March 3, 1931. B. W. SEIDEL 1,794,484

TREADLE OPERATED DISPENSING VALVE

Filed Jan. 5, 1929 2 Sheets-Sheet 1

Fig. 1.

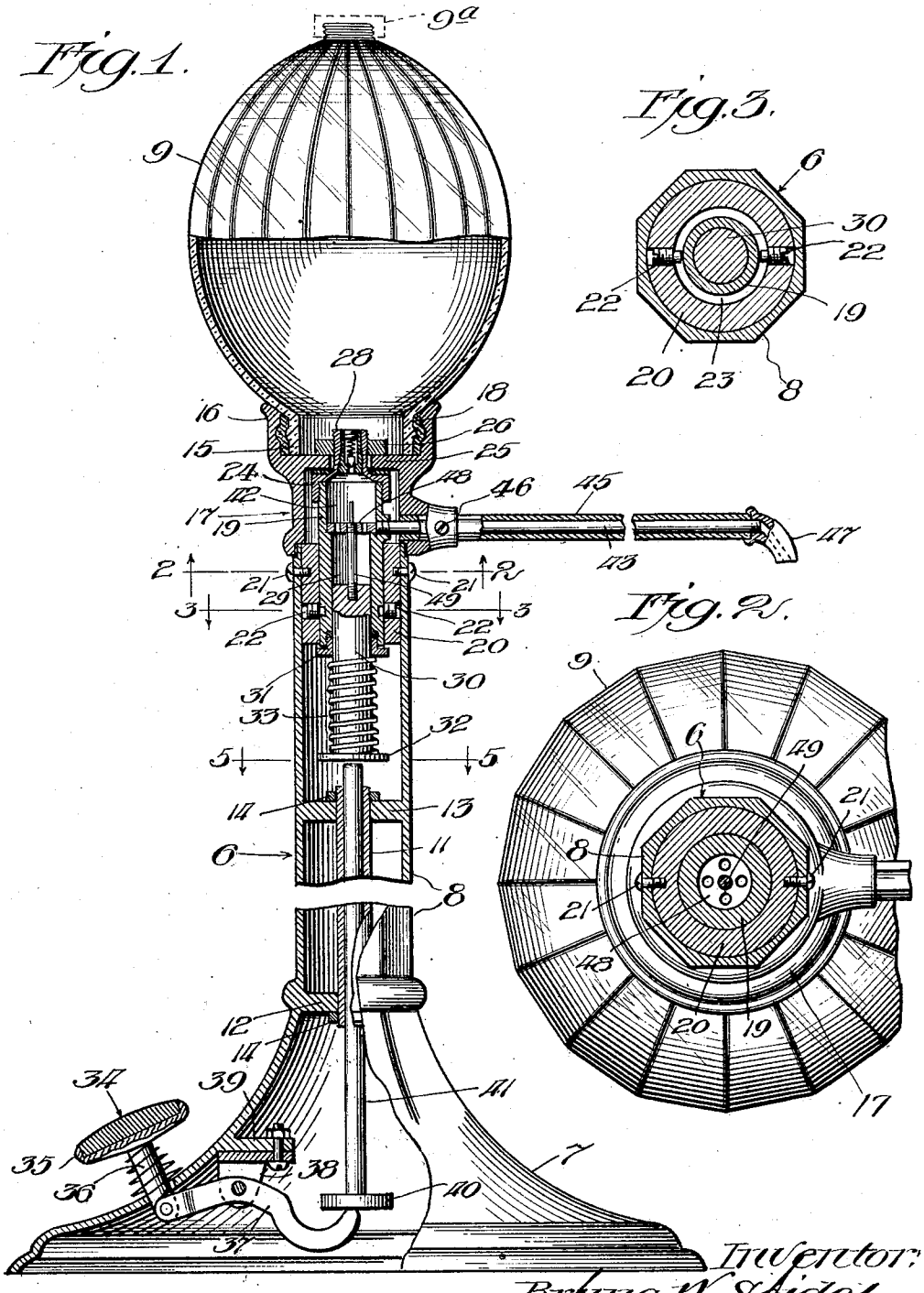

Fig. 3.

