Jan. 15, 1929. 1,699,364

L. KOOPERSTEIN

SOAP DISPENSING APPARATUS

Filed June 23, 1927

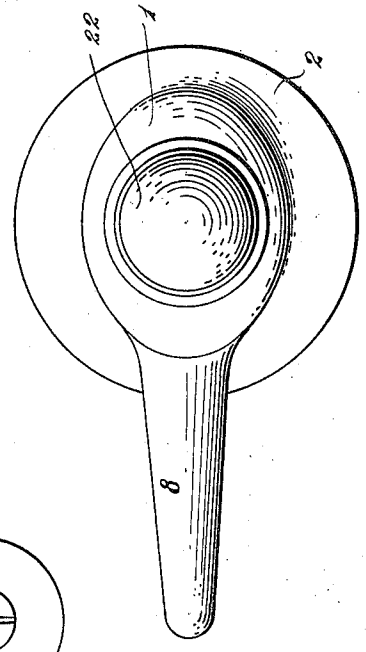


Fig. 2.

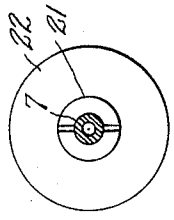


Fig. 1a.

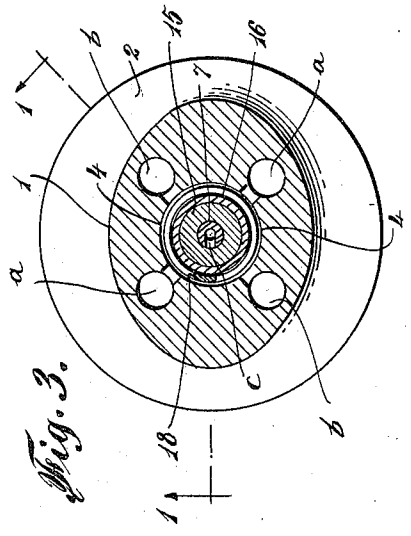


Fig. 3.

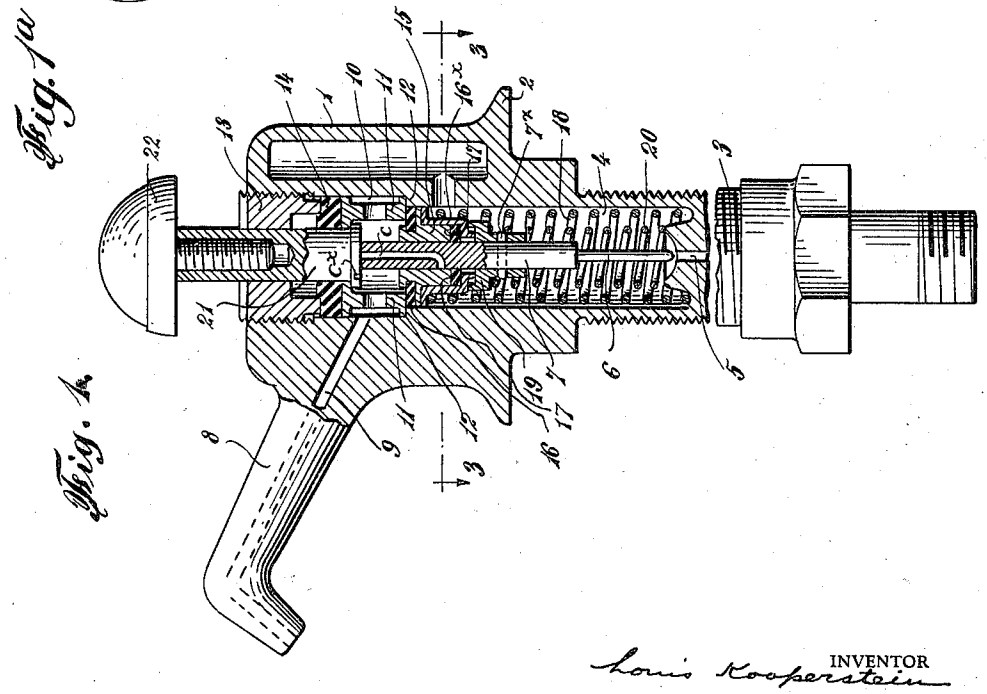


Fig. 1.

Louis Kooperstein INVENTOR

BY H. Lee Helms

ATTORNEY

Patented Jan. 15, 1929. 1,699,364

UNITED STATES PATENT OFFICE.

LOUIS KOOPERSTEIN, OF NEW YORK, N. Y., ASSIGNOR TO WEST DISINFECTING COMPANY, OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF NEW YORK.

SOAP-DISPENSING APPARATUS.

Application filed June 23, 1927. Serial No. 200,821.

