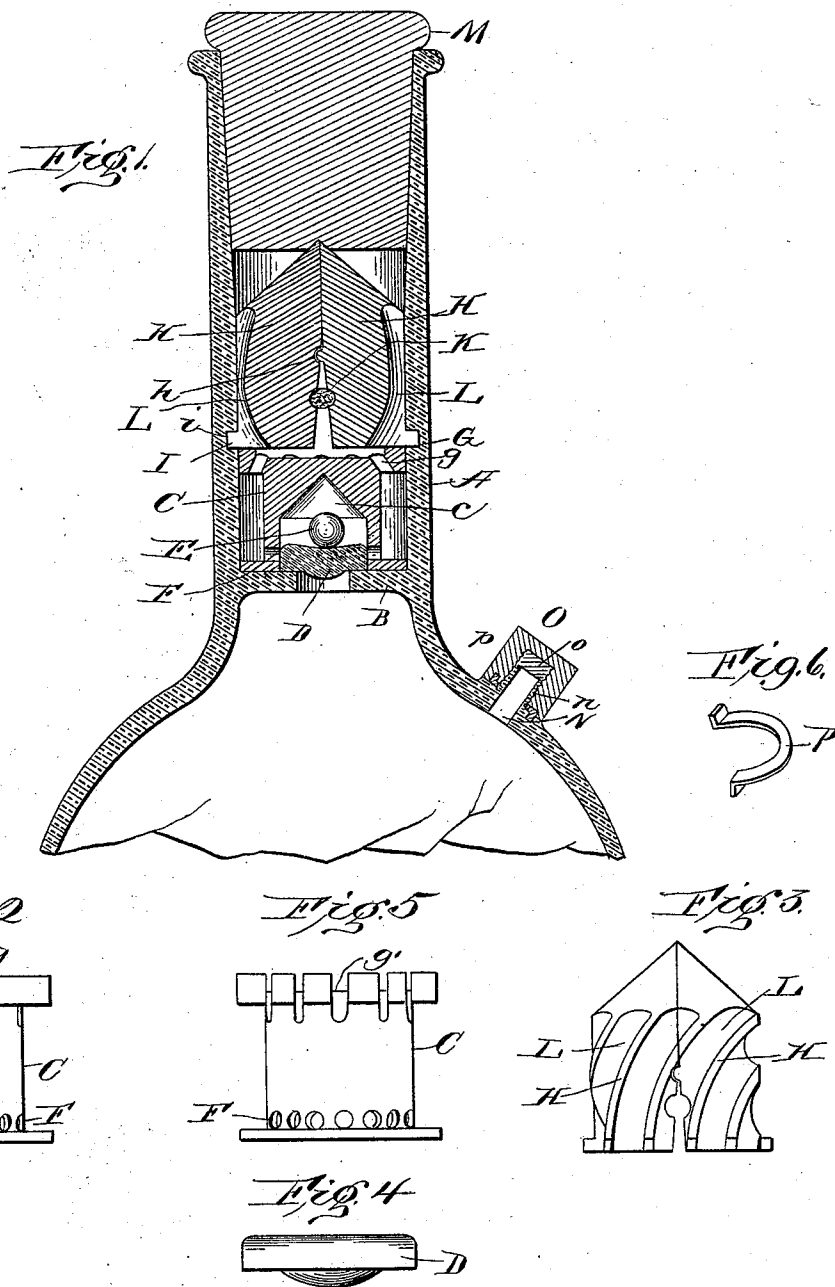


(No Model.)

E. A. JUKES.
NON-REFILLABLE BOTTLE.

No. 574,432.

Patented Jan. 5, 1897.



Witnesses:
J. M. Fowler Jr.
Wallace Rundock

Inventor:
Eliar A. Jukes,
by Church & Church
his Attorneys.

UNITED STATES PATENT OFFICE.

ELIAS A. JUKES, OF ST. CATHARINES, CANADA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 574,432, dated January 5, 1897.

Application filed March 21, 1896. Serial No. 584,220. (No model.)

To all whom it may concern:

Be it known that I, ELIAS A. JUKES, a subject of the Queen of Great Britain, residing at St. Catharines, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Non-Refillable Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in vessels for containing liquids, and has for its object to provide a structure which when it is once filled and the liquid emptied or partially emptied therefrom cannot be again filled without destroying the structure.

In the accompanying drawings, which represent one embodiment of my invention, Figure 1 is a vertical section taken through the top of a vessel or bottle embodying my invention. Fig. 2 is a detail side elevation of the valve-block. Fig. 3 is a similar side elevation of a retainer-block. Fig. 4 illustrates the valve itself. Fig. 5 shows a valve-block having the passages therethrough in the form of open cuts, and Fig. 6 is a detail of the lock for holding the filling-cap in place after the vessel is first filled.

Like letters of reference in the several figures indicate the same parts.

