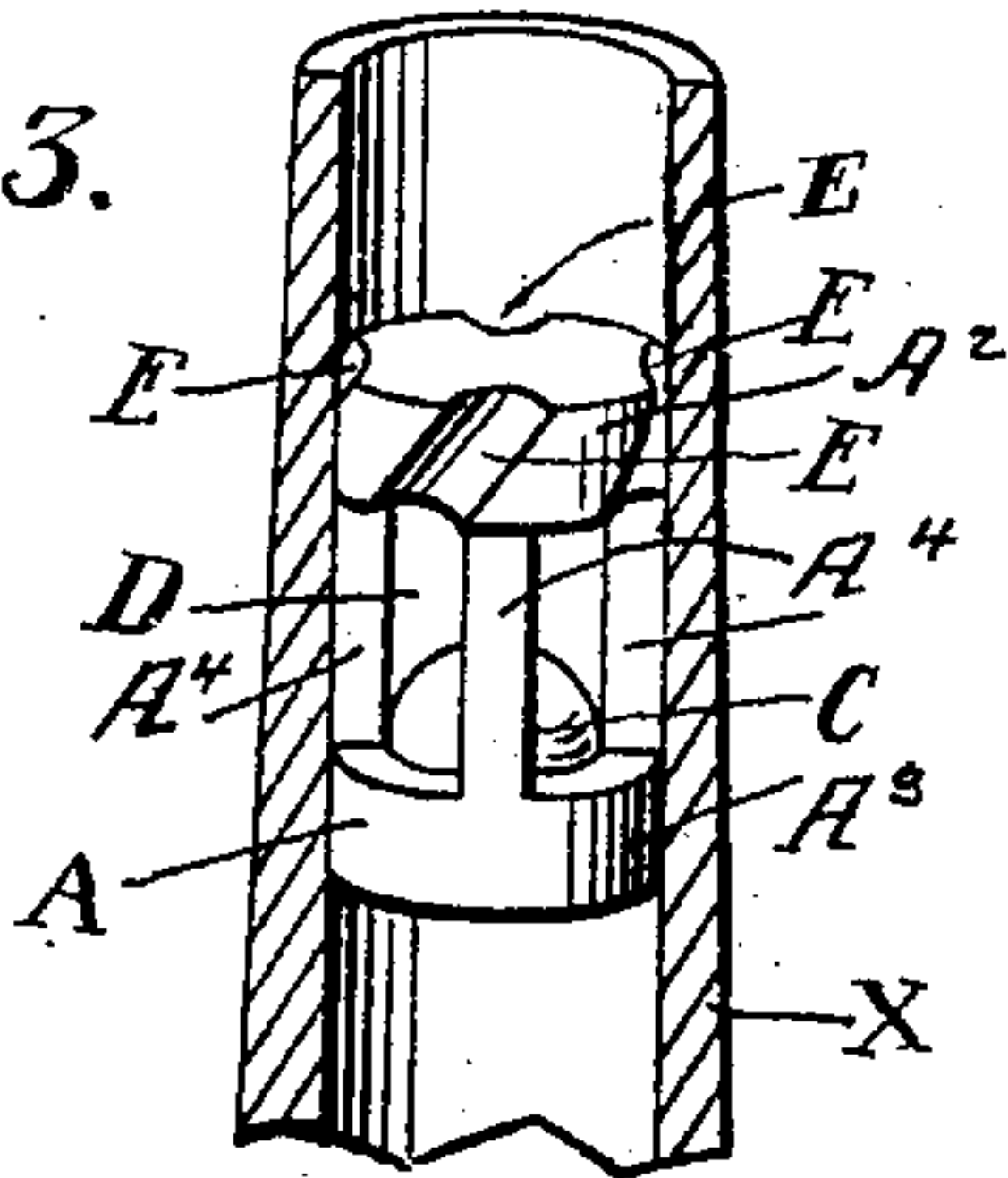


Fig. 6.

