

No. 746,102.

PATENTED DEC. 8, 1903.

S. C. KINDIG & T. J. SPICER.

NON-REFILLABLE BOTTLE.

APPLICATION FILED MAY 13, 1903.

NO MODEL.

Fig. 1.

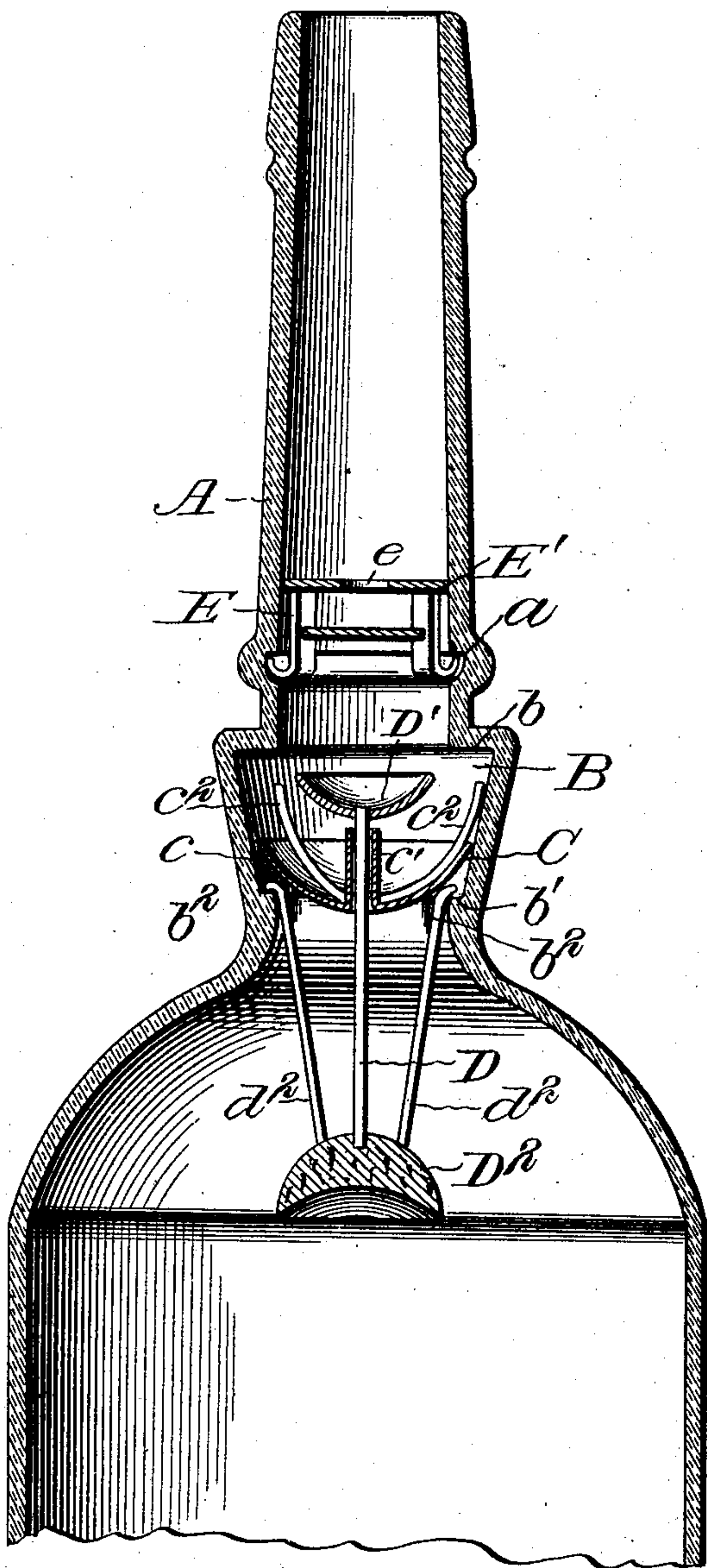


Fig. 2.

