J. ZILL.

LIQUID VENDING APPARATUS.

APPLICATION FILED MAR. 25, 1909.

973,903.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.

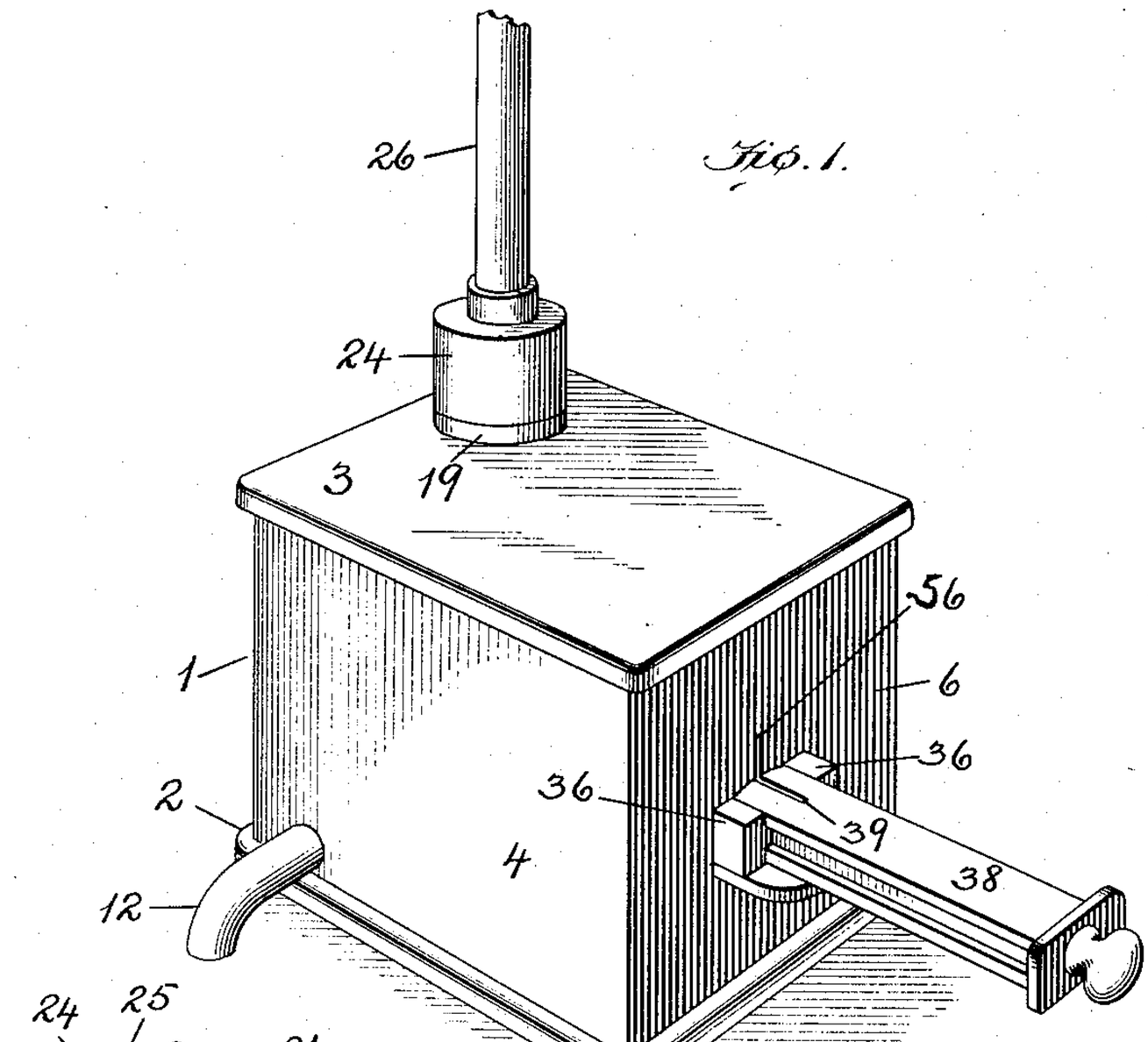

Fig. 1.

