

No. 768,794.

PATENTED AUG. 30, 1904.

F. FRANZ.
NON-REFILLABLE BOTTLE.
APPLICATION FILED DEC. 1, 1903.

NO MODEL.

Fig. 1.

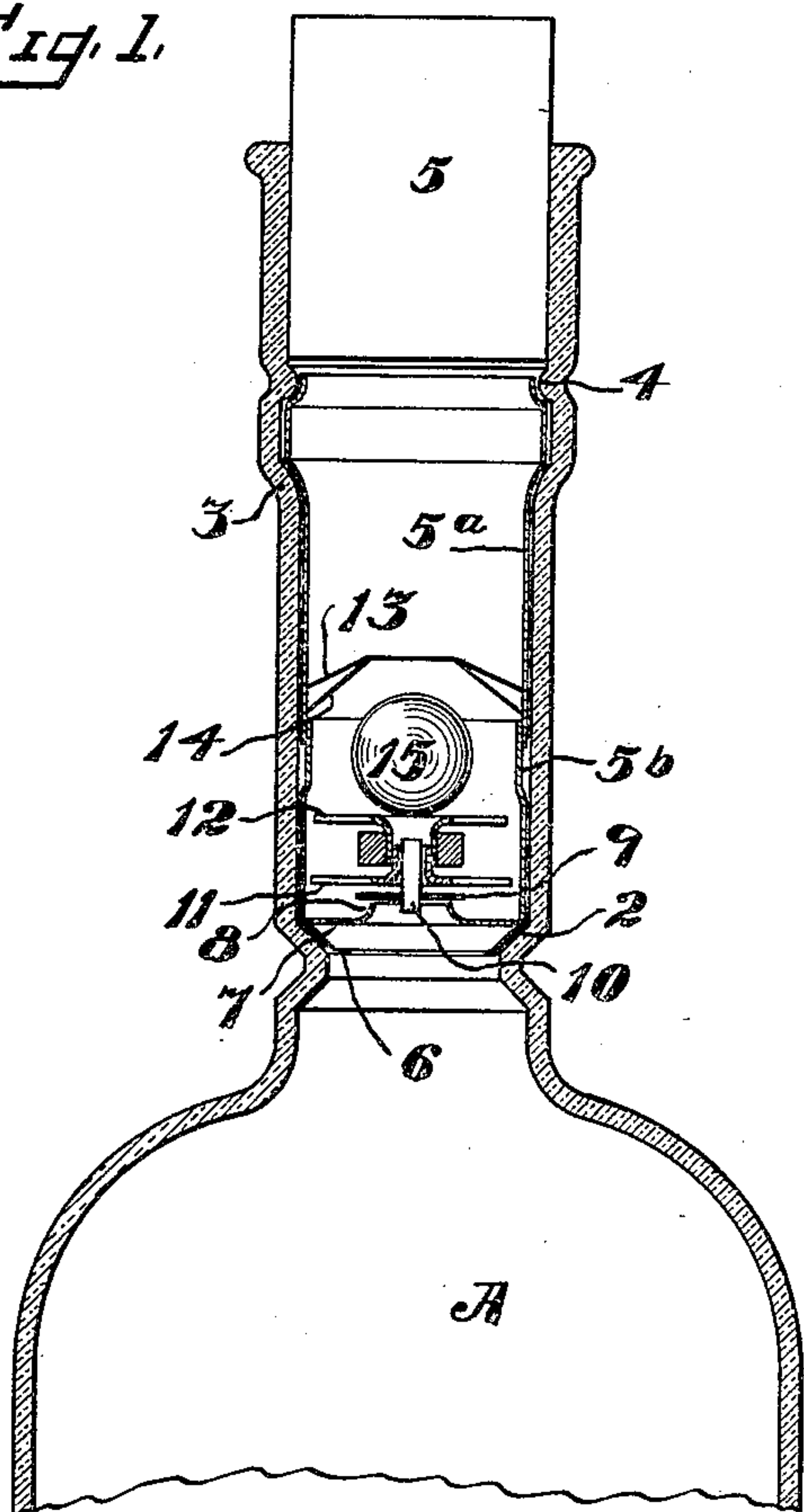


Fig. 2.