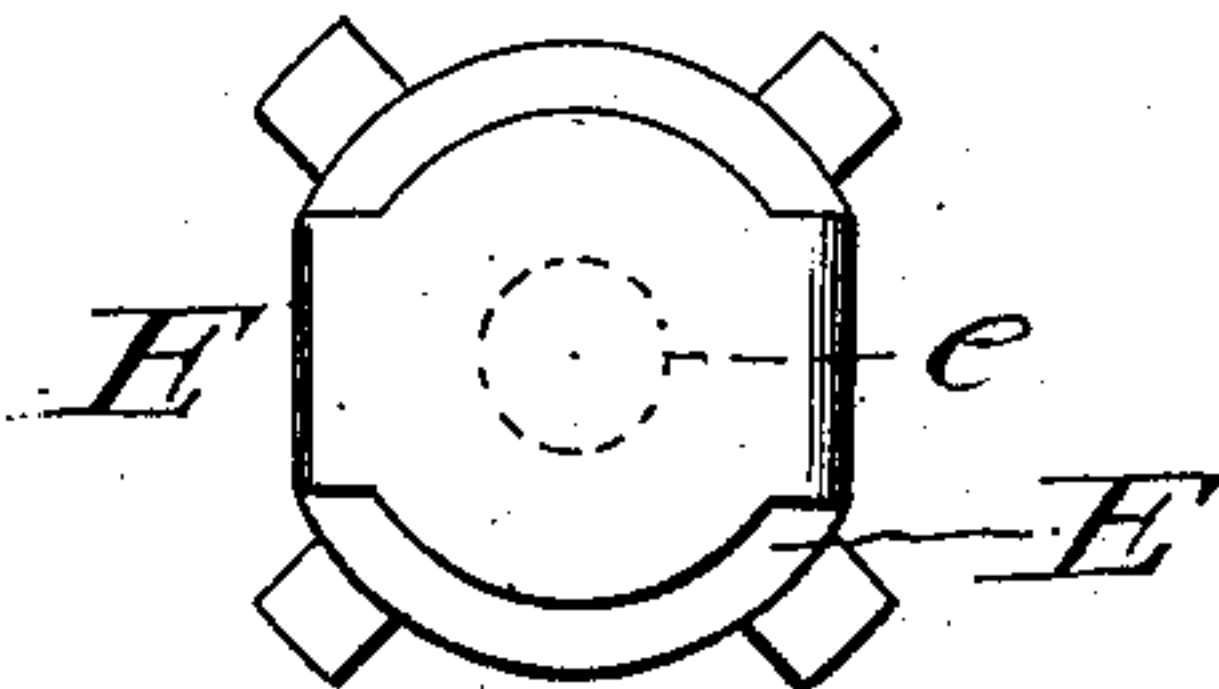


Fig. 3.