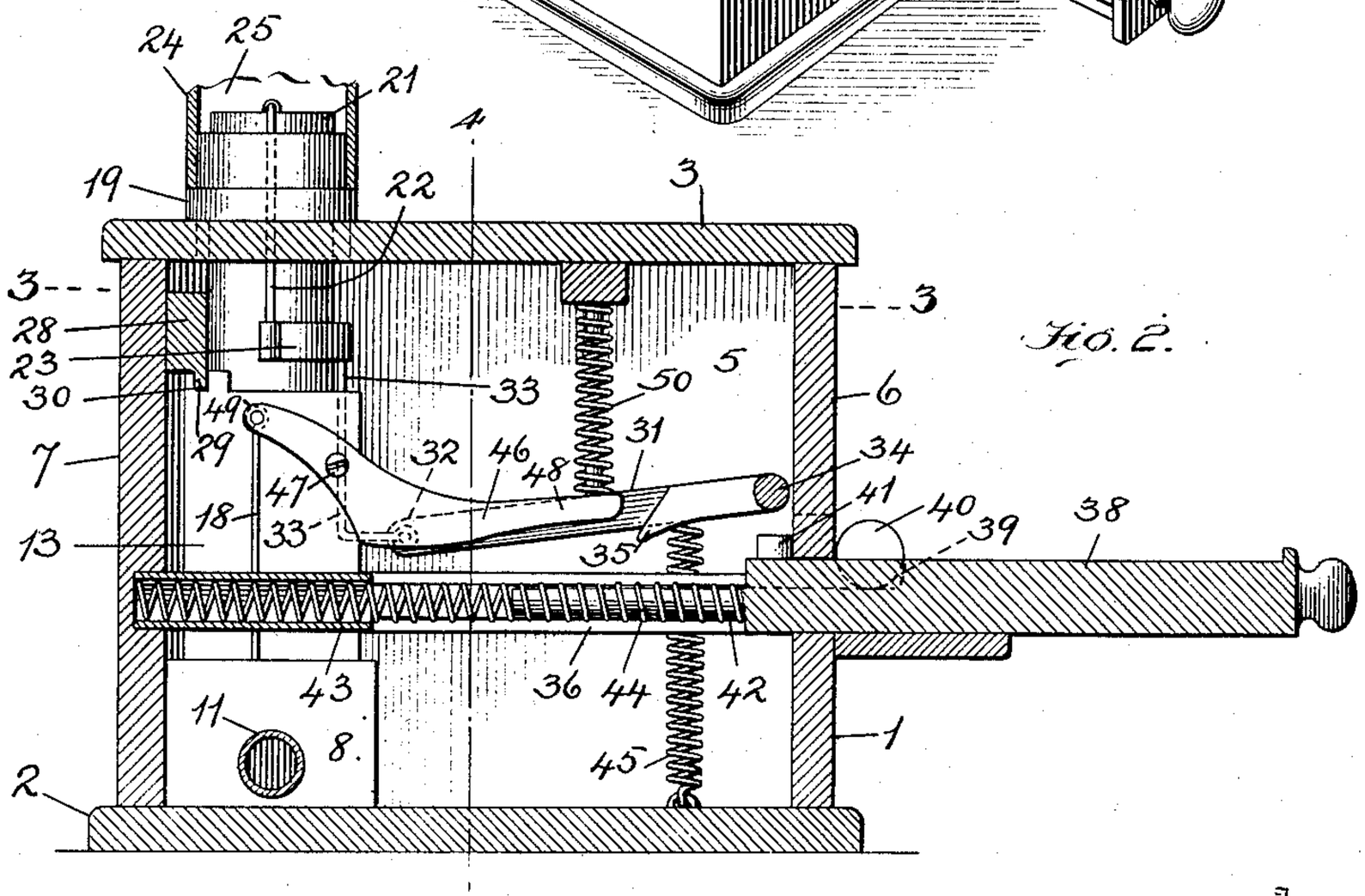

Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

