

July 1, 1924.

1,499,466

A. S. MANDEL

SODA WATER FOUNTAIN

Filed Aug. 21, 1923

3 Sheets-Sheet 1

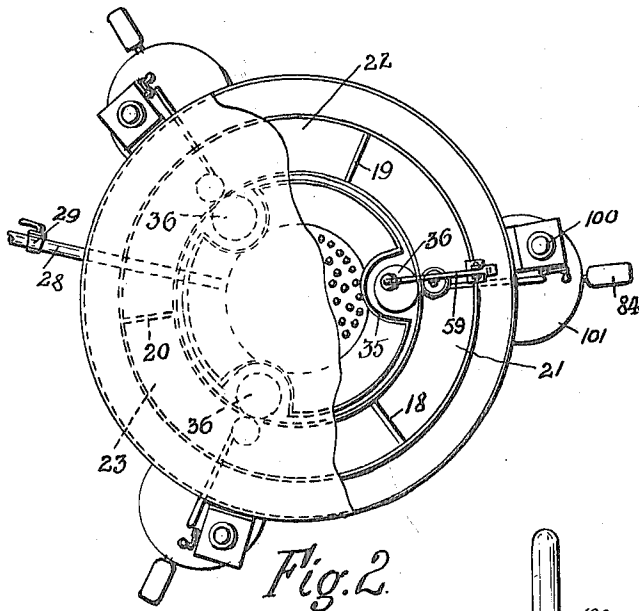
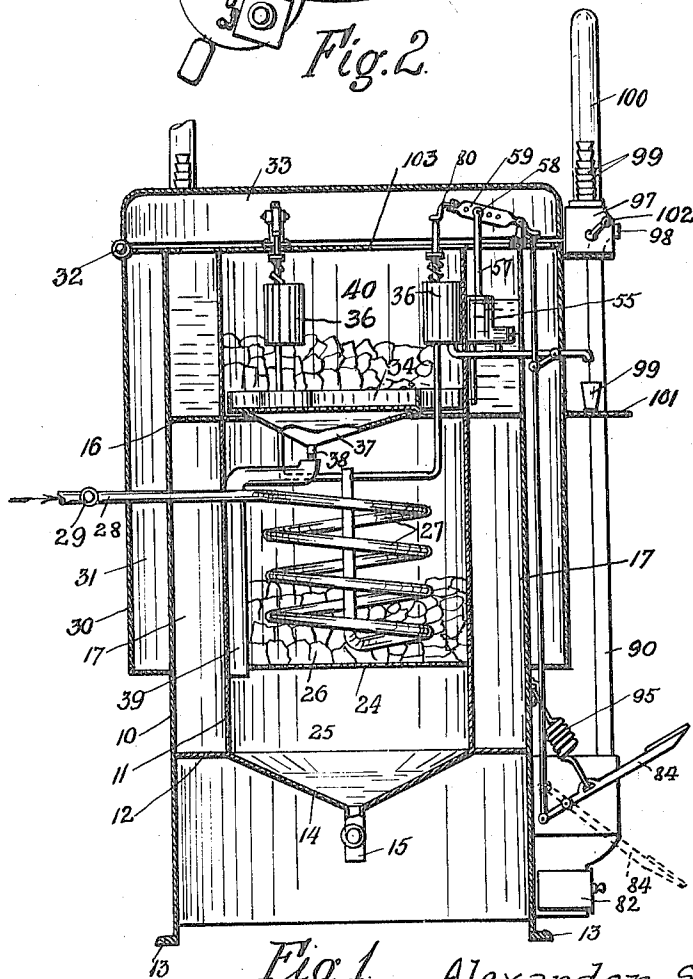


