

No. 753,894.

PATENTED MAR. 8, 1904.

S. W. LUDLOW.  
NON-REFILLABLE BOTTLE.  
APPLICATION FILED JUNE 11, 1903.

NO MODEL.

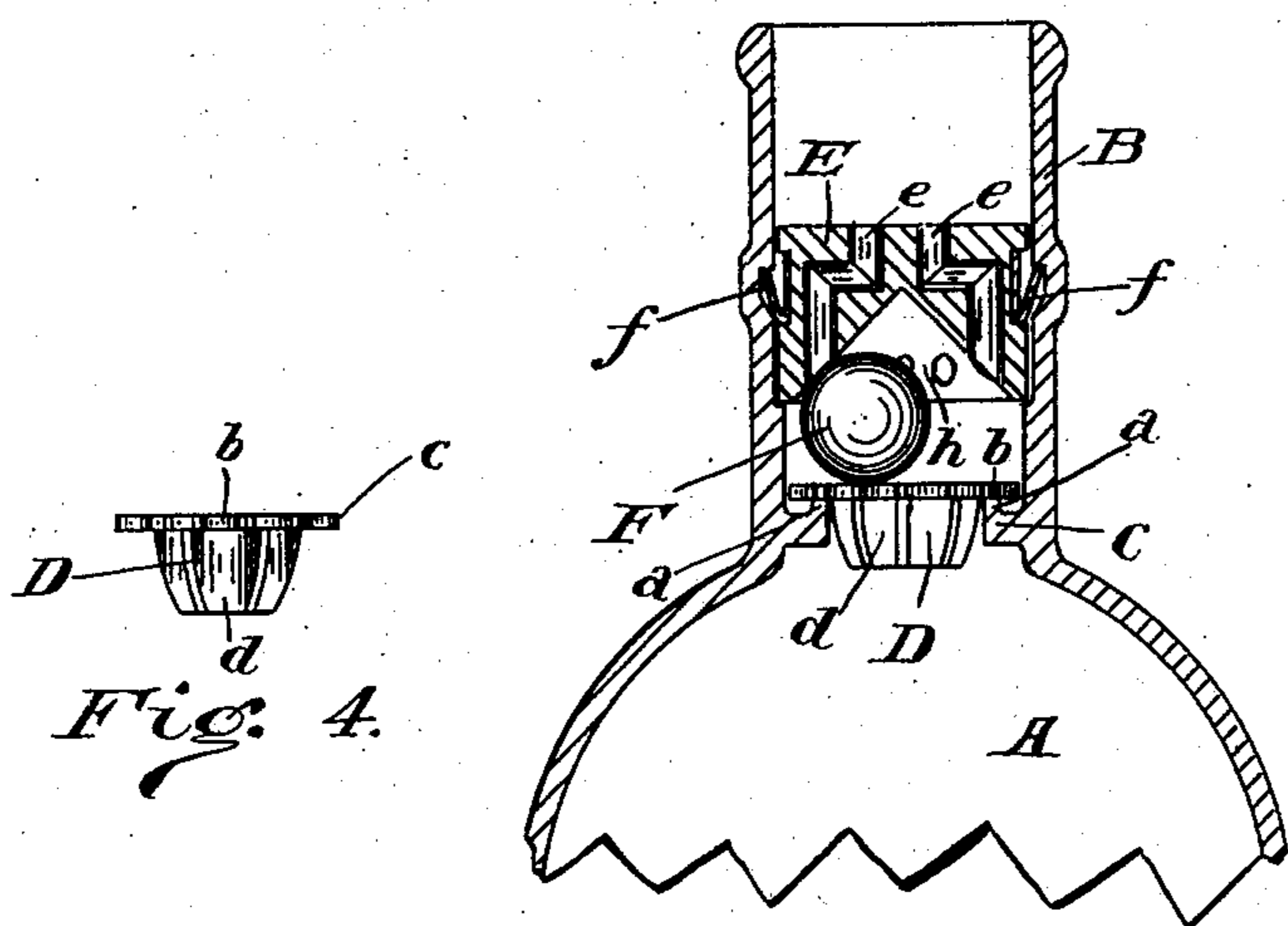


Fig. 1.

