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PATENTED SEPT. 8, 1908.

P. F. SCHMIDT.
NON-REFILLABLE BOTTLE.
APPLICATION FILED NOV. 27, 1907.

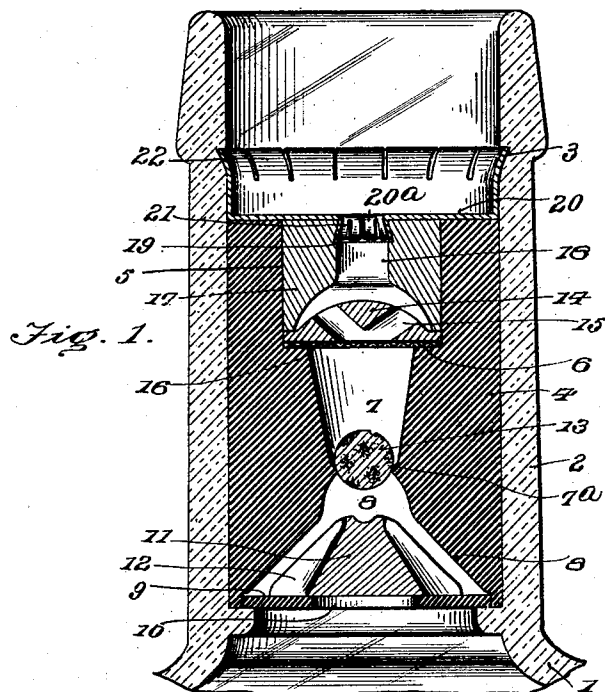


Fig. 2.

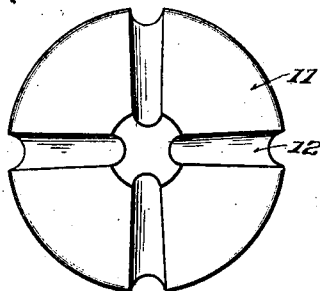


Fig. 3.

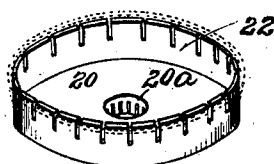


Fig. 4.



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Witnesses

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UNITED STATES PATENT OFFICE.

PAUL F. SCHMIDT, OF JERSEY CITY HEIGHTS, NEW JERSEY.

NON-REFILLABLE BOTTLE.

No. 897,934.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed November 27, 1907. Serial No. 404,079.

To all whom it may concern:

Be it known that I, PAUL F. SCHMIDT, citizen of the United States, residing at Jersey City Heights, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

This invention contemplates certain new and useful improvements in non-refillable bottles and relates particularly to an improved valve structure designed to be secured in a peculiar and novel manner in the neck of a bottle, after the latter has been filled, and arranged to effectually protect the contents of the said bottle.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and then point out the novel features thereof in the appended claims.

For a full understanding of the invention and the merits thereof and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a vertical section of my improved valve structure showing it in position in the neck of the bottle. Fig. 2 is a plan view of the conical-valve. Fig. 3 is a perspective view of the cup-like disk, and Fig. 4 is a side elevation of the baffle.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

My improved valve structure is designed to be applied to a bottle 1 by being operatively positioned in the neck 2 thereof, said neck being preferably formed near the rim with an interior annular groove 3. This improved valve structure embodies a cylindrical casing or body portion 4 which is formed with a central opening 5 extending therethrough. The opening 5 is reduced or stepped near one end to form an outwardly facing annular shoulder 6 and is tapered inwardly therefrom to form an upper valve-chamber as shown at 7 and to constitute a valve seat 7^a, said opening being thence flared to the other end as indicated at 8 to form a lower valve chamber. A plate 9 is secured to the corre-

sponding end of the casing over the lower end of the valve-chamber 8 and is formed with a relatively small central aperture extending therethrough and forming a valve seat 10. A conical valve 11 is mounted in the valve-chamber 8 and normally rests on the plate 9 to close the aperture 10 thereof, the periphery of said valve being normally spaced from the walls of said chamber and formed with a plurality of grooves 12, as shown in Fig. 2. A ball valve 13 which is of less specific gravity than the liquid filling the bottle is mounted in the valve-chamber 7 and is designed to close against its valve seat 7^a.

Extending across the opening 5 and bearing against the shoulder 6 thereof, is a preferably dome-shaped baffle 14, which is formed with a plurality of openings 15 extending obliquely and inwardly therethrough and communicating with the upper end of the valve chamber 7, a wire netting 16 being secured between such openings 15 and the upper valve chamber. A nozzle 17 is secured in the opening 5 with its inner edge bearing against the baffle, said nozzle being formed with an opening 18 which is flared toward its inner end to receive the dome portion of the baffle, the walls of said flared end being spaced from the baffle, as shown. The opening 18 is formed near its outer end with an annular groove 19.

In order to secure my improved valve structure in the neck 2 of the bottle, I have provided a cup-shaped disk 20 which rests on the outer end of the nozzle and the corresponding end of the casing and which is formed with a central opening 20^a in registry with the opening 18 in said nozzle. A nipple 21 which is longitudinally slitted extends inwardly from the opening 20^a into the opening 18 and is designed to be spread out therein and to be received in the groove 19 in order to secure the disk to the valve structure. The slitted rim 22 of the disk is designed to be spread out after the valve structure has been pushed into the neck 2 and to be received in the groove 3 in said neck 2 whereby to hold said valve structure securely in operative position therein.

