United States Patent

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[54] **LIQUID DISPENSER WITH LEVEL CONTROL**
7 Claims, 9 Drawing Figs.

[52] U.S. Cl. 222/64, 222/38, 222/76, 222/334
[51] Int. Cl. B67d 5/08
[50] Field of Search 222/36, 76, 144.5, 66, 64, 334, 194, 330, 481, 482, 145, 129.4

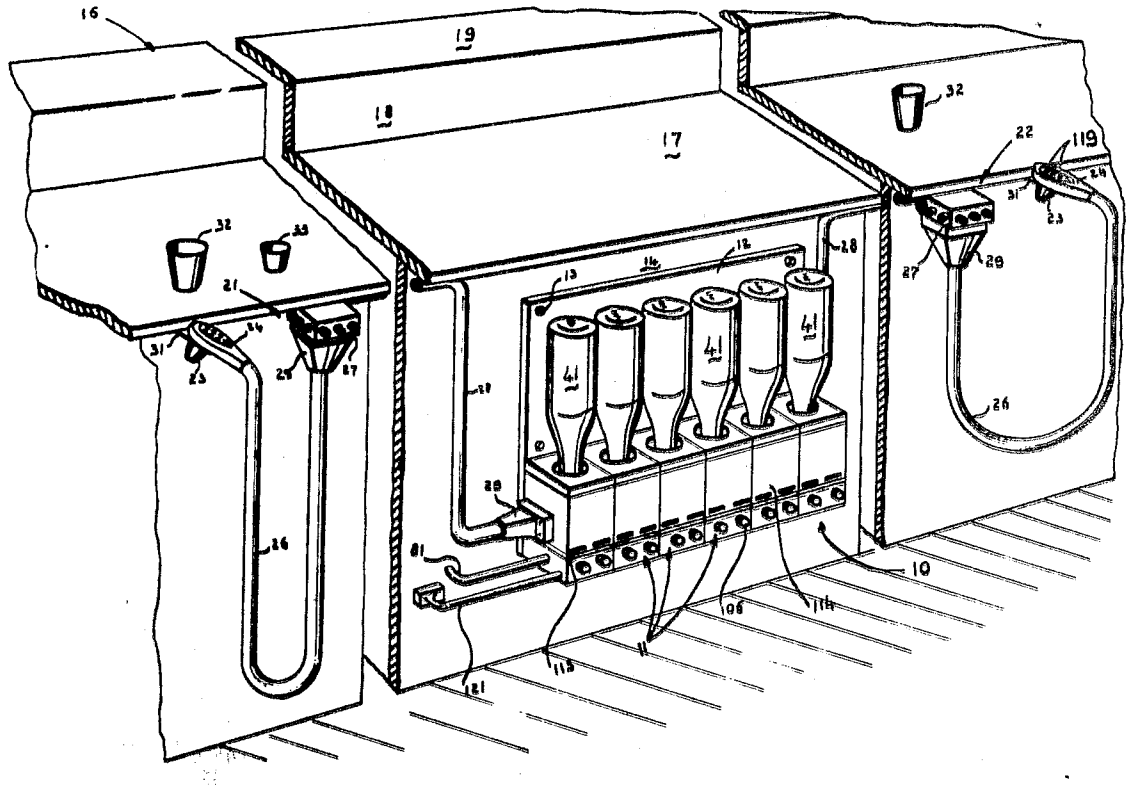
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ABSTRACT: Apparatus for dispensing in discrete, measured volumes liquid from a bottle inverted in a reservoir and connected with a pair of compressed-gas-operated pumps supplies liquid to one or more dispensing faucets. Pump delivery volumes may be varied. A control circuit insures delivery of the selected full volume with each pump stroke recorded on a counter and double volumes without counter actuations are precluded. An indicating bulb lights to signify an empty bottle. Liquid flow rate to the faucet is variable to obviate liquid splashing.



