

No. 692,772.

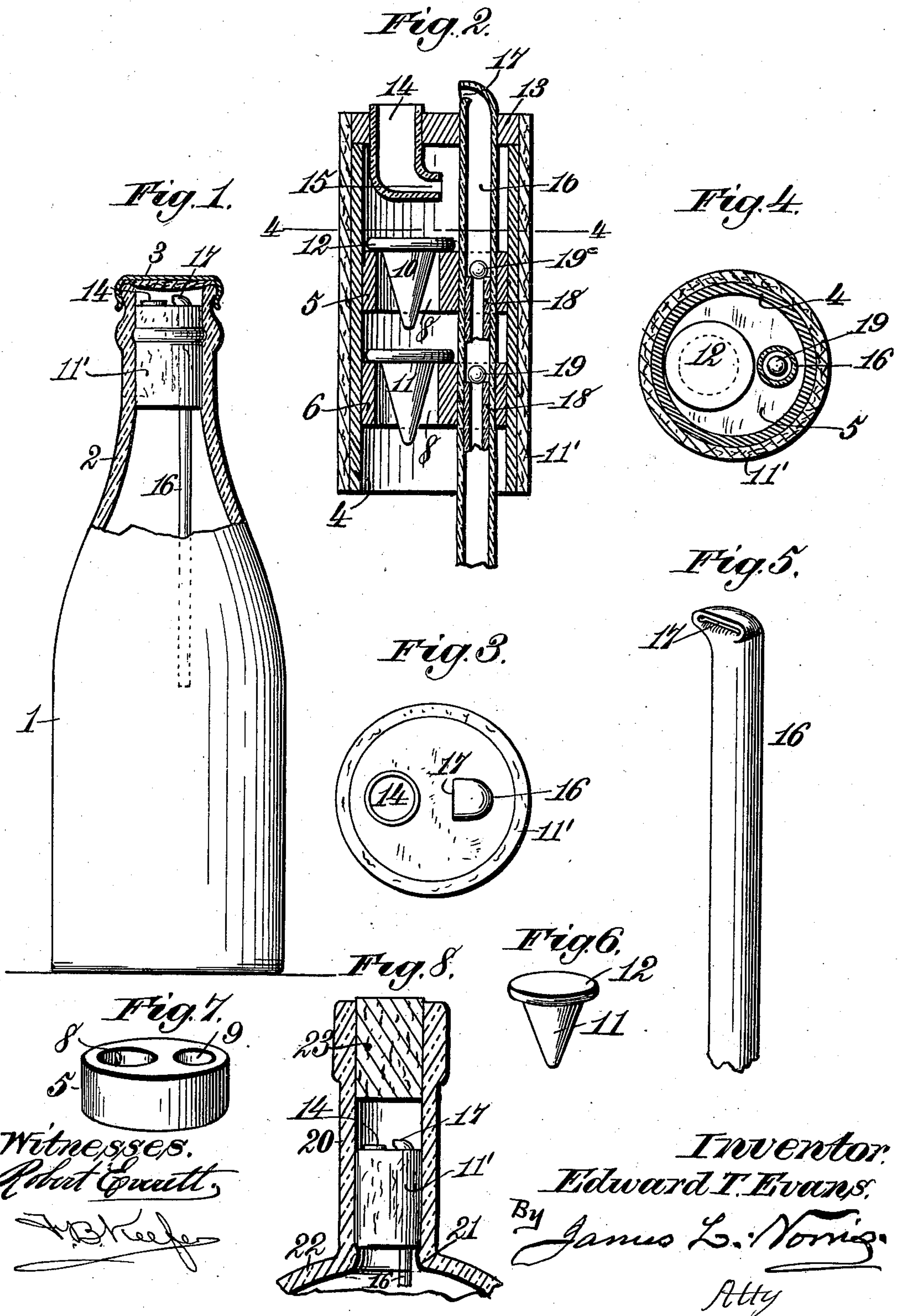
Patented Feb. 4, 1902.

