

No. 896,405.

PATENTED AUG. 18, 1908.

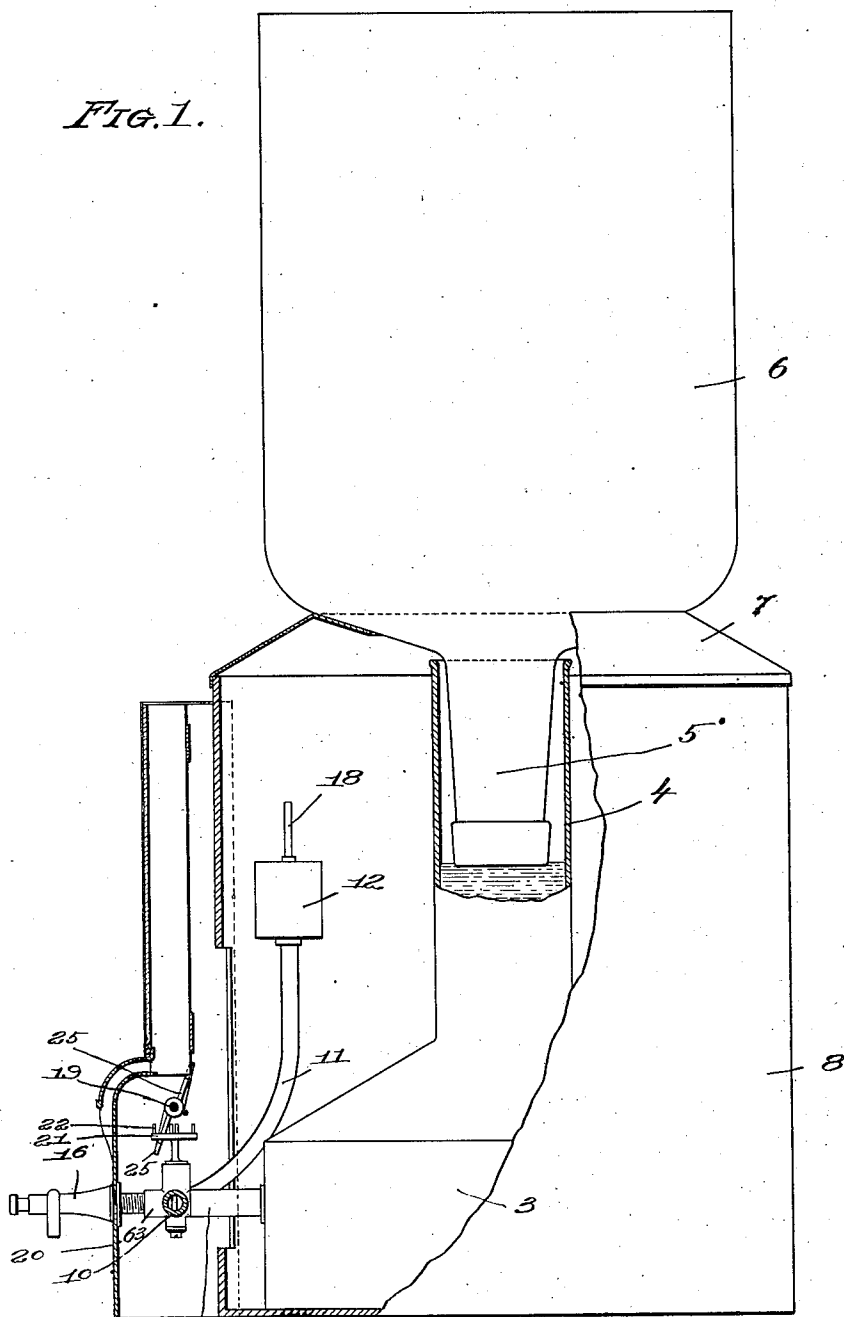
A. MACLEOD.

LIQUID AND CUP DISPENSING APPARATUS.

APPLICATION FILED MAY 8, 1907.

3 SHEETS—SHEET 1.

FIG. 1.



