

J. G. MILLER.
 SOAP DISPENSER.
 APPLICATION FILED MAR. 6, 1911.

1,061,099.

Patented May 6, 1913.

2 SHEETS-SHEET 1.

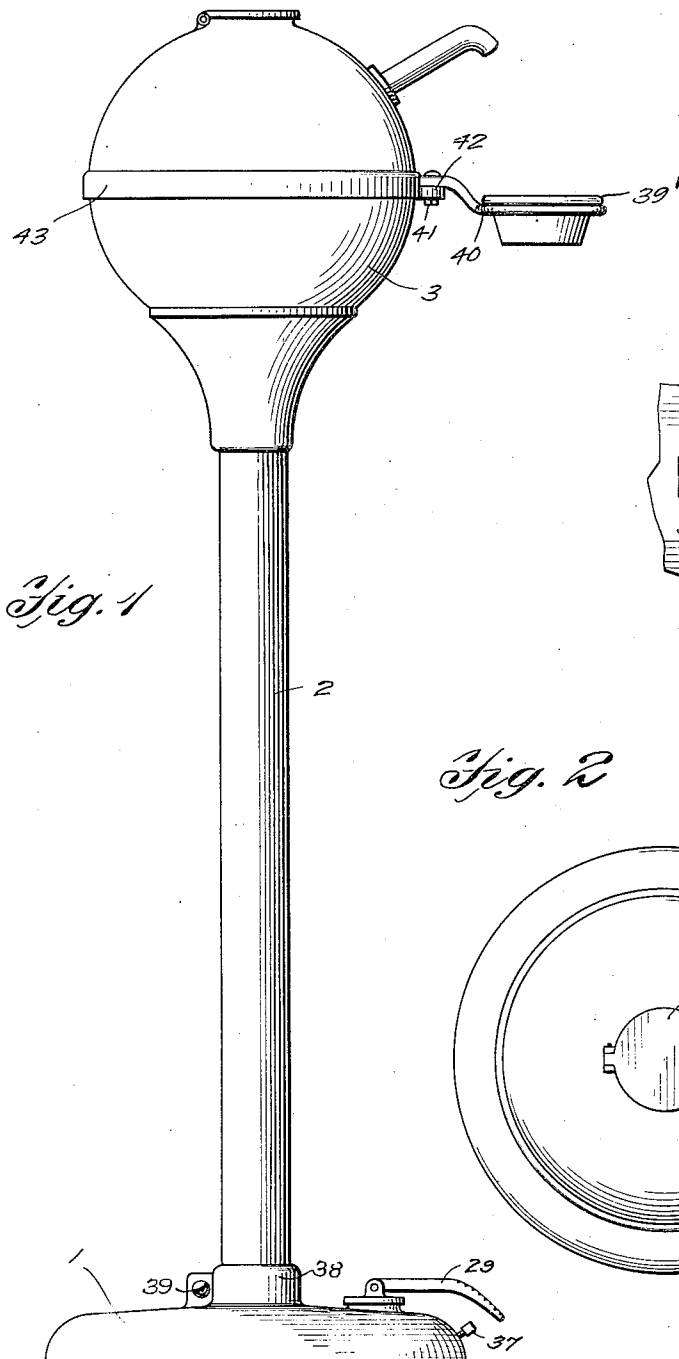


Fig. 1

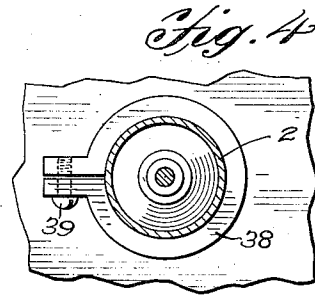
