

D. E. J. NOONAN.

FAUCET.

APPLICATION FILED FEB. 28, 1910.

1,030,322.

Patented June 25, 1912.

3 SHEETS—SHEET 1.

FIG. 1.

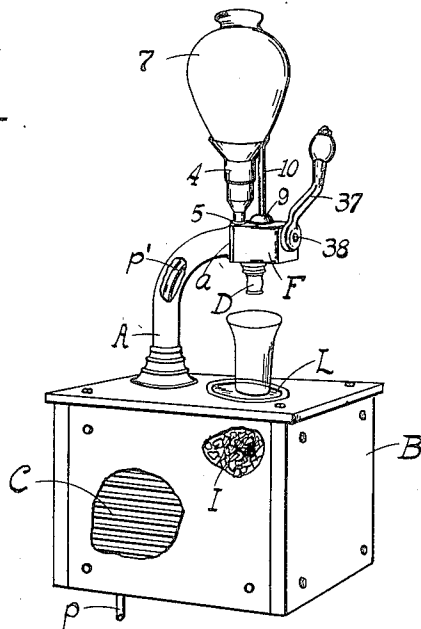
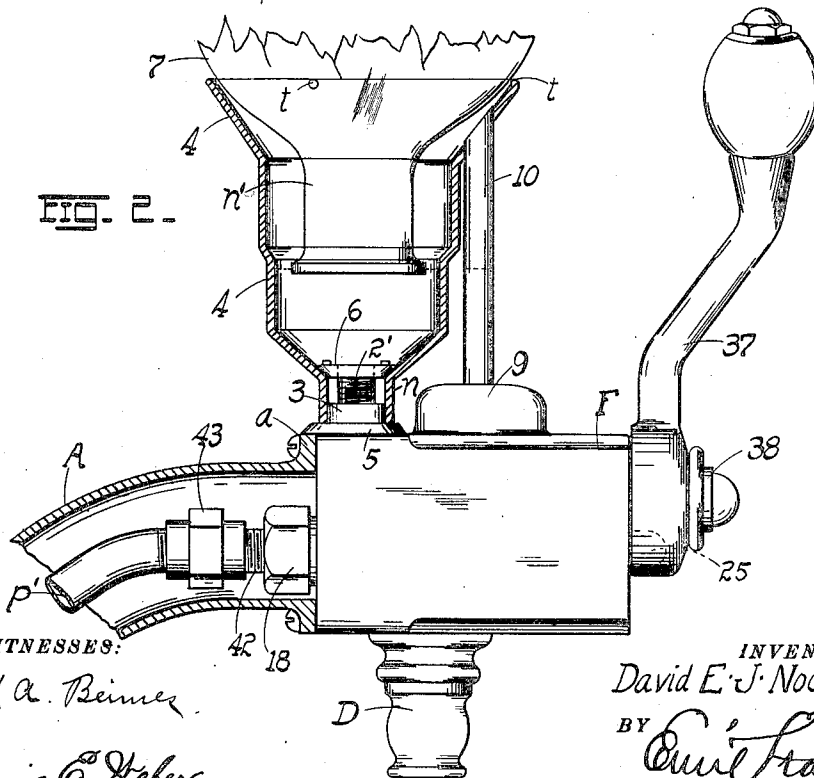


FIG. 2.



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3 SHEETS-SHEET 2.

FIG. 3.

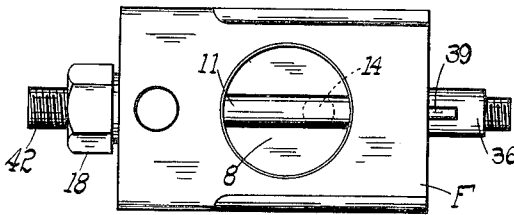


FIG. 5.

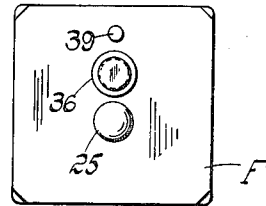


FIG. 4.