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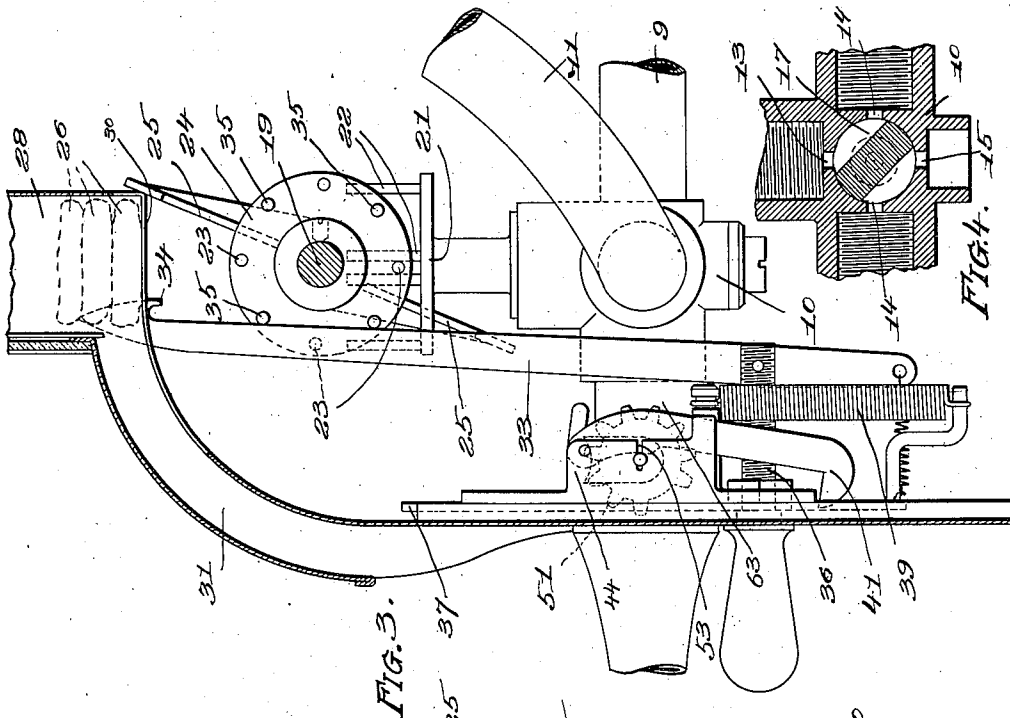


FIG. 3.

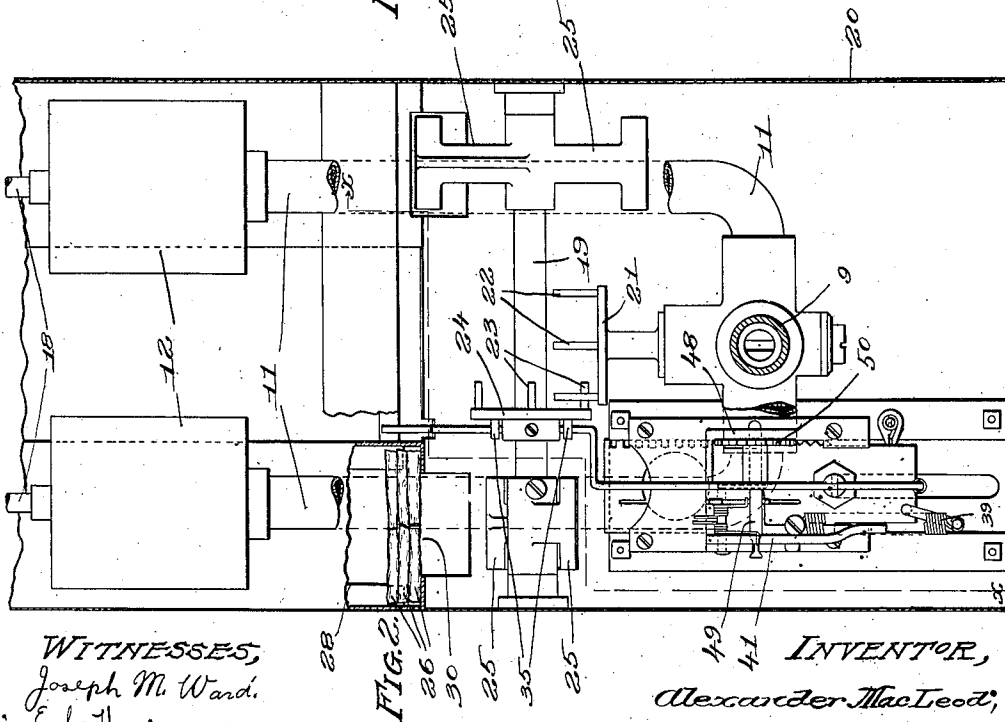


FIG. 2.