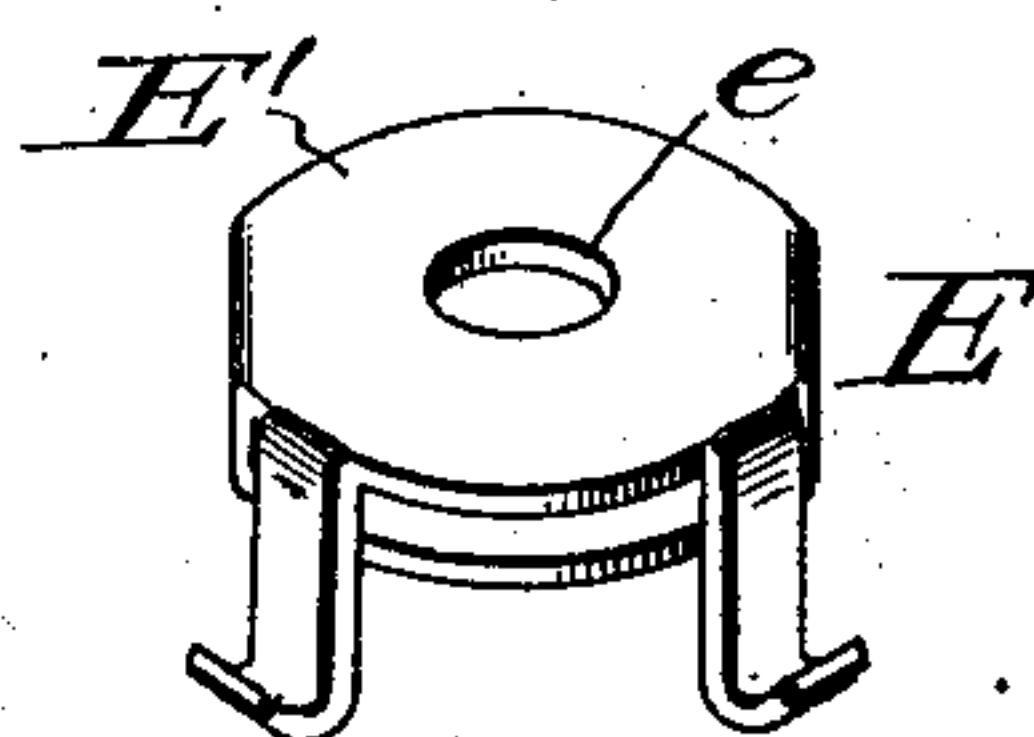
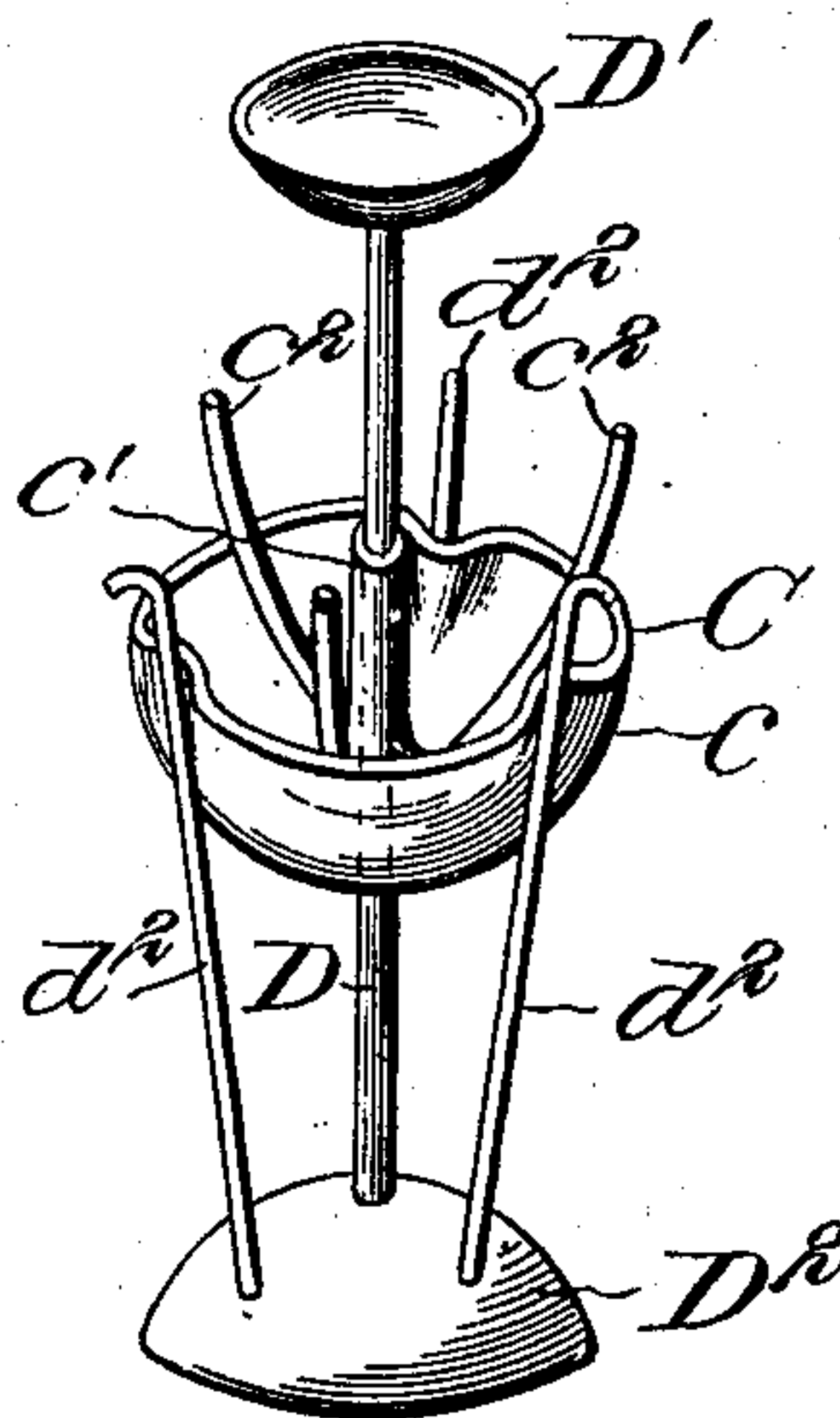


