

A. McDONALD.
LIQUID VENDING DEVICE.
APPLICATION FILED FEB. 11, 1918.

1,300,285.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 1.

Fig. 1.

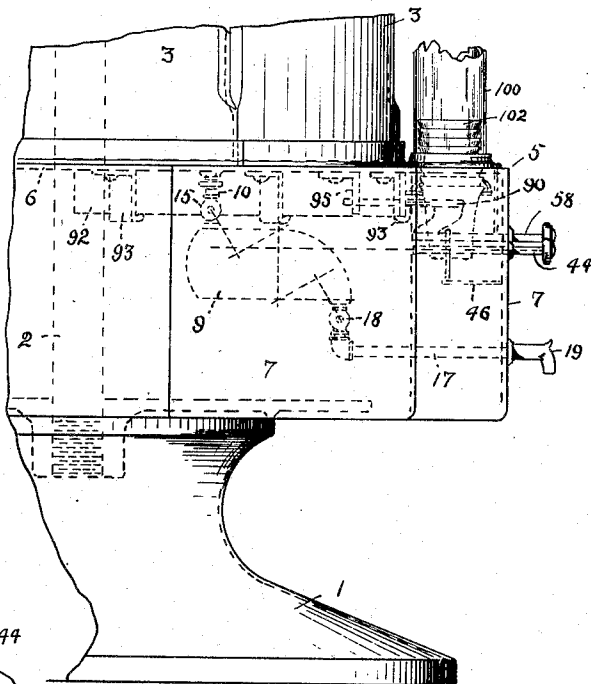
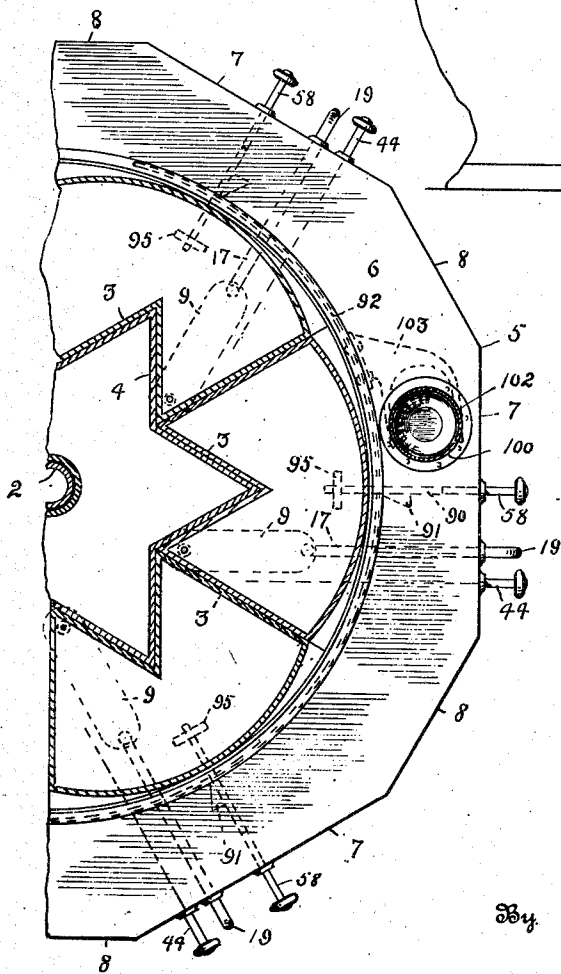


Fig. 2.

Inventor

Alexander McDonald.
S. W. Swann.

By

Attorney

A. McDONALD.
LIQUID VENDING DEVICE.
APPLICATION FILED FEB. 11, 1918.

1,300,285.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 2.