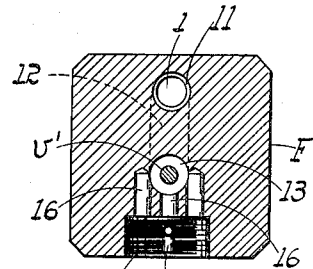
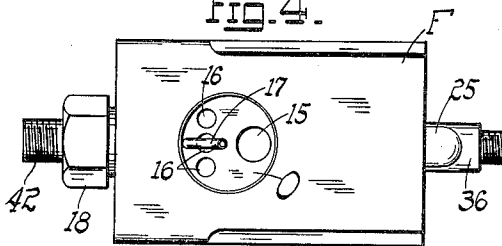


FIG. 6.

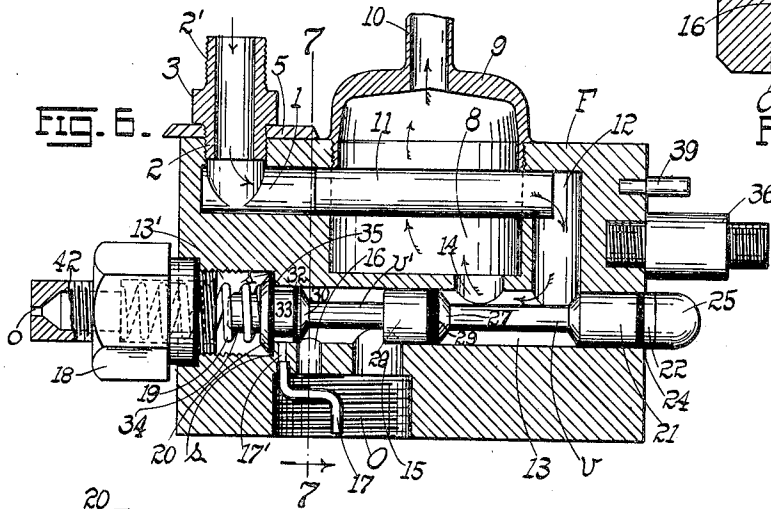
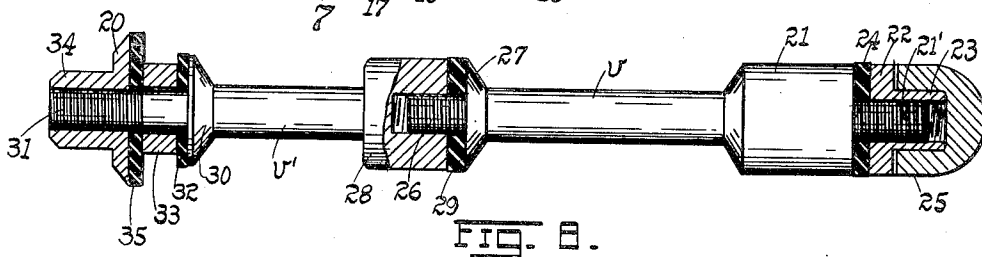


FIG. 7.



