

(No Model.)

J. BIRD.
NON-FILLABLE BOTTLE.

No. 555,556.

Patented Mar. 3, 1896.

Fig: 1.

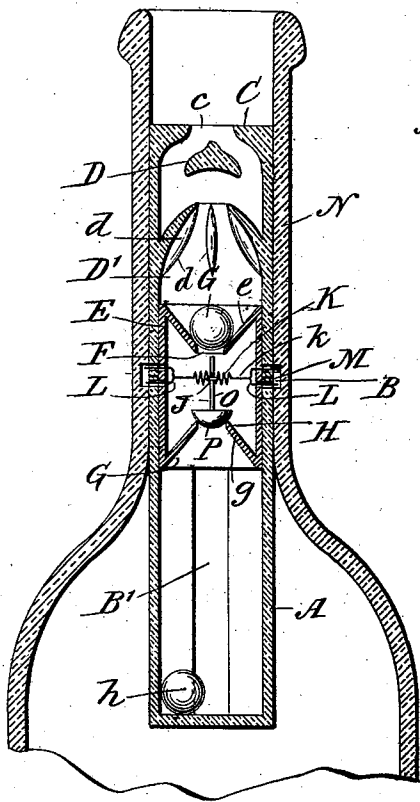


Fig: 2.

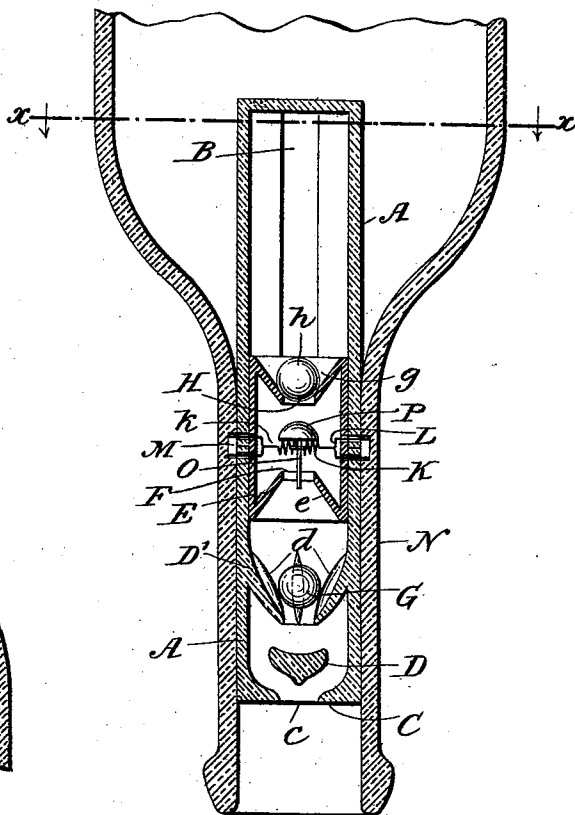
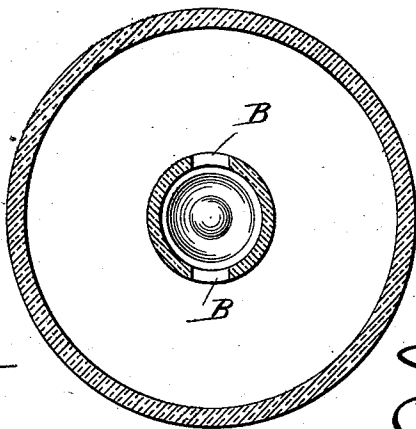


Fig: 3.



WITNESSES:

John A. Remond.
C. Christ

INVENTOR

John Bird
BY
Egan, J. & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN BIRD, OF SUMMIT, NEW JERSEY.

NON-FILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 555,556, dated March 3, 1896.

Application filed April 19, 1895. Serial No. 546,336. (No model.)

To all whom it may concern:

Be it known that I, JOHN BIRD, a citizen of the United States, and a resident of Summit, county of Union, and State of New Jersey, 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.

