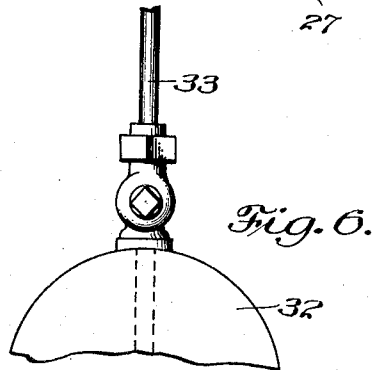
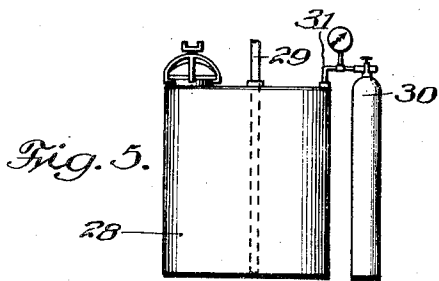
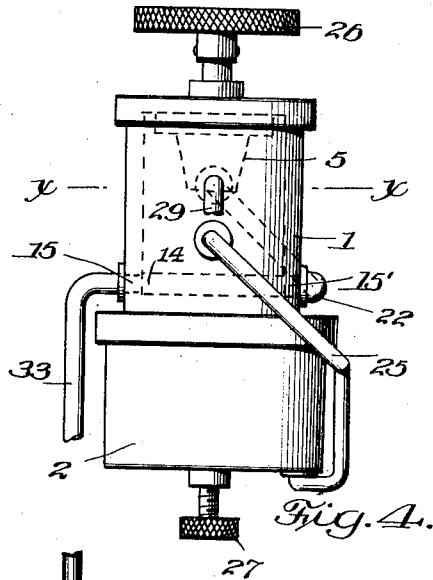
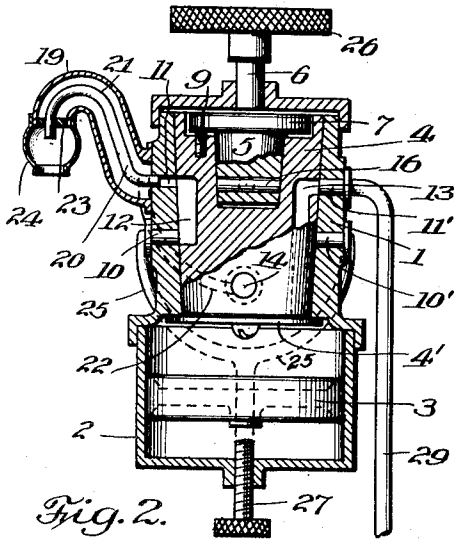
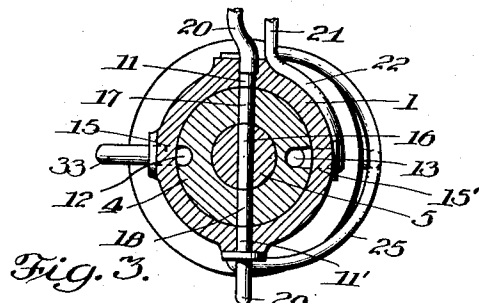
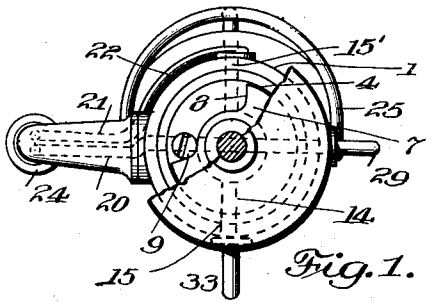


C. F. FREESE.
SODA WATER VALVE.
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1,050,731.

Patented Jan. 14, 1913.



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UNITED STATES PATENT OFFICE.

CHARLES F. FREESE, OF FORT WAYNE, INDIANA.

SODA-WATER VALVE.

1,050,731.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed April 27, 1912. Serial No. 693,587.

To all whom it may concern:

Be it known that I, CHARLES F. FREESE, a citizen of the United States of America, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Soda-Water Valves, of which the following is a specification.

