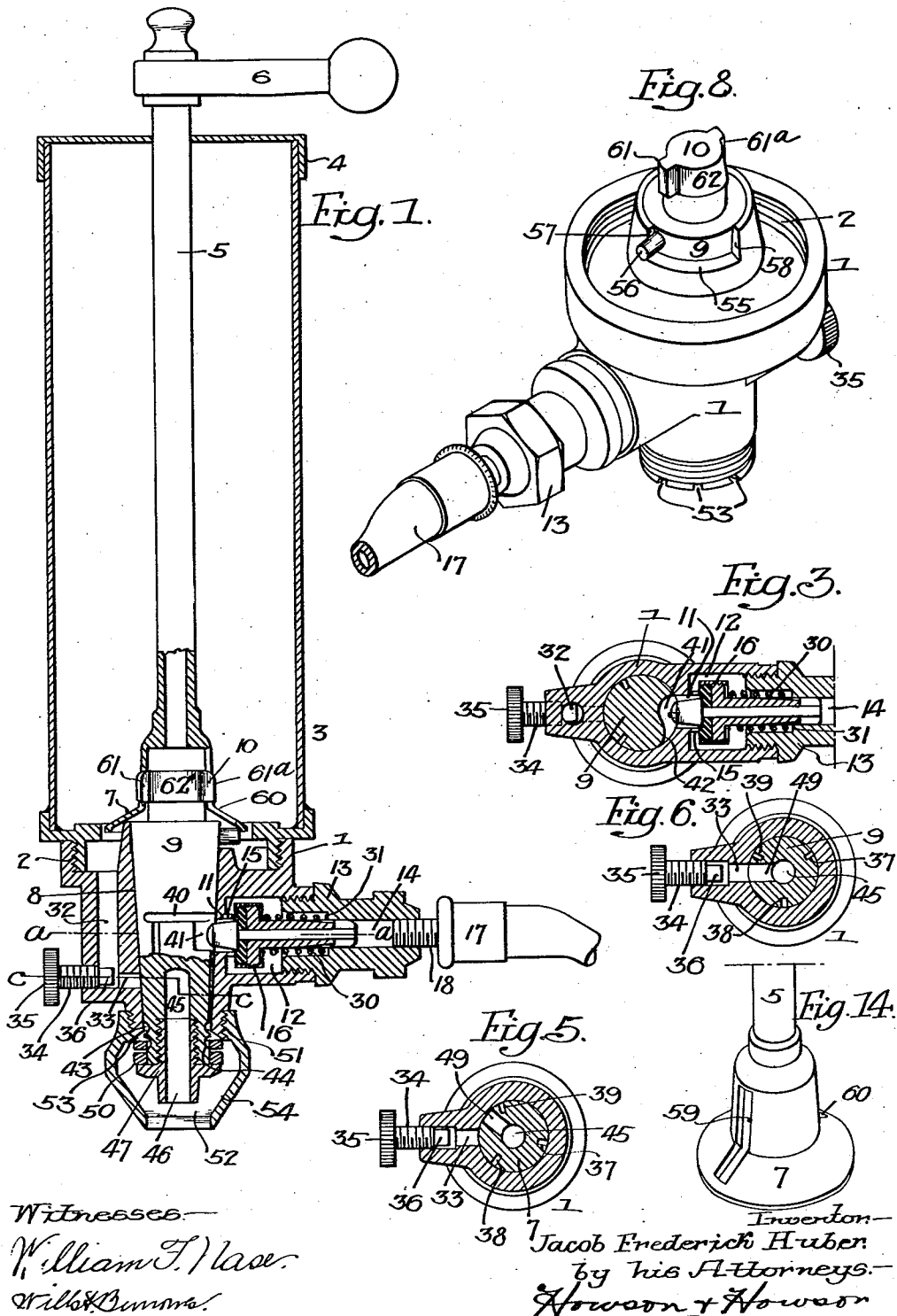


J. F. HUBER.
LIQUID DISPENSING APPARATUS.
APPLICATION FILED APR. 1, 1913.

1,124,905.

Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 9.