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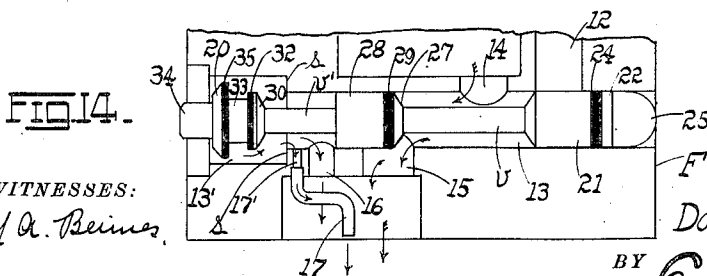
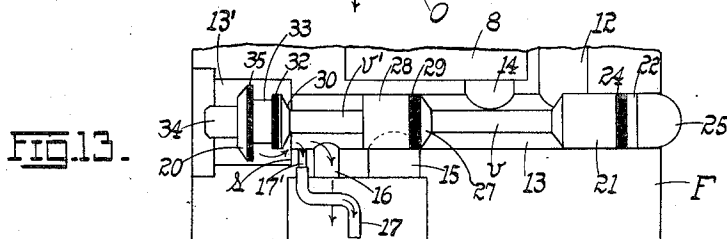
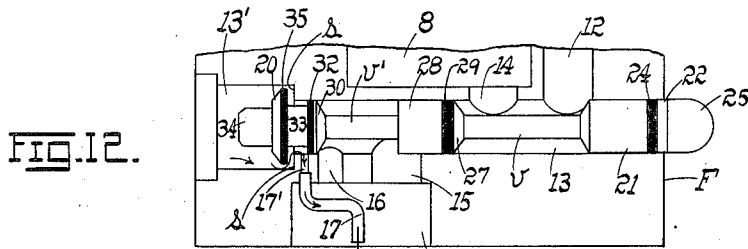
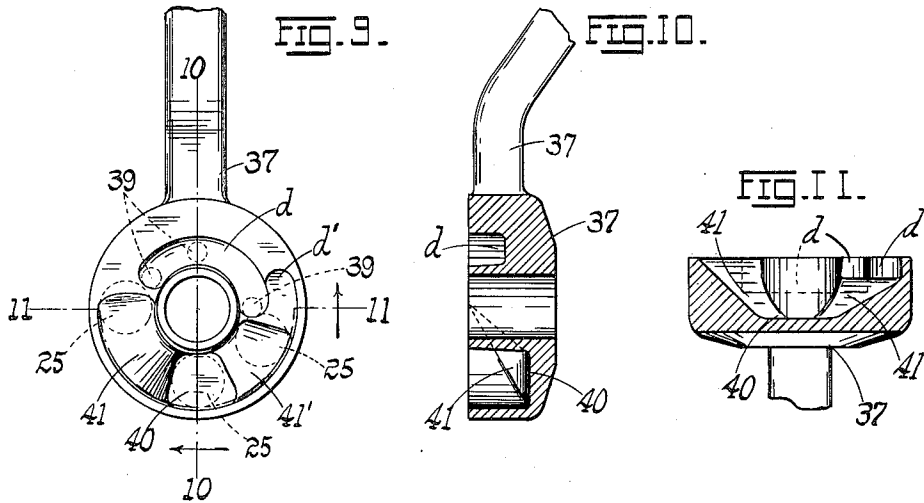
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3 SHEETS—SHEET 3.



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FAUCET.

1,030,322.

Specification of Letters Patent.

Patented June 25, 1912.

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To all whom it may concern:

Be it known that I, DAVID E. J. NOONAN, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Faucets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in faucets for carbonated beverages; and it consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a perspective of the faucet mounted over the refrigerator box containing the coil of the water-pipe, and serving as a platform for the tumblers, parts being broken away; Fig. 2 is a side elevation of the faucet, with part of syrup container or jar, and sealing well and supporting arm in section; Fig. 3 is a top plan of the faucet with hood of the syrup receptacle, and operating lever removed; Fig. 4 is a bottom plan of Fig. 3; Fig. 5 is a front end view of the faucet, with the operating lever removed; Fig. 6 is a middle vertical longitudinal section of the faucet proper, parts being in elevation; Fig. 7 is a vertical transverse section (somewhat reduced) on the line 7—7 of Fig. 6; Fig. 8 is an enlarged middle longitudinal section of the liquid-controlling valve-piece showing the details of its construction; Fig. 9 is an inner face view of the circular basal portion of the operating member or lever; Fig. 10 is a longitudinal section on the line 10—10 of Fig. 9; Fig. 11 is a cross-section on the curved line 11—11 of Fig. 9; and Figs. 12, 13 and 14 are diagrammatic views showing the positions of the valve piece for respectively releasing a fine stream of water, a coarse stream of water, and a mixture of water (coarse stream) and syrup.