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3 SHEETS—SHEET 3.

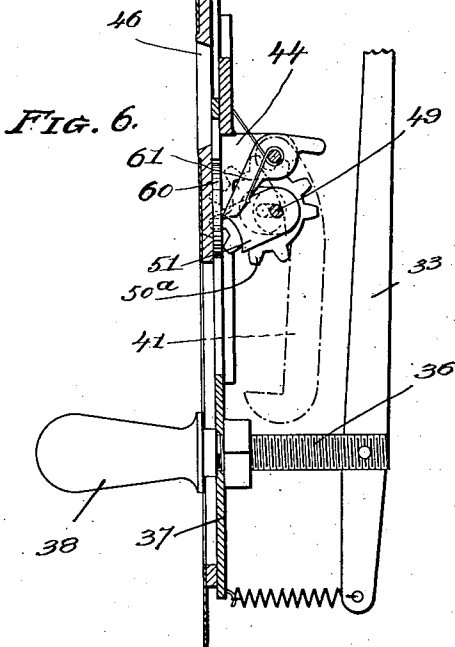
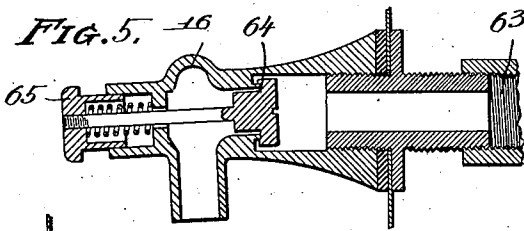


Fig. 7.

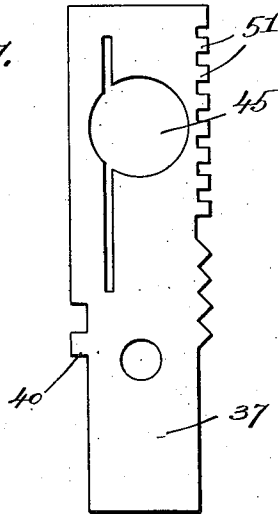


Fig. 8.

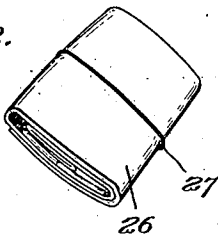
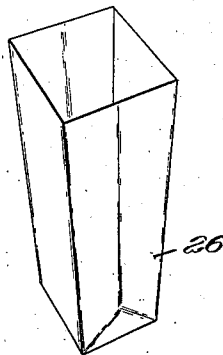


Fig. 9.



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UNITED STATES PATENT OFFICE.

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LIQUID AND CUP DISPENSING APPARATUS.

No. 896,405.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed May 8, 1907. Serial No. 372,550.

To all whom it may concern:

Be it known that I, ALEXANDER MACLEOD, a subject of the King of Great Britain, and a resident of Waverley, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Liquid and Cup Dispensing Apparatus, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to a coin-controlled dispensing apparatus adapted for dispensing liquids in measured quantities.

The device is especially designed for dispensing water in measured quantities. In most places where water is dispensed to the public generally the same cup or glass is used by all persons who draw water from the apparatus. Where this is the case the cup is very apt to become unsanitary, and in many instances becomes a means of scattering contagious diseases.

One of the objects of my invention is to provide a novel liquid-dispensing apparatus which is so arranged that individual cups or drinking receptacles are used so that each person will have his own cup and will not be obliged to use a cup or drinking receptacle which has been used by any other person. In the preferred embodiment of my invention I arrange these individual drinking cups so that when the machine is actuated the drinking cup is first delivered and after it is delivered the predetermined quantity of water or other liquid can be drawn into it and drunk from it. The drinking cup remains in the possession of the person using the machine and need not be used by any other person. In the preferred embodiment of my invention also the actuation of the machine operates to connect a manually controlled delivery faucet with a measuring chamber which has been previously filled with the liquid and at the same time said machine operates to deliver the individual drinking cup as above described. The final drawing of the water is accomplished by the manual operation of the delivery faucet, and the operation of this faucet is not in any way controlled by the other mechanism.

By means of my invention I am enabled to provide a public liquid-dispensing apparatus which has none of the unsanitary features of such apparatus as now commonly used.

