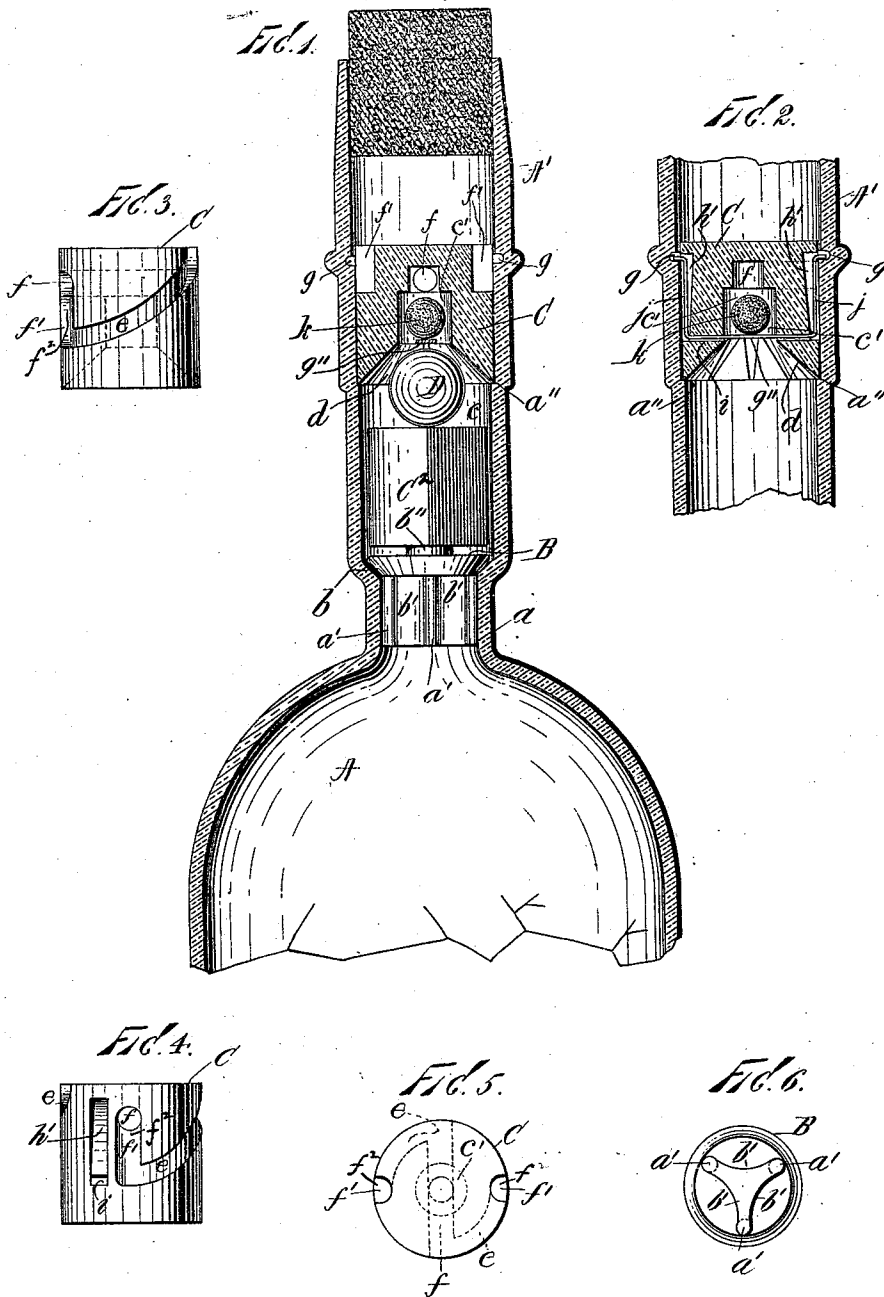


(No Model.)

G. J. WAINWRIGHT.
NON-REFILLABLE BOTTLE.

No. 554,805.

Patented Feb. 18, 1896.



