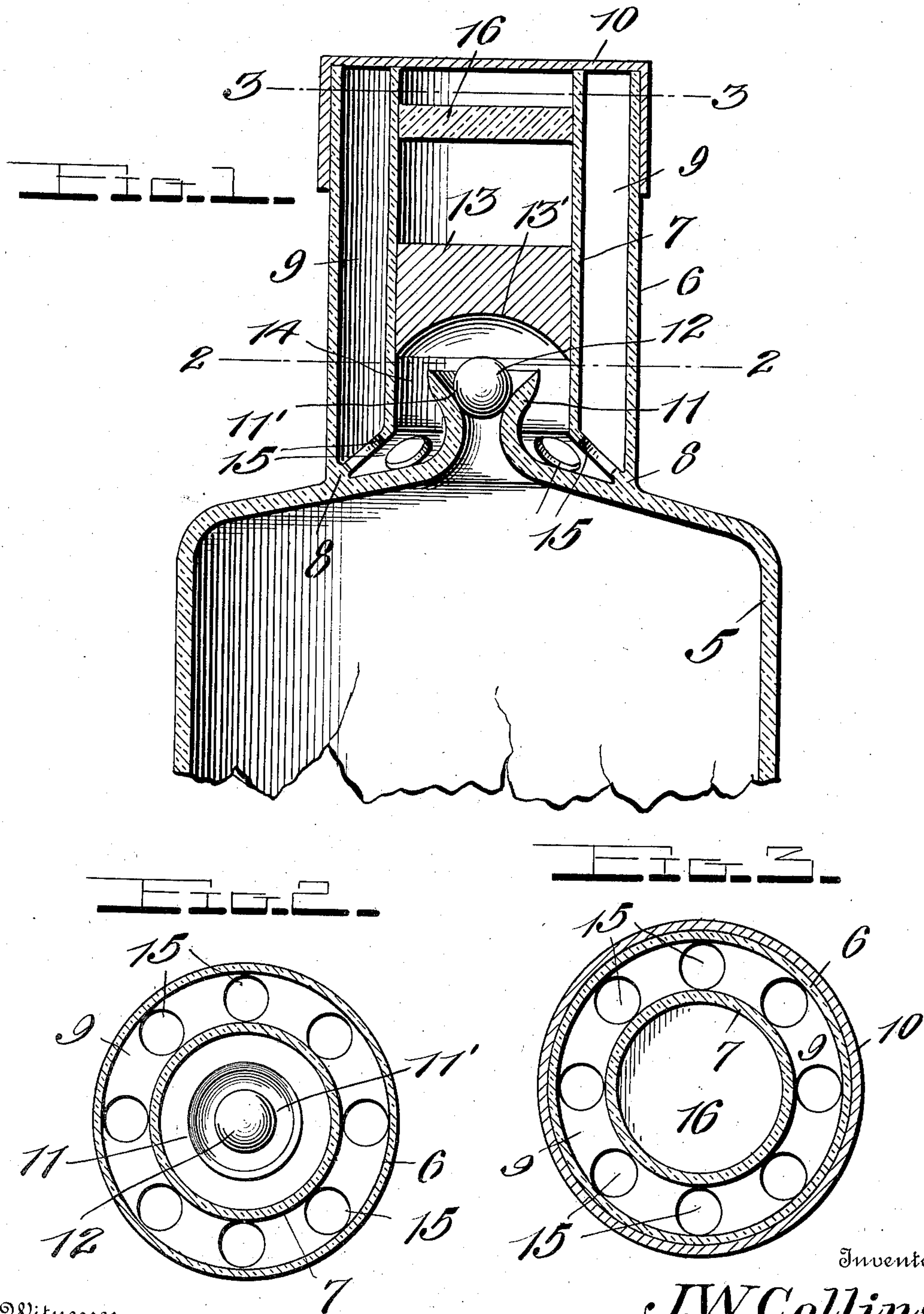


J. W. COLLINS.
NON-REFILLABLE BOTTLE.
APPLICATION FILED NOV. 7, 1910.

986,546.

Patented Mar. 14, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN W. COLLINS, OF EAST PITTSBURG, PENNSYLVANIA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN W. COLLINS, a citizen of the United States, residing at East Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in non-refillable bottles and has for its object to provide novel and efficient means to effectually prevent the refilling of the bottle after it has once been emptied while at the same time the liquid contents of the bottle may be easily and quickly decanted.

A further object of the invention resides in the provision of a bottle formed with an outer and inner neck, said necks being concentrically arranged to provide an annular chamber, a ball valve being arranged in the inner neck to prevent the flow of liquid into the bottle, and means for forming a vacuum in the inner bottle neck to effectually seal the valve.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of my improved non-refillable bottle; Fig. 2 is a section taken on the line 2—2 of Fig. 1; and Fig. 3 is a section taken on the line 3—3 of Fig. 1.