This invention relates to bottles, and the object thereof is to provide a bottle which, having been once filled and emptied of its contents, cannot be again filled or reused, and which is so constructed as to admit of the discharge of a certain predetermined amount of its contents when desired, and when properly operated.

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 the neck of a bottle provided with my improvement; Fig. 2, the same view with the bottle inverted, and Fig. 3 a section on the line *x x* of Fig. 2.

In the practice of my invention I provide a tube A, adapted to fit closely within the neck of the bottle, which is divided in the middle at B, forming two sections, the lower one of which is preferably closed at the bottom and provided with vertical slots B', the upper section being contracted at its upper end so as to form an annular inwardly-directed shoulder or rim C, having a central port, *c*, below which is formed within the tube a shield D of greater width than said port, the upper surface of which is preferably convex, as shown. Below the shield D is formed a hollow conical attachment D', the base of which is directed downward and open and the apex of which is directed upward and provided with vertical corrugations *d*, which converge to the apex. Within the tube A is another tubular attachment or auxiliary tube E, the upper end of which is preferably conical in form, the apex thereof being directed downwardly, forming a valve-seat *e*, and open, forming a port F, and the lower end, G, of which is preferably conical and directed upwardly, forming a valve-seat *g*, the apex being open, forming a port H.

Within the tube A, above the valve-seat *e*,

is a ball-valve G, adapted to be seated thereon and close the port F, and within said tube, below the valve-seat *g*, is a similar ball-valve *h*, adapted to close the port H from below.

Located within the auxiliary tube E is a plate J, to which is attached a helical spring K, provided at each end with arms or rods *k*, each of which carries at its outer end a fork L, the separate arms or prongs of which pass through perforations formed in the tube E and corresponding perforations formed in the tube A, one of which is in each section of said tube, as shown, and into an annular recess or cavity M, formed in the inner walls of the neck N of the bottle.

Passing through the plate J in the tube E is a sliding rod O, which carries at its lower end a valve P, which is preferably elastic and designed to operate, as hereinafter described, to close the port H from above.

The parts hereinbefore described are assembled in the following manner: The plate J with the spring K and carrying the rod O, with its attached valve P, are first inserted into the tube E so that the forks at the end of the spring will pass through the perforations in the tube E, and if necessary one end of the tube E may be formed separate from the tube to admit of this operation, and afterward secured thereto, and after this the separate sections of tube A are slid over the ends of the tube E, the forks L being retracted to admit thereof, and when the said sections are in proper position the said forks will be pressed outward by the spring and through the perforations formed in the abutting ends of the sections of tube A, as will be readily understood.

After the bottle has been filled the tube A, with the connected parts assembled as above described, is inserted into the nozzle of the neck and pressed downward, the spring-operated forks L being shoved back to admit of their passing into the neck until said spring-operated forks reach the annular recess M, when they will be forced outward into said recess and securely hold the tube within the neck of the bottle, from which it cannot be removed without breaking the bottle, and if desired the outer surface of the tube may be covered with a thin layer of plastic cement before inserting it into the neck.

After the bottle has been filled with the required contents and the stopper or tube with its assembled parts inserted as described the nozzle of the bottle may be closed by a cork or other plug in the usual manner.

As hereinbefore stated, one of the objects of this invention is to produce a bottle which is capable of being operated so as to discharge a small or predetermined amount of its contents when desired, and the operation of the construction herein described is as follows: It being desired to discharge a portion of the contents of the bottle or all of it, the cork is removed in the usual manner and the bottle tilted or inverted, when the contents will flow out through the several ports or passages, as will be readily understood, the valve P leaving its seat under the pressure of the fluid, which will continue to flow while the valve *h* is sinking to the valve-seat *g*, when the flow will be at once arrested, when by turning the bottle-nozzle up and allowing the valve *h* to sink to the inner end of the tube A the operation may be again repeated, and so on as long as there is any material amount left in the bottle. As constructed, the conical-shaped ends of the tube E constitute simply partitions having central ports adapted to be closed by the valves G, P, and *h*, and it is not essential that these partitions should be of the exact form shown.