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SHEET 1 OF 3

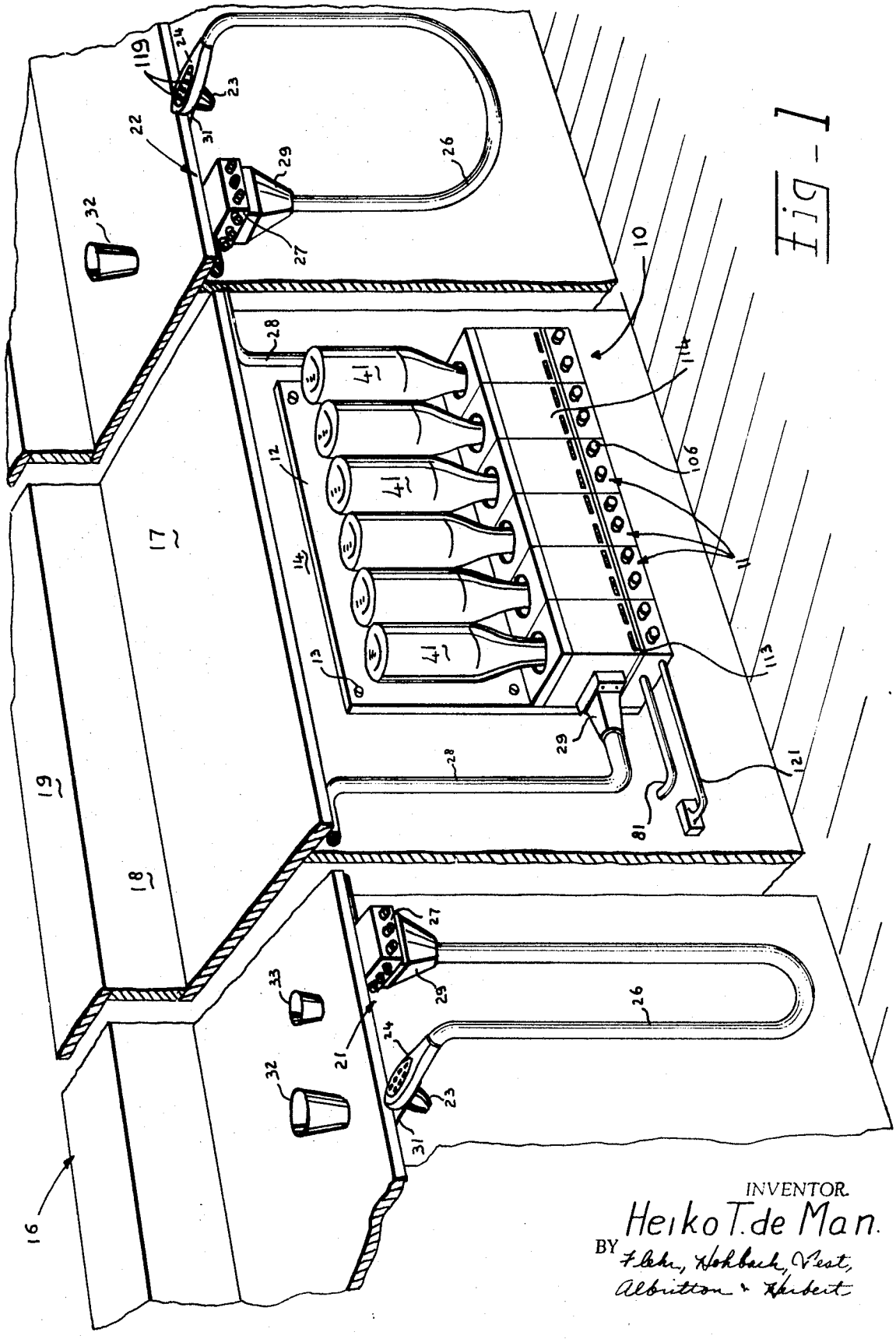


Fig - 1

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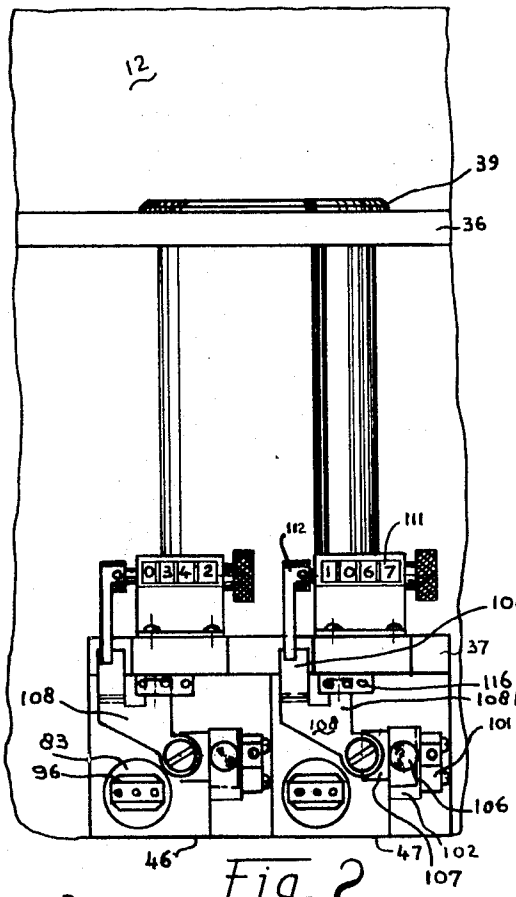