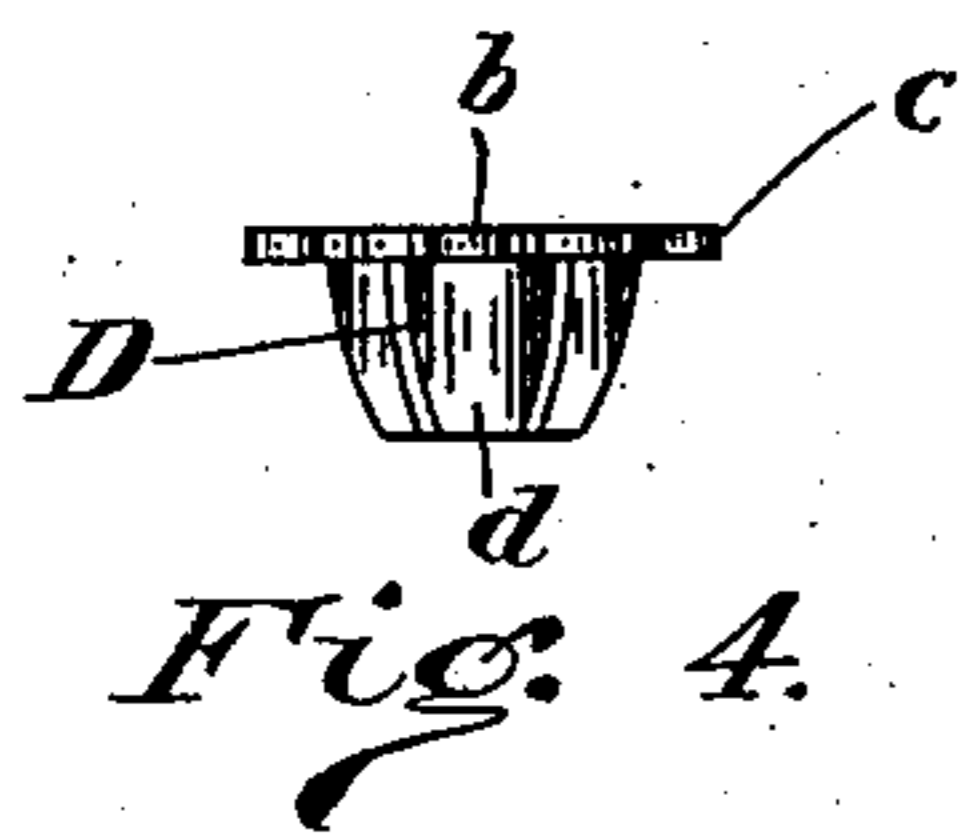


Fig. 4.

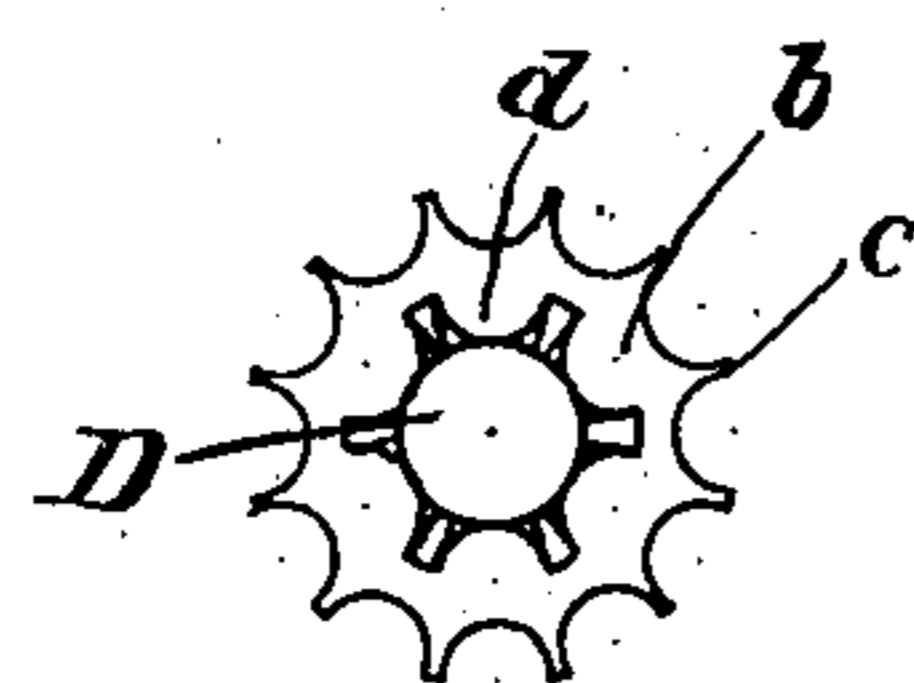


Fig. 5.

