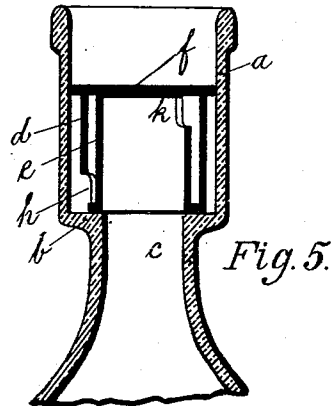
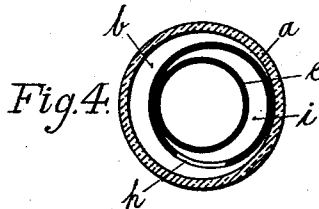
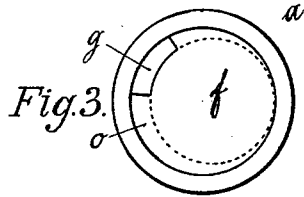
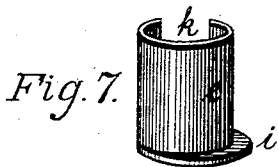
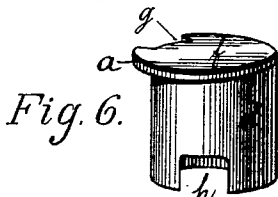
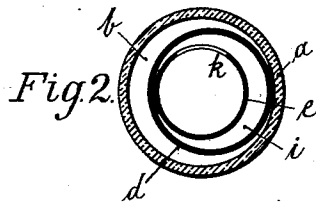
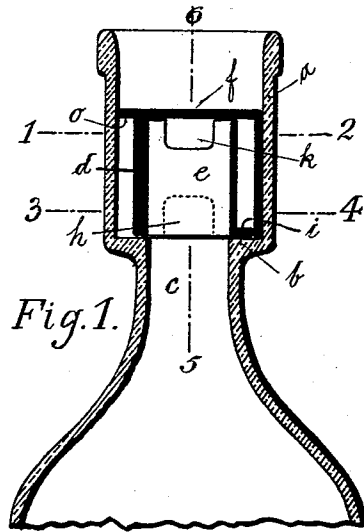


(No Model.)

R. KIRSCH.
NON-FILLABLE BOTTLE.

No. 562,964.

Patented June 30, 1896.



WITNESSES:

R. M. Muller.
M. A. Knowles.

INVENTOR

Richard Kirsch,
BY
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ATTORNEY

UNITED STATES PATENT OFFICE.

RICHARD KIRSCH, OF BAY RIDGE, NEW YORK.

NON-FILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 562,964, dated June 30, 1896.

Application filed June 19, 1895. Serial No. 553,287. (No model.)

To all whom it may concern:

Be it known that I, RICHARD KIRSCH, a citizen of the United States, and a resident of Bay Ridge, county of Kings, and State of New York, have invented certain new and useful Improvements in Non-Fillable Bottles, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts in all the figures.

This invention relates to traps or stoppers for bottles, and the object thereof is to produce a trap so constructed and applied to a bottle containing a liquid that when the bottle has been once filled and emptied of its contents it cannot be refilled without detection.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 represents a central vertical section of my device as applied to the neck of a bottle; Fig. 2, a horizontal section on line 1 2 of Fig. 1; Fig. 3, a plan view of the mouth of the bottle, showing the top of my device; Fig. 4, a horizontal section on line 3 4 of Fig. 1; Fig. 5, a central vertical section on line 5 6 of Fig. 1, and Figs. 6 and 7 detached perspective views of parts which appear assembled and in section in Figs. 1 and 5.