Fig. 2.

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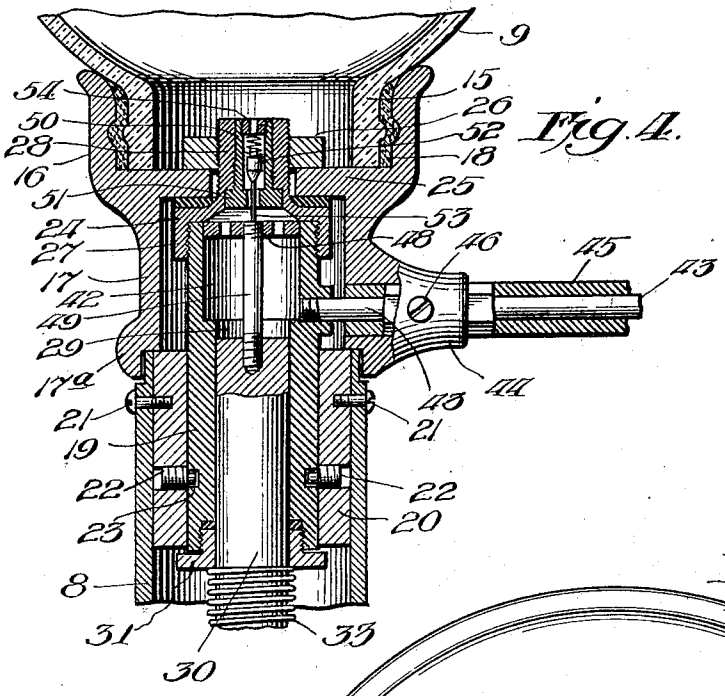
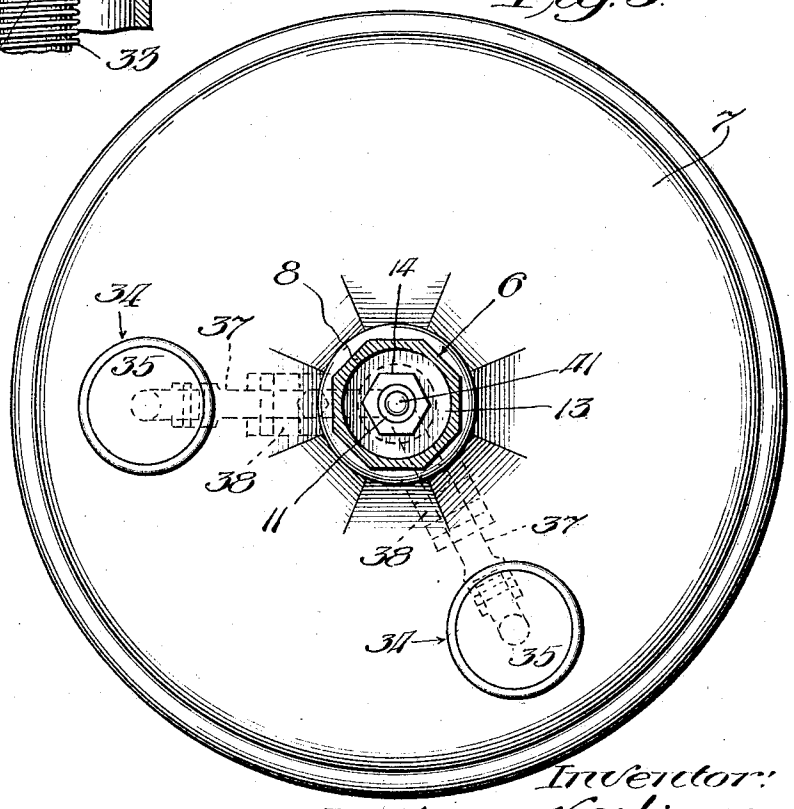


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE

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TREADLE-OPERATED DISPENSING VALVE

Application filed January 5, 1929. Serial No. 330,474.