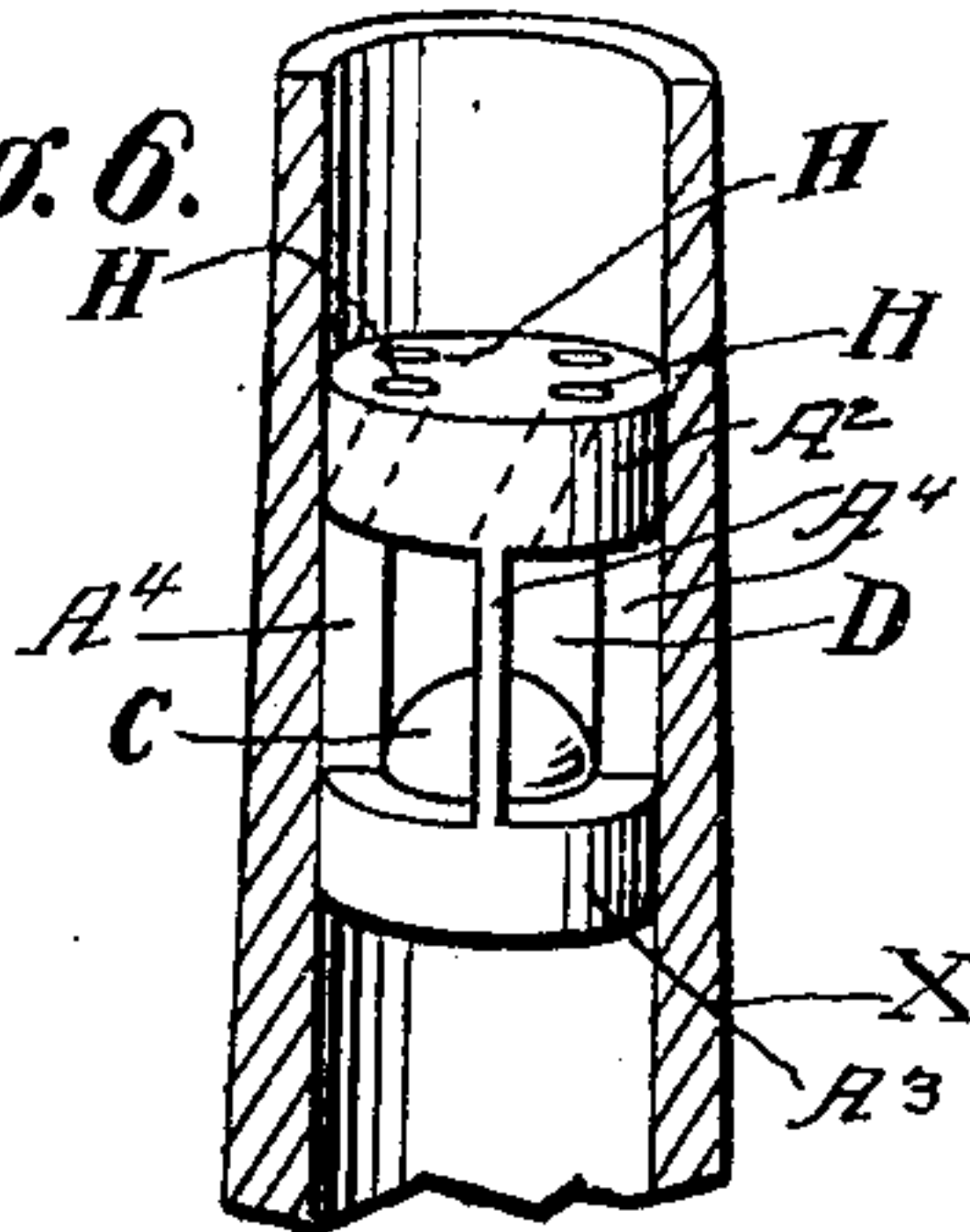


Fig. 1.

