

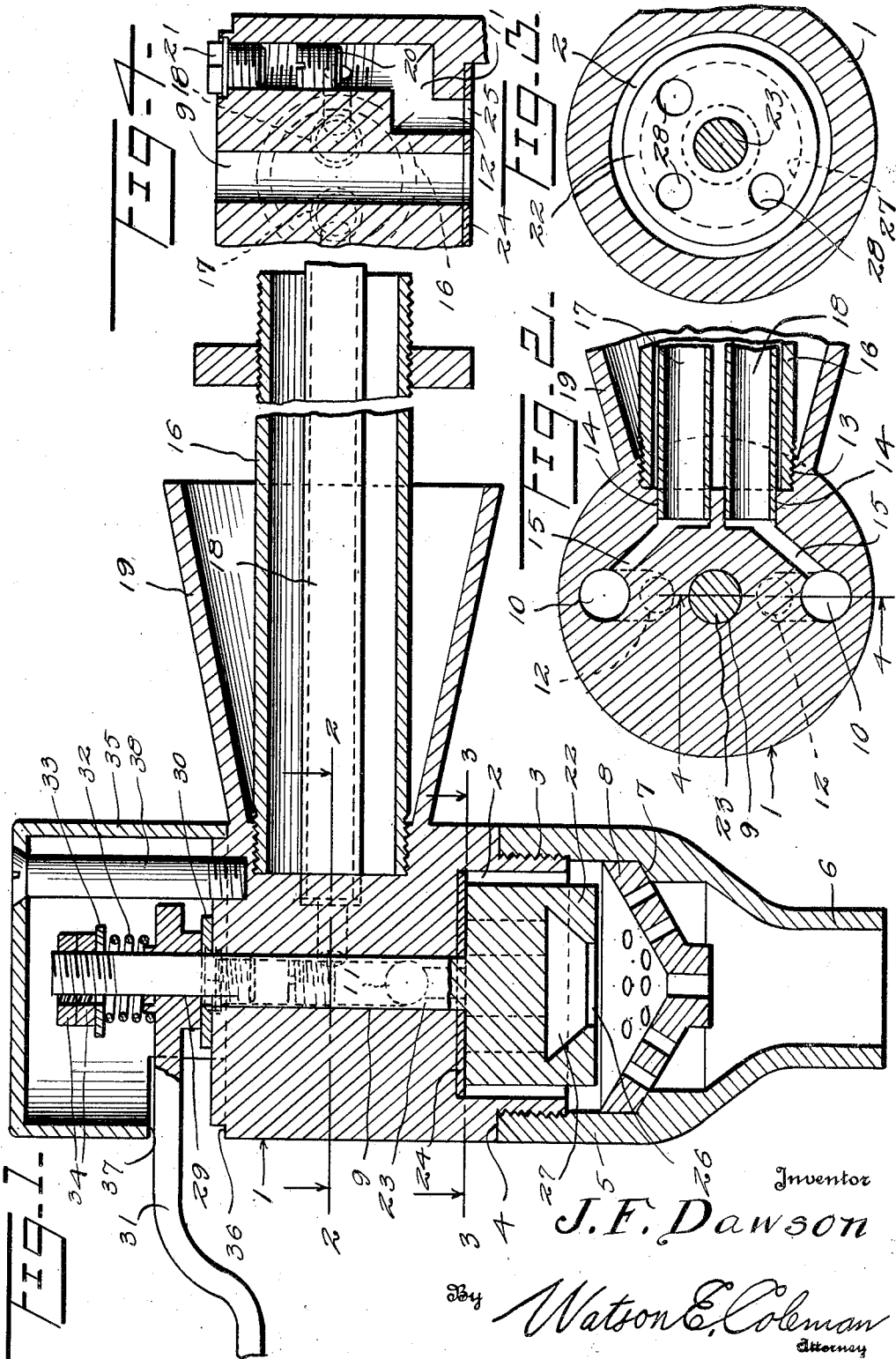
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MIXING FAUCET

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MIXING FAUCET

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This invention relates to the class of faucets and pertains particularly to a mixing faucet.