In the drawings wherein I have shown one embodiment of my invention—Figure 1 is a side view partly in section of a device having the features above referred to; Fig. 2 is a rear view of the coin-controlled mechanism; Fig. 3 is a section on the line $x-x$, Fig. 2; Fig. 4 is a section through the valve herein shown; Fig. 5 is a detail view of the manually-controlled delivery faucet; Fig. 6 is a sectional detail of the coin-controlled mechanism; Fig. 7 is a detail of the coin-receiving plate; Fig. 8 shows an individual drinking cup in its folded condition; and Fig. 9 shows the same cup opened out ready for use.

While my invention may be applied to dispensing apparatus of various forms I have herein shown it as used in connection with an apparatus commonly used for dispensing spring water. Such apparatus usually comprises a receptacle 3 having a neck 4 within which is adapted to be received the neck 5 of the carboy 6 containing the spring water, said carboy being in inverted position and resting on the top 7 of the casing 8 within which the receptacle 3 is received. The water is prevented from escaping from the carboy 6 by the water in the receptacle 3 which seals the mouth of the carboy. These parts are or may be of any suitable or usual construction and form no part of my present invention.

Connected to the receptacle or main reservoir 3 is a pipe 9 which leads to a cock or valve 10, and leading from said cock or valve is a pipe 11 leading to a measuring chamber 12. In the present form of my invention I propose to use two such measuring chambers, as shown in Fig. 2, each being connected to the valve 10 by a pipe 11, and where two such measuring chambers are employed the valve 10 is in the nature of a four-way cock, as shown in Fig. 4. This valve has the inlet port 13 communicating with the pipe 9, the ports 14 communicating with the pipes 11 and the delivery port 15 with which the delivery faucet 16 is connected.

The flow of liquid is controlled by a valve plug 17 which can be turned to put either port 14 into communication with either the inlet port 13 or delivery port 15. When the valve is in the position shown in Fig. 4 one of the measuring chambers 12 is in communication with the receptacle 3 and will thus become filled with liquid while the other measuring chamber is in communication with the

delivery faucet 16. When the valve is turned through a quarter revolution the first named measuring chamber is put into communication with the delivery faucet and the last named with the main reservoir 3.

The measuring chambers 12 are placed at substantially the waterlevel in the neck of the receptacle 3, and each is provided with a vent port or pipe 18 through which the air may escape as the receptacle is filling and through which the air may enter as the receptacle is being emptied.

The plug 17 is adapted to be turned by an actuating shaft 19, which is mounted in a casing 20 that is preferably arranged just outside of the main casing 8, and this shaft 19 by its rotation operates to deliver the individual drinking cups from the device.

Any suitable means for connecting the shaft 19 with the plug 17 may be employed without departing from my invention, and I have herein shown said plug as provided with the head 21 having pins or teeth 22 rising therefrom which are adapted to be engaged by other pins or teeth 23 extending from a wheel or gear 24 fast on the shaft 19. The means for operating the shaft 19 will be presently described. Said shaft has also mounted thereon arms 25 that cause the delivery of the individual cups as the shaft is rotated.

It is within my invention to employ individual cups of any suitable construction, but for convenience I prefer to use cups 26, such as shown in Fig. 9, which may be made of flexible, waterproof material, such as waxed paper. Cups made of flexible material can be readily folded into a compact space as shown in Fig. 8, and if desired, each may be held in its folded condition by an elastic or band 27. These individual cups thus folded are contained within a hopper 28, and the hopper is so arranged that one cup at a time may be delivered therefrom by the arms 25. In the present embodiment of my invention, I have shown two such hoppers, one at each side of the casing 20, and the shaft 23 has thereon two pair of arms or blades 25, the blades of one pair being arranged at right angles to those of the other pair. The bottom of each hopper is provided with an opening 30 through which the end of the corresponding blades 25 pass, and communicating with the bottom of each hopper is a delivery chute 31, through which the individual cups are delivered.

As shown in Fig. 3, the bottom cup in each hopper is in position to be engaged by the end of one of the blades 25, and as the shaft 19 rotates, said blade pushes this bottom cup outwardly into the chute 31, from which it is delivered to the operator. In this embodiment of my invention, I have so arranged the blades 25 that at each quarter revolution of the shaft 19, one cup will be delivered, the

cups being delivered first from one hopper 28 and then from the other. The gearing between the shaft 19 and the valve plug 17 is so arranged that the plug turns synchronously with the shaft, and therefore each quarter revolution of the shaft 19 turns the plug 17 through a quarter of a revolution.

