

No. 808,278.

T. W. EVANS.

PATENTED DEC. 26, 1905.

NOZZLE STOPPER FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JULY 15, 1905.

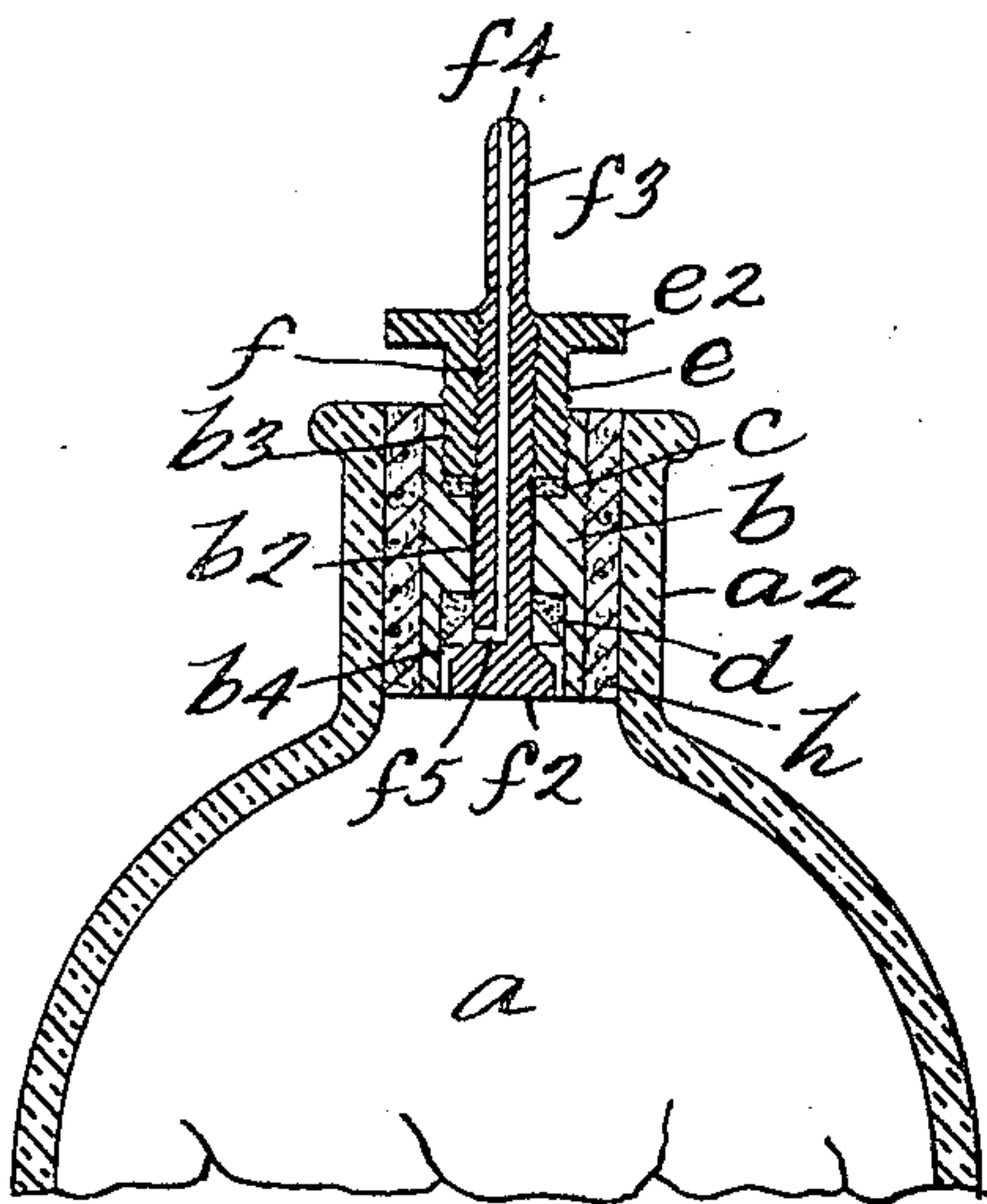


Fig. 1.

