

D. E. LUTZ AND F. D. FOLSOM.
BOTTLE.

APPLICATION FILED SEPT. 25, 1920.

1,418,814.

Patented June 6, 1922.

FIG. 1.

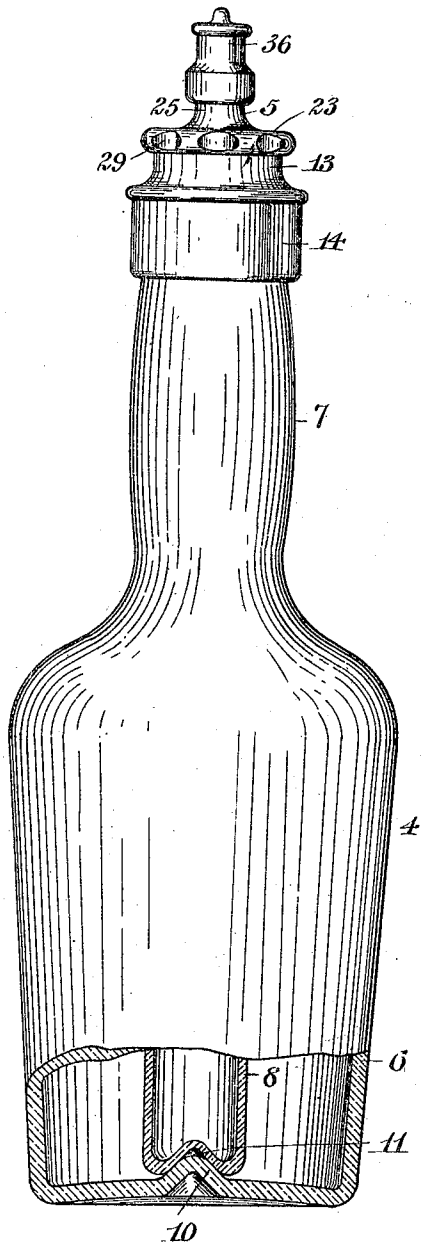


FIG. 2.

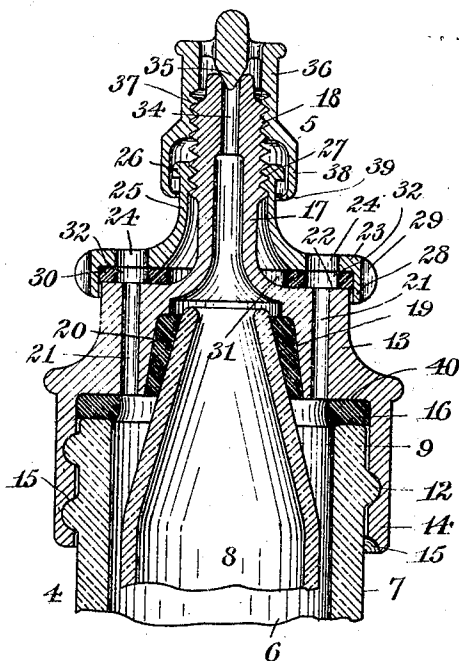
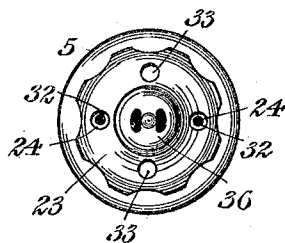


FIG. 3.



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BOTTLE.

1,418,814.

Specification of Letters Patent. Patented June 6, 1922.

Application filed September 25, 1920. Serial No. 412,856.

To all whom it may concern:

Be it known that we, DANIEL E. LUTZ and FREDERICK D. FOLSOM, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Bottles, of which the following is a specification.

Our invention relates to bottles, and more particularly to a dispensing bottle from which a liquid substance or substances may be dispensed in limited quantities.

Commercially, there are many uses to which liquids are put which require a mixture of two or more liquid substances when using the same, and in some cases the mixture of two or more liquid substances is highly essential to secure the best results when used.

