

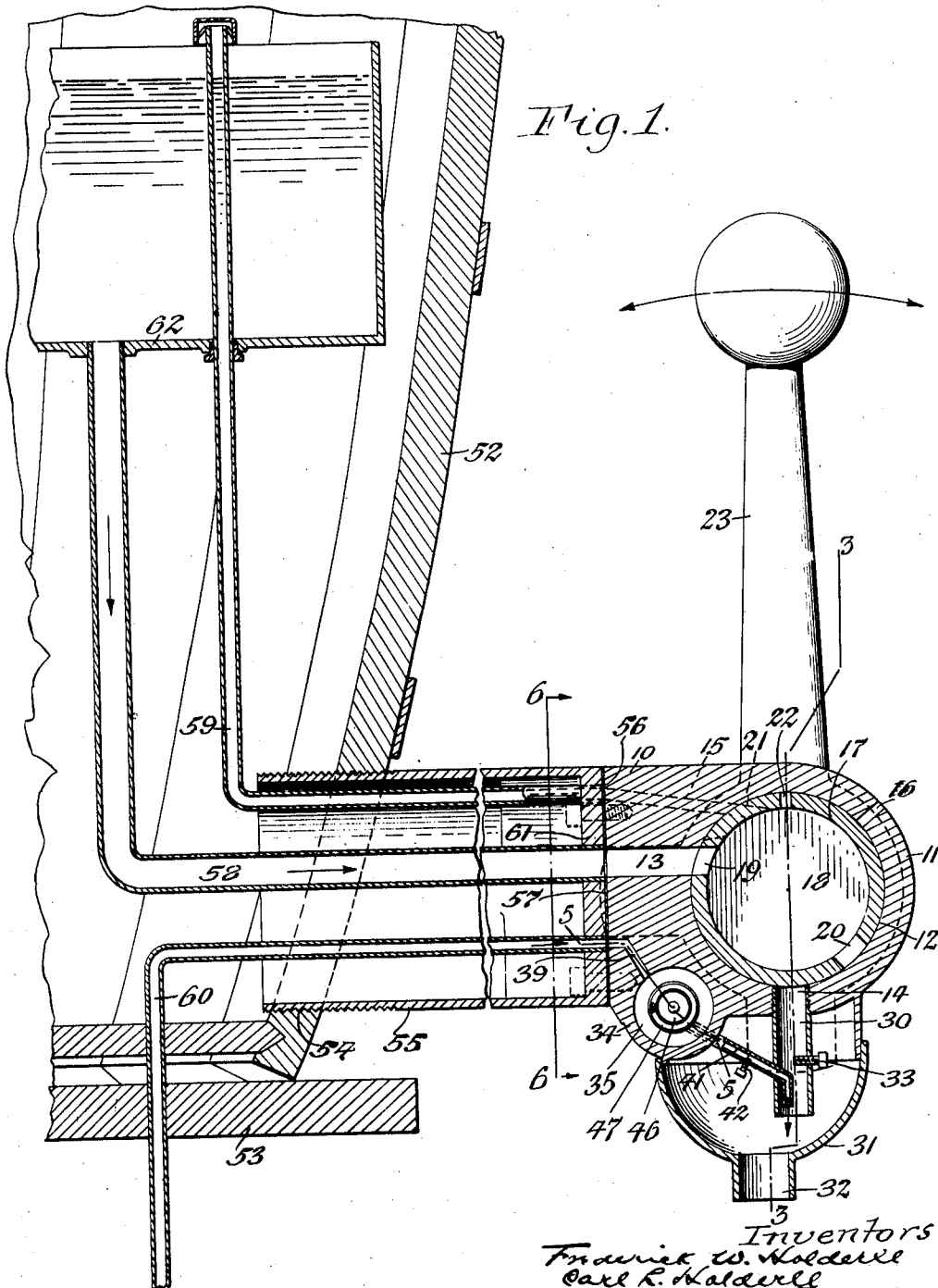
May 5, 1925.

