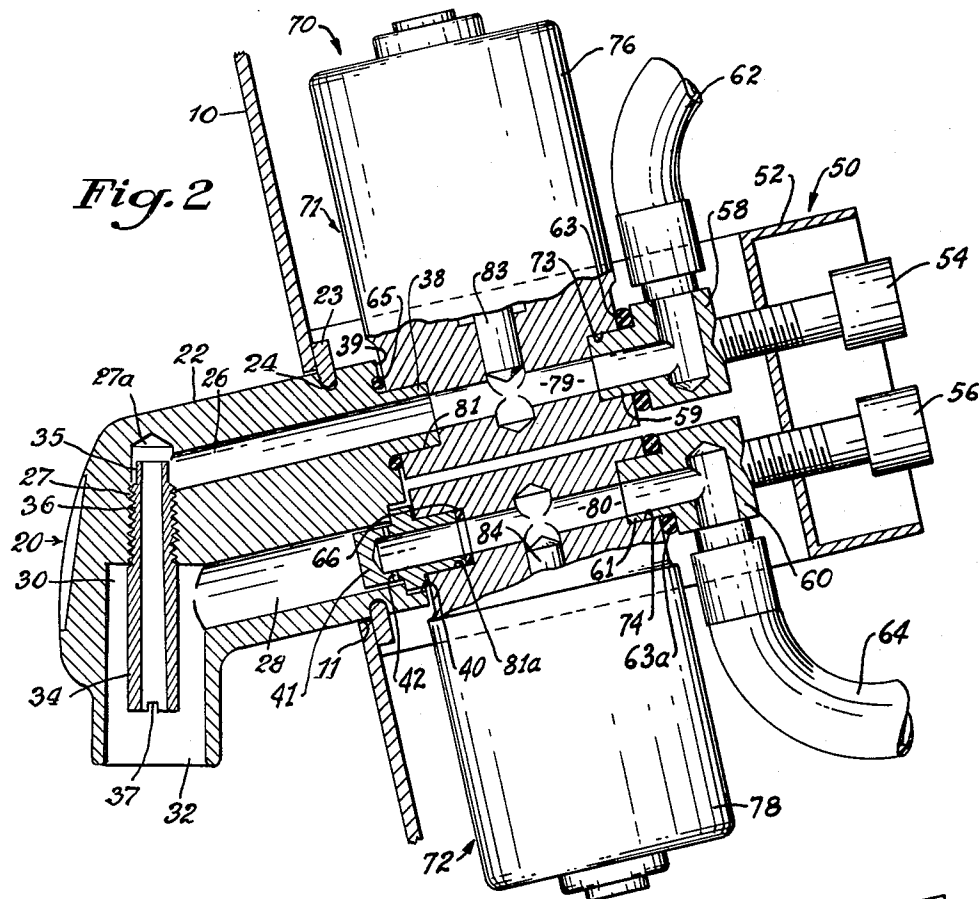
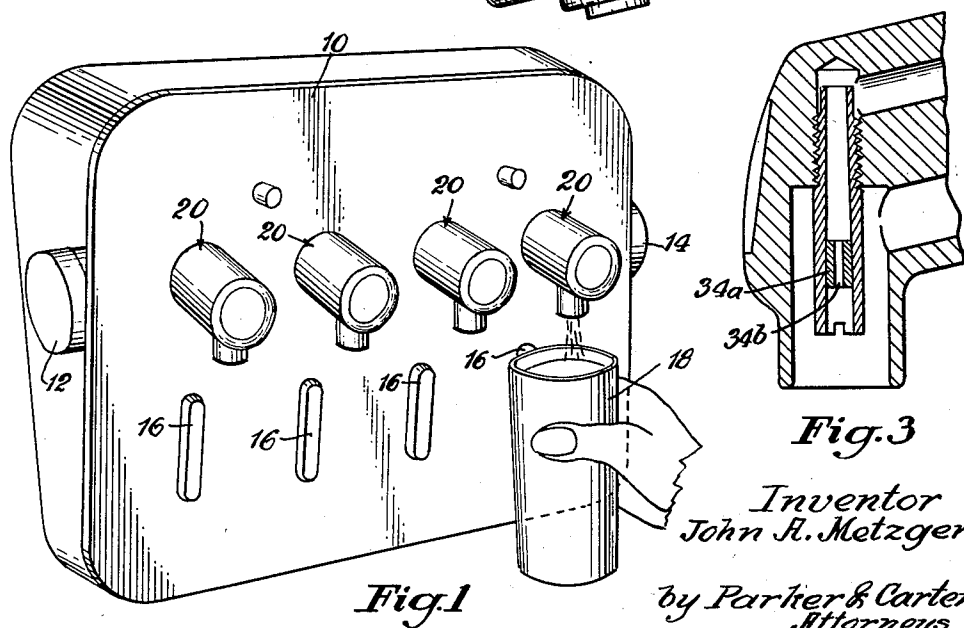


