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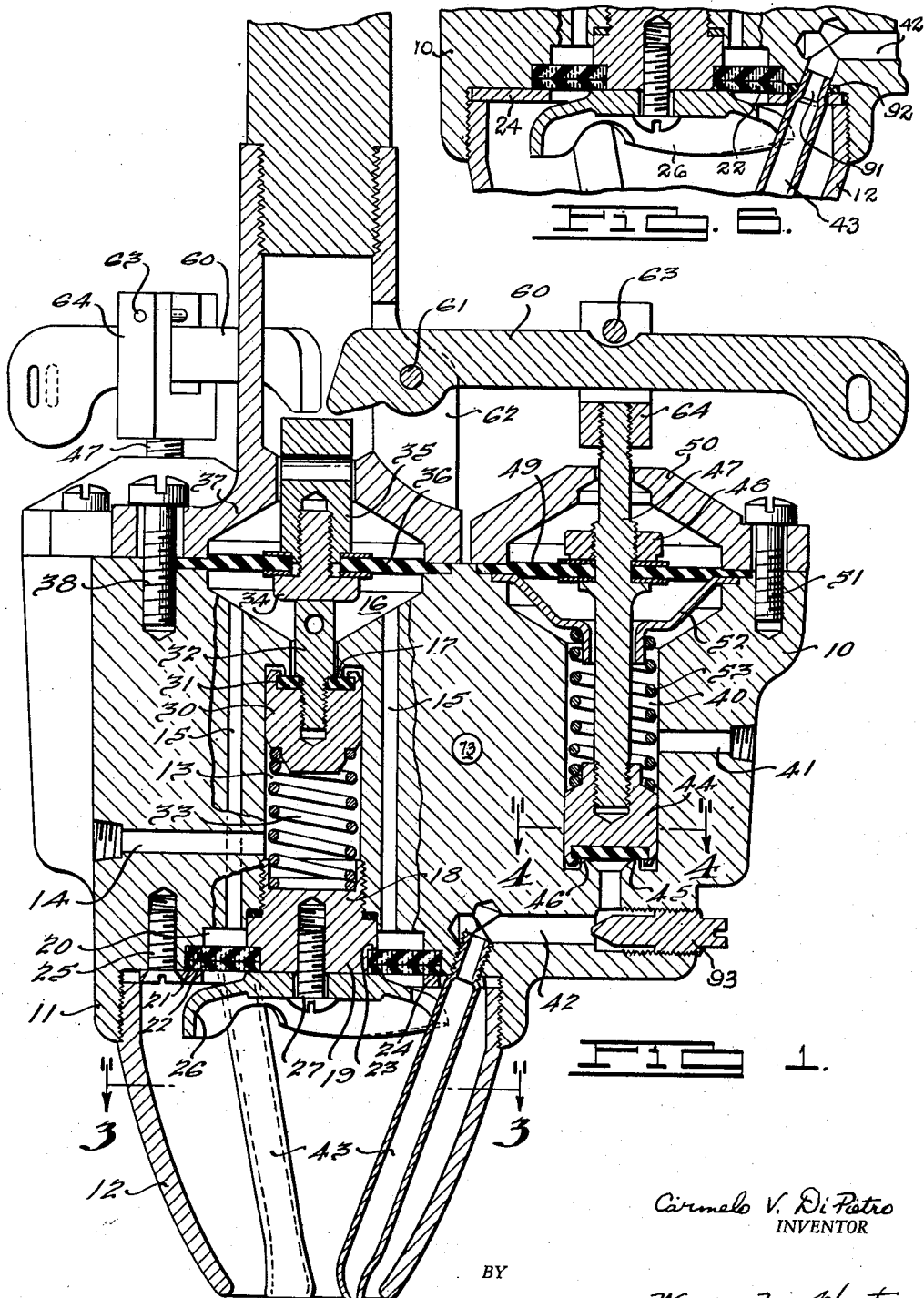
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FAUCET

