

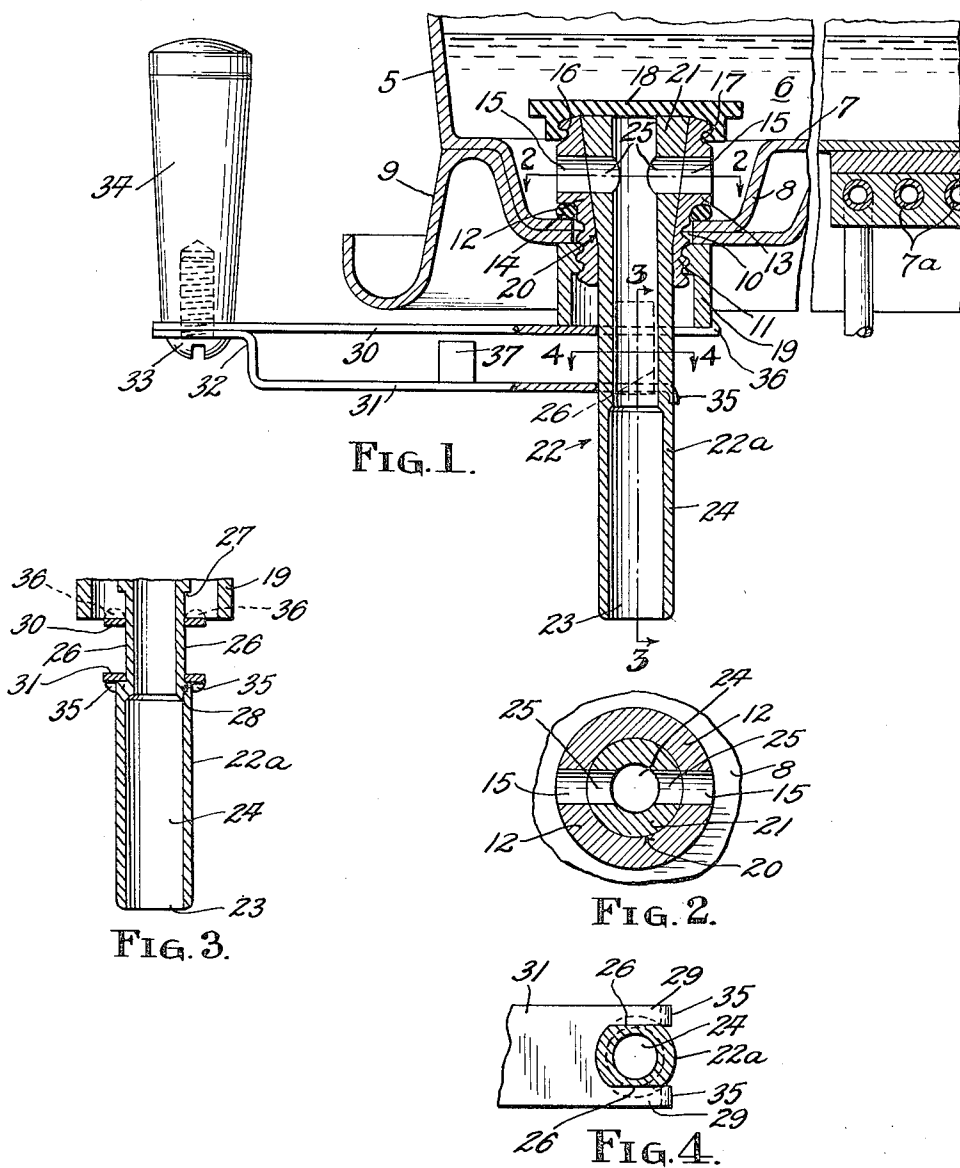
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FAUCET VALVE FOR BEVERAGE DISPENSERS

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FAUCET VALVE FOR BEVERAGE DISPENSERS

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1 Claim. (Cl. 251—310)

The present invention relates generally to faucets or valves, and more particularly to an improved faucet for use in connection with liquid-receiving receptacles such as, for example, those employed in connection with refrigerated beverage dispensers.