Fig-2.

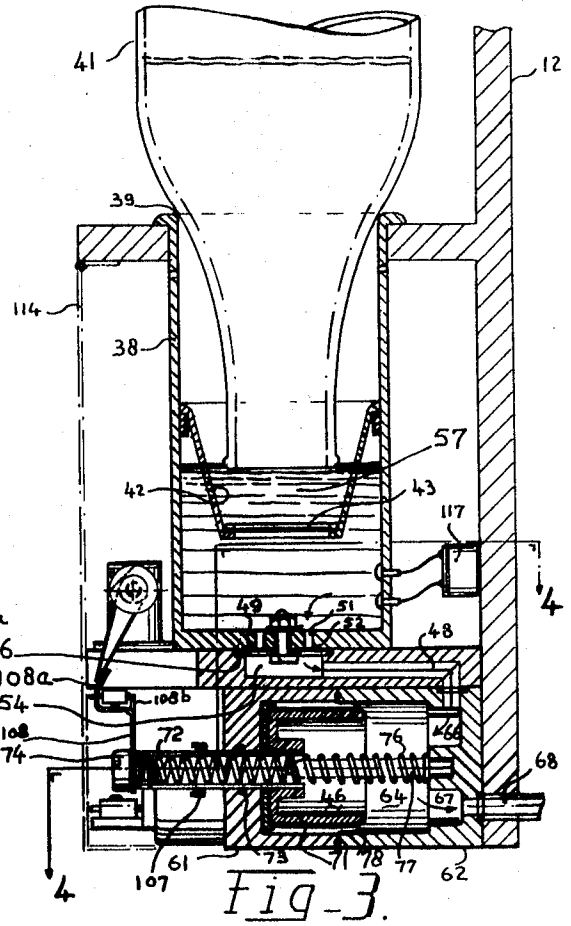


Fig-3.

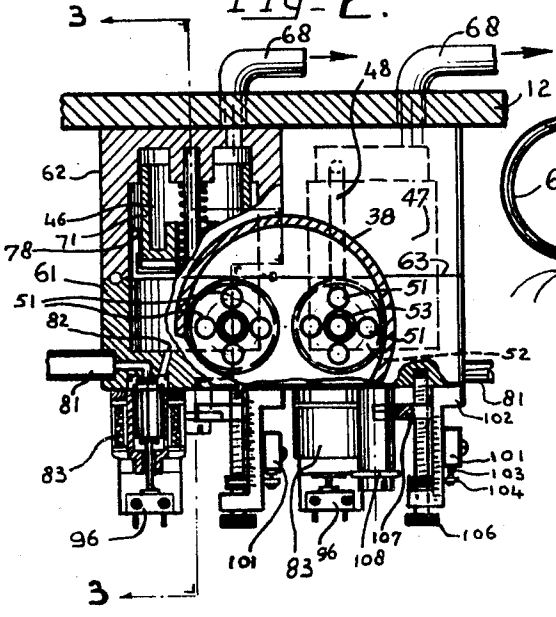


Fig-4.

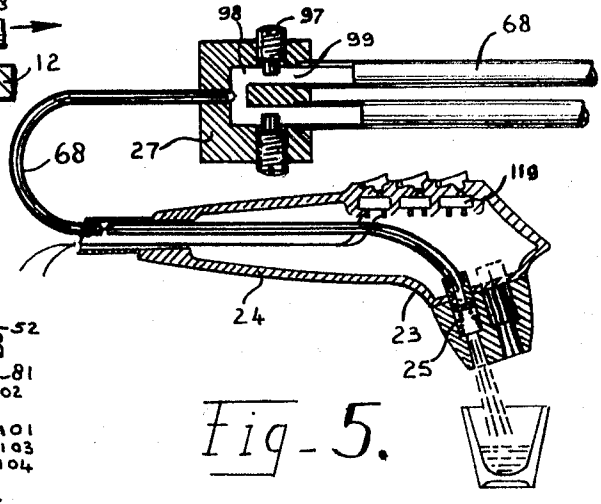


Fig-5.