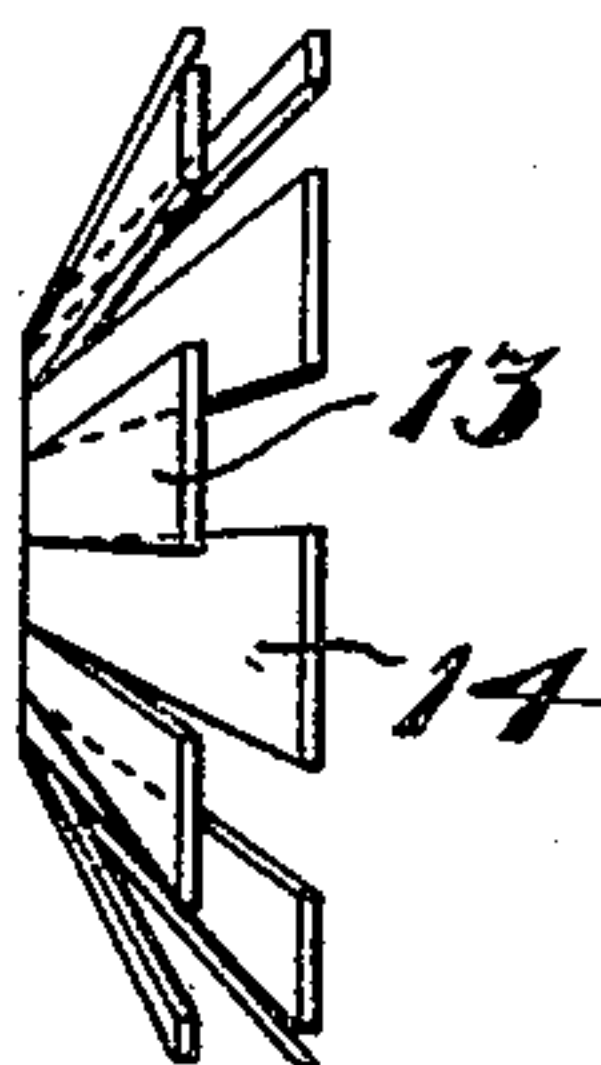


Fig. 3.

