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PATENTED JAN. 23, 1906.

C. L. E. WOLF.
NON-REFILLABLE BOTTLE.
APPLICATION FILED FEB. 1, 1905.

Fig. 1

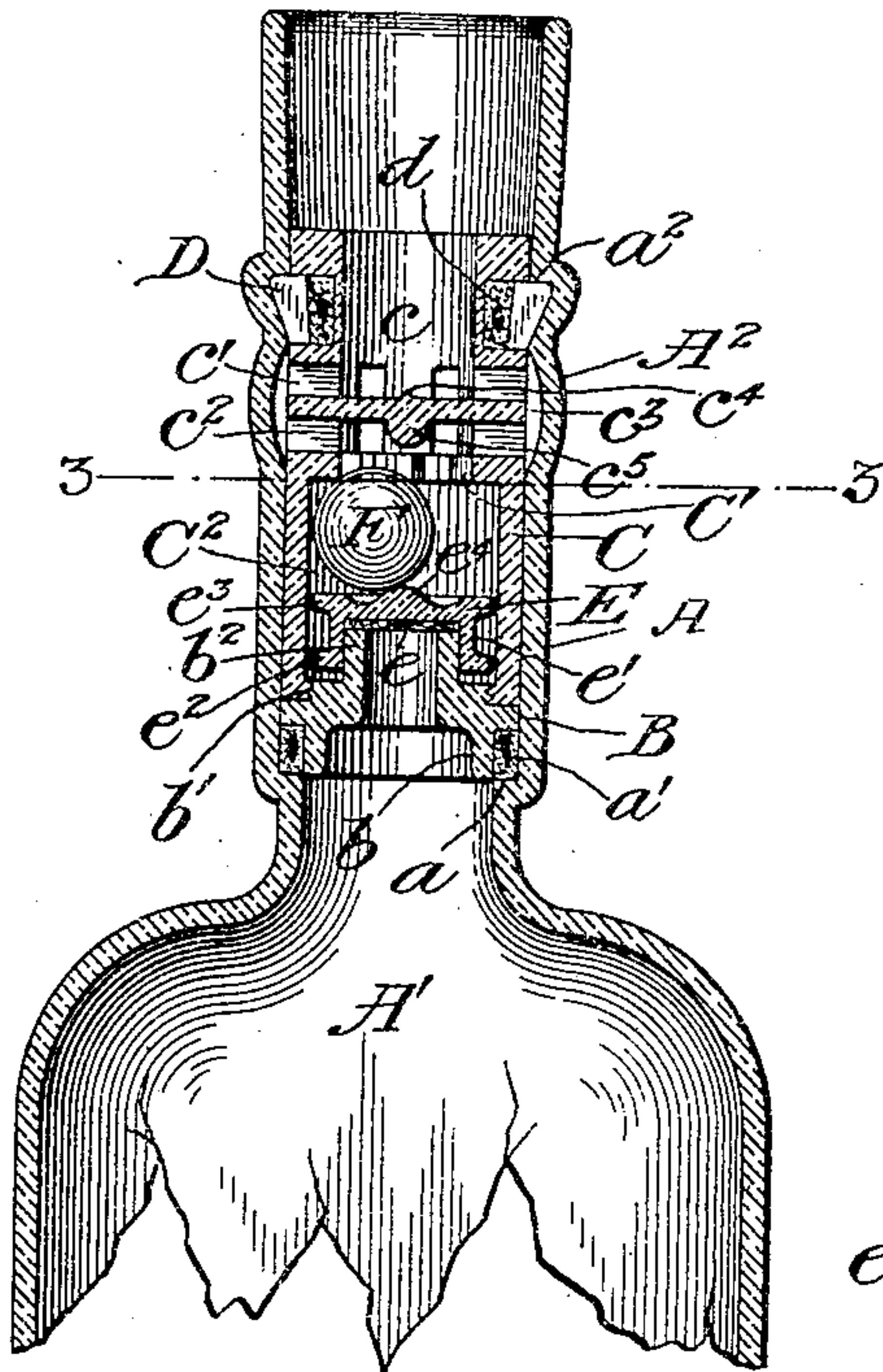