The primary object of the present invention is to provide a faucet designed primarily for use in association with soda fountains or other beverage dispensing devices whereby a flavoring syrup and carbonated water may be discharged simultaneously and mixed ready for use.

Another object of the invention is to provide a mixing faucet of a design whereby in addition to dispensing syrup and carbonated water together, carbonated water alone may be dispensed as desired.

A still further object of the invention is to provide a mixing faucet having a novel valve construction and a novel means for baffling and thoroughly mixing together the syrup and carbonated water passing there-through.

Still another object of the invention is to provide a mixing faucet of novel assembly wherein a single resilient element operates to maintain a valve actuating handle in operative position and also operates to maintain the valve firmly upon its seat at all times.

Other objects and advantages of the invention will become apparent as the description of the same proceeds and the invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:—

Figure 1 is a vertical longitudinal sectional view through the faucet structure embodying the present invention;

Figure 2 is a sectional view taken upon the line 2—2 of Figure 1;

Figure 3 is a sectional view taken upon the line 3—3 of Figure 1;

Figure 4 is a sectional view taken substantially upon the line 4—4 of Figure 2.

Referring now more particularly to the drawing wherein like numerals of reference indicate corresponding parts throughout the several views, the numeral 1 indicates the main body portion of the valve embodying the present invention. As shown, this body comprises a single or solid piece of metal, preferably of circular cross section, having a recess 2 formed in one end and having this end exteriorally reduced and provided with the screw threads 3. This reduction of the exterior diameter of the body forms a shoulder 4 against which abuts the larger end of the nozzle 5. The other end of this nozzle is constricted as indicated at 6 and within the larger end portion thereof there is formed the supporting shoulder 7 upon which is positioned the apertured conical baffle plate 8. As shown this baffle plate is so arranged as to have the concave side directed upwardly toward the recess 2 in the adjacent end of the body 1.

Formed through the body 1 upon the longitudinal center thereof is a valve stem bore 9 which opens through the opposite end of the body 1 as shown, which ends constitutes the top of the body. In addition to this bore 9 there are formed in the body, preferably at diametrically opposite points, the vertical passages 10 and 11, the upper ends of which open through the top of the body, while the lower ends communicate with lateral passages 12 which are directed inwardly toward the center of the body and these communicate with the vertically arranged outlet passages 13 which discharge through the bottom of the body into the recess 2.

The side of the body 1 has formed therein the circular recess 14, the wall of which is screw threaded, and in the bottom of this circular recess 14 are formed the pockets 15 each of which is in communication with a passage 16 through the medium of the laterally directed passages 17. The recess 14 is provided to receive one end of the tubular casing 18 through which there extends the two pipes 19 and 20 each of which has one end secured in any suitable leak-proof manner in a pocket 14. These pipes 19 and 20 have the carbonated or "soda" water and syrup receptacles of

the structure in association with which the faucet is used, connected therewith. Surrounding the end of the tubular casing 16 which is joined to the faucet body 1 is a shield-like body 19 which may be cast integral with the body 1 or may form a separate part thereof, as desired. This body 19 serves to space the faucet body from the structure to which the faucet is connected.

Each of the passages 10 has screw threads formed in the wall thereof and there are threaded into the passages the flow control screws 20, each of which is run into the point where it partially closes the adjacent lateral passage 15. By means of these screws the quantity of water or syrup entering the passages 10 may be regulated. The upper end of each passage is closed by a cap screw 21 to prevent matter entering the passage and thus interfering with the movement of the flow controlling screw 20.

Disposed within the recess 2 is a valve 22 which is in the form of a cylindrical body having flat end faces. This valve body 22 has extending from the center of one end face the stem 23 which passes through the bore 9 and projects a substantial distance beyond the top of the body 1 when the face of the body 22 from which it extends, is in position against the washer 24 which covers the bottom of the recess 2. This washer 24 is preferably formed of leather and has apertures 25 therein for registration with the outlet ends 12 of the passages 10. The top face of the body 22 bears against this washer.

