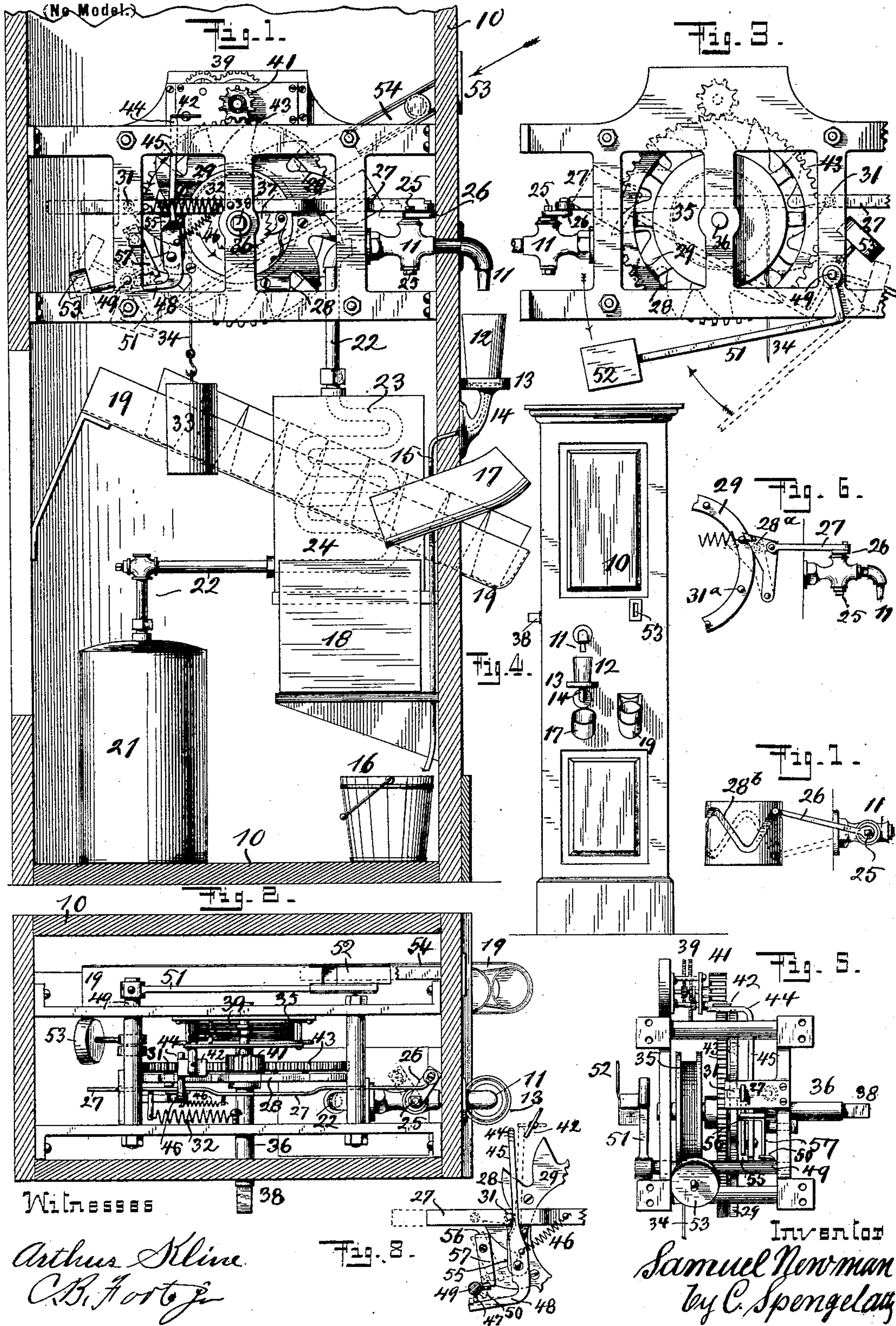


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S. NEWMAN.  
AUTOMATIC LIQUID VENDING APPARATUS.

(Application filed Oct. 7, 1901.)





# UNITED STATES PATENT OFFICE.

SAMUEL NEWMAN, OF CINCINNATI, OHIO.

## AUTOMATIC LIQUID-VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 711,069, dated October 14, 1902.

Application filed October 7, 1901. Serial No. 77,796. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL NEWMAN, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Automatic Liquid-Vending Apparatus; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form also a part of this specification.