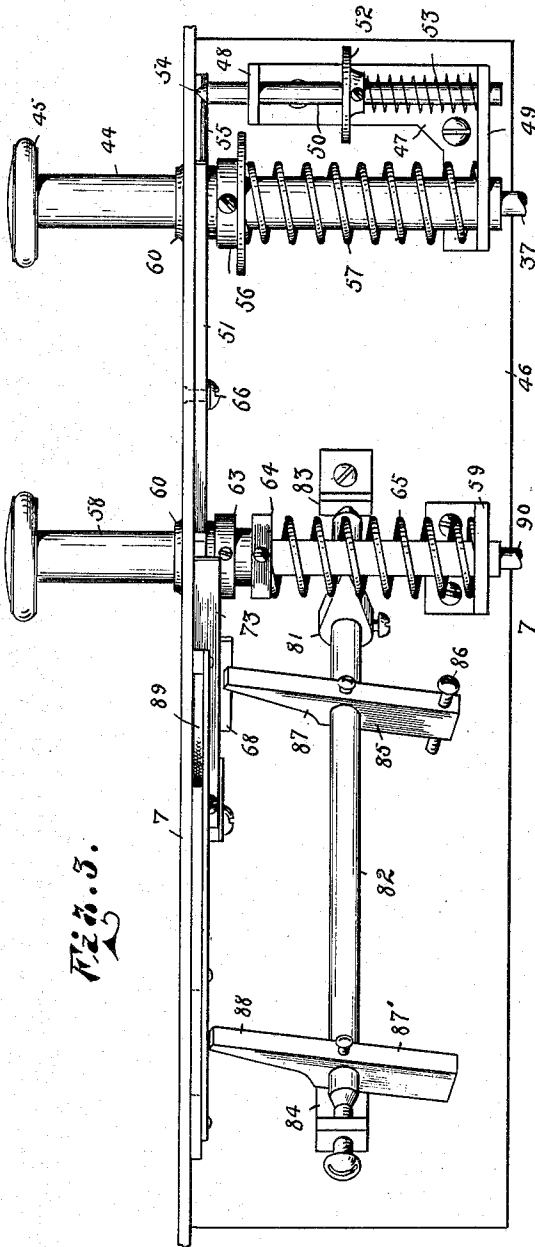


Fig. 3.

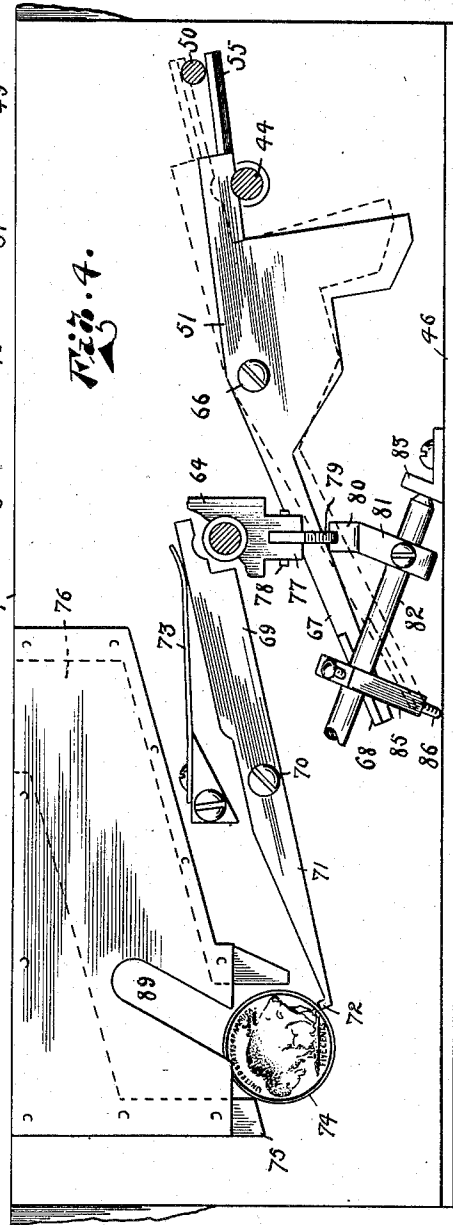


Fig. 4.

By

Inventor
Alexander McDonald.
Geo. Starns.