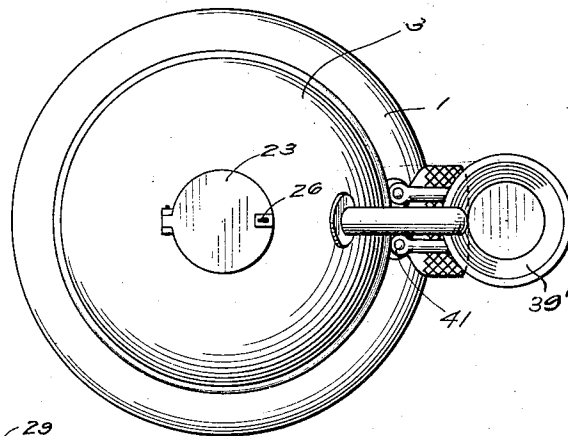


Fig. 4

Fig. 2



Witnesses

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Inventor

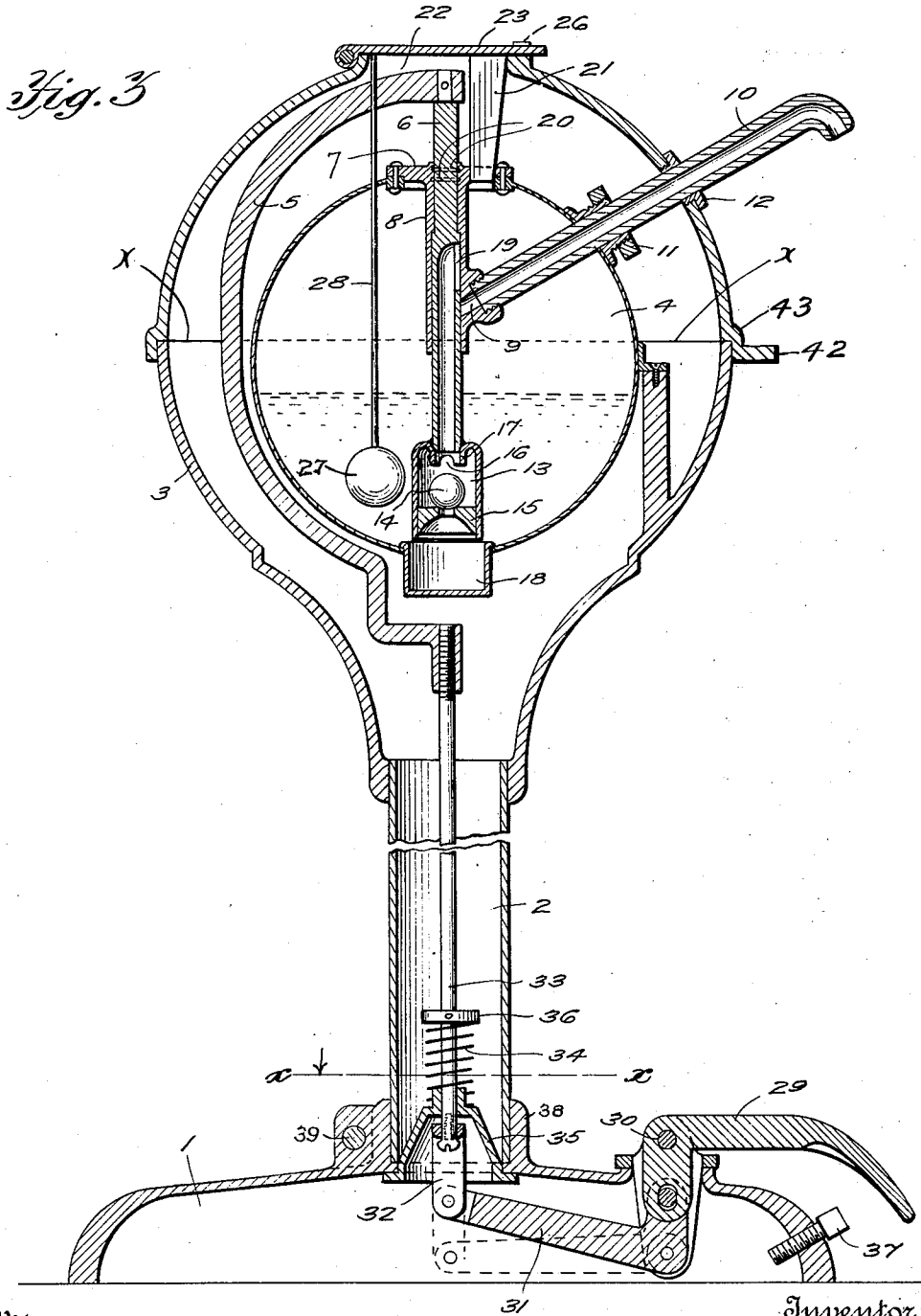
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