Fig. 1. Alexander S. Mandel. Inventor

By his Attorney
Alexander S. Mandel

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3 Sheets-Sheet 2

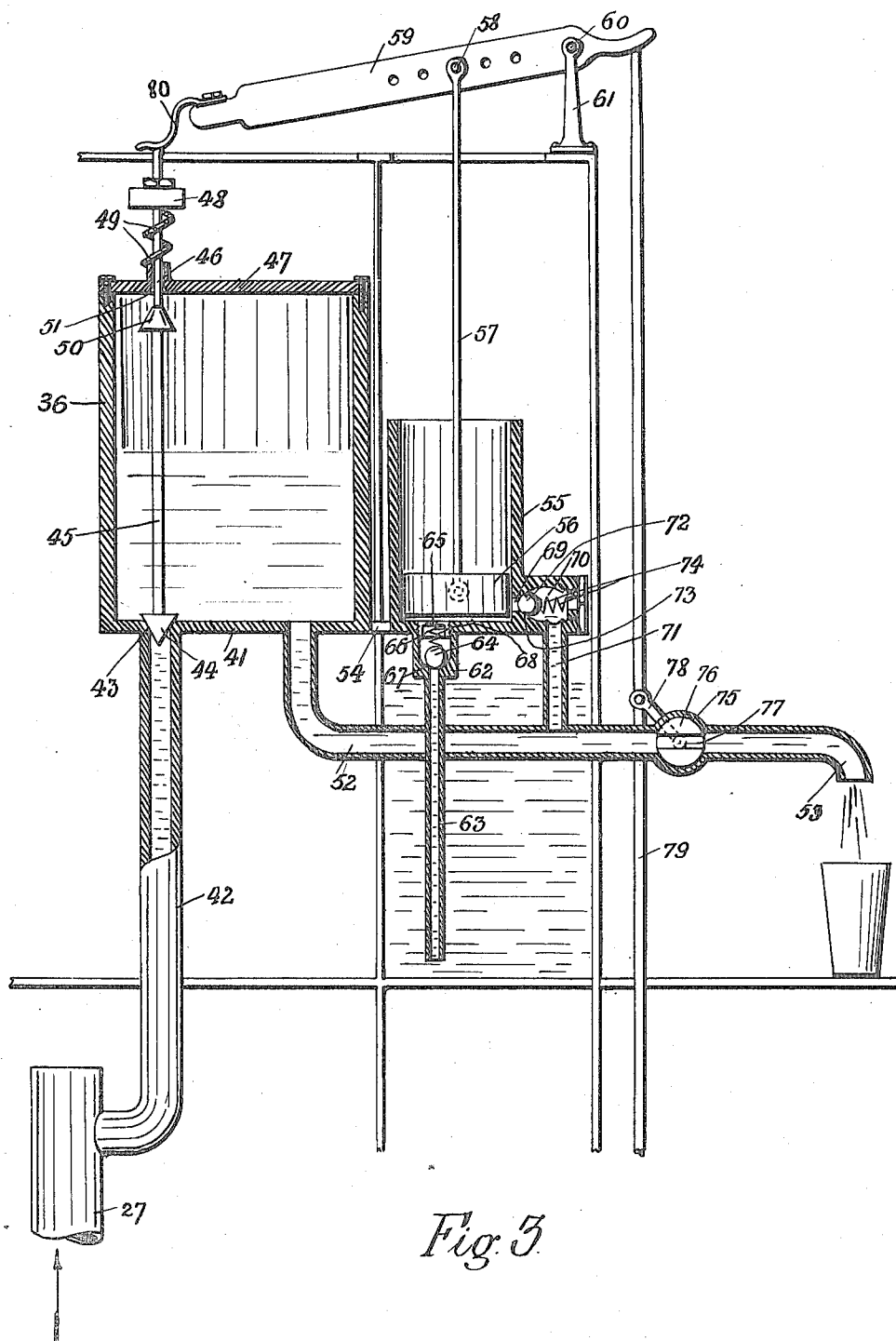


Fig. 3

Inventor
Alexander S. Mandel
By his Attorney
Alexander Jones

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3 Sheets-Sheet 3

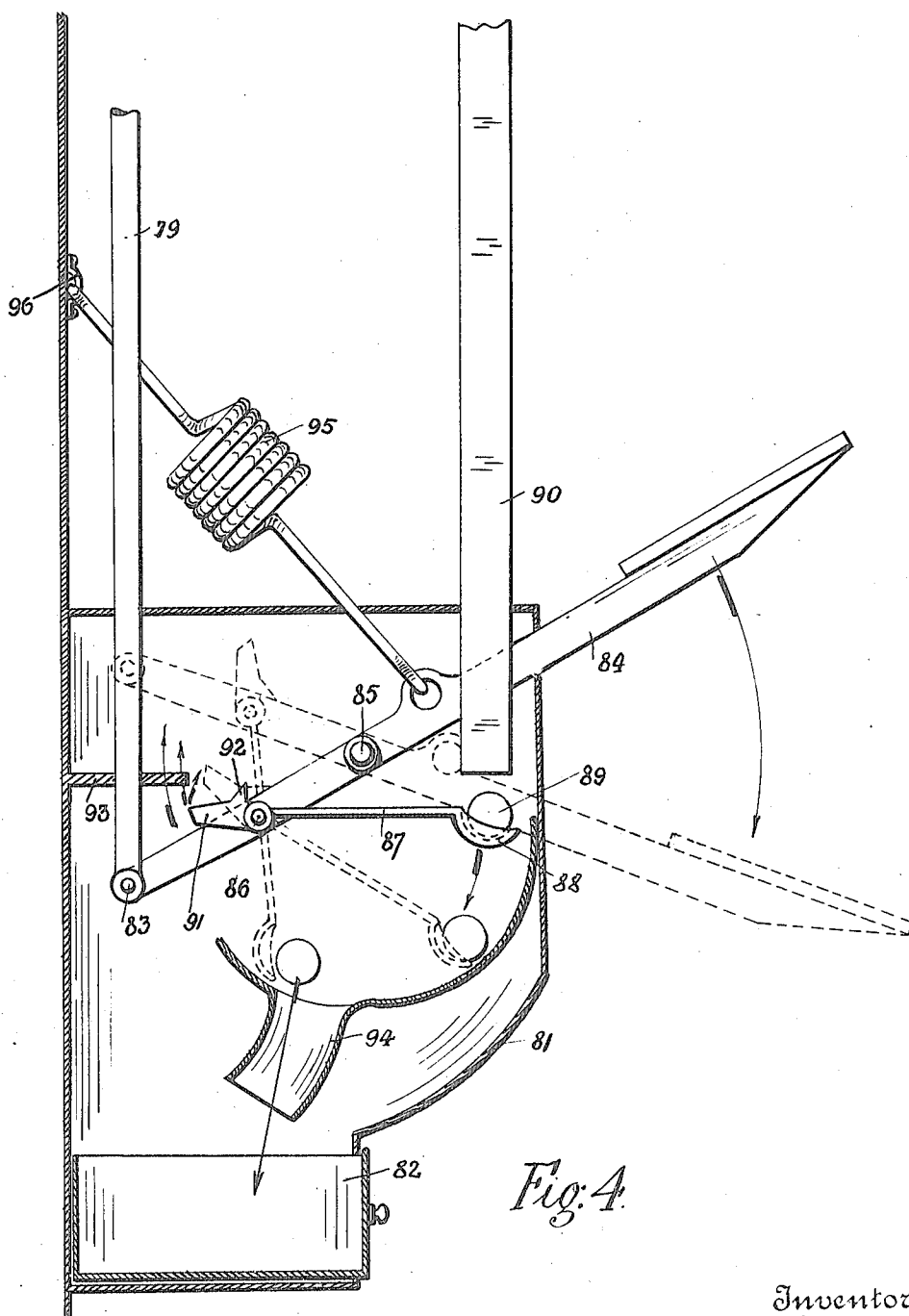


Fig. 4.

Inventor
Alexander S. Mandel.
By his Attorney
Alexander S. Mandel

UNITED STATES PATENT OFFICE.

ALEXANDER S. MANDEL, OF NEW YORK, N. Y.

SODA-WATER FOUNTAIN.

Application filed August 21, 1923. Serial No. 858,592.

To all whom it may concern:

Be it known that I, ALEXANDER S. MANDEL, a citizen of the United States, residing in the city of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Soda-Water Fountains, of which the following is a specification.

My invention relates to a soda-water fountain, especially to a fountain of the class in which the beverages are automatically mixed within the apparatus and in which they are automatically dispensed upon the deposit of proper coins, and it consists in the combinations, arrangements, and constructions hereinafter described and claimed.

My invention contemplates the provision of a fountain of the class specified, adapted to contain as independent units a plurality of differently flavored syrups of the character commonly employed in soda-water beverages, adapted to contain for each unit a relay tank for the aerated water and a mixing chamber or tube in which a predetermined quantity of syrup and aerated water are mixed as dispensed, and adapted further to contain a feed coil having connection with all of the relay tanks for supplying the latter with aerated water.

The invention also aims to provide a neat, attractive and compact structure, provided with properly drained chambers for holding ice to keep the syrups and aerated water at a low temperature so that cool, refreshing beverages may be ready for dispensing at all times.

The invention also contemplates the provision for each unit of a hand-lever combined with a coin-receiving tilt bar, so constructed and arranged that the hand-lever cannot be operated and the beverage cannot be dispensed except upon the deposit of the coin required to pay for the beverage.