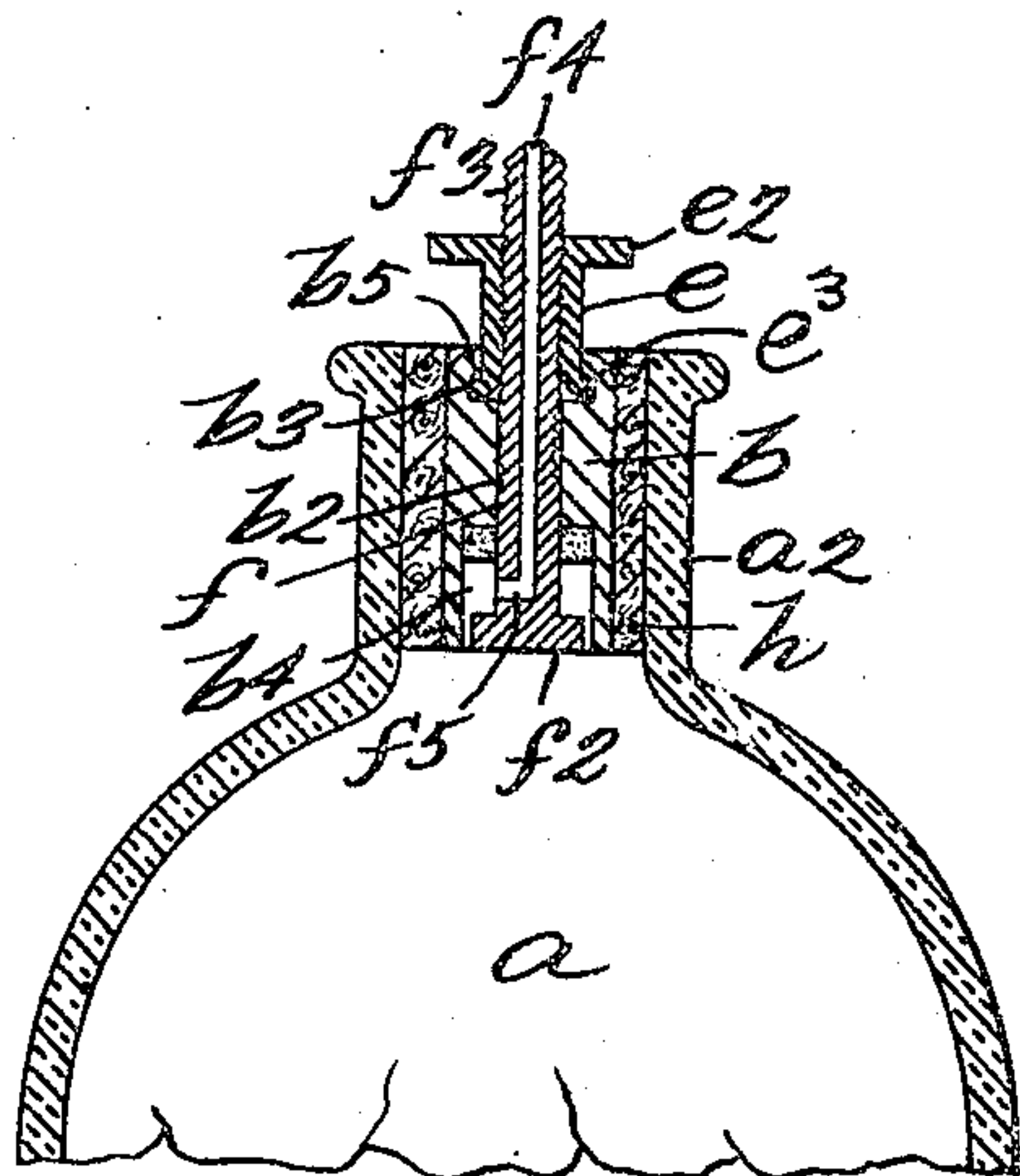


Fig. 2.