This invention relates to improvements in soda-water valves for mixtures composed of syrup and soda-water, and the object of the improvement is to afford a valve for controlling the flow of soda-water and syrup simultaneously or separately, and to regulate the quantitative discharge of syrup.

The object of the invention is accomplished by the construction illustrated in the accompanying drawings in which:

Figure 1 is a plan view of the device partly broken away; Fig. 2 is an elevation of the same partly in vertical section; Fig. 3 is a transverse section of Fig. 4 on the line $x-x$ thereof. Fig. 4 is a rear elevation of the device; Fig. 5 is an elevation showing a supply tank for syrup and a gas tank in connection therewith; and Fig. 6 is an elevation showing the discharge end of a soda-water supply tank.

Similar numerals of reference indicate corresponding parts throughout the several views and referring now to the same:—1 is a valve-case, having connected with its lower end a cylindrical cup 2 in which is arranged a loose piston 3. Within the case is arranged a valve 4 and within the valve 4 is a secondary valve 5 having an operating stem 6, the valves having a common axial center. The valve 5 has a flange 7 in which is made a recess 8, and the valve 4 has in its upper end a screw 9 the head of which extends into the recess and limits the turning movement of the valve 5 relative to the valve 4 by coming into contact with the flange at the respective end of the recess. The valve 4 is turned in the casing by the manipulation of the valve 5. The casing has four opposite ports 10 and 10' and 11 and 11'. Upon one side of the valve 4 is a pocket 12 adapted to connect either the ports 10 and 11 or the ports 10' and 11' accordingly as the valve is turned, and upon the opposite side of the valve is a port 13 adapted to communicate

at its upper end with the ports 11' and 11 when the valve is accordingly turned, and the port also communicates at its lower end with the cylindrical cup adjacent the lower end of the valve. The valve 4 has also a transverse port 14 which communicates with corresponding ports 15 and 15' in the case. The valve 5 has a transverse port 16, and the valve 4 has ports 17 and 18 in line therewith and which are adapted to register with the ports 11 and 11' when properly turned. A plate 4' secured to the bottom of the valve 4 acts against the adjacent end of the case and holds the valve in place. Upon one side of the case is a spout 19 containing discharge pipes 20 and 21, the former having connection at its inner end with the port 11 in the case, and the latter pipe having connection with the port 15' through an extension pipe 22. The outer ends of the discharge pipes 20 and 21 extend through a plug 23 in the spout, and terminate within a hood 24 secured to the end of the spout. The ports 10 and 10' each have connection with the lower part of the cylindrical cup 2 through a Y pipe 25.

Upon the stem 6 of the valve 5 is a handle 26 by which the valve is manipulated, and through the bottom of the cylindrical cup extends an adjusting screw 27 by means of which the movement of the piston 3 in the cup may be limited more or less accordingly as the screw is turned.

It is the intention that both the syrup and soda-water shall be introduced into the valve under pressure from suitable sources of supply, and respective apparatus for supplying same is indicated in Figs. 5 and 6. In Fig. 5 28 is a closed tank containing syrup, said tank having a discharge pipe 29 communicating with its lower part, and 30 is a tank containing gas under pressure and having connection with the upper part of the tank 28 through a pipe 31. As gas from the tank 30 enters the tank 28, the contents of the latter are expelled through the pipe 29. This pipe has connection with the port 11' in the case 1. In Fig. 6 a tank 32 containing the soda-water under pressure is provided with a discharge pipe 33 which has connection with the port 15 in the case 1.

In the operation of the invention, when

the valve 4 is in the position shown in Fig. 2, syrup will enter the upper part of the cylinder 2 through the port 13 in the valve, driving the piston downwardly in the cup.