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DISPENSING APPARATUS
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DISPENSING APPARATUS

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My invention resides in the field of dispensing apparatus and is particularly utilized in the soda fountain equipment trade for dispensing fountain beverages.

Accordingly, a primary object of my invention is the provision of a dispensing assembly composed of a dispenser unit, a supply unit and a flow regulating unit.

Yet another object is the provision of a dispenser assembly whereby any individual unit of the assembly may be speedily and easily removed by a single simple adjustment without removing the other units.

Another object is the provision of a dispensing assembly having a dispensing spout which may serve as a mixing point, flow restrictor, and delivery spout for a variety of dispensed beverages such as pure soda water, carbonated mixed drink, pure syrup, plain water, or non-carbonated mixed drinks.

Another object is the provision of a syrup or pin point soda delivery structure which may be readily adjusted to vary the rate of flow of syrup or to obtain the proper mix of soda or plain water with the syrup.

Another object is the provision of a syrup delivery tube which will prevent the residual syrup in the spout from dripping after the delivery pressure is shut off.

Yet another object is the provision of a simple adjustment whereby sealing engagement between the engaging surfaces of the individual component units may be easily and quickly obtained by manipulation of a single sealing and adjusting means.

Another object is the provision of a dispensing assembly including a dispenser unit, a supply unit, a normally electrically operated flow regulating unit, and stand-by manually operated actuating means to permit continued operation of the latter unit in the event of a power failure.

Other objects will become apparent from time to time throughout the course of the following specification.

My invention is illustrated more or less diagrammatically in the following drawings, wherein:

Figure 1 is a perspective view showing a plurality of my dispensing units assembled in a soda fountain;

Figure 2 is a sectional view of my dispensing assembly; and

Figure 3 is a partial sectional view of a modification of my dispensing assembly.

Like reference numerals will be used to indicate like parts throughout the specification.

Referring now to the drawings, and particularly to Figure 1, a perspective view of my dispenser assembly suitable for installation in a fountain or other mounting means is shown. The fountain unit shown consists of a cover assembly with a mounting face 10 and a pair of side adjusting knobs 12 and 14 for a purpose to be explained hereafter. A plurality of dispenser assemblies including dispenser units 20 each having a discharge outlet for the drink to be dispensed are shown mounted on the forefront of the mounting face and each dispenser unit has an actuating bar 16. The actuating bar is operated by hand pressure or by the impingement of a glass

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as shown. Suitable conventional wiring mechanism initiates operation of the dispenser assembly to cause flow of the drink through the dispensing unit and into the glass 18 as indicated in Figure 1.

Turning now to Figure 2 my dispenser assembly is shown as consisting essentially of three parts including a dispenser unit 20, a flow regulating unit 70 consisting of a pair of flow regulators 71 and 72 and a supply unit 50.

The dispenser unit 20 consists of a spout 22 made of either molded plastic or metal which fits into an aperture 11 in the mounting face 10. The mounting face 10 serves as a support for the dispenser units 20. As illustrated in Figure 2 the spout is mounted in a position downwardly inclined with respect to the horizontal and is held in place by means of C-retainer washer 23 which fits into a suitable external groove 24 of the spout. The washer 23 projects outwardly beyond the exterior surface of the spout so that upon contact of the washer with the mounting face 10 further forward and downward movement of the spout will be prevented.