This invention relates to treadle-operated dispensing valves, and has for its principal object the provision of novel means for releasing and discharging from a container liquid soap, or other liquid disinfectants or compositions. Another object is to provide a treadle-operating dispensing valve adapted for use in a portable pedestal or other stand.

Another object is to provide in conjuction with the valve a rotatably mounted discharge nozzle or spout whereby the contents may be delivered at any point around the pedestal. Another object is to provide means whereby any liquid that may remain in the discharge nozzle or spout, after the device has been used, will be automatically withdrawn from the nozzle or spout and returned to the interior of the device. Another object is to provide mechanism wherein the contents may be kept in a sanitary condition and delivered free from contamination.

With these and other objects and advantages in view, this invention consists in the several novel features of construction, arrangement and combinations of parts hereinafter fully set forth and claimed.

This invention is clearly illustrated in the drawings accompanying this specification in which—

Figure 1 is a view, partly in side elevation and partly in central vertical section, of a treadle-operated dispensing valve embodying a simple form of the present invention;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1;

Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 1;

Fig. 4 is an enlarged fragmental central vertical section of the valve proper and adjacent parts showing the movable parts in a different position from that seen in Fig. 1; and

Fig. 5 is a horizontal section taken on the line 5—5 of Fig. 1.

Referring to said drawings, which illustrate one embodiment of the present invention, the reference character 6 designates a pedestal or stand comprising a hollow base 7 and a hollow post or column 8 rising therefrom upon the upper end of which is a container 9 for the liquid soap or other liquid commodity which is to be dispensed. In the post is secured a sleeve 11 which extends through upper and lower cross walls 12 and 13 formed in the post. Nuts 14 are threadedly secured upon the threaded ends of the sleeve 11 and bear against the opposing sides of the walls 12 and 13, thereby rigidly connecting the sleeve with the post.

The container 9 is preferably in the form of a hollow glass globe or ball, and is provided with a downwardly projecting neck 15 which rests on a cross wall 25 and which is contained within a flanged portion 16 of a collar 17, that is rotatably mounted upon the upper end of the post 8. The upper end of the container has a filler opening which is closed by a screw cap 9ª provided with a vent aperture for preventing the container from becoming air bound. For providing a tight joint between the neck of the container 9 and the flange of the collar 17, the container is cemented to the collar with cement 18. On the lower end of the collar is a flange 17ª which surrounds and encloses the upper end of the post.

Secured to and moving with the collar 17, is a cylinder 19 which extends partly into the collar and partly into the post 8. A sleeve or bushing 20 secured in the upper end of the post, as, for instance, by means of screws 21, is provided for receiving the lower end of the cylinder 19 and rotatably supporting the same and the parts carried thereby on the post. The cylinder 19 rotates in the sleeve 20 and rests upon pins 22 threadedly secured in the sleeve and projecting into a circumferential groove 23 formed in the outer face of the cylinder 19.

The connection between the upper end of the cylinder and the collar 17 may comprise a cylinder head 24 secured to the cylinder and projecting up through an opening in the cross wall 25 of the collar 17 and connected thereto by a nut 26 threaded upon the upper end of the cylinder head and bearing against said cross wall. As shown, the cylinder head 24 is formed with a downwardly projecting internally threaded flange 27 which is threadedly secured upon the upper end of

the cylinder 19, and the upper end portion 28 of the cylinder head is reduced in diameter and is externally threaded for the reception of the nut 26. The construction just described provides means whereby the collar 17 is rotatably mounted upon the upper end of the post 8, but is secured thereon against axial or longitudinal movement with respect thereto.