Fig. 3

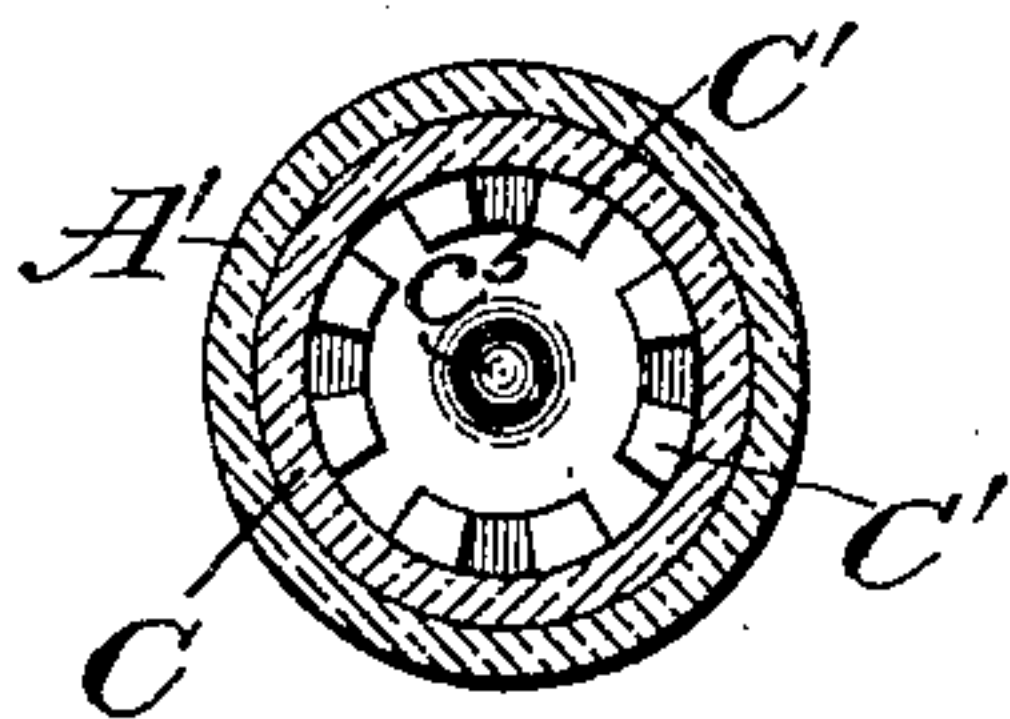


Fig. 4

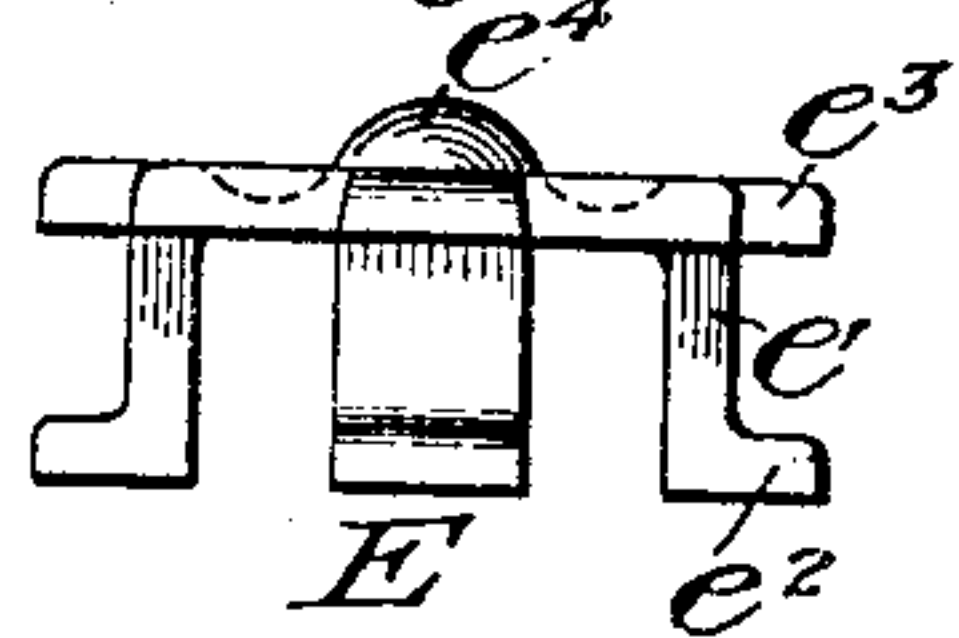