Previously known faucets used in combination with refrigerated liquid-receiving receptacles for discharging liquids therefrom generally comprise a faucet body having an inlet communicating with the interior of the receptacle, an outlet disposed exteriorly of the receptacle, and a movable valve member positioned within the faucet body remote from the inlet thereof, and operable selectively to either establish or interrupt communication between the inlet and outlet of the faucet. Such prior art faucets, while functioning efficiently to control the passage of liquids between the inlet and outlet thereof, are subject to objection, particularly when used in discharging or dispensing beverages which are subject to spoilage or contamination by bacterial growth in a relatively short time unless maintained under conditions of refrigeration. The primary objection to such faucets stems from the fact that portions of a beverage become trapped in the faucet body remote from the associated refrigerated receptacle and main body of liquid, with the result that the trapped portion of the beverage is warmed by the surrounding atmosphere and, therefore, is subject to rapid bacterial growth and consequent contamination of the main body of liquid. Also, where the valve member of the faucet is disposed in a relatively remote position with respect to the refrigerated body of liquid, the tendency for the movable valve member to stick or become clogged is increased, due to the evaporation of beverage around the valve member and the consequent deposit of sediment or residue thereon.

It follows, therefore, that the primary object of the present invention is to provide an improved faucet or discharge valve adapted particularly for use in combination with refrigerated beverage-dispensing apparatus, and wherein such faucet is arranged to extend partially within an associated receptacle and is provided with a movable valve member which is positioned directly within the main body of liquid contained in the receptacle, in order that no portion of the beverage will be trapped in the faucet body upon closure thereof in remote and unrefrigerated relation to the main body of beverage contained in the associated refrigerated receptacle, thereby minimizing bacterial growth within the faucet body and contamination of the main body of liquid beverage within the dispenser.

It is another object of the present invention to provide a faucet of this character which is comprised of but few and relatively simple component parts arranged in a manner to facilitate removal from an associated receptacle

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and disassembly to permit the component parts of the faucet to be readily cleaned and sterilized.

A further object of the invention is to provide a faucet for refrigerated beverage dispensers which comprises a movable valve element positioned at a level within an associated receptacle, whereby the valve element is subject to the temperature of the main body of liquid within the receptacle, thus preventing the trapping of a portion of liquid within the faucet body in unrefrigerated relation to the main body of liquid.

For a further and more detailed understanding of the present invention and the various additional objects and advantages realized therefrom, reference is made to the following description and the accompanying drawing, wherein:

Fig. 1 is a medial longitudinal vertical sectional view taken through a faucet valve formed in accordance with the present invention, and showing the same installed in a refrigerated liquid-receiving receptacle;

Fig. 2 is a detailed horizontal sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary vertical sectional view taken along the line 3—3 of Fig. 1; and

Fig. 4 is a horizontal sectional view taken along the line 4—4 of Fig. 1.

Referring now to the drawing, the numeral 5 designates a receptacle body adapted to receive a body of liquid 6, such as for example, fruit juice, the receptacle body 5 being formed with a bottom wall 7 having a recessed sump cavity 8, and provided with a downwardly and outwardly extending flange member 9 providing a drip tray to collect moisture or condensates accumulating on the exterior of the receptacle body 5. Preferably, the bottom wall 7 and the contents of the receptacle are subject to refrigeration by means of the evaporator coils 7a which are arranged in good heat exchange relation to the bottom wall of the receptacle, and which form an element of a standard-type gas-liquid refrigeration system, not shown.