JACOB G. MILLER, OF LANCASTER, PENNSYLVANIA.

SOAP-DISPENSER.

1,061,099.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB G. MILLER, a citizen of the United States, residing at Lancaster in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Soap-Dispensers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to liquid soap dispensers.

It has been my aim in constructing this device to provide a liquid soap dispenser which will be entirely sanitary and consequently adapted, from a medical standpoint, for hospital use. It will, of course, be understood that the device may also be employed to advantage in other places, especially in public lavatories.

The most important and striking feature of my invention is that it is operated by the foot instead of by the hand, as has heretofore been the practice in the various devices for dispensing liquid soap now in use. By doing away with the use of the hands for operating the device, it is assured that each user will obtain his portion of the detergent in absolutely clean and sanitary condition. In other words, the provision of means for operating the dispenser by the foot removes all possibility of the portion of soap received by each individual user having been touched by any one else. It will also be observed that the operation of the device by the foot leaves both of the hands of the user free to receive the liquid soap discharge, whereas with the old form of hand operated dispensers, only one hand is left free to receive the discharge.

Another object of the invention is to provide improved means for regulating the amount of liquid soap discharged at each operation of the device.

A further object is to provide means for indicating when the reservoir of the dispenser requires refilling.

Still another object is to provide means for catching any of the liquid soap which may not be intercepted by the hands of the user.

Further objects will become apparent from the following description.

The invention consists in the features of construction and combinations of parts here-

inafter described, illustrated in the accompanying drawing, and specified in the appended claims.

In the accompanying drawing, illustrating the preferred embodiment of my invention: Figure 1 is a side elevation of the dispenser complete. Fig. 2 is a top plan view thereof. Fig. 3 is a central vertical sectional view on an enlarged scale with the middle portion of the column broken away, the waste cup and its supporting bracket being removed, and Fig. 4 is a cross section on the line $x-x$ of Fig. 3.

Referring more particularly to the drawing 1 designates the base or anchor plate which is of the required diameter and is preferably made of enameled metal. Fitted in the center of said base plate and extending vertically upward therefrom is a tubular column 2 of convenient height. Upon the top of the column there is fitted a casing 3, preferably made of enameled metal, corresponding to the base plate. The column is preferably made of nicked iron tubing.

Within the casing 3 there is arranged a reservoir 4 corresponding in shape to the casing or made in any other suitable form. Said reservoir is spaced away from the inner walls of the casing so as to permit a yoke 5 to pass around the reservoir from top to bottom. The upper end of said yoke is connected to a rod 6 which extends down into the reservoir through a corresponding opening in a cap plate 7 on the reservoir. The cap is provided with a downwardly projecting tubular extension 8 which fits around the rod 6 and forms a continuation of the opening in the cap through which said rod enters the reservoir. The lower portion of the tubular extension 8 is provided with a branch nozzle 9 to which is connected the delivery spout 10 extending outwardly through a suitably packed opening 11 in the wall of the reservoir and also through an opening 12 in the front of the casing.