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL C. KINDIG AND THOMAS J. SPICER, OF BALTIMORE, MARYLAND.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 746,102, dated December 8, 1903.

Application filed May 13, 1903. Serial No. 156,913. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL C. KINDIG and THOMAS J. SPICER, both citizens of the United States, and residents of the city of Baltimore, State of Maryland, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention relates to non-refillable bottles, the object being to provide a bottle or other container for liquid the neck thereof being constructed to retain a valve-guard and support below such guard a bodily-movable and peripherally-depressible valve, the neck of the bottle and the valve which is maintained in the valve-chamber being of such construction that liquid may be readily poured out of the bottle and which will effectually prevent the bottle being refilled.

In carrying our invention into effect the neck of the bottle is provided interiorly with an annular recess or indentation and below such recess with a valve-chamber having at its top and bottom inward-extending portions, a valve-guard being maintained above the valve-chamber by an annular recess in the neck of the bottle, so that the valve cannot be held off of its seat by a wire or other device being passed into the neck of the bottle.

The invention consists in the combination, with a bottle or other liquid-container having a neck with a valve-chamber, a valve-guard above the valve-chamber, of a peripherally-depressible valve having a member reciprocally attached thereto, such member carrying arms for engagement with the valve when the bottle is inverted, also in the construction and combination of the parts, as will be hereinafter set forth.

In the accompanying drawings, which illustrate one embodiment of our invention, Figure 1 is a vertical section of a bottle, showing the valve-guard and valve applied thereto. Fig. 2 is a plan view of the valve-guard detached; Fig. 3, a perspective view of the valve-guard; and Fig. 4 is a perspective view of the valve, showing its reciprocatory member in position to depress the periphery of the valve.

The neck A of the bottle is formed with an annular recess or indentation a of any suitable shape in cross-section, and below the recess there is formed a valve-chamber B, the

upper portion being of larger diameter than any other part of the neck. The part of the neck of the bottle which forms the valve-chamber is constructed to present a horizontal portion b , below which the neck converges to form the valve-chamber, which terminates with an inward-extending annular ledge b' , which may be indented at intervals by grooves b^2 , which serve as guides for arms carried by a reciprocal member of the valve.

The valve C consists of a semispherical or concavo-convex shell c , made up of pliable material, as thin rubber, and the same is provided centrally with a tube c' , which extends upward from its concave side. The soft-rubber valve of the shape shown or other equivalent form is reinforced by a plurality, as three or more ribs or curved arms c^2 , which are molded in the valve or otherwise attached thereto. The ribs or arms are made up of spring metal and extend considerably above the edge of the valve. They hold the valve in shape, and when the valve is off its seat engage the inward-projecting part b of the valve-chamber.

