

[54] **MIXING DISPENSER**

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[63] Continuation of Ser. No. 742,585, July 5, 1968, abandoned.

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[51] Int. Cl. **F16k 19/00**

[58] Field of Search 137/604, 607, 637; 74/18.1; 251/214, 335 A, 342; 239/424.5; 222/145

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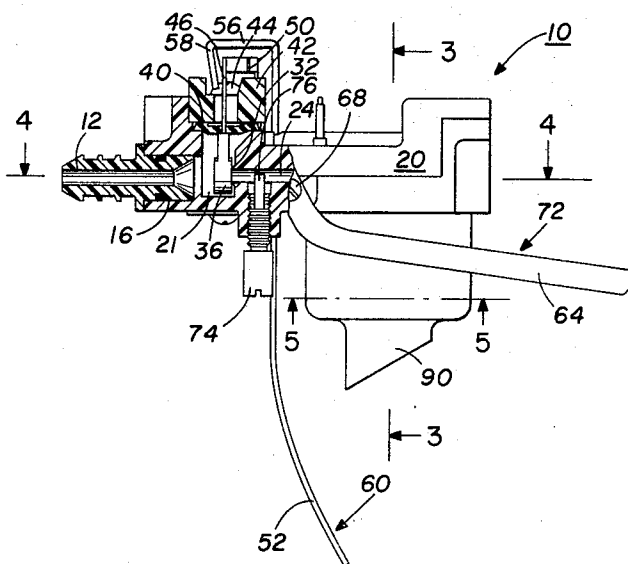
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[57]

ABSTRACT

A mixing dispenser for a beverage system includes a pair of inlet chambers connectable to sources of two fluids. Selectively operable valves are disposed in each of the inlet chambers to control the flow of the fluids through bores extending from the inlet chambers to a mixing and dispensing chamber. Levers are provided to either simultaneously open the valves in both bores to allow the mixing of the two fluids, or to selectively open either valve to allow the selective dispensing of either of the two fluids.