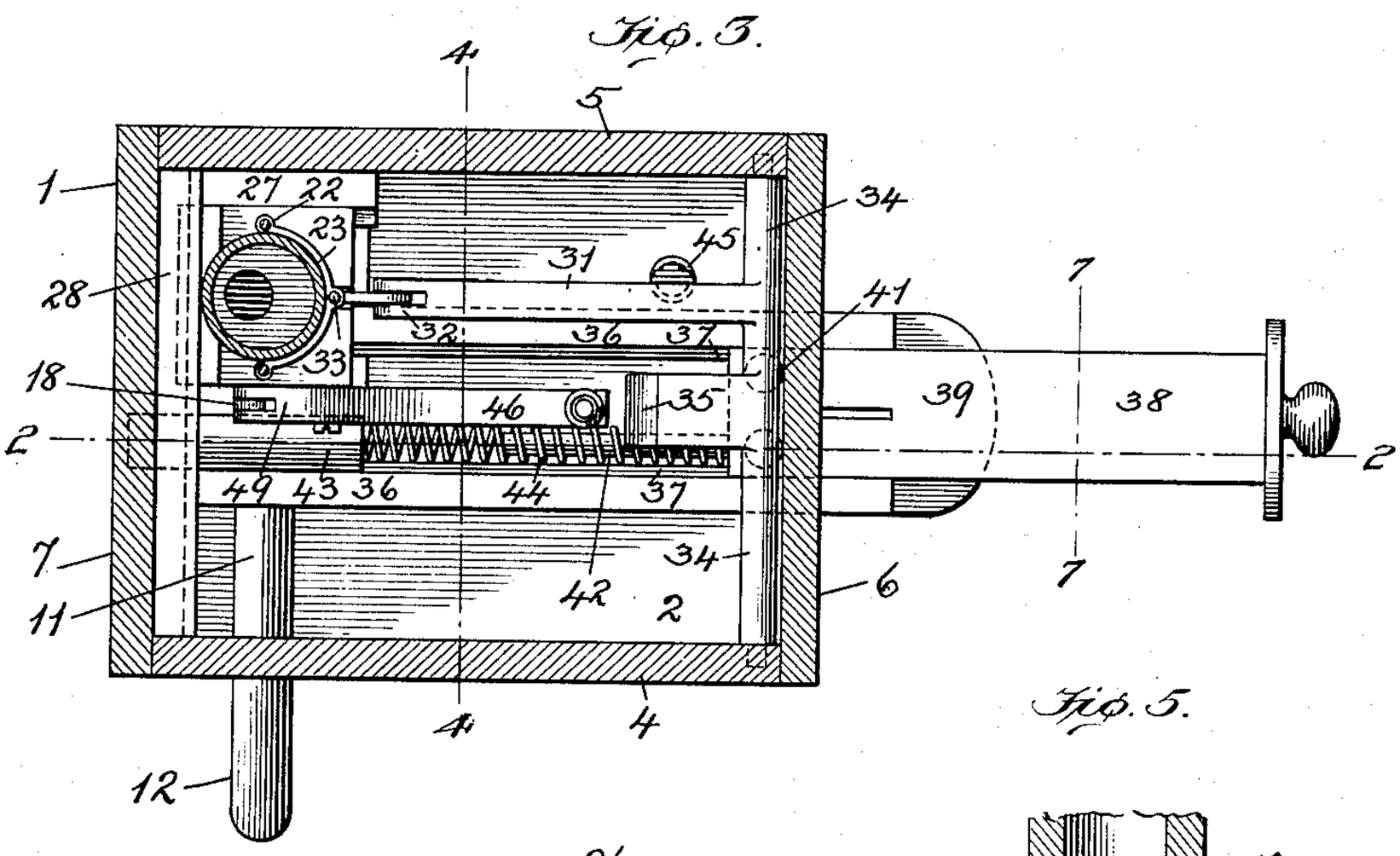


Fig. 4.