The present invention is directed to a faucet for dispensing carbonated beverages either in the form of a mixture of carbonated water and syrup, or carbonated water alone, the invention having for its objects (1) to provide a faucet in which the discharge of the respective liquids shall be controlled by the movements of an

operating member actuating a valve-piece to effect a discharge of either form of drink; (2) to provide a syrup-measuring receptacle which automatically fills from a well in which a constant level of the liquid is maintained from a suitable syrup container, the liquid flowing by gravity into the well from the container, and from the well into the receptacle where it reaches a corresponding level; (3) to provide the operating member (a lever in this case) with suitable valve-actuating cam formations by which, with a movement of the member in one direction, the contents of the measuring receptacle is discharged into the glass or tumbler, while the main supply from the well is cut off, and a suitable mixture of syrup and water is effected within the faucet-body; (4) to provide the operating member with a distinct formation by which with a movement of the member in the opposite direction the valve-piece is actuated to positions for successively releasing fine and coarse streams of water without the syrup; (5) to provide specific means for mounting the faucet above the counter and chilling the water supplied thereto; and (6) to provide further and other structural details, the advantages of which will be fully apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, B represents a conventional form of refrigerator box preferably made of marble, the top of the box serving as a platform for supporting the tumblers from which the drinks are served. The platform is provided with a lid L for covering up the opening through which the ice I is inserted into the box. Traversing the box is a pipe coil C having a bottom pipe *p* leading therefrom to any suitable source of carbonated water supply, (not shown), and an upper pipe extension *p'* coupled directly to the faucet body F. The faucet is supported by a hollow arm A a suitable distance above the platform as shown, the arm terminating in a flange *a* which is screwed to the back of the faucet-body. The manner of connecting the pipe *p'* to the faucet will be referred to later on.

Leading from a horizontal passage-way or chamber 1 at the top of the rear of the

faucet body is a tube 2 provided with an outer limiting collar 3 and an upper terminal screw-threaded portion 2', the collar receiving the neck *n* of a sealing vessel or open well 4 resting on a plate 5 at the base of the collar, the well being rigidly secured in position by a nut 6 passed over the portion 2' and screwed forcibly against the conical walls of the basal portion of the well. The well receives the mouth or neck *n'* of an inverted syrup-supply jar or container 7 which discharges into the well, the level of the syrup in the well never rising above the plane of the discharge opening of the mouth *n'* of the jar, a liquid seal being formed at this plane which prevents the main body of the liquid in the jar from rising above the seal on account of atmospheric pressure exerted on the liquid in the well. In the center of the top of the faucet body is formed a syrup receptacle or basin 8 protected by a hood 9 from which leads a vent-tube 10 which discharges into the well at a point above the liquid therein. Leading from the passage-way or chamber 1, and spanning the basin 8 at a suitable distance from the bottom thereof is a pipe or conduit 11 which discharges into an opposite passage 12, the discharge bottom end of the latter communicating with the longitudinally disposed valve passage-way 13. The latter communicates with the basin 8 through a port 14 in the bottom of the basin. The syrup when left free to flow passes from the well 4 into pipe 2, thence through passages 1 and 11, into passage 12, thence into passage-way 13 and through port 14 into the basin 8, the syrup rising till it fills the basin, its hood 9, and the vent-tube 10 up to a level corresponding to that in the sealing well 4. The basin 8 with its hood 9 may be considered as a measuring receptacle since the contents thereof (and what little is present in the vent-tube) determines the quantity of syrup to be dispensed with each drink. The discharge opening *O* at the bottom of the faucet is provided with a discharge nozzle *D* as usual, the opening *O* communicating with the valve passage-way 13 through the syrup port 15, and the water ports 16, as shown, a fine-stream discharge tube 17 leading out of a port 17', forming additional means for conducting the carbonated water to the nozzle *D*.