In the part 29 of the bore of the cylinder 19 is a plunger 30 which extends out through the lower open end of the cylinder, at which place the latter is provided with a stuffing box 31, and on the lower end of said plunger is a head or shouldered part 32 against which bears one end of a coiled compression spring 33, the other end of which bears against the gland of the stuffing box 31. The force of the spring is exerted to move the plunger in a downward direction.

The plunger is actuated from treadles 34 carried by the base 7, and there may be as many treadles disposed around the base as may be found expedient, two of such treadles being shown in the drawings. As shown, each treadle comprises a spring pressed knob or head 35 mounted upon a stem 36 which extends through an opening in the wall of the base and is secured to one arm of a lever 37 fulcrumed upon a bracket 38 bolted or otherwise secured to a lug 39 formed upon the inner face of the wall of the base. The other arm of the lever engages with the underside of a head or enlargement 40 which is provided upon the lower end of a plunger actuating stem 41 that is slidably mounted in the sleeve 11 and projects up to within a slight distance from the lower face of the head or shouldered part of the plunger, clearance being left between the plunger actuating stem and plunger for certain reasons, as will presently appear. It is to be observed that by depressing any of the knobs or heads 35 of the treadles, the stem 41 will be raised and therewith the plunger will be moved upwardly.

The cylinder 19 is formed with the bore 29, as has been explained, and said bore is enlarged in diameter as at 42 near the upper end of the cylinder. Threadedly secured in the wall of the cylinder 19 at the lower end of the enlarged part 42 of the bore is a discharge pipe 43 which extends out through a boss 44 formed on the collar 17, and surrounding said discharge pipe is a sleeve 45 which also extends through the boss 44 and is secured therein by set screws 46 threaded in the boss and bearing against the sleeve. On the outer end of the discharge pipe 43 is threadedly secured a discharge tip 47 through which the contents are finally discharged. The discharge pipe 43, tip 47 and sleeve 45 form a discharge nozzle or spout through which the contents are discharged from the dispensing valve.

Connected to and moving with the plunger 30 is a perforated head or disk 48 which, when the plunger occupies its lowermost position, rests upon the shoulder formed between the enlarged part 42 and reduced part 29 of the bore of the cylinder and closes the discharge port or passage to the discharge nozzle, thereby preventing any of the liquid contained in the upper portion of the cylinder from leaking out through the discharge nozzle. By providing clearance between the plunger 30 and stem 41, the head or disk may seat on the shoulder in the cylinder and close the discharge port to the spout. As shown, the head or disk 48 is connected to the plunger by a rod or other stem 49 threadedly secured in the head 48 and plunger 30.

Threadedly secured in the reduced part 28 of the cylinder head 24 is a bushing 50 having a centrally apertured head 51 on its lower end, and contained in said bushing is a check valve 52 which is arranged to seat upon the head 51 and thereby close the port or passage therethrough. A pin or stem 53 secured to the upper end of the rod 49 is provided for unseating the valve 52 whenever the plunger is moved to the upper end of its stroke, thereby permitting liquid to flow from the container 9 into the enlarged portion 42 of the bore of the cylinder from which it may flow out through the discharge spout. The check valve is held upon its seat by a coiled spring which bears against the valve and against a centrally apertured plug 54 which is threadedly secured in the upper end of the bushing.

In operation, the container 9 is filled with liquid soap or any other liquid commodity which it is desired to dispense through the valve. The plunger 30 normally occupies the lowermost position shown in Fig. 1 with the head or disk 48 covering the discharge port to the nozzle or discharge spout. A person wishing to draw some of the contents of the container, depresses one of the treadles 34 thereby raising the plunger 30 and therewith the head or disk 48. As a consequence, any liquid contained in the cylinder is forcibly discharged through the nozzle immediately after the head or disk 48 uncovers the discharge port, and when the plunger reaches the upper end of its stroke, the pin 53 unseats the check valve 52, thereby permitting the liquid in the container to flow into the cylinder and discharge through the nozzle, and so long as the treadle is held in its depressed position, the liquid will continue to discharge through the nozzle.

