

W. J. WARNER & A. FEILER.

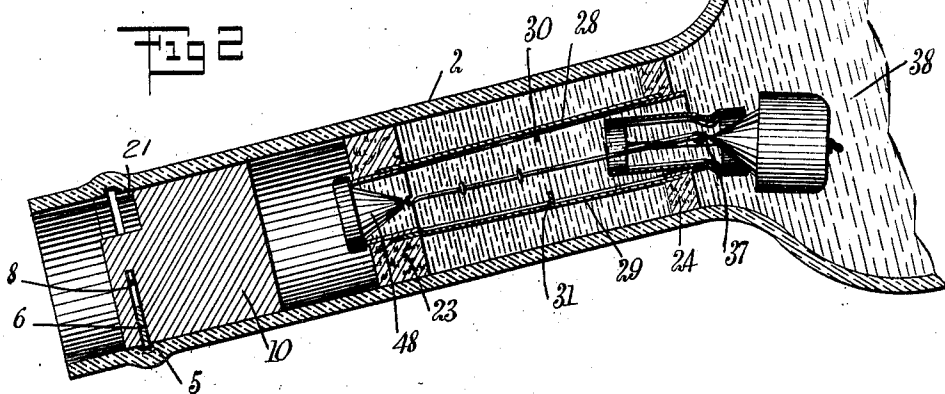
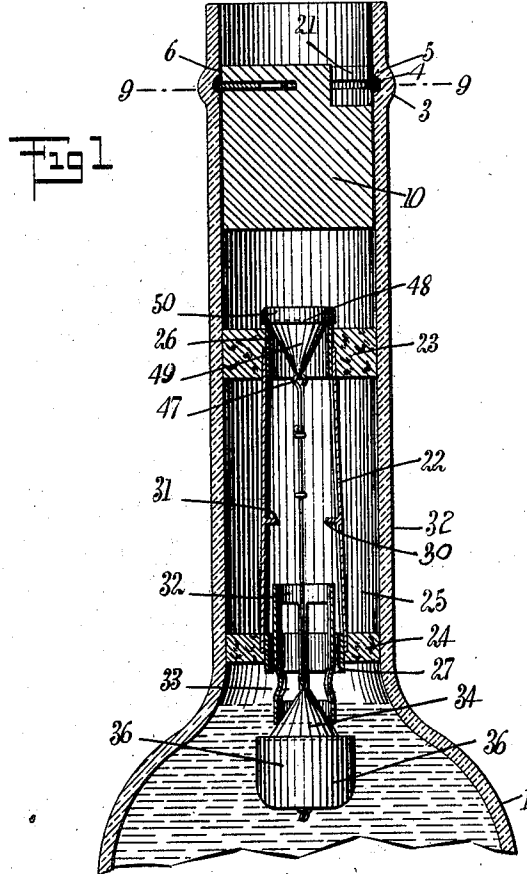
STOPPER FOR BOTTLES.

APPLICATION FILED APR. 1, 1912.

1,038,465.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.



