

C. K. FUCHS.
BOTTLE STOPPER.

Patented Apr. 30, 1895.



C. E. Brantland,
E. J. Hyde.

Inventory;

Charles K. Fuchs, by
Harry P. Williams,
att'y.

UNITED STATES PATENT OFFICE.

CHARLES K. FUCHS, OF WATERBURY, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, OF THREE-FOURTHS TO F. O. PEABODY, OF SAME PLACE.

BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 538,644, dated April 30, 1895.

Application filed June 25, 1894. Serial No. 515,556. (No model.)

To all whom it may concern:

Be it known that I, CHARLES K. FUCHS, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

The invention relates to the class of stoppers or devices that are secured in the necks or mouths of bottles or other vessels to prevent the refilling of the receptacles in which they are placed, such devices being employed to protect trade marks or thwart the trafficking of an inferior or bogus liquid under the name of the superior article by refilling packages which originally contained the good article, to the great injury of the manufacturers of the good article.

The object of the invention is to provide a simple, cheap and effective device of this class which is so constructed that it cannot be opened for filling the bottle or vessel, after being secured in place, by means of a wire, by siphoning, by hydraulic pressure or by the employment of any other profitable known means, without destroying or breaking the receptacle or the stopper.

Referring to the accompanying drawings, Figure 1 is a longitudinal section of the neck of a bottle and stopper, and Fig. 2 is a similar section of the same on a plane at right angles to that taken in Fig. 1.

In the views 1 indicates the neck or mouth of a bottle or any other jug or vessel which it is desired to prevent being refilled. Sealed in this neck by such known means as may be desirable to adopt is a barrel or supporting frame 2, formed of one or more sections of any suitable thin tubing, so secured that it cannot be removed without injury to the receptacle. Supported by cross bars 3 and 4 in the barrel or supporting frame preferably at one end by a pivot and at the other end by a larger bearing so that it can be revolved, is a light oblong frame 5. Pivoted to a part of this revoluble frame is a lever 6 which is connected at one end with a float 7 and at the other end with a lever 8 that is also pivoted to a part of this revoluble frame. This lever 8 is loosely connected with the stem of a stop-

per or valve 9 that opens from and closes against a seat 10 formed on a piece secured to the barrel or support in the proper position. It is preferred to connect the lever 8 with the stem of the valve by means of a link or pin 11 having an enlarged head or ball that makes contact with an enlarged head or ball on the end of a pin 12 in the tubular stem 13, the end of the tube being bent or crimped over to hold the balls in place. By means of this construction when the lever 8 is oscillated in one direction the ball on the end of the pin 11 pulls on the bent end of the tube and opens the valve, and when the lever is oscillated in the opposite direction the ball pushes against the ball on the pin 12 and forces the valve to its seat. The stem of the valve is loosely supported by cross bars 14, so it can be freely reciprocated by the pull and push of the lever 8, and it offers no resistance to the free rotation of the lever with the frame 5, as the balls make contact with but little friction.

Pivoted to the rotatable frame is a swinging weight 15 which so balances the frame that it always turns to the proper position to be operated upon by any liquid in the bottle float, regardless of the manner in which the bottle is picked up and tilted for pouring out liquid it contains. An arm 16 projecting from the stem of this weight bears a locking stud that engages the lever 6 so that when the bottle is standing in an upright position the weight forces the stud against the lever and holds the valve closed to its seat.

Liquid flowing down the neck of a bottle provided with this device will lift the float and cause oscillation of the levers so as to draw the inner valve from its seat and allow the egress of the liquid, the counterbalance and locking weight always by gravity, of course, revolving and holding the frame so that the float will be in the correct position to be lifted by the flow of even a small amount of liquid down the lower side of the neck of the bottle.