This invention relates to improvements in vending apparatus controlled and automatically operated by certain mechanism after this latter is set in motion. The start of such motion of this operating mechanism may be accomplished in any way—as, for instance, direct, or indirect through the medium of a certain coin or an equivalent weight deposited in a designated place, or otherwise. In this particular case the commodity to be sold is in liquid form to be used as a drink for food, refreshment, or other purposes.

The invention consists of certain means, their construction, and arrangement of parts whereby after depositing a certain coin or an equivalent weight mechanism is caused to operate in a manner to deliver automatically, so as to be accessible, a fixed quantity of the liquid.

In certain of its features the device is arranged and constructed with a view to permit more particularly the handling of fermented, carbonated, and so-called “charged” liquids—like, for instance, soda-water, &c.

In the following specification and particularly pointed out in the claims is found a full description of the invention, together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows a side view of the entire device with its inclosed case in section. Fig. 2 is a top view of the preceding figure. Fig. 3 shows the other side of the mechanism as shown in Fig. 1. Fig. 4 is a front view of the inclosed device, shown at reduced scale. Fig. 5 is a rear view of the mechanism as shown in Figs. 1, 2, and 3. Fig. 6, in a side view, and Fig. 7, in a top view, show modified constructions of the means for operating the

faucet which discharges the liquid. Fig. 8, in a detail view, shows certain parts of Fig. 1 now hidden in this latter by the frame.

10 is the outer case inclosing the operating parts of the device in a manner to render access thereto impossible and entirely closed, except as hereinafter described. 11 is the faucet projecting with its outer open end through the front of the case, where its discharge may be received by a suitable vessel, glass, or cup 12, which may be held in the hand, but preferably rests upon a shelf 13, projecting from the front of the case and supported by a bracket 14, attached thereto. The upper surface of shelf 13 is dished or concaved to receive any drippings or spilled liquid, which escapes through an outlet-opening in the deepest part thereof and from there is wasted through the hollow bracket 14 and a waste-pipe 15, which carries the waste to the outside for delivery into a sewer or discharges it into a suitable vessel or trough 16. A glass after used is dropped into the open outer and accessible end of an inwardly-declining chute 17, on which it slides into a water-filled receptacle 18. After cleaned and rinsed the glasses are placed in an outwardly-declining chute 19, open at its lower outer end, where they may be taken by the users, the lowermost one being taken, after which the ones above follow successively. To facilitate the sliding down of the glasses, a metal track may be provided in the bottom of the chute. This part of the operation—that is, removal and cleaning of the glasses from vessel 18 and charging with them of chute 19—is performed from time to time by an attendant. These parts may be more or less modified to suit special arrangements and circumstances, according to the number of devices used. Where a number of them are used side by side, the waste from pipes 15 may, for instance, be consolidated first before final delivery. Chute 19 may be arranged in a manner to increase its capacity by lengthening it, if location permits such, and the glasses may be placed therein endwise or side by side.

The liquid to be sold, which may be any charged liquid—as, for instance, soda-water—is contained in a vessel 21 and conveyed therefrom through a pipe 22 to faucet 11. If cooling is desired, part of said pipe may



be formed into a coil 23, passing through a receptacle 24, containing ice. The spigot or key 25 of faucet 11 in its normal position closes this latter, as shown in Figs. 1 and 2, and for its operation is provided with a lever 26, the outer end of which connects to a sliding rod 27, suitably supported and guided for reciprocal movement for purpose of swinging said lever to open and again close the faucet. This movement in one direction is induced by a cam 28, of which a number, more or less, are arranged around the periphery of a suitable wheel 29, and which cams operate in conjunction with a pin 31, projecting laterally from rod 27. The operation is in this manner: that wheel 29 makes a limited rotation equal to the extent one of cams 28 occupies on the periphery of the wheel, whereby pin 31 on rod 27 is pushed outwardly on said cam from a position as shown in Fig. 1 to a position as shown in Fig. 3. This movement is of course shared in by rod 27 and lever 26 on the spigot and constitutes the opening movement of the faucet. (See also dotted lines in Fig. 2.) Fig. 3 shows the extreme position of this opening movement and the end of the same, which is reached as soon as the outer end of cam 28 passes pin 31, after which this latter, with all parts connected to it, returns again to a position as shown in Fig. 1, and thereby closes the faucet. This return movement is by a spring 32, secured with one end to rod 27 or a projection thereon and with its other end in a suitable fixed position—as, for instance, on the frame of the mechanism. The duration of this opening movement is so limited as to permit discharge of the intended quantity of the liquid, which is received by glass 12 on the outside. The limited rotation of wheel 29 is caused by a weight 33, connected by rope 34 to a drum 35, rigidly mounted on shaft 36, upon which latter wheel 29 is also mounted. This mounting as to this latter is loose, however, for the purpose of permitting rotation of shaft 36 to wind rope 34 upon drum 35 after weight 33 has run down without causing at such time—that is, while so winding the apparatus—also rotation of the cam-wheel and operation of the faucet. The necessary operative connection, however, required to transmit the action of the weight through shaft 36 onto cam-wheel 29 is by a customary pawl-and-ratchet connection, the ratchet-wheel 37 being in this case rigidly mounted upon shaft 36. For the winding of the apparatus this shaft is provided with a square end 38, which extends to the outside of the case, where it is accessible to receive at the time required a winding-key provided with a crank-handle.

