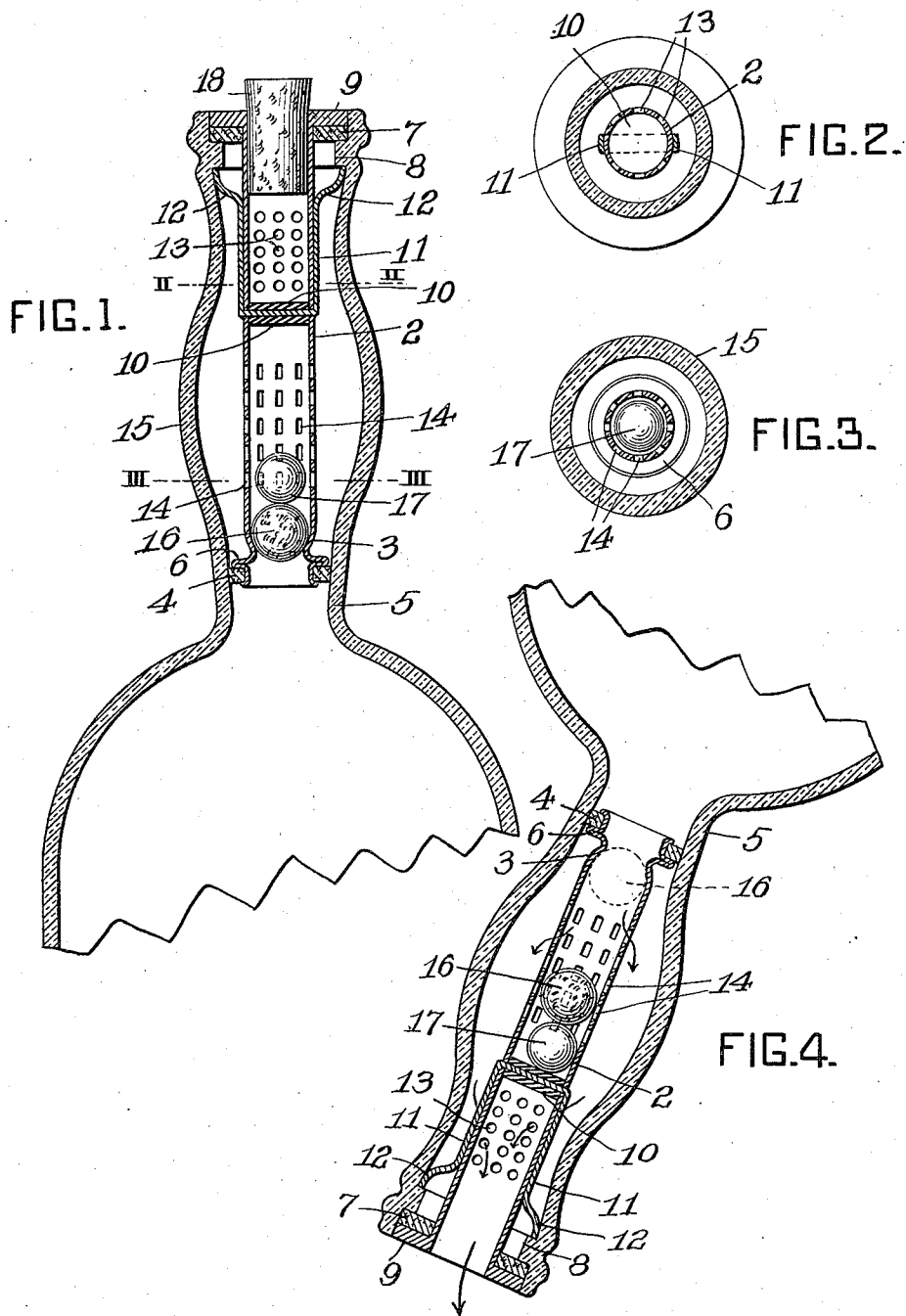


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NON-REFILLABLE BOTTLE.
APPLICATION FILED AUG. 5, 1911.

1,031,619.

Patented July 2, 1912.



WITNESSES:
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UNITED STATES PATENT OFFICE.

GEORGE F. CALLAHAN, OF EDGEWOOD PARK, PENNSYLVANIA.

NON-REFILLABLE BOTTLE.

1,031,619.

Specification of Letters Patent.

Patented July 2, 1912.

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To all whom it may concern:

Be it known that I, GEORGE F. CALLAHAN, a citizen of the United States, residing at Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention is an improvement in non-refillable bottles, and consists of a valve containing perforated tube, adapted for insertion in the neck of a bottle to operate to prevent refilling thereof, while allowing for free outflow of the contents.

In the drawings: Figure 1 is a sectional view of the upper portion of a bottle provided with my device. Figs. 2 and 3 are cross sections on the lines II, II, and III, III, respectively of Fig. 1. Fig. 4 is a view similar to Fig. 1, showing the bottle inverted.