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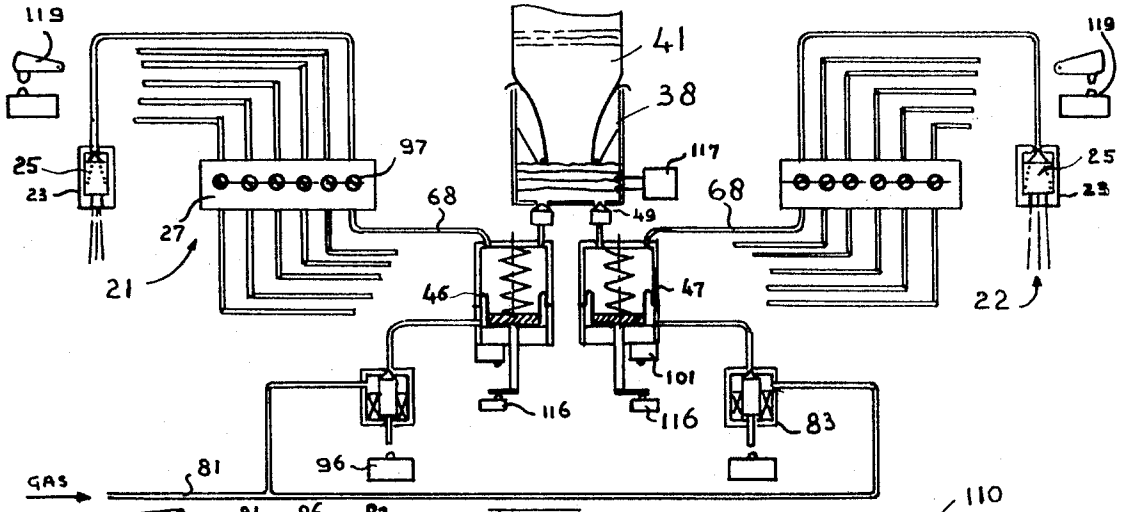