Through the tube c' of the valve c there is passed a rod or wire D, having at its upper end a concavo-convex disk D' , made of metal or other suitable material, the diameter thereof being somewhat less than the diameter of the neck of the bottle, and to the lower or opposite end of the rod there is securely attached a body D^2 , which may be made of cork or other flexible buoyant material of such a size and form that it may be compressed or forced through the neck of the bottle beyond the valve-chamber. The float or part D^2 carries three or more equidistant arms d^2 , the upper ends thereof being bent outward to engage the ledge b' at the bottom of the valve-chamber.

To apply the structure to a bottle made as shown, the valve and its connected parts are passed through the neck of the bottle until the valve reaches the valve-chamber. The bottle having been previously filled, the valve-guard is then passed into the neck, so that the ends of the arms will engage the annular recess a . When the bottle is tilted or inverted, as usual, to discharge its contents, the valve will be moved off of its seat until the arms thereof engage the inward-projecting portion b of the neck. The arms d^2 of the reciprocal

member will engage the periphery of the valve and press the same inward to allow a free flow of liquid about the valve outward. The valve-guard will effectively prevent a wire being passed into the neck of the bottle to engage the valve and hold it off its seat should an attempt be made by such means to refill the bottle.

The valve-guard E is preferably made from a single piece of sheet metal and comprises an upper circular portion E' with an opening e. From the circular part depend arms or legs, the lower ends being bent outward to engage the recess a in the neck of the bottle. The valve-guard has between the arms or legs a non-apertured portion of less diameter than the part above, the same being bent to underlie the part having the opening and provide a circuitous passage for the outflow of the liquid and a deflecting-plate to prevent a wire reaching the valve below. If liquid is poured into the neck of the bottle, it will first fill the disk D', move the stem D downward, and carry the valve-depressing arms below the valve, so that the valve will be firmly seated to prevent the passage of liquid beyond the same.

In pouring liquid from a bottle having a valve made as shown the valve will be unseated, the part D² will move toward the outlet-opening, carrying with it the other parts. The buoyant end D² of the stem will rise in the liquid and incline the stem, the arms press or bend inward the edge of the valve, and thus provide a space of larger area than would otherwise be present.

The device hereinbefore set forth and shown may be modified as to its construction without departing from the spirit and scope of our invention and claims therefor.

Having thus set forth our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A non-refillable bottle having a valve-receiving chamber with converging walls and inward-projecting top and bottom portions, an annular recess in the neck of the bottle above the valve-chamber, a valve-guard maintained in the neck by the annular recess, a pliable valve and valve-engaging means connected to the valve to have a movement independent thereof.

2. In a non-refillable bottle, a neck con-

structed to provide a valve-chamber having an inward-projecting portion, in combination with a valve of pliable material having reinforcing-arms attached thereto said arms projecting beyond the upper edge of the valve for engagement with the inward-projecting portion of the valve-chamber.

3. In a non-refillable bottle, a valve-chamber constructed to provide at its upper part an inward-extending portion, converging walls, and at the lower part an inward-projecting ledge, in combination with a valve and a valve-unseating device capable of a movement independent of the valve and comprising a plurality of arms to engage the perimeter of the valve when off of its seat, downward movement of the valve-unseating device being limited by engagement with the ledge, substantially as set forth.

4. In a device of the character set forth, a flexible valve, a reciprocal member upon which the valve is mounted said reciprocal member having arms for engagement with the perimeter of the valve, substantially as shown.

5. In a device of the character described, a flexible valve, reciprocal member therefor having centrally a stem which is passed through the valve and arms for engagement with the perimeter of the valve, substantially as shown.

6. In a device of the character shown, a flexible valve having curved reinforcing members which extend beyond the edge thereof, a stem passed centrally through the valve, projecting portions on each end of the stem, one of the projecting portions carrying a plurality of diverging arms for engagement with the perimeter of the valve.

7. In a device of the character described, a flexible and compressible valve provided centrally with a tube, a valve seating and compressing member comprising a central stem, a concave disk carried by one end of the stem, a float on the other end, and a plurality of diverging arms on the float for engagement with the perimeter of the valve.

In testimony whereof we have signed our names in the presence of two witnesses.

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Witnesses:

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