(No Model.)

D. R. SAUNDERS.

NON-REFILLABLE BOTTLE.

No. 576,380. Patented Feb. 2, 1897.

Fig. 1.

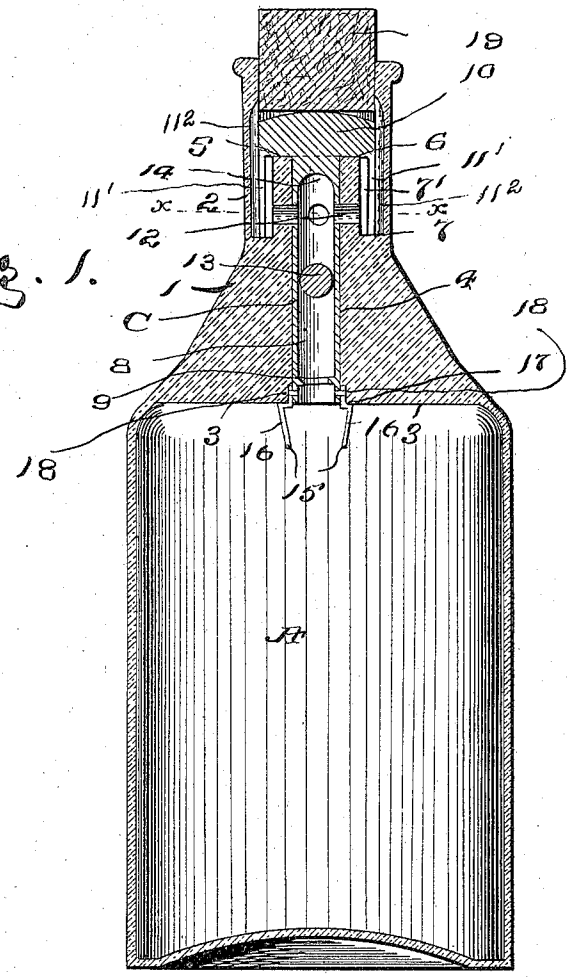
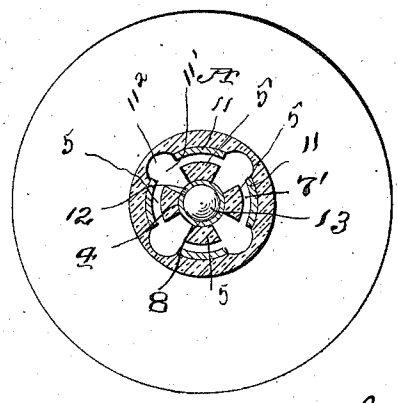


Fig. 2.



Witnesses
C. D. Kesler,
K. A. Hain

Inventor.
David R. Saunders,
by John Wedderburn
Attorney

UNITED STATES PATENT OFFICE.

DAVID R. SAUNDERS, OF HOUSTON, TEXAS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO A. P. ROOT AND W. H. PALMER, OF SAME PLACE.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 576,380, dated February 2, 1897.

Application filed June 29, 1896. Serial No. 597,282. (No model.)

To all whom it may concern:

Be it known that I, DAVID R. SAUNDERS, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Non-Refillable Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to non-refillable bottles.

My object is to provide a non-refillable bottle of simple, cheap, and improved construction, which can be quickly and easily sealed, and while so sealed the contents of the bottle can be removed at any time without difficulty, and yet, owing to its peculiar construction, it will be impossible to refill the bottle without detection.

A further object is to provide an improved non-refillable bottle having a peculiar and novel arrangement of valves and parts and which can be kept sealed for an indefinite period of time, but will be capable of quick unsealing, so that upon tilting the bottle the valve will operate and the fluid contents allowed to flow from the bottle, but owing to the peculiar construction of my improved bottle it will be impossible for the same to be refilled.

Having these objects in view, my invention consists of a non-refillable bottle comprising certain improved and novel features and combinations of parts, appearing more fully in the following description and appended claim and in the accompanying drawings, in which—

Figure 1 is a sectional elevation of my improved bottle as sealed, and Fig. 2 a cross-sectional view of the main neck on the line *x x* of the preceding figure.

A designates the bottle, and B the neck, which is made in two sections 1 and 2. The section 1 is blown integral with the neck and extends down into the bottle somewhat and has a flat lower face 3. This section is provided with a central circular opening 4, which extends therethrough.