Filed Jan. 8, 1943

2 Sheets-Sheet 1



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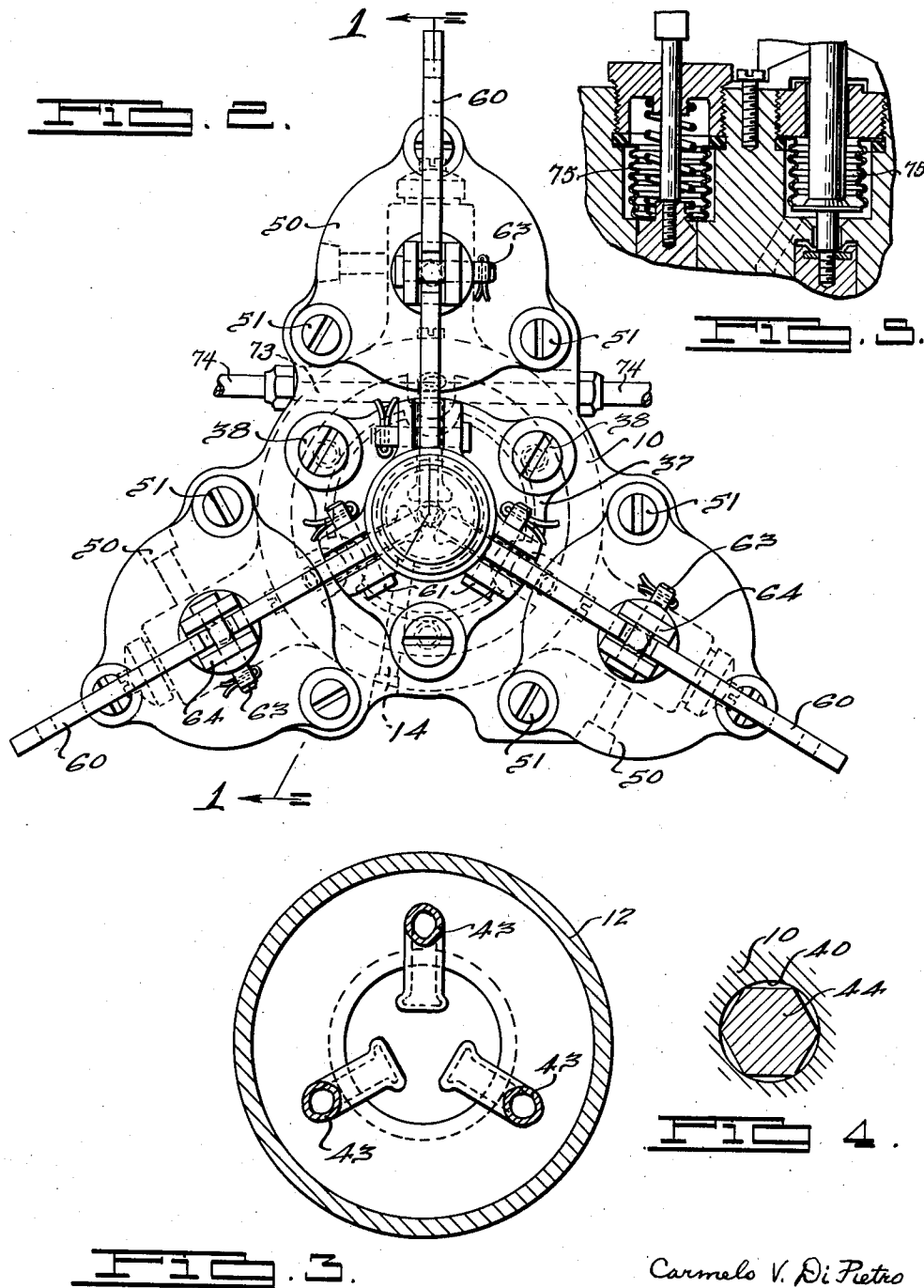
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2,371,432

FAUCET

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6 Claims. (Cl. 225—26)

This invention relates to faucets and more particularly to faucets used in dispensing different beverages consisting of water and flavored liquids.

An object of the invention is to provide a beverage dispensing faucet in which water and flavored liquid control valves can be opened by operation of the same actuator.

Another object of the invention is to provide a faucet for dispensing beverages consisting of water and any one of a plurality of flavored liquids.

A further object of the invention is to provide a beverage dispensing faucet from which carbonated water and any one of a plurality of syrups can be drawn by the operation of a plurality of syrup control valve mechanisms that also serve to open the water control valve means.

Another object is to provide a faucet for dispensing beverages consisting of water and any one of a plurality of syrups from a nozzle without the syrups contacting the interior of the nozzle.

Another object of the invention is to provide a sanitary faucet structure for dispensing beverages consisting of carbonated water and any one of a plurality of differently flavored liquids.

Another object of the invention is to provide a faucet having simple and accurate metering flow control mechanisms for dispensing beverages consisting of water and different liquids.

Fig. 1 is a vertical medial sectional view of a faucet incorporating the invention taken on line 1—1 of Fig. 2.

Fig. 2 is a top plan view of the faucet.

Fig. 3 is a sectional view through the nozzle taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view of one of the valve structures taken on line 4—4 of Fig. 1.

Fig. 5 is a fragmentary sectional view of a modified form of valve structure.

Fig. 6 is a fragmentary sectional view of a modified form of support for the liquid outlet tubes.

The faucet body 10 has an interiorly threaded flange 11 into which the base end of a nozzle 12 is screwed. The nozzle can be formed of various materials, such as stainless steel or plastic and is in the form of a shell that curves from a relatively large open base end to a smaller open outlet end.