The bottom face of the valve body 22 has an opening 26 formed therein which opens upwardly into a relatively large chamber 27, the wall of which is sloping as shown. Extending longitudinally through the valve body and concentrically disposed about the longitudinal center thereof are three passages each of which is indicated by the numeral 28, the circle upon which these passages are formed being of the same diameter as the circle upon which the centers of the outlet passages 12 are formed so that upon turning the body 22 in the proper direction a pair of passages 28 may be brought into registration with the passages 12 or by turning the valve in the opposite direction one only of the passages 28 may be brought into registration with one of the passages 12, preferably the water delivery passage.

The upper end of the stem 23 is flattened through a portion of its length as indicated at 29 and is also screw threaded as shown. This portion of the stem projects beyond the top of the body 1 and there is placed about it upon the body, the metal washer 30 against which bears the inner end of the valve operating handle or lever 31, this end of the lever being provided with a suitable aperture to receive the upper end of the stem, which aperture is flattened along one side to engage

the flat surface 29 thereof. Surrounding the upper end of the stem and bearing upon the inner end of the lever 31 is a coil spring 32 upon the upper end of which rests a washer 33 against which bears the under one of a pair of nuts each of which is indicated by the numeral 34 and which, as shown, are threaded onto the stem. By this means it will be readily seen that the handle or lever 31 is frictionally held in any position to which it is turned and also the top face of the valve body 22 is drawn up into firm contact with the washer 24.

Covering the upper end of the body 1 is a cap 35 which is in the form of a circular shell having the upper end closed, while the lower end receives a portion of the body 1 and has the edge of its wall positioned against the shoulder 36 formed therein. A portion of the wall of this cap is cut away to form the opening 37 through which the handle 31 extends.

As will also be readily understood the side edges of this opening limit the swinging movement of the handle so that it will be stopped in the proper position when swung in one direction to open both discharge passages 12 for the drawing off of syrup and carbonated water and when swung in the opposite direction to uncover a single one of the passages 12, preferably the water passage, so as to discharge carbonated water only.

The cap 35 is secured in position by one or more screws 38 which extend downwardly through the top thereof and engage in the top of the body 1, as illustrated in Figure 1.

In the operation of the present faucet the body is mounted in position against the soda fountain or other structure in association with which it is used with the broad end of the shield 19 abutting the same and the pipes 17 and 18 are connected with suitable syrup and carbonated water receptacles. The screws 20 in the passages 10 are then adjusted so as to permit the desired amount of water and syrup to flow from the passages 15 and after the other parts are assembled in the manner shown in Figure 1 the faucet is ready for use.

In assembling the faucet the valve body 22 is so positioned against the washer 24 that when the handle 31 extends straight forwardly from the body both of the outlet ends 12 of the passages 10 will be covered.

It will thus be seen that when the handle 31 is swung in one direction to the limit of its movement the two diametrically oppositely positioned passages 28 of the valve will register with the passages 12 and thus permit both carbonated water and syrup to flow into the upper part of the nozzle 5 onto the perforated baffle plate 8 from which they will then pass through the restricted portion 6 of the nozzle in mixed condition. When the handle is swung over to the opposite side to the limit of its movement the third aper-

ture 28 will register only with the carbonated water outlet passage, thus permitting the draw-off of carbonated water without syrup mixed therewith.

5 It will also be readily seen from the foregoing that the present faucet structure is relatively simple in that only a single holding element maintains the movable parts thereof in operative position which element
10 is the nut 34 on the upper end of the spring 32. It will also be seen that this spring 32 serves the two-fold purpose of maintaining the handle 31 in any position to which it is moved and also by drawing up upon the stem
15 23 maintains the valve body 22 firmly in position against the washer 24. Thus any wear of the washer or valve body is compensated for immediately by the spring 22 in maintaining the valve firmly in position.

20 Having thus described the invention, what is claimed is:—

1. A mixing faucet comprising a body having a recess formed in one face and further having a pair of passages formed there-
25 through and each opening at one end into said recesses, means for connecting pipe lines with said passages, a valve element comprising a relatively thick body having a pair of passages therethrough and positioned within
30 said recess with one face overlying the ends of the body passages opening thereinto, a chamber formed in said valve body and having said apertures opening thereinto, means for rotatably securing the valve body in position in the recess, means for rotating said
35 valve body whereby the apertures therein may be brought into registration with said passages, and a nozzle secured to said first body and closing said recess.

