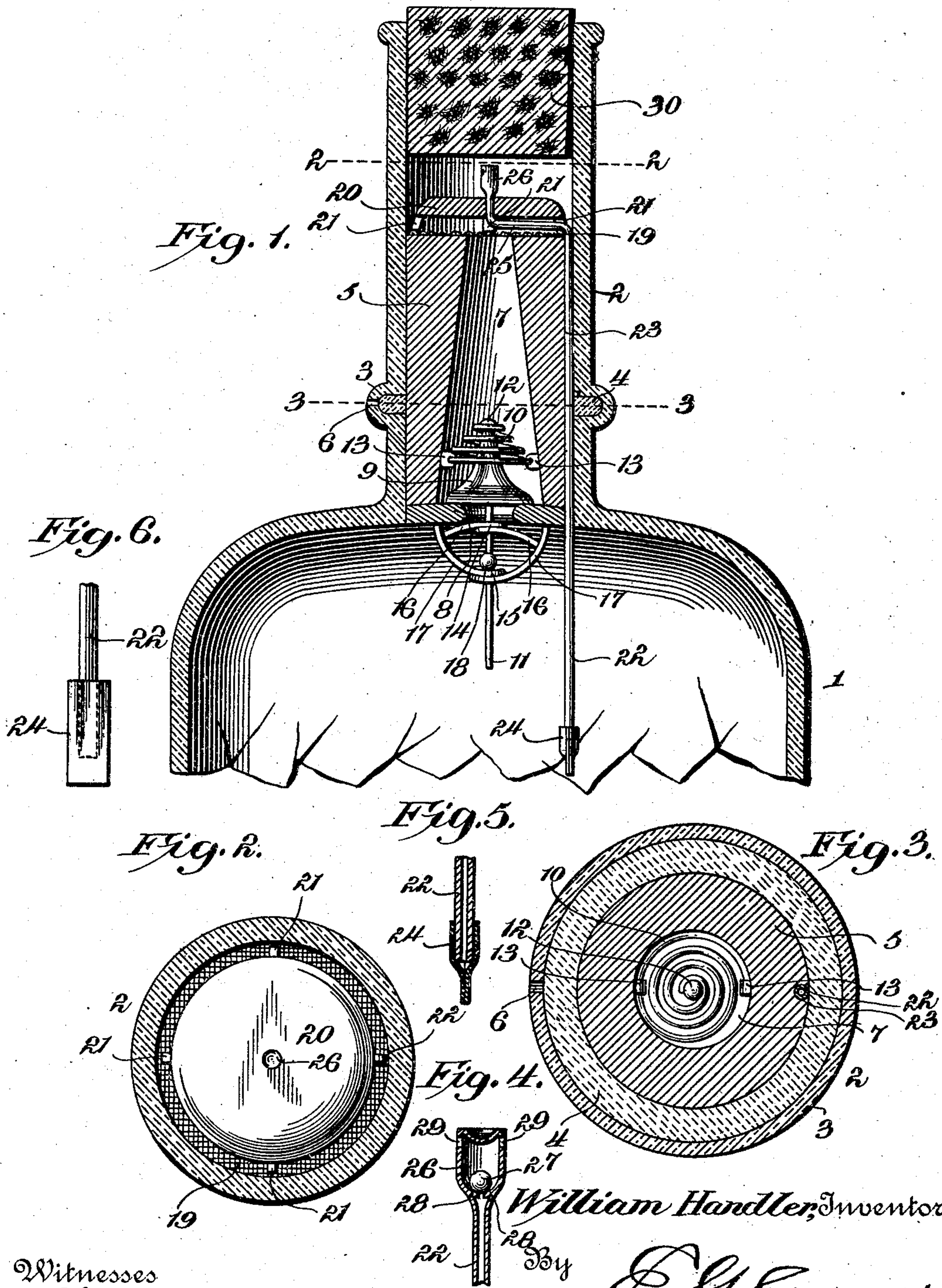


No. 782,653.

PATENTED FEB. 14, 1905.

W. HANDLER.
NON-REFILLABLE BOTTLE.
APPLICATION FILED JULY 16, 1904.



Witnesses
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NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 782,653, dated February 14, 1905.

Application filed July 16, 1904. Serial No. 216,865.