5 The syrup in the cup, beneath the piston, is expelled, by the downward movement of the piston, through the Y pipe 25 from whence it passes through the pocket 12 and is finally discharged through the pipe 20.
10 When the piston strikes the screw 27 the discharge referred to ceases. It is the intention that the port 14 in the valve 4 shall register with the ports 15 and 15' when the valve is in the position shown in Fig. 2 so
15 that soda-water will flow therethrough and be discharged through the pipe 21, at the same time the syrup is discharged through the pipe 20. When the valve 4 is turned to a position diametrically opposite to that
20 just described, the respective positions of the pocket 12 and port 13 will have been transposed so that syrup will be directed through the pocket and the Y pipe into the lower part of the cup, forcing the piston to
25 rise. The contents of the cup, above the piston, are expelled through the port 13 and pipe 20. When the valve 4 is turned so that its ports 17 and 18 register respectively with the ports 11 and 11', the port
30 14 in the valve will not then register with the corresponding ports in the case so that soda-water will not then be discharged. If the valve 5 be then turned backwardly so that its port 16 will register with the
35 ports 17 and 18 in the valve 4, the flowing of syrup directly through the ports from the supply-pipe 29 will occur independent of the cylindrical cup and without the accompanying flow of soda-water. The cy-
40 lindrical cup with its contained piston serves as a measuring device for the syrup, and the valve 5 serves to by-pass the measuring device.

The hood 24 may be closed at its lower
45 end by placing therein a plug or cork, then, by disconnecting the source of supply of syrup, the ports, pipes and measuring device may be washed clean of syrup by turning the soda-water on. The soda-water enter-
50 ing the hood from the pipe 21 is forced back through the pipe 20 and from thence into the measuring device, the flow entering either above or below the piston therein accordingly as the valve is manipulated.

55 What I claim is:—

1. In a device of the class described, a valve having ports; a secondary valve within the first valve having means in connection therewith to engage and actuate the first
60 valve, as it (the second valve) is manipulated, there being limited play between the turning movement of the one valve relative to the other, the secondary valve having a port adapted to register with corresponding
65 ports in the first valve; and a case contain-

ing said valves and having opposite ports adapted to register with the corresponding ports in the first valve.

2. In a device of the class described, a valve case having a plurality of ports; a
70 valve within the case having a port 14 adapted to register with corresponding ports in the case and having also ports 17 and 18 adapted to register with another opposite
75 pair of ports in the case; a secondary valve arranged in the first valve and having a port 16 therein adapted to register with the corresponding ports in the first valve; and means in connection with the secondary
80 valve for engaging the other valve and actuating the same when the secondary valve is operated.

3. In a device of the class described, a valve; a secondary valve within the first
85 valve having means in connection therewith to actuate the same as the secondary valve is manipulated, there being limited play between the turning movement of the one valve relative to the other; a case containing
90 said valve having port openings therein, said valves having ports adapted to register with one another and also with corresponding ports in the case, the first valve having
95 also a port adapted to communicate with corresponding ports in the case independently of its other ports.

4. In a device of the class described, a valve case; a valve therein; a measuring de-
100 vice for fluid controlled by the valve; and a secondary valve arranged within the first valve and having therein a port adapted to register with corresponding ports in the first valve and to by-pass the measuring device.

5. In a device of the class described, a case; a valve therein; a secondary valve in
105 the first valve having means in connection therewith to actuate the same; and a measuring device controlled by the first valve, the secondary valve having a by-pass port adapted to register with corresponding
110 ports in the first valve.

6. In a device of the class described, a case; a valve; and a secondary valve there-
115 in having a port affording communication between opposite ports in the case through corresponding ports in the first valve, said first valve having a separate port affording independent communication between another pair of opposite ports in the case.

7. In a device of the class described, a
120 valve; a case therefor; a secondary valve arranged within the first valve; and a measuring device, said valves having communicating ports, said first valve having ports connecting with the measuring device and
125 also a separate port connecting with corresponding ports in the case affording independent communication therethrough.

8. In a device of the class described, a case; a valve contained therein; a secondary
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valve in the first valve and having means in connection therewith to actuate the same by manipulating the secondary valve; and a measuring device, said first valve and case
5 having corresponding ports affording communication with the measuring device and also separate communicating ports affording independent communication through the valve, said valves and case having corre-

sponding ports affording communication 10 therethrough by-passing the measuring device.

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

CHARLES F. FREESE.

Witnesses:

MATHILDA METTLER,

WALTER G. BURNS.