1 Claim, 5 Drawing Figures



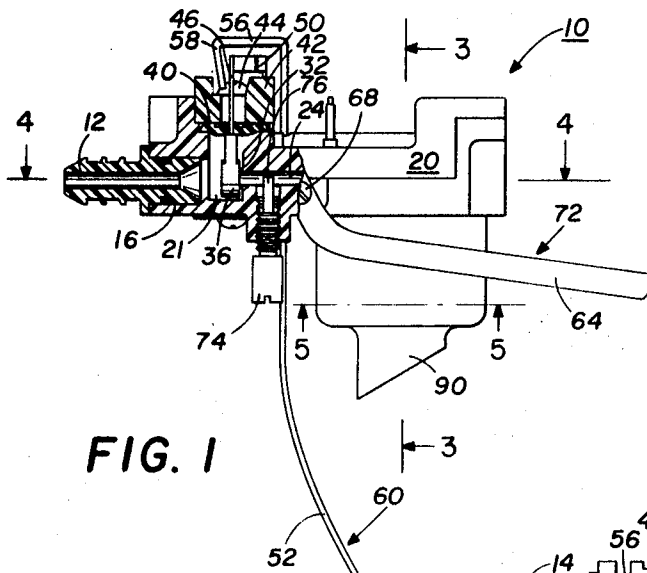


FIG. 1

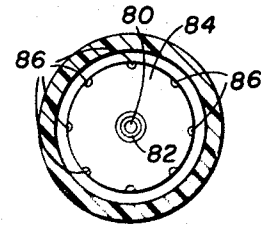


FIG. 5

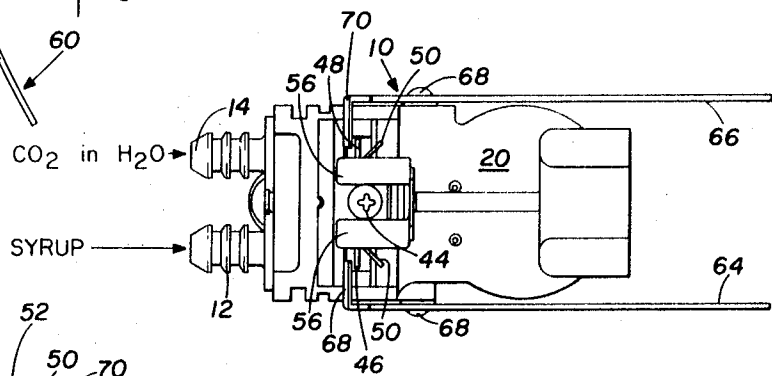


FIG. 2

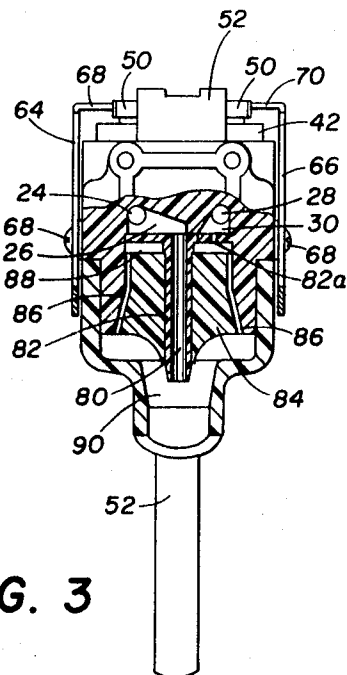


FIG. 3

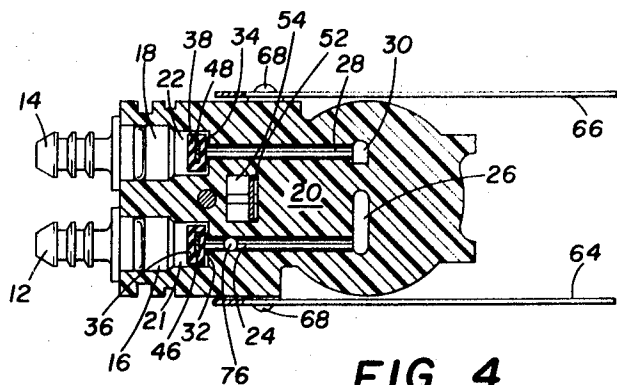


FIG. 4

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MIXING DISPENSER

This is a continuation of application Ser. No. 742,585, filed July 5, 1968, now abandoned.

FIELD OF THE INVENTION

This invention relates to fluid valve structures, and more particularly to mixing and dispensing valves for use with beverage systems.

THE PRIOR ART

Soft drink beverages are often prepared by mixing syrup of a given flavor with either plain or carbonated water in proportions to suit individual tastes. A number of previously developed valve dispensing units have been utilized for mixing soft drink beverages of this type, such as the valve dispensing units described in U.S. Pat. No. 2,921,605, issued Jan. 19, 1960 and U.S. Pat. No. 3,167,090, issued Jan. 26, 1965.

While these prior units have proved satisfactory for many applications with soft drink dispensing systems, it has often been desired to provide a valve unit wherein a very light actuating touch was required by the operator in order to dispense a beverage. Further, it has often been desired to provide a dispensing valve unit with improved fluid valves which might be easily regulated and yet which are not subject to mechanical failure and which provide reliable valving regulation to the fluid. Additionally, it has been desirable to allow selective dispensing of either one of two fluids, such as fresh water and carbonated water, in addition to allowing selective simultaneous dispensing and mixing of such fluids as syrup and water diluent to provide a flavored beverage.

SUMMARY

In accordance with the present invention, first and second inlet chambers are each connectable to sources of fluid. A pair of bores having smaller cross section than the inlet chambers communicate with the inlet chambers to form valve seats. A pair of valve members are disposed within the chambers and are adapted to seal against the valve seats. A pair of lever arms are attached to the valve members and extend outwardly from the inlet chambers so as to be selectively pivoted by actuator levers to allow fluid flow through the bores. A mixing spout and chamber communicates with the bores in order to mix and dispense the fluids. Separate levers are also provided to enable selective individual operation of the valves to allow either of the fluids to be dispensed.