The positions of the various valves when the bottle is inverted are shown in Fig. 2, and it will be understood that the contents of the bottle flow into the tube A through the slots B, in the lower end or section thereof, in the operation above described, and that the amount discharged at each inversion of the bottle will depend on the length of the lower section of tube A and the time it takes the valve *h* to reach its seat.

When the bottle has been emptied, if an attempt be made to refill it the valves G and P would be at once seated in the position shown in Fig. 1, and no fluid can be poured into the bottle, and this operation of the said valves would be the same in any position in which the bottle could be held in the process of filling it, or in any attempt to do so. The valve G alone would probably be sufficient to produce this result, and for this reason the valve P is not an essential element in this invention, though it may be employed as an auxiliary and is claimed as such. It will be observed that the valves G and P will operate to prevent the bottle being filled and also to admit of the discharge of all its contents at once if valve *h* is omitted, in which case the bottle would be an ordinary non-fillable one, and this idea is also involved in this invention.

The object of the shield D in this construction is to prevent the insertion of a wire or other instrument in an effort to interfere with the operation of the valves, and it is aided in this by the upwardly-directed conical and

slotted attachment D', as will be readily understood.

Having fully described my invention, I claim and desire to secure by Letters Patent—

1. The combination with a bottle of a tube adapted to be secured in its neck, and having near the central portion thereof, a partition, provided with a central port a valve above the port, adapted to close the same, in an attempt to fill the bottle, a hollow conical attachment, above said valve, the base of which is directed downward and open, and the apex of which is slotted, and a shield above said slotted conical attachment; the upper end of the tube above said shield being contracted, forming an annular inwardly-directed flange or rim having a central port above said shield, substantially as shown and described.

2. The combination of a bottle having a tube arranged within the neck thereof, a tubular attachment secured in said tube and having its upper end contracted to form a valve-seat, a valve-seat in its lower end of said attachment a spring located between said valve-seats, a rod arranged to slide a limited distance in said spring and a valve mounted on said rod and adapted to normally rest on the valve-seat in the lower end of the tubular attachment, substantially as described.

3. The combination with the neck of a bottle of a tube adapted to be secured therein, one end of which extends downwardly into the bottle and is slotted or apertured, a valve located in said slotted end, a partition within the tube at or near the lower end of the neck, having a central opening or port, a valve above said partition adapted to close said port, a second partition above the first having a central opening or port, a valve above the same adapted to close said port, and means for holding each of said last-named valves in position, and prevent the removal thereof, the operation of the valves, above the partitions, being to close the ports therein in an attempt to fill the bottle, and that of the valve in the inner end of the tube being to close the lower port and prevent the discharge of the contents of the bottle except in small quantities at a time, substantially as shown and described.

4. The combination with the neck of a bottle, of a tube adapted to be secured therein, divided into two sections, an auxiliary tube located in the sectional tube, and provided with an end piece or pieces having a central port or ports, an automatic valve or valves, adapted to close said port or ports, spring-operated forks adapted to pass through perforations in the auxiliary tube and in the abutting ends of the sectional tube and hold them together, and means for holding the valves in position, and preventing their removal, substantially as shown and described.

5. The combination with the neck of a bottle, of a tube adapted to be secured therein,

and divided into sections, at or near the middle thereof, the lower section being extended downwardly into the bottle, and being slotted or apertured and having an automatic valve located therein, an auxiliary tube located in the sectional tube, and provided with end pieces having central ports, an automatic valve above each of said ports and adapted to close the same, spring-operated forks in said auxiliary tube, adapted to pass through perforations in each side thereof, and in the abutting ends of the sectional tube, and hold them together, and into an annular recess formed in the inner walls of the neck of the bottle, and means for holding the valves above the partitions in position and prevent their removal, the operation being such that the

valves above the partition will open and permit the discharge of the contents of the bottle, and close and prevent the refilling thereof, and the valve in the lower end of the sectional tube will prevent the discharge of the contents beyond a predetermined amount at one operation, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 13th day of April, 1895.

JOHN BIRD.

Witnesses:

PERCY T. GRIFFITH,
L. M. MULLER.