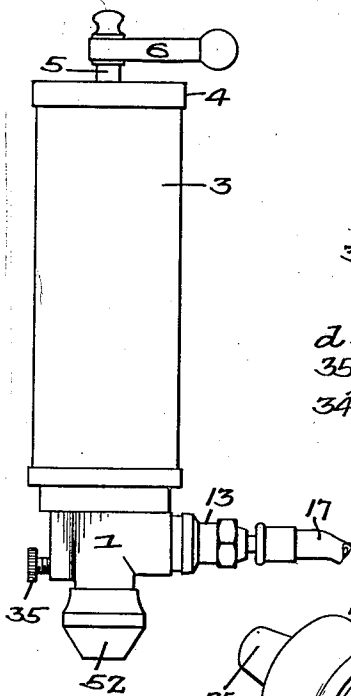


Fig. 2.

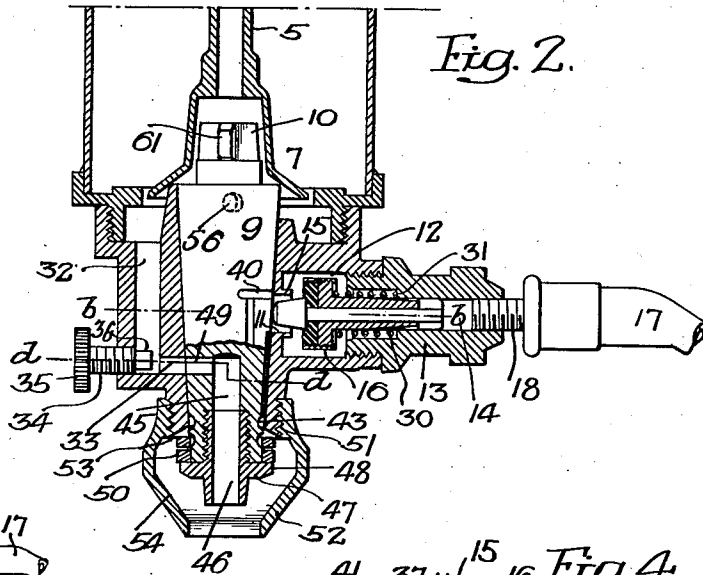


Fig. 12.

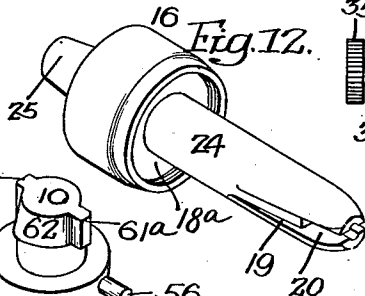


Fig. 4.

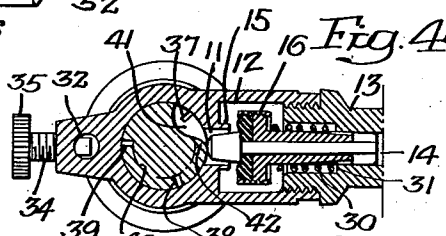


Fig. 11.

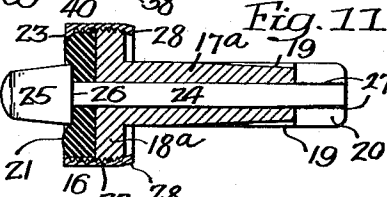


Fig. 10.

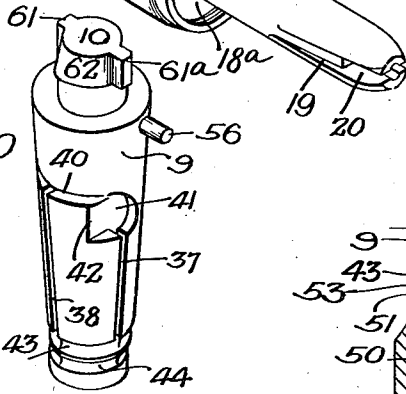


Fig. 13.

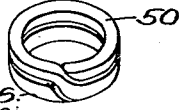
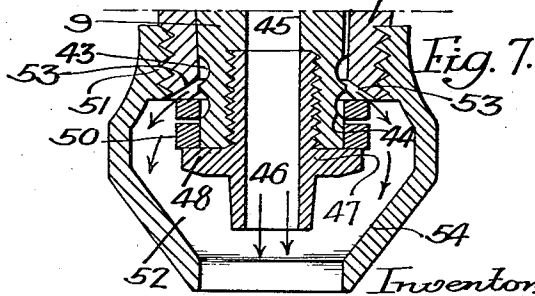


Fig. 7.



