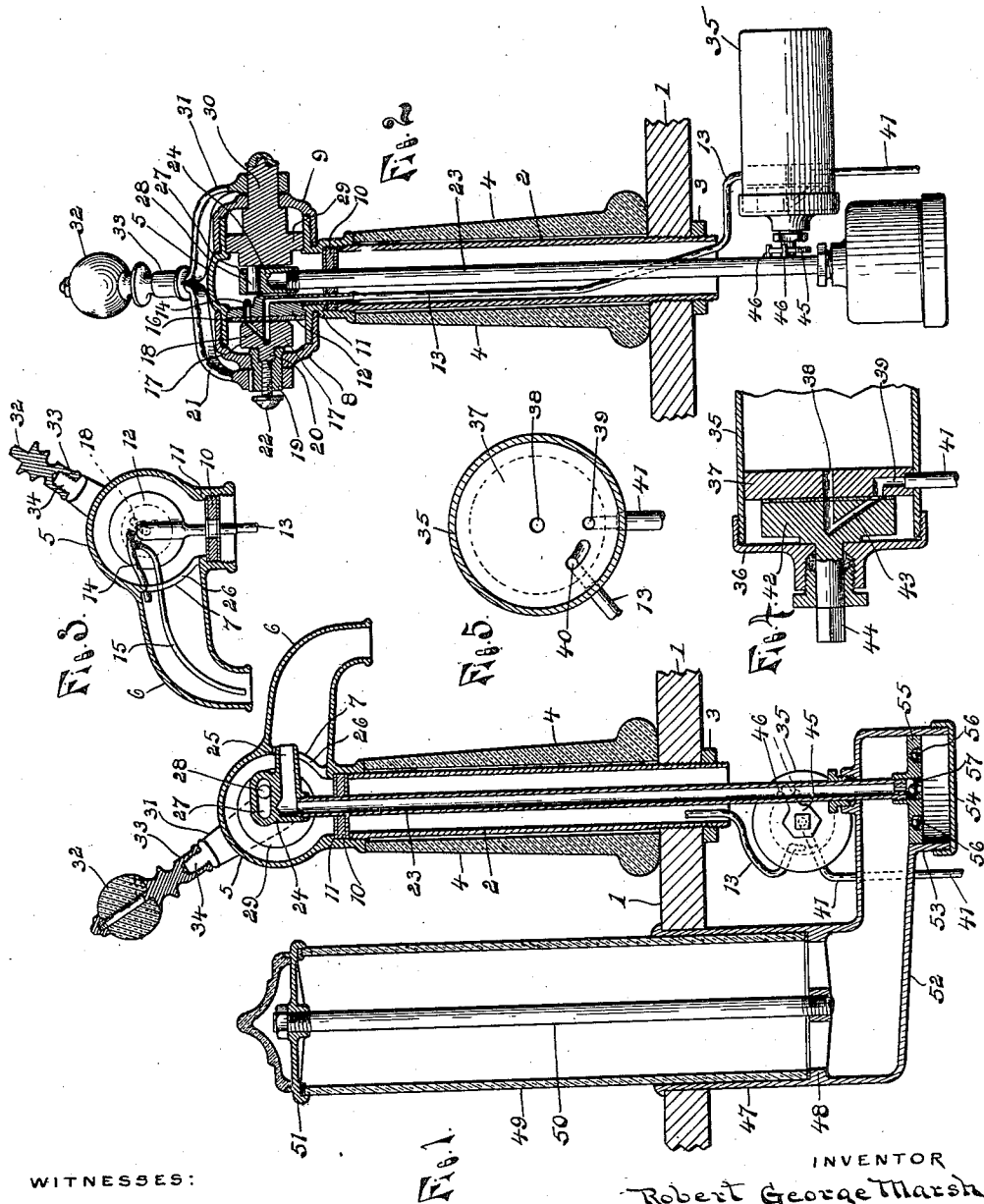


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DISPENSING APPARATUS.
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Patented Jan. 10, 1911.