Fig. 5

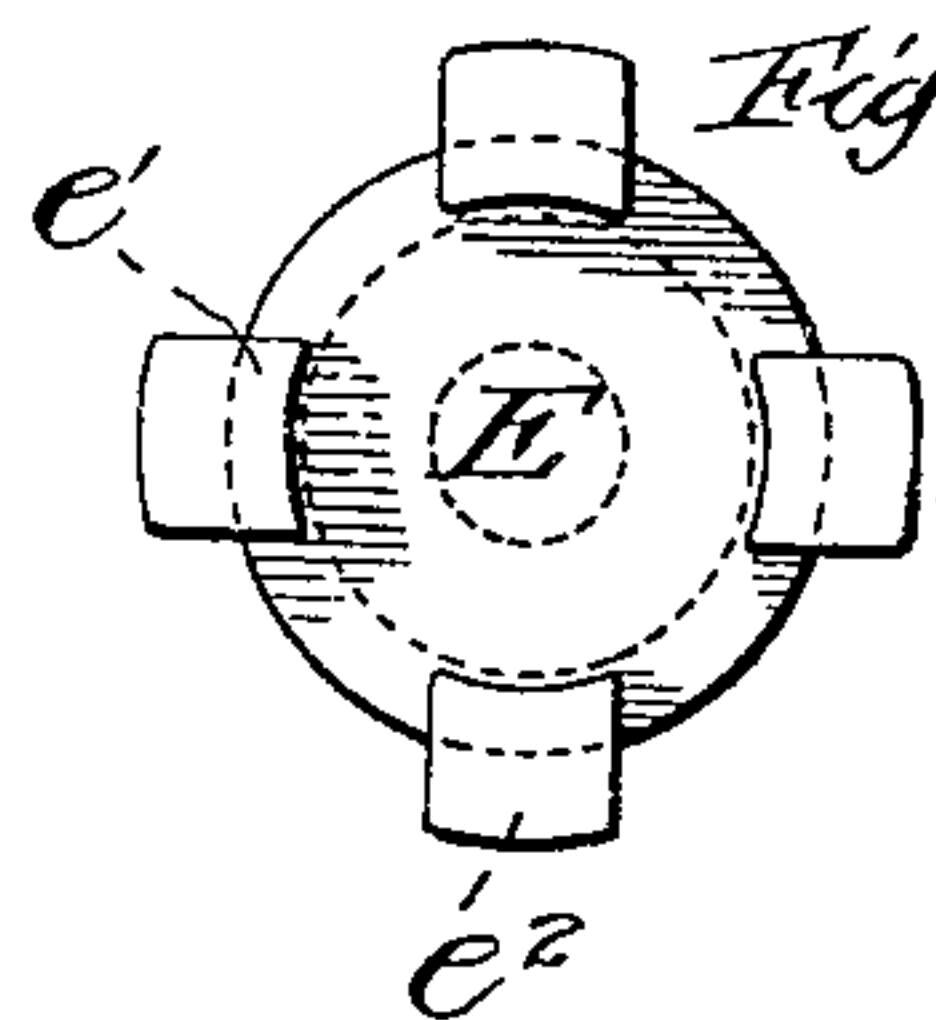
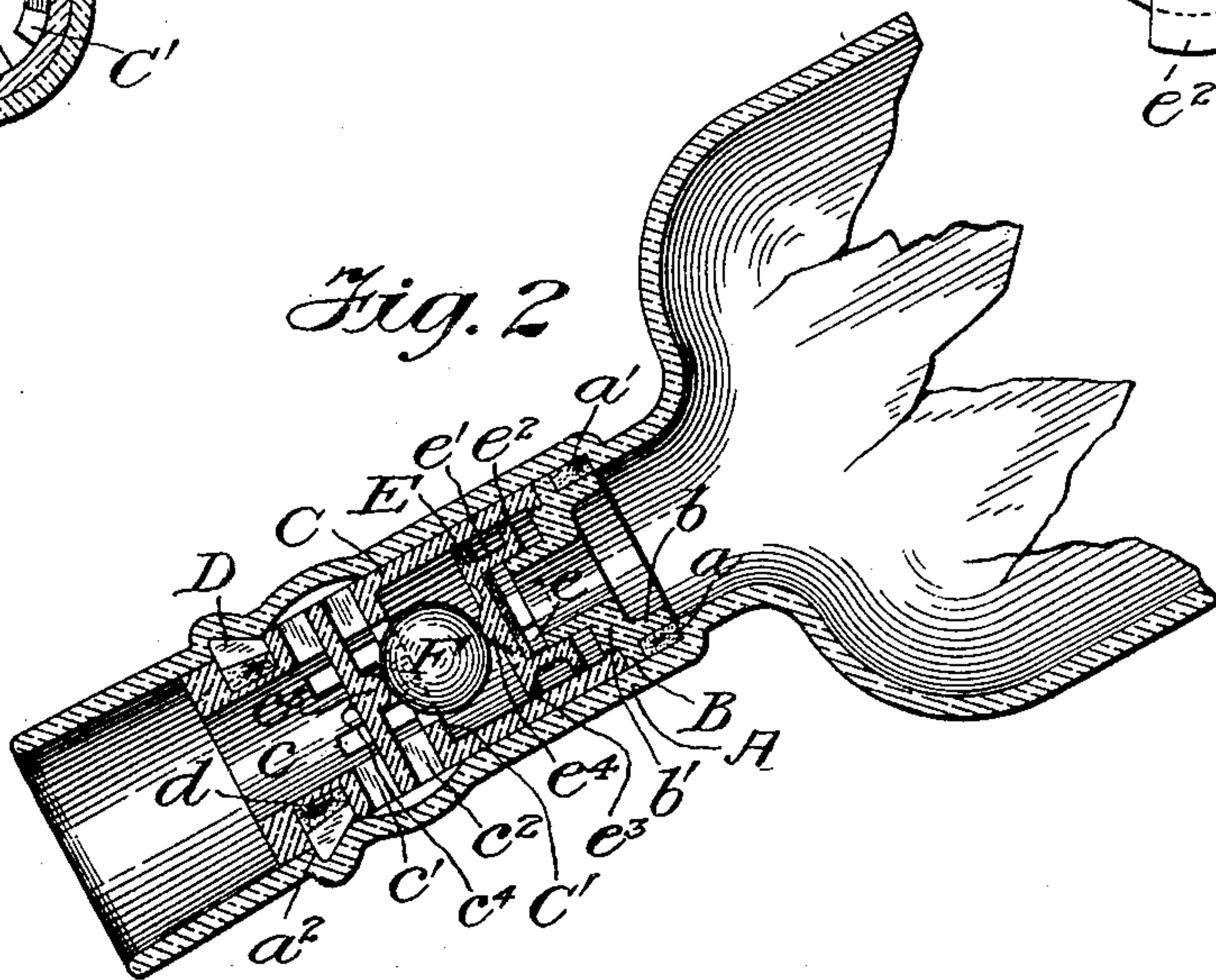


