

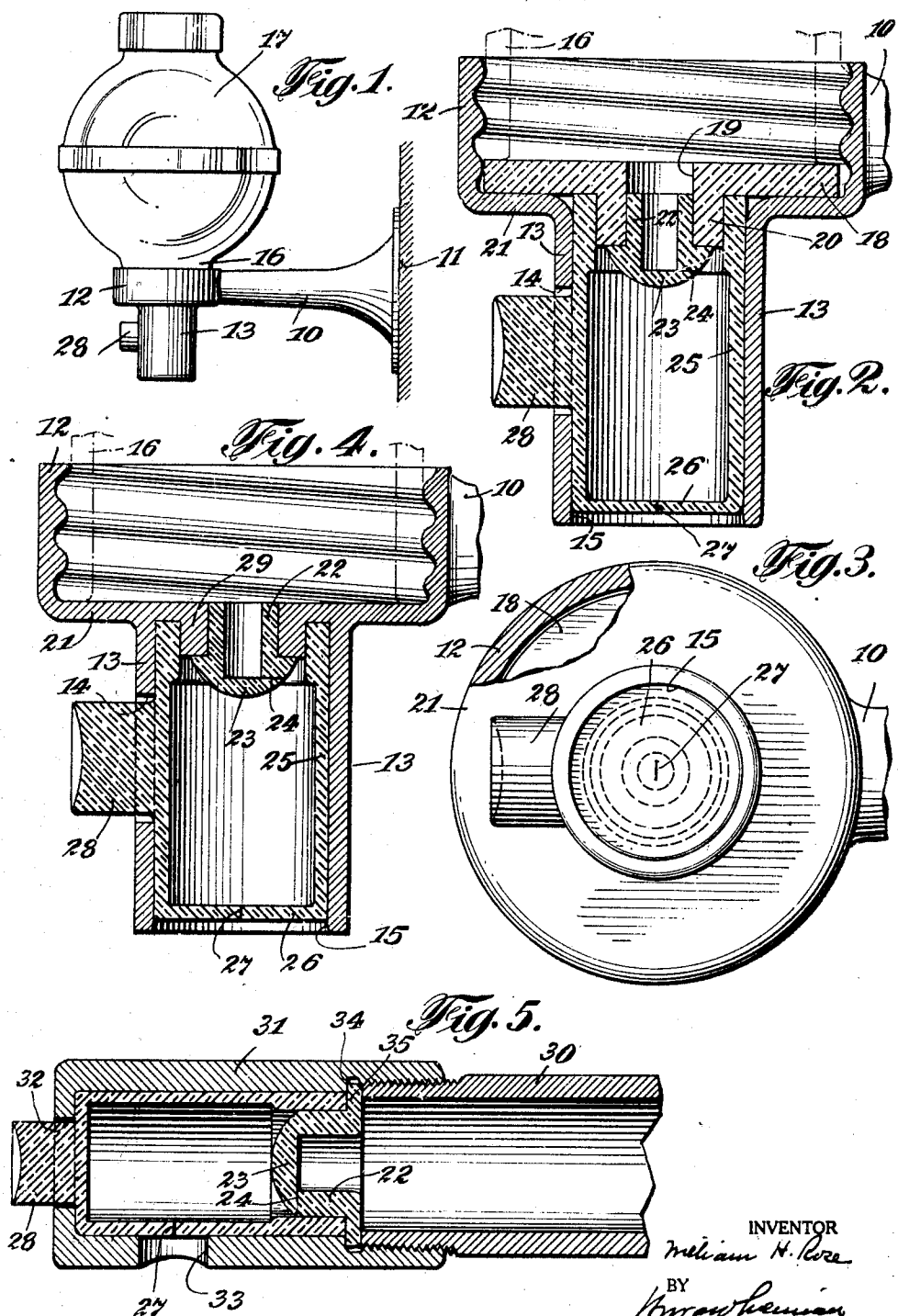
June 16, 1925.

1,542,584

W. H. ROSE

LIQUID DISPENSING DEVICE

Filed Oct. 6, 1924



INVENTOR
William H. Rose
BY
H. H. Freeman
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM H. ROSE, OF JERSEY CITY, NEW JERSEY.

LIQUID-DISPENSING DEVICE.

Application filed October 6, 1924. Serial No. 741,901.

To all whom it may concern:

Be it known that I, WILLIAM H. ROSE, a citizen of the United States, and residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Liquid-Dispensing Devices, of which the following is a full, clear, and exact specification.