The rear end of the passage-way 13 is enlarged into a chamber 13' forming an annular shoulder *s* serving as a seat for the adjacent end of the controlling valve-piece to be later more particularly described. The chamber 13' is closed by a screw-plug 18 provided with a socket for the reception of a compression spring 19 by which the valve piece is normally forced to closed position, the spring bearing against the adjacent terminal disk or head 20 of the valve-piece.

The valve-piece which is of the reciprocating piston variety is preferably constructed as follows:—The stem is composed of two sections *v*, and *v'*, respectively (Fig. 8) the front section *v* terminating in an outer head 21 provided with a terminal screw-stem 21' over which is screwed a washer or ring 22 provided with an outer hollow nipple 23, which is likewise supported by the screw-stem 21'. A suitable packing ring 24 is interposed between the head 21 and the ring 22, the nipple 23 serving to support a terminal cap-piece 25 which directly engages the cam-formations on the operating member or lever to be later more particularly described. The opposite end of the section *v* terminates in a screw-stem 26 leading from the basal flange or disk 27, the stem being screwed into a socket of the adjoining head 28 on the stem section *v'*, a suitable packing ring 29 being interposed between the parts. The rear end of the stem *v'* is provided with a flange or disk 30 from which extends a screw-stem 31, the base of the stem having passed thereover a packing ring 32 protected by a metal ring or washer 33. Over the projecting portion of the stem 31 is finally passed a socket 34 provided with the enlarged circular head 20 previously referred to, a packing ring 35 being interposed between it and the washer 33, the ring 35 seating against the shoulder *s*. It will be observed that the packing ring 32 is somewhat larger in diameter than the washer 33, making as it does a tight joint with the valve passage-way 13, whereas the washer has a slight annular clearance around it for a purpose presently to appear. The spring 19 as shown envelops the socket 34 and bears directly upon the head 20. It will be seen from the foregoing that the sectional character of the valve-piece permits the ready disjoining of the sections for the purpose of renewing the packing rings 24, 29, 32, 35, on which dependence is placed for effecting tight joints in the operation of the valve-piece.

Projecting from the front of the faucet-body above the valve-piece is a stud 36 about which is free to oscillate the operating lever or member 37, a nut 38 passed over the terminal screw-threaded end of the stud keeping the lever in place. This feature however, is not new and not claimed herein. The inner face of the circular base of the lever has formed thereon a curved groove or depression *d* having terminal abrupt walls or ends which the limiting pin 39 projecting from the front wall of the faucet engages for arresting the throw of the lever in either direction, the pin operating permanently in said groove. It will be seen that the groove (Fig. 9) is not disposed symmetrically about the continuation of the central line or axis of the lever when the latter is swung to its

central vertical position, more of the groove lying on the side which is to the left of the operator (on the right as view from the inner face of the base of the lever in Fig. 9).

5 This permits a larger throw of the lever to the right (from a vertical central position) than to the left, this difference in throw being availed of in the operations of the valve-piece as presently to be seen. Opposite the groove *d* is formed a cavity or depression 40 from one end of which leads an inclined wall 41, the same disappearing in the plane of the inner face of the base of the lever near one end of the groove *d*, and 10 from the other end of the cavity leads a shorter inclined wall 41' which merges in the base of a pocket *d'* formed adjacent the opposite end of the groove *d*. It follows therefore, that the perpendicular distances 20 from the base of the cavity 40 to the outer edge of the wall 41 is greater or deeper than the corresponding distance to the outer edge of the wall 41', the difference being represented by the depth of the pocket *d'*. Now, 25 these walls 41, 41' play over the terminal exposed cap-piece 25 of the valve-piece, and as the lever is oscillated to the right or left, the walls 41, 41' (acting as cams) force the valve-piece inwardly a distance represented 30 by the perpendiculars of triangles of which the said inclined walls may be considered as the hypotenuses. It thus follows that with a full right-hand throw or swing of the lever 37 the valve-piece will be forced inwardly 35 a greater distance than with a throw to its full distance to the left, the lever being limited in either direction by the arresting pin 39 striking the end wall of the groove *d*. The larger right-hand throw of the lever 40 is thus accompanied by a greater movement of the valve-piece which results in a combined discharge or release of water and syrup, the same mixing within the faucet and before escaping from the nozzle D, the 45 lesser left-hand throw of the lever imparting only a partial inward movement to the valve-piece which thereby releases the water only, first as a fine stream and subsequently as a coarse stream, as will be clearly apparent when the operation of the device is 50 fully detailed. It may be stated in passing that the pocket *d'* is not really essential, being merely the result of the removal of metal which is neither needed nor wanted. 55 It defines the upper terminal of the incline 41' at which terminal the throw of the lever is arrested by the pin 39 striking the right-hand end of the groove *d*; so that even were there no pocket present the cap-piece 25 60 could not ride any higher along the wall 41' on account of the arrest of the lever 37 by the pin 39. The pocket *d'* therefore, represents metal which is removed and saved for other purposes (the faucet being of brass).