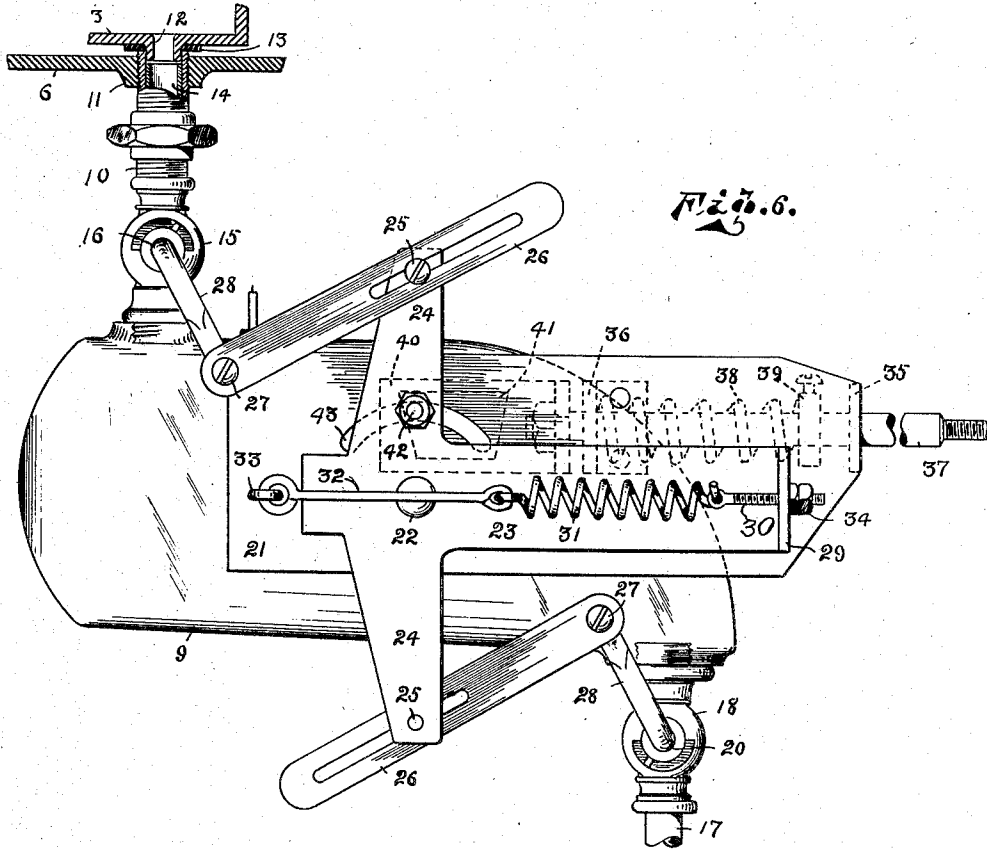
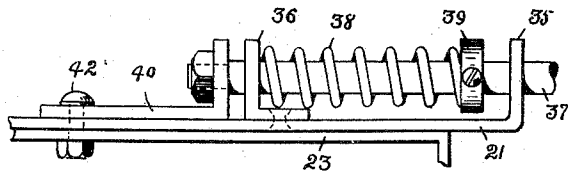
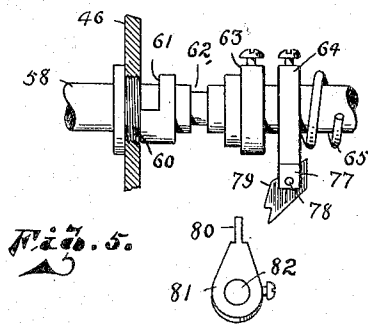
Attorney

A. McDONALD.
LIQUID VENDING DEVICE.
APPLICATION FILED FEB. 11, 1918.

1,300,285.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 3.



Inventor

Alexander McDonald.
S. J. Sturtevant.

Attorney

A. McDONALD.
LIQUID VENDING DEVICE.
APPLICATION FILED FEB. 11, 1918.

1,300,285.

Patented Apr. 15, 1919.