Fig. 2



Witnesses
Chas. J. Claggett
Chas. L. Wolf

Inventor
Charles L. E. Wolf
By his Attorney
Charles A. Stephens

UNITED STATES PATENT OFFICE.

CHARLES L. E. WOLF, OF NEW YORK, N. Y.

NON-REFILLABLE BOTTLE.

No. 810,452.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed February 1, 1905. Serial No. 243,666.

To all whom it may concern:

Be it known that I, CHARLES L. E. WOLF, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

The subject of the present invention is a bottle or similar receptacle which when once emptied cannot be refilled, or at least will present such serious difficulties against refilling as to be practically non-refillable.

The type of construction in which my improvements are embodied comprises generally an annular seat within the bottle-neck, near the base of the latter, and having a yielding bearing on a gasket supported on a shoulder at said base, a valve normally resting on and closing the seat, the valve being provided with vertical portions for guiding the valve in its opening and closing movements, a cylindrical plug being insertible through the bottle-mouth to occupy a position within the neck and be locked therein by movable means engaging shoulders within said neck, the plug being so conditioned that when inserted within the neck the lower end of the plug will primarily compress the gasket until the locking means has become engaged, whereupon the relative tendency of the gasket will cause the latter to coact in positively maintaining the locking means engaged. A gravity-sphere aids the reseating of the valve and normally contributes to hold said valve closed, besides presenting an interference with surreptitious attempts to refill the bottle by raising the valve through vacuum action. In the present improvements the valve, sphere, and interior of the plug are so arranged that the sphere, besides holding the valve to its seat by gravity, will form a positive locking medium for said valve against any attempt to lift the latter with a view of refilling the bottle, the construction, however, permitting the sphere when the bottle is tilted for pouring to assume a position whereby the valve can readily leave its seat to permit the liquid flow, which will not be objectionally impeded by the sphere. The valve is of novel construction in that it possesses a rounded boss or protuberance on its top for coaction with the sphere in the valve-locking operation. Furthermore, the valve means external to the valve-seat and adapted to permit a free liquid flow when the valve is

unseated will positively guide the valve in its movements, and thereby prevent unobjectionable tilting of said valve. The bottle-neck has an annular clearance designed to cooperate with the baffled passages in the plug to form part of the pouring-passage and also for aiding in venting the bottle during the pouring operation, so that an adequate and uniform liquid flow will be obtained. The locking means which secure the plug against removal, and thereby prevent access to the sphere and valve, are in the form of dogs contained in recesses in the upper portion of the plug at the sides thereof, said dogs being designed to occupy a retracted position within the recesses until the complete insertion of the plug permits said dogs to partake of a movement that will result in their becoming engaged beneath a shoulder within the neck to firmly lock the plug. These dogs are backed by cushion-sections, which will be compressed when the dogs are in their retracted positions, but which cushions will expand to move said dogs to positively engage the same beneath the neck-shoulder. Cork will be highly advantageous for the cushions, as it will not only compress and expand, but will swell through moisture to aid in holding the dogs engaged.

In the drawings, Figure 1 is a vertical sectional view of the upper part of a bottle and illustrating my improvements, the valve being in the normally locked position it occupies when the bottle is vertical. Fig. 2 is a view illustrating the position the parts assume when the bottle is tilted for pouring. Fig. 3 is an inverted sectional plan view of the plug in the plane indicated by the broken line 3-3, Fig. 1. Fig. 4 is a side view of the valve on an enlarged scale, and Fig. 5 is a bottom plan view of the valve on an enlarged scale.

The bottle-neck A contiguous to its emergence with the body A' is contracted to provide an internal annular shoulder *a*, upon which is a yielding gasket *a'*, preferably of cork. Supported on this gasket and of a diameter to snugly occupy the neck interior in a horizontal plane is a glass disk B, integrally having a depending flange *b*, making tight joint within the gasket. At its upper side the disk has a slightly-raised portion *b'*, the periphery of which is threaded and contributes to form a shallow circular channel. Centrally on the portion *b'* is a vertical annular seat *b''*, of integral character.