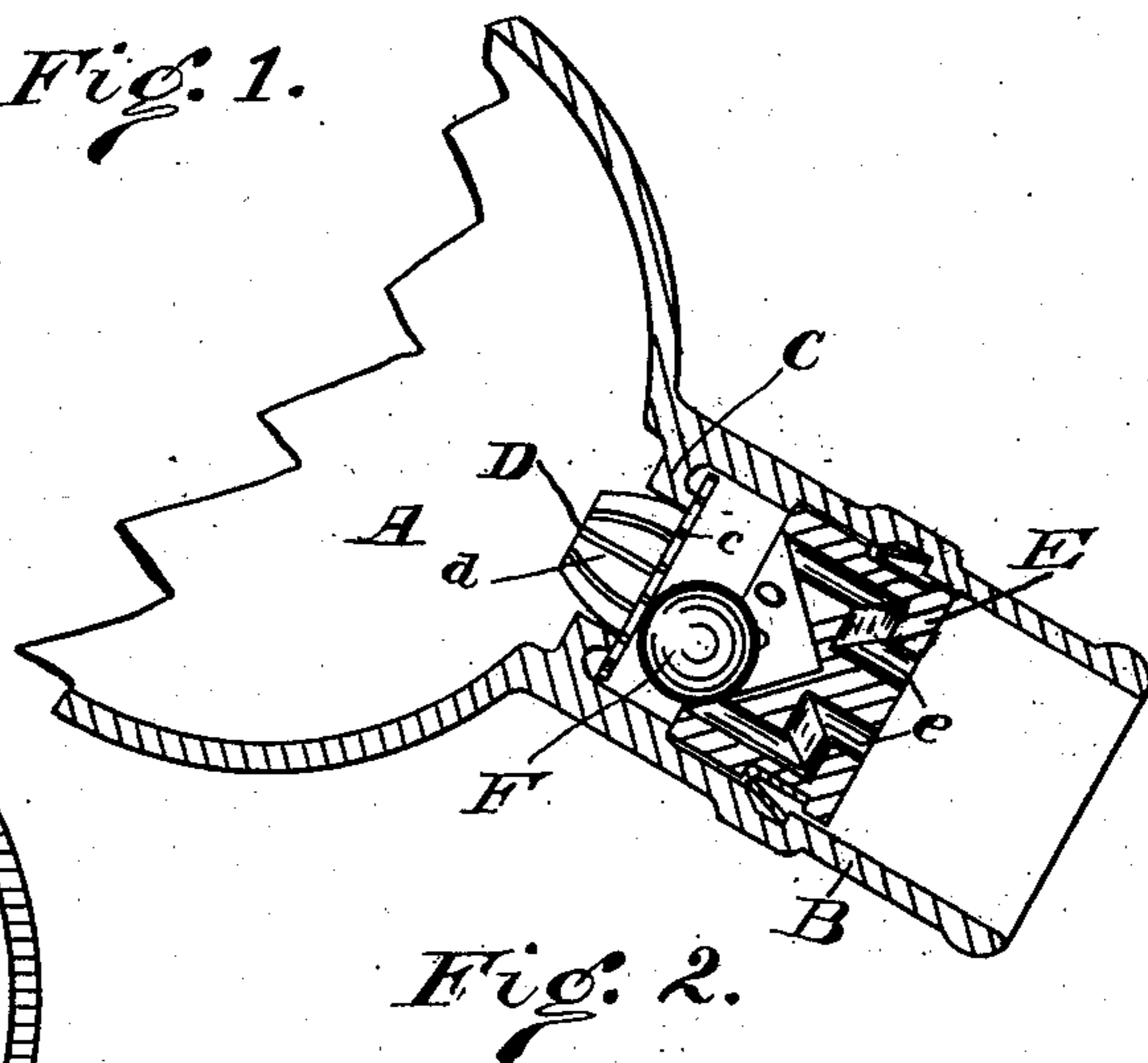


Fig. 2.