E. T. EVANS.
NON-REFILLABLE BOTTLE.

(Application filed July 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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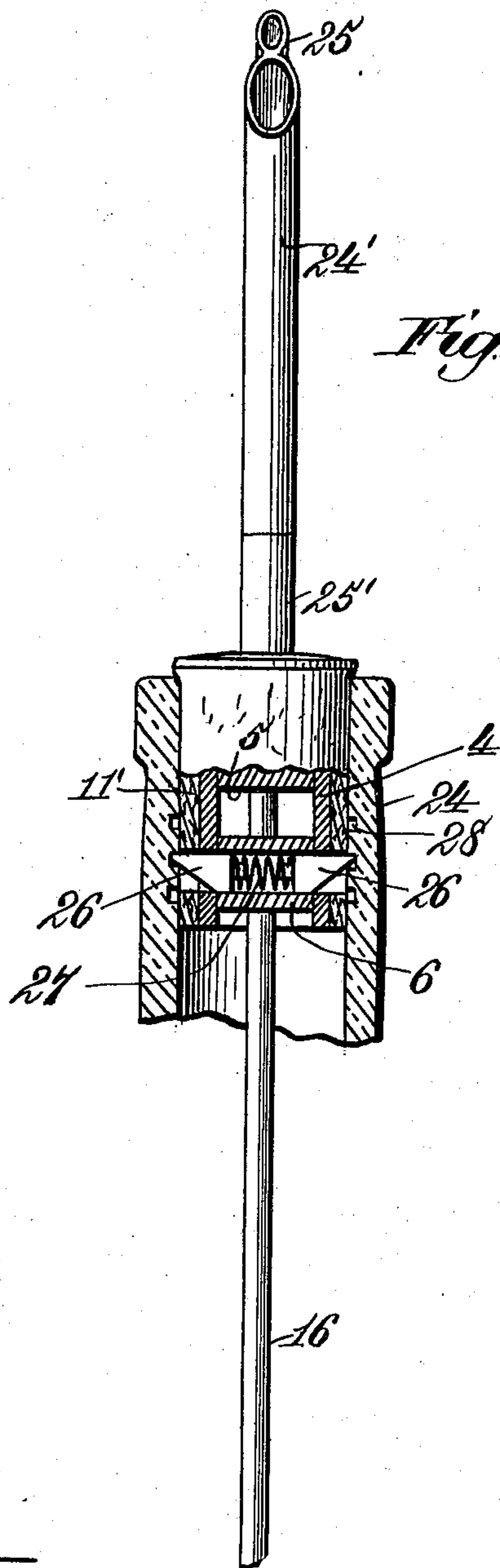
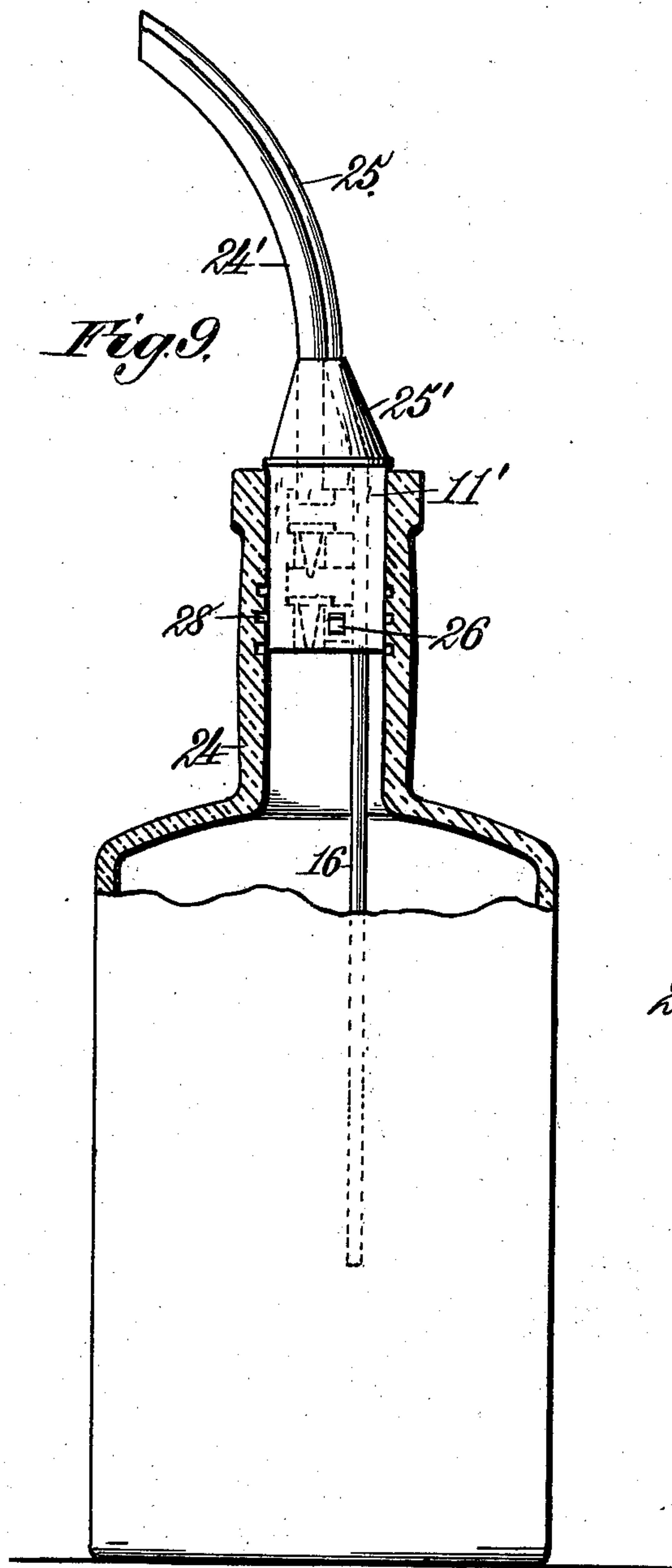
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2 Sheets—Sheet 2.