On the lower end of the rod 6 there is mounted a valve casing 13, the base of which is preferably of greater diameter than said rod. Within the valve casing is arranged a ball valve 14 retained in place by a valve seat 15 secured in the lower end of said casing. The rod 6 is formed with a longitudinal passage 16 extending upward from the valve casing to a point above the juncture of the discharge spout with the tubular extension 8. The ball valve is prevented from

closing this passage in the rod by spaced apart downward projections 17 at the upper end of the valve casing. The base of the valve casing constitutes a plunger which registers with a well 18 in the bottom of the reservoir. Said plunger is normally arranged, at the end of its upward stroke, slightly above the opening of the well, in order to permit the contents of the reservoir to freely flow into and fill the well after the entire contents of the well, or a portion thereof, has been discharged by each operation of the dispenser. It will be observed that the rod 6 is provided with an opening or slot 19 which is adapted to register with the opening through the nozzle 9, leading to the discharge spout, when said rod is moved downwardly, but that said slot is normally out of communication with the discharge spout. Consequently, the downward movement of the rod 6 will cause the contents of the well to be forced up through the valve casing, through the longitudinal passage 16 in said rod and into the spout via the slot 19 and nozzle 9, but when the rod is in its raised position, the contents of the reservoir is cut off from the entrance of the outside atmosphere through the spout, thus preserving the liquid soap in good condition for a much longer time than it would be possible if it were open to the action of the atmosphere. It will be noted that the under surface of the valve seat 15 in the valve casing is conical or dome-shape, that is to say, its inner wall converges inwardly and upwardly. The action of this form of plunger upon the liquid soap contained in the reservoir is to direct said liquid toward the outlet leading to the interior of the valve casing when the rod 6, carrying said valve casing, is lowered, without causing said liquid soap to foam or lather. It will be readily understood that the formation of lather or foam in the valve casing or the longitudinal passage in the rod would not only obstruct the same and prevent the discharge of the proper quantity from the delivery spout, but would also cause the foam or lather to be discharged with the liquid from the spout. In order to prevent the liquid from working up around the rod, and leaking out at the top of the cap plate 7, I form one or more grooves 20, two of which are shown in the drawing, in said cap, which open upon the passage in which said rod is fitted. Any liquid which finds its way up around the rod to said grooves will accumulate therein and form a liquid packing ring therein effectually preventing leakage past said grooves. The provision of these grooves allows me to dispense with the ordinary packing rings, which are objectionable because they soon wear out and, when tight enough to prevent leakage, interfere with the ready manipulation of the device by

reason of the friction they cause upon the rod.

The reservoir is filled through a funnel 21 fitted in the cap plate 7 and extending up into an opening 22, in the top of the casing 3, which is normally closed by a hinged cover 23 secured by a lock 26. In order to indicate when the reservoir requires refilling, I place therein a float 27 on the end of a wire 28 which extends up through the wall of the reservoir and the yoke 5. The length of the wire 28 is such that when the liquid is low in the reservoir, the upper end of said wire will be arranged slightly below the cover 23, and when the liquid fills the greater part of the reservoir, said float is held down below the surface of said fluid by the end of the wire engaging said cover. Consequently, when the cover is raised, if the wire rises above the top of the casing, it will indicate that the reservoir still contains a sufficient quantity of the liquid soap, whereas, if the end of said wire does not rise above the casing, it will be apparent that the reservoir should be refilled.

A bell crank foot lever 29 is pivoted upon the base plate and has pivotal connection, as at 30, see Fig. 3, with another bell crank lever 31, pivoted below said base plate. The latter lever extends to the center of the base plate and is pivotally connected at its inner end to a link 32 swiveled on the lower end of a connecting rod 33 extending up through the tubular column 2 and connected to the lower end of the yoke 5. Said connecting rod, with the parts attached thereto, is normally held in its raised position by a helical spring 34 interposed between a collar 35 loosely fitted around said connecting rod and fastened to the base plate, and a collar 36 firmly attached to said rod. The free end of the foot lever 29 engages, on its down stroke, the end of an adjustable stud or bolt 37 whereby the range of movement of said lever may be regulated.

