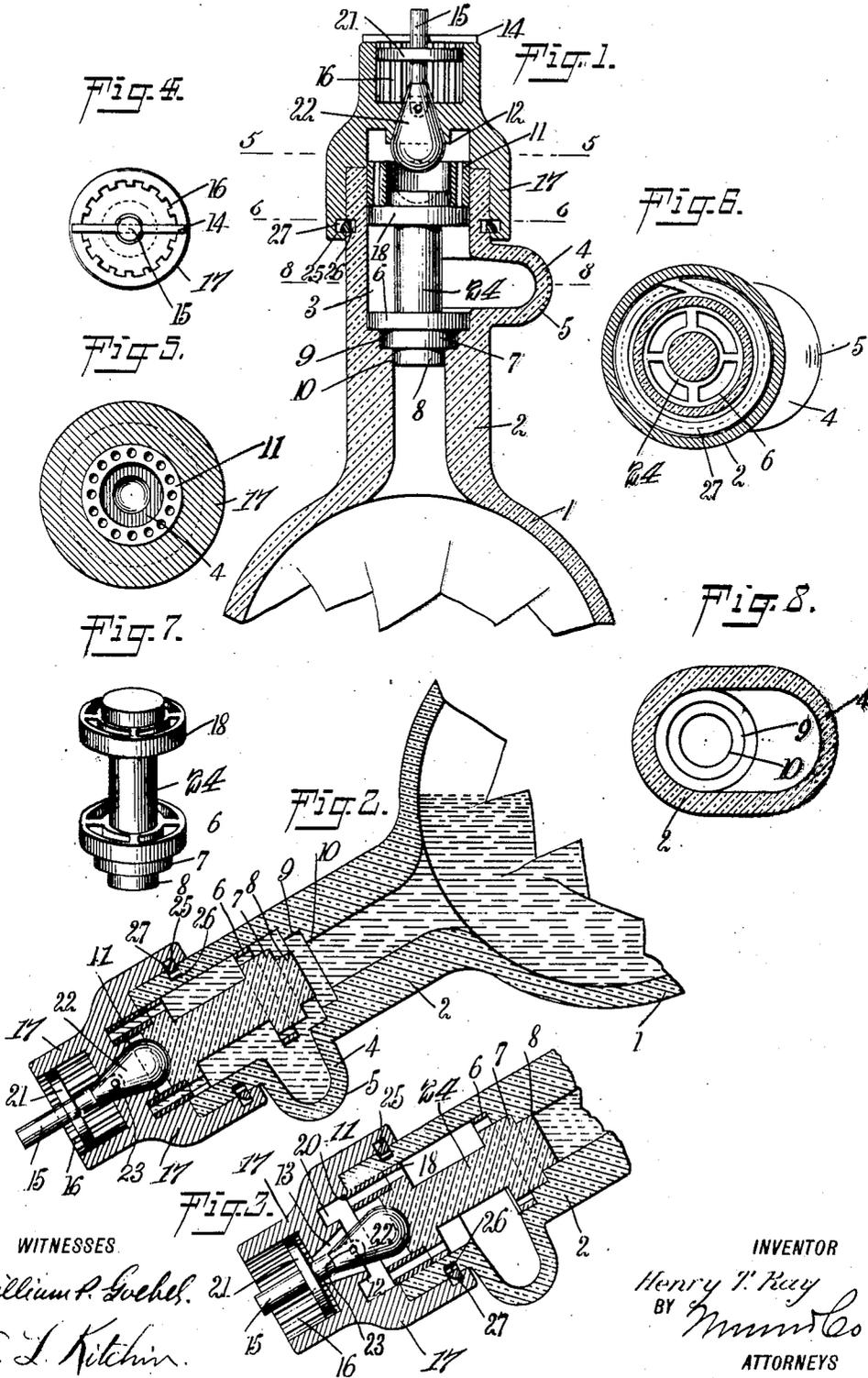


H. T. RAY.  
 BOTTLE STOPPER.  
 APPLICATION FILED MAR. 1, 1912.

1,039,592.

Patented Sept. 24, 1912.



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# UNITED STATES PATENT OFFICE.

HENRY TOBEY RAY, OF HUDSON, NEW YORK.

BOTTLE-STOPPER.

1,039,592.

Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed March 1, 1912. Serial No. 680,859.

*To all whom it may concern:*

Be it known that I, HENRY T. RAY, a citizen of the United States, and a resident of Hudson, in the county of Columbia and State of New York, have invented a new and Improved Bottle-Stopper, of which the following is a full, clear, and exact description.

This invention relates to improvements in stoppers and measuring devices for dispensing receptacles, and has for an object to provide an improved structure which will dispense predetermined quantities of liquid.

A further object of the invention is to provide a valve mechanism acting as a stopper for bottles and the like, from which liquid is designed to be dispensed, which will permit the drawing of successive predetermined quantities of liquid from the receptacle, but will resist any refilling of the receptacle through the discharge point.

In carrying out the objects of the invention, a reciprocating valve structure is provided arranged in a housing and formed with an open space which is designed to be filled by a liquid from a receptacle to which the device is connected when the valve is in an open condition. When the valve is in a closed condition the liquid in the valve structure proper, or the measuring chamber, may freely flow from the device. The valve structure is adapted to be used in connection with bottles, drinking fountains, or other receptacles for dispensing liquid where it is desired to dispense the same in predetermined quantities and where it is desired to provide means for resisting the refilling of the receptacle through the discharge opening. In arranging the device upon a bottle, for instance, the neck of the bottle is formed with an enlarged opening for receiving a reciprocating substantially spool-shaped valve member. A cap structure is adapted to fit over the end of the bottle which may be held in place by a spring or other desired structure. An operating reciprocating plunger is provided which is manually operated for holding the valve member against its seat whereby the liquid cannot flow from the bottle but any liquid around the small part of the valve may freely flow out of the end of the cap.