In the practice of my invention I make the bottle-neck *a* of sufficient length to afford room for the usual cork or stopper above the parts *d* and *e*, and provide the same with an annular seat or shoulder *b*, below which the neck is contracted, forming a central opening *c* at a right angle to the wall of the neck *a*, and the neck *a*, together with the parts *d* and *e*, forms a trap to the entering liquid operative in any position in which the bottle may be placed. The part *d* is cup-shaped, having a body of cylindrical form, open at the bottom and closed at the top *f*, which is of circular form, its periphery coinciding with that of the cylindrical body at one point, but is thence extended eccentrically and flange-shaped beyond the periphery of the cylinder, as at *o*, and its diameter is at right angles to the axis of the cylinder and of a size to fit into the bottle-neck *a*, and a portion of this overhanging flange *o* is cut out, forming a recess *g*, and in the lower end of the wall of the

cylindrical body *d* at one side a notch is formed at *h*. The part *e* is also of cylindrical form, but open at both ends and has at the lower side an eccentric flange *i* of circular form, the diameter of which is at a right angle to the axis of the cylinder and the edge of which coincides at one point with the periphery of the cylinder, and in the upper end of the wall of the cylinder *e* a notch is formed at *k*.

The diameter of flange *i* corresponds in size with inside diameter of the cylindrical body or part *d*, and the length of the part *e* is equal to the distance between the under side of the top *f* and the lower edge of the cylindrical body of the part *d*.

The notch *h* is located at about a right angle to the radius running to the point of maximum projection of flange *o*, and the notch *k* is located at about a right angle to the radius running to the point of maximum projection of flange *i*.

The relation of the position of the notch *h* to that of notch *k* is such that if the part *e* be placed with its flange *i* at the bottom end and facing to the right the notch *k* appears at the back of the cylinder, the notch *h* in part *d* must be in front of cylinder, while flange *o* appears at the top and pointing to the left, all as shown in Figs. 6 and 7.

The parts *d* and *e* are preferably made of glass, and the several parts are assembled in the following manner:

Part *e* is inserted full length into the cylindrical body of part *d* and so that flange *i* will be at the end opposite the flange *o* and so that the flanges *i* and *o* will point in diametrically opposite directions and so that the notches *h* and *k* will be on opposite sides, the faces and edges of contact of the separate parts having first been coated with a suitable cement in a plastic state.

The bottle having first been filled through its neck and the yet unobstructed opening *c* in the usual manner, the connected parts *d* and *e* are inserted into the neck *a* and pushed downward until the flange *i* finds its seat on the annular seat *b*, the faces and edges of contact having first been coated with a suitable cement in a plastic state, as above described. After the cement has set a portion or all of the liquid contents of the bottle may be dis-

charged through the trap and the mouth of the bottle, and tilting the bottle and slightly tipping it back and forth will assist in alternately filling and emptying the trap and will produce an intermittent discharge of the liquid, and this intermittent discharge may be taken as an indication that the trap is operative, while a defect in the trap in the nature of an improper opening or fissure would tend to make the discharge constant.

If an attempt should be made to refill the empty or partly-empty bottle with liquid introduced through the neck thereof, the trap will prevent said liquid from entering the bottle, in whatever position the bottle may be placed, the operation of the trap being as follows:

Liquid to enter from the outside to the inside of the bottle would have to pass consecutively through the openings *g*, *h*, *k*, and *c*.

If the bottle is in a vertical position, or in any inclined position nearer the vertical than the horizontal position, a certain volume of liquid will, after passing through the opening *g*, fall upon the annular offset or shoulder *b*, and, passing through opening *h*, will rise to the top of said opening, at the same time displacing an equal volume of air, which will pass in the opposite direction out through *h* and *g*; but as soon as the opening *h* is submerged and more liquid follows the air contained in the trap and bottle beyond opening *h*, having its only means of escape cut off, will resist the further entrance of liquid beyond opening *h* and will thus prevent its rising to the level of opening *k*, through which it would have to pass on its way to the interior of the bottle.

If the bottle be held in a horizontal position, or in any inclined position nearer the horizontal than the vertical, the liquid will enter through opening *g*, and if the bottle be turned so that opening *g* is at a lower level than opening *h*, the opening *g* will be closed by the inflowing liquid and the confined air will prevent its inward progress before opening *h* is reached.