The object of the present invention is to provide a dispensing valve adapted from mounting in vertical position and operated through the generation of pressure within the valve obtained from a source exterior thereof, as where the soap is under gravity pressure. In my prior patents I have disclosed apparatus of the present type in which a pressure dome is provided on the valve casing and wherein air is entrapped and subjected to a pressure equal to that of the pressure on the liquid soap, in combination with means for first shutting off flow of soap to the valve and thence opening the discharge nozzle so that the elastic force of the entrapped air may eject a charge of soap. The present improvements relate to such type of dispensing valve, and specifically to the arrangement of a plurality of air chambers within the casing and surrounding the valve stem, the arrangement being such that the air pressure is at opposed points, from independent storage chambers, the action being rapid and effective and eliminating the necessity of a protruding air dome.

The invention will be understood by refence to the accompanying drawings, in which—

Figure 1 is an elevation of an apparatus embodying the invention, the same being partly in section on the line 1—1, Figure 3;

Figure 1ª is a bottom plan view of the push-rod showing in section the valve rod in engagement therewith.

Figure 2 is a plan view of the apparatus, and

Figure 3 is a transverse section on the line 3—3, Figure 1.

Referring to the drawings, the casing is indicated at 1, it being provided with a laterally projecting flange 2 which will rest upon a support with that portion of the casing below it hidden. The end of the casing is reduced in diameter and threaded to receive a pipe 3 leading from the source of supply for the soap. Within the casing is provided a soap receiving chamber 4 into which the soap flows through a small inlet 5, the inlet being controlled by a valve pin 6 at the lower end of valve rod 7. Projecting from the upper portion of the casing is a discharge nozzle 8 having a passage-way 9 leading to the annular channel 10 of a ring 11 which is seated on a shoulder 12. The ring is held in place by a threaded plug 13 which presses directly upon a washer 14. Below ring 11 is a valve sleeve 15 which surrounds valve rod 7, the sleeve having near its upper end an annular channel to receive a washer 16 and being formed with a shoulder beneath the washer. Valve sleeve 15 is seated within a cup 16ˣ, a washer 17 being disposed at the base of the cup. A large coiled spring 18 engages cup 16ˣ thus serving to hold valve sleeve 15 in its uppermost position. Secured to valve rod 7 by a pin 7ˣ is a flanged collar 19, which collar receives a small coiled spring 20 thus serving to normally keep valve rod 7 in its uppermost position.

At diametrically opposite points within casing 1 and extending parallel with valve rod 7 are two air chambers *a* and within the casing and likewise extending parallel with valve rod 7 are the diametrically opposite air chambers *b*. Each chamber is formed with an opening leading to the soap receiving chamber 4. Leading axially of the valve rod 7 from a point at its top is a passageway *c* which extends downwardly and then to the side wall of the rod. Contacting with the upper end of the valve rod 7 is the lower end of a push-rod 21, the rod being provided with an adjustable thumb-piece 22. At its lower end the said push-rod is provided with a transversely extending slot *cx* so positioned as to cross passageway *c*.

In the operation of the device the soap passing through pipe 3 under pressure will flow into chamber 4 and pass upwardly into the air chambers *a* and *b* until the air entrapped in the said chambers will prevent further rise of the soap. Depression of the push-rod 21 will depress valve rod 7, with collar 19 until the lower end of passageway *c* passes below washer 17. When the soap is under substantial pressure, sufficient soap will then be forced, by the air pressure, up through passageway *c* and thence through the discharge nozzle 8. In order to equally increase the amount of soap, push-rod 21 may be further depressed so that it will engage valve sleeve 15 and the sleeve will be carried below the discharge outlets of air chambers *a* and *b* and soap will flow above the valve sleeve and to the discharge nozzle 8. When the valve sleeve is thus depressed the discharge of the soap will be rapid inasmuch as the action of the two sets of opposed air chambers will be unimpeded upon a relatively small area, washer 16 cutting off that part of the soap

chamber below the outlets for the air chambers.

Upon release of the plunger springs 18 and 20 will return the valve rod and valve sleeve to their initial positions, this movement of the valve sleeve opening the passageways from the air chambers so that soap may again flow up through the casing and into the chambers, and pressure will be placed upon the entrapped air above the soap in said chambers, for second action as before.

Having described my invention, what I claim and desire to secure by Letters Patent is as follows:—

A soap dispensing apparatus comprising a casing, a soap chamber in the casing, a discharge outlet and a valve shutting off the same from the soap chamber, an air chamber formed in the casing laterally of the soap chamber and having a passageway normally communicating with the latter, a valve for controlling the passage of soap into the soap chamber and means for normally holding the same in open position, and means for shutting off the soap chamber from the air chamber and establishing a communication between the air chamber and the discharge outlet comprising a plunger adapted to successively actuate said valves.

In testimony whereof, I have signed my name to this specification.

LOUIS KOOPERSTEIN.