The portion of the bottom wall 7 forming the sump cavity 8 is formed with a central opening 10, and extending through the opening 10 is a lower externally screw-threaded extension 11 formed on a valve or faucet casing 12. The upper portion of the valve casing 12 is relatively diametrically enlarged with respect to the lower threaded extension 11 and forms therewith an outwardly projecting ledge or shoulder 13. Positioned between the shoulder 13 of the valve casing and the bottom wall of the sump portion 8 of the receptacle is an annular gasket or sealing ring 14 of resiliently flexible material, the latter providing a liquid-tight seal between the faucet casing and the bottom wall of the receptacle adjacent the opening 10.

Additionally, the upper casing head 12 is formed with a plurality of radially arranged inlet ports 15 opening directly inwardly of the interior of the receptacle within the sump portion 8 thereof. The valve casing is provided with an annular recess 16 a distance below the upper end thereof which provides a groove to receive a downwardly and inwardly turned annular flange 17 formed along the lower edge of a resiliently flexible cap member 18.

The lower end portion of the externally screw-threaded extension 11 extends beyond and below the opening 10 formed in the bottom wall of the receptacle and receives a cooperative, internally threaded, clamping nut 19 whose outer diameter exceeds the diameter of the opening 10, and which, when drawn up upon the screw-threaded extension 11, serves to firmly clamp the valve casing 12 to

the bottom wall of the receptacle and to compress the resiliently flexible gasket 14.

As shown particularly in Fig. 1 of the drawing, the upper valve casing 12 is provided with an axially disposed and partially longitudinally tapered bore 20 opening at either end thereof, and the bore 20 rotatably receives the cooperatively tapered head portion 21 formed on an elongated, vertically extending faucet or valve stem 22. The stem 22, below the tapered head portion 21, is formed to provide a straight cylindrical portion 22a which terminates at its lower end in a discharge outlet 23. The faucet stem 22 is provided throughout its length with an internal bore 24, and at a relatively short distance below the upper end thereof, is formed with a pair of radially disposed valve ports 25 arranged, upon rotation of the valve stem 22, to be brought into registration with the laterally extending ports 15 of the valve casing.

It will be seen in Fig. 1 that the cooperatively tapered surfaces of the valve stem and casing 12 permit the stem to be inserted through the upper end of the casing 12 and to seat within the tapered bore thereof, the resiliently flexible cap 18 being thereafter applied and secured to the upper end of the casing 12 by means of the interlocking flange 17 of the cap member and groove 16 formed in the casing body. The cap 18 functions to cover the upper end of the bore 24 of the valve stem to prevent the passage of liquids directly through the upper end of the bore 24, and additionally prevents accidental upward displacement of the stem relative to the valve casing 12 during rotation of the valve stem.

Referring to Fig. 3 of the drawing, it will be seen that the tubular valve stem 22 is provided intermediate its length and on opposite sides thereof with flattened surfaces 26 which are formed on the stem by recessing the cylindrical shank portion thereof. The flat surfaces 26 define with the body of the stem upper and lower outwardly projecting shoulders, 27 and 28, respectively. The flattened side surfaces 26 of the valve stem are received between the outer bifurcated ends 29 of a pair of relatively flat, horizontally extending, handle-carrying arms 30 and 31 which are disposed throughout the major portion of their lengths in relatively vertically spaced relation, but are joined with each other at the outer end portions by an upwardly and outwardly bent web 32 formed on the lower arm 31, and a screw-threaded stud 33 extending through openings formed in the arms 30 and 31 and threadedly engaged with the lower end portion of an upwardly projecting handle 34.