C refers to a plug which may be generally

of cylindrical configuration, according to the internal shape of the bottle-neck. This plug can be of about the proportions indicated and contains the upper longitudinal passage c and lateral baffling-passages c' c^2 and inner pas-
 5 sages, the latter presented between the sides of short converging lugs or teeth C' , arranged in a circular series, while the ends of said lugs at their lower sides conjointly form an interior circular clearance. The plug below the
 10 lugs C' contains an ample chamber C^2 . The upper part of the plug contains in its side surface recesses in which are located cork cushions d and movable dogs D . When the
 15 plug is inserted in position within the neck, the lower circular end of said plug is snugly received within the upper annular channel formed at the margin of the raised portion b' of the disk B , the plug end being internally
 20 threaded to permit its positive engagement with the periphery of the raised portion b' , said plug end also acting on the disk to compress the gasket a' . The dogs occupy recessed positions within their recesses to permit the inserting movement of the plug, the
 25 cushions d being compressed to permit the recession of the dogs. When the plug is completely in position, the dogs will have arrived opposite offset provision in the bottle-neck and the cushions will expand to cause the
 30 dogs to project and engage beneath shoulders a^2 , furnished by the offset provision, and thereby lock the plug in position, such locking being appreciably maintained by the re-
 35 active influence of the gasket a' exerted at the lower end of the plug. Previous, however, to such insertion and locking of the plug a sphere F and a valve E are placed in position in the plug-chamber C^2 while the
 40 plug is inverted and the disk B adjusted at the end of the plug, so that the plug and parts carried thereby can be introduced and locked within the neck and the sphere coact with said valve and the series of lugs C' , at
 45 the top of the chamber. The valve E is preferably of circular form and adapted at its under side to rest air-tight on the seat b^2 , and for which purpose said valve may have a yielding disk e —say of cork—which can be
 50 snugly confined between vertical legs e' of the valve. These legs are so disposed that lateral feet e^2 will slidably bear against the inner surface of the lower part of the plug, while spaced projections e^3 on the valve cor-
 55 respondingly bear within said plug. The legs and projections serve to guide the valve in its movements relative to the seat and prevent objectionable tilting of the valve. The latter has a centrally-located rounded pro-
 60 tuberance e^4 at its upper side. When the bottle is in the vertical position, the sphere F bears on this protuberance and constitutes a lock for holding the valve to its seat. Upon tilting the bottle for pouring purposes the
 65 sphere acquires a position within the clear-

ance provided by the lugs C' at their inner ends, and the valve E is thus permitted to be unseated by the liquid which flows through the seat-opening between the legs, thence between the sides of the lugs through the lat-
 70 eral baffling-passages c^2 and a passage c^3 , presented by a rounded well A^2 of the neck and connecting the passages c^2 c' , the liquid next flowing through the passages c' to the pas-
 75 sage c and is discharged from the bottle-mouth. The connecting-passage c^3 aids in the venting of the bottle to promote an adequate and uniform flow of the liquid. Teats
 80 c^4 c^5 on the upper and lower sides of the partition coacting to form the passages c' c^2 c^3 serve to strengthen said partition and also increase the difficulty of inserting and at-
 85 tempting to manipulate a wire in the plug. The lower teat will act as a stop for preventing the sphere from becoming tightly seated in the space presented by the lower ends of
 90 all the lugs C' . As hereinbefore intimated, the engagement of the raised portion b' of the disk with the corresponding threads in the lower end part of the plug enables all the
 95 parts to be put together and positively connected before the insertion of the device within the bottle-neck.

The disk B , the plug C , valve E , and the sphere F will preferably be of glass, and
 95 therefore not subject to the deleterious effects of various liquids which the receptacle is designed to contain.

I do not wish to be understood as limiting myself to the precise details and arrange-
 100 ment of parts shown and described, but reserve the right to all modifications within the scope of my improvements.

Having now described my invention, what I claim as new, and desire to secure by Let-
 105 ters Patent, is—

1. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages,
 110 and a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus, substantially as described.

2. The combination with the neck of a re-
 115 ceptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages, a valve comprising a circular disk adapted to rest on said seat and having legs engaging
 120 and slidable against said annulus and provided with laterally-projecting feet engaging and slidable against the interior surface of the plug, substantially as described.

3. The combination with the neck of a re-
 125 ceptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages, a valve comprising a circular disk adapted to rest on said seat and having laterally-extend-
 130

rest on said seat and having laterally-extending projections and downwardly-extending legs engaging and slidable against said annulus and provided with laterally-extending feet, said feet and projections engaging and slidable against the interior surface of the plug, substantially as described. 70

10. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus, and a gravity-sphere above said valve, substantially as described.

11. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus, and provided with laterally-projecting feet engaging and slidable against the interior surface of the plug and a gravity-sphere above said valve, substantially as described.

