

April 13, 1954

J. L. HUDSON ET AL  
MULTIPLE MIXING FAUCET

2,675,018

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2 Sheets-Sheet 1

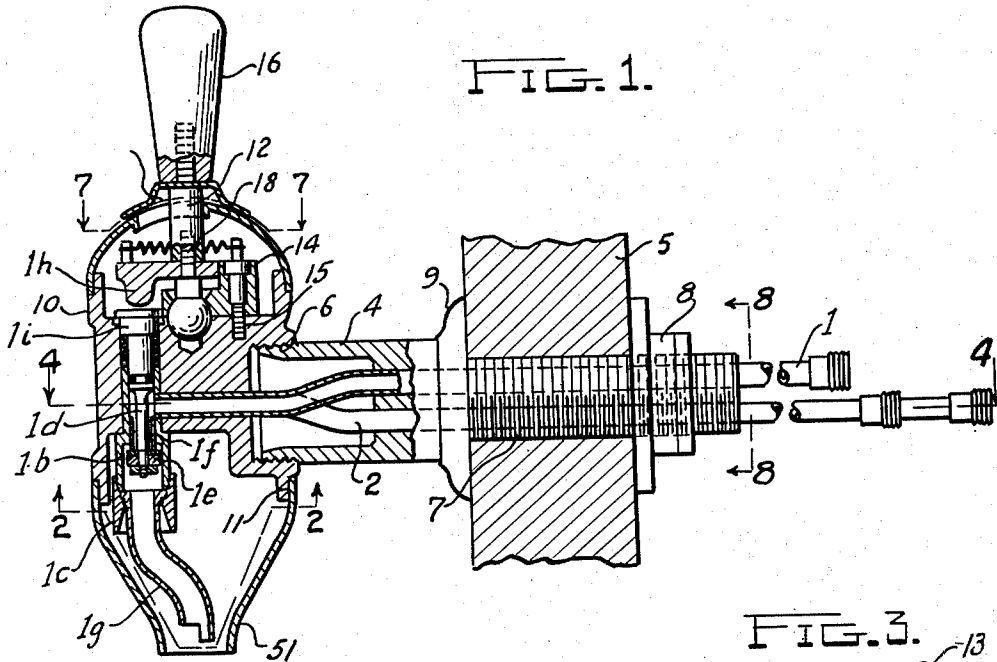


FIG. 1.

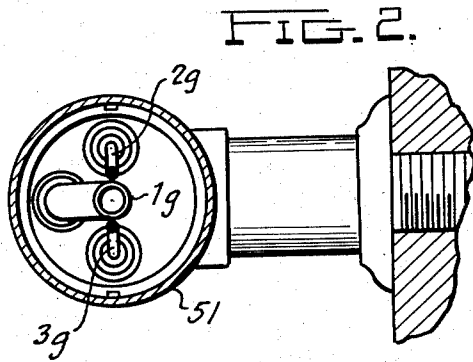


FIG. 2.

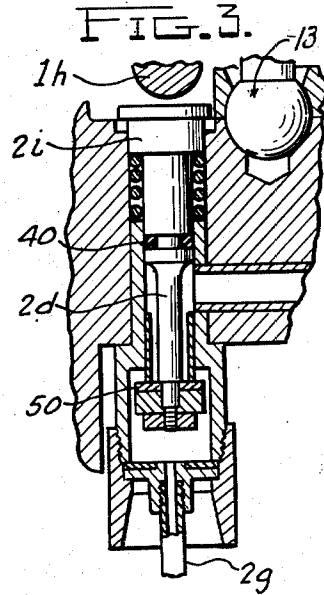


FIG. 3.

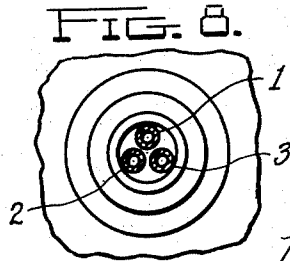


FIG. 4.

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FIG. 4.