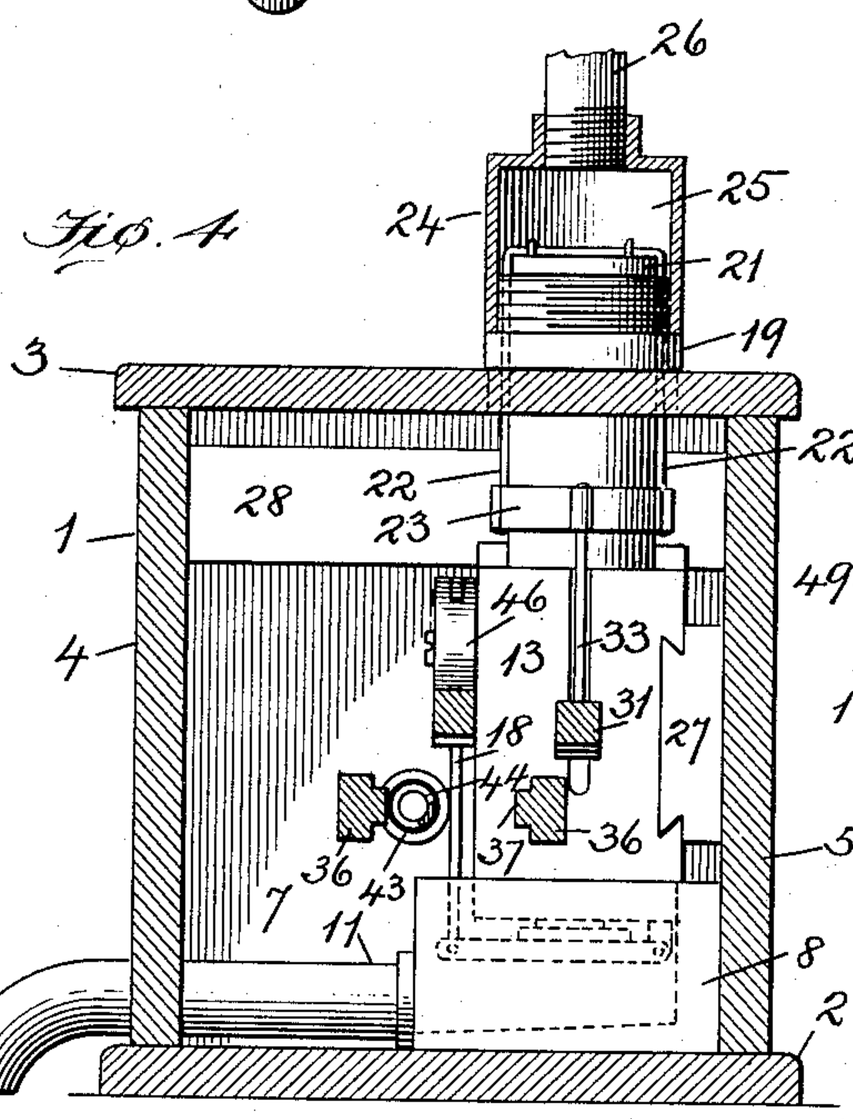


Fig. 5.

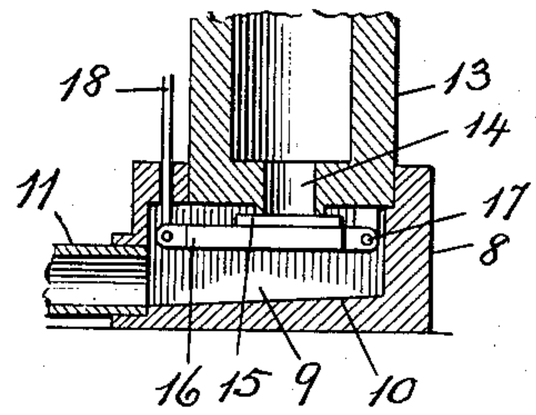


Fig. 6.

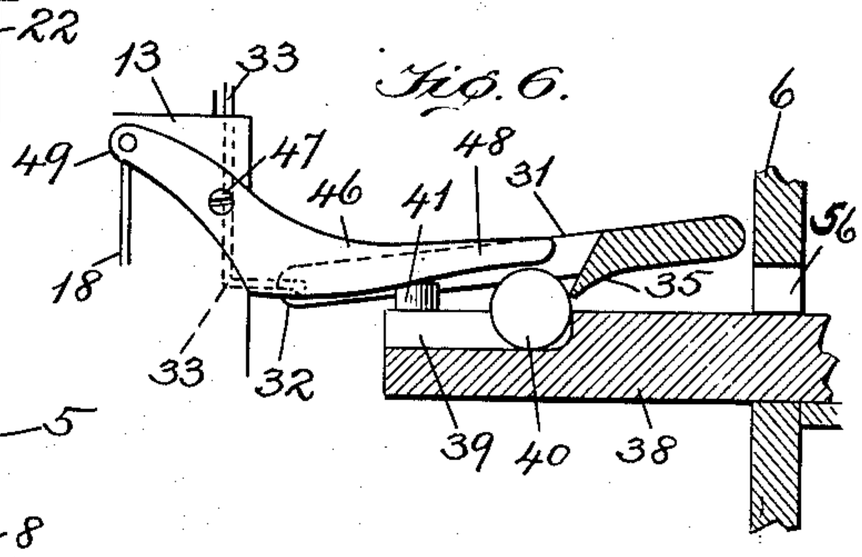


Fig. 7.