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UNITED STATES PATENT OFFICE.

JACOB FREDERICK HUBER, OF PHILADELPHIA, PENNSYLVANIA.

LIQUID-DISPENSING APPARATUS.

1,124,905.

Specification of Letters Patent.

Patented Jan. 12, 1915.

Application filed April 4, 1913. Serial No. 758,912.

To all whom it may concern:

Be it known that I, JACOB FREDERICK HUBER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Liquid-Dispensing Apparatus, of which the following is a specification.

My invention consists of an improved liquid dispensing apparatus and is particularly adapted for use on bars, soda water fountains or the like where liquids under high pressure, such as soda water and seltzer are dispensed.

My invention is of that class where a plurality of liquids are simultaneously dispensed through a common nozzle or outlet in such a manner that they will be mixed; this latter feature being particularly serviceable for dispensing flavored soda water, seltzer or the like.

One object of my invention is to construct a dispensing apparatus which will simultaneously deliver liquid under high pressure and other liquid, said apparatus being so arranged as to prevent leaking of the liquids therethrough when the same is not being operated.

Another object is to provide a dispensing apparatus which will be of extremely simple construction, easy of operation and will take up very little space.

These object and other advantages I attain in the following manner, reference being had to the accompanying drawings in which

Figure 1, is a sectional elevation of a dispensing apparatus constructed in accordance with my invention and showing certain of the elements thereof partly in outside view; Fig. 2, is a sectional elevation of the lower portion of my invention showing certain of the parts in different positions from those occupied in Fig. 1; Fig. 3, is a sectional plan view taken on the line *a-a* Fig. 1; Fig. 4, is a sectional plan view taken on the line *b-b* Fig. 2; Fig. 5, is a sectional plan view taken on the line *c-c* Fig. 1; Fig. 6, is a sectional plan on the line *d-d* Fig. 2; Fig. 7, is an enlarged sectional elevation of the lower portion of my invention; Fig. 8, is a perspective view of certain of the elements employed in my invention; Fig. 9, is an outside elevation of my invention drawn on a scale smaller than that shown in Fig. 1; Fig. 10, is a perspective view of the plug

valve which I employ; Fig. 11, is an enlarged longitudinal section of the cut-off valve which I employ; Fig. 12, is a perspective view of the cut-off valve shown in Fig. 11; Fig. 13, is a perspective view of a split spring ring which I employ; and Fig. 14, is a perspective view of a turning cap and portion of a spindle which form part of my invention.

Referring to the drawings, 1 is a base section or casing which is provided with screw threads 2 for the reception of a liquid container or tank 3; the latter having a removable flanged cap 4 through passes a spindle 5. This spindle which is provided with a handle 6 at the upper end and a valve-turning cap 7 at its lower end.

The base section 1 is provided with a tapered or frusto-conical bore 8 which extends through the base section and forms the seat for a frusto-conical plug valve 9; the latter having a head or nut 10 which is adapted to be engaged and turned by the cap 7 when the handle 6 is actuated to turn the spindle 5. A port or passage 11 leads from the bore 8 into a chamber passage 12 and a threaded inlet sleeve 13 is screwed within the base 1 and is provided with an inlet passage 14 which leads to the chamber 12. An annular flange 15 projects from the base 1 and forms a continuation of the port or passage 11 and a seat for a cut-off valve 16 as will be more fully described hereinafter.

An inlet tube 17, which conveys a liquid under high pressure such for example as soda water (carbonated water), seltzer, or the like, is provided with a screw threaded portion 18 which tightly fits within the outer end of the passage 14.