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F. W. HOLDERLE ET AL
BEVERAGE DISPENSING DEVICE

Filed June 30, 1923

2 Sheets-Sheet 1



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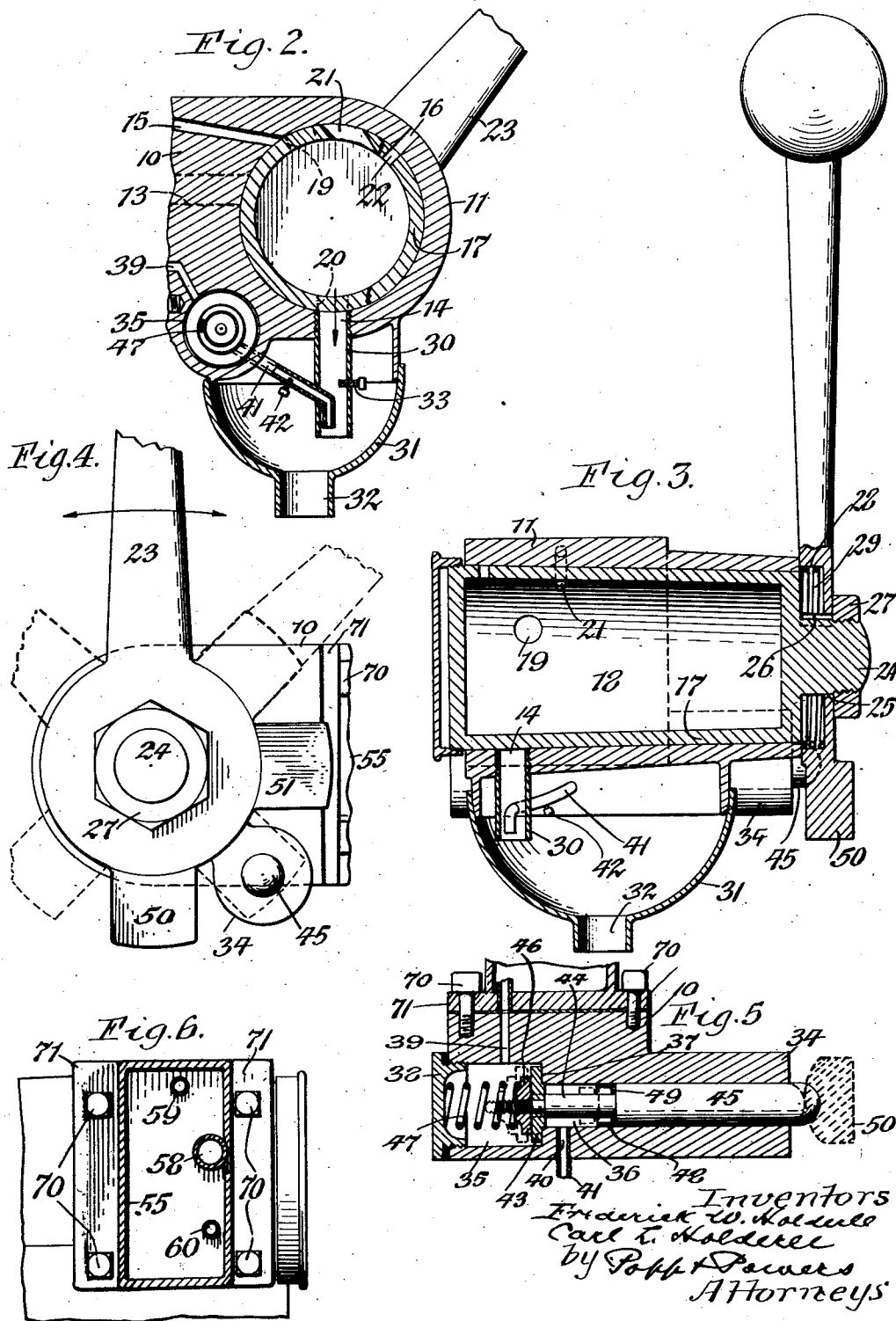
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UNITED STATES PATENT OFFICE.