The primary object of our invention is to provide a bottle or other container constructed to receive two or more liquid substances in separated condition and to provide the bottle or container with discharge openings so that the two or more liquid substances may be discharged at the same time.

Another object of our invention is to provide a bottle of this kind having separated container spaces or chambers with means for regulating the discharge of one or more of the liquid substances from the bottle or container so that the desired proportion of liquid substances will be discharged and applied for use, with assurance that a thorough mixture of the liquid substances will be had when discharged from the bottle or container or when used.

With these and other objects in view, the invention consists in a bottle or container having a plurality of separated containing spaces or chambers for liquid substances and at least one discharge opening for each space or chamber, and it further consists in providing each of the discharge openings with means for closing the same, and for opening the same to any degree desired so that any proportion of the liquid substances may be discharged by inverting the bottle and a proper application made for the purpose required.

The invention further consists in the novel construction, and arrangement and combination of parts to be hereinafter described and more particularly pointed out in the subjoined claims.

In the drawings:—

Fig. 1 is a side elevation of a dispensing bottle showing the lower end thereof in section and illustrating our invention in what we now consider its preferred form. 60

Fig. 2 is an enlarged vertical section through the upper end of the bottle.

Fig. 3 is a plan view of the cap or discharge regulating device of the bottle.

Reference being had to the drawings in detail, like numerals of reference refer to like parts in the several figures.

We might here state that the bottle consists of two bottle members, one arranged within the other and preferably so that the inner bottle may be removed through the neck of the outer bottle. From this it will be apparent that, in some cases, the proportion of the liquid substances to be used is such that the liquid substance within the inner bottle will be dispensed in smaller quantities than the liquid substance within the outer bottle, but for some purposes this arrangement may be reversed, or if desired, the capacity of the bottle members may be alike. Where, however, a restricted neck is employed and it is desirable to remove the inner bottle from the outer bottle, the inner bottle will necessarily have a capacity considerably less than the outer bottle. 85

Our invention essentially comprises a bottle or container 4 and a cap or discharge regulating device 5, the bottle or container being provided in any suitable manner with separated liquid containing spaces or chambers while the cap or regulating device is constructed or equipped to permit the separate discharge of either liquid substance contained within the bottle or the discharge of both liquid substances in any desired proportion. 95

It is to be understood that the principle involved in this invention may be enlarged upon by increasing the number of liquid containing spaces or chambers within the bottle or container and providing each with a separate discharge opening or openings, the spaces being separated one from another in any suitable manner, and although we have herein shown individual bottle or container members arranged one within another, this may be otherwise arranged without departing from our invention or sacrificing any of the advantages thereof. 105

In preferred form, the bottle or container 110

4 comprises an outer bottle member 6 having a restricted neck portion 7 and an inner bottle member 8 in the form of a vial having its upper end tapered, as at 9, said inner bottle member having its largest diameter smaller than the interior diameter of the neck of the outer bottle member so that it may be conveniently removed from the latter. The outer bottle member has preferably an inwardly pressed boss or nib 10 arranged axially in the bottom thereof, while the inner member or vial has a depressed portion 11 formed in its bottom to correspond to the boss or nib 10, which it receives. The inner bottle member or vial is therefore retained in central position within the outer bottle member at its lower end.

The neck 7 of the outer bottle member 6 serves as a convenient hand grip, and at its upper end is provided with a spirally arranged rib 12 serving as screw threads.

The cap or discharge regulating device 5 is preferably constructed of metal, for instance, composition white metal die-cast, but it may be constructed of any other suitable material. This cap or discharge regulating device comprises a body portion 13 having an annular depending flange or skirt 14 provided with internal spiral grooves 15 to receive the spiral rib 12 of the outer bottle member, said grooves serving as internal threads so that the cap is threaded onto the bottle. This body portion has a downwardly facing shoulder 40 between which and the edge of the outer bottle member a rubber or other suitable washer 16 is interposed, said washer being firmly clamped in position when the cap or regulating device is tightened on the bottle, thereby preventing the leakage of liquid from the outer bottle member between said member and the cap.

