J. E. GAVIN.

NON-REFILLABLE BOTTLE.

APPLICATION FILED JULY 12, 1912.

1,037,611. Patented Sept. 3, 1912.

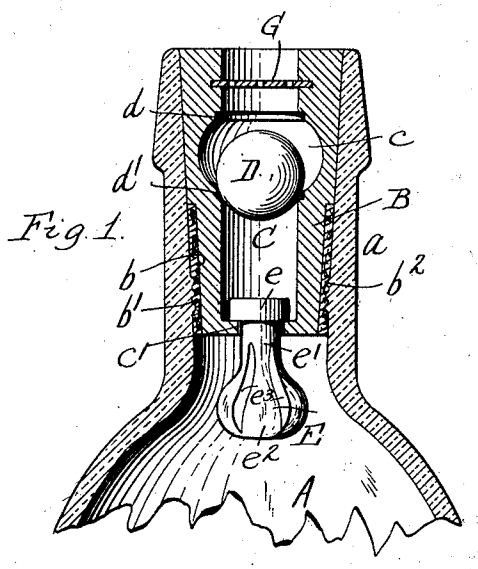

Fig. 1.

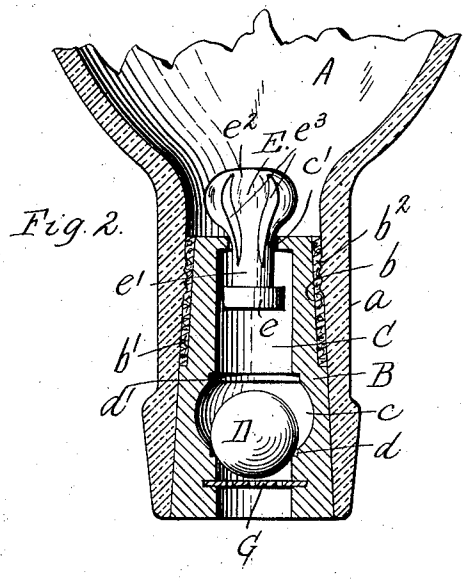

Fig. 2.

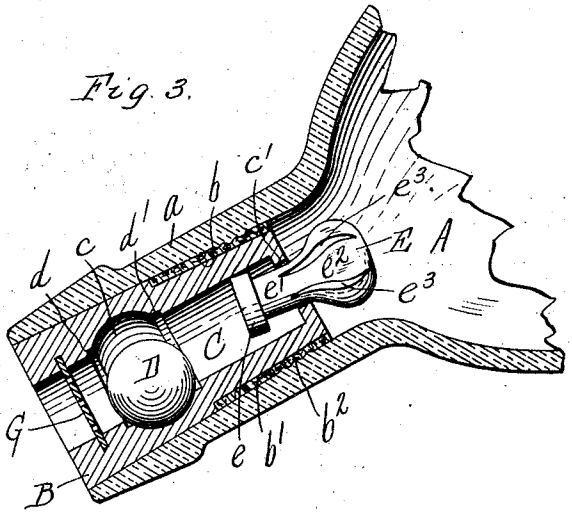

Fig. 3.

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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE BOTTLE.

1,037,611. Specification of Letters Patent. Patented Sept. 3, 1912.

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To all whom it may concern:

Be it known that I, JOHN E. GAVIN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Non-Refillable Bottles, of which the following is a specification.

This invention relates to improvements in nonrefillable bottles, and has for its object to provide a simple, practical and inexpensive stopper for a bottle which will successfully operate to prevent the refilling of the same.

In the accompanying drawings: Figure 1 is a fragmentary sectional elevation of a bottle provided with a stopper embodying the invention. Fig. 2 is a similar view with the bottle inverted. Fig. 3 is a similar view of the bottle in its tilted or pouring position.

Like reference characters refer to like parts in the several figures.

A represents a bottle which is provided with a neck *a* having inwardly tapering walls as is usual in bottles of this type. Within the neck *a* is arranged a conical shaped stopper B which is adapted to fit snugly therein and may be secured in place in any suitable or desirable manner. In the construction shown, the outer face of the stopper is provided at its inner end with a reduced annular portion *b* in which a packing ring *b'* of cork or other suitable material is cemented or otherwise suitably secured and the neck of the bottle is provided with inwardly projecting ribs b^2. When the stopper is inserted in the neck of the bottle the packing ring *b'* is adapted to firmly grip the annular ribs b^2 on the inner face of the neck and thus firmly secure the stopper in position and prevent its removal.