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UNITED STATES PATENT OFFICE.

ROBERT GEORGE MARSH, OF DETROIT, MICHIGAN.

DISPENSING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT GEORGE MARSH, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful improvements in Dispensing Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in soda fountains and its object is to provide a device so constructed that a measured quantity of syrup and soda water may be drawn by one movement of a single lever, the effervescent liquid being delivered in a comparatively large and then in a small stream to give the desired foaming, and a further object is to provide a simple and compact construction embodying certain other new and useful features in the construction, arrangement and combination of parts, all as hereinafter more fully described, reference being had to the accompanying drawings in which—

25 Figure 1 is a vertical sectional view of a device embodying the invention; Fig. 2 is a section at right angles to that of Fig. 1, parts being shown in elevation; Fig. 3 is a sectional detail of the head of the faucet showing the opposite side of the same to that shown in Fig. 1; Fig. 4 is an enlarged sectional detail of one end of the soda measuring receptacle; and Fig. 5 is a cross section of the same, showing the face of the partition.

1 is a suitable supporting table having an opening through which projects a vertical tube 2 secured therein by being externally screw-threaded and provided with a nut 3 on its lower end engaging the under side of the table, and extending upward through a hollow finishing column 4 formed of onyx or other suitable material engaged at its upper end by a faucet head or casing 5 screwed upon the upper end of the tube 2. This faucet casing is provided with a laterally extending discharge spout 6 which is separated at its inner end from the chamber of the casing by a wall 7 and the open ends of the casing or head are closed by screw-caps 8 and 9. The upper end of the tube 2 which opens into the faucet casing is closed by a disk or diaphragm 10 clamped between the end of said tube and a shoulder 11 formed on the casing and thus said casing or head forms a closed chamber. Within

this chamber at a short distance from the cap 8 is secured a disk 12 having an axial inlet opening which communicates with an inlet tube 13 leading thereto and secured to the inner side of said disk. This tube extends downward through the diaphragm 10 and out of the lower end of the tube 2 of the supporting column. A large and a small discharge opening are also provided in said fixed disk 12 at a distance from the center opening and leading from the large opening at the inner side of the disk is a large discharge tube 14 with its opposite end extending through the wall 7 into the spout a short distance, and a small discharge tube 15 leads from the small opening in the disk through the wall and outward in the spout to near the discharge end thereof.

Engaging the outer surface of the disk 12 is a leather facing 16 having holes to correspond with the openings in the disk and engaging this facing is a rotary valve member 17 having an axial bore opening into the inner end of the axial bore and adapted to register at its outer end with the discharge openings in the disk as the valve is turned and form a duct 18 in the valve to conduct the fluid entering through the inlet tube 13 to one or the other of the discharge tubes 14 and 15. A stem 19 having a transverse slot in its inner end to receive a rib 20 on the valve member, extends through an axial opening in the cap 8 and to its outer end is keyed an operating lever 21 by means of which the valve is turned. A screw-threaded axial hole is provided in the stem 19 to receive an adjusting screw 22 which engages the rib 20 on the valve at its inner end and is provided with a head on its outer end by means of which it may be turned inward against the rib to force the valve toward its seat on the disk and prevent leakage.

Extending vertically in the axis of the column 4 and through the diaphragm 10 which forms a bearing therefor, is a hollow plunger rod 23 having a head 24 on its upper end within the chamber of the faucet casing 5 formed with a laterally extending tubular portion 25 communicating with the upper end of the tubular plunger and projecting through a slot 26 in the wall 7 to discharge into the spout 6. The plunger rod is moved up and down by providing a horizontal slot 27 in the head 24 which slot is engaged by a pin 28 on a revoluble disk 29 which turns

in the casing adjacent to the cap 9 and has a stem 30 projecting through the cap to which stem a lever 31 is keyed. The pin 28 being set to one side of the axis of the disk, when said disk is turned by means of its lever 31 the pin will travel about said axis and force the plunger rod by its engagement with the slot in the head, up and down.

