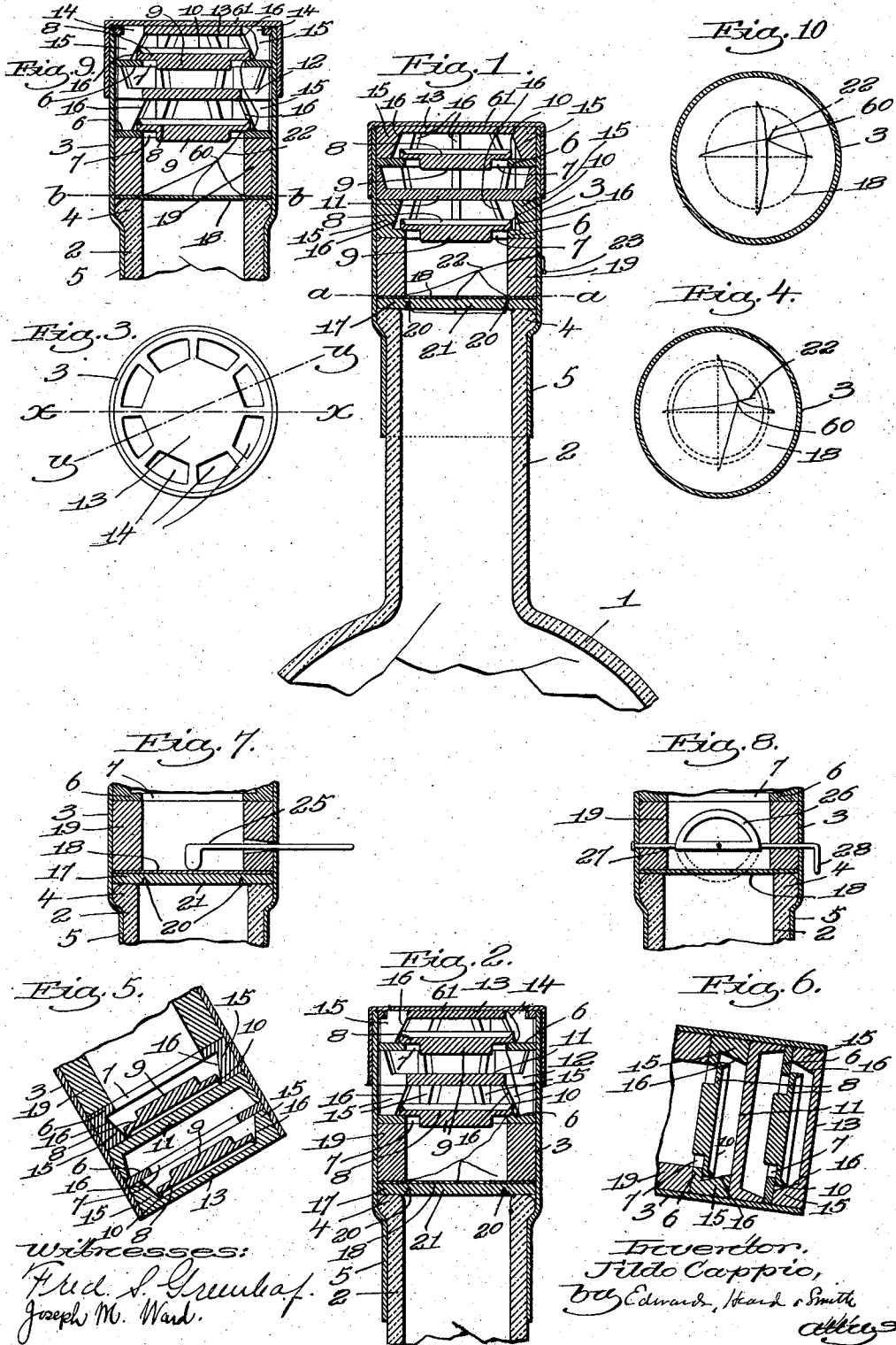


J. CAPPIO.
NON-REFILLABLE BOTTLE.
APPLICATION FILED MAR. 11, 1911.

1,027,319.

Patented May 21, 1912.



UNITED STATES PATENT OFFICE.

JILDO CAPPIO, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF FORTY-NINE ONE-HUNDREDTHS TO JOSEPH P. SPANG, OF BOSTON, MASSACHUSETTS.

NON-REFILLABLE BOTTLE.

1,027,319.

Specification of Letters Patent.

Patented May 21, 1912.

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To all whom it may concern:

Be it known that I, JILDO CAPPIO, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Non-Refillable Bottles, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawing representing like parts.

This invention relates to non-refillable bottles and has for its objects to provide a bottle of this class in which the valve that prevents re-filling thereof is confined in a casing that is applied to the exterior of the bottle neck, to provide a novel construction of valve which can be easily manufactured and which will remain closed even when the bottle is tipped on its side and until the bottle is tipped up pretty well into an inverted position, and also to provide a novel construction whereby an outer seal is provided which prevents the liquor from coming in contact with the valve until the bottle is to be emptied and to otherwise improve non-refillable bottles of this type, all as will be more fully hereinafter described and then pointed out in the appended claims.