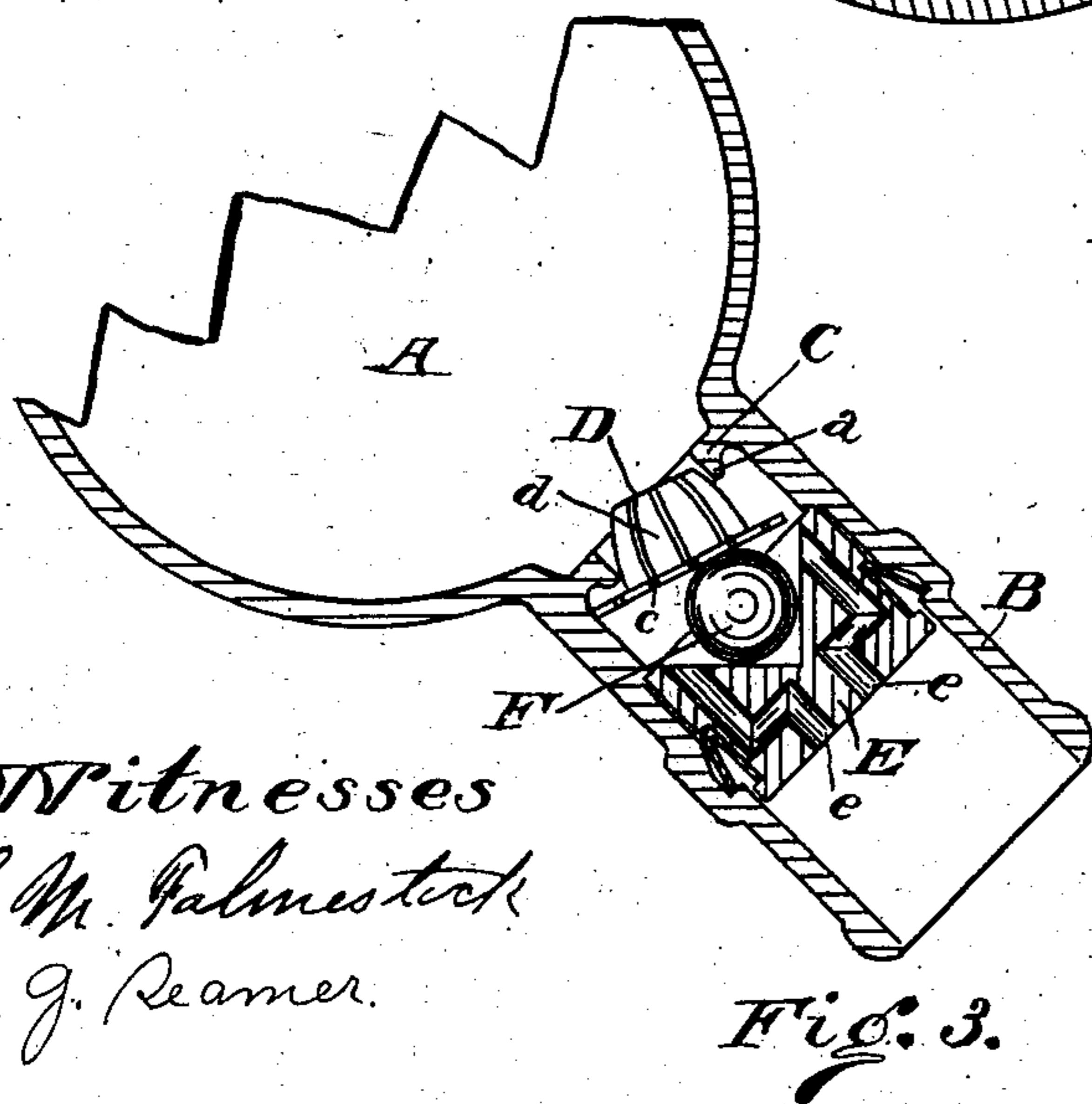


Fig. 3.

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## UNITED STATES PATENT OFFICE.

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## NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 753,894, dated March 8, 1904.

Application filed June 11, 1903. Serial No. 161,094. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL W. LUDLOW, a citizen of the United States, residing at Covington, county of Kenton, and State of Kentucky, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvements consist of a certain novel construction and arrangement of parts, to be hereinafter particularly pointed out and claimed, for cheaply and effectively preventing the refilling of bottles, to which my invention is applied.

The special object of my improvements is to provide a construction of a minimum number of parts in which the valve is arranged to close even while the bottle is in a slightly-inverted position, to prevent filling by flowing the liquid into the bottle when in a horizontal position, and at the same time when the bottle is inverted to permit of the ready withdrawal of the liquid by the constant admission of air as the liquid is discharged.

In the drawings, Figure 1 is a central longitudinal section of the neck of the bottle in upright position with my improvements in place. Fig. 2 is a similar section with the bottle somewhat inverted, showing the valve closed. Fig. 3 is a similar view with the bottle inverted for the discharge of the liquid. Figs. 4 and 5 are side and bottom plan views of the valve.