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GEORGE JOSEPH WAINWRIGHT, OF NEW YORK, N. Y.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 554,805, dated February 18, 1896.

Application filed February 20, 1895. Serial No. 539,083. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JOSEPH WAINWRIGHT, of the city, county, and State of New York, have invented certain new and useful
5 Improvements in Non-Filling Bottles; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, making a part of this specification,
10 in which—

Figure 1 is a vertical longitudinal sectional view of a non-filling bottle made according to my invention. Fig. 2 is a like view taken in a plane different from that of Fig. 1. Figs. 3
15 to 6, inclusive, are detail views, on a larger scale, showing certain parts of the apparatus.

This invention relates to that class of bottles in which provision is made for the prevention of refilling after the original contents
20 have been exhausted; and it comprises certain novel combinations of parts whereby very great security is provided against the devices and methods by which with apparatuses of this class heretofore in use the non-refilling
25 character of the bottles has been evaded or destroyed.

A is the body of the bottle, of any suitable size, capacity, material, or form. The outlet or neck *a* of this body is formed with an annular
30 valve-seat *b*, upon which is seated a valve B. The neck *a* is intended to have straight or parallel sides, and the valve-stem *a'* of the valve is so constructed that when the valve is brought away from its seat it permits the
35 flow of liquid past it. It is guided by the said neck to retain the valve in position during its movement toward and from the valve-seat. To this end the valve-stem is preferably made of the approximately triangular cross-section
40 shown in Fig. 6, the longitudinal corners *a'* of said stem moving in contact, or substantially so, with the interior of the neck, while the concave faces *b'* between said corners provide channels through which liquid may
45 pass whenever the valve is brought away from the valve-seat.

Extended above or beyond the outlet of the body A is a bottle-neck or extension thereof
50 A', between which and the body A is interposed the outlet from the latter. This part serves to contain certain of the operative

parts, and also to receive a cork or plug, as hereinafter explained.

Placed above the valve B and within the part A' is a float C². This float is preferably
55 of cork, but may be of any other suitably buoyant material, or, when desired, of hollow metal so proportioned as to afford the requisite flotative character to the float. This float is so shaped and proportioned as to per-
60 mit the easy passage of liquid past or along its sides. This is most conveniently provided for by making it rectangular in its cross-section, so that passages are afforded between its flat sides and the adjacent walls of the bottle-
65 neck A', in which it is placed. At the upper part of this chamber is provided an internal circumferential shoulder *a''*, upon which is placed the lower periphery of the plug C, which is internally recessed, as shown at *d*
70 in Figs. 1 and 2, the recess *d* being of conical form and open at its larger and lower end.

Formed in the outer circumference of the plug are one or more spiral channels *e*.
(Shown on opposite sides of the plug by Figs. 75 3 and 4.) Each of these spiral channels has a vertical part *f*², the upper end of which communicates with a transverse channel *f'* in the upper or outer part of the plug, as shown in cross-section in Fig. 1. This angular part
80 extending upwardly instead of downwardly prevents a wire or the like from being used for tampering with the parts. Each of the channels *f'* intersects a cavity *c'*, which, as
85 hereinbefore explained, forms an extension of the recess *d*, the opposite end of each of the channels *e* opening at the upper or outer surface of the plug, as shown at *f'*.

Formed internally in the walls of the neck or extension A', in suitable proximity with
90 the outer end of the plug, is a groove or annular recess. Formed transversely in the plug toward the narrow end of the conical recess, but below the cavity *c'*, are slits or openings *i*, and in suitable relation with these
95 in the lateral surface of the plug and longitudinal therewith is a groove *h'*. A leaf-spring *j* is placed in this groove and is retained in place by having its shank *g''* bent to a trans-
100 verse position and thrust through the slits *i*. The spring is so proportioned that when the plug is brought upon the annular shoulder

at the end of the spring will catch into the circumferential groove *g* of the sleeve, and thereby prevent the withdrawal of the plug. Placed in the cavity *c'* is a floating ball-valve *k*, which may be of cork or other suitable material. Below this ball-valve is a spherical or equivalently shaped weight *D*, which plays against the adjacent end of the float *C*². The shank *g''* of the spring being interposed between the floating ball-valve *k* and the spherical weight *D* prevents the contact of the one with the other. The sleeve *A'* is extended sufficiently beyond the plug *C* to permit the insertion of a cork or stopper of any usual or suitable kind. The valve *B*, the spherical weight *D*, and the plug *C* are preferably of glass, and the sleeve *A'* and neck *a* are integral with the body *A* of the bottle.