The spout may include any suitable number of passages for dispensing liquids but I preferably employ an upper passage 26 and a lower passage 28. Although I have shown passages of different diameters, it will be understood that the diameters may be varied to adapt to the flow characteristics of the liquid to be dispensed. Upper passage 26 terminates forwardly in an internally threaded substantially vertical bore 27 making an angle of slightly greater than 90° with respect to the axis of passage 26. Directly in line with threaded bore 27 and extending upwardly into the body of the spout I have shown a recessed area 27a the purpose of which will be explained hereinafter.

Upper passage 26 and lower passage 28 meet at a junction 30 which in effect forms a mixing chamber having a discharge outlet 32.

A syrup or pin point soda delivery tube is indicated at 34 and has an upper externally threaded portion 36 in engagement with the threaded bore 27. Thus tube 34 is vertically adjustable in bore 27. An upper smooth surfaced or flanged portion 35 extends into passage 26 directly in line with the internal recess 27a. A groove 37 in the lower end of the tube may be used for the reception of an adjusting tool so that the position of the delivery tube may be adjusted while the tube is in place in the spout.

At the inner or right hand end of the spout I have shown a hub 38 which forms an extension of upper passage 26 projecting substantially beyond the inner surface 39 of the spout. The lower passage 28 terminates in an internal recess 40 to thereby form a shoulder for the reception of a soda water restrictor or a plain water insert bushing 41. The soda water restrictor illustrated may be formed with a plurality of cross drilled holes 42, whereas a plain water bushing will usually be formed with a single, central bore. The portion of the restrictor received within the spout will be of a lesser diameter than lower passage 28 to permit flow of the soda toward the mixing chamber. The plain water insert may also be of a reduced diameter.

At the right side of my dispenser assembly a supply unit is indicated generally at 50 and consists of a clamp and support channel 52 which may be rigidly secured to the back of the face 10. Channel 52 thus serves as a support for the supply unit of my invention, the three elements of my invention being thus supported on a first support 10 and a second support 52. Threadably received within the channel 52 are a pair of clamp screws 54 and 56. Upper clamp screw 54 impinges upon a fitting 58 having a projecting portion 59 engaging a suitable bore 73 in a conduit 79 along the bottom of upper

solenoid 76. Lower clamp screw 56 impinges upon a similar fitting 60 having a projecting portion 61 received within a similar bore 74 in the lower solenoid 78. Clamp screws 54 and 56, in association with support 52 serve as adjustable sealing and securing means as more fully described below. Suitable leader lines 62 and 64 are connected to the supply fittings 58 and 60 respectively and to suitable sources of either soda, syrup, plain water or drink beverage. It will be understood that the connection to these sources are conventional and accordingly have not been illustrated. The sources will usually be under pressure which may be created by gravity or carbon dioxide or any other suitable means.

Interposed between the dispenser spout unit 20 and the supply unit 50 is a pair of actuating or flow regulators 71 and 72 consisting essentially of an upper solenoid valve 76 and a lower solenoid valve 78. Upper solenoid valve 76 has an internal conduit 79 terminating in bores 73 and 81. Bore 81 is of a sufficient diameter to loosely slip over hub 38 on the spout and bore 73 receives projection 59 of the supply connection fitting. Solenoid 76 has a plunger 83 adapted to reciprocate between a position above the conduit 79 to a position below it whereby communication between the supply fitting 58 and passage 26 of the spout is cut off. Solenoid 78 has a similar plunger 84 adapted to reciprocate between a position below conduit 80 in flow regulator 72 to a position above it whereby communication between the supply unit 60 and passage 28 of the spout is cut off. Bore 81a in flow regulator 72 receives the soda water restrictor or plain water insert bushing 41 and may have a diameter equal to bore 81 so that the flow regulators are completely interchangeable.

The knobs 12 and 14 (Figure 1) provide mechanical means to manually operate the solenoid valves in the event of a power failure. Turning the knob actuates a small lever within the valve which lifts the valve plunger and thereby permits flow of the material being controlled without electrically actuating the solenoid coil.

O-ring seals 63, 63a, 65 and 66 encircle upper and lower fittings 58 and 60 respectively and hub 38 and soda restrictor or plain water insert bushing 41 respectively. These rings seal the connections between the leader line fittings and the solenoid valves and between the solenoid valves and the spout.

In Figure 3 the syrup or pin point soda delivery tube has an insert or pin soda flow restrictor 34a therein. This flow restrictor has at least one internal passage 34b which substantially lessens the cross-sectional area of the delivery tube 34.