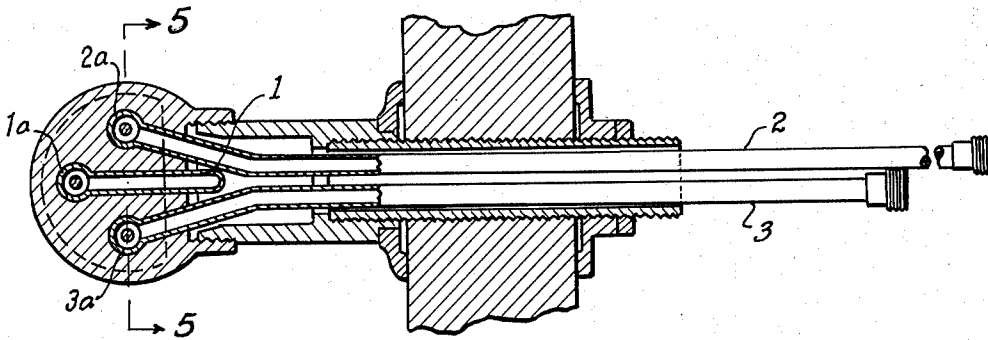


FIG. 5.

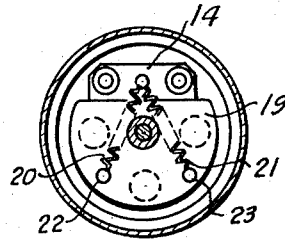
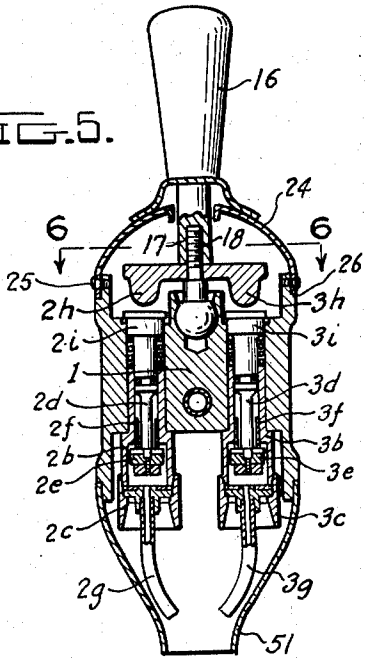


FIG. 6.

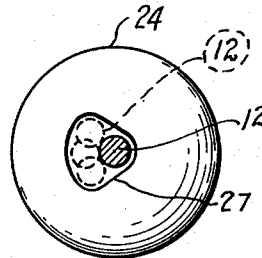


FIG. 7.

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# UNITED STATES PATENT OFFICE

2,675,018

## MULTIPLE MIXING FAUCET

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Application October 14, 1947, Serial No. 779,718

6 Claims. (Cl. 137—381)

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This invention relates to multiple mixing faucets. That is, a faucet which is capable of mixing two or more syrups with soda water and dispensing each mixture separately and also is capable of dispensing the carbonated water or soda water separately. This is not broadly new, but we believe that our mixing faucet is the first one that so accomplishes this mixing so that there is no taint of one mixture carried over into the other mixture. A feature of this mixing faucet is that it is so designed and constructed that after the mixture of syrup and soda water from one syrup line has been completed no drops of the syrup will issue from the syrup pipe to mix with the next draft and thereby objectionably alter the flavor of the next mixture. Furthermore, the syrup discharge is kept completely away from the wall of the faucet at the discharge end so that one syrup cannot be mixed with the other.

In the present day bars it is customary to have a line of faucets with beer taps at each end of the coil box or draft station and a soda water tap and a water tap in the intermediate positions. My mixing faucet or dispenser can be placed in the line of faucets in place of the usual soda water tap. It will furnish the customary soda water and by throwing the handle to either the left or the right will dispense a mixture of different syrups with soda water. This will do away with the necessity of the bar owners using bottled soft drinks to provide soft drinks as chasers with whiskey. The customary chasers used with whiskey are approximately 95% cola soft drinks, ginger ale, soda water and beer. The soda and beer are provided from the taps of the line dispensing faucets now in common use, but if cola or ginger ale are called for the bartender must open and dispense a small bottle of the soft drink. By employing our multiple mixing faucet in place of the soda faucet now in use the bartender, by a simple manipulation of the faucet handle can provide either a ginger ale syrup and soda mixture or a "cola" syrup and soda mixture, or can draw plain soda water. The mixtures will not contaminate each other by reason of dripping from the syrup conduits or what may be left on the internal wall of the faucet.