4 SHEETS—SHEET 4.

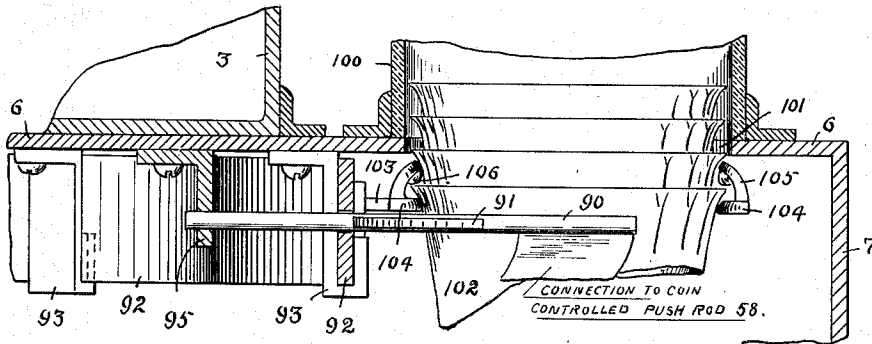


Fig. 10.

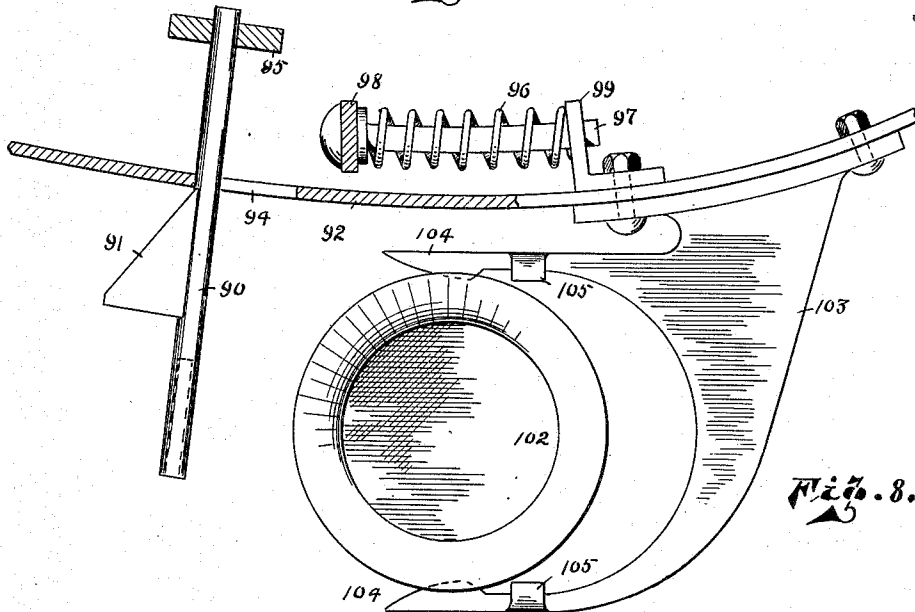


Fig. 8.

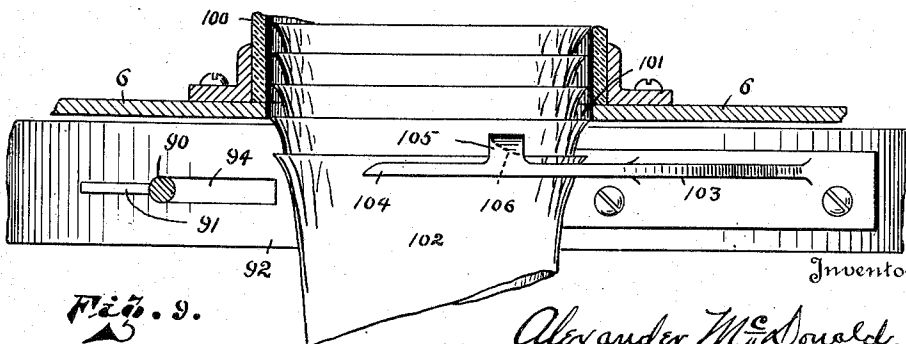


Fig. 9.

Inventor
Alexander McDonald.
Geo. Stevens.

By

Attorney

UNITED STATES PATENT OFFICE.

ALEXANDER McDONALD, OF DULUTH, MINNESOTA.

LIQUID-VENDING DEVICE.

1,300,285.

Specification of Letters Patent.

Patented Apr. 15, 1919.

Application filed February 11, 1918. Serial No. 216,583.

To all whom it may concern:

Be it known that I, ALEXANDER McDONALD, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Liquid-Vending Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to liquid vending devices and has special reference to such a device comprising a plurality of containers rotatably mounted upon a stand such as described in my pending application for patent upon liquid receptacles of even date herewith.