65 The operation of the faucet may be de-

scribed as follows:—When the valve-piece is left undisturbed, the spring 19 forces the head 20 with its packing ring 35 to its seat against the annular shoulder *s* (Fig. 6). For that position of the valve-piece, the cap-piece 25 extends beyond the faucet into the 70 cavity 40 of the operating lever ready to be engaged by either wall or cam 41, 41'. The formation or head 28 of the valve-piece about half overlaps the syrup port 15, the 75 ring 32 occupying a position just on the edges of the water ports 16. If now we gradually swing the lever 37 to the left so as to cause the cap-piece 25 to ride up the incline 41', it follows that the valve-piece 80 will be unseated (Fig. 12). The moment however, the packing ring 35 leaves its seat, by which time the ring 32 has not as yet moved across the port 17' the water which is under great pressure rushes into the clearance 85 formed around the washer 33, and being intercepted by the ring 32 is diverted through the port 17' into the tube 17 whence it discharges as a fine stream of water into the nozzle D. When the lever is swung to 90 its full limit to the left (where it is arrested by the pin 39 coming in contact with the terminal right-hand wall of the groove *d*) the ring 32 has passed the shoulder *s* (Fig. 13) thus permitting the water to flow into 95 the large water ports 16, and discharging as a coarse stream. No syrup however, has been discharged as the head 28 has not as yet opened communication between the valve passage-way 13 and the syrup port 15. To 100 accomplish this the lever must be swung to the right so that the longer and deeper cam 41 may actuate the valve-piece. Of course, by swinging the lever to the right, the identical discharge of water only, may 105 be effected if the operator should graduate the throw (of the lever); but this would be a delicate and impractical method. So that when the lever is swung to the right, it is expected that a mixed or conjoint discharge 110 of water and syrup shall be effected. By therefore swinging the lever to the right, the cap-piece 25 riding as it does over the deeper incline 41 will be forced its maximum distance inwardly (Fig. 14), the head 28 in 115 such movement of the valve-piece passing partially across the syrup port 15 and thus releasing the syrup which runs from the bottom of the receptacle through the port 14 into the valve passage-way 13 around the 120 stem-section *v*. For this innermost position of the valve-piece however, the head 21 has moved across the port 12, thus preventing any syrup from escaping from the well 4 until the valve-piece has resumed its normal 125 position when the syrup may again flow into the measuring receptacle and fill it, the syrup flowing from the passage-way 12 into the passage-way 13 around the valve-stem section *v*, and up through the port 14, then 130

rising in the receptacle and vent tube thereof up to the level of the liquid in the well 4 (Fig. 6). As the syrup from the well is withdrawn, fresh syrup runs into it from the container 7. Upon releasing the operating member at the end of a stroke in either direction, the spring 19 will force the valve-piece back to closed position, the cap-piece 25 sliding down the incline (41, 41') as it were and throwing the lever upwardly until the cap-piece reaches the bottom of the incline, that is to say, the cavity 40. It is better practice however, for the operator to relieve the spring by throwing the lever back to starting position the moment the proper quantity of soda has been served.