The bottle is filled in the first instance before the valve *B*, float *C*², spherical weight *D*, and plug *C*, with the floating ball-valve *k*, are placed in position. The bottle being duly filled, the parts just mentioned are placed in the order named in their respective positions, as hereinbefore described and as shown in Figs. 1 and 2, the plug, as hereinbefore explained, being held in place by the spring *j* holding in the groove. As the spring is placed in the closed space provided by the groove *h'* in the plug and is thus inaccessible, it is practically impossible to remove the plug or other parts just mentioned without breaking the sleeve *A'* and rendering useless the whole structure. When the parts are in position, as described, a cork may be inserted in the extended or outer portion of the sleeve.

When it is desired to pour out the original contents of the bottle the cork is removed and the bottle inverted to the requisite degree, whereupon the liquid passes into and through the conical recess *d*, thence to the transverse passage *f*, and thence to the oblique passage or passages *e*, which, opening at *f'* at the outer end of the plug *C*, permit the liquid to flow to and through the sleeve to any desired receptacle. In this operation, the buoyant floating valve *k* rising in the passing liquid in the inverted sleeve, it opens the way into the transverse passage *f* and thence to the exit at *f'*, while the buoyancy of the float *C*² is overcome by the weight of the valve *B* as it leaves its seat *b* and by the impact of the volume of liquid passed freely through the inverted neck *a* when the said valve is brought away from its seat. The apparatus therefore permits the ready outflow of the original contents of the bottle. When, however, an attempt is rendered futile by reason of the operative action of the parts under any conditions which involve the movement of a liquid in a direction inward to the bottle. Thus, for example, if liquid be poured into the sleeve when the bottle is in its normal or upright position its passage is barred by the valve, closed against its seat by the weight *D* and also by the

pressure of the running liquid. If the bottle be laid upon its side the spherical weight rolls down the inclined surface presented by the conical sides of the recess *d* in the plug *C*, and bearing against the float *C*² presses the same against the valve *B* to bring the same against its seat and thus close the inward passage to the body *A*. If the bottle be inverted and liquid be poured upward into the sleeve and toward the body of the bottle the float *C*² rides upon the running liquid and forces the valve *B* to its seat, thereby closing the passage to the body *A*, and if recourse be had to devices for producing a vacuum to withhold the valve *B* from its seat the outward movement of the air from the bottle forces the light or floating valve *k* against the inlet to the transverse passage or passages *f*, so that the production of a vacuum within the body *A* becomes impossible. If attempt be made to tamper with the valve *B* or parts adjacent thereto by a wire or instrument thrust into the apparatus, such attempt is rendered nugatory by the sinuous character of the passages of the plug *C*, which prevents effective access to the valve. Thus by the means described the refilling of the bottle is prevented, so that the frauds which have heretofore frequently occurred from the refilling of manufacturers' bottles with spurious goods may by means of my invention be readily and effectually prevented.

It will be observed that upon the outer side of the valve *B* is provided a central boss *b''*, which receives the contact of the float *C*². By this means the pressure upon the valve to close the same to its seat is so applied that the circumference of the valve is caused to fit snugly upon the whole circumference of the valve-seat, the tilting of the valve, and its consequent irregular action with reference to its seat, which would be liable to occur if the inward pressure upon it were not central, being thus effectually prevented.