For purposes of equalizing and regulating the motion of the mechanism, and particularly that of rotation of cam-wheel 29, so as to retard the same to a speed proper to obtain the discharge of the desired quantity of the liquid through faucet 11, I provide a

speed-regulating mechanism 39, consisting substantially of gear-trains of connected cog-wheels mounted in a suitable frame receiving its initial motion through a pinion 41 and terminating and driving a fan-shaft carrying a fan 42. Pinion 41 receives its motion from a gear-wheel 43, so mounted and connected as to form for purposes of operation and rotation a part of cam-wheel 29. Of these two wheels one only needs to be a complete wheel and is mounted upon shaft 36, the other being merely a circular rim attached to the former. The pawl which engages ratchet-wheel 37 may be connected to either one.

Normally operation of the described mechanism is prevented by a locking device arresting operation of the speed-controlling device, which is attained by stopping the motion of fan 42, such being done by a stop 44, being simply the upper end of a pivotally-supported arm 45, held in such locking position by a spring 46. To start operation, this stop is moved out of the rotary path of fan 42, which is done by a projection 47 (see Fig. 8) acting against a heel 48 at the lower end of said arm 45, which action swings the upper end 44 of this latter sufficient for the purpose. Projection 47 is caused to so act against this heel 48 by the partial rotation of a rock-shaft 49, on which it is carried, and which rotation is due to a corresponding actuation of a lever 51 on said rock-shaft. This actuation may be a depression of the free end of said lever, and the power for accomplishing it may be a weight acting thereagainst, which might be in form of a coin, in which case a basket 52 is provided at the end of lever 51 to receive it. In case such weight or coin is to be used an opening 59 is provided in the front of the outer case 10, through which such coin is introduced and from which by means of a chute 54 it is guided into such basket. This latter and lever 51 are so balanced by a weight 53 as to swing down when the proper weight is received and return again to their normal positions after having spilled such weight when the basket has arrived in its lowest position. This weight 53 is adjustably mounted to permit regulation according to the weight or coin to be used.

In order to prevent premature interruption of the operation of the mechanism by relocking the fan before the apparatus has acted sufficiently long to fill a glass, I provide a locking-latch 57, hung so as to drop over another projection 50 on the rock-shaft 49 immediately as soon as this latter has sufficiently rotated to cause projection 47 to operate stop 44 for releasing fan 42. This engagement does, however, not interfere with a continuation of rotation of shaft 49 in the same direction and until lever 51 has swung sufficiently down to permit the coin to roll out of basket 52. In case of the abrupt return of the basket after the same has been relieved it prevents, however, a complete return of shaft 49 and projection 47 to their



normal position, which would permit stop 44 to arrest the motion of the fan and dependent mechanism before the proper time. The parts are then held in an intermediate position, as indicated by the position of lever 51 in Fig. 3. During the last part of the motion of the moving parts this locking-latch 57, which now holds the parts in such intermediate position, is released by means of a projection 55 on rod 27 moving against a lateral projection 56 on the upper end of said latch and reaching into the path of projection 55 throws latch 57 off from projection 50. Projection 55 serves at the same time as a bracket, to which arm 45 is attached. While this latter is thus carried back and forth by rod 27, such bodily motion or change of location of arm 45 is of no special significance, and the same might as well be supported in a stationary position, since it is mainly its pivotal movement which does the required work in connection with fan 42.

In Fig. 6 the construction is modified by inverting the position of the interacting elements—to wit, cam 28 and pin 31—in this way that the former is attached to rod 27, being indicated by 28<sup>a</sup>, and the latter, a sufficient number of them being carried on the wheel 29, are indicated by 31<sup>a</sup>.