The cut-off valve 16 is preferably constructed as follows: A sleeve 17^a having a flanged annular head 18^a is provided with a plurality of grooves 19 which extend longitudinally into its outer surface and terminate in a slotted end 20. These grooves 19 form the passage for the high pressure liquid when the valve 16 is open as shown in Figs. 2 and 4. A washer or gasket 21 abuts the outer end of the flanged annular head 18 and is held thereto by a screw threaded collar 22 which has an inner annular flange 23 resting against the said washer 21. A stem 24 passes through the washer and the sleeve 17^a and has an enlarged portion 25 which forms a shoulder 26 for abutting the

washer 21. In assembling the parts of the valve 16 the stem 24 is passed through the washer 21 and into the sleeve 17^a so that the shoulder 26 will abut and compress the washer 21. The stem is held in this position by a clamp or other means and the stem 24 is soldered to the sleeve 17^a at the opposite end 27. The collar 22 is then screwed on to the head 18^a of the sleeve 17^a until the flange 23 abuts the washer and the edge 28 of the collar 22 is then beaded or bent toward the body of the portion of the sleeve 17^a so that in this condition the washer 21 is wedged or securely held in the position clearly shown in Fig. 11.

When in position and when the apparatus is not being operated the washer 21 abuts the annular flange 15 and the outer end 25 of the stem 24 projects within the frusto-conical bore 8 as clearly shown in Figs. 2 and 3. The pressure of the liquid which enters through the port 14 through the pipe 17, acts against the valve 16 to securely close the port 11 from the chamber 12. However, I provide a coiled expansion spring 30 and so place the same that it encircles the sleeve and abuts the head 18^a of the valve 16 and the shoulder 31 formed in the inlet sleeve 13, so that even though the pressure of the incoming liquid through the pipe 17 is reduced or entirely cut-off the spring 31 will hold the valve against the flange 15 and thereby close the port 11.

A liquid inlet passage 32 extends into the base 1 and is in communication with the interior of the liquid container or tank 3 and a second inlet passage or port 33; the latter also connecting with the bore 8.

For purposes of regulating the amount of liquid which passes through the port 33 I provide a screw threaded shank 34 having a thumb nut 35 in the present instance, and whose inner end 36 is arranged to extend into the liquid inlet 32.

The valve 9 in the present instance is provided with a series of ducts 37, 38 and 39 which communicate with a main transverse or segmental duct 40; the latter having an enlarged portion 41 which is positioned, when the stop valve 16 is seated against the flange 15, so as to allow the end 25 of the stem or rod 24 to project therein as is clearly shown in Figs. 1 and 3. A cam face 42 is formed within the valve 9 and merges or blends into the surface forming the said enlarged portion 41 as clearly shown in Figs. 3, 4 and 10. This cam face 42 is so placed as to engage the end 25 of the cut-off valve 16 and force the latter away from the flange 15 as shown in Figs. 2 and 4. The ducts or grooves 37, 38 and 39 extend downwardly in the valve 9 and connect with an annular groove 43; said groove being substantially semi-circular in cross section in the present instance. I also provide a sec-

ond groove 44 in the construction illustrated and the purpose of these grooves will be more fully described hereinafter.

A discharge aperture or passage 45 extends within the valve 9 and registers with the bore 46 in a sleeve 47; the latter being screwed within a counterbored portion of the valve 9 and being provided with an annular flange 48. A transverse passage 49 is formed in the valve 9 and extends from the outer surface thereof to the discharge passage 45 being so positioned that it will at times register with the inlet port 33 as shown in Fig. 2.

The valve 9 is kept in its proper position within the casing by means of a spring 50 which encircles the lower portion of the said valve 9 and abuts the flange 48 of the sleeve 47 and the lower portion of the base 1. Also, the lower portion of the base 1 is screw-threaded at 51 and a nozzle or liquid-deflecting collar 52 is screwed thereon. The end of the base 1 is provided with a series of angular or inclined nicks or notches 53 which are so arranged as to form communication between the grooves 43 and 44 in the said valve 9 and allow fluid to pass from the said grooves to the interior of the nozzle or collar 52. The lower portion of the inner surface of the collar 52 is inclined as shown at 54 in the present instance and this arrangement causes a deflection of the down-coming high pressure fluid which, when the stop valve 16 is open, flows through the main duct 40 and down through the ducts 37, 38 and 39.