It will be noticed that the bottom of the screw-plug 18 is provided with an outer screw-threaded stem or nipple 42 provided with a constricted port or perforation *o* through which the charged water is forced into the chamber 13'. The pipe *p'* is coupled to the stem by any convenient form of union 43.

Obviously, the positions of the cams 41, 41' might be reversed, but in that case the groove *d* and pocket *d'* would be reversed, so that the larger sweep would be to the left, and the short sweep of the lever would be to the right. It will be noticed that the present faucet has but a single valve-piece engaging the operating lever, the movements of such valve-piece determining the character of drink to be dispensed—water alone, or water and syrup mixed.

By a "conjoint" discharge as used herein, is not necessarily meant an absolutely simultaneously discharge of the water and syrup, but a mixed discharge, for in practice the water would obviously precede the syrup somewhat, though the two would mix in the faucet before they emerged from the discharge nozzle D.

To insure that the air may freely enter the well 4 around the jar 7, the walls of the latter may be spaced at intervals from the upper edge of the well by teats or knobs *t* formed on such edge. This leaves a sufficient space or crack between the jar and well, although even without such teats the contact is never sufficient between the parts as to make a tight joint.

Having described my invention, what I claim is:—

1. A faucet comprising a body portion chambered for the passage of water and syrup from suitable sources of supply and having a discharge opening, suitable fine and coarse stream water-passage-ways spaced apart and connecting said water-supply source with the discharge opening, a movable valve-piece provided with a valve or formation for releasing the water from the supply source to the fine stream passage-

way with a definite range of movement of the valve-piece, with a second formation or valve spaced from the first valve for releasing the water from the supply source to the coarse-stream passage way with a further range of movement of the valve-piece in the same direction, with a third valve or formation for releasing the syrup from the supply source with a still further range of movement in the same direction, a seat on the faucet body for the first mentioned valve, the water being adapted to flow through the coarse-stream passage-way upon a movement of the second valve past the valve-seat aforesaid, and during the flow of the syrup.

2. A faucet comprising a body portion chambered for the passage of water and syrup from suitable sources of supply, and having a discharge opening, suitable fine and coarse stream water-passage-ways spaced apart and connecting said water-supply source with the discharge opening, a reciprocating valve-piece provided with a valve for releasing the water from the supply source to the fine stream passage-way with a definite range of stroke of the valve-piece, with a second valve spaced from the first valve for releasing the water to the coarse-stream passage-way with a further range of stroke in the same direction, with a third valve for releasing the syrup with a still further range of stroke in the same direction, a seat on the faucet body for the first mentioned valve, the water being adapted to flow through the coarse-stream passage-way upon a movement of the second valve past the valve-seat aforesaid, and during the flow of the syrup.

3. A faucet comprising a body portion chambered for the passage of water and syrup from suitable sources of supply, and having a discharge opening, suitable fine and coarse stream water-passage-ways spaced apart and connecting said water-supply source with the discharge opening, a reciprocating valve-piece provided with a valve for releasing the water from the supply source to the fine-stream passage-ways with a definite range of stroke of the valve-piece, with a second valve spaced from the first valve for releasing the water to the coarse-stream passage-way with a further range of stroke in the same direction, with a third valve for releasing a measured quantity of the syrup with a still further range of stroke in the same direction, a seat on the faucet-body for the first mentioned valve, the water being adapted to flow through the coarse-stream passage-way upon a movement of the second valve past the valve-seat aforesaid, and during the discharge of the syrup.

4. In combination with a faucet having a reciprocating control-valve, an oscillating

lever having a basal portion provided with a
cavity terminating in outwardly inclined
walls of different depths, said walls engag-
ing the valve, whereby with an oscillation
5 of the lever in one direction the valve is ac-
tuated a distance in excess of that to which
it is moved by an oscillation of the lever in
the opposite direction.

In testimony whereof I affix my signa-
ture, in presence of two witnesses.

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