WITNESSES

C. J. Hachenberg.

A. L. Kitchin.

INVENTOR

William J. Warner

Albert Feiler

BY Munn & Co

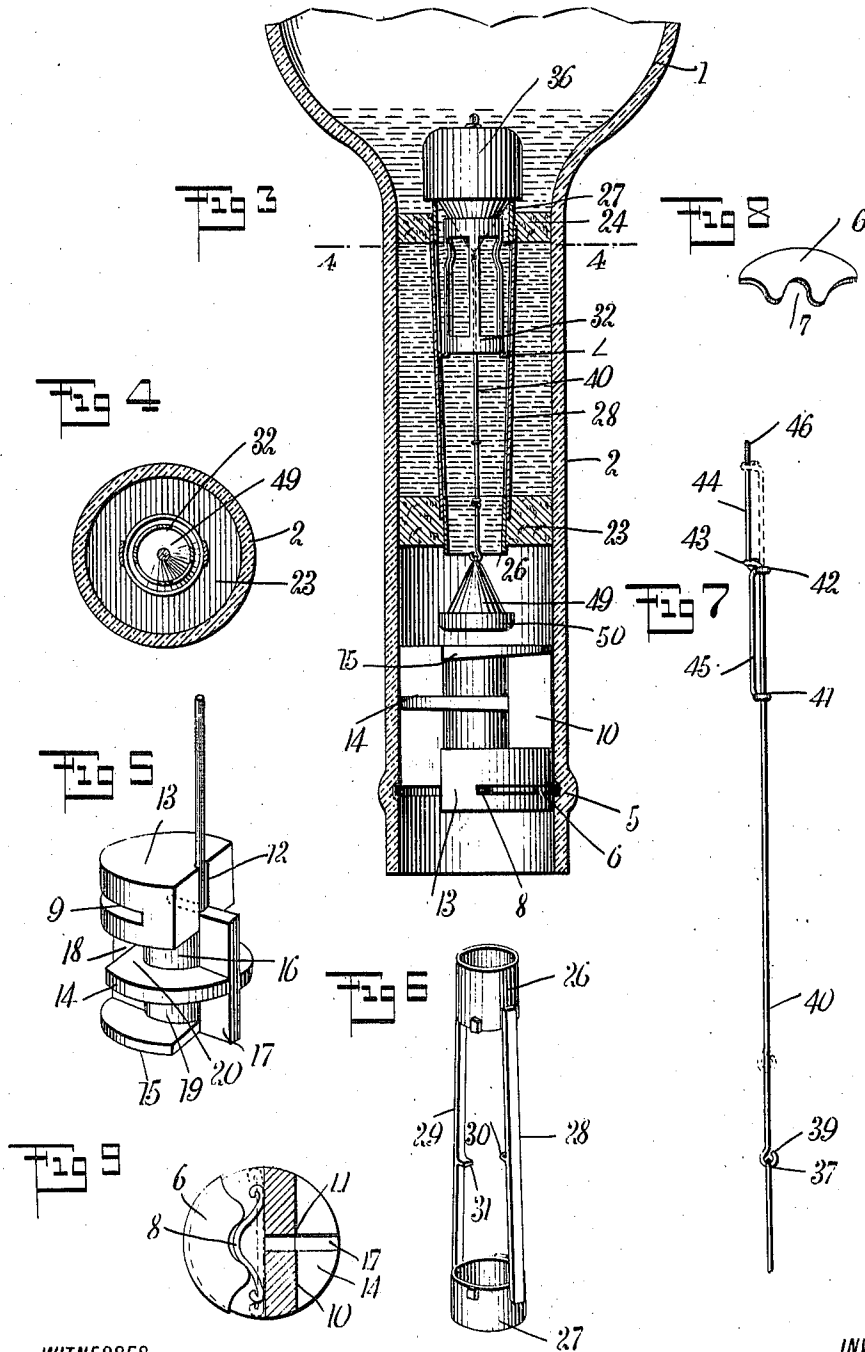
ATTORNEYS

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WITNESSES
C. J. Hachenberg.
A. L. Kitchen

INVENTOR
William J. Warner
Albert Reiter
BY *Mum Co*
ATTORNEYS

UNITED STATES PATENT OFFICE

WILLIAM J. WARNER AND ALBERT FEILER, OF NEW YORK, N. Y.

STOPPER FOR BOTTLES.

1,038,465.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed April 1, 1912. Serial No. 687,587.

To all whom it may concern:

Be it known that we, WILLIAM J. WARNER, a citizen of the United States, and ALBERT FEILER, a subject of the King of Hungary, and both residents of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Stopper for Bottles, of which the following is a full, clear, and exact description.

This invention relates to improvements in bottle stoppers, and has for an object to provide an improved structure for resisting the refilling of the bottle and for acting as a dispensing device for dispensing predetermined quantities of liquid.

A further object of the invention is to provide a valve construction designed to resist refilling of the bottle and causing measured quantities to be dispensed, this construction being associated with a plug or stop device designed to permit fluid to freely pass, but to resist the passage of any mechanical instrument.