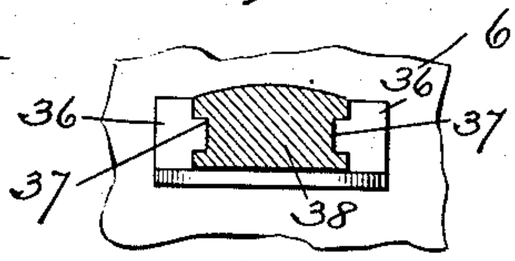
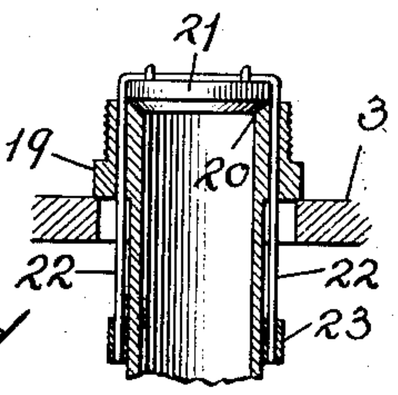


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

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LIQUID-VENDING APPARATUS.

973,903. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed March 25, 1909. Serial No. 485,618.

To all whom it may concern:

Be it known that I, JACOB ZILL, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Liquid-Vending Apparatus, of which the following is a specification.

This invention relates to an improved apparatus for vending liquids and has for one of its objects to provide a novel construction and combination of elements whereby liquids in a predetermined quantity may be delivered through the action of a coin and the manual manipulation of a coin-carrier.

Another object of the invention is to provide an improved construction of device which may be readily connected to any source of liquid-supply or storage receptacle so that the liquid may flow either under pressure or by gravity and dispense the liquid therefrom.

With these and other objects in view the invention is illustrated in the accompanying drawings, in which,—

Figure 1, is a perspective view of the apparatus, Fig. 2, a vertical longitudinal cross-section thereof,—the section being taken on the line 2—2 of Fig. 3. Fig. 3, is a horizontal section on the line 3—3 of Fig. 2. Fig. 4, is a vertical cross-section through the apparatus,—this section being taken on the line 4—4 of Figs. 2 and 3. Fig. 5, is a vertical sectional detail through the lower part of the measuring chamber; the valve chamber and the inner end of the nozzle and also shows the valve to control the ports between said chambers. Fig. 6, shows a detail of the upper and lower valve-operating levers and the coin carrier,—the coin having operated the upper valve to fill the measuring chamber and is about to actuate the lower valve mechanism to discharge the measured liquid. Fig. 7, is a cross-sectional view through the coin-carrier,—the section being taken on the line 7—7 of Fig. 3, and Fig. 8, is a sectional detail of the upper part of the measuring chamber and the valve to control the admission of liquid thereto.

Referring to the drawings the numeral, 1, designates a case of any suitable form or construction having a bottom, 2; a top, 3; front and rear walls, 4, and, 5, and side walls, 6, and, 7. On the inside of the case and in the present instance located in the corner formed by the bottom, 2, rear wall, 5, and side wall, 7, I provide a receptacle, 8, a valve chamber, 9, with a slightly inclined bottom, 10, therein. At the lower end of this inclined bottom I enter a discharge tube, 11, which extends through the front wall, 4, of the case and has a down-turned outer end, 12, which forms a discharge nozzle.