To all whom it may concern:

Be it known that I, WILLIAM HANDLER, a citizen of the United States, residing at Jerseyville, in the county of Jersey and State of Illinois, have invented a new and useful Non-Refillable Bottle, of which the following is a specification.

The invention relates to improvements in non-refillable bottles.

The object of the present invention is to improve the construction of non-refillable bottles and to provide a simple and comparatively inexpensive one adapted after it has received its original contents to effectually prevent a liquid from being introduced into it, whereby fraudulent adulterations and refillings are positively prevented.

A further object of the invention is to provide a non-refillable bottle of this character adapted when the bottle is inverted below a horizontal position to permit its contents to be freely decanted.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a vertical sectional view of a non-refillable bottle constructed in accordance with this invention. Fig. 2 is a horizontal sectional view on the line 2 2 of Fig. 1. Fig. 3 is a similar view on the line 3 3 of Fig. 1. Fig. 4 is an enlarged detail sectional view of the upper end of the vent-tube. Fig. 5 is a similar view of the lower end of the vent-tube. Fig. 6 is an enlarged side elevation of the flexible outlet or valve of the vent-tube.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a bottle provided at a point between the ends of its neck 2 with an interiorly-arranged horizontally-disposed annular

groove 3, adapted to receive a filling 4, of cement or other plastic or analogous material, for securing a cylindrical lower stopper 5 within the neck 2. Although in the accompanying drawings the device is shown applied to a bottle, yet it will be readily understood that the improvements are applicable to all kinds of receptacles having necks. The groove is preferably formed by curving the neck outward, as shown; but it may be constructed in any other desired manner, and the bottle is provided at one side with a filling-aperture 6 for enabling the cement or other material to be introduced into the groove. The lower stopper, which constitutes a valve-casing, as hereinafter explained, may be constructed of any suitable material, and it may be provided adjacent to the annular groove of the neck with any character of surface for enabling the cement to adhere firmly to it. The lower stopper or valve-casing is provided with an upwardly-tapered longitudinal opening or passage 7, and it has a valve-seat 8 at its lower end. The valve-seat consists of a disk or plate cemented or otherwise secured to the lower end of the lower stopper or casing to receive a conical valve 9, which normally covers the opening or passage at the valve-seat to prevent a liquid from being introduced into the receptacle. The conical valve may be constructed of any suitable material, and it is retained on the valve-seat when the receptacle is in an upright position by means of gravity and also by the aid of a coiled spring 10, which is conical to conform to the configuration of the valve. The top or apex of the spring is secured to the valve by means of a stem or rod 11, extending through the valve and provided at its upper end with a head 12 for engaging the spring. The base of the spring engages opposite recesses or notches 13, formed in projecting lugs of the walls of the passage 7; but a continuous recess or groove may be provided, if desired. The base of the spring may be readily sprung into the opposite recesses or notches, and the parts are assembled before the valve-seat is applied to the lower end of the casing. The stem depends below the casing and extends through upper and lower eyes 14 and 15 of the guide consisting of upper and lower oppo-

sitely-curved wires 16 and 17, which are coiled between their ends to form the said eyes. The terminals of the upper wire are secured to the lower wire at opposite sides thereof, and the ends of the lower wire are extended to form attaching-arms and are connected with the valve-seat. The valve-stem is provided with a weight or enlargement 18, which is arranged between the eyes of the guide to limit the movement of the valve and which assists the valve in overcoming the spring when the receptacle is inverted for decanting its contents. The weight, which may be constructed of any suitable material, is applied to the valve-stem after the valve and valve-seat have been applied to the valve-casing. The upper ends of the passage 7 of the valve-casing is covered with a disk or sheet 19 of wire-gauze cemented or otherwise secured to the valve-casing and adapted to prevent insects and accumulation from entering the receptacle. The device is also provided with a guard 20, consisting of a disk provided with depending lugs 21 and forming feet and suitably secured to the valve-casing. The guard is spaced from the upper end of the valve-casing and from the walls of the neck, and the liquid is adapted to pass around the periphery of the guard. The guard prevents a tool or instrument from being introduced into the bottle for interfering with the operation of the valve.