The means for operating the shaft 19 comprises an actuating member 33 having a hook-shaped end 34 which is adapted to engage pins or projections 35 extending from the wheel 24. This actuating member is pivotally mounted on a stud 36 carried by a coin-receiving slide 37 which has connected thereto a handle 38 projecting from the front of the casing 20 and by which the slide is operated. Each time that the slide 37 and the actuating member 33 are moved downwardly, the hooked end 34 of the member 33 engages a pin 35, and turns the wheel 24 and shaft 19 one step forward. There are four pins 35 in the wheel 19, so that each time the slide 37 is operated the shaft 19 is turned through a quarter of a revolution. The slide and actuating member are returned to their normal position by means of a suitable spring 39.

The slide 37 is coin-controlled, that is, it is normally locked against downward movement, but can be unlocked by the insertion of a coin. This slide, as seen in Fig. 7, has a shoulder 40 which is normally engaged by a locking latch 41, see Fig. 3, which is pivoted to a support 44 carried by the casing 20. The slide is also provided with a coin-receiving aperture 45 which normally stands in line with a coin-receiving aperture 46 formed in the front of the casing.

Journaled in the supports 44 is a shaft 49 having a gear-wheel 50 thereon which is adapted to mesh with gear teeth 51 formed on the slide 37. The shaft 49 also has fast thereon a cam-member 51 that normally stands in the dotted line position Fig. 3.

When a coin is inserted into the coin-receiving aperture 45, and the handle 38 is moved downwardly, the downward movement of the slide 37 causes the shaft 49 to rotate, thereby bringing the cam member 51 against the coin 60, as shown in Fig. 6. As the cam member moves against the coin, the shaft 49 is forced backwardly or to the right Fig. 6, it being mounted in a slot 53 in the bearing 44 to permit such movement, and the backward movement of the shaft brings it into engagement with the locking pawl 41, and throws said pawl out of the path of movement of the shoulder 40, thereby permitting the slide 37 to have its full downward stroke, sufficient to bring the hooked end of the actuator 33 into engagement with one of the pins 35, and thus rotate the shaft 19. When the handle 38 is released the spring 39 returns the parts to their normal position, and during such movement the coin 60 is thrown out from the aperture 45 by means

of a coin ejector 61. If on the other hand, it is attempted to move the handle 38 downwardly without having first inserted a coin, the shaft 49 will not be thrown backwardly, and therefore the locking pawl 41 will remain in the path of movement of the shoulder 40, and will prevent the full downward movement of the slide which is necessary in order to cause the shaft 19 to be actuated. This particular device for controlling the coin is not essential to my present invention, however.

The plug 17 of the valve 10 normally stands in position, so that one of the measuring chambers 12 is in communication with the main reservoir 3, and the other in communication with the pipe 63 leading to the delivery faucet 16. This delivery faucet may have any suitable or usual construction, and is capable of manual operation independent from the mechanism for rotating the shaft 19.

I have shown in Fig. 5 one simple and common form of bib-cock which may conveniently be used for the delivery faucet, it having the spring-pressed valve 64 provided with the plunger or head 65 by which it may be operated.

In the operation of the device, a coin is inserted in the coin-receiving aperture 45 and the handle 38 is moved downwardly. This downward movement operates through the actuator 33 to turn the shaft 19 through a quarter of a revolution, and during such movement one of the individual drinking cups 26 is delivered from its hopper, and at the same time, the plug 17 is turned to connect the filled measuring chamber 12 with the delivery faucet 16. After the operator has received his individual cup, and has unfolded it, and opened it out, as shown in Fig. 9, he may press the plunger 65 of the delivery faucet 16, and draw into the cup the contents of the filled measuring chamber. As soon as the plug 17 has been turned as above described, the previously emptied measuring chamber is put in communication with the main reservoir 3, so that said chamber is being filled while the filled chamber is being emptied. The next time a coin is inserted and the handle 38 operated, the shaft 19 and plug 17 are each given another quarter revolution, thereby delivering another individual cup and at the same time placing the emptied chamber in communication with the main reservoir 3 and the filled chamber into communication with the faucet 16.

With this mechanism each person has his own individual cup and all danger of the spread of contagious diseases by the use of one cup by several individuals is avoided.