A measuring receptacle, 13, extends vertically above the receptacle, 8, and said measuring receptacle is provided with a vertical chamber with an outlet port, 14, at the bottom thereof which may be made to communicate with the valve chamber, 9. A suitable valve, 15, is sustained in the valve-chamber so as to cover or uncover the port, 14. This valve may be operated in various ways but in the present instance it is mounted on a lever, 16, having one end, 17, pivoted while to the other end I attach a valve-rod, 18, which extends or projects upwardly through the wall of the receptacle, 8, to a suitable operating device which will presently be described. The upper portion of the measuring receptacle is circular in cross-section and extends through the top wall, 3, of the case, as clearly shown in Fig. 4 of the drawing and the upper projecting end thereof is provided with circumferential screw-threads and has a circular flange, 19, which rests upon said top. A valve-seat, 20, is formed at the upper cylindric end of the measuring receptacle and a valve, 21, controls the admission of liquid thereto. In the present instance this valve is carried by two vertical rods, 22, which extend vertically through the flanged cylindric end of the measuring receptacle and have their lower ends connected to a yoke, 23, which is curved to conform to the exterior shape of the receptacle so that the two rods may have position diametrically opposite each other.

A cylindrical shell, 24, has a screw-threaded lower inner end which fits over the upper end of the measuring receptacle and forms a chamber, 25, about the admission valve, 21, and a liquid-supply pipe, 26, enters the upper end of said shell and continuously supplies the liquid to said shell chamber, 25. This supply pipe is preferably in direct communication with a liquid storage receptacle, such as a barrel, keg or equivalent device and the shell, 24, serves as a coupling between the measuring receptacle and the liquid supply.

The particular manner of securing the measuring receptacle in place is immaterial but in the present instance it is rigidly se-

cured to the rear wall, 5, by means of a dove-tailed block, 27, and to the side wall, 7, through a horizontal bar, 28, having at its bottom a downwardly-projecting flange, 29, that enters a groove, 30, in the receptacle.

In operation the upper and lower valves of the measuring receptacle are actuated in succession,—that is the upper valve, 21, is raised to permit the liquid to run into and fill the measuring chamber and the said valve is then closed so as to momentarily confine the liquid in the said chamber between the two valves. The lower valve, 15, is then opened and the measured contents will then run out through port, 14, valve chamber, 9, and pipe, 11, to discharge nozzle. As the valve, 21, is the first to be operated the mechanism employed for that purpose will first be described.

A lever, 31, has one end pivotally sustained adjacent the side wall, 6, of the case and said lever normally inclines downwardly from its pivoted end. The free end, 32, of this lever has position at the side of the measuring receptacle and said end is pivotally connected with the lower end of the rod, 33, whose upper end engages the yoke, 23. It will therefore be seen that by raising the free end of the lever, 31, the rod, 33, will be elevated and as the yoke, 23, is connected to the said rod it will be raised carrying the valve rods, 22, and valve, 21, with it. By reference to Fig. 3, it will be seen that in the present instance the lever, 31, is pivotally mounted by means of a horizontal rod, 34, from which it projects, and which has bearing in the front and rear walls, 4, and 5, so that it may rock. This rod, 34, is provided with a central tongue, 35, which inclines downwardly at a point directly over that where the coin enters the machine and is to be operated thereby as will now be explained.

On the interior of the case and extending horizontally therein between the walls, 6, and, 7, are two spaced-apart guide rails or bars, 36. These guide-rails each have a tongue, 37, at their inner vertical sides so as to sustain and guide a horizontal coin-carrier or slide, 38. This slide projects through an opening in the side wall, 6, of the case and has position directly beneath the downwardly inclined tongue, 35, on the rod, 34. The inner end of the slide has a groove, 39, in its upper surface which is of sufficient width of receive the coin, 40, edgewise; this groove is open at its innermost end to allow the coin to pass off. Lugs or stops, 41, project upwardly from the inner end of the coin-carrier and prevent the entire withdrawal of the same from the case by contacting with the inner vertical side of the wall, 6, as clearly seen in Fig. 2. A pin, 42, projects rearwardly from the inner end of the coin-carrier and a tube, 43, is carried by the wall, 7, and in direct line with the pin so as to receive the latter when the coin-carrier is pushed inwardly. A coiled spring, 44, has one end entering the tube, 43, and its other end coiled about the pin of the coin-carrier, and said spring normally keeps the coin-carrier pressed outwardly and in the position shown in Fig. 2. A coiled spring, 45, is also provided to keep the inner end of the lever, 31, pressed or drawn downwardly.