Referring to the drawings:

Fig. 1 is a longitudinal section through my improved mixing faucet.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged section through the valve in the soda water line.

Fig. 4 is a longitudinal section 4—4 of Fig. 1.

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Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a section on the line 6—6 of Fig. 5.

Fig. 7 is a view on the line 7—7 of Fig. 1.

Fig. 8 is a section on the line 8—8 of Fig. 1.

1 designates the soda water conduit, which is in the middle; 2 designates a syrup conduit which may, for example, be ginger ale syrup; and 3 designates a third conduit which may be a cola syrup conduit. These syrup conduits are connected with containers not shown in which is contained a syrup which is under pressure. The soda water conduit which can be connected with a carbonating apparatus not shown in which water is mixed with carbon dioxide gas and is kept under a relatively high pressure, say 125 pounds to the square inch. A suitable carbonating apparatus is described in my application Serial Number 579,762, filed February 26, 1945, now Patent No. 2,431,936. The application referred to shows a suitable carbonating apparatus, but any other carbonating apparatus can be used. A fixture 4 can be located in the wall 5 of the so called "coil box" used in the conventional bar. This fixture has on the outside a threaded nipple 6 and on the inside end passing through the coil box wall an externally threaded pipe section 7. A nut 8 may be screwed onto this threaded pipe section to draw the annulus 9 up against the outside wall of the coil box. This fixture serves as a casing for the three conduits 1, 2, and 3 which have their outer ends fastened into the body 10 of the faucet. The position of the outer ends of these conduits is best shown in Fig. 4. Each leads into a bushing or valve casing which is located in a vertical passageway in the body of the faucet. Each passageway is provided with a valve casing or bushing. This valve casing is designated by a reference character corresponding to the conduit that leads into the casing, but with a character "a" added so that the reference characters 1a, 2a, and 3a indicate the valve casings. The lower end of each valve casing is enlarged to provide heads 1b, 2b, and 3b, on each valve casing head is screwed a cap namely 1c, 2c, and 3c. The valve stems are located in the bushing, and designated 1d, 2d, and 3d. The valve heads are designated 1e, 2e, and 3e. Each valve head has a compressible gasket 50 which is adapted to bear against the valve seat formed by a sleeve. These sleeves are given a press fit in the lower end of the valve bushing and project into the valve casing head. The sleeves are designated 1f, 2f, and 3f. The valve casing caps secure tubes to the valve casing heads. The center tube designated 1g, is a tube

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of larger diameter than the syrup dispensing tubes 2g, and 3g, which are of a small diameter that may be classed as a capillary. I find that .093 I. D. is a suitable capillary tube.

The lower end of the body 10 has an annular flange 11 on to which can be removably fitted a large nozzle cover 51. At the top of the faucet body 10 a lever 12 is secured by a ball and socket joint 13. The ball 13 is clamped in place by the plate 14 which is secured to the body by screw 15. The lever has a handle 16 screwed on the upper end. The ball 13 has a threaded stem 18 which screws into the stem 17 of the lever and holds a tri-lug rocking table 19 between the two stems. The lugs are designated 1h, 2h, and 3h. They are arranged to engage the actuating heads of the valve stems, to wit, 1i, 2i, 3i, when the rocking table is rocked. A pair of coil springs 20 and 21 (Fig. 6) connect a pin on the end of bolt 15 with two pins 22 and 23 on the rocking table 19. This tends to centralize the table and the lever stem and keep it in the upright rear central position as shown in Fig. 7 in full lines. The cap 24 can be fitted over the top of the faucet body and secured thereto by fastening screws 25. Preferably this screw engages in a vertical slot in the flange 26 at the top of the body for properly positioning the cap and its triangular opening. The cap 24 can be easily removed after handle 16 has been unscrewed from the threaded stem 18 of the ball and screw 25 removed. Cap 24 is provided with a triangle opening 27 (see Fig. 7) for the stem 17. The triangular opening forms a guide for the movements of the handle 16 in the dispensing operation which will now be described.