If the bottle be turned so that opening *g* is at a higher level than opening *h*, the liquid will pass through openings *g* and *h* into the crescent-shaped space between the cylinders *e* and *d*, and rise therein until its level has reached the bottom face of the cylinder *e*, which will occur at a point below the level of opening *k*. This will again stop the escape of air and prevent the further progress of the liquid toward the inside of the bottle.

Although I have referred to cement as a means for holding the trap or stopper in place within the neck of the bottle, I do not limit myself thereto, and the trap may be secured within the neck by any preferred means, or in any desired manner, and the separate parts thereof may be likewise connected.

It will thus be seen that I accomplish the object of my invention by means of a device simple in construction, operation, and appli-

cation, and I do not limit myself to the exact form and construction of parts shown and described, as it is evident that many changes therein and modifications thereof may be made without departing from the scope of my invention; but,

Having fully described said invention, its construction and operation, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a bottle the neck of which is provided with an inwardly-directed annular ledge or shoulder, of a trap or stopper adapted to be secured therein and seated on said ledge or shoulder, and consisting of a cylindrical portion the top of which is closed and provided with an eccentric flange and the bottom of which is open and directed downward and a tubular cylindrical portion, arranged therein each end of which is open and the lower end of which is provided with an eccentric flange, said parts or portions being so arranged that the flange on the inner portion is opposite the flange on the outer portion, and said parts being also provided with side openings, substantially as shown and described.

2. The combination with the neck of a bottle, provided with an annular inwardly-directed ledge or shoulder, of a trap or stopper consisting of two parts or portions, one of which is placed within the other, and each of which is cylindrical and tubular in form, the outer part being closed at the upper end and provided with an eccentric flange, and the inner part being open at both ends and provided at its lower end with an eccentric flange said parts being also provided, the outer end with a recess or opening in the lower end thereof, and the inner one with a corresponding recess or opening in the upper end thereof, and said parts being relatively arranged and connected, substantially as shown and described.

3. The combination with a neck of a bottle, provided with an annular inwardly-directed ledge or shoulder, of a trap or stopper consisting of two parts or portions, one of which is placed within the other and each of which is cylindrical and tubular in form, the outer part being closed at the upper end and provided with an eccentric flange and the inner part being open at both ends and provided at its lower end with an eccentric flange, said parts being also provided, the outer one with a recess or opening in the lower end thereof, and the inner one with a corresponding recess or opening in the upper end thereof, and said parts being relatively arranged and connected, and the eccentric flange of the outer part being provided with a notch or recess, substantially as shown and described.

4. The combination with the neck of a bottle, provided with an inwardly-directed annular shoulder or rest, of a trap or stopper, consisting of two parts each of which is cylindrical and tubular in form, and one of which is placed within the other, the inner

part being open at both ends and the outer
part being provided at its top with an eccen-
tric flange and the lower part being provided
at its bottom with an eccentric flange and
5 each of said parts being provided, the outer
one with a notch or recess in its side walls at
the bottom, and the inner one with a notch
or recess in its side walls at the top, and the
eccentric flange at the top of the outer one
10 being also provided with a notch or recess,
and said parts being united in such manner
that the eccentric flange at the inner part is
opposite the eccentric flange on the upper
part, and the opening or recess at the bottom
15 of the outer part, is opposite the opening or
recess in the inner part, substantially as
shown and described.

5. The combination with the neck of a bot-
tle, of a trap or stopper consisting of two hol-
low or tubular portions, one of which is placed 20
within the other, and each of which is open
at the lower end, the inner portion being
united to the outer one, at one side, and said
parts being provided with ports or openings,
and with flanges, substantially as shown and 25
described.

In testimony that I claim the foregoing as
my invention I have signed my name, in pres-
ence of two witnesses, this 30th day of March,
1895.

RICHARD KIRSCH.

Witnesses:

JOHN A. CALDWELL,
MARGARET CALDWELL.