The invention further has special reference to a liquid vending device wherein a drinking cup is made automatically available by the operation of the vending device.

Some of the objects of the invention are as follows:

A—To make a device of this character positive and reliable in action.

B—To provide one in which it becomes impossible to withdraw a coin by a string or otherwise, after it has unlocked the mechanism.

C—To provide one in which a drinking cup is first released, when a second operation becomes necessary to fill the same with the desired liquid.

D—To provide one of as sanitary construction as possible, having the measuring cup wholly outside of and separate from the liquid containing receptacle.

Other objects and advantages of the novel construction and combination of parts will appear in the further description of the invention.

In the accompanying drawings forming part of this application and in which like reference characters represent like parts:

Figure 1 is an outline elevation of a fragmental portion of a stand carrying a plurality of liquid containers and equipped with my improved vending device, only one of the latter being illustrated.

Fig. 2 is a plan view of same.

Fig. 3 is a plan view of the coin controlled mechanism.

Fig. 4 is an elevation partly broken away of Fig. 3.

Fig. 5 is a fragmental portion of the auxiliary coin engaging device whereby the second unit of the mechanism is unlocked.

Fig. 6 is an elevation of the measuring cup and mechanism actuated by the operation of the secondary unit of the coin controlled device.

Fig. 7 is a fragmental plan view of Fig. 6 showing clearly the working parts thereof.

Fig. 8 is a plan view partly in section of the cup releasing device.

Fig. 9 is a vertical sectional view partly in elevation of Fig. 8, and;

Fig. 10 is a similar view to Fig. 9 taken at right angles thereto.

1 represents the base of the stand having an axial supporting shaft 2 fixed therein, and upon which latter the entire rotatable mechanism is carried, the connection with the shaft being made in any desired manner. A plurality of liquid containers 3 as shown, surround a central cooling chamber 4, and the circle formed by the assembled containers is considerably smaller in diameter than the base portion 5 which supports the containers and the cooling chamber.

The enlarged base portion 5 is for the purpose of housing the measuring mechanism and is covered by a deck 6 upon which the containers and cooling chamber rest, and which extends outwardly beyond the containers forming a smooth flat top to the base. The circumferential wall of the base 5 is divided into a plurality of large straight faced portions 7 and smaller intermediate straight faced portions 8, the larger ones acting as supports for the coin controlled mechanism and through which the operating rods extend. Beneath each container and within the base portion 5 is installed a glass measuring cup or receptacle 9, disposed in a general horizontal position. A pipe connection 10 is installed between the inner end of the cup and the deck 6, there preferably being a boss 11 depending from the deck to improve such connection there-

with. I prefer to have that portion of the pipe 10 entering the deck 6 extending slightly above the deck, and to have a nipple 12 extending below the bottom of the container with a rubber washer 13 surrounding same to engage the end of the pipe 10 for insuring a tight joint between the container and the end of the pipe. For sanitary purposes, I install within the pipe 10 a glass tube 14 extending from the nipple to the valve 15. This latter is a common cock-valve in which the rotating of the spigot 16 opens and closes it. A similar pipe and valve connection 17 and 18 respectively extends from the lower outer end of the cup to the exterior of the wall 7 where any form of suitable discharge nozzle indicated at 19 may be attached, and through which the contents of the measuring cup is discharged into the receiving cup held in the hand of the recipient or otherwise resting beneath the nozzle. 20 represents the spigot of the valve 18.

Adjacent one side of the measuring cup 25 and carried in any desired manner either upon the measuring cup or otherwise, is a supporting plate 21 pivotally carrying at 22 and upon the outside thereof, in respect to the cup, a reclining T-shaped flat lever 23. The arms 24 of the lever 23 extend above and below the sides of the plate 21 and at their extreme ends pivotally and slidably carry as at 25 elongated longitudinally slotted links 26, the opposite ends of which are pivotally connected as at 27 to their respective L-shaped extensions 28 of the spigots 16 and 20.