Referring in detail to the drawing 5 designates a bottle which may be made of any desired form and is preferably constructed of glass. The upper end of this bottle is provided with a neck 6 which is of slightly greater diameter than the ordinary bottle neck to allow for the provision of an inner neck 7. The walls of the outer and inner bottle necks are integrally connected at their lower ends as shown at 8, said connecting portion constituting the lower outwardly flared end of the inner bottle neck 7. These bottle necks are concentrically arranged to provide an annular chamber 9 and the upper ends thereof are disposed in the same plane as clearly shown in Fig. 1. A cap or cover 10 is adapted to be placed over the upper end of the neck 6 to securely close the same and prevent the entrance of foreign substances into the chamber or within the in-

ner neck 7. This closure cap may be constructed from tin foil or other suitable material and properly sealed or secured upon the neck.

The upper end of the bottle 5 extends inwardly of the walls of the cylindrical necks 6 and 7 and is centrally formed with a short upwardly extending neck 11 which extends into the lower end of the inner bottle neck 7. The upper end of the neck 11 is flared to form a valve seat 11' for the valve ball 12. In the upright position of the bottle, the ball 12 is arranged upon the seat 11' and prevents the entrance of liquid into the bottle. A cork or rubber stopper 13 is arranged in the inner neck 7 and fits tightly against the walls thereof. This stopper is disposed in the lower portion of the neck 7 in spaced relation to the valve seat 11' and is formed with a concave under face 13'. The edge of the valve seat 11' and the concave of the stopper 13 are so spaced as to prevent the ball 12 from moving between the same. The concave face 13 of the stopper will, however, permit the ball 12 to move out of its seat when the bottle is inverted so that the liquid may be decanted. The space 14 which is provided between the stopper, the wall of the inner neck 7 and the neck 11 has communication with the annular chamber 9 through a plurality of openings 15 which are formed in the lower flared end of the inner neck 7 which connects the same to the wall of the outer bottle neck 6. These openings are preferably provided at diametrically opposite points and any desired number may be employed.

In order to render the extraction of the cork or rubber stopper 13 impossible, I provide a glass stopper plate 16 which as shown, is arranged in the inner bottle neck 7 in spaced relation to the stopper 13 and slightly below the upper end of said neck. By thus arranging the glass plate 16 in the inner neck an air-tight compartment is formed between the same and the stopper 13. The periphery of this plate 16 engages closely upon the wall of the bottle neck 7 so as to render its removal impossible. This plate is arranged in a perfectly horizontal position within the bottle neck so that no instrument whereby its removal could be effected can be inserted between the edge of the plate and the wall of the neck.

From the foregoing it is thought that the construction and manner of operation of my

improved non-refillable bottle will be readily understood. After the liquid has been poured into the bottle, the ball 12 is placed in position upon its seat and the stopper 13 then inserted into the inner neck 7 as shown in Fig. 1. The plate 16 is then placed in position as above described and the cap or cover 11 arranged upon the bottle neck and sealed or secured thereto. In order to dispense the liquid, the cover 10 is removed and the bottle inverted. The pressure of the liquid will displace the ball 12 from its seat, the liquid flowing through the short central neck 11 of the bottle and into the space 14 from whence it flows through the openings 15 in the connecting portion between the inner and outer bottle necks 7 and 6 respectively. In this manner it will be seen that a very copious flow of the liquid contents of the bottle is secured so that the bottle may be entirely emptied of its contents in a very short time. By providing the neck 11 on the bottle and the inner neck 7, it will be obvious that the insertion of a wire or other tool into the neck to engage the valve ball 12 is absolutely impossible so that after the bottle has once been emptied it cannot be again refilled without breaking the stopper plate 16 so as to remove the lower cork stopper 13. The air-tight compartment formed between the plate 16 and stopper 13 prevents the removal of the plate in its entirety thereby effectually guarding against the fraudulent refilling of the bottle and thus protecting the manufacturer and consumer.

My improved bottle is comparatively simple in construction and may be manufactured at a very slight cost. No springs or other easily breakable parts are utilized and it will consequently be seen that the device is extremely durable in practical use. The

ball 12 would preferably be formed of glass so that the same would be unaffected by acids which may be contained in the liquid contents of the bottle.

While I have above described the preferred construction and arrangement of the various parts, it will be understood that the device is susceptible of considerable modification without departing from the essential feature or sacrificing any of the advantages of the invention.

Having thus described the invention what is claimed is:—

In a device of the character described, a bottle having inner and outer concentrically disposed necks to form an annular chamber between them, said inner neck being outwardly inclined at its lower end and integrally connected to the outer neck and the body of the bottle, a valve seat formed on said bottle and disposed within the inner neck, the lower inclined end of said inner neck having a plurality of openings therein connecting the annular chamber with the space between the walls of the valve seat and the inner neck, a valve member normally disposed in the valve seat, a stopper arranged in the lower portion of the inner neck and spaced from said valve member, the distance between the upper edge of the valve seat walls and the under side of the stopper being less than the cross sectional area of the valve member, substantially as and for the purpose set forth.

In testimony whereof I hereunto affix my signature in the presence of witnesses.

JOHN W. COLLINS.

Witnesses:

GEO. V. MILLIGAN,
CHAS. FLEMING,
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