Witnesses,
Robert Emmett,
J. B. Kuehn

Inventor,
Edward T. Evans,
By James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

EDWARD TAYLOR EVANS, OF UPPER CLAPTON, ENGLAND.

NON-REFILLABLE BOTTLE.

SPECIFICATION forming part of Letters Patent No. 692,772, dated February 4, 1902.

Application filed July 1, 1901. Serial No. 66,761. (No model.)

To all whom it may concern:

Be it known that I, EDWARD TAYLOR EVANS, a subject of the King of Great Britain, residing at Upper Clapton, in the county of Middlesex, England, have invented new and useful Improvements in Bottles of the Non-Refillable Class, of which the following is a specification.

This invention relates to certain new and useful improvements in bottles of the non-refillable class.

The salient feature of the invention is to provide a device which may be readily applied to and secured within the bottle-neck and shall by its presence prevent the bottle from being refilled, although the contents of the bottle may at any time be obtained by pouring the same out of the bottle in the ordinary manner.

The invention further aims to construct a non-refillable bottle which shall be extremely simple in its construction, strong, durable, efficient in its operation, and comparatively inexpensive to manufacture; and to this end it consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is an elevation of a bottle with the neck portion thereof in section, showing the arrangement of the device to prevent the refilling of the bottle. The shape of bottle illustrated in this figure is that in which the crown stopper or cap is usually attached to. Fig. 2 is a vertical sectional view of the bottle-neck with my improved device mounted therein to prevent the refilling of the bottle, the device also being shown in section. Fig. 3 is a top plan view of the device to prevent the refilling of the bottle. Fig. 4 is a sectional view on the line 4 4 of Fig. 2. Fig. 5 is a perspective view of the vent-tube broken away at the lower end. Fig. 6 is a similar view of one of the valves. Fig. 7 is a like view of one of the valve-seats. Fig. 8 is a vertical sectional view

of a modified form of bottle-neck, illustrating the employment of an upper stopper and an annular shoulder to prevent the non-refilling device from entering the body portion of the bottle. Fig. 9 is an elevation of a modified form of bottle with the neck portion thereof in section, showing the arrangement of a modified form of device to prevent the refilling of the bottle, the non-refilling device having the outlet and vent tubes elongated, the former projecting upwardly in the form of a curvilinear spout and the latter extending parallel therewith. Fig. 10 is a sectional view of the modified non-refilling device, showing the manner in which the latter is secured within the bottle-neck.