My invention relates to liquid dispensing devices and refers particularly to devices of this character suitable for the dispensation of liquid soaps.

In devices of this character it is usual to employ globular glass, or porcelain, liquid reservoirs positioned above the operating elements, the liquid flowing by gravity from the reservoir to said elements.

These reservoirs have a lower annular neck which is placed within and supported by a collar-like metallic support. The jointure between the reservoir neck and the metallic collar must be firm and liquid tight and for these reasons the two elements are usually firmly cemented together.

The valve elements in these devices are frequently of soft rubber, and the frequent use of the device results in rendering the valves inoperative or only partially effective, and hence, they must be replaced with more or less frequency.

In the usually employed devices of this character it is necessary to break the jointure between the glass reservoir and the collar support in order to remove the useless members and replace them with new ones, and as this jointure must be a firm one for reasons previously stated, the severance of the two parts very frequently results in the breaking of the glass reservoir.

In addition, every time these two parts are separated, a new jointure must be made resulting in the possibility of imperfect sealing.

It is evident, therefore, that a liquid dispensing device in which the valves can be removed and replaced without breaking the sealed engagement between the glass reservoir and the metallic support would result in great economy and efficiency.

Experience has shown that the usual means for compressing the bag reservoir, consisting of a separate plunger, usually of a metallic character, which is operated by impinging it upon the bag has serious objectionable features. Besides the liability

of the several moving parts becoming weak and ineffective through use, they have an injurious effect upon the bag itself, as their continued abutment upon the same portion, or spot, of the bag weakens and finally punctures it.

Further, I have found that more effective results can be obtained when the bag reservoir practically abuts upon the sides of the support, as a smaller movement of the plunger is necessary and the contact incident to the pressure is thus brought upon practically all parts of the bag.

My device accomplishes all of these valuable results and presents a means whereby the valve elements may be removed and replaced without breaking the reservoir and support jointure and whereby the wear upon the bag reservoir is reduced to a minimum.

I have described my device with special reference to the dispensing of liquid soaps but it is evident that it may be employed with other liquids.

In the accompanying drawings, illustrating modified forms of the device of my invention, similar parts are designated by similar numerals.

Figure 1 is a side view of one form of my device attached to a wall.

Figure 2 is a vertical section through the supporting member of Figure 1.

Figure 3 is a top plan view of Figure 1 partly broken away for clearness of explanation.

Figure 4 is a vertical section of a modified form of my device.

Figure 5 is a vertical section of another modified form of my device.

The particular form of the device of my invention shown in Figures 1, 2 and 3 of the accompanying drawings comprises a metallic support composed of the arm bracket 10 capable of attachment to a wall 11, the arm member being extended into an annular reservoir support 12 which is extended downwardly into the restricted annular member 13; having an opening 14 in the side thereof and an opening 15 in the bottom thereof. The inner face of the member 12 is internally threaded to mesh with the externally threaded neck 16 of the liquid container 17. An annular disc 18 made of hard rubber, or other suitable material, has a centrally positioned opening 19 and a downwardly

— extended annular neck 20, the disc 18 resting upon the upper face of the shoulder 21 of the member 12.

Positioned within the opening 19, and held therein by frictional contact, is a soft rubber annular flap valve comprising the annular tubular neck 22 with a mushroom shaped bottom 23 cut at 24 to form a flap valve, which will allow the downward passage of liquid therethrough but will not allow the upward forced passage of liquid.

Positioned between the side 13 and the neck 20 is a soft rubber bag-like container or reservoir, formed by the annular side 25 and the bottom 26, the latter having a slit 27 therein which will remain closed under normal conditions of operation but which will open and allow of the outward flow of liquid from the bag reservoir when pressure is exerted upon said liquid. The side 13 is extended into, or is integral with, the plunger 28, having a concave end for convenience of use and extending through the opening 14 of the side 13.

The bag reservoir may be retained in place by frictional contact between it and the members 13 and 20 or it may be cemented therein.

The modified form of my device shown in Figure 4 is similar to that described above, the use of the hard rubber disc 18 being rendered unnecessary by prolonging the shoulder 21 inwardly and then downwardly 29, thus forming a space between the members 13 and 29 for the insertion and retention of the bag 25.

The operation of these devices is as follows:—

A liquid, such as liquid soap is placed in the reservoir which flows through the flap valve into the bag reservoir, filling the latter. The slit valve formed by the bottom 26 of the bag reservoir will not allow the escape of liquid therethrough.