What I claim as my invention is—

1. In a non-filling bottle the combination with a plug constructed with a conical recess on its lower or inner end, a cavity, *c'*, continuous with the smaller end of said recess, an oblique passage or passages on its sides, and a passage or passages connecting the cavity with the oblique passage or passages, of a float-valve placed in the cavity, a spherical weight in part contained within the recess, a valve and valve-seat arranged at the outlet of the body of the bottle, a float interposed between the float-valve and the spherical weight, substantially as and for the purpose herein set forth.

2. In a non-filling bottle the combination with a plug constructed with a conical recess on its lower or inner end, a cavity, *c'*, continuous with the smaller end of said recess, an oblique passage or passages on its sides, and a passage or passages connecting the cavity with the oblique passage or passages, of a

float-valve placed in the cavity, a spherical weight in part contained within the recess, a valve having a central boss or bearing on its upper or outer side, a neck, *a*, provided to the body, *A*, of the bottle, a valve-seat at the outlet end of said neck, to receive the centrally-poised valve, a valve-stem extended from said valve into the neck and constructed to permit the flow of liquid when the valve is away from the seat, and a float interposed between the valve and the spherical weight, substantially as and for the purpose herein set forth.

3. In a non-filling bottle the combination with a plug constructed with a conical recess on its lower or inner end, a cavity, *c'*, continuous with the smaller end of said recess, an oblique passage or passages on its sides, and a passage or passages connecting the cavity with the oblique passage or passages, of a float-valve placed in the cavity, a spherical weight in part contained within the recess, a valve having a central boss or bearing on its upper or outer side, a neck, *a*, provided to the body, *A*, of the bottle, a valve-seat at the outlet end of said neck, a valve placed upon said seat, a valve-stem extended from said valve into the neck and constructed to permit the flow of liquid when the valve is away from the seat, and a float interposed between the valve and the spherical weight, substantially as and for the purpose herein set forth.

4. In a non-filling bottle the combination with a plug constructed with a conical recess on its lower or inner end, a cavity, *c'*, continuous with the smaller end of said recess, an oblique passage or passages on its sides, and a passage or passages connecting the cavity with the oblique passage or passages, of a float-valve placed in the cavity, a spherical weight in part contained within the recess, a valve and valve-seat arranged at the outlet of the body of the bottle, a float interposed between the valve and the spherical weight, substantially as and for the purpose herein set forth.

5. In a non-filling bottle the combination with a plug constructed with a conical recess on its lower or inner end, a cavity, *c'*, contin-

uous with the smaller end of said recess, an oblique passage or passages on its sides and a passage or passages connecting the cavity with the oblique passage or passages, of a float-valve placed in the cavity, a spherical weight in part contained within the recess, a valve having a central boss or bearing on its upper or outer side, a neck, *a*, provided to the body, *A*, of the bottle, a valve-seat at the outlet end of said neck, a valve placed upon said seat, a valve-stem extended from said valve into the neck and constructed to permit the flow of liquid when the valve is away from the seat, a float interposed between the valve and the spherical weight, substantially as and for the purpose herein set forth.

6. In a non-filling bottle the combination with the body, *A*, constructed with an inlet-neck, *a*, a valve-seat at the outlet end of said neck, integral with the body and the neck, of greater internal diameter than the latter and having the internal circumferential shoulder *a''*, of a plug placed upon said shoulder, constructed with an internal conical recess, an oblique passage or passages in its sides, a passage or passages connecting the recess with said oblique passage or passages, a cavity, *c'*, communicating with the smaller end of the recess and forming part of the outlet passage or passages therefrom, a float-valve placed in said cavity, a longitudinal groove or grooves on its sides, a spring catch or catches placed therein and with its shank bent at an angle to its length and extended across the inner end of the cavity below the float-valve, of a valve placed upon the valve-seat at the outlet, a valve-stem extended from said valve into said neck and constructed to permit the flow of liquid when the valve is away from said seat, a float arranged to permit the flow beside it of liquid from said outlet, and a spherical weight placed in whole or in part within the conical recess of the plug, substantially as and for the purpose herein set forth.

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Witnesses:

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