The entire operative mechanism comprising the invention is adapted to be inserted in the neck of the bottle. It consists of a main tube 2 of thin material, as sheet metal, preferably non-corrosive, the lower end of which is provided with a valve seat 3 by deflecting the tube inwardly, or otherwise, as desired. A packing gasket 4 is fixedly held in the lower end of the tube and shaped to fit tightly within the tapered portion 5 of the bottle neck, whereby to insure against leakage and to prevent the fluid from passing otherwise than through the tube 2.

The gasket 4, which may be conveniently made of cork or rubber, is held in place in the end of the tube by crimping the metal around it as shown at 6 so that the gasket is a fixed part of the device. At the upper end is a similar sealing gasket 7 adapted to fit tightly within the neck and to rest upon an inner annular shoulder 8, while the gasket is retained by a terminal flange 9 of the tube 2, which covers the gasket, fits neatly within the bottle neck flush with its end, and completely seals the interior.

Extending transversely of the tube 2 at any convenient point between its ends, is a diaphragm or partition 10, and through said partition extends the resilient anchoring bar 11. Said bar is flared outwardly at its ends, as at 12, 12, and suitably curved so that when the device is inserted in place the locking spring terminals 12 will be forced back of the inner annular shoulder 8, and will spring out underneath it, as in Fig. 1,

securely and permanently locking the device in place.

Upwardly above the partition 10 the tube 2 is provided with a series of small preferably round perforations 13 of sufficiently small diameter to prevent the passage of a small instrument, as a wire. Below the partition 10 the tube 2 is also provided with a series of elongated narrow perforations 14, and both of said series of perforations provide for circulation of the fluid outwardly of the bottle, around the middle partition 10, as indicated by the arrows in Fig. 4.

As shown, the bottle neck may be enlarged, as indicated by the bulging portion 15, whereby to provide ample interior circulation space, although good results may be had with a substantially straight neck.

For the purpose of sealing the device against entrance of fluid, I provide a ball valve 16 of some light floatable material, as cork, and above said valve is another ball 17, of heavy material, as metal, and preferably somewhat smaller in diameter than the valve 16.

18 is a closing cork.

The operation is as follows: The bottle having been filled and the tube inserted in place, upon inverting the bottle to pour, as in Fig. 4, the ball 17 will fall by gravity away from the valve 16 so that the fluid will flow through the tube and its apertures, forcing the light valve 16 away from its seat, as indicated by the arrows. If now it is attempted to refill the bottle in its normal upright position, Fig. 1, the heavy ball 17 will hold the valve to its seat and prevent passage of fluid. If it is attempted to force fluid upwardly, in the inverted position of Fig. 4, the light valve 16 will float upwardly and seal the valve seat 3, as indicated in dotted lines. The anchoring horns 12 will securely lock the device against removal, while the partition and the arrangement, shape and size of the holes prevents tampering with any instrument, etc.

What I claim is:

1. The combination with an interiorly shouldered bottle neck, of a tube having series of circulation perforations through its shell at each side of the middle and an inner terminal valve seat, an outer terminal flange and packing gasket, an inner packing gasket, a transverse sealing partition intervening between said series of perforations, a floatable valve, a gravitating device, and a

locking device extending through said partition and tube, holding the partition fixedly between the series of perforations, and having spring terminals engaging the interior shoulder of the neck, substantially as set forth.

2. The combination with an interiorly shouldered bottle neck having an enlarged recess above its shoulder, of a tube having series of circulation perforations through its shell at each side of the middle and a lower terminal valve seat, terminal packing gaskets, a transverse sealing partition intervening between said series of perforations, a floatable valve and a gravitating device below said partition, a locking device extending through the partition and tube and adapted to engage the shouldered neck, and an outer thickened flange inserted over one of the terminal packing gaskets in the neck recess, substantially as set forth.

3. The combination with a bottle neck having an interiorly tapered base, a middle portion providing an annular circulation space, and an inner annular shoulder near the end of the neck providing inner and

outer bearings and a terminal annular enlargement; of a tube having series of circulation perforations through its shell at each side of the middle, an outer integral terminal flange, and an inner terminal valve seat; an outer packing gasket between said flange and annular shoulder, a fixedly attached packing gasket adjacent said inner terminal valve seat fitting within the interiorly tapered base, a middle transverse sealing partition intervening between said series of perforations, a floatable valve adapted to seat on said valve seat, a gravitating ball, and a spring locking arm extending through the tube and said partition having laterally extending terminals adapted to engage behind said annular shoulder to retain the outer terminal flange and packing gasket in position, substantially as set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE F. CALLAHAN.

Witnesses:

C. M. CLARKE,
FREDK. STAUB.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."