From the above description, taken with the accompanying drawing, it will be apparent that downward pressure upon the foot lever will lower the rod 6, by reason of the connections between said parts, and that the lowering of said rod will cause a predetermined quantity of liquid soap to be discharged from the spout by reason of the plunger entering the well 18 and forcing the contents thereof up through the valve casing, the longitudinal passage in the rod 6, and thence up through the discharge spout. It is also apparent that when pressure is removed from the foot lever or treadle, the spring 34 will return the parts to normal position. By adjusting the stud or bolt 37, the quantity of the liquid soap discharged at each operation can be regulated because the arc of movement of the foot lever or treadle will control the dis-

tance that the plunger will move down into the well. It is obvious, of course, that the farther the plunger enters the well, the more of the contents thereof will be discharged.

5 The lower end of the column 2 is clamped within a split collar 38 on the base plate. Said collar may be loosened or tightened by means of a bolt 39, whereby the base plate
10 may be adjusted so as to bring the foot lever at any desired point around the column with respect to the discharge spout. This will be found very advantageous because in some
15 laboratories it is more convenient to approach the dispenser directly from the front, and in others at the side.

The dispenser as a whole is portable and may be placed in any convenient location.

In order to prevent any of the liquid
20 soap, which may not be intercepted by the hands of the user, from dropping upon the floor, I have provided a removable cup 39' mounted upon a suitable bracket 40 attached to the casing and arranged in line with the
25 discharge spout. Said cup is spaced sufficiently below the spout to permit the hands to be readily placed below the spout without coming in contact with either. The bracket
30 40 may be secured to the casing in any efficient manner, as by the pins 41 engaging projecting lugs 42 on the central horizontal beads 43, as illustrated. It will be understood, of course, that the liquid soap which
35 collects in the cup may be disposed of at proper intervals. The provision of this cup for catching the waste soap carries out to the fullest extent my purpose of making the dispenser thoroughly sanitary.

I claim:

40 1. In a liquid soap dispenser, the combination, with a pedestal and a casing supported thereon, of a reservoir in said casing, a discharge spout leading from said reservoir, a foot lever mounted on the base of
45 the pedestal, and means connected to said lever and extending up the pedestal for discharging a predetermined quantity of the contents of the reservoir through the spout when said foot lever is depressed.

50 2. In a liquid soap dispenser, the combination, with a pedestal and a casing supported thereon, of a reservoir in said casing, a discharge spout leading from said reservoir, a foot lever mounted on the base of the
55 pedestal, and means connected to said lever and housed in the pedestal for discharging a predetermined quantity of the contents of the reservoir through the spout when said foot lever is depressed.

60 3. In a liquid soap dispenser, the combination, with a pedestal comprising a base plate and restricted column, of a casing supported on said column, a reservoir in
65 said casing, a discharge spout leading from said reservoir, a foot lever mounted on the

base of the pedestal, means connected to said lever and extending up the pedestal for discharging a predetermined quantity of the contents of the reservoir through the spout when said foot lever is depressed, and means
70 for adjustably securing the base plate to the column whereby the former may be turned upon the latter to bring the foot lever into various positions relative to the spout for the purpose specified.

75 4. In a liquid soap dispenser, the combination, with a pedestal and a casing supported thereon, of a reservoir in said casing, a discharge spout leading from said reservoir, an intermediately pivoted foot lever
80 mounted on the base of the pedestal, a second intermediately pivoted lever also mounted on said base and pivotally connected to the foot lever, and means connected to the second lever and extending up the pedestal
85 for discharging a predetermined quantity of the contents of the reservoir through the spout when said foot lever is depressed.

90 5. In a liquid soap dispenser, the combination, with a casing, of a reservoir therein spaced away from the casing, said reservoir and casing having registering openings, a funnel housed in the casing and extending from the opening in the reservoir
95 to the opening in said casing, and a cover for said last mentioned opening.