Fig_8

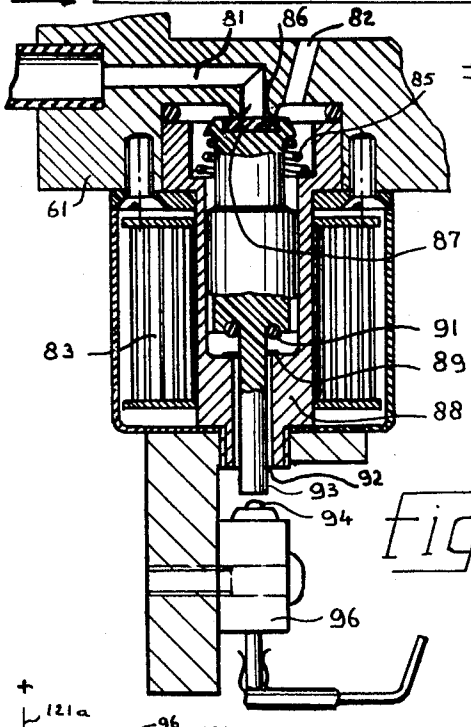


Fig_6

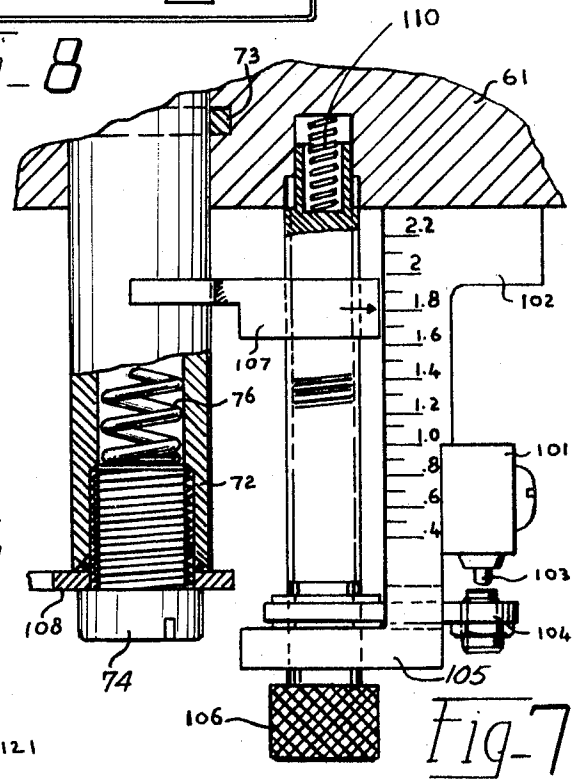


Fig_7

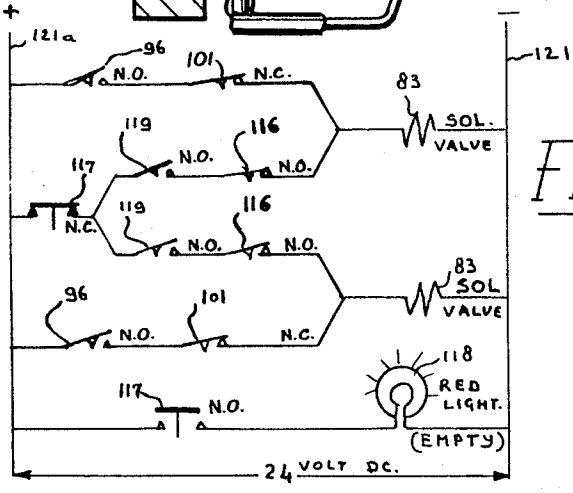


Fig_9

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LIQUID DISPENSER WITH LEVEL CONTROL

BACKGROUND OF THE INVENTION

This invention pertains generally to liquid-dispensing apparatus and more particularly relates to an improved apparatus for dispensing relatively high-priced liquids, such as distilled alcoholic beverages, in discrete measured volumes.

The prior art dispensers for liquids such as distilled alcoholic beverages or liquor were designed and constructed to utilize either a single or plurality of mechanical pumps for moving liquor from the bottle to the beverage glass, or use compressed gas or air to pressurize the liquor bottle for moving liquor from the bottle to the glass. Liquor dispensers using mechanical pumps and motors tended to be unduly bulky and expensive to manufacture because of the duplication of pumps and motors for each beverage-dispensing unit. Each pump and motor of the prior art units required electric solenoids and relays to effect the desired dispensing sequence, contributing greatly to the high manufacturing cost. Compressed gas or air pressurization of the beverage bottle posed a potential safety and loss problem should a bottle with a latent weakness in the glass rupture. Substitution of a full bottle for an empty one was frequently awkward in the prior art pressurized bottle systems. There is therefore a need for a new and improved liquid-dispensing apparatus.

SUMMARY OF THE INVENTION AND OBJECTS

The liquid-dispensing apparatus comprises a plurality of substantially identical dispensing units each connected to one or more dispensing faucets. Each unit includes a liquid receptacle to support a bottle of liquid in an inverted position in communication with a pair of separate, gas-actuated pumps, each connected to a dispensing faucet. A variable flow control mechanism is included in the pump discharge line to vary rate of delivery from the pump to avoid splashing liquor into the beverage glass. An electric control circuit actuated from the dispensing faucet permits operation of a solenoid actuated valve to emit compressed gas into the gas side of the pump while energizing a holding circuit to insure that the pump completes full stroke before recycle. Pump stroke adjustment is provided by a switch in the control circuit connected to deenergize the solenoid and a counter is actuated substantially simultaneously with operation of a full return switch as the pump completes the intake stroke. A liquid level sensor is arranged in the receptacle and cooperates in the circuit to light an indicating light when the bottle and receptacle approach a condition where the full volume of the pump is absent from the receptacle.

In general it is an object of the invention to provide liquid-dispensing apparatus in which particularly novel means are utilized for preventing the dispensing of either smaller or larger volumes of liquor than intended.

Another object of the invention is to provide an improved liquid-dispensing apparatus for dispensing a plurality of different liquids at two stations where each station can dispense the same number of beverages as there are dispensing units or each station can dispense in two different volumes a desired lesser number of beverages.

Another object of the invention is to provide a liquid-dispensing apparatus of the above character in which it is relatively easy to remove and replace empty liquid bottles.