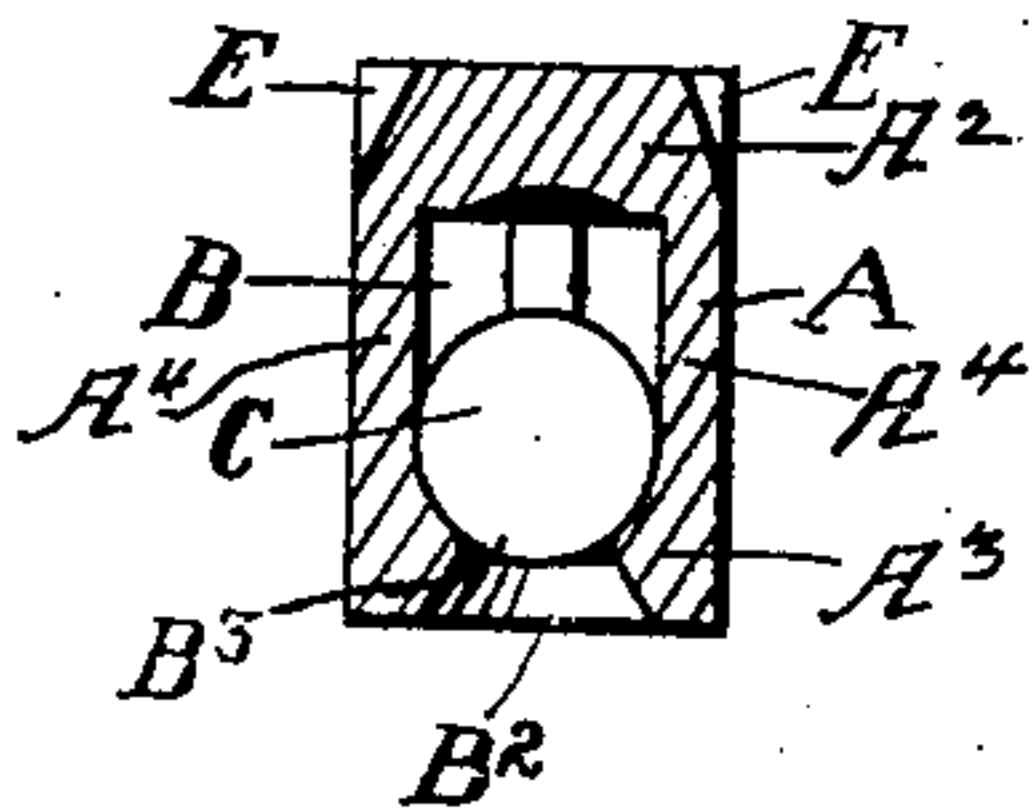


Fig. 4.