In carrying out the objects of the invention, the same may be applied to the neck of any desired form of bottle. In applying the device the valve construction is arranged near the juncture of the neck with the body portion of the bottle so as to be able to freely control the action of liquid and to cause measured quantities to be dispensed. This valve mechanism has spaced stops or partitions and a valve structure at each end connected by suitable means which will permit one valve to be open at a time, whereby the space between the partitions may be alternately filled and discharged from the interior of the bottle. Arranged near the upper or rather the outer end of the neck of the bottle is a guard or protecting stop formed with a plurality of passageways therein designed to prevent the entrance of an instrument but arranged so as to permit the free passage of fluid in a tortuous manner therethrough.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section through the neck and upper part of a bottle with an embodiment of the invention shown applied, the invention being shown partly

in section; Fig. 2 is a view similar to Fig. 1 except that the bottle is shown partially inverted; Fig. 3 is a view similar to Fig. 1 except that the bottle is entirely inverted; Fig. 4 is a section through Fig. 3 on the line 4-4; Fig. 5 is a detail perspective view of a guard; Fig. 6 is a detail perspective view of a valve retaining and guiding member; Fig. 7 is a detail perspective view of a pair of interlocking connecting rods; Fig. 8 is a detail perspective view of a locking plate for holding the guard in place; and Fig. 9 is a section through the guard shown in Fig. 5 approximately on the line 9-9 of Fig. 1.

Referring to the accompanying drawings by numerals, 1 indicates a bottle of any desired kind formed with a neck 2 having a bead 3 which results in a groove 4. The guard plate 6 is formed with a notch 7 in which is pressed a wire 8 by means of a suitable tool. The guard plate 6 and the wire or locking bar 8 is arranged in a slot 9 formed in the upper part of the guard 10. By this construction and arrangement the guard is held properly in place and cannot be removed without being broken. When placing the guard 10 in position, the plate 6 is placed in the slot 9 as well as the bar 8. The bar 8 is usually placed in position while comparatively straight, as shown in dotted lines in Fig. 9, and is then bent by a tool inserted through a notch 11 for pressing inward the bar 8 to the position shown in full lines in Fig. 9, when it will cause the plate 6 to move outward and to engage the groove 4 for locking the guard 10 in place. After the bar 8 has been bent to the position shown in Fig. 9, the bar is positively locked in place and cannot be removed unless something is broken. After fastening the bar properly in place the aperture 11 is usually filled with plaster of Paris and also a groove 12. The guard 10 is formed with an upper parti-cylindrical member 13 in which is arranged a central parti-cylindrical member 14 and a bottom parti-cylindrical member 15. These parti-cylindrical members are connected by a central integral portion 16 and by bars 17 and 18. However, the fluid may easily pass in either direction through the chambers 19 and 20 and also through an opening 21 arranged opposite the parti-cylindrical member 13. From this it will be seen that the guard 10 permits the free entrance of fluid and the free exit of fluid,

though by forming the tortuous passages and chambers 19 and 20, a tool cannot be forced past the guard 10 without breaking the same, and consequently the valve mechanism arranged below the guard 10 cannot be tampered with.

The valve mechanism 22 which is arranged below the guard 10, comprises a plurality of members designed to permit the flow of liquid out of the bottle 1, but resist the flow of liquid into the bottle 1, and also to provide means for dispensing from the bottle 1, measured quantities of the liquid in the bottle. In forming the valve structure 22, partitions 23 and 24 are provided for defining a measuring chamber 25. Rigidly connected in any desired manner to the partitions 23 and 24 are tubular members 26 and 27 (Fig. 6), which are connected by guides or bars 28 and 29. The bars 28 and 29 are formed with stops 30 and 31. The stops 30 and 31 are adapted to engage a loosely reciprocating sleeve 32 formed with a plurality of slots 33. The sleeve 32 is designed to normally remain in engagement with the beveled portion 34 of a valve 36 so as to guide the beveled portion 34 into engagement with the lower edge of the sleeve 27. The stops 31 and 32 are arranged to support the sleeve 27 when the device is inverted, as shown in Fig. 3, whereupon the sleeve 27 loosely fits against the beveled portion 34 and the valve 36 rests against the sleeve 27. The valve 36 has connected therewith a securing eye 37 which is preferably formed by bending over the end of the rod and having the rod pass entirely through the valve 36 and bend over at 38 upon the stop. Pivotaly connected with the eye 37 is an eye 39 formed on a rod 40. The rod 40 extends upward and through eyes 41 and 42, and is formed with an eye 43 at the upper end, which encircles the rod 44. The rod 44 merges into the eye 42 and then into the connecting portion 45, after which it ends in eye 41, as shown more clearly in Fig. 7. The upper end of the rod 44 is formed with an eye 46 connected to a suitable eye 47, secured to a valve 48. The valve 48 is formed with a beveled portion 49 and an enlarged portion 50 designed to rest on the sleeve 26 in a similar manner to the way the enlarged portion 36 rests on the sleeve 27. By the construction and arrangement of the interlocking eyes 41, 42, and 43, rods 40 and 44 may have an independent longitudinal movement so that the valves may take their respective seats independently. Also by the connecting of the valves to the respective rods with eyelets the respective valves are permitted a free pivotal movement which together with the free longitudinal movement will insure a positive seating of the valves independently, though ordinarily the