FREDERICK W. HOLDERLE AND CARL L. HOLDERLE, OF ROCHESTER, NEW YORK.

BEVERAGE-DISPENSING DEVICE.

Application filed June 30, 1923. Serial No. 648,771.

To all whom it may concern:

Be it known that we, FREDERICK W. HOLDERLE and CARL L. HOLDERLE, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Beverage-Dispensing Devices, of which the following is a specification.

This invention relates to a beverage dispensing device and more particularly to an apparatus for dispensing a mixture of syrup and soda water, which devices are generally known as "draft arms." It is the object of this invention to provide a device for this purpose which is comparatively simple in construction and not liable to get out of order and which will permit of measuring the proper amount of syrup more rapidly than has been possible heretofore, and also enable the beverage to be served either in the form of a mixture of syrup and soda water, or in the form of clear soda water without the addition thereto of any syrup, it being possible to serve a customer with either forms of these beverages conveniently and expeditiously and also without liability of any sweetening being present in the beverage when an unsweetened drink is desired.

In the accompanying drawings:

Figure 1 is a vertical section of our improved beverage dispensing device installed in connection with a syrup and water supplying device and showing the parts in the position which they occupy when the syrup measuring chamber is connected with the syrup supply and cut off from the discharge passage of the apparatus. Figure 2 is a similar view showing the position of the parts in which the syrup measuring chamber is cut off from the syrup supply tank or reservoir and is connected with the discharge passage. Figure 3 is a vertical section taken on line 3—3 Fig. 1. Figure 4 is a fragmentary side elevation of the apparatus. Figure 5 is a fragmentary section taken on line 5—5 Fig. 1. Figure 6 is a vertical section taken on the correspondingly numbered line Fig. 1.

Similar characters of reference indicate like parts in the several figures.

The numeral 10 represents the body of the valve mechanism which is preferably constructed of cast metal, such as brass, although any other suitable material may be employed. The upper front part of this body is constructed to form a syrup valve

casing 11 which has a circular bore 12 forming a valve seat, this bore having its axis preferably arranged horizontally and tapering from one end toward the other in the form of a truncated cone, the opposite ends of this valve seat leading to opposite vertical sides of the syrup valve casing, as shown in Fig. 3. In its rear part the valve body is provided with a syrup inlet passage 13 which opens into the rear side of the bore of the syrup valve casing, in its lower side the same is provided with an outlet passage 14 for the syrup, in its upper rear part the same is provided with a liquid vent passage 15, which is adapted to communicate with the standpipe, and on its upper front part the same is provided with an air vent passage leading to the atmosphere. These several passages open into the bore of the syrup valve casing at different points in the circumference of the latter and also out of line relatively to each other lengthwise of the axis of this valve, so that the same may be controlled one independently of the other. Rotatable within the bore 12 of the syrup valve casing is a horizontal conical syrup valve plug 17 which is hollow so as to form a measuring chamber 18 within the interior thereof and provided in its periphery with an inlet port 19 adapted to register with the syrup inlet passage 13, and outlet port 20 adapted to register with the syrup outlet passage 14, a liquid vent port 21 adapted to register with the liquid vent passage 15, and an air vent port 22 adapted to register with the air vent passage 16.

In Fig. 1, the syrup valve plug 17 is turned so that the syrup inlet port 19 communicates with the syrup inlet passage 13, the syrup outlet port 20 is moved out of alignment with the syrup outlet passage 14, the liquid vent port 21 is moved into register with the syrup vent passage 15 and the air vent port 22 is moved out of register with the air vent passage 16, thereby permitting syrup to flow from the source of supply into the measuring chamber 18 and rise in the standpipe, which is connected with the liquid vent passage 15, so that the measuring chamber is completely filled and the level of the syrup is the same in the syrup supply and the standpipe.