Referring to the drawings by reference-numerals, 1 denotes the body portion of the bottle, 2 the bottle-neck, and 3 the ordinary crown stopper or cap employed for bottles of the class shown in Fig. 1.

The reference-numeral 4 denotes a sleeve formed of any suitable material and which is secured in any desirable manner within the bottle-neck. Within the sleeve 4 is mounted an upper and a lower valve-seat 5 6, respectively, formed of any suitable material, preferably wood. These valve-seats may be secured in position in any desirable manner and are in the form of concentric disks. They are each provided with an eccentrically-arranged circular outlet-opening 8 and are each further provided with an eccentrically-arranged circular opening 9 of a smaller diameter than the openings 8, but in horizontal alinement therewith. The openings 8 and 9, as stated, are shown circular in contour; but it is not essential that the shape thereof should be as stated, as they may be square, oblong, oval, hexagonal, or any other preferred form.

The reference-numerals 10 and 11 denote the upper and lower valves mounted, respectively, upon the valve-seats 5 and 6. The valves 10 and 11 are substantially in the form of an inverted cone and are each provided at their top with an annular flange 12, which engages the upper face of the valve-seats 5 6 for supporting the valves 10 11, as illustrated in Fig. 2. I have shown the valves 10 11 constructed in the manner set forth as the preferred form of valves to be used, although the ordinary flap, puppet, ball, or other suitable

valve may be employed. The valves 10 11 are adapted to close the outlet-openings 8 when the bottle is in the position shown in Fig. 2 to prevent the entrance of any matters to the bottle.

The reference-numeral 11' denotes a sheathing of yielding material for the sleeve 4 to secure the latter within the bottle-neck. This material is preferably cork and formed in the shape of a sleeve.

The top of the sleeve 4 is closed by means of a circular disk 13 of any suitable material and which is secured to the sleeve 4 in any desirable manner. The disk 13 is provided with an eccentrically - arranged opening in which is secured an L-shaped outlet-tube 14, the lower or entrance end thereof being contracted, as at 15. The disk 13 may be mounted within the sleeve 4, but, as shown, is secured upon the top thereof.

The reference-numeral 16 denotes the vent-tube, which extends through the disk 13 and the openings 9 of the valve-seats 5 6 and down into the body portion of the bottle and has its upper or entrance end flattened, as at 17, so that the opening will be of sufficient size to admit a proper amount of air to prevent gurgling when pouring the contents from the bottle. The vent-tube 16 is formed of any suitable material and secured to the disk 13 and valve-seats 5 6 in any desirable manner. Mounted within the tube 16 a suitable distance apart is a pair of sleeves 18, forming valve-seats for the ball-valves 19, which seat themselves against the sleeves 18 when the bottle is in a vertical position and also arrest any attempt to force fluids or other matters through the vent-tube into the body portion of the bottle. I have shown the ball-valves 19 as the preferred form of valve used; but any suitable form may be employed.

In Fig. 8 of the drawings is shown my improved non-refilling device applied to a different form of bottle-neck 20. The latter has the lower end of its inner face formed with an annular shoulder 21, which prevents the non-refilling device from entering the body portion 22 of the bottle. In this modification the ordinary stopper 23 is employed and which is arranged at the upper end of the neck portion, as shown.

In Figs. 9 and 10 the non-refilling device is shown as provided with means for securing the same within the neck portion 24 of the bottle. The non-refilling device is of the same construction as that shown in Fig. 2, the same reference-numerals being applied thereto, with the exception that the outer end of the outlet-tube is in the form of a curvilinear spout, as at 24', and that the vent-tube extends parallel with the spout, as well as being suitably secured thereto, as at 25. The outer end of the vent-tube is not flattened or contracted, as shown in Fig. 5. If desirable, a cap 25' may be mounted upon the top of the non-refilling device to surround the tubes as they diverge from each other. The lower

valve-seat 6 in this construction is formed with a transverse opening, within which is mounted a pair of fastening-dogs 26, between which is interposed the compression-spring 27 for actuating the dogs, causing them to engage in the grooves 28, formed in the inner face of the bottle-neck, as shown. Instead of the dogs 26 other forms of securing means may be employed. The dogs 26 are secured in any desirable manner to the spring 27. This arrangement (shown in Figs. 9 and 10) is employed when it is not desirable to use the non-refilling device in shipment and is one that can be readily attached to the bottle after the ordinary cork has been removed.