When the treadle is released, the spring 33 forces the plunger 30 down to the lower end of its stroke, thereby returning the treadle to its normal position, and during the down stroke of the plunger a partial vacuum is created in the bore of the cylinder above the plunger and in the nozzle, whereby any liquid remaining in the nozzle is drawn back

into the port of the cylinder above the plunger. When the plunger reaches the lower limit of its stroke, the head or disk 48 closes the port or passage to the nozzle. As the plunger begins its down stroke, the pin 53 is withdrawn from the check valve 52, thereby permitting the check valve to seat over the port or passage in the head 51 of the bushing 50 and preventing the discharge of any more liquid from the container.

The collar 17 and parts carried thereby being swiveled upon the post, the nozzle may be turned to any position around the post, so that the contents of the container may be obtained at any place around the device, which makes it exceedingly handy inasmuch as a person need not walk around to any definite place in order to use the device. For the sake of appearance, the post, discharge spout and container may be polygonal in form, as shown, and may be formed of vitreous enameled metalware. The device is especially adapted for use in hospitals and other institutions and public places.

I claim:

1. In a dispensing valve, the combination of a cylinder having a discharge nozzle leading therefrom, a plunger reciprocating in said cylinder, plunger actuating means, a container for liquid having a valve controlled port through which liquid is discharged into said cylinder, means operated by said plunger for controlling the opening from the cylinder to said discharge nozzle, and means carried by the plunger and aligned with said valve controlled port for opening said port, when the opening to the discharge nozzle is uncovered, whereby a continuous passage is thereby afforded between the container and discharge nozzle.

2. In a dispensing valve, the combination of a cylinder having a discharge nozzle leading therefrom, a plunger reciprocating in said cylinder, plunger actuating means, a container for liquid having a valve controlled port through which liquid is discharged therefrom into the cylinder, a perforated head connected to said plunger and spaced therefrom and arranged to open and close the opening from the cylinder to the discharge nozzle, and means carried by the plunger for unseating the valve in the port between the container and cylinder, whereby liquid may discharge from the container to the discharge nozzle.

3. The combination of a pedestal, a cylinder mounted therein and provided with a discharge nozzle opening through the side wall of the cylinder, a plunger solid at its working end reciprocating in said cylinder below said opening to the discharge nozzle, plunger actuating treadle mechanism mounted in the pedestal, a container for liquid mounted upon said pedestal and having a port through which liquid is discharged into the cylinder, and means operated by the plunger for controlling the opening from the cylinder to the discharge nozzle.

4. The combination of a pedestal, a liquid receiving cylinder rotatably mounted therein, a plunger reciprocating in said cylinder, plunger actuating treadle mechanism mounted in said pedestal, a collar upon the upper end of said pedestal connected with and rotating with said cylinder, a container for liquid located above said cylinder secured in said collar and having a controllable port through which liquid may be discharged from the container into said cylinder, a discharge nozzle extending laterally from said cylinder through said collar, and means carried by the plunger for controlling the passage of liquid from said container to the cylinder and from the cylinder to the discharge nozzle, whereby liquid may discharge by gravity from said container through said discharge nozzle.

5. The combination of a pedestal, a cylinder rotatably mounted therein and provided with a discharge nozzle, a plunger reciprocating in said cylinder, plunger actuating treadle mechanism mounted in said pedestal, a collar rotating upon said pedestal and connected to move with said cylinder, a container for liquid located above said cylinder and discharge nozzle, secured upon said collar, there being a valve controlled port between said container and cylinder, and means carried by said plunger for controlling the port between the container and cylinder and the opening from the cylinder to the discharge nozzle, whereby liquid may discharge by gravity from said container through said discharge nozzle.