A still further object of the invention is the provision in connection with each unit of a container for carrying paper drinking cups, of which one is delivered to the customer each time he deposits a coin to purchase his drink, and also for the provision for each unit of a cash drawer for ultimately receiving the deposited coins.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, forming part of this application and reads:

Fig. 1 is a vertical section of an embodiment of my soda-water fountain, showing the arrangement and relation of the compartments, units, feeding coil and operating mechanism;

Fig. 2 is a top plan view with a portion of the hinged cover broken away;

Fig. 3 is an enlarged vertical section, showing in detail the construction and arrangement of parts making up a unit and as well the operating mechanism therefor, and

Fig. 4 is another enlarged vertical section, showing in detail the combination of the hand operated lever and the coin-receiving tilt bar with associated parts, a full operation of the hand operated lever and coin-receiving tilt bar being illustrated in broken lines.

The same reference characters indicate the same parts in all the figures.

My soda-water fountain, as herein illustrated, embodies in construction concentric cylindrical vessels 10 and 11 having an annular compartment therebetween and having a common bottom 12, the side of the outer cylinder 10 extending for a distance below the inner cylinder 11 and being provided at spaced intervals with feet 13 on which to stand. The bottom 12 for the full end area of the inner cylinder 11 is projected downwardly in the form of an inverted cone 14 for the purpose of conducting water into a drain pipe 15. A distance below their top ends these vessels are provided with a horizontal partition 16 thereby dividing them into upper and lower compartments, of which the last mentioned compartment designated by the numeral 17, is intended to be filled with sawdust or other substance suitable for insulating the interior of the inner vessel against the transmission of heat from the outside. The annular space above compartment 17 is divided by the radial partitions 18, 19 and 20 into three equal syrup compartments, 21, 22 and 23.

Above the bottom 14, the inner vessel has a perforated horizontal partition 24 to provide a drainage chamber 25, and an ice receiving chamber 26 in which is disposed a coiled pipe 27 for the aerated water, one end 28 of said coil extending outwardly through the sides of the vessels to connect with a source of supply and being provided with an exterior stop-cock 29 whereby to control the inflow of the aerated water. The other

end of the coil is branched to conduct the aerated water to the different relay tanks to be hereinafter described.

Spaced about the outer vessel so as to surround the syrup compartments and a portion of compartment 17 is built an exterior wall 30 to form a compartment 31, designed to receive sawdust or other insulating material to prevent the transmission of heat. To the top end of the wall 30 is hingedly engaged at 32 a cap 33, designed to form a top closure for the entire structure as shown, said cap comprising a compartment for holding insulating material. Set in the horizontal partition 16 is a perforated ice supporting tray 34 formed with inward deformations 35 to clear the relay tanks 36 and formed also with a downwardly offset bottom 37 to receive the drippings from the tray and direct them through an outlet 38 into a drain pipe 39 which extends downwardly through the horizontal partition 24 and discharges into the compartment 25.

There are, in the present embodiment, as clearly shown in Fig. 2, three aerated water tanks 36, one belonging to each syrup compartment and arranged on the inner side thereof in circular series within the ice compartment 40. As best illustrated in Fig. 3, the relay tank is preferably made in cylindrical form and opening through its bottom wall 41 is a branch 42 of the coil 27. Where the branch 42 discharges into the relay tank there is provided a conical valve seat 43 with which cooperates an inverted conically shaped valve 44 attached to a valve stem 45 that extends vertically through the tank and also through a gland 46 provided in the removable top wall 47 thereof. Secured on the upper end of the stem is a block 48 and encircling the stem is a spring 49 tending normally to force the stem upwardly and to unseat the valve. Fixed on the stem interiorly of the tank is a conical stop 50 adapted to cooperate with a seat 51 whereby to limit the upward movement of the stem. Leading downwardly from the tank and extending outwardly through the walls of the vessels is a pipe 52 which terminates in a downwardly discharging nozzle 53.

The tank is supported on a projection 54 provided on the side wall of the inner casing, and which also extends into the syrup compartment for the support of a cylinder 55 in which is arranged a piston head 56 attached to an upwardly extending piston rod 57 whose upper end is pivotally engaged at 58 with a rocker bar 59 fulcrumed at 60 to a standard 61 secured on the top end of the outer vessel. To the bottom of the cylinder 55 below the piston head is secured a valve casing 62 which forms the upper end of a suction pipe 63 that extends downwardly into the syrup and terminates adjacent the bottom of the syrup compartment. In valve casing

62 is disposed a ball valve 64 and threaded into the cylinder and having a discharge opening 65 is a plug 66. Ball valve 64 cooperates with a seat 67 provided in its casing and is normally held in its seat by a push spring 68. From this construction it will be understood that each time the piston head is raised, a partial vacuum is created in the bottom of the cylinder, the ball valve will be raised from its seat and a small quantity of syrup will be sucked into the cylinder before the ball valve under the urge of the spring is resealed.