The coin, 40, is placed in the groove, 39, of the slidable coin-carrier and the depth of the groove is such that the coin while standing on its edge in an upright position will project above the upper surface of the carrier, as shown in Figs. 2 and 6. A slot, 56, is provided in the side wall, 6, so the coin may pass into the case while remaining on edge in the groove. After the coin has been inserted in the groove of the carrier the latter will then be pushed inwardly so that the upper projecting edge of the coin will contact with the bottom side of the central tongue, 35, and raise the free end of said lever, 31, together with the rod, 33, and thereby elevate yoke, 23, rods, 22, and inlet valve, 21, to permit the liquid to enter the measuring chamber. This upward movement of the lever, 31, and connecting valve-parts continues until the coin, 40, passes beyond the central tongue, 35, whereupon the lever and said valve parts will immediately drop and shut off the supply at the upper end of the measuring receptacle. This opening and closing of the filling valve, it will thus be seen, is effected by what may be termed the preliminary movement of the coin-carrier and effects a measuring of the liquid that is to be discharged upon the final movement of the coin-carrier as will now be described.

A discharge-valve lever, 46, is pivotally mounted between its end at, 47, and extends longitudinally above the inner end of the coin-carrier. The forward end, 48, of this lever has position over the coin groove, 39, and coin, 40, at the time the tongue, 35, drops behind the coin to close the filling valve so that as the coin is carried forward by the further movement of the carrier, it will contact with the lower side of the lever, 46, and raise said end. The rear end, 49, of this lever projects beyond the pivot, 47, and is swung downwardly as the forward end is raised by the coin. The rear end of the lever is pivotally connected with the rod, 18, that operates the discharge valve, 15, through the lever, 16, so that the raising of the forward end of lever, 46, by the coin causes a lowering of the valve lever, 16, and valve, 15, and permits the measured liquid to discharge from the measuring receptacle through the port, 14, into the chamber, 9, from which it will run off through pipe or tube, 11, and discharge into a glass or other receptacle held beneath the nozzle, 12. This

final inward movement of the coin-carrier will therefore effect the lowering of the valve, 15, and as the carrier is released the spring, 44, which will have been compressed by the inward movement thereof, will then expand and return the coin-carrier to its normal projected position. Upon this return movement of the carrier the coin will be held in check by contacting with the tongue, 35, and the carrier will be withdrawn from beneath it so the coin will then drop down onto the bottom of the case. A spring, 50, operates at the forward end of the lever, 46, to depress said end and close the discharge valve, 15.

It will thus be seen that normally both valves, 15, and, 21, are closed at the two ends of the measuring receptacle; that the filling valve, 21, is first opened to let the liquid flow into and fill the measuring device and immediately closes; and finally the lower valve, 15, is opened to allow the measured liquid to run off, and that all of these operations are effected by the preliminary and final inward movement of the coin-carrier and coin.

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

1. In a liquid vending apparatus the combination with a case, of a vertical measuring receptacle having an inlet at its upper end and an outlet at its lower end; a liquid supply at the upper end of the measuring receptacle; a valve movable vertically with respect to said inlet to control communication between the supply and the inlet to said receptacle; rods connected to and depending from said valve; a lever pivotally sustained in the case and having connection with said valve rods; a valve pivotally sustained at the outlet of said receptacle; and a separate lever for operating said valve.

2. In a liquid vending apparatus the combination with a case, of a receptacle therein having an inclined bottom and forming a chamber; a discharge tube communicating with said chamber; a valve in said chamber; means for operating said valve; a measuring receptacle extending vertically above said valve; a valve at the upper end of said measuring receptacle; rods connected to said latter valve and depending at the side of the measuring receptacle; a yoke connected with said rods; a lever for operating said yoke to move it vertically with respect to the measuring receptacle, and a connection between the yoke and said lever.

3. In a liquid vending apparatus the combination with a case, of a chambered receptacle in said case; a valve pivotally sustained in said chamber; a measuring receptacle extending vertically above said chamber and having its lower end closed by said valve; a lever pivoted at one side of the measuring receptacle and connected with the valve in the chambered receptacle; a shell around the upper end of the measuring receptacle; a valve in said shell; means for operating said latter valve to control communication between the shell and the measuring receptacle and a supply pipe entering said shell.

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

JACOB ZILL.

Witnesses:

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G. FERDINAND VOGT.