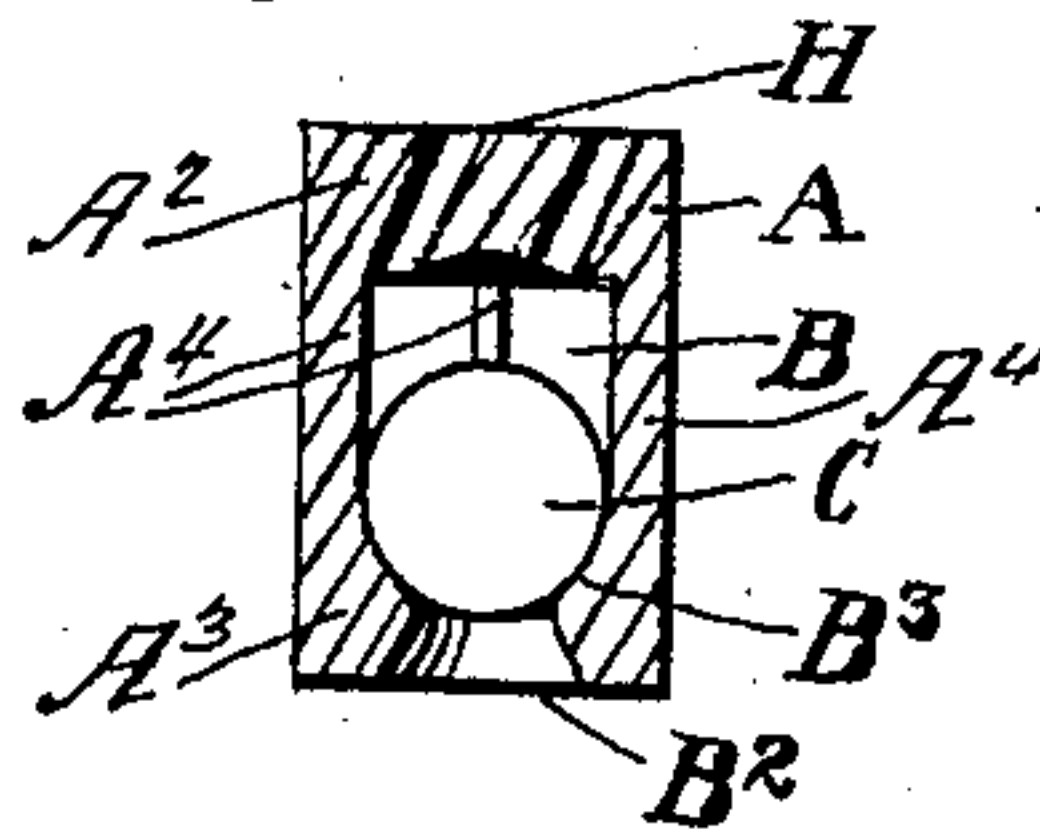


Fig. 2.

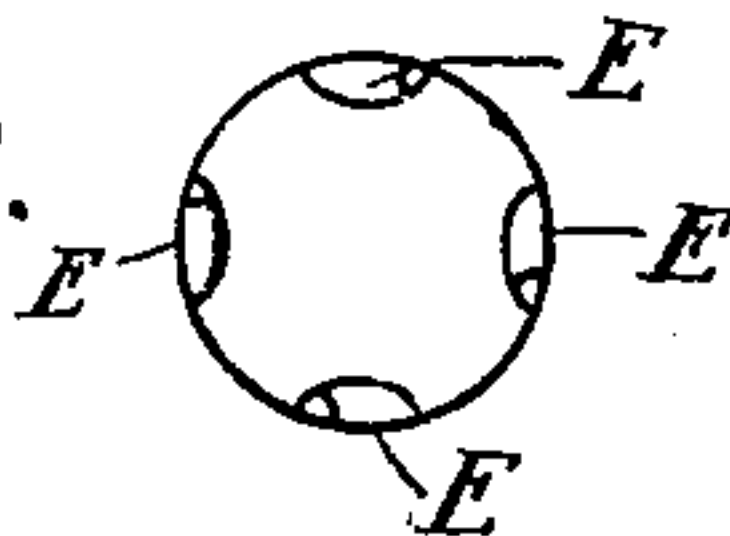
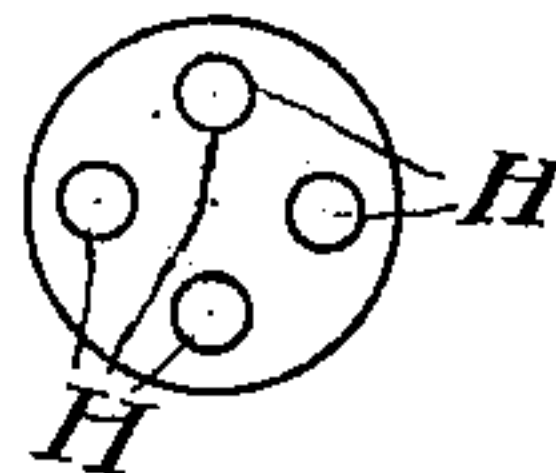


Fig. 5.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES M. KIRKER, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO GEORGE W. ELMES, OF NEWPORT, KENTUCKY; NANNIE RITTER ADMINISTRATRIX OF SAID JAMES M. KIRKER, DECEASED.

## NON-REFILLABLE BOTTLE.

No. 865,710.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed March 23, 1905. Serial No. 251,556.