100 6. In a liquid soap dispenser, the combination, with a casing, of a reservoir therein, said casing and reservoir having registering filling openings, a float in the reservoir, a
105 wire attached to the float and extending above the reservoir, in alinement with the filling opening in the casing, and a cover for said filling opening in the casing, which, when closed, engages the upper end of said
110 wire and holds said float well down in the reservoir for the purpose specified.

115 7. In a liquid soap dispenser, the combination, with a pedestal and a casing mounted thereon, of a reservoir arranged in the casing and spaced away from the inner wall
120 thereof, a delivery spout leading from the reservoir, vertically movable discharging mechanism arranged in the reservoir and extending out at the top thereof, a foot lever
125 mounted on the pedestal, a rod connected to said foot lever and extending up through the pedestal, and a yoke attached to the upper end of said rod extending around the reservoir and secured to said discharg-
130 ing mechanism.

8. In a liquid soap dispenser, the combination, with a casing, of a reservoir therein, said casing having a filling opening, said
135 reservoir being provided with a filling opening and a second opening both registering with the filling opening in the casing, a float in the reservoir, a wire attached to the float and extending above the reservoir through said second opening therein, 130

and a cover for the filling opening in the casing which, when closed, engages the upper end of said wire and holds said float well down in the reservoir for the purpose specified.

9. In a liquid soap dispenser, the combination, with a casing, of a reservoir therein spaced away from the casing, said reservoir and casing having registering filling openings, a funnel housed in the casing and extending from the filling opening in the reservoir to that in the casing, a float in the reservoir, a wire attached to the float and extending above the reservoir in alinement with the filling opening in the casing, and a cover for said filling opening in the casing, which when closed, engages the upper end of said wire and holds said float well down in the reservoir for the purpose specified.

10. In a liquid soap dispenser, the combination, with a casing, of a reservoir therein spaced away from the casing, said reservoir and casing having registering filling openings, discharging mechanism including a part adapted to reciprocate in the space between the reservoir and casing, a funnel housed in the casing and extending from the filling opening in the reservoir, a float in the reservoir, a wire attached to the float and extending above the reservoir in alinement with the filling opening in the casing, and a cover for said filling opening in the casing which, when closed, engages the upper end of said wire and holds said float well down in the reservoir for the purpose specified.

11. In a liquid soap dispenser, the combination, with a pedestal and a casing mounted thereon, of a reservoir in the casing, a discharge spout leading from said reservoir, a well in the bottom of said reservoir, a vertically movable plunger mounted in the reservoir and adapted to enter the well on its down stroke, a valve in said plunger where-

by the contents of the well is forced up into said plunger when the latter is depressed and the liquid is retained in said plunger when it rises, means of communication between the interior of the plunger and the delivery spout whereby the liquid is discharged from said plunger through the spout, a foot lever mounted on the pedestal, and means connected to said lever for reciprocating said plunger.

12. In a liquid soap dispenser, the combination, with a pedestal and a casing mounted thereon, of a reservoir arranged in the casing and having an opening in its top, a cap fitted in said opening and having a tubular downward projection, a delivery spout connected to said tubular projection, a well in the bottom of the reservoir in vertical alinement with said projection, a vertically movable plunger mounted in said projection and adapted to enter the well when depressed, said plunger having a longitudinal passage therein opening at its upper end upon the interior of the tubular projection, said upper opening in said passage being arranged out of alinement with the delivery spout when the plunger is raised but adapted to be brought into communication with said spout when depressed whereby the contents of the reservoir is normally cut off from the outside atmosphere and the contents of the well is discharged through the spout via the passage in the plunger when the latter is depressed, a foot lever mounted on the pedestal, means of connection between the foot lever and the plunger and resilient means for normally holding said plunger in raised position.

In testimony whereof, I affix my signature, in presence of two witnesses.

JACOB G. MILLER.

Witnesses:

DORA C. STACKHOUSE,
J. GUY ESHLEMAN.