The two levers 21 and 31 are curved toward each other in the form of a bail embracing the casing and their ends are united by a detachable handle 32 having an internally screw-threaded socket 33 to receive a screw-threaded stem 34 made in halves, one half upon each lever.

Below the table 1 is a receptacle 35 having a detachable head 36 and a fixed partition 37 at a short distance from this head. In the axis of the partition is a hole 38 and an inlet passage 39 and a discharge passage 40 each extend into the partition from its edge and open through the side of the partition at the same distance from its axis. The discharge passage communicates at its outer end with the tube 13 and into the outer end of the intake passage a tube 41 is connected, its opposite end being connected to any suitable supply of soda water under pressure. A disk valve 42 is provided in the receptacle between the head 36 and partition and this disk is formed with a passage 43, one end of which opens at its axis to register with the hole 38 and the opposite end opens through its side in position to register with either the passage 39 or 40 when the valve is turned. A stem 44 on the valve disk extends outward through a stuffing box on the head and on its projecting end is secured a lever 45 engaging between two pins 46 extending laterally from the side of the plunger rod 23 so that when said rod is raised or lowered the valve 42 will be turned.

Secured in an opening in the table 1, is a metal cup 47 formed with an inwardly projecting ledge 48 to support the lower end of a glass cylinder 49 which fits within the cup and is held therein with a packing ring between its lower end and the ledge, by an axial rod 50 detachably secured at its upper end by a cap 51 resting upon the upper end of the cylinder and at its lower end engaging a screw-threaded aperture in the hub of a spider formed in the cap. The lower end of the cup is formed with a lateral extension 52 terminating in a downwardly projecting cylindrical portion 53 closed by a screw-cap 54. The lower end of the plunger rod 23 extends through a stuffing box on the top of the extension 52 and is provided with a head or piston 55 fitting within the cylinder 53. The piston is provided with a series of upwardly closing ball valves 56 and a similar downwardly closing valve 57 controls the admission of fluid to the lower end of the tubu-

lar plunger rod which opens through said piston.

In operation, the glass receptacle or stand pipe 49 is filled with flavoring syrup and the syrup, filling the laterally extending lower end of the standpipe flows freely through the valves 56 into the cylinder below the piston. The handle 32 being in the position shown in the drawings, the piston is held by the pin 28 at the upper end of its stroke and the valve 12 is turned so that its passage 18 does not register with either of the discharge tubes, thus cutting off the soda water supply in this position of the parts the valve 42 is turned so that the supply tube 41 is in communication with the measuring chamber which is thus filled under pressure. As the operator brings the handle 32 forward, the pin 28 carried by the disk 29 to which the handle is attached, is moved downward forcing the plunger rod and its piston 55 down. The valves 56 come to their seats upon downward movement of the piston and prevent the syrup which is trapped below the piston from passing back there through and thus it is forced past the valve 57, up the hollow plunger rod, and out of the nozzle 25 into the spout 6, the valve 57 preventing the syrup in the rod from falling to the level of that in the standpipe after each operation. Slight downward movement of the plunger rod turns the valve 42 and cuts off the communication between the supply tube 41 and the receptacle and further movement turns the valve so that the duct 43 registers with the passage 40 a portion of which is formed in the face of the wall concentric with the axis so that the tube 13 is in communication with the receptacle during the remainder of the throw of the valve.

The handle is moved some distance from the position in which it is shown before the duct 18 in the valve 17 registers with the tube 14 and soda permitted to escape, and a slight further movement cuts off the stream thrown by said tube 14 and at the end of the throw the duct registers with the tube 15 which discharges a very fine stream to cause the desired foaming.

The stroke of the piston 55 determines the quantity of syrup and the size of the measuring receptacle determines the amount of soda water which will be delivered, and by the turning of the one handle, these ingredients are delivered and mixed in the proper manner.