The body is provided with passage means through which water must pass in flowing to the base end of the nozzle. This passage means consists of a multi-diameter passage 13 extending centrally through the body, a horizontally extending inlet passage 14 connected with the lower

portion of the vertical passage and a plurality of outlet passages 15 outside of and paralleling the centrally located passage. The upper end of the central passage is relatively large and forms a chamber 16 and between the chamber and the lower portion of the central passage is a restricted portion surrounded at its lower end by a lip 17 forming a valve seat. The central passage is concentric with the nozzle and the bottom end is closed by screw plug 18 having a pilot end 19. The body has a two step recess 20 around the screw plug, the upper portion of such recess and chamber 16 being connected by the passages 15.

Diffuser means for the carbonated water is seated in the lower portion of recess 20, and overlaps the upper portion of recess 20.

The diffuser means can consist of a porous rubber disk, as shown in my application Serial No. 462,439 filed October 17, 1942, or it can consist of two porous rubber rings 22, 21. Ring 21 seats against shoulder 23 on the screw plug and pilot 19 extends through the rings. Ring 21 also seats against the shoulder in recess 20 so that carbonated water must flow through the rings from passages 15 before flowing into the nozzle. Ring 24 is secured to the body by screws 25 and clamps the outer portions of the diffuser rings to the body. Deflector 26 is secured to the screw plug by screw 27 and is of sufficient diameter to clamp the inner portion of the diffuser rings against shoulder 23.

The minute pores in the rubber diffuser rings extend in an axial direction and pressure of the carbonated water will expand the pores in order to pass through the rings. This acts as a brake on the water and reduces its pressure to approximately that of atmosphere. This pressure reduction prevents excess amount of carbon dioxide from being liberated from the water when passing into the nozzle. Ring 22 can be formed of slightly harder rubber than ring 21 so that it will act as a cushion to prevent too much expansion of the pores in the softer rubber ring. This harder rubber ring could be eliminated if the softer ring could be made thick enough so that the pores were long enough to cause water passing therethrough to flow into the nozzle substantially the same as by gravity.

Means for controlling flow of carbonated water to the nozzle is provided in the faucet body. A valve member 30 of irregular outer shape, for example hexagonal, is arranged in passage 13 between lips 17 and a gasket 31 is secured thereto by stem 32 for engagement with the lip. The valve is normally engaged with its seat by spring

33 in passage 13 having one end bearing against the valve member and the other end against the screw plug. The stem is controlled by actuator tappet means consisting of cap screw 34 and a guide rod 35 screwed together and clamping a supporting rubber diaphragm 36 therebetween. The peripheral portion of the diaphragm is clamped to the body by a cap member 37 secured to the body by screw bolts 38.

The body contains one or more passage means through which flavored liquid, such as syrup, flows to the nozzle. Three passage means are provided and are connected with three sources from which different liquids can flow either by gravity or under pressure. The passage means are similar so a description of one will suffice for all. A multi-diameter vertical passage 40 is formed in the body and a horizontal inlet passage 41 connects therewith. The vertical passage connects with outlet passage 42 and dispensing tube 43 screwed into the body connects with such outlet passage. The tube is coextensive with and lies within the nozzle. Flow regulator screws 43 extend into the passages 42 in the body to regulate flow through the passage to the tubes 43. Thus different pressures for different flavored liquids are not required.

Each of the passage means has similar means for controlling syrup flow therethrough. An out-of-round valve member 44 is movable in the intermediate diameter portion of passage 40 and has a gasket 45 attached to its bottom end for engaging a lip 46 at the bottom of the intermediate portion of the passage forming a seat. Stem 47 is attached to the valve member and a rubber diaphragm 49 is clamped to the stem by nut 48. The periphery of the diaphragm is secured by a cap 50 fixed to the body by screws 51. The cap also clamps a retainer 52 to the body, such retainer projecting into passage 40 and being engaged by spring 53 which also engages the valve member to normally hold it against its seat under desired pressure. The faces of the rubber diaphragms 36 and 49 contacted by the water and flavored liquid should be treated or formed so that they will not impart any odor or taste.

It will be noted that the carbonated water control valve member is pressed upwardly to seat and that the syrup control valve members are pressed downwardly to seat. When these valve members are unseated, fluid will flow thereby through to the spaces formed by the surrounding circular walls and the irregular peripheral valve walls. One of the syrup control valve members and the adjacent body are shown in section in Fig. 4, and it will be understood all of the passages and valve members can take the same form.

The actuator means for each syrup valve means includes a lever 60 fixed by a pivot 61 to ears 62 formed on the cap 37. The inner end of these levers engage the top of guide rod 35 while an outer portion lies under pin 63 secured to a bifurcated nut 64 screwed on stem 47 and such nuts can be adjusted to regulate the lift of the associated valve. These levers can be rocked manually or by suitable power means. It will be noted that rocking of any of the levers will open the associated valve means and will also open the carbonated water valve means, thus upon actuation of a selected syrup valve means the carbonated water valve means will also be likewise actuated.