THE DRAWINGS

For a more complete understanding of the present invention and for further objects and advantages thereof, reference is now made to the following description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a partially sectioned side view of the dispensing valve of the invention;

FIG. 2 is a top view of the valve shown in FIG. 1;

FIG. 3 is a sectional view of the valve shown in FIG. 1 taken generally along the section lines 3—3;

FIG. 4 is a sectional view of the valve shown in FIG. 1 taken generally along the section lines 4—4; and

FIG. 5 is a sectional view taken generally along the section lines 5—5 of the valve shown in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1 and 2, the present valve is designated generally by the numeral 10. Valve 10 includes an inlet fitting 12 for being attached to suitable hose (not shown) for the reception of syrup having the desired flavor. A second inlet fitting 14 is adapted to be connected to another hose (not shown) for the reception of a suitable diluent, which in the specific instance is carbonated water. As best shown in FIGS. 1 and 4, the inlet fittings 12 and 14 are received by counterbores 16 and 18 within the body 20 of the valve.

In the preferred embodiment, the body 20 is constructed from a suitable hard plastic material. The counterbore 16 opens into an inlet chamber 21, while the counterbore 18 opens into an inlet chamber 22. A bore 24 communicates with the inlet chamber 21 and extends through the body 20 to an opening 26. A bore 28 communicates with the inlet chamber 22 and extends through the body 20 and opens into an aperture 30. As clearly shown in FIG. 4, the bores 24 and 28 may be seen to have much smaller diameters than the inlet chambers 21 and 22. Thus, valve seats 32 and 34 are formed at the opening of the bores into their respective inlet chambers.

Valve members 36 and 38 are disposed in the inlet chambers 21 and 22 and are selectively movable into and out of contact with the respective valve seats in order to regulate the flow of fluid within the bores 24 and 28. The valve members 36 and 38 are comprised of resilient material, such as synthetic rubber or the like and provide excellent seals against the valve seats 32 and 34. As best shown in FIG. 1, the valve member 36 includes a flexible integral seal 40 which fits in a flat configuration over the top of the inlet chamber 21. A rigid block 42 is attached by means of a screw 44 to bear against the top of the seal 40 to prevent flow of fluid outwardly from the inlet chamber 21. Valve member 38 is also provided with a similar integral seal member (not shown) which is also borne upon by the rigid support member 42 to prevent fluid flow outwardly from inlet chamber 22.

A metallic lever arm 46 is attached to the valve member 36 and extends upwardly through the seal 40 and outwardly above the rigid support 42. Similarly, a metallic lever arm 48 extends from the valve member 38 through the integral flat seal member (not shown) and upwardly from the rigid support 42. The flat seal member 40 acts as both a fluid seal and also as a fulcrum about which the lever 46 may be pivoted in order to move the valve member 36 into and out of contact with the valve seat 32. Similarly, the seal member (not shown) integrally connected to the valve member 38 also provides a fluid sealing function and acts as a fulcrum about which the lever arm 48 may be pivoted in order to move the valve member 38 into and out of contact with the valve seat 34. A spring 50 constructed from suitable resilient metal abuts against both of the lever arms 46 and 48 in order to normally bias the members 36 and 38 into contact with the respective valve seats.

A downwardly depending lever 52 extends through the body 20 through an aperture 54, shown in FIG. 4, and includes a pair of horizontal extending bend portions 56. Each of the bend portions 56 includes a downwardly depending end 58. Lever 52 is pivotal about the body 20 when lightly pushed at its lower end in the direction indicated by the arrow 60. When the lever 52 is manually pushed, the ends 58 abut against the lever arms 46 and 48, thereby pivoting or rocking the lever arms about their fulcrums.

When lever 52 is pushed, the valve members 36 and 38 will thus be moved away from their respective valve seats and fluid will be allowed to flow simultaneously through the bores 24 and 28. Only a relatively light force is required to operate the lever 52, as only a force sufficient to overcome the spring 50 is required. When the lever 52 is released, the spring 50 will force the lever arms 46 and 48 back to their normal positions and the flow of fluid will be terminated.