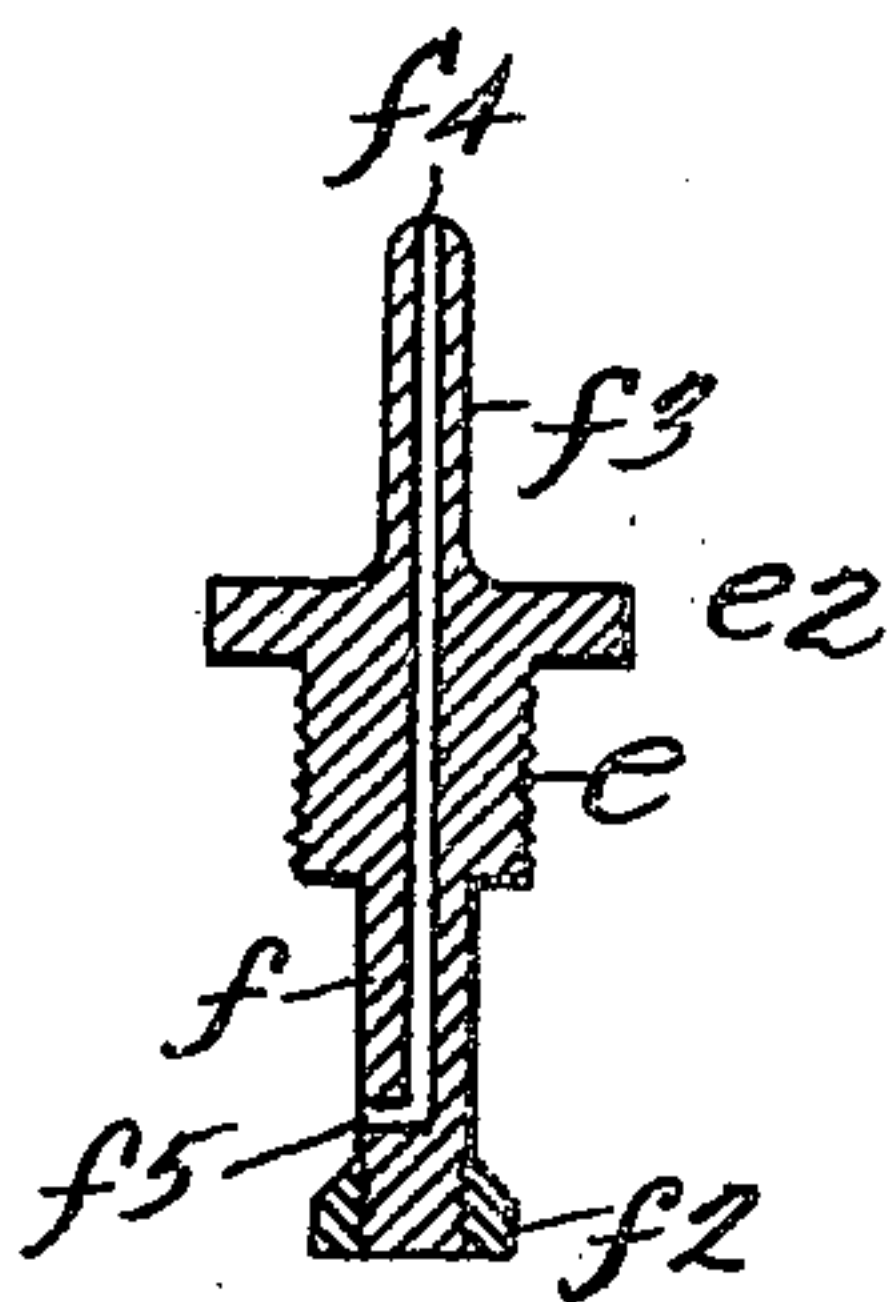


Fig. 3.

WITNESSES

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NOZZLE-STOPPER FOR BOTTLES AND OTHER RECEPTACLES.