What I claim as my invention is:—

1. In a soda fountain, the combination with a discharge valve and means for operating the same, of a measuring receptacle, a tube connecting said valve and receptacle, a supply tube to deliver soda water to said receptacle, a separate valve to control the flow of soda water into and out of said re-

ceptacle through said tubes, and means whereby said valve is operated by the movement of the means for operating the discharge valve.

5 2. In a soda fountain, the combination with a casing having a discharge spout and a valve for controlling the discharge of soda water therefrom, of a cylinder adapted to contain syrup, means for conducting the
10 syrup from the cylinder, and a piston wholly within the cylinder and means connecting the piston and valve for simultaneously operating the same.

15 3. In a soda fountain, the combination with a casing having a discharge spout and a valve controlling the discharge of soda water therefrom, of a cylinder, a tubular member connecting the cylinder and casing to conduct syrup to the spout, a piston in
20 the cylinder, and means common to both the piston and valve for simultaneously operating the same for the purpose specified.

25 4. In a soda fountain, the combination with a casing having a discharge spout and a valve controlling the discharge of soda water therefrom, of a cylinder, a piston in the cylinder, a tubular member attached to the piston to move the same and adapted to conduct syrup from the cylinder into the
30 casing, means for moving said member to actuate the piston and the movement of which means also operates the valve.

35 5. In a soda fountain, the combination with a casing having a discharge spout, of a rotary valve in said casing controlling the discharge of soda water therefrom, a tubular member extending into the casing, means rotatable with the valve for moving said tubular member, and means operated by the
40 movement of said member to force syrup therethrough and discharge it into the casing.

45 6. In a soda fountain, the combination with a casing having a discharge spout, of a valve controlling the discharge of soda water through the spout, a tubular member extending into the casing to discharge syrup therein, means for actuating said valve and moving the tubular member longitudinally, a
50 cylinder, and a piston in the cylinder upon the lower end of said tubular member.

55 7. In a soda fountain, the combination of a hollow column, a casing on the upper end of said column having a discharge spout, a cylinder below the column adapted to contain syrup, a piston in the cylinder having a series of valves to permit the passage of the syrup therethrough when the piston is moved in one direction, a tubular member attached
60 to and opening through said piston at its lower end and extending upward in the column with its upper open end in the casing and means carried by the casing for moving said tubular member to actuate the
65 piston.

8. In a soda fountain, the combination with a casing having a discharge spout, of a tube leading into said casing, a valve controlling the discharge of soda water from said tube, a measuring receptacle, a supply
70 tube leading to said receptacle, a valve to control the inlet to and discharge from said receptacle through said tubes, a tubular member extending into the casing, means on the valve of said receptacle for turning the
75 same and operated by said tubular member, means for moving said member vertically, and means operated by the movement of said member for forcing syrup therethrough upward into the said casing.

80 9. In a soda fountain, the combination with a hollow column and a casing upon said column having a discharge spout, of a rotary valve in said casing, a tube extending upward in the column to said valve, a tubular
85 member in said column, a head on said member having a horizontal slot, a rotatable disk in the casing, a pin on said disk engaging said slot, means for simultaneously turning the disk and valve, and operated by the
90 movement of said tubular member for forcing syrup therethrough in the casing.

10. In a soda fountain, the combination with a casing provided with a discharge spout, of a tube extending into said casing,
95 a fixed disk in the casing through the axis of which the tube opens and which is provided with openings at a distance from its axis, a rotatable valve member having a duct registering at one end with the axial opening of the disk and at its opposite end adapted to register with either of the other
100 openings in said disk, tubes of different sizes leading from said openings into the discharge spout, an operating lever to turn the valve, a tubular member extending into
105 said casing, a head on the upper end of said member having a tubular portion extending into the spout and formed with a horizontal slot, a disk in the casing, a pin on the disk engaging said slot, a lever attached to turn the disk, and means operated by the movement of said tubular member to force syrup
110 therethrough into the discharge spout of the casing.