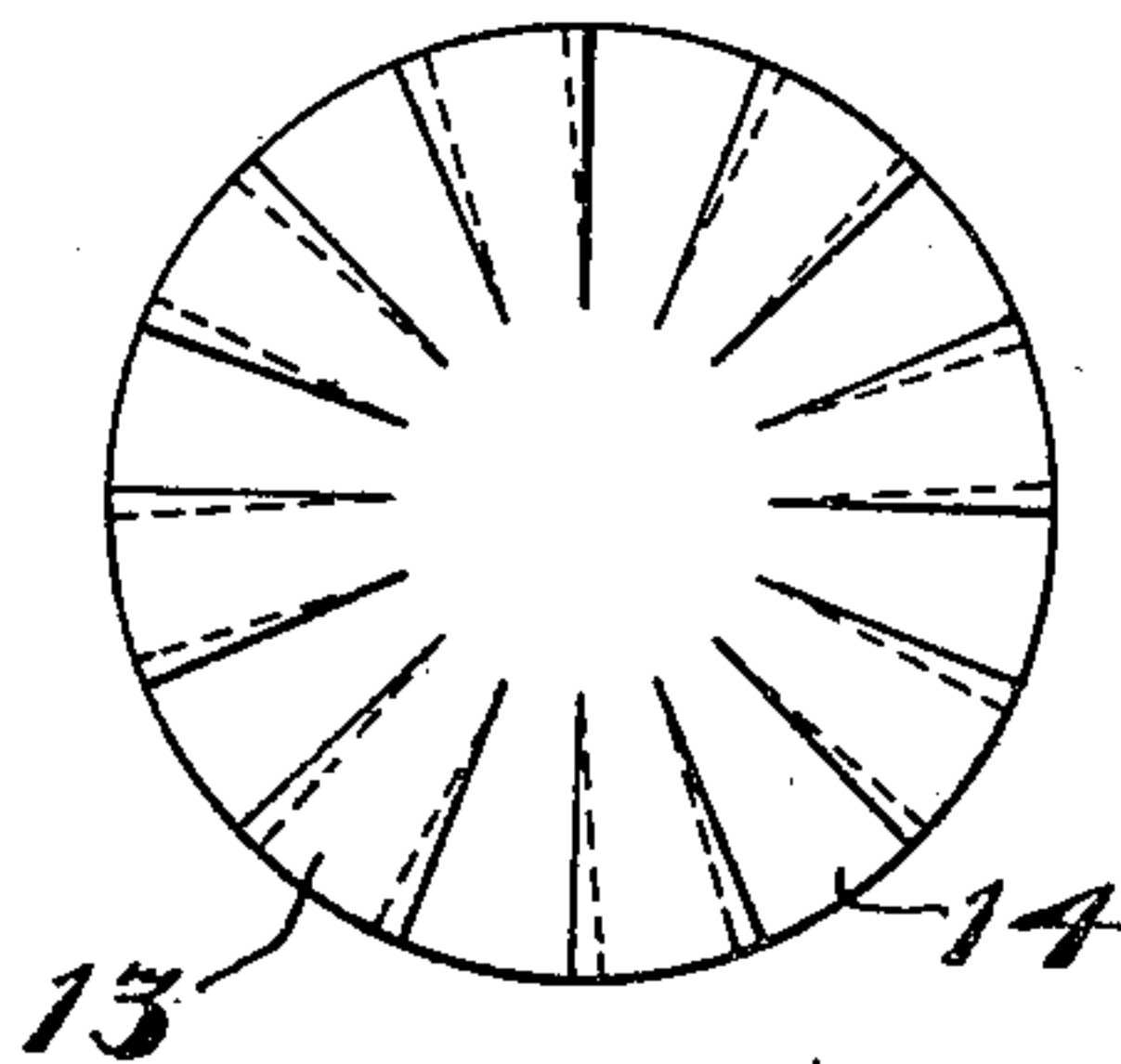
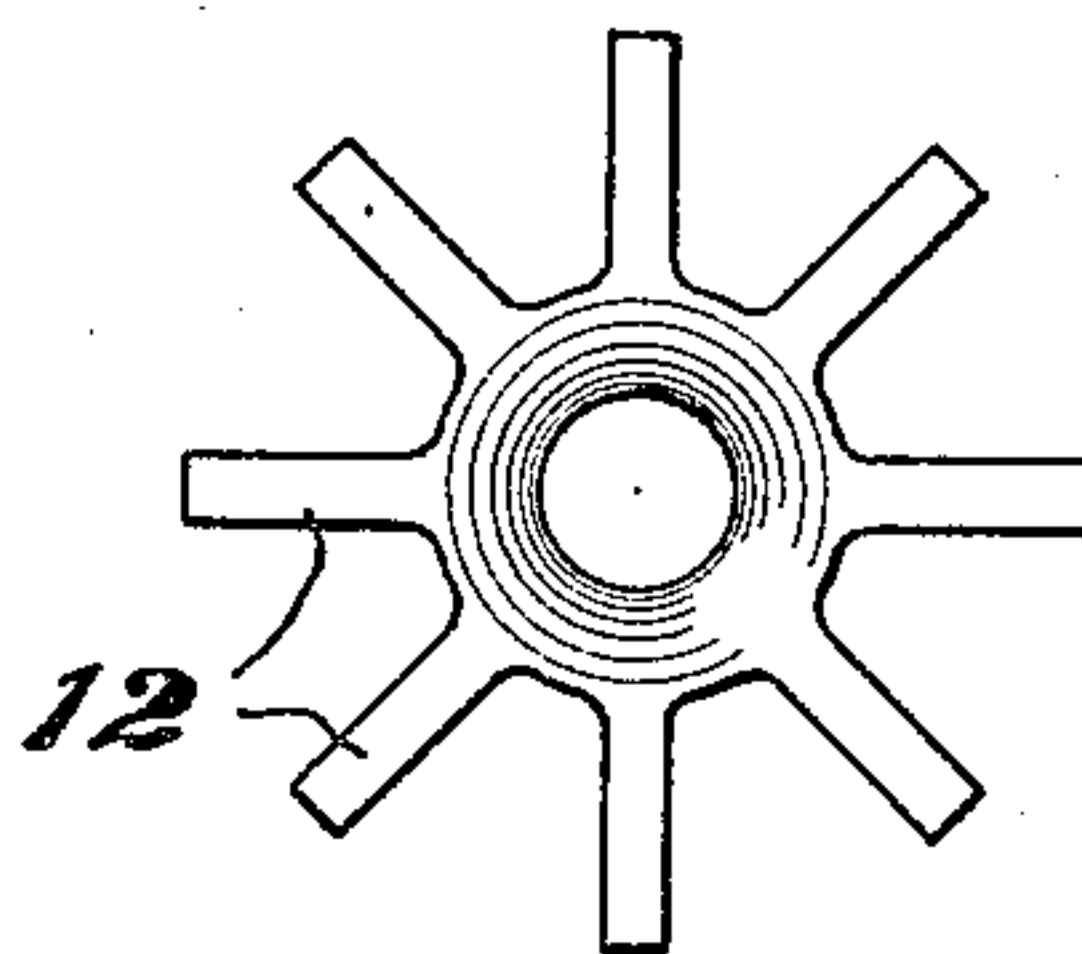


Fig. 4.