Leading from the cylinder adjacent the bottom thereof is an opening 69 in communication with a valve chamber 70 in which is disposed a valve 72 adapted to cooperate with a seat 73 formed at the inner end of the chamber, said ball valve being normally held in its seat by a push spring 74. A small quantity of syrup having been drawn into the cylinder as hereinbefore described, the piston head on descending forces it out through the opening 69, chamber 70 and pipe 71 into pipe 52, the ball valve 72 being forced from its seat to permit this discharge, while the other ball valve 64 under pressure is tightly seated thereby preventing a return of the syrup into pipe 63.

Formed on the exterior portion of the pipe 52 is an enlargement 75 in which is seated a rotary valve 76 having a central opening 77 therethrough. For operating this valve, one end of a link 78 is pivotally connected thereto, while the other end is pivotally connected to the vertically extending operating rod 79. The outer end of the rocker bar 59 bears continuously on the upper end of the operating rod 79. At its inner or rear end the rock bar is provided with a spring arm 80, adapted when the rock bar is moved into the position shown to engage the top end of valve stem 45, moving the stem downward and positively seating the valve 44 against any inflow of the aerated water. Simultaneously with this action, the piston head is moved to the bottom of cylinder 55 causing the discharge of a small quantity of syrup into the pipe 52 where it will mix with the aerated water behind the valve 76. When the valve 76 is closed against the discharge of the contents of pipe 52, the valve 43 is unseated permitting the aerated water to gather in the relay tank and pipe 52 and the piston head is elevated into position to cause the discharge of a quantity of syrup into pipe 52 on subsequent actuation of the rod 79. Immediately valve 76 is opened the further inflow of aerated water is stopped by valve 43 while the piston descends to effect a discharge of the syrup into pipe 52 to mix and intermingle with the aerated water during the flow of the latter to the discharging nozzle 53.

For each syrup unit, there is secured to the

side wall of the outer vessel below the projecting insulating wall 30, a casing 81 designed to house the mechanism for controlling the up and down operation of the rod 79, and to accommodate in its bottom portion a coin-receiving drawer 82. As shown in Fig. 4, there is pivoted at 83 to the lower end of rod 79 an operating foot or hand lever 84 which is fulcrumed on a fixed pin 85. To the rear of the pin 85, there is pivoted to this hand lever at 86 for free swinging movement a tilt bar 87 the forward end of which is formed to comprise a head 88 adapted to receive a coin as 89 as it falls from the coin chute 90, said tilt bar normally maintaining itself in horizontal position by reason of being weighted at 91 on its opposite end. Adjacent the pivot 86 the tilt bar is formed with an upwardly and laterally projecting lug 92 adapted on its downward swing to engage over the top side of lever 84 and thereby to arrest its further downward movement until the lever 84 is depressed, the extent of movement thus permitted by this arrangement of the lug being merely sufficient to permit the weighted end 91 to clear a stop 93 forwardly projecting from the outer vessel, but being insufficient to allow the coin 89 to roll from the head 88. When, under this construction, the lever 84 is depressed to actuate rod 79 and open valve 76, the tilt bar 87 is obviously carried with said lever until it assumes approximately a vertical position to deliver the coin into the chute 94 from which it falls into the drawer 82. Now, if the lever 84 be depressed when there is no coin in the head 88, the weighted end of the tilt bar as it is carried upwardly in an arc about the fulcrum 85, will engage the stop 93 and the lug 92 will engage the lever 84 thereby locking said lever and preventing the actuation of rod 79 for the opening of valve 76. A pull spring 95, which is connected with the lever 84 forward of the fulcrum and with the fixture 96 secured to the outer vessel, normally holds said lever in position to be depressed and replaces it after each operation.

The coin chute 90 depends from a housing 97 (Fig. 1) secured to the top end of the wall 30 of the insulating compartment, and therein connects with a coin slot 98 into which the customer drops his coin. The housing 97 contains the mechanism whereby, on the insertion of coin, to permit the customer to obtain a paper drinking cup as 99 from the stack incased in the glass housing 100 upstanding from housing 97. A ledge 101 is provided below the discharging nozzle 53, for the suitable support of the paper drinking cup while it is being filled.