In some instances, it is desirable to connect the present valve to sources of fresh water and carbonated water and to selectively provide fluid flow of only one of the fluids. For this purpose, a pair of levers 64 and 66 are pivotally attached by screws 68 to the body 20. As best shown in FIGS. 2 and 3, the upper ends of the lever 64 include a horizontal bend 68 which extends adjacently to the top of the lever arm 46. Similarly, the upper end of the lever 66 includes a horizontal bend 70 which extends adjacent to the top of the lever arm 48.

Upon manual operation of lever 64 in the direction indicated by arrow 72, the lever arm 46 is rocked about its fulcrum and the valve member 36 is moved away from its valve seat to allow flow of carbonated water through the bore 24. A

jet of carbonated water will then be provided through the dispensing spout. Upon release of the lever 64, the spring 50 will return the lever arm 46 to its original position. Similarly, upon manual operation of the lever 66, the lever arm 48 will be rocked about its fulcrum and the valve member 38 will be moved away from the valve seat 34 to allow flow of fresh water to the bore 28. Upon release of the lever 66, the spring 50 will return both the lever arm 48 and the lever 66 to their normal positions.

Valve member 74 shown in FIG. 1 is threadedly received within the lower part of the body 20 and includes a valve stem 76. By selective placement of the threaded valve member 74, the amount of fluid allowed to flow through the bore 24 may be selectively adjusted.

FIGS. 3 and 5 best illustrate the mixing and dispensing spout of the invention. Syrup enters the opening 26 and flows downwardly through a jet opening 80 within a stem member 82. The upper part of the stem member 82 is circular, and serves to segregate the flow of the two fluids in separate flow paths. The aperture 82a extends through the upper circular part of the stem member 82. A generally circular insert 84 is attached about the stem member 82 and includes a plurality of grooves 86 formed along the periphery thereof.

An annular opening 88 is defined between the top of the insert 84 and in the upper portion of the stem member 82. Fluid thus flows through the bore 28, through the aperture 30 and into the annular opening 88. From thence it is uniformly dispensed downwardly through the grooves 86 into a mixing and dispensing spout 90. Each of the grooves 86 is sloped slightly radially outwardly. It will be seen from an inspection of the drawings that, when dispensing a flavored drink, the diluent flows outwardly from the grooves 86 in equal amounts and in a number of regions encircling the fluid jet flow of syrup from the passage 80, thereby uniformly and thoroughly mixing with the syrup within spout 90 before being received by a suitable receptacle.

Whereas the present invention has been described with respect to a specific embodiment thereof, it is to be understood that various changes and modifications will be suggested to one skilled in the art, and it is intended to encompass

such changes and modifications as fall within the true scope of the invention as defined by the appended claims.

What is claimed is:

1. A mixing valve assembly comprising:

a unitary valve body including:

- a. a pair of parallel fluid passageways that extend through the body in a first direction;
- b. an outlet cavity positioned at the ends of the fluid passageways and having an open end that faces in a second direction;
- c. a pair of slots each interconnecting the cavity and one of the passageways;
- d. a pair of valve receiving holes each extending through the body perpendicular to and in communication with one of the passageways, and
- e. an actuator receiving hole extending between the fluid passageways;

a pair of valve members mounted in the valve receiving holes of the valve body and each comprising a resilient valving member for closing the end of one of the passageways, a resilient flange formed integrally with the valving member for sealing one of the valve receiving holes; and an actuator;

a unitary block that presses both of the resilient flanges into sealing engagement with the valve body;

a unitary actuator lever mounted in the actuator receiving hole of the valve body and in engagement with the actuators of both valve members;

a spool mounted in the outlet cavity of the valve body and comprising a center tube that extends to one of the slots, a flange that fills the upper portion of the cavity, and an opening through the flange that extends to the other of the slots;

a closure member mounted in the cavity and having a center opening that receives the center tube of the spool and a plurality of rim openings positioned at spaced intervals around its circumference, and

a mixing and dispensing spout mounted on the valve body at the lower ends of both the rim openings in the closure member and the center tube of the spool.

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