In Fig. 2, the syrup valve plug has been turned so as to move the syrup inlet port 19 thereof out of register with the syrup inlet passage 13 and the syrup outlet port 20

into register with the syrup outlet passage 14 while the liquid vent port 21 is moved out of register with the liquid vent passage 15 and the air vent port 22 is moved into register with the air vent passage 16, thereby, permitting the measured quantity of syrup in the chamber 18 to flow out of the valve plug 17 and out through the discharge passage 14, this movement of the syrup being permitted by the entrance at this time into the measuring chamber of the external air through the passage 16 and port 22.

The relative arrangement of the several ports in the syrup valve plug is such that upon turning this plug backwardly for the purpose of cutting off the measuring chamber from the discharge passage 14 and connecting the same with the supply passage 13, the liquid vent port 21 will open to the liquid vent passage 15 shortly before the syrup inlet port 19 opens to the syrup inlet passage 13, thereby causing the syrup contained in the standpipe to flow from the same into the measuring chamber before the flow of syrup from the reservoir or tank into the measuring chamber begins. By this means a more prompt filling of the measuring chamber is effected so that beverages may be served more expeditiously to customers, and also a constant change of the syrup entering the standpipe is accomplished so that the syrup therein is not likely to become stale, crystallized or changed in character as compared with the rest of the syrup of which it forms a part. The turning of the syrup valve plug may be effected by any suitable means, for instance, by means of a rock arm or handle 23 which is preferably secured to the small end of the same externally of the casing, as shown in Figs. 3 and 4. In these figures the connection between the syrup valve plug and handle 23 is effected by means of a screw threaded stem or shank 24 arranged at the small end of the valve plug and passing through an opening 25 in the hub of the handle, a key 26 interposed between the screw shank 24 and the hub of the handle, and a screw nut 27 arranged on this shank and bearing against the outer side of the hub of the handle. Leakage between the valve plug and the bore of the casing 11 is prevented by means of a spring 29 arranged in a pocket 28 in the hub of the handle 23 and bearing at one end against the bottom of this pocket while its opposite end bears against the adjacent end of the casing 11, thereby tending constantly to draw the valve plug 17 in the direction in which its small end points, thereby ensuring a good seating of the plug in the bore of the casing 11.

The outlet passage 14 of the syrup valve casing 11 is preferably constructed in the

form of a tube 30 which extends downwardly from this casing into a mixing bowl 31 which is mounted on the underside of the valve body 10. This mixing bowl is adapted to receive the syrup from the syrup measuring valve and also soda water from the water supply valve. After these ingredients have been mixed within this bowl, the same are delivered through a nozzle 32 from the underside of this bowl into the glass in which the beverage is to be served to the customer. In order to regulate the flow of the syrup through the discharge pipe 30, the same may be provided with an adjusting screw 33 arranged on the side thereof and adapted to be screwed inwardly or outwardly, so as to obstruct the passage in the tube 30 more or less in accordance with the desired flow of syrup.

The means for controlling the discharge of soda water are constructed as follows:

On the lower rear part of the valve body 10 is arranged a casing 34 of a water supply valve which casing is bored to form a cylindrical valve chamber 35 of comparatively large diameter and a cylindrical outlet chamber 36 which is of smaller diameter than the valve chamber 35 and extends from the bottom of the latter to the opposite end of the casing 34, thereby forming a flat valve seat 37 between the large bore 35 and the reduced bore 36 in this casing. The outer end of the valve chamber 35 is normally closed by means of a screw cap 38, as shown in Fig. 5. On one side the valve casing 34 is provided with an inlet passage 39 which is connected with a suitable source from which soda water is supplied and on one side of the outlet chamber 36 the same is provided with an outlet passage 40 formed in a tube 41 which leads into the lower part of the syrup discharge pipe 30, this tube being provided with an adjusting screw 42 whereby the flow of water through the same may be regulated. Communication between the valve chamber 35 and the outlet chamber 36 is controlled by means of a valve 43, preferably of disk form which moves toward and from the valve seat 37 between these chambers. This valve disk is mounted on the inner reduced part 44 of a valve stem, the outer enlarged part 45 of which slides in the outer part of the discharge or delivery chamber 36 so that the outer extremity of this stem is exposed on the exterior of the valve casing 34. The valve disk 43 is mounted on the reduced part of the valve stem 44 by a screw nut 46 and this valve is yieldingly held in its closed position and its stem is held in its projected position beyond the side of the valve casing 34 by a spring 47 arranged in the valve chamber 35 and bearing at one end against the screw nut 46 and at its other end against the screw cap 38, as shown in