The transverse passage 49 is so arranged with respect to the enlarged portion 41 of the duct 40 that when the end 25 of the valve 16 is extending into the latter and the valve 16 is closed the said transverse passage will be out of register with the port 33 so that no liquid will be able to pass through the liquid inlet into the discharge passages 45 and 46. When the several parts are in the positions shown in Fig. 1 the stop valve 16 prevents the passage of the high pressure liquid and the port 33 is stopped by a solid portion of the valve 9.

The upper portion of the base 1 is cut-away at 55 and a limit pin 56 in the valve 9 projects within the recess thus formed and thereby limits the rotary movement of the said valve to the distance between the surfaces 57 and 58. This distance, however, is sufficient to permit the valve 9 being moved to bring the passage 49 into register with the port 33 and the cam 42 into contact with the end 25 of the valve 16 with consequent opening of the port 11 to the chamber 12.

In the present instance the turning cap 7 is provided with apertures 59 and 60 which are adapted to allow the ears 61 and 61^a, of the nut 62 on the valve 9, to pass there-through so that when the spindle 5 is turned

by the handle said valve 9 will also be turned. This latter construction permits the spindle 5, handle 6, and cap 4 to be easily and quickly removed from the tank 3 so that the tank may be easily filled.

As a matter of convenience it is considered that the tank 3 contains a flavoring extract and the tube or pipe 17 is connected with a source of high-pressure liquid such as seltzer. When the several parts are in the positions shown in Figs. 1 and 3, no liquids will be dispensed through the apertures. However, when the valve 9 is turned into the position shown in Figs. 2 and 4 where the cam 42 acts to open the valve 16 against the pressure of the seltzer and the passage 49 comes in register with the port 33, the flavoring liquid will flow from the tank through the passage 32, 33, 49, 45 and 46, and outward into any receptacle. At the same time the seltzer will pass through the grooves 19 in the sleeve 17 through the chamber 12, port 11 and ducts 40, 37, 38 and 39, groove 43, and notches 53, into the interior of the mixing or deflecting nozzle 52 where it will be deflected by the surface 54 toward the path of the down-coming flavoring liquid and will mix therewith. I find that the lower portion of the curved surface of the groove 43 and the inclined notches or nicks 53 allow the equal distribution of the seltzer or other high pressure liquids around the end of the base 1 and result in a proper mixing of the liquids dispensed. The surface 54 may be at any angle desired to cause more or less complete mixing of the liquids and any portion of the liquid which does not pass through the notches 53 will run into the groove 44 from whence it can escape through the spring 50.

If it is desired to dispense a smaller amount of flavoring with the seltzer, the thumb nut 35 is turned so that the end 36 extends a greater distance into the passage 32. On the contrary, if it is desired to dispense a greater amount of flavoring with the seltzer the thumb nut 35 is turned in an opposite direction so that the end 36 will tend to move out of the passage 32.

With the construction herein described I am able to produce a dispensing apparatus in which the high-pressure liquid cannot possibly escape, even though the portions become slightly worn. The formation and arrangement of the valve 9 is one of the important features of my invention, although the same may be varied without departing from the main idea of having a valve which not only acts as means for opening the ports but also has means for dispensing the liquid in the manner described. Also, the construction of my invention is such that the passage of the high-pressure liquid therethrough will not tend to force any of the flavoring extract backward into

the tank 3 as the liquids are not mixed until they come to a point below the sleeve 47.

It will be noted that when the cut-off valve 16 is closed its end 25 extends within the recess 41 of the valve 9 but does not touch the latter. By this construction the pressure of the high-pressure liquid does not affect the valve 9 when the cut-off valve is closed.

The tank 3 may be of any size, or two or more tanks can be connected with the passage 32 if it is so desired.

By having the form of cut-off valve shown at 16, if the washer 21 becomes worn the parts may be taken apart by heating the soldered end, substituting a new washer, and re-soldering the said end.

I claim:—

1. The combination in a liquid dispensing apparatus of a valve casing having two communicating cavities and passages for supplying liquid to the same; a valve fitting one of said cavities and having a discharge passage and a groove forming a conduit; and a second valve normally closing the second cavity to the first cavity, said first valve being movable to open the second valve and to bring the groove into register with the second cavity and the discharge passage into register with the supply passage of the first cavity so as to deliver the bodies of liquid.