In the stopper B is arranged a longitudinally extending opening or passage C which is provided intermediate of its ends with an enlarged valve chamber *c* and at its inner end with a contracted opening or throat *c'*. In the valve chamber *c* is located a valve D, preferably of the gravity ball type, and the chamber *c* at its opposite ends has valve seats *d* and *d'* for this valve, so that when the bottle is in either its upright or inverted position, this ball valve will rest on its respective valve seat and thus close the passage C. When, however, the bottle is turned to its inclined or pouring position as shown in Fig. 3, the ball valve D will rest against the lower side of the chamber *c*, as shown, and thus will not interfere with the pouring of the liquid from the bottle. In the contracted opening or throat *c'* at the inner end of the stopper is arranged a second valve E, preferably of dumb-bell shape, having a head *e* which lies within the passage C, a neck *e'* extending through the contracted opening *c'* and an enlarged body portion e^2 lying without the inner end of the stopper. The head *e* is adapted to firmly seat on the sides of the stopper forming the contracted opening or throat *c'* so as to close this opening when the bottle is in its upright position and thus prevent the passage of liquid into the bottle. When the bottle is turned to its inclined or pouring position as shown in Fig. 3, the weight of the body portion e^2 of the valve E will cause this valve to shift its position so as to allow the liquid to pass through the opening *c'*. To facilitate the flow of liquid through this opening, the body portion e^2 may be provided with longitudinal grooves or channels e^3 which are of sufficient length to extend through the opening *c'* when the bottle is in its pouring position and thus permit a greater quantity of liquid to pass through the same. To prevent access to the valve D, a perforated plate G is provided which extends across the passage C and has its outer edge secured in the walls of the stopper.

The stopper is simple in construction, can be cheaply manufactured, and can be readily secured in place in the bottle, and the bottle in which it is used can be as economically manufactured as bottles of this general type which are now manufactured. The employment of the two valves makes it practically impossible to refill the bottle. The outer valve also serves to protect the inner valve from being tampered with so that even if the outer valve is forced open, access can not be had to the inner valve for moving it from its seat. In manufacture the stopper is preferably formed of two longitudinal half sections. This permits the valves and the plate G to be readily inserted in place between the sections, and the sections can then be secured together in any suitable manner. In case the bottle should become broken or unfit for use, the stopper can be forced out of the neck of the bottle from the inside and can then be used over again in another bottle. After the stopper has

been inserted in the neck of the bottle, the cork packing ring on the outer side of the stopper will swell so that it will firmly engage the ribs on the inner side of the neck of the bottle and hold the stopper securely in place therein.

I claim as my invention:

1. In a non-refillable bottle, the combination with the neck of the bottle, of a stopper therefor having a discharge passage-way extending through the same, a valve arranged in said passage-way intermediate of its ends, opposed valve seats for said valve which are arranged to be engaged by said valve for closing said passage-way when the bottle is in its upright and inverted positions respectively, a second valve arranged in the inner end of said stopper and adapted to close said passage-way when the bottle is in its upright position, said second valve having a weighted portion which extends beyond the inner end of said stopper and is adapted to cause said valve to open and close as the bottle is moved to and from its upright and inclined positions, and means for securing said stopper in the neck of the bottle, substantially as set forth.

2. In a non-refillable bottle, the combination with the neck of the bottle, of a stopper therefor having a passage-way which extends through the same and is provided intermediate of its ends with a valve chamber having opposed valve seats, and at its inner end with a contracted opening, a valve arranged in said valve chamber and adapted to engage said opposed valve seats for closing said passage-way when the bottle is in its upright and inverted positions respectively, a second valve arranged in the inner end of said stopper for closing said contracted opening and having a weighted portion which extends through said opening into the bottle, and means for securing said stopper in the neck of the bottle, substantially as set forth.

3. In a non-refillable bottle, the combination with the neck of the bottle, of a stopper therefor having a discharge passage-way extending through the same, a valve arranged in said passage-way intermediate of its ends, opposed valve seats for said valve which are arranged to be engaged by said valve for closing said passage-way when the bottle is in its upright and inverted positions respectively, a valve seat arranged in said passage-way adjacent to the inner end of said stopper, a valve adapted to engage said seat for closing said passage-way, said valve having a weighted portion which operates to hold said valve on said seat when the bottle is in its upright position and to move said valve from said seat when the bottle is in an inclined position, and means for securing said stopper in the neck of the bottle, substantially as set forth.

Witness my hand, this 10th day of July, 1912.

JOHN E. GAVIN.

Witnesses:
E. C. HARD,
A. L. MCGEE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."