In order to enable the liquid to flow freely from the receptacle, a vent-tube 22, of hard rubber, glass, or any other suitable material, is provided, and it is arranged in a groove 23 in one side of the valve-casing, and it extends downward therefrom into the receptacle. It is provided at its lower end with a flexible outlet or valve 24, which is adapted to prevent any of the liquid from entering the vent-tube. This flexible outlet or valve consists of two longitudinal strips of rubber or other suitable material secured to and extending from the lower end of the vent-tube. The strips are cemented or otherwise secured to their side edges, and their lower portions normally lie flat against each other. They are readily separated by the air passing through the vent-tube, and they are capable of effectually preventing liquid from entering the tube. The vent-tube is provided at its top with an approximately L-shaped portion 25, consisting of horizontal and vertical arms, the horizontal arm extending beneath the guard and the vertical arm being passed through an opening thereof. The tube is arranged in the opening of the guard before securing the latter to the valve-casing and before applying the flexible outlet or valve to the lower end of the tube. The vertical arm of the L-shaped portion of the tube is enlarged at the end 26 to receive a ball-valve 27, and it is provided with a seat 28. The enlarged portion is provided with a depressed or inwardly-extending top, and it has openings 29

at opposite sides of the same for the entrance of air. The depressed or inwardly-extending top is adapted to prevent the ball from covering the openings, and the particular construction of the upper end of the tube prevents a wire or other instrument from being introduced into the same for holding the ball away from the valve-seat 28. The ball covers the port or passage at the valve-seat when the bottle is in an upright position, and it rolls therefrom when the bottle is inverted.

The several parts of the device are assembled before applying it to a bottle or other receptacle, and after the said parts are assembled the device may be cemented in the necks of receptacles as required.

The upper portion of the neck is adapted to receive an ordinary cork or stopper 30, and the receptacle may be sealed in the usual manner. After the cork has been extracted the contents of the receptacle may be readily poured therefrom, and it will be impossible to adulterate the same or refill the bottle without mutilating it sufficiently to indicate such fact.

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

1. In a device of the class described, the combination of a valve-casing provided with a valve-seat, a valve arranged upon the seat and having a stem, and a coiled spring of substantially conical form connected at its apex with the stem of the valve, said spring having its base spaced from the valve-seat and detachably interlocked with the valve-casing at a point between the valve-seat and the upper end of the casing.

2. In a device of the class described, the combination of a valve-casing designed to be arranged within the neck of a receptacle and provided with a passage, said valve-casing being provided at opposite sides of the passage with notches, a valve, and a coiled spring connected with the valve and interlocked with the notches and adapted to hold the valve on the seat when the parts are in an upright position.

3. In a device of the class described, the combination of a casing having a valve-seat, a guide composed of upper and lower oppositely-bowed members provided between their ends with eyes, one of the members being connected at its ends to the other member, and the latter having its terminals extended to form attaching-arms, and a valve cooperating with the valve-seat and provided with a stem passing through the said eyes and having a weight or enlargement located between the eyes.

4. In a device of the class described, the combination of a valve-casing having a passage, a valve operating within the passage, a guard spaced from the valve-casing and located above the passage, and a plate or piece covering the passage and provided with openings.

5. In a device of the class described, the

combination of a valve-casing, a valve, and a vent-tube extending above and below the valve-casing and provided at its ends with valves.

5 6. In a device of the class described, the combination of a valve-casing, a valve, a vent-tube extending below the valve-casing, and a flexible outlet or valve extending from the lower end of the vent-tube and consisting of
10 strips of flexible material united at the side edges.

7. In a device of the class described, the combination with a receptacle having a neck, of a valve-casing, a valve, a guard mounted
15 on the valve-casing and spaced therefrom, and a vent-tube interposed between the casing and the neck at one side of the former and having a substantially L-shaped portion extending inwardly from the side of the casing and located
20 between the same and the guard and piercing the latter, said vent-tube being provided with valve mechanism.

8. In a device of the class described, the

combination with a receptacle having a neck, of a valve-casing having a passage and pro- 25
vided at its periphery with a groove, a vent-tube arranged within the groove, a gauze covering for the passage, a guard spaced from the valve-casing and mounted thereon, a valve-
30 seat arranged at the lower end of the valve-casing, and a valve cooperating with the seat.

9. In a device of the class described, the combination of a valve-casing, a valve, and a vent-tube provided with a flexible outlet forming a valve, said flexible outlet being normally
35 closed to exclude liquid from the vent-tube and being adapted to be opened by the air passing through the tube.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
40 the presence of two witnesses.

WILLIAM HANDLER.

Witnesses:

THEODORE HILL,
DANIEL C. MILLER.