The end 29 of the lever 23 is turned at right angles outwardly from the body portion and carries therethrough a horizontally disposed threaded bolt 30. To the inner end of this bolt is attached a contractile spiral spring 31, the opposite end of which is attached by the rod 32 to a fixed eye bolt 33 in the plate 21. This spring and rod connection is drawn tight by suitable nuts 34 on the bolt 30, and is for the purpose of drawing the shank or body portion of the lever 23 suddenly to the limit of its throw upon either side of its central neutral position.

Upon the inner face of the plate 21 is reciprocally mounted in the turned end 35 of the plate and the bracket 36, a rod 37. An expansive spiral spring 38 surrounds the rod 37 and thrusts longitudinally the rod between the bracket 36 and the set collar 39 fixed to the rod, thus normally keeping the rod in its extended position from the end 35 of the plate.

To the inner end of the rod 37 is attached a plate 40 bearing snugly against the inner face of the plate 21. An angular shaped hole 41 is formed in the plate 40 and through

which the stub bolt 42 fixed in the upper arm 24 of the lever 23, extends, there being an arcuately shaped slot 43 in the plate 21 in which the stub bolt operates when the lever is rocked and the ends of the slot form the limits of the movement in either direction of the lever. Thus when the rod 37 is forced inwardly, which will later be seen to be accomplished manually, the spring 38 will be contracted and the T-lever operated by the stub bolt being engaged by one of the inclined walls of the angular opening 41 and immediately the stem of the lever 23 is forced above a horizontal line through the pivotal support thereof, the spring 31 will jerk it to its limit of stroke in that direction, and this action is so arranged as to simultaneously close the valve 15 and open the valve 18 allowing the contents of the measuring cup to flow out through the pipe 17 and be discharged from the nozzle 19 into any desired receptacle provided for the same.

The instant pressure is released from the rod 37, the spring 38 will shoot it back to its normal position or may force it back gradually, as the case may be, until the stem of the lever 23 passes below the horizontal line through its pivotal point where the spring 31 will snap it to the limit of its stroke in that direction, thus closing the valve 18 and opening the valve 15 which will allow the measuring cup to again fill with liquid from the container 3 and remain full ready for a subsequent emptying.

The rod 37 is attached to the push rod 44 preferably by being screw-threaded within the end thereof, and the rod 44 extends through the straight vertical wall 7, the outermost end being equipped with a suitable finger knob 45 to be manually operated. A horizontally disposed shelf 46 is fixed to the wall 7 and extends inwardly therefrom to act as a support for various parts of the mechanism. A bracket 47 fixed to the shelf and having its ends 48 and 49 turned upwardly forms bearings for the inner end of the rod 44 and for the small shaft 50 which is reciprocally mounted in its bearing and acts as a holding means for the locking lever 51. The shaft 50 intermediate of its bearings 48 and 49 carries a flanged set-collar 52, and intermediate of this collar and the bearing 49 is an expansive spiral spring 53 which holds the shaft 50 normally tight against the wall 7, and the end of the shaft thus engaging the wall 7 is cone shaped as at 54 to admit of the angularly shaped finger termination 55 of the lever 51 to slip past the end of the shaft, the spring 53 being of the proper strength to permit of this.

The rod 44 is equipped with a flanged set-collar 56 and spring 57 similar to the equipment of the smaller shaft 50, except that the spring and collar of the former are larger

and the flange of the collar 56 engages the flange of the collar 52 when the former is thrust rearwardly to its limit, this being for the purpose of disengaging the end of the shaft 50 from the wall 7 and allowing the finger 55 to drop below same at such time of inward thrust of the rod 44.

A second push rod 58 is reciprocally mounted within the wall 7 parallel with the rod 44 and spaced a distance therefrom. The inner portion however of the rod 58 is square in cross section and is mounted within a square hole in the bracket 59 fixed to the shelf 46.

Both of the rods 44 and 58 are fitted with inwardly extending bushings 60 having notches 61 formed therein which register with annular recesses 62 in the rods when the latter are in their outermost extended positions.

The rod 58 has fixed adjacent the groove 62 therein, a set-collar 63 which limits the outer movement of the rod and causes the groove to register with the notch 61 in the bushing. The flanged collar 56 on the rod 44 answers a like purpose.