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 an embodiment of the invention as applied to a bottle, the same being shown in connection with a bottle merely for the purpose of illustration; Fig. 2 discloses the structure shown in Fig. 1 in an inverted position; Fig. 3 is a view similar to Fig. 2 with the valve member manually forced to its seat whereby the liquid around the valve member may flow out the discharge cap; Fig. 4 is a top plan view of a cap and associated devices; Fig. 5 is a section through Fig. 1 on the line 5-5; Fig. 6 is a section through Fig. 1 on the line 6-6; Fig. 7 is a detail perspective view of the valve member proper; and Fig. 8 is a section through Fig. 1 on the line 8-8 the valve being removed.

Referring to the accompanying drawings by numerals, 1 indicates a bottle of any desired structure having a neck 2. It will be understood that the device is shown with a bottle merely for the purpose of illustration. The neck 2 is formed with a chamber 3 which is caused to have a larger area by reason of an enlargement 4. On the enlargement 4 or any convenient point of the neck 2, are graduations 5 (Fig. 6) for indicating the amount of fluid in the chamber 3. Arranged to reciprocate in the chamber 3 is a valve 24 formed with a spider structure 6 and offset portions 7 and 8 which fit into valve seats 9 and 10 respectively. It will be evident that when the bottle is inverted the valve member 4 will move downwardly to the position shown in Fig. 2, but that fluid cannot flow from the bottle 1 until the offset portions 9 and 10 have been entirely disengaged from their seats. Just before the offset 7 is disengaged from its seat 9 the washer 11 will engage the projection 12 whereby no fluid can pass into the opening 13 (Fig. 2) unless the knob structure 22 is forced inwardly as shown in Fig. 3. However, the fluid may pass into the chamber 3 and fill the same, as clearly shown in Fig. 2. When it is desired to remove the fluid in the chamber 3 a pin 14 is removed and a plunger 15 is depressed, as shown in Fig. 3, so as to move the valve 24 back to its original position, whereupon the washer 11 will become disengaged from the enlargement or projection 12 and permit the fluid in the chamber 3 to freely flow out through the opening 13

and from thence through the grooves 16 in cap 17. At the upper end of the valve member 24 is provided a guiding spider 18 through which the liquid may flow freely when the device is in the fixed position shown in Fig. 3. The washer 11 is also provided with apertures for the flow of fluid therefrom.

The manually operated plunger 15 is provided with a guiding washer 21 and formed with an aperture for accommodating the pin 14 which is manually removed when it is desired to withdraw fluid from the bottle 1. Connected with the inner end of the plunger 15 is a knob structure 22 which is pivotally connected at 23 so as to properly operate for depressing the valve member 24 when the plunger is depressed. The plunger 15 and associated parts are mounted in a cap 17 which is provided with an annular groove 25 registering with a groove 26 in the neck 2. A spring 27 is positioned in the groove 26 and is adapted to be compressed when the cap 17 is first placed over the neck 2 so as to permit the cap to be positioned properly. When the annular grooves 25 and 26 are brought into registry the spring 27 will expand and consequently lock the cap 17 from being removed. When the pin 14 is in its position as shown in Fig. 1, the knob 22 tightly closes the opening 13 and acts as a stopper for preventing any foreign matter from entering into the chamber 3.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a device of the class described, the combination with a receptacle formed with a neck portion having a plurality of offsets therein, of a reciprocating valve member arranged in said neck portion, said valve member having a plurality of offset projections fitting into said offset portions of said neck, said valve member being formed with a restricted portion centrally, a spaced annular guiding member whereby a chamber is provided in said neck portion, said valve member being adapted to reciprocate under the action of gravity in either direction, and a reciprocating manually controlled member adapted to engage and move said valve member in one direction for seating said projecting offset portions on the valve member and opening said chamber to the exterior of said neck.

2. In a combined valve member and measuring device, a housing formed with a chamber having a plurality of valve seats, a reciprocating valve member formed substantially spool-shaped and with projections for fitting into said valve seats simultaneously, a discharge cap structure formed with a socket portion, a washer formed with apertures extending therethrough arranged on one end of said valve member and designed to be moved into said socket portion when said projections are moved out of contact with said valve seats whereby liquid may flow into said chamber, and manually operated means for forcing said valve member back so that said projection will fit on said seat and said washer will be forced out of said socket for opening a passageway for the fluid in said chamber to pass out of said discharge cap.

3. In a device of the character described, the combination with a receptacle formed with a neck portion having a plurality of offset valve seat portions, of a reciprocating valve member formed with a plurality of projections fitting into said offset valve seat portions, a central reduced portion, and a spaced annular guiding member at the end of said reduced portion opposite said projections, a perforated washer mounted on said annular guiding member, said washer being formed as a sleeve, a cap fitting over said neck formed with an annular groove for accommodating said washer when said valve member is completely open and out of engagement with said offset valve seat portions whereby the contents of said receptacle cannot go farther than the space around said valve member, and a manually operated knob-shaped stopper for said cap adapted to be engaged and move said valve member so that the projections thereon will fit on said offset valve seat portions on the movement of said valve member under the action of said knob-shaped stopper moving said washer out of said annular groove whereby the contents in the space around said valve may flow out through said cap.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY TOBEY RAY.

Witnesses:

EDWARD WASHBURN SCOVILL,  
EDMOND CHARLES GETTY.