In Fig. 7 the necessary cam (indicated by 28<sup>b</sup>) is provided in the face of a cam-wheel and engages directly lever 26, operating key 25 of the faucet.

To reduce friction, pins 31 are preferably covered by sleeves acting as friction-rollers.

Having described my invention, I claim as new—

1. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement and a spring to return rod 27 again to its normal position to close the faucet.

2. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, means controlling the duration of action of this mechanism limiting the same to a length of time sufficient only to discharge a certain quantity of the liquid and a spring to return rod 27 again to its normal position to close the faucet.

3. In an automatic liquid-vending apparatus, the combination of a receptacle for the

liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, means controlling the duration of action of this mechanism and its speed and means to return rod 27 again to its normal position to close the faucet after the mechanism ceases to operate.

4. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, a speed-controlling device operated by the mechanism, a fan forming a part of it and driven thereby, a stop adapted to be moved into or out of the rotary path of this fan thereby, by controlling its rotation, controlling also operation of the entire apparatus, and means to return rod 27 again to its normal position to close the faucet after the mechanism has ceased to operate.

5. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, a stop adapted to be moved into or out of the path of one of the moving elements of the mechanism thereby controlling duration of its operation, a lock to positively hold such stop out of such path during operation of the mechanism and means to return rod 27 to its normal position to close the faucet, after the stop has arrested the operation of the mechanism.

6. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, a pivotally-supported stop adapted to be swung into or out of the path of one of the rotary elements forming part of this mechanism, thereby controlling duration of this latter operation, a rock-shaft, a projection thereon adapted to engage the above-named stop to



cause it to release the arrested mechanism, a lever on the rock-shaft to rotate it for such purpose and means to return the reciprocating parts to their normal positions to close the faucet after the stop has again arrested the operation of the mechanism.

7. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 mounted for linear reciprocation connected to lever 26, a projection on this rod, a cam-wheel adapted to move the same with rod 27 in one direction to actuate the lever to open the faucet, mechanism to operate the cam-wheel for such movement, a pivotally-supported stop adapted to be swung into or out of the path of one of the rotary elements forming part of this mechanism, thereby controlling duration of this latter operation, a rock-shaft, a projection thereon adapted to engage the above-named stop to cause it to release the arrested mechanism and to hold it out of reengagement therewith, a lever on this rock-shaft to rotate it for such purpose, a locking-latch to engage it after rotation to prevent it from returning to a position permitting premature return of the stop to a position arresting operation of the mechanism before the proper time, a projection on rod 27 adapted to be carried during the last part of its motion against this locking-latch, thereby disengaging it from its locking engagement to permit the stop to rearrest the motion of the mechanism and means to return thereafter the parts to their normal position to close the faucet.

8. In an automatic liquid-vending apparatus, the combination of a receptacle for the liquid, a faucet for its discharge, a lever 26 connected with the spigot of the faucet to rotate it, a rod 27 having a projection 31 mounted for linear reciprocation connected to lever 26, a cam-wheel 29 adapted to engage projec-

tion 31 to move rod 27 in one direction to open the faucet, mechanism to rotate cam-wheel 29 for such purpose, a pivotally-supported stop 44 adapted to be swung into or out of the path of one of the rotary members of the mechanism, thereby controlling duration of this latter operation, a rock-shaft 49 having projections 47 and 50, a lever 51 for rotating the same in one direction at which time projection 47 acts on the other end of stop 44 to disengage the same from the operating mechanism, permitting the latter to operate, a locking-latch 57 adapted to engage projection 50 at such time, thereby holding rock-shaft 49 in a position which prevents stop 44 to return at once to a position where it would rearrest operation of the apparatus, a projection 55 on rod 27 adapted to be carried against latch 57 at the end of movement of said rod and after the faucet is open, thereby releasing said latch and permitting stop 44 to again arrest operation of the apparatus and means to carry rod 27 back to its normal position in which it closes the faucet.

9. In an automatic liquid-vending apparatus, the combination of an inclosing outer case, a faucet projecting from the front thereof, a receptacle for the liquid connected with the faucet, mechanism controlling discharge therethrough by operating for a limited time to open and close the faucet, a stop to arrest the motion of the faucet-operating mechanism after the faucet is closed, a rock-shaft 49 having a projection adapted to actuate said stop to release said mechanism to permit it to operate, and a lever 51 mounted on the rock-shaft and adapted by its depression to rotate the same for so actuating the stop.

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

SAMUEL NEWMAN.

Witnesses:

C. SPENGEL,  
ARTHUR KLINE.