The syrup tubes are preferably equally spaced in the nozzle and their outlet ends are curved

away from each other, and the water flowing down the inner wall of the nozzle will prevent any syrup from contacting the nozzle. This arrangement will eliminate the possibility of flavors other than that of the syrup being dispensed from passing into a mixed drink and will also insure a sanitary nozzle. The syrups will also flow separately through the faucet body so that their flavors will not mix. A passage 73 for refrigerant can be formed to extend through the body, and conduits 74 can be connected with the body to connect such passage with a mechanical refrigerating system (not shown).

In the modified form of the invention shown in Fig. 5 the valve stems can be anchored to spring bellows 75 instead of the diaphragms previously described.

The ring 24 securing the diffuser ring can be of sufficient diameter to be clamped against the body by the nozzle, see Fig. 6. In this case the screws 25 will not be needed and instead of screwing the tubes 43 into the body they can be fixed to the ring 24. The upper ends 91 of the tubes project beyond the ring to pilot into passages 42 and can be sealed against the body by gaskets 92. With such construction as shown in Fig. 6, the tubes can be readily removed to make the diffuser rings readily accessible for cleaning.

Valves 30 and 44 are normally seated by springs 33 and 53 respectively, such springs exerting forces in opposite directions. As the lever is pivotally mounted between the two actuator means for the valves, it will act in opposite directions on the valve actuator means when rocked in either direction. The syrup passage 41 is continuously open to the diaphragm 49 attached to the actuator means for valve 44 and the syrup pressure will exert a force against the diaphragm tending to move the actuator means to unseat valve 44 and to shift lever 60 in a direction for unseating valve 30. While this force exerted by the syrup is not sufficient to overcome the pressure of the spring 53 seating valve 44, it will act on the diaphragm 49 to reduce the manual force required to rock lever 60 in a direction for unseating both the valves 30 and 44.

Various changes can be made in the forms of the invention shown and described herein without departing from the invention and the scope of the appended claims.

What I claim is:

1. A faucet comprising a body having passage for liquid therethrough, a nozzle fixed to the body at the outlet end of the passage, a plurality of porous rubber diffuser rings between the outlet end of the passage and the interior of the nozzle, the outermost ring being formed of harder rubber than the innermost ring, and means in the nozzle acting to deflect liquid passing through the outermost diffuser ring against the interior wall of the nozzle.

2. A beverage faucet comprising a body having separate water and syrup passage means therethrough, a nozzle fixed to the body, a tube in the nozzle connected to the body in communication with the syrup passage means, a plug in the body adjacent the outlet of the water passage means, a deflector secured to the plug beneath the water outlet means, diffuser rings clamped to the plug by the deflector, means for clamping the peripheral portions of the rings to the body, and valve means in the body for controlling flow through the passage means.

3. A beverage faucet comprising a body hav-

ing passage means for carbonated water and passage means for syrup, a normally seated valve in each passage means, a nozzle fixed to the body in communication with the outlet ends of the passage means, means in said body operable to unseat said valves, and diaphragm means fixed in the body supporting said valve operating means.

4. In a faucet, a body having an outlet for water under pressure and outlets for flavored liquids under pressure, a nozzle screwed into the body in communication with the outlets, a ring clamped to the body by said nozzle, diffuser means clamped to the body over the water outlet by said ring, and tubes fixed to the ring and removable therewith, said tubes piloting in and open to the outlets for the flavored liquids.

5. A faucet comprising a body having a valved passage therein through which liquid under pressure can flow, a nozzle fixed to the body at the outlet end of the passage, and a plurality of superposed diffuser members between the passage and the nozzle through which the liquid must pass, said members being formed of porous elastic material having the pores normally contracted and the member nearest the nozzle hav-

ing less elasticity than the member nearest the outlet of the passage in the body, said members substantially reducing the pressure of the liquid passing from the body to the nozzle.

6. In a faucet for dispensing two kinds of fluid under pressure, a body having two separated passages through which the fluids under pressure may flow to a nozzle, a valve in each of said passages, said valves being arranged to move in opposite directions when opening or closing, spring means acting to normally close the valves, actuator means connected to each valve, a diaphragm fixed to each actuator means, said diaphragms being fixed in the body and exposed to the fluid in the passages, one of said diaphragms being continuously exposed to incoming fluid, and a lever pivoted to the body between the two valve actuator means and operable on the actuator means to open both valves when swung in one direction, the force of the fluid against the continuously exposed diaphragm tending to move the actuator means fixed thereto in a valve opening direction and reacting on the lever to assist in opening the other valve.

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