Another object of the invention is to provide a liquid-dispensing apparatus of the above character which is simple in construction and arrangement and relatively inexpensive to manufacture and readily portable for ease of installation.

Additional objects and features of the invention will appear from the following description in which the preferred embodiment is set forth in detail in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view, partially broken away, showing a liquid-dispensing apparatus of the present invention operatively arranged in association with a counter or bar structure;

FIG. 2 is a front elevation of an individual dispensing unit included in the apparatus shown in FIG. 1, the inverted bottle of liquid being omitted herefrom;

FIG. 3 is a sectional view along the lines 3–3 of FIG. 4, the inverted bottle of liquid being shown herein;

FIG. 4 is a sectional view along the line 4–4 of FIG. 3;

FIG. 5 is a sectional view of a dispensing faucet included in the liquid-dispensing apparatus;

FIG. 6 is an enlarged detail sectional view of a solenoid-actuated gas valve included in each dispensing unit;

FIG. 7 is a view like FIG. 6 showing portions of the pump stroke adjustment mechanism;

FIG. 8 is a schematic diagram showing location of the various switches, conduits and pumps included in the liquid-dispensing apparatus; and

FIG. 9 is a schematic diagram of the electric circuit pertinent to the liquid-dispensing apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A liquid-dispensing apparatus **10** according to the present invention, is shown in FIG. 1 and, as an exemplary embodiment, comprises six substantially identical individual dispensing units **11** arranged side by side on a supporting wall or base **12**. The number of dispensing units grouped together may be varied to suit the particular economic and physical limitations of an installation. The support base is fixedly secured by fasteners **13** to an upstanding panel **14** of a counter or bar **16**. The counter may be of conventional construction and arrangement, including a table surface **17** overhanging the panel **14** on the one side, and on the other joining a vertical panel **18** which terminates in a horizontal serving surface **19**. The upstanding panel **14** is recessed with respect to the table surface **17** a distance so as to provide a suitable overhang over the liquid-dispensing apparatus **10** so that an operator may stand comfortably in front of the apparatus while working close to the counter.

On each side of the liquid-dispensing apparatus there is disposed on the bar **16** a dispensing station **21** and **22**, each equipped with a dispensing faucet **23**, including a hand piece **24** connected by a multiconduit hose **26** to a flow control regulator **27**. Each flow control regulator **27** is connected to the dispensing apparatus **10** by a second multiconduit hose **28**, the hoses **27** and **28** each being equipped with suitable connectors **29** to facilitate ready dismounting and assembly of the hoses with respect to their associated units. The flow control regulators **27** may be mounted beneath the overhang of the table surface **17** and the hand pieces **24** may be supported by keepers **31** mounted beneath the table surface **17** so that each hand piece is disposed in a convenient position for use by the operator in filling beverage glasses **32** or **33** with a predetermined volume of liquid from one of the six dispensing units **11**. A check valve **25** (FIGS. 5, 8) is arranged in the hand piece at the end of each of the plurality of liquid-dispensing lines **68** obviating air being sucked into the line **68** and avoiding liquid runout when the faucet is held at a lower level than the dispensing unit **11**.

From the above it will be understood that the liquid-dispensing apparatus **10** comprises a plurality of individual liquid-dispensing units **11**, each unit being in communication with two dispensing stations, each equipped with a hand-held dispensing faucet. In the illustrated embodiment, six dispensing units are shown so that there may be dispensed, for example, from the apparatus such common alcoholic beverages as bourbon, scotch and rye whiskies as well as gin, vodka and vermouth, to enable two bartenders or operators to make a variety of the popular alcoholic drinks. When desired, any one of the dispensing units could be adapted to dispense nonalcoholic carbonated mixes and the like. The dispensing

units are also useful in fields where precise amounts of liquids are dispensed on numerous occasions such as in medical laboratories, etc. It will be understood that each of the units 11 is of substantially identical construction and arrangement and accordingly only one will be described in detail below.

The typical dispensing unit 11 is provided with two spaced horizontally disposed support members 36 and 37 fixedly secured to the upstanding supporting wall or base 12 (FIGS. 2 and 3). A liquid receptacle or reservoir 38 is mounted through the upper support 36, the receptacle having upper smoothly curved flange portions 39 adapted to serve as support for an inverted or upside-down bottle 41, shown in FIG. 3. A cup-shaped bottle neck guide 42 is arranged midway in the height of the receptacle 38 to prevent tilting of the bottle 41, and the neck guide 42 is equipped with a gridlike screen 43 at the bottom. The screen is removable for cleaning the entrapped sediment which may deposit thereon. The neck guide is suitably tapered so as to accommodate in the reservoir 38 bottles of many different shapes and neck lengths.