40 2. A mixing faucet comprising a body having a recess in one face and a pair of passages therethrough each opening into said recess through the bottom thereof, means for connecting a pipe with each of said passages, a
45 circular valve element positioned in said recess and having one face overlying the bottom thereof, said valve element having a pair of apertures therethrough arranged for registration with said passages when the ele-
50 ment is rotated to one position, a stem carried by the valve element and carried through the body, a handle attached to said stem for facilitating the rotation of the element, a nozzle secured to said body and covering said
55 valve element to receive fluids passing through the element, a spring element surrounding said stem above said handle and having connection at one end with the stem and at the other end of the handle and op-
60 erating to maintain the handle in a set position and to maintain said valve element firmly upon its seat, and a cap member carried by the body and covering the end of the valve stem to which the handle is attached and hav-
65 ing an opening through a wall thereof

through which the handle extends, the sides of said opening limiting the movement of the handle.

3. A mixing faucet comprising a body hav-
70 ing a pair of passages therethrough each opening through one face in relatively close proximity, a circular valve element positioned before said face, a washer member interposed between said face and said element and having apertures therethrough
75 registering with the adjacent passages, said valve element having a pair of apertures therethrough for registration with said passages, the valve element having a chamber therein opening through the side opposite
80 that side contacting with said washer, said chamber being of greater diameter at its bottom than at the open side and having an inclined wall toward which the valve apertures are directed, a stem carried by the valve and
85 extending through the body, a handle secured to said stem for effecting the rotation of the valve, and a nozzle connected with the body and covering said valve.

4. A mixing faucet comprising a body hav-
90 ing a pair of passages therethrough each opening through one face in relatively close proximity, a circular valve element positioned before said face, a washer member interposed between said face and said element
95 and having apertures therethrough registering with the adjacent passages, said valve element having a pair of apertures therethrough for registration with said passages, the valve element having a chamber therein opening
100 through the side opposite that side contacting with said washer, said chamber being of greater diameter at its bottom than at the open side and having an inclined wall toward which the valve apertures are directed, a
105 stem carried by the valve and extending through the body, a handle secured to said stem for effecting the rotation of the valve, a nozzle connected with the body and covering said valve, and an apertured baffle plate
110 mounted within said nozzle and lying beneath said valve between the same and the outlet end of the nozzle.

5. A mixing faucet comprising a body hav-
115 ing a pair of passages therethrough each opening through one face in relatively close proximity, a circular valve element positioned before said face, a washer member interposed between said face and said element and having apertures therethrough
120 registering with the adjacent passages, said valve element having a pair of apertures therethrough for registration with said passages, the valve element having a chamber therein opening through the side opposite
125 that side contacting with said washer, said chamber being of greater diameter at its bottom than at the open side and having an inclined wall toward which the valve apertures are directed, a stem carried by the valve and
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extending through the body, a handle secured to said stem for effecting the rotation of the valve, a nozzle connected with the body and covering said valve, said valve having a third aperture therethrough and arranged to uncover one of said passages when the valve is rotated to one position, the other of the passages being kept closed by the valve element.

6. In a mixing valve, a body having a face constituting a valve seat and a pair of ports opening through said face, a valve body having a surface rotatably held against said seat and normally closing said ports and a pair of passages opening through said surface for registry with said ports when the body is in one position, said valve body further having a chamber therein opening through one wall and having the ports thereof opening into the chamber, and means for rotating the valve body.

7. In a mixing valve, a body having a face constituting a valve seat and a pair of ports opening through said face, a valve body having a surface rotatably held against said seat and normally closing said ports and a pair of passages opening through said surface for registry with said ports when the body is in one position, said valve body further having a chamber therein opening through one wall and having the ports thereof opening into the chamber, means for rotating the valve body, and a third passage through said valve body opening at one end through said surface and at its other end into said chamber and designed for registry with one of said ports when the valve body is rotated to one position, in which position the other ports are closed.