The use and operation of my invention is as follows:

When my dispensing assembly is used to dispense a mixed drink, the operating bar 16 below the spout is depressed either by the drink container or the fountain attendant's hand. The depression of the operating bar actuates the flow regulators 71 and 72 through circuits which have not been shown as they are conventional. Actuation of solenoid 76 causes the retraction of plunger 83 which permits syrup from the leader line fitting 58 to flow through the conduit 79 and upper passage 26 of the spout from the pressurized or gravity fed syrup container. Syrup then flows at a preadjusted rate through the syrup passage down to the mixing chamber 30. Actuation of the operating bar also causes retraction of plunger 84 which permits soda or plain water to flow through the restrictor or insert bushing 41 and into the lower passage 28 where it mixes with the syrup in chamber 30. Should a power failure occur which prevents energization of the coil of the solenoid, the attendant may still dispense drinks by turning the knobs 12 or 14 which will mechanically retract the plungers.

The soda or plain water tends to "wash down" the syrup tube so that a subsequent draught of water will not be flavored by any residual syrup. The bore of the mixing chamber 30 is formed substantially smoothly so

that although there will be a sufficient mixture of the soda and syrup in the mixing chamber to prevent separation of the liquids in a glass, the carbon dioxide will not be expelled and thus produce a "flat" drink. In other words the force of the combined stream of soda or plain water and syrup hitting the glass or the mixture already in the glass will produce a final mixing action to thereby yield a sparkling, lively drink.

An important feature of my invention is the provision of the upstanding flange 35 on the upper end of the soda delivery tube 34, which, in conjunction with the internal recess 27a at the left end of upper passage 26, provides a convenient, simple and efficient drip eliminator. In order to promote instant flow of the syrup through the spout, I preferably incline the spout slightly with respect to the horizontal. If the syrup flow begins instantly, the mixing action in chamber 30 will also begin immediately and the drink will be properly proportioned right from the start. When the passage containing the syrup is inclined however, the problem of dripping is intensified. By vertical adjustment of the delivery tube 34 drip control may be obtained in two ways. First, flange 35 forms a dam or dike at the end of passage 27 which prevents a residual amount of syrup between the extended plunger 83 and the recessed portion of the passage 26 from dribbling down the tube. In many instances the mere dike effect of this projection will be sufficient to prevent a dripping but with some syrups it may secondly be desirable to adjust the delivery tube so that the clearance between the top of the tube and the corner of the recess 27a is such that the inherent viscosity of the syrup will prevent flow of the syrup through that aperture and down the delivery tube. Upon application of a slight amount of pressure the syrup will be instantly forced over the top lip of flange 35 and down the delivery tube.

It will be observed that the internal diameter of tube 34 is less than that of passage 26 with which the tube 34 is associated. Consequently, member 34 serves as a combination delivery tube and flow restrictor. The internal diameter of tube 34 is constant throughout its length. It will be observed that the relationship of the diameters of passages 26 and the passage through tube 34 does not affect the dike or dam effect of the upper extension of tube 34.

It will be understood that whereas in Figure 2 I have shown a dispenser assembly suitable for dispensing syrup from the upper passage and either soda or plain water from the lower passage, this is not essential. When soda or plain water flows through the upper passage 26 and syrup through the lower passage, it may be highly desirable to increase the mixing action by the use of a restrictor 34a. The restrictor limits the flow and increases the velocity of the soda or water. Thus, without changing the line pressure, a much greater mixing action can be obtained.

Following the same principle, the soda water restrictor 41 is effective to break up the flow of soda water to promote better mixing action.

Either gas under pressure or static pressure created by maintaining the source of supply higher than the dispensing assembly may be used to initiate syrup flow.