11. In a soda fountain, the combination with a casing, and a valve in the casing controlling the discharge of soda water from the casing, of a tubular member extending
120 into said casing at one end, a standpipe for containing a supply of syrup, a cylinder connected to the lower end of the standpipe to receive syrup therefrom, a piston in the cylinder attached to the lower end of the tubular member, valves to permit the passage
125 of the syrup through the piston during one travel of its movement, and means for actuating said tubular member to move the piston.

12. In a soda fountain, the combination 130

with a casing having a discharge spout, a rotary valve in one side of said casing having an outwardly extending stem, a rotary disk at the other side of the casing having
 5 an outwardly extending stem, levers attached to said stems and bent inward toward each other around the casing, a handle engaging and uniting the adjacent ends of said levers, a tubular member actuated by the turning of
 10 said disk, means actuated by said tubular member to force syrup therethrough up into the casing, and a tube leading to the valve to conduct soda water thereto.

13. In a soda fountain, the combination
 15 with a casing having a discharge spout, of a fixed disk in the casing at one side of the spout and provided with an axial opening and other openings arranged concentric thereto, a rotary valve member engaging the
 20 disk at one side and formed with a duct registering at one end with the opening in the axis of the disk and at its opposite end adapted to register with either of the other openings, a tube leading to the axial opening,
 25 tubes of different sizes leading to the other openings and into the spout, a rib on the valve member, a stem extending outward through an opening in the casing and formed with a transverse slot at its inner
 30 end to receive the rib and an axial screw-threaded opening, an adjusting screw in said screw-threaded opening to engage the rib and adjust the valve member toward the disk, and a lever on the projecting outer end
 35 of the stem.

14. In a dispensing apparatus the combination of a syrup container, a charged water container, a syrup pump within the syrup container, a pump piston rod, a discharge
 40 pipe connected therewith, a water controlling valve outside the container, means for conducting water from said valve to the discharge pipe, and means connected with said piston rod for opening the valve when the
 45 piston rod is depressed.

15. In a dispensing apparatus, the combination of a syrup container, a charged water container, a syrup pump within the syrup container, a pump piston rod comprising a
 50 discharge pipe for the syrup connected with said pump within the syrup container and extended outside of the same, a valve for controlling the charged water, and means

connected with the said piston rod for opening the said valve when the piston rod is
 55 moved in one direction, substantially as described.

16. In a dispensing apparatus, the combination of a syrup container, a charged water container, a syrup pump within the syrup
 60 container provided with a hollow piston rod, a discharge nozzle connected with the said hollow piston rod, a valve controlling the charged water, means for conducting water from said valve to the discharge nozzle, and
 65 a cam movable with said piston rod and co-operating with said valve to open the same when the piston rod is moved in one direction.

17. In an apparatus of the character described, in combination, a tank or vessel containing liquid under one pressure, a pump located in said tank or vessel and having its cylinder in open communication with said
 70 tank or vessel and provided with an outlet pipe extended outside of said tank or vessel, a piston in said cylinder to discharge therefrom through said outlet pipe a given quantity of the liquid on one stroke of the pump, a handle connected with said piston and located
 75 outside of said tank, a container for a liquid under greater pressure, means for connecting said container with said outlet pipe, a valve controlling the passage of the liquid of greater pressure to said outlet pipe,
 80 and a cam actuated by said handle and controlling said valve, substantially as described.

18. In a dispensing apparatus, the combination of a syrup container, a charged water
 90 container, a syrup pump within the syrup container provided with a hollow piston rod, a discharge nozzle connected with the said hollow piston rod, a valve controlling the charged water, means for conducting water
 95 from said valve to the discharge nozzle, and a device movable with said piston rod and coöperating with said valve to open the same when the piston rod is moved in one direction.

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

ROBERT GEORGE MARSH.

Witnesses:

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