At the junction of the square portion of the rod 58 with the round portion thereof is fixed a rectangular shaped collar 64 against which the expansive spiral spring 65 impinges, the opposite end engaging the bracket 59, and which acts upon the rod 58 similar to the spring 57 on the rod 44.

The locking lever 51 is pivotally mounted at 66 upon the inner face of the wall 7 and the end of said lever toward the rod 44 is made heavier than the opposite end whereby that end normally tends to drop when not forcibly raised or held up by the finger 55 resting upon the end of the shaft 50 as shown in dotted lines Fig. 4. When the lever 51 drops into the notch 62 in the rod 44 it is evident that the latter is locked against any longitudinal movement.

The opposite end 67 of the lever 51 extends beneath and beyond the rod 58 and has a laterally projecting ledge or flange 68 thereupon.

A second locking lever 69 is pivoted at 70 to the inner face of the wall 7, the head end of which is designed to engage the groove 62 in the rod 58 similar to the locking arrangement of the rod 44 while the tail end 71 has a lip 72 formed thereon for engagement with the coin as it operates same. A leaf spring 73 is installed above the head of the lever 69, and yieldably engages same when in its uppermost position, that is, permits of the lever being operated by the weight of the coin 74, and the lip 72 to a certain predetermined extent holds the coin intermediate of said lip and the depending portion 75 of the coin conduit 76, until further acted upon. This initial operation of

the coin is however, always sufficient to unlock the rod 58 to permit of its being manually thrust inwardly, the primary object of such operation being to release a drinking cup to be placed under the nozzle 19 for reception of the contents of the measuring cup. The secondary object is to unlock the rod 44 to permit of the contents of the measuring cup being withdrawn as before described. This secondary object is accomplished by the return stroke of the rod 58 in the following manner: The square set-collar 64 pivotally carries in its depending portion 77 as at 78 a gravity dog 79 which during the inward thrust of the rod 58 falls inactively over the upstanding rocking arm 80 of the set-collar 81 fixed to the inclined rockable shaft 82 pivotally journaled in the bearings 83 and 84, but actively engages said rocker arm on its return trip and thus rocks the shaft 82. Adjacent the lower end of the shaft 82 and securely fixed thereupon is a counter weighted lever 85 having a long screw 86 in the heavier end thereof whereby the extent of its backward throw may be governed by adjusting said screw, as the end of the screw strikes the shelf when it is thrown wholly back or down. The forward end 87 of the lever 85 is designed, when tipped downward by the forward rocking of the shaft 82 to forcibly engage the flange or tread 68 of the lever 51 and thus depress the tail end of said lever which unlocks the rod 44 as before explained. This action is of sufficient force to cause the finger 55 to slip past and above the end 54 of the shaft 50, the spring 53 yielding sufficiently for such purpose, and when in this position will support the finger 55 and indirectly the head of the lever 51 in its unlocked position until the rod 44 is shoved in sufficiently for the flange of the collar 56 to engage the flange of the collar 52 and thus force out from under the finger 55 the end of the shaft 50 by moving the latter inwardly. This will allow the head of the lever 51 to again drop on the shaft 44 ready to lock same when the groove 62 returns for registration therewith.

It is seen that the instant the dog 79 is disengaged from the rocker arm 80 the shaft 82 will rock back to its place of rest with the lower end of the screw 86 engaging the shelf 46, and thus remain until again engaged.

A second lever 87' identical with the lever 85 is fixed to and adjacent the upper end of the shaft 82, the end 88 of which is designed to engage the upper edge of the coin 74 as it is held, as shown, said end of the lever traversing the slot formed in the inner wall of the conduit 76 for such purpose.

This contact with the coin will dislodge it from the position shown onto the shelf 46.

or other suitable place for safe keeping, and simultaneously release the lever 69 for locking engagement in the groove 62 in the rod 58, the spring 73 releasing sufficiently to allow of such dislodgment of the coin.

The conduit 76 is made inclined as shown with a vertical entrance portion and vertical discharge portion to prevent the coin being readily withdrawn either by a spring attached thereto or otherwise as is sometimes practised with somewhat similar machines. The entrance slot for the coin is illustrated at 89.