No. 808,278.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed July 15, 1905. Serial No. 269,807.

To all whom it may concern:

Be it known that I, THOMAS W. EVANS, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Nozzle-Stoppers for Bottles and other Receptacles, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to nozzle-stoppers for bottles and similar vessels; and the object thereof is to provide an improved device of this class which is particularly designed for use as a closure device for perfumery-bottles, ethyl-chlorid bottles, and other bottles or vessels from which it is desired at times to discharge small amounts of the contents thereof, a further object being to provide a device of this kind which may be used in connection with oil-cans as an air cock or nozzle for tire-inflating devices or in connection with inflatable tires and which also may be used in connection with compressed-air apparatus or machinery of various kinds and classes; and with these and other objects in view the invention consists in a device of the class specified, constructed as hereinafter described and claimed.

In the drawings forming part of this specification I have shown my improvement applied to an ordinary bottle, and the invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters, and in which—

Figure 1 is a central vertical section of the upper part of a bottle to which my improvement is applied as a closure device; Fig. 2, a similar view, but showing a modification; and Fig. 3 a view similar to Fig. 1, but showing a modification of a detail of the construction only.

Referring to the drawings, *a* represents the top portion of an ordinary bottle provided with a neck *a*², and in the practice of my invention I provide a cylindrical plug *b*, composed of any suitable metal or other material and having a central longitudinal bore *b*², the top portion of which is enlarged, as shown at *b*³, and the bottom portion of which is also enlarged, as shown at *b*⁴, and in the bottom of the top enlargement *b*³ of the bore *b*² of the plug *b* is placed a packing *c*, while a similar packing *d* is placed in the bottom enlarge-

ment *b*⁴ of the bore *b*² of said plug and forms a valve-seat.

Screwed into the top enlargement *b*³ of the bore *b*² is a supplemental plug or sleeve *e*, provided at its upper end with a head *e*², by which said sleeve is manipulated, and passing centrally through the plug *b* and the sleeve *e* is a valve stem or spindle *f*, provided at its lower end with a valve-head *f*² and at its upper end with a nozzle *f*³, and extending through the valve-spindle *f* and the nozzle *f*³ is a longitudinal bore *f*⁴, which opens laterally through the lower end of the valve-spindle adjacent to the valve-head *f*², as shown at *f*⁵. The valve-head *f*² is of less dimensions than the enlarged portion *b*⁴ of the bore *b*² of the plug *b*, and when the parts are in the position shown in Fig. 1 the contents of the bottle will be free to flow out through the nozzle *f*³ when the bottle is inverted or tilted, as will be readily understood.

In the construction shown in Figs. 1 and 2 the valve-spindle is screw-threaded where it passes through the sleeve *e*, and in assembling the parts hereinbefore described the sleeve *e* is screwed into the plug *b*, and the valve-spindle is passed through said plug from the opposite end thereof and screwed through the sleeve *e*, or this operation may be reversed by passing the valve-spindle first through the plug *b* and then screwing the sleeve *e* onto the valve-spindle and into the plug *b*, and after the parts have been connected in this manner and adjusted into the position shown in Fig. 1 the sleeve *e* and valve-spindle *f* are secured together against rotation of one of said parts upon the other, and this may be done in any desired manner.

In practice when my improvement is used as a bottle-stopper I prefer to secure the plug *b* in a cork sleeve *h*, which is forced into the neck of the bottle in the usual manner, and which may be secured in said neck in any preferred way; but it will be understood that the plug *b* may be used as a bottle-stopper independent of the sleeve *h*, if desired, and when said plug is used for any of the other purposes hereinbefore specified it is probable that no packing-sleeve *h* or similar device will be employed.

When my improvement is used as a bottle-stopper, as shown in Fig. 1, and the parts assembled as described and secured in the neck of the bottle, it will be seen that by turning the sleeve *e* in one direction by means of the head *e*² thereof the valve-head *f*² will be forced

to its seat and the bottle will be closed, and by turning said sleeve in the opposite direction the valve-head f^2 will be forced from its seat, as shown in Fig. 1, and the contents of the bottle will be free to flow out through the valve-spindle f and the nozzle f^3 thereof.