When the bottle is in an upright or horizontal or any intermediate position it is obvious that the conical valve 11 will remain in its normal position against the valve seat 10 to close the latter and will thus prevent

any liquid from being forced through the neck 2 into the bottle 1, while the latter is in such position.

Upon inverting the bottle, the conical valve 11 falls from its seat 10 so that its periphery bears against the smaller end of the valve chamber 8, and the ball valve 13 falls from its seat, and rests upon the netting 16, which prevents it from closing the openings 15 in the baffle. In such position communication is established between the body 1 of the bottle and the mouth thereof and the liquid in the bottle flows through the valve seat 10, the grooves 12 in the periphery of the valve 11, the valve seat 7^a, the valve chamber 7, the openings 15 of the baffle, the opening 18 of the nozzle and the opening 20^a of the disk 20, and then escapes from the said mouth of the bottle.

If when the bottle is in an inverted position, an attempt is made to force liquid through the neck 2 to refill the bottle, the ball valve 13 which is of less specific gravity than such liquid, is forced upwardly by the latter to close against its valve seat 7^a and prevent the passage of such liquid therethrough, and any attempt to hold said valve off its seat by inserting a wire into the neck of the bottle is thwarted by the baffle 14.

From the above description in connection with the accompanying drawings, it will be seen that I have provided a simple, durable and efficient construction of valve structure, which may be easily and cheaply manufactured and which may be readily secured in the neck of a bottle to positively protect the contents thereof.

Having thus described the invention, what I claim is:

1. A non-refillable bottle, embodying a valve casing formed with an opening extending therethrough, valve mechanism controlling said opening, a baffle secured in the opening and formed with obliquely and inwardly extending apertures communicating with the opening below the baffle, and a nozzle secured in the opening above the baffle, as and for the purpose set forth.

2. A non-refillable bottle, embodying a valve casing formed with an opening extending therethrough, and with upper and lower valve-chambers formed in said opening, valves mounted in the respective valve-chambers, a baffle secured in the opening above the upper valve chamber and formed with obliquely and inwardly extending openings communicating with said valve chamber, and a nozzle secured in the opening above the baffle as and for the purpose set forth.

3. A non-refillable bottle embodying a valve casing formed with an opening extending therethrough and with upper and lower valve chambers formed in said opening, valves mounted in the respective valve

chambers, a dome-shaped baffle secured in the opening above the upper valve chamber and formed with openings extending inwardly and obliquely therethrough and communicating with the said valve chamber, and a nozzle having an opening extending therethrough, said opening being flared toward its lower end, said baffle being received in said flared end of the opening and being spaced therefrom as and for the purpose set forth.

4. A non-refillable bottle having a neck and embodying a valve casing in said neck and formed with an opening extending therethrough, valve mechanism controlling said opening, a nozzle secured in the opening above the valve mechanism and formed with an opening extending therethrough and in said opening with an annular groove, and a disk mounted upon the upper end of the casing and secured in the neck, said disk being formed with an aperture in registry with the opening in the nozzle and with a nipple extending downwardly into the opening in the nozzle and in the groove thereof, as and for the purpose set forth.

5. A non-refillable bottle having a neck formed with an annular groove and embodying a valve casing having an opening extending therethrough, valve mechanism controlling said opening, a nozzle secured in the opening above the valve mechanism and formed with an opening extending therethrough, said opening being formed with an annular groove, and a cup-like disk mounted upon the upper end of the casing and formed with an opening in registry with the opening in the nozzle and with a slitted nipple extending downwardly into the said opening of the nozzle and designed to be spread out into the groove thereof, the rim of said disk being slitted and being designed to be spread out into the groove in the neck of the bottle as and for the purpose set forth.

6. A non-refillable bottle having a neck and embodying a valve casing in said neck and formed with an opening extending therethrough and in said opening with an upwardly facing shoulder, valve mechanism controlling said opening, a netting extending across the opening against the shoulder thereof, a baffle fitting in the opening and resting on the netting, a nozzle mounted in the opening and resting on the baffle, and a disk secured to the nozzle and extending over the latter and the corresponding end of the casing, said disk being secured in the neck, as and for the purpose set forth.

7. A non-refillable bottle, embodying a valve casing formed with an opening extending therethrough, said opening being tapered inwardly from one end to form a valve-seat and an upper valve-chamber, and being thence flared to its other end to form a lower valve-chamber, a plate secured to the valve

casing over the lower end of the last-named
valve-chamber, said plate being formed with
an opening forming a valve seat, a ball valve
mounted in the upper valve-chamber and
5 adapted to close the upper valve-seat and a
conical valve mounted in the lower valve-
chamber and adapted to close the opening in
the plate, said conical valve having its pe-

riphery grooved as and for the purpose set
forth. 10

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

PAUL F. SCHMIDT. [L. s.]

Witnesses:

FRED LANDAHL,
WILHELM MESON.