6. The combination of a pedestal, a cylinder rotatably mounted therein, and provided with a discharge nozzle, a plunger reciprocating in said cylinder, a plunger actuating stem guided in said pedestal, a plurality of treadles disposed around the base of said pedestal and arranged to engage with said stem, a container for liquid mounted upon said pedestal and having a port through which liquid is discharged into said cylinder, and means carried by the plunger for controlling the port from the container to the cylinder and the opening from the cylinder to the discharge nozzle.

7. The combination of a pedestal, a sleeve secured in the upper end thereof, a cylinder rotatably mounted in said sleeve and provided with a passage to a discharge nozzle, a plunger reciprocating in said cylinder, plunger actuating treadle mechanism mounted in the pedestal, a container for liquid located above said cylinder and discharge nozzle and carried by said cylinder, and means operated by the plunger for controlling the passage from the cylinder to the discharge nozzle.

8. The combination of a pedestal, a sleeve

secured therein, a cylinder contained in said sleeve and formed with a circumferential groove, means carried by said sleeve entering said groove and thereby rotatably supporting the cylinder in the sleeve, there being a discharge nozzle leading from said cylinder, a plunger reciprocating in said cylinder, plunger actuating mechanism, a container located above said cylinder and discharge nozzle and secured to said cylinder and having a valve controlled port through which the contents of the container are discharged into the cylinder, and means carried by the plunger for controlling the passage from the cylinder to the discharge nozzle.

9. The combination of a pedestal, a cylinder rotatably mounted therein and provided with a discharge nozzle, a container located above said cylinder and discharge nozzle and secured to said cylinder, said container having a discharge port opening in said cylinder, a spring pressed plunger reciprocating in said cylinder and having means for closing the passage from the cylinder to the discharge nozzle, a plunger actuating stem guided in the pedestal, and treadle mechanism mounted in said pedestal and engaging with said stem.

10. The combination of a pedestal, a cylinder rotatably mounted therein and provided with a discharge nozzle, a collar surrounding the upper end of said pedestal and secured to said cylinder, a container located above said cylinder and discharge nozzle and secured to said collar, a check valve in said collar contained in a port between said container and cylinder, and a treadle-operated plunger reciprocating in said cylinder and having means for unseating said check valve and closing the passage from the cylinder to the nozzle.

11. The combination of a pedestal, a cylinder rotatably mounted therein and provided with a discharge nozzle, a collar secured upon said cylinder and covering the upper end of the pedestal, a container arranged to discharge liquid through said nozzle by gravity, said container being secured in said collar and having a passage leading to said cylinder, a treadle-operated plunger reciprocating in said cylinder, and a perforated head carried by said plunger and arranged to control the passage from the cylinder to the discharge nozzle.

12. The combination of a cylinder having a discharge nozzle leading therefrom, a container arranged to discharge liquid through said nozzle by gravity, said container being secured to said cylinder and having a check valve controlled port opening from the container to the cylinder, a plunger reciprocating in said cylinder below the opening to the discharge nozzle and arranged to create a partial vacuum in said cylinder and discharge nozzle when moved in one direction and to discharge the contents of said cylinder through said nozzle when moved in the other direction, and a perforated head connected to said plunger and arranged to control the opening from the cylinder to the discharge nozzle.

13. The combination of a pedestal, a liquid receiving cylinder rotatably mounted within the pedestal and provided with a discharge nozzle extending laterally therefrom immediately above the upper edge of the pedestal, a plunger reciprocating in said cylinder, plunger actuating treadle mechanism mounted in the pedestal, a container for liquid surmounted on said cylinder and connected to rotate therewith, there being a controllable port between said container and cylinder, and means actuated by the plunger for controlling the opening from the cylinder to the discharge nozzle.

In testimony whereof, I have hereunto set my hand this 15th day of December, 1928.

BRUNO W. SEIDEL.