12. The combination with the neck of a re- 95
ceptacle having a vertical annulus forming a
valve-seat, of a cylindrical plug located in
said neck and provided with baffle-passages
and a circular series of converging lugs, a
valve comprising a circular disk adapted to 100
rest on said seat and having laterally-extend-
ing projections and downwardly-extending
legs engaging and slidable against said annu-
lus and provided with laterally-extending
feet, said feet and projections engaging and 105
slidable against the interior surface of the
plug, and a gravity-sphere above said valve,
substantially as described.

13. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, a valve comprising a circular disk adapted to rest on said seat and having an upwardly-projecting rounded protuberance and downwardly-extending legs engaging and slidable against said annulus, and a gravity-sphere above said valve, substantially as described.

14. The combination with the neck of a re- 120
ceptacle having a vertical annulus forming a
valve-seat, of a cylindrical plug located in
said neck and provided with baffle-passages
and a circular series of converging lugs, a
valve comprising a circular disk adapted to 125
rest on said seat and having an upwardly-
projecting rounded protuberance and down-
wardly-extending legs engaging and slid-
able against said annulus and provided with later-
ally-projecting feet engaging and slid- 130

60 9. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, a
65 valve comprising a circular disk adapted to

against the interior surface of the plug and a gravity-sphere above said valve, substantially as described.

15. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, a valve comprising a circular disk adapted to rest on said seat and having an upwardly-projecting rounded protuberance, laterally-extending projections and downwardly-extending legs engaging and slidable against said annulus and provided with laterally-extending feet, said feet and projections slidable against the interior surface of the plug and a gravity-sphere above said valve, substantially as described.

16. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages, means for locking the plug within the neck and a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus, substantially as described.

17. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages, means for locking the plug within the neck, a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus and provided with laterally-projecting feet engaging and slidable against the interior surface of the plug, substantially as described.

18. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages, means for locking the plug within the neck, a valve comprising a circular disk adapted to rest on said seat and having laterally-extending projections and downwardly-extending legs engaging and slidable against said annulus and provided with laterally-extending feet, said feet and projections engaging and slidable against the interior surface of the plug, substantially as described.

19. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, means for locking the plug within the neck, a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus, and a gravity-sphere above said valve, substantially as described.

20. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, means for locking the plug within the neck, a valve comprising a circular disk adapted to rest on said seat and having legs engaging and slidable against said annulus and provided with laterally-projecting feet engaging and slidable against the interior surface of the plug and a gravity-sphere above said valve, substantially as described.

21. The combination with the neck of a receptacle having a vertical annulus forming a valve-seat, of a cylindrical plug located in said neck and provided with baffle-passages and a circular series of converging lugs, means for locking the plug within the neck, a valve comprising a circular disk adapted to rest on said seat and having laterally-extending projections and downwardly-extending legs engaging and slidable against said annulus and provided with laterally-extending feet, said feet and projections engaging and slidable against the interior surface of the plug, and a gravity-sphere above said valve, substantially as described.

22. The combination with a receptacle-neck containing a seating, of a valve movably guided relative to said seating, a plug within the neck and embodying a circular series of converging lugs, and a partition contributing to form a baffling-passage and having a stop located centrally with regard to the inner ends of the lugs, a gravity-sphere between said lugs and valve, whereby when the neck is in a vertical position, the sphere will coact with the lugs at one side and with the valve, to lock the latter in a closed position upon the seating, and upon the tilting of the neck, the sphere will assume a clearance position at the inner ends of the lugs and limited by the stop to permit the unseating of the valve and discharge of the liquid.

23. The combination with a receptacle-neck containing a seating and having an inner guiding-surface contiguous to said seating, of a valve having vertical means guided on the seating, said valve also having upper and lower lateral projections coacting with said inner surface to guide the valve, and an upper portion within the neck and containing baffling-passages.

Signed at New York, in the county of New York and State of New York, this 5th day of December, A. D. 1904.

CHARLES L. E. WOLF.

Witnesses:

CHAS. L. WOLF,
M. BENDER.