Fig. 5. Leakage of the liquid past the outer enlarged part 45 of the valve stem is prevented by means of a cup-shaped packing 48 which bears against a shoulder 49 on this valve stem and engages its peripheral part with the bore of the outlet chamber 36 so that any internal liquid pressure against this cup will press its flanged periphery against the bore of the chamber 36 and thus cause the same to operate as an effective packing for preventing leakage at this point.

The inward movement of the valve stem 44, 45 for the purpose of opening the valve disk 43 is effected in unison with certain parts of the rotation of the valve plug 17 so that water may be discharged from the bowl simultaneously with the syrup mixed therewith, or water may be discharged from the bowl independently of the mixture therewith of any sweetening syrup when a customer desires an unsweetened drink. This is accomplished by providing the hub of the operating handle 23 with two cams or tappets 50, 51, which project laterally from the hub of this arm at different points on the circumference thereof, as shown in Fig. 4 and adapted when in certain positions of this rock arm and the syrup valve plug to engage with the outer end of the valve stem 45 and press the latter inwardly, so as to open the water valve disk 43. In the position of the parts shown in Figs. 1, 3 and 4, the operating handle 23 is shown in an upright position in which the discharge of syrup from the measuring chamber is cut off and the mixture water cam 50 projects downwardly from the hub of this arm while the clear water cam 51 projects rearwardly therefrom. Upon now moving the rock arm 23 forwardly from its upright position so as to cause a discharge of syrup from the measuring chamber into the mixing bowl 31 the mixed water cam 50 will engage with the outer end of the valve stem 45 upon effecting a forward movement of one-eighth of a circle of the rock arm in that direction, thereby moving the water valve disk 43 from its seat and permitting soda water to flow from the supply passage 39 through the chambers 35 and 36 and out through the pipe 41 into the syrup discharge pipe or tube 30, so that thereafter this water becomes mixed with the syrup in the tube 30 and the bowl 31 before being delivered to the glass which is served to the customer. This flow of water will continue so long as the rock arm or handle 23 is in this position, but the flow of syrup will terminate when the chamber 18 has been emptied of its contents. The proper proportion of the amount of syrup and soda water is, however, maintained by reason of the capacity of the glass designed to receive the same, as in practice the delivery of soda water is cut off

by the backward turning of the handle 23 by the operator when the glass of the customer has been filled to the required height. Such cutting off of the further discharge of soda water occurs during the first part of the backward movement of the handle 23 at which time the mixed water cam or tappet 50 is moved away from the outer end of the valve stem 45 and permits the spring 47 to close the water valve disk 43.

If the customer desires a glass of soda water which is clear or unmixed with any sweetening agent, this can be accomplished by merely moving the handle 23 backwardly from its upright position one-eighth of a circle in which case the clear water cam or tappet 51 is moved from the position shown in full lines in Fig. 4 to a position in which it engages with the outer end of the valve stem 45 and thereby opens the soda water valve disk 43 and permits the flow of soda water into the bowl 31 and to the glass of the customer without any syrup being added thereto. Upon again moving the handle 23 into its upright or neutral position, the discharge of soda water is again cut off by operation of the spring 47.

Although the parts so far described may be mounted in any suitable manner for conducting the supply of syrup and soda water thereto and also forming the balancing column of syrup in connection with the liquid vent of the syrup controlling valve, this is preferably accomplished in the following manner:

52 represents the enclosing casing or wall of the cooling chamber which preferably has the form of a barrel and which is adapted to contain ice or other refrigerating medium for the purpose of keeping cool the syrup which is to be served and anything else which may be stored in this cooling chamber. The casing of this cooling chamber may be supported by any suitable means such as the table 53. Secured at its inner end in an opening 54 in the lower part of the cooling chamber is a horizontal conduit 55 to the outer end of which the body 10 of the valve mechanism is detachably connected. For this purpose the rear side of this valve body is provided with a vertical coupling face 56 and the front end of the conduit 55 is provided with a vertical coupling face 57 which is engaged by the corresponding face 56 of the valve body. Although various means may be employed for connecting the valve body 10 and the conduit 55, it is preferable to employ for this purpose a plurality of screws 70 passing through flanges 71 on the front end of the conduit 55 and into the rear side of the valve body 10, as shown in Fig. 5.