2. The combination in a liquid dispensing apparatus of a valve casing having two communicating cavities and passages for supplying liquid to the same; a valve fitting one of said cavities having a discharge passage and a plurality of grooves extending longitudinally in its outer surface; and a second valve normally closing the second cavity to the first cavity, said first valve being movable to open the second valve and to bring the grooves into register with the second cavity and said discharge passage into register with the supply passage of the first cavity to discharge the respective bodies of liquid.

3. The combination in liquid dispensing apparatus of a valve casing having two communicating cavities and passages for supplying liquid to the same; a valve fitting one of said cavities having a discharge passage and a plurality of grooves which extend longitudinally in its outer surface, there being a transverse groove connecting said longitudinal grooves; and a second valve normally closing the second cavity to the first cavity, said first valve being movable to bring said grooves into register with the second cavity and said discharge passage into register with the supply passage of the first cavity to discharge the respective bodies of liquid.

4. The combination in a liquid dispensing apparatus of a valve casing having two communicating cavities and passages for supplying liquid to the same; a valve fitting one

of said cavities having a discharge passage and intersecting annular and longitudinally extending grooves; and a second valve normally closing the second cavity to the first cavity, said first valve being movable to open the second valve and to bring said grooves and discharge passage into register with the second cavity and the supply passage of the first cavity respectively, to discharge the bodies of liquid.

5. A liquid dispensing apparatus consisting of a valve casing having two communicating cavities and a passage leading to one of the cavities; a frusto-conical valve in one of said cavities having a central liquid discharge channel, a transverse groove, and a second channel leading from said groove; means for supplying liquid to the second cavity and to said passage; a second valve normally closing the second cavity to the first cavity, and means for moving the first valve to open the second valve and to bring said central channel into communication with the passage and to bring the second channel into register with the second cavity, said valve casing having an inclined deflecting portion adjacent the transverse groove of the valve formed to evenly distribute the liquid discharged through said second channel.

6. The combination in a liquid dispensing apparatus of a valve casing having two communicating cavities and passages for supplying liquid to the same; a valve fitting one of said cavities having a discharge passage and intersecting annular and longitudinally extending grooves; and a second valve normally closing the second cavity to the first cavity, said first valve being movable to open the second valve and to bring said grooves and discharge passage into register with the second cavity and the supply passage of the first cavity respectively, to discharge the bodies of liquid, the casing having notches opening into said annular grooves and serving as outlets to evenly distribute the discharged liquid.

7. The combination in a liquid dispensing apparatus, of a valve casing having two communicating cavities with supply passages respectively leading thereto; a valve having a discharge passage and fitting one of said cavities; means for supplying liquid

to the second of said cavities through its supply passage, there being a discharge conduit defined jointly by portions of the valve and the casing, a second valve normally closing the second cavity to the first cavity; and means for moving the first valve to open the second valve and to bring said conduit into position to discharge the liquid from said latter cavity and to move the discharge passage into register with the other supply passage to discharge the other body of liquid.

8. The combination in a liquid dispensing apparatus, of a valve casing having two communicating cavities and passages for supplying liquid thereto; a valve fitting one of said cavities having a discharge passage and intersecting annular and longitudinally extending grooves; a second valve normally closing the second cavity to the first cavity, said first valve being movable to open the second valve and to bring said grooves and discharge passage into register with the second cavity and the supply passage of the first cavity respectively, to discharge the bodies of liquid, the casing having notches opening into said annular grooves and serving as outlets to evenly distribute the discharged liquid; with a collar placed to receive the liquid which is discharged through said notches, said collar being formed for guiding the discharged liquid.

9. A liquid dispensing apparatus consisting of a liquid container; a valve casing having two communicating cavities of which one connects with said container; a valve in said latter cavity provided with a plurality of passages; means for supplying liquid to the second cavity; a second valve normally cutting off communication between the cavities; and means for moving the first valve to actuate the second valve and to cause liquid to be delivered into one of the passages of said first valve, the operation of this valve also forming connection between the other of its passages and the container.

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

JACOB FREDERICK HUBER.

Witnesses:

AUGUSTUS B. COPPES,
JOS. H. KLEIN.