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UNITED STATES PATENT OFFICE.

FERDINAND FRANZ, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO NON REFILLABLE BOTTLE COMPANY, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 768,794, dated August 30, 1904.

Application filed December 1, 1903. Serial No. 183,325. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND FRANZ, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to improvements in bottles and in attachments therefor by which the contents of the bottle are prevented from being replaced after the bottle has once been emptied.

It consists of a peculiarly-shaped casing and a bottle-neck so formed that the casing may be permanently locked therein. Said casing has a bottom provided with a central hole with an annular upturned flange, and in the upper part of the casing is a conical dome composed of narrow alternately-disposed strips formed by slitting the dome radially, said strips being alternately raised and depressed, so as to leave tortuous and tapering passages between the strips for the escape of the contents of the bottle when the latter is inverted.

A valve is adapted to close upon the upturned rim of the disk opening at the bottom, and this valve is attached to a stem having radial-armed guides separated at such an interval vertically that they move freely within the casing. The uppermost of these guides has a central depression, and a ball lying within the dome normally rests upon this upper guide, thus maintaining the valve in a closed position. The angle of the dome is of such a degree that the ball cannot lift from its contact with the valve until the bottle has been inclined to an angle in which the mouth is much lower than the horizontal line.

My invention also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a sectional view of a bottle of my construction, showing means for fixing the attachment therein. Fig. 2 is an edge view of radial cone. Fig. 3 is a plan view of same. Fig. 4 is a plan of guide-arms.

As shown in the accompanying drawings, A represents the body of a bottle having the neck formed with an indented annular crease forming shoulders, as at 2. From this point the neck extends substantially cylindrically upward to a point where the neck is slightly diverged, forming other shoulders, as at 3. Above this is another annular depression forming interior shoulders, as at 4, which serve as a seat against which the cork or stopper 5 of the bottle may rest. The shoulders 2 and 3 serve for the support and interlocking of the casing containing the operative parts of my device. This casing as at present shown consists of two cylinders 5^a and 5^b, made of thin metal and adapted to telescope together for convenience in construction; but the device may also be formed in a single cylindrical structure if found desirable. The bottom of this casing is converged, as shown at 6, and this convergent portion rests upon the shoulders 2, while the upper portion may be expanded and made to engage with the shoulders formed by the upper depression, as shown at 3, thus locking the device permanently in the bottle after it has been completed and introduced. In the lower part of this casing is a disk-shaped bottom 7, having a central opening and an upturned inner edge or flange around this opening, as at 8.

9 is a valve fixed upon the stem 10. Upon this stem are fixed the radial-armed guides 11 and 12. The ends of these radial arms approach the interior of the cylindrical casing, and the two guides are sufficiently separated so as to maintain the valve substantially parallel with the seat edges 8, upon which it is closable, but allowing it freedom of movement to and from said seat.

Above the seat and at a sufficient distance therefrom is a truncated cone, which may be formed of any suitable material which is non-corrosive. This cone is composed of alternate radial leaves 13 and 14. The leaves 13 are in one conical circular plane, and the leaves 14 are in a plane diverging downwardly from the center of the cone, so that the outer ends of the leaves 14 stand below the outer ends of

the leaves 13, thus forming divergent channels between the two sets of leaves, said channels being widest at the outer ends, as shown. This forms a sufficient space for the liquid to flow out of the bottle when the latter is inverted, and the weight of the liquid forces the valve 9 away from its seat 8, the liquid then flowing through the opening in the seat around the edge of the valve through the radial-armed guides 11 and 12 and finally out through the radial slots formed by the leaves of the double cone. This allows the bottle to be freely emptied, as air can pass in through the upper part of the neck when the bottle is sufficiently tilted and the liquid can flow out through the lower part.

