

UNITED STATES PATENT OFFICE.

EDWARD HOERICHS, OF BALTIMORE, MARYLAND, ASSIGNOR TO THOMAS A. BRYAN, CHARLES H. BOONE, AND EDWARD HOERICHS, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 677,413, dated July 2, 1901.

Application filed November 1, 1900. Serial No. 35,137. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HOERICHS, a citizen of the United States, residing at Baltimore, Maryland, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to an improvement in non-refillable bottles, and has for its general object to provide a simple and novel construction and arrangement of parts located within the bottle-neck, which parts shall include valve mechanism and operate in such manner as to permit the ready flow of a liquid from the bottle, while rendering it impossible to pour a liquid into the bottle.

Detailed objects of the invention will appear from the description to follow and will be set forth specifically in the claims.

In order that my invention may be fully understood, I have illustrated the same in the accompanying drawings, in which—

Figure 1 is an elevation of a bottle provided with my improvement, which latter, with the neck of the bottle, is shown in section. Fig. 2 is a top plan view of the bottle, the plug and valve mechanism being removed. Fig. 3 is a plan view of the under or seating member of the valve. Fig. 4 is a similar view of the top or spring member of the valve, and Fig. 5 is a bottom plan view of the plug.

The numeral 1 indicates a bottle having a neck 2 and an enlarged portion or head 3, affording a circular offset portion or shoulder 4 for the reception of the valve mechanism. This offset portion is provided with a circular groove 5, which leaves a narrow annular projection 6 surrounding the throat 7 of the bottle and constituting the seat for the flap of the valve, as hereinafter explained. Said valve is composed of two members, one, 8, of which is preferably made of a circular disk of paper having a portion of its body cut out to afford a substantially circular flap 9, while the other member, 10, is preferably made of a circular disk of mica of the same size as the disk 8 and similarly cut out to afford a flap 11.

The numeral 12 indicates a plug having a zigzag passage 13 extending through the same from top to bottom and through a projection 14 on the top of the plug, which projection

when the parts are in operation constitutes the mouth of the bottle. The plug 12 is adapted for location within the head 3, its upper portion having an annular flange 15, overlapping the upper edge of said head, and an annular shoulder 16, fitting snugly within the upper portion of said head. The body of the plug 12 below the shoulder 16 is of less diameter than the interior of the head 3, so that an annular space 17 is provided between the plug and the inner side of the head. A small opening 18 is provided in the top of the plug, which opening when the plug is in position communicates with the annular space 17. A circumferential groove 19 is provided on the plug 12, and a similar groove 20 is provided on the inside of the head 3. The relative locations of these grooves is unimportant—that is to say, they may be arranged opposite each other, or they may be arranged substantially as shown in the drawings. The bottom of the plug is provided with an inclined portion 21, which affords a space 22 to permit the valve to leave its seat.

In assembling the parts of the invention the valve member 8 is first placed in position upon the circular shoulder 4, its flap 9 resting upon the valve-seat 6, and thereby covering the outlet of the throat 7. The disk or valve member 10, of mica, is next placed in the same relative position upon the disk 8, of which it is a counterpart as to size, shape, and construction. The plug 12 is next inserted in the head 3, its lower end bearing upon that portion of the disk 10 lying on the outer side of the annular groove 5. Plaster-of-paris is now poured in through the opening 18, a collar or packing-ring 23, of paper or other suitable material, closing the lower part of the space 17 and preventing the plaster-of-paris from gaining access to the valves. The plaster-of-paris completely fills the space 17 above said packing-ring 23 and also fills the grooves 19 and 20 and the opening 18. When dry, the plug 12 will be securely held or cemented in the head 3, the grooves 19 and 20 together forming a lock to hold the plug from possible withdrawal. It will be understood, of course, that before the parts described have been placed in position the bottle is filled with the liquid it is intended to contain.

When the bottle is tipped to pour out the contents or a portion thereof, the flaps 9 and 11 will readily yield to the pressure of the liquid and permit the same to flow out through the passage 13. When the bottle is turned upright, the spring of the mica, together with the weight of the liquid which will necessarily remain in the passage 13, will return the flaps 9 and 11 to their seat. After the bottle is empty it will be seen that any attempt to refill the bottle by pouring in liquid through the passage 13 will be frustrated, as this incoming liquid will operate to close the valve over the outlet of the throat 7. At the same time the character of the zigzag passage 13 is such that no implement can be passed through the same to tamper with the valve. It will also be impossible to remove enough plaster-of-paris through the opening 18 to permit the plug 12 to be removed. Any number of grooves 19 20 may be employed, and they may be differently arranged, if desired, from the manner shown in the drawings to increase the security of the lock.

While I have described the valve member 8 as being made of paper, I do not wish to confine myself to the use of such material, as any soft pliable substance that will not disintegrate from contact with a liquid may be employed. I prefer a soft substance, such as described, for the valve member 8, so that in seating it will fill in any uneven places which may exist on the valve-seat 6. If paper be employed for the valve member 8, I would preferably use such as had had incorporated with it paraffin or other similar substance to render it moisture-proof.

I prefer mica for the upper valve member 10, for the reason that its flap will yield readily to permit the outflow of the liquid, while possessing sufficient elasticity to cause it to return to its seat, and for the further reason that it will not corrode. It will be apparent that thin galvanized or other substantially acid-proof metal might be employed in this connection in lieu of mica.

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

1. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug secured in said neck and resting upon said valve, said plug having a passage extending through the same and provided in its bottom with a recess for permitting the flap of the valve to rise, substantially as described.

2. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug in said neck resting on said valve, a filling of plaster-of-paris between the plug and neck, said plug having a zigzag passage extending through the same and provided in its bottom with a recess for permit-

ting the flap of the valve to rise and in its top with an opening through which the plaster-of-paris is poured, substantially as described.

3. In combination with a bottle having a valve-seat in its neck, a flap-valve located on said seat, a plug in said neck provided with a zigzag passage, and having an annular flange overlapping the edge of the neck, said plug being of less circumference than the interior of the neck and having in its top an opening, and a filling of plaster-of-paris poured in through said opening to fill up the space between the plug and the neck and lock the former securely in place in the latter, substantially as described.

4. In combination with a bottle having a neck provided with a valve-seat and an interior groove, a flap-valve located on said seat, a grooved plug in said neck provided with a zigzag passage and having an annular flange overlapping the edge of the neck, said plug being of less circumference than the interior of the neck and having at its lower end a packing-ring and in its top an opening, and a filling of plaster-of-paris poured in through said opening to fill up the space between the plug and the neck and lock the former securely in place in the latter, substantially as described.

5. In combination with a bottle having its neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of a soft, pliable substance, and a similar valve member 10 of a pliable, springy substance located on the valve member 8, and a plug secured in said neck above said valve, and having a zigzag passage therein, substantially as described.

6. In combination with a bottle having its neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of soft pliable substance and a similar valve member 10 of mica located on the valve member 8, and a plug secured in said neck above said valve and having a zigzag passage therein, substantially as described.

7. In combination with a bottle having a neck provided with a valve-seat, a valve on said seat comprising a valve member 8 of a soft, pliable substance and a valve member 10 of a pliable, springy substance, and a plug secured in said neck and resting upon said valve to hold it in place and having a zigzag passage extending therethrough, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD HOERICHS.

Witnesses:

HENRIETTA WHITEHILL,
AUG. H. LANGE.