It will be observed that the mounting face 10 and support channel 52 have positioned between them an inner portion of the dispensing unit 20, the entire mechanism of the regulating unit 70 and supply unit 50, the retainer 23 being effective to hold the inner end of dispensing unit member 20 between mounting face 10 and support 52. Adjustable securing and sealing means are provided by the clamp screws 54, 56. When the screws 54, 56 are in extended position, as illustrated for example in Figure 2, they are effective to cause engagement between the supply fittings 58, 60, regulating unit 70 and dispenser unit 20, the seal rings 63, 65, 63A, 66 being compressed in response to extension of the clamp screws 54, 56 or the longitudinal movement to the left thereof as the

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parts are shown in Figure 2. Similarly, when the members 54, 56 are retracted from the position shown in Figure 2 or, as the parts are illustrated in Figure 2, when the members 54, 56 are moved longitudinally to the right, it will be clear that fittings 58, 60 may be easily and simply removed from the entire assembly without disturbing members 20 and 70. Similarly member 70 can be removed by a mere retrograde movement of fitting 58, 60 and member 70. In like manner, dispenser unit 20 may, when members 54, 56 are retracted, be removed by the simple expedient of retracting retaining washer 23 and thereafter sliding the dispenser unit 20 outwardly through aperture 11 in mounting base 10.

While I have described and shown a preferred embodiment and a variation of my invention, it will be understood that many variations may be made without departing from the essential spirit and scope of my invention.

Accordingly, the drawings and description are intended to be illustrative only and not definitive, and I do not wish to be limited except by the scope of the following appended claims.

I claim:

1. A dispensing assembly for dispensing both low and high viscosity liquids including a dispenser unit having at least a first passage and a second passage, the passages meeting at a junction to form a mixing point and a discharge outlet leading from the mixing point, at least one of the passages having an adjustable flow restrictor whereby the volume rate of flow through that passage may be varied, at least one supply unit leading to a source of liquid to be dispensed communicating with the dispenser unit, and means for controlling the flow of liquid from the supply unit to the dispenser unit and out the discharge outlet, at least a portion of said first passage being inclined with respect to the horizontal, said first passage further including a generally vertical portion, said adjustable flow restrictor being positioned in the generally vertical portion with its upper end projecting into the inclined portion to form an overflow dam.

2. The dispenser assembly of claim 1 further characterized by and including means for adjustably positioning the upper end of the flow restrictor in the inclined portion of the first passage.

3. The dispenser assembly of claim 1 further characterized in that the flow restrictor is vertically adjustable and the inclined portion of the first passage is recessed in the line of movement of the flow restrictor to thereby permit positioning of the flow restrictor in the inclined portion.

4. A dispenser assembly for dispensing both low and high viscosity liquids including a dispenser unit having at least one inlet passage and a discharge passage, a supply unit communicating with the dispenser unit and adapted for communication with a source of liquid, means for regulating the flow of liquid through the assembly, first support means for the dispenser unit, second support means for the supply unit, said first support means including a supporting face slightly inclined from the verti-

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cal and having an aperture therein for reception of the dispenser unit, the dispenser unit having a peripheral groove, and a retainer structure positioned within the groove for anchoring the dispenser unit to the supporting face, and means for clamping said supply unit, regulating means and dispenser unit together, the action of said clamping means being resisted by said retainer structure.

5. A dispenser assembly adapted to be mounted at an angle with the horizontal on a first support including a dispenser unit having a first passage with a portion inclined to the horizontal and a second passage, the said passages meeting at a junction and a third passage leading therefrom to discharge, at least one flow restrictor disposed in one of the flow passages, the dispenser unit having a groove on a portion of its periphery, retainer means cooperable with the peripheral groove of the dispenser unit to secure the unit to the first support, a supply unit adapted for connection to at least one source of fluid under pressure, a flow regulating unit disposed between and having a passage communicating with the dispenser unit and the supply unit, a flow regulator disposed within the flow regulating unit, external actuating means connected to the flow regulator adapted to close communication between the dispenser unit and the supply unit, a second support, and adjustable sealing and securing means carried by the second support and engageable with the supply unit and operable upon movement in one direction to cause the mutually engaging surfaces of the dispenser unit, the regulating unit, and the supply unit to form a tight engagement.

6. The dispenser assembly of claim 5 further characterized by and including a second flow restrictor located within the first named flow restrictor, said second flow restrictor having an internal passage in axial alignment with the passage through said first-named flow restrictor and of less diameter than the passage through said first-named flow restrictor.

7. The dispenser assembly of claim 5 in which the inclined first passage is formed with an internal recess, said flow restrictor being adjustably positioned in a substantially vertical portion of the first passage with its upper end projecting into the inclined portion to form a vertically adjustable flow dam, the internal recess in the inclined portion being substantially in the path of movement of the first flow restrictor.

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