In order to prevent any refilling of such a bottle after it has been emptied, I have shown a ball 15 of considerable weight located within the conical cage previously described, and the cage is sufficiently near to the upper guide 12 so that when lying upon the side or in any position except with the neck at a sharp incline downwardly the angle of this conical cage will be sufficient to keep the ball pressed against the guide 12, and the valve, which is movable in unison with the guides, will be kept closed upon its seat.

The angle to which the neck of the bottle must be inclined downwardly before the ball will move into the center of the cone is so great that no liquid can be passed into the bottle after the ball has released the valve, and as soon as the angle of inclination of the bottle-neck is reduced the ball will immediately roll down the inclined top of the cone and contact with the guide, thus closing the valve. When the bottle is in an upright vertical position, the ball will constantly rest in a depression formed in the center of the guide 12 and will maintain the valve in its closed position.

By the construction here shown it will be seen that any attempt to introduce an instrument for the purpose of opening the valve will be defeated by the peculiar construction of the cone and the relative position of the other parts, and the angle of the cone is such that the ball will constantly press upon the valve and its connections as long as the bottle is in such position that air can escape and allow liquid to enter.

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

1. The combination in a bottle of a neck having shoulders formed at the bottom, and at a point intermediate between the bottom and the top of said neck, a casing adapted to fit the cylindrical portion of the neck intermediate between the shoulders and having its ends respectively converged and expanded to interlock with said shoulders, an inwardly-closing valve and means for maintaining it in a

closed position, said valve and means being contained within the casing.

2. The combination in a bottle and a neck having a cylindrical portion and shoulders formed at each end thereof, a casing adapted to fit said neck and its ends to engage with the shoulders whereby it is permanently locked in position, a valve-seat in the lower part of the casing, a valve adapted to close upon said seat and having an upwardly-projecting stem, radial-armed separated guides projecting in a plane transverse to said stem and separated from each other so as to maintain the valve in a plane to close upon the seat.

3. The combination in a bottle of a neck having shoulders, a cylindrical casing adapted to interlock with said shoulders, a bottom to said casing having a central opening with an upturned flange forming a valve-seat, a disk valve fitting said seat having a central upwardly-projecting stem, guides fixed to said stem having the outer ends movable in proximity with the interior of the casing whereby the valve is maintained in proper relation with the seat, a truncated slitted cone located above the uppermost guide and a ball freely movable within said cone, and adapted to rest upon the upper guide and by its weight to maintain the valve in a normally closed position.

4. The combination in a bottle of a neck having interior shoulders, a casing adapted to be permanently locked against said shoulders, said casing having a bottom with a central opening and upturned flanges around the opening to form a valve-seat, a disk valve closable on said seat having a central stem, guides fixed to said stem separated from each other in the line of the stem, having their outer ends approaching to and guided by the interior of the casing, the uppermost of said guides having a central depression, a ball adapted normally to rest in said depression when the bottle is in upright position and a truncated slitted cone located above the ball, the angle of said cone being such that the ball will continue to press against the guide and maintain the valve closed until the neck of the bottle is inclined downwardly below the horizontal line.

5. The combination in a bottle of a neck having shoulders, a horizontal casing adapted to interlock with said shoulders and be permanently fixed within the neck, said casing having a bottom with a central opening and an upturned flange around said opening forming a valve-seat, a disk valve closable upon said seat, said valve having a central stem, guides fixed to said stem separated from each other having their outer ends contiguous to and guided by the interior of the casing, a ball adapted to rest upon the uppermost of the guides and to maintain the valve nor-

5 mally closed, a truncated cone located above the ball, said cone being formed of radially-disposed and separated arms, whereby openings for the ingress of air and escape of the liquid are provided, and a stop to prevent the introduction of an implement.

10 6. The combination in a bottle of a neck having shoulders, a cylindrical casing engaging with and locked by said shoulders, said casing having a truncated cone fixed within it, said cone being formed of radial arms extending outwardly from the center and in different planes whereby divergent slots are formed through the cone, a valve-seat at the
15 bottom of the casing having a central opening with an upturned peripheral flange forming a valve-seat, a disk valve closable upon

said seat and having a central stem, radial guides separated from each other and fixed to said stem, the outer ends of said radii being guided by the interior of the casing, and the uppermost guide having a central depression, a ball located within the cone and adapted to rest within the depression of the uppermost guide, said ball acting to close the valve and to maintain it closed until the bottle has been inverted. 20 25

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FERDINAND FRANZ.

Witnesses:

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JESSIE C. BRODIE.