When handle 16 is brought immediately forward to the center position shown in dotted lines in Fig. 7 lug 1h on the table 19 is tipped down to engage the actuating head 1i of the valve stem. This pushes down the valve stem against the pressure of the valve spring. These springs are not given reference characters as the large number already applied to each valve rather confuses the drawings. This movement pushes down valve head 1b and opens the conduit of soda water to the dispensing tube 1g. The faucet now dispenses pure soda water. If the handle is tilted forward but to the right two lugs 1h and 3h will come in contact with the corresponding actuating valve stem heads 1i and 3i. If the handle is tilted forward but to the left the actuating lugs 1h and 2h will come in contact with the corresponding actuating heads 1i and 2i. Hence, in each of the last two cases the faucet will dispense a mixture of one or the other of the syrups and soda water. Hence, the bartender can dispense either pure soda water by a forward jerk, or soda water and cola syrup by a movement forward and to one side or soda water and ginger ale syrup by a movement forward and to the other side. Of course, any other two syrups might be substituted for ginger and cola syrups.

The capillary tubes 2g and 3g are so located and their ends are so directed (see Figs. 2 and 5) that they discharge the syrup directly in the central stream which is afforded by means of the nozzle 1g for the carbonated water. Compare Figs. 1 and 2. The result is that none of the syrup gets on to the inside wall of the faucet or what I call the nozzle cover. Consequently, one mixture of syrup and soda water cannot contaminate the other mixture of soda water and syrup. So far as I know the prior art mixers

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which are capable of mixing soda water and two syrups or delivering the soda water alone have not been commercially successful for the reason that the syrup is discharged so that it contacts with the internal wall of the faucet. Furthermore, so far as I know no suitable means has been designed to prevent the syrup pipes from dripping, which will also contaminate the next mixture drawn through the faucet. One may also alter the pressure in the syrup containers to provide the correct mixture. Or a variable restriction may be used in the form of a needle valve.

The capillary tubes, by reason of the capillary action tend to prevent the syrup left therein dropping out after the valve is closed. The dropping of syrup is very undesirable because one syrup may drop into a glass of pure soda water or a glass of the other syrup mixture and impair the taste or flavor of the other syrup mixture and impair the taste or flavor of the contents of the next glass. By using soft gaskets on the valve heads I get about .005 movement after the flow of the syrup has been closed off. This will create a perfect seal and a slight vacuum or slight rarification of the valve chamber to the rear of the capillary, and, consequently, tend to pull the contents of the capillary upwardly and hence, keep it from dropping out the lower end of the tube. Hence, the good seal and this slight vacuum helps to prevent the dripping of syrup from these capillary tubes. The rubber sealing rings 40 or O rings seals off the soda water and the syrups from the valve springs. See Fig. 3. The valves close against the pressure and this prevents hammering.

The vacuum effect and the good seal on the valves, serves to assure a clean valve which will not gum up because the syrup left in the line does not come in contact with the atmosphere.

The mixing faucet described is an effective mixer of soda water and soft drink syrups and at the same time can be used as a pure soda water dispenser. It can be placed in the usual line of taps behind the bar to take the place of the soda water faucet, and do away with the necessity of using bottled soft drinks of the usual kind used for chasers.

We claim:

1. In a mixing and dispensing faucet the combination of a body, a plurality of conduits leading into the body and including in each conduit a valve casing and a spring closed valve, a nozzle cover at the lower end of said body into which the several conduits discharge, but with streams removed from, means by which one valve may be opened or selections of a plurality of the valves separately opened for mixing the flow from the conduits, the said means comprising a handle and lever supported upon a ball and socket which may be tilted in one of several directions and actuating connections between the handle and the valves to select the desired valve or two valves for coincidental opening, and a cap fitting over the top of the body and having a triangular opening therein to act as a guide for the lever to the two positions for opening simultaneously two valves.