A represents the bottle, and B its neck, at the lower inner end of which is molded the collar C, provided with a vertical flange *a*, the upper edge of which is ground to form a suitable seat for the valve D. This valve is substantially a spherical segment with an upper rim *b*, which seats itself on the ground seat *a* to close the valve. The rim *b* has its periphery scalloped, leaving radial arms *c c*, which extend nearly to the inner surface of the bottle-neck to prevent the valve dropping from its seat. The lower surface of the valve D is formed with a suitable number of grooves or corrugations *d d*, which in connection with

the rim-scallop allow the discharge of the liquid and the admission of air when the valve is open.

E is the baffle-plug fitting the neck of the bottle and provided with a suitable number of passage-ways *e e*—say five or six—for the discharge of the liquid and entrance of air, each passage-way arranged with a sharp angle to prevent the insertion of any wire or other device to unseat the valve.

To hold the baffle-plug in position and prevent its withdrawal, annular grooves are formed in the inner surface of the bottle-neck, and the plug and a spring-band *f*, bent on itself, is placed in the plug-groove, so that when the plug is pushed to place the upturned edge of the spring-band will catch in the bottle-groove and prevent its withdrawal. The plug, however, can be secured by cement or in any other convenient way.

The inner surface of the baffle-plug *h* is cone-shaped, as shown, and a ball F is located in the space between the cone-surface of the plug and the valve D. The location of the plug and the angle of the cone-surface is such that when the bottle is inverted to the extent shown in Fig. 2 the cone-surface will still form an angle above the horizontal and cause the ball F to rest upon the valve and close it. In addition to this the center of gravity of the valve is considerably within the valve-seat, and as the valve is spherical, even without the aid of the ball, the valve will close itself before the bottle reaches a horizontal position.

When the bottle is fully inverted, as shown in Fig. 3, the valve swings on one edge of the valve-seat, the liquid flowing out through the corrugations below, while the air enters through the upper corrugations.

All of the parts of the device can be made of glass and readily molded of the desired shape, the essential parts being merely the valve with the rim in the neck for a seat and the baffle-plug. The ball is, however, of assistance in causing a quick closing of the valve, and I therefore make use of same. The corrugations around the valve and the passage-ways through the baffle-plug are suffi-

ciently numerous to prevent the ball from forming a plug to stop the discharge of the liquid or admission of air.

5 An important feature is the narrow rim-seat for the valve. This seat is amply sufficient to seal the bottle against refilling, and with such a seat there is no danger of the valve adhering to the seat when the bottle contents are to be discharged. All friction  
10 of the valve on its seat is thus overcome, and the valve will open at once when the bottle is properly inverted.

It will be evident that the construction of parts is very simple and that the parts can  
15 be readily assembled.

When the bottle is filled, the valve is dropped in place with the ball on top of the valve, the baffle-plug, with its retaining-band, is pushed to place, and an ordinary cork, if desired, can  
20 then be used to seal the mouth of the bottle. When the contents are withdrawn it will be impossible to refill the bottle.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—  
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1. In a non-refillable bottle, the combination with a bottle-neck having an annular flange within its neck to form a narrow valve-seat, of a spherical segment-valve, grooved longitudinally with an annular rim to seat itself on the  
30 valve-seat, said rim extending to the surface of the neck and having scallops to cooperate

with the grooves of the valve to permit the discharge of the liquid and entrance of air, and a baffle-plug to prevent access to the valve, 35 substantially as shown and described.

2. In a non-refillable bottle, the combination with a bottle-neck having an annular flange within its neck to form a narrow valve-seat, of a spherical segment-valve, grooved longitudinally with an annular rim to seat itself on the  
40 valve-seat, said rim extending to the surface of the neck and having scallops to cooperate with the grooves of the valve to permit the discharge of the liquid and entrance of air, and a  
45 baffle-plug to prevent access to the valve, said plug having a conical recess and a ball-bearing on the valve within said recess to shut the valve when the bottle is slightly inverted, substantially as shown and described. 50

3. In a non-refillable bottle, a valve for closing the same, comprising a disk-like scalloped rim for a seat, with an inwardly-projecting portion having longitudinal corrugations on its surface, cooperating with the scallops of  
55 the rim for the discharge of the liquid, and having its center of gravity substantially below the seat of the valve, whereby a prompt seating of the valve is obtained, substantially as described.

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