It will be understood that when the parts as shown in Fig. 1 are assembled the sleeve e and valve-spindle f are rigidly connected, and as a modification of this construction the sleeve e and valve-spindle f might be formed integrally, and the valve-head f^2 made separate and connected with the valve-spindle f , as shown in Fig. 3.

In the modification shown in Fig. 2 the sleeve e is provided at its lower end with a flange or rim e^3 , and the top of the wall of the enlargement b^3 of the bore b^2 in the plug b is forced inwardly or crimped around said flange or rim, as shown at b^5 . In this form of construction the sleeve e is screw-threaded interiorly, and the valve-spindle f is correspondingly threaded, and by turning the sleeve e , which is turnable in the top of the plug b , but cannot be removed therefrom, the spindle f may be raised or lowered, as will be understood, according to the direction in which the sleeve e is turned, and the bottle may be opened or closed, as will be understood, according to the direction in which the sleeve e is turned. It will thus be seen that the difference between the different forms of construction shown and described consists in the fact that in Fig. 1 the valve-spindle f and the sleeve e are rigidly connected, while in Fig. 2 the sleeve e is secured in the plug b and turnable therein, and the valve-spindle f is turnable in said sleeve and movable longitudinally thereof, and in the form of construction shown in Fig. 3 the sleeve e , the valve spindle or stem f , and the nozzle f^3 are all formed integrally, while the valve-head f^2 is secured to the valve spindle or stem. The operation of opening and closing the bottle, however, is substantially the same in all cases, this operation being performed by turning the part e by means of the head e^2 thereof, and although the part e , as shown in Figs. 1 and 2, is described as a sleeve it will be seen that said part comprises a supplemental plug, which is turnable in the enlarged portion b^3 of the bore of the main plug b , and the turning of which, as hereinbefore described, opens or closes the bottle, according to the direction in which said supplemental plug is turnable.

My improvement is not limited in its use to a closure device for bottles or other vessels, but the same may be used as a vent-valve for radiators, as an escape-valve for various purposes, as a hydraulic valve, and as a spraying and injector valve.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A device for closing a vessel of the class described, comprising a main plug member provided with a central longitudinal bore the upper and lower ends of which are enlarged, and a supplemental plug member turnable in the upper end enlargement and provided with a downwardly-directed valve-stem having a valve-head at its lower end, and at its upper end with a nozzle, said valve-stem and nozzle being provided with a longitudinal bore which passes therethrough and through the supplemental plug and which opens adjacent to the valve-head, and means whereby the turning of said supplemental plug will raise or lower the valve-stem according to the direction in which said plug is turned, substantially as shown and described.

2. A closure device for vessels of the class described, comprising a main plug member having a central longitudinal bore, the upper and lower ends of which are enlarged, the lower enlargement being provided with a valve-seat, a supplemental plug member turnably mounted in the upper enlargement of said bore, said supplemental plug member being provided at its lower end with a valve-stem having a valve-head, and at its upper end with a nozzle, and said nozzle and said valve-stem being provided with a longitudinal bore which extends through the supplemental plug and which opens adjacent to the valve-head, and means whereby the turning of the supplemental plug will raise or lower the valve-stem according to the direction in which said plug is turned, substantially as shown and described.

3. A closure device for vessels of the class described, comprising a main plug having a central longitudinal bore enlarged at its upper and lower ends, a supplemental plug turnably mounted in the upper end enlargement of said bore, a valve-stem passing longitudinally through the supplemental plug and provided at its lower end with a valve-head and at its upper end with a nozzle, said valve-stem being provided with a longitudinal bore which opens adjacent to the valve-head, and means whereby the turning of said supplemental plug will raise and lower the valve-stem according to the direction in which said plug is turned, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 14th day of July, 1905.

THOMAS W. EVANS.

Witnesses:

F. A. STEWART,
C. E. MULREANY.