In the operation of my apparatus, the customer on the selection of the soda desired, inserts his coin in the coin chute, actuates the lever 102 (Fig. 1) and receives his paper

drinking cup. The momentum of the falling coin swings the tilt lever as hereinbefore described, so as to permit the depression of the hand lever 84, which operation is accomplished while the customer places his cup on the ledge to be filled. Thereupon the customer depresses the hand lever which results in moving the rod 79 upwardly and opening the valve 76 while simultaneously closing the valve 43 and thrusting down the piston head to effect the discharge of a quantity of syrup into the outflowing aerated water, it being noted in this connection that the opening 77 in valve 76 is preferably smaller than the diameter of the pipe 52 in order to cause an intermixing of the syrup and the aerated water before passing through the valve. In practice, each housing 97 will carry the name of the soda to be obtained at that place. A lid 103 fitting on the top of ice compartment 40 may be readily removed to replenish the ice therein. Both the lid 103 and the ice tray 34 must be removed in order to replenish the ice in the coil compartment 26, which is the larger compartment and obviously should be filled before filling the upper compartment 40. Lids may be provided to cover the syrup compartments, the same to be readily removable when the syrups are to be replenished.

The claims are as follows:

1. In a device of the character described, the combination with a syrup container, of an aerated water tank, a discharging pipe for said tank having a dispensing valve, a pump device comprising a cylinder having a piston head therein, inlet and outlet valves for said cylinder, a suction pipe extending from the syrup container to said inlet valve through which the syrup is drawn into the cylinder when the piston head is elevated, a discharge connection between said outlet valve and said discharging pipe through which to discharge the syrup into said discharging pipe when said piston head is lowered, and means associated with said piston head and said dispensing valve for holding the piston head elevated when the dispensing valve is closed.

2. In a device of the character described, the combination with a syrup container, of an aerated water tank, a discharging pipe for said tank having a dispensing valve, a pump device comprising a cylinder having a piston head therein, inlet and outlet valves for said cylinder, a suction pipe extending from the syrup container to said inlet valve through which syrup is drawn into said cylinder when the piston head is elevated, a discharge connection between said outlet valve and said discharging pipe through which to discharge the syrup into said discharging pipe when said piston head is lowered, means associated with said piston head and said dispensing valve for holding the

piston head elevated when the dispensing valve is closed, said means including an operating rod, and a fulcrumed lever for actuating said rod.

3. In a device of the character described, a container having an inlet adapted for connection with a source of aerated water supply, and having also a tubular outlet, a rotary valve for controlling flow through said outlet, said rotary valve having a passage therethrough of less area in cross section than the bore of said tubular outlet, and a pump operable to draw syrup from a source of supply and to discharge syrup into the outlet of said container between said valve and said container.

4. In a device of the character described, a container having an inlet adapted for connection with a source of aerated water supply, a discharge conduit in open communication at one end with said container and being open at its other end, a valve adapted to cooperate with the walls of the discharge conduit to provide when the valve is open a passage of reduced cross sectional area leading through a portion of the conduit, a pump for transferring syrup from a source of supply into the outlet of the container between said valve and said container, and means for operating said valve and said pump simultaneously.

5. In a device of the character described, a container having an inlet adapted for connection with a source of aerated water supply, a discharge conduit in open communication at one end with said container and being open at its other end, a valve adapted to cooperate with the walls of the discharge conduit to provide when the valve is open a passage of reduced cross sectional area lead-

ing through a portion of the conduit, a pump for transferring syrup from a source of supply into the outlet of the container between said valve and said container, a valve for controlling the inlet of said container, and means for operating said first named valve, said pump and said second named valve simultaneously.

6. In a device of the character described, a tank having an inlet adapted for connection with a source of aerated water, a normally open valve controlling said inlet, a discharge pipe in open communication at one end with said container, a valve for controlling said discharge pipe, said valve being located at an appreciable distance from the juncture of said discharge pipe and the container, a pump casing having the intake thereof adapted to conduct syrup into the pump casing from a source of supply and having an outlet arranged to discharge into said discharge pipe between said second named valve and the water container, an inwardly opening check valve controlling the inlet of the pump casing, and adapted to be opened by suction within the pump casing, an outwardly opening check valve controlling the outlet of the pump casing and adapted to be opened by pressure within the pump casing, a piston reciprocable within the pump casing to cause suction and pressure alternately within the pump casing, and means for actuating said first named valve, said piston and said second named valve to simultaneously close the first named valve, cause pressure within the pump casing and open the second named valve.

In testimony whereof I have signed my name to this specification.

ALEX. S. MANDEL.