The numeral 5 designates upwardly-extending arms, which are separated by the passage 4 and are formed integral with the section. The upper ends of these arms are squared off, and as many arms can be employed as desirable. It is necessary that these arms be provided or else a space left in the neck of the bottle at this point, so that the fluid will have free passage out through the neck after it has gone through my improved auxiliary neck, which will be described hereinafter. The arms are formed integral with section 1, and owing to their thickness an annular shoulder 7 is provided. The upper section of the main neck is blown integral with the lower section thereof, but it is quite thin, as shown, so that an annular space 7′ will be left between it and the arms just described. It will be observed that this upper section extends considerably higher than the upper ends of the arms, so that after the auxiliary neck has been placed in position there will be ample room for a removable cork or stopper, as will appear more fully later on.

My improved auxiliary neck is shown at C. This neck can be constructed of any desired material, glass being preferred, although I sometimes employ metal, which is by preference coated with aluminium.

The numeral 8 designates a cylindrical tube, which is of such size that it will snugly fit within passage 4. This tube is provided near its lower end with an inner annular shoulder 9, which, when the auxiliary neck is constructed of glass, is blown integral with the latter. Should metal be employed in connection with the neck, this flange may be constructed of wire suitably connected to the tube. The upper head of the tube is formed with a solid head 10, which is provided with a depending annular flange or hood 11, having vertical openings 11′, which are in alinement with the outlet-grooves 11″ in the upper section 2 of the neck. It will be observed that the tube is provided with a vent or opening 12, and the hood just described extends down somewhat below this vent. The vent should be located at such a distance from the head that there will be ample room in the tube between it and the head to accommodate a ball-valve, which snugly fits the tube and is designated by the numeral 13. It will be observed that the head is somewhat concave at the end of the tube, as shown at 14, so that

it will constitute a pocket to receive the ball-valve. If desirable, this pocket could be faced or plugged with cork, so that the impact of the valve with it will be suitably cushioned, but it is not necessary. The ball-valve has free play within the tube and the annular shoulder 9 and the concave pocket, and when it has passed the vent or opening 12 the fluid is allowed to make its exit.

The numerals 15 designate a series of springs, which have inclined converging portions 16, shoulders 17, and straight portions 18, which latter are adapted for connection to the extreme end of the tube 8 in any preferred manner. Although in the present instance I have shown two of these springs, yet it is obvious that as many could be employed as found desirable, while on the other hand it is only necessary that one be used.

After the bottle has been filled it is sealed in the following manner: The springs on the end of the auxiliary tube are inserted between arms 5 and 6 and the auxiliary neck pushed down. The springs are readily compressed when inserted in the passage of the main neck, but when the lower face 3 of the latter is reached the springs become freed and they spring outward, so that their shoulders 17 engage with the face 3 and the auxiliary neck is firmly locked in position, so that it cannot be removed. When thus placed, the hood 11 lies in the annular space 7′ and the head rests upon the upper ends of the arms 5.

It is necessary that the auxiliary neck be so manipulated when being placed in position that the opening in the tube will face one of the open spaces between the arms 5; otherwise the fluid could not be allowed to flow out. The height of the upper section of the main neck is such that ample space is left for the insertion of a cork stopper 19, which is preferably placed in position so that the contents of the bottle will not be lost should the latter accidentally become tilted. When it is desirable to obtain the contents of the bottle, this is accomplished by removing cork 19. The bottle is then tilted, and by the effect of gravity and the weight of the fluid the ball-valve rolls down the tube, so that the vent therein is passed and the fluid is allowed to go out through the vent and be poured into the receptacle. Immediately upon restoring the bottle to upright position the ball-valve reseats itself upon the inner annular shoulder of the tube, so that it is impossible for any fluid to be forced into the bottle. The only way that the auxiliary neck can be removed is by breaking the bottle itself, so that ample protection is afforded against the refilling of the bottle.

It is obvious that many slight and immaterial changes of construction might be resorted to without detracting from any of the advantages of my invention; and it is to be understood, therefore, that I do not limit myself to the precise construction herein shown and described, but consider that I am entitled to all such variations as come within the spirit and scope of the invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a non-refillable bottle, the combination with a main neck comprising a lower section having a shoulder at its lower end, and a passage extending therethrough, and arms extending up from said section, and an upper section of the neck separated from the arms by an annular face, of an auxiliary neck comprising a tube having a vent, an inner shoulder and a head provided with an annular hood which protects the vent, a ball-valve rollable in the tube, and locking-springs connected to the lower end of the tube, said tube being adapted for reception in the passage of the main neck and the spring to lock against the shoulder of the latter, and the hood lying in the space between the opening and the upper section of the main neck, and a cork or stopper located on the main neck above the head of the tube.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DAVID R. SAUNDERS.

Witnesses:
B. J. DAVISS,
JAS. M. BURROUGHS.