The releasing of the drinking cup is accomplished by an extension 90 of the rod 58 having an angular lateral blade 91 thereupon adjacent an arcuately shaped reciprocal member or half ring 92 slidably held in suitable depending brackets 93 attached to the under side of the deck 6. This member 92 is sufficiently long to occur opposite three sets of the coin controlled devices and there is a like member for the opposite three sets of devices and each device operates its respective member in identically the same manner.

The following description will be confined to a single device.

A slot 94 is formed in the member 92 through which the rod 90 extends, the extreme inner end being supported in the hanger 95, thus when the rod is forced inwardly, the angular blade 91 will cause the member 92 to move just the depth of the blade toward the left. When the rod 90 resumes its normal position by the action of the spring 65, the member 92 will be returned by the action of the expansive spiral spring 96 mounted upon the rod 97 carried by a suitable bracket 98 fixed to the under side of the deck 6 and extending through the bracket 99, the spring normally impinging said bracket.

The glass drinking cup container 100 is located just in front of and above the member 92 and directly opposite the central one of the group of three coin controlled devices which operate it. A hole 101 is formed through the deck 6 which registers with the cup container and through which the cups 102 pass. A two-tined fork 103 is rigidly fixed to the member 92. The inner edges of the ends 104 of the tines are arcuately shaped and disposed upon opposite sides transverse the hole 101 and normally support the column of cups, they being spaced apart a distance less than the diameter of the brim of the cups, and designed to engage same just below the edge of the flaring rim. Spaced inwardly from the arcuately shaped ends of the tines and formed integral therewith are vertically disposed inwardly arched fingers 105 which, when the fork is carried forward

with the member 92, engage the under side of the rim of the second cup from the bottom of the column and thus sustain said second cup with those above it at the time the bottom cup is being dropped by the arcuate ends of the tines passing horizontally under the rim thereof.

When the fork resumes its normal position by the action of the spring 96 as before described, the fingers 105 will be drawn back out of engagement with the cups and allow them to again rest upon the tines 104 ready for subsequent action.

The under sides of the inwardly projecting lips of the fingers 105 are preferably so shaped as to engage the brim of the bottom cup being released and assist in its discharge, such shape being indicated at 106.

The released cup is designed to fall where conveniently obtainable by the party operating the device and a special form of receptacle for holding the cup in such location may be provided if desired.

Thus it is seen that when a coin is put into one of the devices and releases same, the first rod to be operated is the one nearest the coin slot and which on its inward stroke releases a cup which is supposed to be placed under the respective discharge nozzle to receive the desired liquid. On its return stroke which, as explained, is accomplished automatically, said rod unlocks the second measuring cup operating rod and when this is pushed inwardly the contents of the measuring cup will be discharged into the drinking cup. On the return of the rod which is also accomplished automatically, the operation is concluded and the device again locked.

It is to be understood that various changes and modifications of the construction here illustrated, and within the scope of the invention, may be resorted to without departing from the spirit thereof.

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

1. The combination with a liquid vending device of the character described having a valve controlled measuring cup in coöperative relation therewith, of a container carrying a plurality of nested drinking cups in upright position, two parallel horizontally disposed manually reciprocable rods adjacent the measuring cup, cup supporting means coöperatively associating one of the rods with the cup container valve controlling means coöperatively associating the other rod with the measuring cup and means intermediate of said rods whereby the operation of the former controls the operation of the latter.

2. The combination with a liquid vending device of the character described having a

5 container for carrying a plurality of nested cups in upright position, of suitable means including two parallel horizontally disposed manually reciprocable rods, one for releasing a cup and the other for controlling the liquid and means whereby the former rod is controlled by the coin used in operating the device, and the latter rod is controlled by the operation of the former.

10 3. In a liquid vending device having in co-operative relation therewith a stack of nested drinking cups, a manually horizontally operated rod, a coin operated mechanism for

locking or unlocking the rod, means whereby a cup is released from the stack by the initial operation of said rod, a second manually horizontally operated rod attached to the liquid vending device and means whereby the second rod is locked or unlocked by the action of the first rod. 15 20

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

ALEXANDER McDONALD.

Witnesses:

H. L. LALIBERTE,
S. GEO. STEVENS.