Referring to the drawings wherein I have illustrated some selected embodiments of my invention which is sufficient to show the principle thereof, Figure 1 is a vertical section through a bottle neck having my invention applied thereto, said section being substantially on the line $x-x$, Fig. 3; Fig. 2 is a similar section on substantially the line $y-y$, Fig. 3; Fig. 3 is a top plan view of the valve device; Fig. 4 is a section on the line $a-a$, Fig. 1; Figs. 5 and 6 are sectional views through the valve device showing it in different positions; Figs. 7 and 8 are modified forms of the seal and the means for breaking it; Fig. 9 is a section similar to Fig. 2 showing a slightly different construction; Fig. 10 is a section on the line $b-b$, Fig. 9.

1 designates a bottle having the usual neck 2. My improved valve device which prevents refilling of the bottle is contained within a casing which is exterior to the bottle neck and is adapted to be applied thereto in some suitable way. Said valve device is, therefore, to be distinguished from those devices in which the valve device is inserted into the bottle neck.

In the present embodiment of my inven-

tion the casing containing the valve device is shown at 3 and it may be secured to the bottle neck in any appropriate way. Where the bottle neck has the bead 4 at its upper edge the casing 3 may be provided with the skirt portion 5 which encircles the neck below the bead and which is of a size to fit over the bead and thus hold the casing firmly in place.

Situated within the casing 3 are a plurality of valve seat members 6, there being two such members in this embodiment of my invention. Each valve seat member has a central opening 7 therein which is adapted to be closed by a valve 8. These valves are not attached to any part of the device, but are loosely arranged and free to move within the valve chambers. These valves are in the form of disks and each is provided with the extension or weighted portion 9 on its under side which enters the opening 7 and which brings the center of gravity of the valve disk in a plane below that of the valve seat. Each valve is also preferably provided with the peripheral flange 10 extending from its upper side. Interposed between the valve seat members 6 is a partition 11 which is provided with apertures 12 near its periphery and the center portion of which is solid. The end of the casing 3 is also provided with a plate or disk 13 which is formed with apertures 14 near its periphery. The apertures 12 and 14 are out of line with the apertures 7, which construction makes it impossible for anyone to hold the valves open by inserting a wire or other device.

The casing 3 has formed on its interior immediately above each valve seat, a plurality of radially-extending wings 15, each provided with an inclined face 16 which inclines outwardly and downwardly toward the valve seat member. The purpose of these inclined faces 16 is to assist in holding the valve to its seat even when the bottle is tipped up on its side. When the bottle is tipped up into the position shown in Fig. 5, the valves will, of course, become unseated, thus permitting the contents of the bottle to be poured out. When, however, the bottle is tipped into a position which approaches the horizontal position, as shown in Fig. 6, the valves will rest against the inclined faces 16 on the lower side and because of the fact that these faces are inclined

outwardly and downwardly as shown, and because of the further fact that the valve will be supported by the tip of the flange 10 which is on the upper side thereof, and because of the still further fact that the valve is provided with the weight 9, the valve will automatically seat itself even before the bottle is turned into the horizontal position. This operation is due, as stated above, partly to the inclined faces 16 and partly to the fact that the center of gravity of each valve is at a point below the plane of the portion which rests on the valve seat. This weighted portion 9 of the valve prevents the valve from tipping forwardly away from the upper edge of the valve seat when it is in the position shown in Fig. 6, and the inclined faces 16 cause the valve to slide downwardly against the seat.

The flange 10 on each valve also acts as a further means to prevent refilling of the bottle because the top of each valve is dish-shaped and tends to catch any liquid which any one tries to pour into the bottle and the weight of such liquid acts as a still further means for holding the valve seated.

My invention also comprises a seal which is interposed between the bottle neck and the valve device and which normally seals up the bottle neck so as to prevent the liquor in the bottle from contacting with the valve when the latter is placed on its side. This seal device may be of cork, paper or any other material which prevents the passage of liquid therethrough.

In Fig. 1 I have shown a seal which is in the form of a disk 17 of cork and a sheet 18 of wax paper or other water-proof sheet material. This seal is shown as placed directly on the neck of the bottle 4 within the casing 3 and is held in place by a spacing ring 19 of cork or any suitable material that is confined within the casing beneath the lower valve seat member 6. This sealing device makes a tight joint and completely seals the neck of the bottle so as to prevent the entrance of liquid to the valve mechanism. I have provided means whereby this seal may be broken whenever the contents of the bottle are to be discharged. In Fig. 1 the cork portion of the seal is provided with a groove 20 on its under side which forms an annular line of weakness along which the seal may be broken and the central portion 21 of the cork has attached thereto a cord or wire 22 which extends out through the side of the casing 3 and is provided with a thumb-hold 23 by which it may be grasped. After the bottle is filled in the first instance the seal and the valve device are applied thereto and the bottle is then ready to be shipped or stored away until it is required for use. During shipment or storage it can be laid on its side and yet the liquor will not have access to any parts of

the valve device or any metal parts whatever. This is an advantage because it is preferable to store many kinds of liquors with the bottle on the side.