It will be noted that the apparatus is so constructed that the actuation of the handle 38 after the insertion of a coin does not cause the measured quantity of water to be deliv-

ered, but instead connects the filled measuring chamber with the faucet 16, so that the operator can take his time in drawing the water.

It is not essential to my invention that a folding cup be employed, although I prefer such a cup because of the compact space in which a plurality of cups can be alined.

I believe I am the first to provide a liquid dispensing apparatus with means for delivering an individual cup each time the machine is operated, and therefore I desire to claim this feature broadly.

I have shown herein the preferred embodiment only of my invention, and have not attempted to illustrate all forms in which the invention might be embodied.

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

1. In a device of the class described, the combination with means to sustain a plurality of cups, of cup-delivery mechanism having means to separate one cup from the remaining cups and carry said cup away from the remaining cups at each operation thereof, a liquid-measuring chamber, a valve controlling the discharge therefrom, and an actuator operatively connected to both the cup-delivery mechanism and said valve.

2. In a device of the class described, the combination with a cup-receiving hopper and a movable member arranged to deliver at each operation thereof a single cup from said hopper, of a liquid-measuring chamber, a delivery faucet, a valve operable separately from said faucet for connecting said chamber to the faucet, and an actuator operatively connected to both the valve and the cup-delivery mechanism.

3. In a device of the class described, the combination with a cup-receiving hopper, of a rotary member to deliver cups singly from said hopper, a liquid-measuring chamber, a valve controlling the discharge from said chamber, and operative connections between said valve and said rotary member.

4. In a device of the class described, the combination with a cup-receiving hopper, of a delivery chute communicating therewith, a rotary arm for delivering cups singly from the hopper into the chute, a liquid-measuring chamber, a valve controlling the discharge therefrom, and an actuator operatively connected both to the valve and the arm.

5. In a device of the class described, the combination with means to sustain a stack of cups, of cup-delivery mechanism provided with means to separate positively and deliver one cup from the stack of cups, means for delivering a measured quantity of liquid, and an actuator operatively connected both to the cup-delivery mechanism and said means.

6. In a device of the class described, the combination with a cup-receiving hopper, a

rotary member to deliver cups singly from said hopper, a liquid-measuring chamber, a delivery faucet, a valve operable separately from said faucet and controlling the discharge from the chamber, and an actuator operatively connected both to said valve and said rotary member.

7. In a device of the class described, cup-delivery mechanism arranged to deliver a single cup therefrom at each operation thereof, in combination with a measuring chamber, a valve controlling the discharge therefrom, a manually-controlled delivery-faucet to control the discharge from the valve and means for operating the cup-delivery mechanism and valve simultaneously.

8. In a device of the class described, the combination with a main reservoir, of a measuring chamber, a delivery faucet, a valve operable independently from said faucet to control communication between the main reservoir and measuring chamber and between said measuring chamber and delivery faucet, cup-delivering mechanism and means to operate said cup-delivery mechanism and valve simultaneously.

9. In a device of the class described, the combination with a main reservoir, of a measuring chamber, a manually-controlled-delivery faucet, a valve to control communication between the main reservoir and measuring chamber and between said measuring chamber and delivery faucet, cup delivering mechanism, and means to operate said delivery mechanism and valve simultaneously.

10. In a device of the class described, the combination with a measuring chamber, of a

valve controlling the discharge therefrom, a delivery faucet operable separately from the valve, cup-delivery mechanism, and means to operate said cup-delivery mechanism and said valve simultaneously.

11. In a device of the class described, the combination with a cup-receiving hopper, of a shaft having arms to deliver cups singly from said hopper, a liquid-measuring chamber, a valve controlling the discharge from said chamber and gearing connecting said valve and said shaft.

12. In a device of the class described, the combination with two cup-receiving hoppers, of a rotary shaft having a plurality of arms for delivering cups singly from each hopper, a liquid-measuring chamber, a valve controlling the discharge from said chamber, gearing connecting said valve and shaft, and means for operating the shaft.

13. In a device of the class described, the combination with means to sustain a plurality of cups one above the other, of cup-delivery mechanism having means to separate and deliver the bottom cup from the pile of cups at each operation thereof, means for delivering a measured quantity of liquid, and an actuator operatively connected both to the cup-delivery mechanism and said means.

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

ALEXANDER MacLEOD.

Witnesses:

LOUIS C. SMITH,
BERTHA F. HEUSER