The body portion 13 also has an upwardly extending tube-portion 17 arranged axially thereon, said tube portion being externally threaded, as at 18. Arranged within said body portion is a gasket seat 19, which is formed by hollowing out and tapering said body portion from the face or shoulder 40 upwardly, and in this seat is arranged a tapered rubber or other gasket 20, which surrounds the upper tapered end of the inner bottle member or vial 8. When the cap or discharge regulating device is tightened upon the outer bottle member, said gasket will be compressed around the inner bottle member or vial and prevent leakage of liquid from said outer bottle member along the upper end of said vial. The vial is therefore maintained centrally within the outer bottle member at its upper end, and its outlet or discharge opening is positioned to discharge into the upwardly-extending tube-portion 17 of said body portion.

Extending through said body portion 13 are discharge passages or ducts 21, said ducts

extending from the downwardly facing shoulder or wall 40 to the flat upper surface 22 of said body portion. The lower ends of said passages or ducts 21 are therefore open to the liquid within the outer bottle member, but with a view of closing said ducts or passages to prevent the discharge of liquid from the outer bottle member, we have provided a closure or valve 23 having discharge openings 24 adapted to be brought into registration with the passages or ducts 21, or to be moved out of registration therewith, as may be desired. This closure or valve is in the form of a disk having an upstanding axial tube 25 provided at its upper end with an outwardly extending flange 26 and being internally threaded, as at 27, for engagement with the external threads on the upwardly-extending tube-portion 17 of the body portion. The closure or valve 23 may be said to be dished by reason of its having an annular depending flange 28 at its marginal portion. In order to conveniently rotate said valve to bring the outlets 24 thereof into or partly into registration, or completely out of registration with the passages or ducts 21, said closure is notched or otherwise roughened around its edge, as at 29, thus providing convenient means whereby a firm finger grip can be obtained when it is desired to rotate said closure or valve.

Within the dished portion of said closure or valve; that is to say, lying against the under side of the disk portion of said valve and confined wholly within the depending flange 28 is a rubber washer 30 having a central opening 31 through which the upwardly-extending tube-portion 17 projects, and this washer is also provided with two openings 32 maintained in registration with the outlets 24 of said closure or valve by reason of said washer being pressed firmly into the dished portion of said closure or valve and maintained therein by its inherent resiliency. This washer is preferably constructed of comparatively soft material so that it will yield easily under pressure and is made of sufficient thickness to maintain a tight joint between the closure and the upper flat surface of the body portion of said cap, even though allowed to expand to a considerable degree.

In Fig. 2 we have shown the upper end of the bottle portion on an enlarged scale, but we desire here to state that the threaded portion of the parts by means of which the closure or cap is maintained on the upwardly-extending tube-portion 17 are comparatively fine or of small pitch so that when rotating the closure or valve 23 a quarter of a revolution, releasing the pressure on the washer 30 by such action will not destroy the seal provided thereby.

In Figs. 2 and 3 we have shown the dis-

charge openings 24 of the closure or valve and the openings 32 in the washer 30 alined with the passages or ducts 21 in the body portion 13 of the cap, and from this it will be clear that it requires only slight rotation of the closure or valve in either direction to move the openings 24 and 32 out of registration with the passages or ducts 21. When rotating said closure or valve in one direction the washer 30 will be compressed slightly, while when rotating it in the other direction, the compression of the washer will be slightly relieved, but in either case the washer will effectively seal the ducts or passages 21 so that when inverting the bottle no liquid can escape therefrom.

After using the bottle a considerable length of time, it may be found that the washer 30 will become worn and will require further compression to effectively seal the passages 21. For this purpose we have provided the closure or valve with a second pair of outlet openings 33, and the washer 30 will be provided with similar openings which register with the openings 33.