I have shown the invention applied to a vessel having the configuration of an ordinary bottle A, within the neck of which an annular shoulder B is formed having a flat upper surface, upon which shoulder the bottom of a valve-block C seats, preferably leaving an inwardly-projecting portion of the shoulder to constitute a seat upon which a light glass valve D comes to rest to check any inward flow of liquid into the bottle. This valve D works within a chamber in the valve-block C, said chamber having a conical or dome-like top *c* and containing a spherical valve pusher or ball E, adapted to hold said valve to its seat at all times, save when the neck of the bottle is tilted down to such a sharp angle as to prevent the entry of liquid therein or the escape of air from the bottle. This result, it will be seen, is due to the fact

that the ball, which is of relatively heavy material, will, when the bottle is turned on its side, run down the inclined sides of the dome *c* and push the valve before it, but when the bottle is turned upside down the ball or pusher will roll into said domed top of the chamber, allowing the valve to unseat and the liquid or contents of the bottle to flow out.

The orifices for the escape of the liquid from the chamber within the valve-block are formed at the lower edge of the valve-block, as shown at F, preferably below the top of the valve itself and in such relation to the valve as to be almost if not entirely closed thereby when the valve is seated, the result of which arrangement is that the valve cannot be reached by an instrument or wire and held away from its seat, and, what is of greater importance, the valve cannot be readily unseated by applying suction to the mouth of the bottle, and so filling the bottle by alternate suction and pressure cannot be accomplished. An annular enlargement G is formed around the top of the valve-block, through which small apertures *g* or slots *g'*, Fig. 5, are formed for the escape of the contents of the bottle when the valve is unseated.

To hold the valve-block in place and to further insure against all possibility of an instrument being inserted to unseat the valve and allow the bottle to be filled the second time, I provide a retainer which when once inserted in the neck of the bottle above the block cannot be withdrawn, and in the preferred construction this retainer consists of two semicylindrical blocks H, pivoting together at a central point and held against independent movement by a rib and recess *h*. At the lower end these blocks H are provided with flanges I, adapted to take into an annular recess *i* in the neck of the bottle, immediately above the valve-block, and after having been inserted the cylindrical shape, together with the spring or expander K, of asbestos or some elastic material, preferably such as will not be affected by acids, will prevent the withdrawal of the block.

The expander K may be seated between the lower ends of the blocks, as shown at Fig. 1, or held in any suitable or preferred manner. Passages L for the escape of liquid are formed

through the retainer, usually on the exterior or external surface thereof, and are preferably arranged spirally thereon, as shown in Fig. 3.

The top of the retainer is preferably made conical and is sufficiently far below the mouth of the bottle to permit of the insertion of an ordinary cork, such as M, to prevent the escape of the liquid from the bottle.

The pusher or ball may be covered with glass to prevent the action of acids thereon, and in order that the retainer may be inserted readily the mouth of the vessel above said retainer is preferably flared outward slightly, as will be readily understood from an inspection of Fig. 1.

For convenience in filling the bottle in the first instance, after the above-described appliances have been put in place, I preferably provide a secondary or filling orifice N, having a screw-threaded nipple *n*, upon which a cap O, provided with a cork packing *o*, is adapted to be placed, and when seated held in position by a spring-lock, such, for instance, as a curved spring-wire P, Fig. 6, having its ends bent in opposite directions and adapted to take into apertures *p*, formed in the cap and body of the bottle, respectively. When the bottle is filled through this aperture and the cap seated, it will be seen that the cap cannot be again removed without destroying the integrity of the vessel or cap itself. It is not essential that this filling-orifice be employed, as the bottle may be filled before the check-valve is put in place.

The appliance, it will be seen, forms a most effectual check against the entry of liquid into the bottle, while permitting of a free escape, the glass valve seating against the glass shoulder or seat in the bottle-neck forming, when wet, a most effectual seal, and inasmuch as it is held in its sealed or seated position by the pusher or ball until the neck of the bot-

tle is tilted below the horizontal position, it is obvious that no liquid can be flowed into the vessel, and by the arrangement of the exit-ports F it is impossible to force liquid in the vessel by alternate suction and pressure.

Having thus described my invention, what I claim as new is—

1. The combination with a vessel having an inwardly-projecting annular seat or shoulder and having a valve-block resting thereon, having the annular enlargements at top and bottom entirely filling the exit-aperture, and having an internal chamber with a domed or conical top and lateral apertures leading from said chamber above the bottom enlargement, of a valve working in said chamber and seating on the annular shoulder of the vessel, and bridging the lateral apertures in the block, a spherical pusher located in the chamber above the valve and a retainer for holding said valve in place consisting of semicylindrical sections pivoted together and having projections at the lower end for coöperating with recesses in the walls of the vessel, substantially as described.

2. The combination with the vessel and the valve located in the exit-aperture thereof of the retainer for holding said valve in place consisting of the two semicylindrical sections pivoted together and having the projections at the lower end coöperating with recesses in the walls of the vessel said sections being respectively provided with a rib and recess to prevent independent movement, and the expander seated between the blocks for holding the section expanded; substantially as described.

ELIAS A. JUKES.

Witnesses:

ALEX. J. STEWART,
THOMAS DURANT.