When the delivery of a portion of the liquid is desired, pressure is exerted upon the plunger 28 forcing it inwardly, creating a pressure within the bag reservoir and as the flap valve will not allow the return of the liquid to the reservoir 17, it is forced outwardly through the slit 27. When the inward movement of the plunger 28 is interrupted, the slit valve 27 closes, thus preventing the exit of further liquid through the slit valve. When the source of inward pressure upon the plunger 28 is removed, the bag reassumes its original position, the slit valve 27 remaining closed and the flap valve 23 opening to allow of the inflow of liquid from the reservoir to the bag.

The modified form of my devices shown in Figure 5 is adapted for use with a common supply reservoir which may be feeding a number of such devices. In this device, the general supply pipe 30 is threaded to

the casing 31 having the openings 32 and 33. The casing has an annular shoulder 34 upon which the flange 35 of the flap valve is supported and held in place by the abutment of the supply pipe 30. The rubber bag reservoir has its plunger 28 extending through the opening 32 and the slit 27 is positioned in alignment with the opening 33.

The general operation of this modification is similar to that described before.

In the event of a wearing out, or disarrangement, of the flap valve, necessitating its displacement, the flange 28 is forced inwardly until it is completely within the casing 13 and any suitable means can then be employed for withdrawing the bag downwardly through the opening 15. The flap valve is thus exposed and can be easily removed by any suitable means. A new flap valve is then forced upwardly into place and a bag reservoir forced upwardly through the opening 15 and positioned as shown in Figure 4 of the drawings.

It will thus be seen that the several elements composing the operating means of my device may be easily removed and replaced without breaking the jointure between the receptacle 17 and the support element 12.

I do not limit myself to the particular size, shape, number, arrangement or material of parts as shown and described, as these are given simply as a means for clearly describing the device of my invention.

What I claim is:—

1. In a liquid dispensing device, in combination, a reservoir support having three openings therein, means for frictionally holding a flap valve over one support opening, a flap valve, means for frictionally holding a removable bag reservoir within the support and exterior of the flap valve and a bag having a slit valve opposite one support opening and an integral plunger extending through the remaining support opening.

2. In a liquid dispensing device, in combination, a reservoir support having three openings therein, a movable check valve over one support opening and a removable bag reservoir exterior of the check valve and within the support, the sides of the bag practically abutting upon the sides of the support and having a slit valve opposite one support opening and having an integral plunger extending through the other support opening.

3. In a liquid dispensing device, in combination, a reservoir support the sides of which extend downwardly, then inwardly and then downwardly and having an opening therethrough, the downward portion of the support having an opening in the side thereof; means for frictionally supporting a removable flap valve within the support; a flap valve; means for frictionally sup-

porting a removable bag reservoir exterior of the flap valve and interior of the support; and a bag reservoir, said bag reservoir having a slit valve in alignment with one support opening and an integral plunger extending through the other support opening.

4. In a liquid dispensing device, in combination, a reservoir support the sides of which extend downwardly, then inwardly and then downwardly and having an opening therethrough, the downward portion of the support having an opening in the side thereof; a disc positioned upon the shoulder and having an opening therein; means for frictionally supporting a removable flap valve within the disc opening; a flap valve; and a bag reservoir frictionally held exterior of the flap valve and interior of the support, the bag having a slit valve in alignment with one support opening and an integral plunger extending through the other support opening.

5. In a liquid dispensing device, in combination, a liquid reservoir having a downwardly extending neck, a support casing capable of receiving said neck, means for hermetically sealing the jointure of the neck and the support, an inwardly extended shoulder to said support, a downwardly ex-

tended tubular member extending from said shoulder and having a side opening and a bottom opening therein, a disc positioned upon the upper face of the shoulder and having a centrally positioned downwardly extended tubular member, a flap valve within the last mentioned tubular member, a bag reservoir within the support tubular member and maintained in position by contact with the two tubular members, the bag reservoir having a slit valve in alignment with one of the tubular openings and a plunger integral with the bag and extending through the other tubular opening.

6. In a liquid dispensing device, in combination, a reservoir support having three openings therein, a removable check valve over one support opening and a removable bag reservoir exterior of the check valve and within the support, the sides of the bag practically abutting upon the sides of the support and having a slit valve in alignment with one support opening and having an integral plunger extending through the other support opening.

Signed at New York city, in the county of New York and State of New York, this 1st day of October, 1924.

WILLIAM H. ROSE.