By providing the closure or valve—which term in its broad sense includes the washer 30—with more outlet openings than there are discharge passages or ducts in the body portion of the cap 13, the closure or valve may be adjusted to meet the requirements of the washer portion thereof.

When replacing the washer 30 with a new washer, it may be found necessary to move the discharge openings 33 into registration with the passages or ducts 21 of the body portion of the cap, and by adding to the number of openings shown in the closure or valve in Fig. 3, a smaller degree of vertical movement will take place when rotating the closure or valve upon adjusting it to bring another pair of discharge openings into registration with the passages or ducts 21.

The upwardly-projecting tube-portion 17 has a slightly restricted passage 34 through the upper end thereof flared to receive a conical valve 35 formed on the tip member 36, said tip member being internally threaded as at 37, for engagement with the external threads 18 of the tube-portion 17. The lower end of said tip member is slightly enlarged, as at 38, so that it may be positioned to bring its lower edge into a plane beneath the outstanding flange 26 formed on the upper end of the tube portion of said closure or valve, and when said tip member is so positioned, the lower end thereof is turned inwardly, as at 39, by any suitable means. Therefore when the tip member 36 is threaded onto the upper end of the tube portion 17, the valve 35 will be firmly seated against the flaring wall at the upper end of said tube portion, which flaring wall serves as a valve seat for said valve.

Upon unthreading said tip member the

valve 35 will become unseated, but removal of said tip member will be prevented by the inturned portion 39 thereof engaging the stop formed by the outstanding flange 26, thus limiting the degree to which the upper end of the tube portion may be opened.

When the bottle is not in use, the valve 35 is closed against its seat and the passages or ducts 21 in the body portion of the cap are closed by the closure or valve 23, which has the openings 32 and 24 therein moved out of registration with said ducts or passages with the latter closed by the washer portion of said closure or valve.

When it is desired to dispense the liquid substance from the inner bottle member or vial 8, the tip member may be rotated to disengage the valve 35 from its seat, and upon inverting the bottle the liquid will pass through the upwardly-projecting tube-portion 17, the extent of opening of said valve regulating the discharge of the liquid substance.

When all discharge openings of the bottle are closed and it is desired to discharge only liquid from the outer bottle member 6, the closure or valve 23 is rotated to bring the outlets 24 and openings 32 in the valve into registration with the passages or ducts 21, or only partly into registration, as may be desired, depending on the quantity of liquid substance it is desired to dispense from said outer bottle member.

In many instances a mixture of liquid substances at the point of use is highly desirable, and in some cases this requires different proportions of the two liquid substances, but disregarding the proportions, whenever it is desired to dispense two liquid substances simultaneously, both the tip member 36 is rotated to unseat the valve 35 and the closure or valve 23 is rotated to uncover the ducts or passages 21. Under such conditions the liquid substances from both bottle members will be dispensed upon inverting the bottle. If more liquid from the inner bottle member is desired the valve 35 is opened to a further degree. If less is desired, said valve may be somewhat closed, or if it is found that more or less of the liquid from the outer bottle member is required, the regulation of the closure or valve 23 will be made accordingly.

The principle in this invention involves the dispensing of a plurality of liquid substances from a single container, which term "single container" is intended to mean any article capable of receiving liquids in separated form and keeping them separated, whether by means of one container member being inserted within another, or whether the liquids are maintained in separated condition within the container in any other manner; and therefore it may be found

desirable for certain purposes to arrange for the dispensing of more than two liquid substances, all of which it is our intention to protect herein under the principle involved.

5 Having thus described our invention, what we claim is:—

1. A container having a plurality of liquid substances maintained in separated condition and having attached means for permitting the discharge of the liquid substances separately or together while attached to said container.

2. A container embodying means for maintaining a plurality of liquid substances in separated condition therein, and means for regulating the discharge of either or both said liquid substances from the container.