As shown particularly in Figs. 3 and 4, the arms 30 and 31 are slotted at their inner ends to closely fit around the flattened surfaces 26 of the faucet stem, and the extreme end portions of the bifurcated end 29 of the lower arm 31 are formed to provide downwardly turned locking lugs 35, while the upper arm 30 has its extreme outer end portion turned upwardly in lugs 36. As the arms 30 and 31 are applied to the flattened side surfaces 26 of the stem, the same must be resiliently flexed or compressed toward one another to permit the lugs 35 and 36 to clear the lower end of the clamping nut 19 and the lower shoulders 28 formed on the valve stem. When the arms 30 and 31 are moved to the position shown in Fig. 1, the same are released and resiliently expand vertically to position the lugs 35 behind the side surface of the nut 19. This locks the handle assembly to the stem and prevents accidental removal of the latter from the valve stem by pulling outwardly thereon, but permits of easy removal of the handle section by simply squeezing inwardly upon the inner end portions of the arms to free the locking lugs 35 and 36 from engagement with their respective abutments. To prevent the arms 30 and 31 from being bent permanently when squeezed toward each other, the lowermost arm 31 is provided with a vertically projecting stop member 37 adapted to engage the underside of the upper arm member 30 in its intermediate region to insure that the elastic limits of the material from which the arms 30

and 31 are formed will not be exceeded when the arms are flexed inwardly toward each other upon engagement or disengagement of the handle member with respect to the valve stem.

Thus, by swinging the handle member 34, the valve stem 22 may be rotated within the valve casing 12 to move the radially extending ports 25 of the valve stem into and out of registration with the inlet ports 15 of the valve casing, whereby to control the passage of liquid from the receptacle downwardly through the axial bore 24 of the valve stem and outwardly through the outlet port 23 thereof.

It will be particularly noted that the arrangement of the inlet ports 15 of the valve casing and the corresponding lateral ports 25 of the rotatable valve stem is such that the closing portion or head of the valve stem is positioned well within the receptacle, and is consequently maintained at the temperature of the body of liquid 6 within the receptacle; and due to the straight, downwardly extending bore 24, substantially all liquid passing into the bore may be discharged by gravitational flow before the same has an opportunity to evaporate and leave a sticky or tacky deposit within the faucet member. Also, due to the location of the head of the valve stem within the main body of liquid, no portion of the liquid is trapped within the faucet remote from the main body of liquid contained within the receptacle, and thus, all liquid is subjected to uniform temperatures of the body of liquid contained within the receptacle. This is of material importance in connection with beverage dispensers, and particularly those in which fruit juices or similar liquid beverages are refrigerated, and wherein such beverages, if not maintained at given low temperatures, are subject to rapid growth of bacteria and spoilage. By providing the straight, downwardly projecting passage 24, substantially all of the liquid beverage received within the faucet is discharged therefrom upon closure of the valve stem, thus preventing the accumulation of residue within the faucet body.

Also, it will be noted that the present valve or faucet is characterized by its relative structural simplicity, ease of disassembly, and consequent ability to be easily cleaned and sterilized upon disassembly.

While a single preferred embodiment of the invention has been disclosed in detail, it will be understood that various modifications as to details of construction and design may be resorted to without departing from the spirit of the invention or the scope of the following claim.

We claim:

50 A faucet valve for beverage dispensers comprising a valve casing formed with an axially extending generally tapered valve chamber opening at each end of said casing and an inlet port extending through a wall of said casing and intersecting the chamber thereof; an elongated valve stem of generally annular cross-section extending axially through the chamber of said casing and formed at one end thereof with a relatively enlarged tapered head adapted to seat within the chamber of said casing and at its opposite end with a relatively reduced spout portion projecting beyond an end of said casing, said stem being rotatable within said casing and being removable axially from said casing through the larger end of the valve chamber thereof and being formed with an axially extending discharge passage opening at each end of said stem and a valve port extending through the enlarged head portion of said stem and intersecting said discharge passage, the valve port of said stem being arranged to register with the inlet port of said casing upon rotation of the stem to provide communication between the inlet port of said casing and the discharge passage of said stem; and a cap member of resiliently flexible material frictionally carried by said casing at the larger end of the valve chamber for closing an end of the discharge passage of said stem and for holding said stem against axial movement within the chamber of said casing, said cap member being removable.

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from said casing to provide free access to the discharge passage of said stem and to permit free withdrawal of the latter from said casing.

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