The syrup inlet passage 13, liquid vent passage 15 and the water supply passage 39 open through the rear coupling face 56 of

the valve body and communicate respectively with the adjacent ends of a syrup supply pipe 58, liquid standpipe 59 and water supply pipe 60. The lower parts of the pipes 58, 59 and 60 are arranged within the conduit 55 and secured to a head 61 at the front end of the same. It is thus possible to freely connect and disconnect the valve body 10 and the conduit 55 whenever this is necessary for cleaning, inspection or repairs without involving any considerable loss of time and without necessitating any adjustment of the parts for again fitting the valve body to the conduit 55.

The syrup supply pipe 58 leads to a syrup supply tank or reservoir 62 which is arranged in the upper part of the cooling chamber where the same is maintained at the right temperature by the cooling agent therein, the liquid vent pipe 59 extends upwardly to a point above the liquid level in the syrup tank 62 and is open at its upper end, and the soda water supply pipe 60 leads to a source of supply, for instance, through the bottom of the cooling chamber and the table 53, as shown in Fig. 1.

The valve mechanism embodying our invention is very compact in construction considering that the same performs the dual function of supplying either clear water or water with a sweetened agent added thereto. Furthermore, the construction of this valve mechanism is such that by the use of the same handle either clear water or sweetened water may be served to a customer by simply moving this handle either in one direction or another from a central or a neutral position, thereby avoiding confusion on the part of the attendant and saving his time and enabling him to serve a larger number of customers which is particularly important during rush hours. Moreover, this dispensing device contains no delicate parts which are liable to get out of order by rough usage, it is neat in appearance and it can be readily dismembered for cleaning and inspection and again replaced with ease and facility, so that undue interruption in the use of the apparatus is avoided.

We claim as our invention:

1. A beverage dispensing device comprising a syrup valve casing provided with a

circular bore and a syrup inlet passage and a syrup outlet passage opening into different parts of said bore, a rotary valve plug arranged in said bore and having a measuring chamber and inlet and outlet ports in different parts thereof which are adapted to register respectively with said inlet and outlet passages, a water valve casing having a circular bore, a water inlet passage adapted to be connected with a source of supply, a water outlet passage leading into said syrup outlet passage, and a valve seat between said inlet and outlet, a longitudinally movable stem arranged in said water valve casing and having a valve disk movable toward and from said valve seat, a spring for yieldingly holding the water valve disk against its seat, and a rock handle arranged on said syrup valve plug and provided with a cam adapted to engage said water valve stem for opening the water valve.

2. A beverage dispensing device comprising a syrup valve casing provided with a circular bore and a syrup inlet passage and a syrup outlet passage opening into different parts of said bore, a rotary valve plug arranged in said bore and having a measuring chamber and inlet and outlet ports in different parts thereof which are adapted to register respectively with said inlet and outlet passages, a water valve casing having a circular bore, a water inlet passage adapted to be connected with a source of supply, a water outlet passage leading into said syrup outlet passage, and a valve seat between said inlet and outlet, a longitudinally movable stem arranged in said water valve casing and having a valve disk movable toward and from said valve seat, a spring for yieldingly holding the water valve disk against its seat, and a rock handle arranged on said syrup valve plug and provided with two cams one of which is adapted to operate said valve stem for discharging water simultaneously with the discharge of syrup from said measuring chamber and the other to operate said valve stem for discharging water independently of the syrup valve.

In testimony whereof we affix our signatures.

FREDERICK W. HOLDERLE.
CARL L. HOLDERLE.