*To all whom it may concern:*

Be it known that I, JAMES M. KIRKER, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use will be apparent from the following description and claims.

In the accompanying drawings forming part of this specification, and in which similar letters of reference indicate corresponding parts,—Figure 1 is a vertical central section of a plug for insertion in the bottle neck. This plug is an illustration of my invention. Fig. 2 is a top view of this plug. Fig. 3 is a view partly in section and partly in elevation, of the bottle neck with my improved plug located therein. Fig. 4 is a vertical central section of a modified form of said plug. Fig. 5 is a top view of the same. Fig. 6 is a view partly in section and partly in elevation of this modified form of plug, located within the neck of a bottle.

I will now proceed to describe my invention in detail.

A indicates the main body of the plug, B, an interior chamber thereof. This chamber is connected to a narrow exit B<sup>2</sup>, whose upper portion B<sup>3</sup> is adapted to receive ball C and forms a valve seat, when the bottle is upright, this ball C falls down and fits into the said recess B<sup>3</sup>, thereby sealing the entrance into passage B<sup>2</sup> hermetically, and shutting off all connection between the chamber B and the passage B<sup>2</sup>. The size of the chamber B is such as to allow the ball when the bottle is inverted to move along through the chamber. At the upper end of this chamber there are grooves E, E, E, which incline sidewise, substantially as shown in Fig. 3. When the plug is located in the neck of the bottle, this neck forms the outer wall of the passageway E.

The manner in which my invention operates is as follows:—The bottle is first filled through the neck, then plug A is located permanently in the neck of the bottle. When the liquid is to be withdrawn from the bottle, the latter is inverted in the usual way. The ball C will leave its seat B<sup>3</sup>, and the liquid is free to pass out from under this ball and through passageway D, into the passageway E; and thence out of the bottle. When the bottle

is emptied, and is stood up as usual, the ball C falls into the recess B<sup>3</sup>. Any attempt, while the bottle is vertical or in a position proper for filling it, to introduce liquid therein, will fail, because ball C will close the inlet passage B<sup>2</sup>. The passageways E are intentionally made inclined so as to prevent any instrument that may be inserted through one of these passages, from lifting the ball C from its seat. This prevention of the lifting of the ball prevents any liquid from being introduced into the bottle. The modification of this plug which is illustrated in Figs. 4, 5 and 6, differs from the plug in Figs. 1, 2 and 3 in this, that the holes H are located altogether within the plug A, and do not depend upon the neck of the bottle to form a wall of said opening. These holes are preferably inclined after the manner of the holes E, the inclination assisting the preventing of any manipulation that would withdraw the ball valve from its seat. It is to be understood that this plug A, in all the figures, has in its sides openings D, substantially as shown. The function of these recesses or openings D have already been explained. The upper end of the plug is a cylinder A<sup>2</sup>. The lower end of the plug is a cylinder A<sup>3</sup>. The cylinder A<sup>2</sup> is connected to the cylinder A<sup>3</sup> by thin bars A<sup>4</sup>.

What I claim as new, and of my invention and desire to secure by Letters Patent, is:—

In a non-refillable bottle, a plug, of uniform diameter throughout, and adapted by its elasticity to remain fixed in the passage of the bottle neck, the plug having at the vertical central portion of its periphery passages D extending from the central chamber B through the plug to the neck of the bottle, the plug provided with a central chamber B sufficient to permit a ball valve to move vertically and to be unseated, when the bottle is inverted, partitions A<sup>4</sup> of the plug and in frictional contact with the bottle neck, the wall of the lower portion of the chamber B being contracted in a concave form and adapted to constitute the valve seat for the ball valve, the lower portion of this plug being provided at the lower end of the valve seat with an opening B<sup>2</sup>, this opening having its sides beveled downward and outward to enable a rapid inflow of the liquid contents of the bottle through the valve opening and into the chamber B, the upper portion of the plug having inclined passages, communicating at one end with the chamber B and at the other end with the space in the bottle neck above the plug, substantially as and for the purposes specified.

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Attest:

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