The operation is as follows: Assuming that the bottle has been filled and in the position shown in Figs. 1 and 8, the cap 3 or cork 23 is removed, and the contents can be poured from the bottle, owing to the fact that when the latter is tilted the valves 10, 11, and 19 will be removed from their seats, permitting the entrance of air through the vent-tube to the body portion of the bottle and the liquid to be discharged through the ports 8 and the outlet-tube 14 in a steady stream. When the bottle is brought to an upright position, the valves will resume their seats and prevent the entrance of any fluids or matters to the body portion of the bottle. The entrance end of the outlet-tube 14 is formed in an L-shaped manner to prevent the insertion of any tool or implement to engage the valves 10 11, so that they can be held away from their seats to enable the refilling of the bottle. The air-tube is contracted for a like purpose. It will be evident that from constructing the valves 10 11 in a conical manner they will readily seat themselves when the bottle is brought to an upright position.

It is thought that the many advantages of my improved construction in non-refillable bottles can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will also be noted that various minor changes may be made in the details of construction without departing from the general spirit of my invention.

Having thus 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 the bottle-neck thereof, of a sleeve suitably mounted therein, a pair of valve-seats secured within said sleeve and each provided with an outlet-passage, valves for closing said passage, a disk for closing the top of said sleeve, an outlet-tube secured in said disk, a vent-tube extending through said disks and valve-seats, valve-seats arranged in said vent-tube and provided with inlet-passages, and valves for closing said inlet-passages.

2. In a non-refillable bottle, the combination with the bottle-neck thereof, of valve-

seats suitably mounted therein and provided with outlet-passages, valves for closing said passages, an L-shaped outlet-tube arranged in the bottle-neck and suitably secured therein with, a vent-tube extending through said bottle-neck and provided with a contracted entrance end, and valves arranged in said vent-tube for closing the same.

3. In a non-refillable bottle, the combination with the bottle-neck thereof, of valve-seats suitably secured therein and provided with eccentrically-arranged outlet-passages, valves for closing said passages, an L-shaped outlet-tube arranged in the bottle-neck, having a contracted entrance end and suitably secured to the bottle-neck, a vent-tube extending through said bottle-neck and provided with a contracted entrance end, and valves arranged in said vent-tube for closing the same.

4. In a non-refillable bottle, the combination with the bottle-neck, of a non-refilling device suitably secured therein and consisting of a sleeve, a pair of valve-seats having eccentrically-arranged outlet-passages, a disk for closing said sleeve, a pair of conical valves for closing said outlet-passages, an L-shaped outlet-tube secured to said disk and provided with a contracted entrance end, a vent-tube extending through the bottle-neck and formed with a contracted entrance end, valve-seats arranged in said vent-tube and provided with inlet-passages, and ball-valves for closing said inlet-passages.

5. In a non-refillable bottle, the combina-

tion with the bottle-neck having discharge-passages and valves for closing them, of a disk closing said neck, and an L-shaped discharge-tube and a valved vent-tube projecting through said disk, the inner entrance end of the discharge-tube and the outer entrance end of the valved vent-tube being contracted, substantially as described.

6. In a non-refillable bottle, the combination with the neck thereof, having eccentrically-arranged outlet-passages and means for closing said passages, of an L-shaped outlet-tube suitably connected to the bottle-neck, an air-tube extending through the bottle-neck and provided with a contracted entrance end, and a pair of valves arranged in said vent-tube for closing the same.

7. In combination, a non-refillable bottle, a pair of valve-seats arranged in the bottle-neck and provided with discharge-passages, valves for closing said passages, an outlet-tube connected with the bottle-neck and provided with a contracted lower end, a vent-tube extending through the valve-seats and provided with a contracted upper end, and ball-valves arranged in said tube for closing the same.

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

EDWARD TAYLOR EVANS.

Witnesses:

GEO. W. REA,

JAMES L. NORRIS.