3. A container comprising means for maintaining two liquid substances in separated condition, and means for regulating the proportional discharge of said liquid substances from said container.

4. A container comprising means for maintaining two liquid substances in separated condition with a separate discharge for each liquid substance, means for separately regulating the discharge of each liquid substance and for permitting the simultaneous discharge of both liquid substances in any desired proportion.

5. A dispensing bottle comprising an outer bottle member, an inner bottle member, and a cap fitting both bottle members in a liquid-tight manner, said cap having an outlet for said outer bottle member and an outlet for said inner bottle member and having also means for controlling each of said outlets independently.

6. A dispensing bottle comprising an outer bottle member, an inner bottle member within said outer bottle member, co-acting means on said bottle members for maintaining the inner bottle member at its lower end centrally within said outer bottle member, and means for regulating the simultaneous or independent discharge of liquid substances from both bottle members.

7. A dispensing bottle having an outer bottle member provided axially with an inwardly extending boss at its bottom, an inner bottle member within said outer bottle member having an axial depression in its bottom receiving said boss, a cap secured to said outer bottle member and having means to centrally maintain the upper end of said inner bottle member and seal the same to prevent leakage from the outer bottle member along said inner bottle member, said cap having a discharge opening for each bottle member, and means for regulating the discharge of liquid substances from said bottle members through said discharge openings.

8. A dispensing bottle comprising an outer bottle member having a reduced neck portion, an inner bottle member removable

through the neck of said outer bottle member, a cap sealing the upper ends of said outer bottle member and said inner bottle member and having a discharge opening therein for each bottle member, and independent means for regulating the discharge of liquid substances from said bottle members through their discharge openings.

9. A dispensing bottle comprising an outer bottle member, a cap threaded onto said outer bottle member, an inner bottle member having its upper end projecting above the upper edge of said outer bottle member and being sealed by said cap, a central discharge opening through said cap for discharging a liquid substance from said inner bottle member, and a discharge opening through said cap for discharging a liquid substance from said outer bottle member.

10. A dispensing bottle having an outer bottle member provided with external screw threads, a cap having internal screw threads engaging the external screw threads of said outer bottle member, said cap having a gasket seat and a gasket within said seat, an inner bottle member within said outer bottle member engaged at its upper end by said gasket, and a discharge opening in said cap for said inner bottle member, said cap having discharge passages or ducts opening to the upper end of said outer bottle member and having also means for closing said passages or ducts and the discharge opening for said inner bottle member.

11. A dispensing bottle comprising an outer bottle member, an inner bottle member having a tapered upper extremity projecting above the upper edge of said outer bottle member, a cap for said bottle members, a rubber washer within said cap bearing against the upper edge of said outer bottle member, and a gasket within said cap fitting around the tapered upper end of said inner bottle member, said cap having a body portion provided with spaced discharge ducts or passages around its axis, a central discharge passage or opening for said inner bottle member, a tip member threaded onto the upper end of said body portion and having a valve closing said central discharge passage, and a rotatable valve provided with discharge openings adapted to be moved into or out of registration with said ducts or passages.

12. A dispensing bottle comprising two bottle members arranged one within the other, combined with a cap adapted to seal the upper ends of both bottle members and prevent the discharge of liquid from each bottle member around the upper edge thereof, said cap having an upwardly-extending axially-disposed tube portion externally threaded and a duct or passage therein for the outer bottle member, a rotatable closure provided with an internally threaded tube

portion engaging the threads of said first-mentioned tube portion and having a discharge opening, a washer within said closure having an opening maintained in registration with the opening of said closure, and a tip member threaded onto said first-mentioned tube member and having a valve closing the upper end of said tube member.

13. A container adapted to be inverted when dispensing a liquid substance or sub-

stances and having means for separately maintaining two liquid substances, and means for dispensing either or both of said liquid substances and for controlling the proportions of said liquid substances when dispensed together.

In testimony whereof we affix our signatures.

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