In the outer end of the barrel 2, supported by light bars 17, is a cup 18 in which is a float 19 made in any suitable manner of cork, hollow metal, or any other suitable material. Connected with the stem of this float in any desired manner is a stopper or valve 20 that

closes against and opens from a seat 21 formed preferably on the outside of the piece that has the seat for the valve 9. With this construction, if the mouth of a bottle partially exhausted of air was plunged into a liquid that it was desired to surreptitiously get into the bottle, the valve would drop down by gravity and atmospheric pressure would force the liquid into the bottle were it not for the float which would be lifted by the liquid so as to close the valve, and then the pressure of the liquid would keep the valve shut. Of course, when any liquid flows out past the valve 9 this valve 20 readily opens itself, but when an attempt is made to force liquid into the interior with the bottle in any position, this valve shuts with a force depending on the pressure employed so that the inner valve cannot be forced open.

Supported by a light frame 22 above this cup and float is a thin conical shield 23, or any similar protector, so shaped and having its edges so formed as to engage and catch any wire or other tool that may be inserted in an attempt to lift the float or open the valves. Another shield, deflector or similar protector 24 is located at the top of the barrel or supporting frame to prevent the entrance of and turn back any wire that might possibly pass the edges of the shield 23, and still another deflector 25 is provided to catch the end of any wire that should pass both of the other shields. As the cup and shield frame supports are made very light, any tool driven with force against the first mentioned shield would crush in the supports and thus securely hold the outer valve in a closed position.

The parts of this device can, with the proper tools, be made very cheaply in quantities and readily assembled and securely fastened in the neck or mouth of any desired bottle or other vessel.

When a receptacle is provided with this device, while the liquid can be freely poured out it is impossible by any known or practicable means to refill the receptacle with any liquid. Hydraulic pressure or any other force or siphoning only closes the valves the more tightly, and the construction is such that the valves cannot be opened by means of a wire or other tool, nor can they be opened by turning the bottle in any particular position and operating upon the parts.

The device is cheap, can be readily applied to a bottle, and is very effective in preventing the refilling of emptied bottles or other receptacles so that counterfeit articles cannot be worked off under the label of other goods.

I claim as my invention—

1. In a bottle stopper, in combination, a barrel or frame supporting a valve seat, a valve movable in the barrel toward and from the seat, oscillating levers connected with the valve and a float in the interior connected with the levers supported by the barrel, substantially as specified.

2. In a bottle stopper, in combination, a

barrel or frame supporting valve seats, a float operated valve opening in one direction and a float operated valve opening in the opposite direction in the interior of and supported by the barrel and floats connected with the valves, substantially as specified.

3. In a bottle stopper, in combination, a barrel or frame supporting a valve seat, a valve movable in the barrel toward and from the seat, and a revolving float for operating the valve with which it is connected supported by the barrel, substantially as specified.

4. In a bottle stopper, in combination, a barrel or frame supporting valve seats, a valve movable in the barrel, a revolving float for operating the valve against one seat, a valve movable in the barrel, and a float for operating this latter valve against another seat, substantially as specified.

5. In a bottle stopper, in combination, a barrel or frame supporting a valve seat, a valve movable in the barrel toward and from the seat, a weighted revolving frame bearing oscillating levers connected with the valve, and a float for oscillating the levers, substantially as specified.

6. In a bottle stopper, in combination, a barrel or frame supporting a valve seat, a valve movable in the barrel toward and from the seat, a revolving frame bearing oscillating lever connected with the valve, a float for oscillating the levers, and a counterbalance weight for revolving the frame and a lock for the valve connected with the counterbalance weight, substantially as specified.

7. In a bottle stopper, in combination, a barrel or frame supporting a valve seat, a valve movable in the barrel toward and from the seat, a revolving frame bearing oscillating levers connected with the valve, a float for oscillating the levers, and a counterbalance weight for revolving the frame, substantially as specified.

8. In a bottle stopper, in combination, a barrel or frame supporting valve seats, a float operated valve opening in one direction and a float operated valve opening in the opposite direction, floats connected with the valves for operating the same, and a deflecting shield protecting the outer valve and float, substantially as specified.

9. In a bottle stopper, in combination, a barrel or frame supporting valve seats, a float operated valve opening in one direction and a float operated valve opening in the opposite direction, floats connected with the valves for operating the same, a cup surrounding the outer float, a deflecting shield protecting the cup, and a deflecting shield supported by the barrel adjacent to the outer shield, substantially as specified.

CHARLES K. FUCHS.

Witnesses:

J. H. GUERNSEY,
V. L. SAWYER.