8. A mixing valve, comprising a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held against said seat and normally closing the ends of the passages opening there-through, said valve body having a pair of passages opening through the face opposing the seat for registration with said first passages, and apertured baffle plate disposed across said valve body and in relatively close proximity thereto to have fluids discharged thereagainst directly from the valve body, and a nozzle connected with the first body and enclosing a portion of the valve and having said plate forming a transverse partition therein.

9. A mixing valve, comprising a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held against said seat and normally closing the ends of the passages opening there-through, said valve body having a pair of passages opening through the face opposing the seat for registration with said first passages, a chamber in the valve body into which

the second mentioned passages discharge, said chamber opening through a wall of the valve body, an apertured baffle plate disposed across said valve body and in relatively close proximity thereto to have fluids discharged thereagainst directly from the valve body, and a nozzle connected with the first body and enclosing a portion of the valve and having said plate forming a transverse partition therein.

10. In a mixing valve, a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held with one face against said seat, said valve body having a pair of passages opening at one end through the said one face thereof for registry with the adjacent ends of the said fluid passages, a mixing chamber in said valve body having the valve body passages opening therein and having one side open to provide a discharge outlet for the fluids entering by way of said passages and mixing therein, and means for rotating said valve body.

11. In a mixing valve, a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held with one face against said seat, said valve body having a pair of passages opening at one end through the said face thereof for registry with the adjacent ends of the said fluid passages, a mixing chamber in said valve body having the valve body passages opening therein and having one side open to provide a discharge outlet for the fluids entering by way of said passages and mixing therein, baffle means within said chamber arranged to have fluids impinge thereagainst in entering the chamber, and means for rotating said valve body.

12. In a mixing valve, a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held with one face against said seat, said valve body having a pair of passages opening at one end through the said one face thereof for registry with the adjacent ends of the said fluid passages, a mixing chamber in said valve body having the valve body passages opening therein and having side walls extending oblique to the path of travel of fluids entering by way of the second mentioned passages, the fluids impinging against said walls in entering the chamber, the side of the chamber opposite that side through which the fluids enter being open to provide an outlet, and means for rotating said valve body.

13. In a mixing valve, a body having a pair of fluid passages therethrough opening at one end through a face which constitutes a valve seat, a valve body rotatably held with one face against said seat, said valve body

having a pair of passages opening at one end through the said one face thereof for registry with the adjacent ends of the said fluid passages, a mixing chamber in said valve body
5 having the valve body passages opening thereinto and having one side open to provide a discharge outlet for the fluids entering by way of said passages and mixing therein, means for rotating said valve body, a nozzle
10 coupled with said body, and a baffle disposed transversely in said nozzle before the discharge outlet of said chamber.

14. In a mixing valve, a body having a pair of fluid passages therethrough opening at one end through a face which constitutes
15 a valve seat, a valve body rotatably held with one face against said seat, said valve body having a pair of passages opening at one end through the said face thereof for registry
20 with the adjacent ends of the said fluid passages, a mixing chamber in said valve body having the valve body passages opening thereinto and having one side open to provide a discharge outlet for the fluids entering
25 by way of said passages and mixing therein, baffle means within said chamber arranged to have fluids impinge thereagainst in entering the chamber, means for rotating the said
valve body, a nozzle coupled with said body,
30 and a baffle disposed transversely in the nozzle before the outlet of said chamber.

15. In a mixing valve, a body having a top and a bottom surface, a pair of passages formed vertically in the body and each opening
35 at each end through one of said surfaces, the upper portion of each of said passages being threaded, a pair of horizontal fluid inlet passages each opening into one of the first mentioned passages at a point intermediate
40 the ends of the latter and in the threaded areas thereof, a valve body secured against one of said surfaces to overlie the adjacent ends of the first mentioned passages, said
valve body having ports therethrough which
45 when the valve body is rotated to one position align with the adjacent passage ends, means for rotating said valve body, and a threaded plug threaded in each of said first mentioned
passages and adapted to control the entrance
50 of fluid thereinto from the second mentioned passages in communication therewith.

In testimony whereof I hereunto affix my signature.

JAMES F. DAWSON.

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