2. In a mixing and dispensing faucet the combination of a body, a plurality of conduits bearing liquids under pressure and leading into the body, each conduit including a valve casing and a valve spring-closed against the pressure in the conduit, a nozzle cover at the lower end of said body into which the several conduits have noz-

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zles discharging streams spaced from the inside of the nozzle cover, means by which one valve may be opened or selections of a plurality of the valves separately opened for mixing the flow from the conduits, the said means comprising a handle supported upon a ball and socket connection with the body and a plural-lug rockable table, the handle of the table arranged to be tilted to cause the one lug to operate one valve by a direct forward pull on the handle or tilt to either right or left of center to cause two lugs to select the center valve and one or another of the remaining valves for opening, and a cap for the body provided with a triangular opening forming a guide for the lever handle's movement to right or left.

3. In a mixing and dispensing faucet the combination of a body, a plurality of conduits leading into the body and including in each conduit a valve casing and a spring closed valve, a nozzle cover at the lower end of said body through which the several conduits discharge, and means by which one valve may be opened or selections of a plurality of the valves separately opened for mixing the flow from the conduits, the said means comprising a handle and lever which may be tilted in one of several directions and actuating connections between the handle and the valves to select the desired valve or valves for opening, and means for guiding the handle in each tilting movement to one side or the other, comprising a cap with a triangular opening at the top through which the handle stem projects.

4. In a mixing and dispensing faucet the combination of a body, a plurality of pressure liquid conduits leading into the body and including in each conduit a valve casing and a spring closed valve, a nozzle at the lower end of said body into which the several conduits discharge without the liquid ordinarily contacting the inside of the nozzle, means by which valves may be opened for mixing the flow from the conduits, the said means comprising a handle and rotatable table supported by a ball and socket joint which may be tilted in one of several directions and lugs on the bottom of the table for punching the desired valve or two valves for coincidental opening, means for guiding the handle in each tilting movement to one side or the other, and a spring for returning the table and handle to central position.

5. In a mixing and dispensing faucet, a body,

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a plurality of conduits leading through and below the body for carrying syrups under pressure, the portion of the conduit below the body being a capillary tube, a conduit through the body and discharging beyond the body and arranged to carry carbonated water, the said conduit ends being grouped together in the middle of the later mentioned nozzle cover to discharge free of the walls of said cover, valve and valve casings arranged in the conduits and the body, a nozzle on the lower end of the body surrounding the ends of the conduits, and means for selectively operating the soda water valve and a selected syrup conduit valve, said means comprising a handle and a table supported tiltably and rotatably by a universal joint and provided on the bottom with lugs for selectively pushing open the soda valve or the soda water valve with one of the syrup conduit valves when the handle and table are rotated to the right or left and tilted.

6. In a mixing and dispensing faucet, a body, a plurality of conduits leading through and below the body for carrying syrups under pressure, the portion of the conduit below the body being in a capillary tube, a conduit through the body and discharging beyond the body and arranged to carry carbonated water, valve and valve casings arranged in the conduits and the body, a nozzle cover on the lower end of the body surrounding the ends of the conduits, and means for selectively operating the soda water valve or the soda water valve and a selected syrup conduit valve, said means comprising a rotatable and tilttable handle and a table provided with contacting means for selectively operating the soda valve or the soda water valve with one of the syrup conduit valves, and spring means for normally centering the tilttable table and the handle.

References Cited in the file of this patent  
UNITED STATES PATENTS

Number	Name	Date
850,916	Fitzgibbon	Apr. 23, 1907
963,221	Haynes	July 5, 1910
1,208,709	La Rue	Dec. 12, 1916
1,516,190	Holderle	Nov. 18, 1924
1,600,170	Henderson	Sept. 14, 1926
1,831,342	Buskard	Nov. 10, 1931
2,075,917	Vorech	Apr. 6, 1937
2,371,432	Di Pietro	Mar. 13, 1945