When the bottle is to be used the thumb-piece 23 is grasped and drawn outwardly, thus breaking the seal, after which the contents of the bottle can be decanted in any usual way.

In Fig. 7 I have shown another embodiment of my invention wherein the seal is broken by means of an implement 25 which extends through the side of the casing and which can be forced against the center portion of the seal to break it down.

In Fig. 8 I have shown a seal composed of a sheet 18 of wax paper or some similar material only and the means of breaking the seal comprises a bow-shaped member 26 mounted on a shaft 27 which extends through the casing and is provided with a handle 28. By turning the shaft 27 to bring the bow-shaped member 26 into the dotted line position Fig. 8, the seal may be broken so as to permit the liquor to be decanted.

In Figs. 9 and 10 I have shown another embodiment of my invention wherein the valve is sealed simply by a disk 18 of wax paper or similar material. This seal has attached thereto a cord 22 which is branched at 60 and the different strands or branches of which pass down through the disk 18 and are connected together underneath the disks, thus forming loops. The points where the branches pass through the disk 18 are between the bead 4 of the bottle neck and the spacing ring 19 so that there will be no leakage at these points when the bottle is on its side. In this embodiment the string 22 passes up through the valves and may be attached to a cap 61 which is arranged to be applied to the bottle so that when the cap is removed the string will be drawn on. When the string is drawn on the loop portion will cut the disk 18 on a radial line and thus destroy the seal. The cord 22 in Figs. 1 and 4 may be connected to the seal in the same manner if desired.

The valve seat members 6 may be made integral with the casing 3 or separate therefrom as desired, and the wings 15 may be made integral with the valve seat members or with the guard 11 as found most convenient in the process of manufacture.

While I have illustrated some embodiments of my invention I do not wish to be limited to the precise construction shown.

As stated above, the casing 3 may be applied to the bottle neck in a variety of ways without departing from the invention. The drawings show the casing as having a skirt portion 5 extending below the bead 4 of the bottle neck, which skirt portion is crimped about the bottle neck after the device is applied by some suitable tool or implement.

It would be within my invention to secure the casing to the bead 4 of the bottle neck in the same way that the well-known crown seal fastening device is secured to a bottle neck.

My improved valve device and casing 3 constitute a closure for the bottle which takes the place of the ordinary cork or crown seal, or other closure, and which also is in the nature of a cap to be applied to the bottle neck. When my device is applied to a bottle the sealing device, whether in the form of a cork disk 17 or a paper disk 18, or whatever nature, makes a tight fit against the end of the bottle neck and thus seals the bottle as perfectly as would be done by means of an ordinary cork. It is an advantage to have all the valve mechanism entirely exterior to the bottle and my improved device has the further advantage that it can be applied to any ordinary bottle.

When my improvement is applied to a bottle having a neck of the ordinary length, said device adds somewhat to the total length of the bottle neck. If this is an inconvenience, it is a simple matter to make a special form of bottle with a short neck in connection with my valve device, in which case the total length of the bottle neck and valve device would be about the same as that of the ordinary bottle neck. A short-necked bottle, such as above described, would have the advantage that if the casing 3 should be cut off from the bottle neck the short neck would give the bottle such a shape as to readily call attention to the fact that it was not an ordinary bottle.

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

1. In a non-refillable bottle, the combination with a shell or casing adapted to be applied to the exterior of a bottle neck, of a plurality of valve seat members therein, a loosely arranged disk valve for each valve seat member, each valve being provided with a peripheral flange on its upper side and a weighted projection on its lower side, and the sides of the casing above each valve seat member having inclined bearing surfaces which taper downwardly and outwardly and against which the flanges of the

valve rest when the bottle is tipped on its side.

2. In a non-refillable bottle, the combination with a shell or casing adapted to be applied to the exterior of a bottle neck, of a plurality of valve seat members therein, a loosely arranged disk valve for each valve seat member, each valve being provided with a peripheral flange on its upper side and the sides of the casing above each valve seat member having inclined bearing surfaces which taper downwardly and outwardly and against which the flanges of the valve rest when the bottle is tipped on its side, each valve being weighted so as to bring the center of gravity thereof below the plane of the valve seat.

3. The combination with a bottle neck having a bead at its end, of a valve-containing casing exterior to the bottle neck and having means to engage said bead for securing said casing to the bottle neck, a frangible sealing device within the casing fitting tightly against the bottle neck, and a valve device within the casing above said sealing device.

4. In a non-refillable bottle, the combination with a bottle neck having a bead at its end, of a shell or casing provided with means to engage said bead for securing said casing to the bottle neck, of a plurality of valve seat members arranged within said casing, a partition provided with apertures near its periphery arranged in said casing between the valve seat members, a loosely arranged disk valve for each valve seat member, each valve being provided with a peripheral flange on its upper side and a weighted projection on its lower side, the sides of the casing above each valve seat member having inclined bearing surfaces which taper downwardly and outwardly and against which the flanges of the valves rest when the bottle is tipped on its side, substantially as and for the purpose set forth.

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

JILDO CAPPIO.

Witnesses:

LOUIS C. SMITH,
THOMAS J. DRUMMOND.