weight of one valve will cause positively the seating of the opposite valve. As shown in Fig. 2 the valve 48 will not become unseated until the valve 36 has moved to its seat, or substantially to its seat. When the valve 36 starts to move to its seat the same will continue the movement until properly seated, as the pressure of the liquid behind the same will force it to its seat as well as the action of gravity, so that at each inverting of the bottle the valve 36 will be seated at or before the time that the valve 48 is unseated. It will be evident that the valve 36 is permitted a free movement independent of the valve 48, as the same may move to its seat first and any movement of the valve 48 will merely hasten the action of the valve 36 in becoming seated.

In operating the device properly the bottle is turned to substantially the angle shown in Fig. 2 and held in that position until the chamber 25 has been filled, whereupon the bottle is completely inverted, as shown in Fig. 3, which will cause the valve 48 to open and the valve 36 to close. This will permit the flowing of the fluid from the chamber 25 and as the chamber 25 is of a predetermined size, a predetermined quantity of fluid is dispensed.

It will be, of course, evident that the size of the chamber 25 may be varied, as for instance by moving the partitions 23 and 24 toward each other or away from each other.

Having thus described our invention we claim as new and desire to secure by Letters Patent:—

1. In a device of the character described, the combination with a bottle formed with a neck, of a valve structure positioned in said neck, said valve structure comprising spaced partitions acting with part of said neck for defining a measuring chamber, a valve seat provided in each of said partitions, a valve for each of said seats, a pair of telescopically connected rods flexibly connected at their ends to said valves whereby said valves may act normally independently but acting on each other when the bottle is in a substantially vertical position.

2. In a device of the character described, the combination with a bottle formed with a neck, of a valve structure positioned in said neck, said valve structure comprising spaced partitions, a valve seat arranged in each of said partitions, a valve co-acting with each of said valve seats, flexible means for connecting said valves, and a loosely positioned guiding sleeve for guiding one of said valves to its seat, said sleeve being formed with an annular depression or groove portion adapted to engage the edge of the valve seat with which it co-acts for holding the valve which it guides from its seat until said bottle is substantially in a vertical position.

3. In a device of the character described, the combination with a bottle formed with a neck, of a guard arranged in said neck near the outer end thereof, said guard having a passageway extending therethrough, and a combined valve and measuring device arranged in said neck between said guard and the interior of said bottle, said device comprising spaced partitions which define a measuring chamber when taken with part of said neck, a sleeve arranged in each of said partitions and defining a passageway therethrough, a pair of connected bars for connecting said sleeves, each of said bars being formed with a stop, a valve for each of said sleeves adapted to close the same at different times, a pair of rods connected to said valves and flexibly connected together whereby each of said valves are permitted an independent longitudinal movement, and a perforated guiding sleeve positioned in one of said first mentioned sleeves and adapted to engage and guide one of said valves to its seat on one of said first mentioned sleeves, said perforated sleeve engaging said stop and supported thereby for holding the same in position for continu-

ously acting as a guide for said first mentioned valve.

4. In a device of the character described, the combination with a bottle formed with a neck, of a valve structure positioned in said neck, the said valve structure comprising spaced partitions, a valve seat arranged in each of said partitions, a valve co-acting with each of said valve seats, and a rod connected with each of said valves, the said rod comprising a pair of independent sections, one of which has a loop at the end encircling the other section, said last-mentioned section having a pair of loops encircling said first-mentioned section whereby said sections have telescoping movement in respect to each other in order to permit one valve to close before the other valve opens.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM J. WARNER.
ALBERT FEILER.

Witnesses:

A. L. KITCHIN,
PHILIP D. ROLLHAUS.