The liquid receptacle is in communication with two compressed gas-actuated pumps 46 and 47 (FIG. 4). A conduit 48, having a one way or check valve 49, is arranged between the bottom of the receptacle and each of the two pump inlets as shown in FIG. 3. More particularly, the bottom of the reservoir or receptacle 38 is equipped with two discrete groups of apertures 51 which are covered on the underside of the receptacle by a flexible disc 52 retained in place by a central fastener 53. A cavity 54 having a stepped upper portion for supporting a sealing O-ring 56 is arranged in the bottom support member 37 and the cavity is in communication with the conduit 48. The flexible valve disc 52 of the valve 49 is designed to admit liquid to the conduit 48 under the pressure of the liquid head 57 and to return to an aperture-closing condition when the pump 46 proceeds to the discharge stroke, thus supplying a check valve function in the conduit between the reservoir and each of the two pumps. The relatively large combined areas of the valve apertures 51 permit the valve to deliver a large volume of liquid quickly at little resistance.

The two pumps 46 and 47 on each unit 11 are of substantially identical construction and arrangement so that the exemplary pump 46, FIG. 3, will be described in detail below.

The pump 46 comprises a two-part pump body 61, 62 joined together at a medial line 63 and, as a unit, is suitably secured to the base of supporting wall 12 below the horizontal support member 37. The pump body is provided with a generally cylindrical cavity 64 having at one end an inlet portion 66 in communication with the inlet conduit 48 and an outlet portion 67 in communication with a discharge conduit 68. A piston 71 is arranged for reciprocation within the cavity 64 and includes a hollow tubular piston rod 72 which projects through a complementary opening in the pump body portion 61, the rod being sealed with respect to the pump body by an O-ring 73. The pump rod is closed at its outer end by a cap 74 which serves as an abutment for an enclosed piston return spring 76 housed within the rod and maintained in a centered relationship with respect to the pump cavity by a spring guide pin 77 projecting through the center of the spring from the pump body half 62. Thus the piston is guided in its reciprocating motions by the piston rod and is biased by the return spring 76 toward the position illustrated in FIG. 3.

The pump 46 is actuated by either gas or compressed air to shift the piston to the right in a discharge or liquid-dispensing stroke, as viewed in FIG. 3. To this end, a gastight and liquid-tight seal is provided between the pump body and the piston by a flexible membrane or diaphragm 78 the outer periphery of which is retained between the confronting portions of the pump body halves 61, 62 and the inner periphery of which is suitably arranged in a sealing manner around the piston rod 72. Thus the membrane 78 functions to divide the pump cavity into a liquid-dispensing chamber receiving liquid from the receptacle, and a compressed gas chamber which receives gas or compressed air from a gas conduit 81 from a source (not shown) of compressed gas or air. A gas inlet passageway 82 in the compressed gas chamber of the pump cavity is provided in the pump body portion 61 and communicates with, as does the gas conduit 81, a valve seat 86 selectively blocked by a solenoid-actuated valve assembly 83. Actuation of the valve 83 admits gas from the gas conduit 81 into the inlet passageway 82 for advancing the piston in the pumping cycle against the bias of the piston return spring.

The solenoid-actuated valve 83 is arranged with respect to the pump body portion 61 (FIG. 6) so that a valve seat configuration 86 provided therein at the end of the gas passageway 81 may be closed by a valve plug 87 connected to one end of the solenoid armature. At the outer end of the solenoid armature there is arranged between the armature and the solenoid casing 88 a valve seat 89 and a casing sealing arrangement including a seal 91. The seat and seal surround a gas exhaust opening 92 in the casing through which a switch actuator pin 93 projects. The pin extends from the end of the solenoid armature for contact with an operator 94 of a circuit holding switch 96. When the solenoid assembly is energized it will effect movement of the valve plug from the valve seat 86. Simultaneously the solenoid casing 88 is sealed about the gas exhaust opening 92 by engagement of the seat 89 with the seal 91. Compressed gas or air may then flow from the compressed gas conduit 81 across the valve seat 86 into the valve casing and thence through the gas inlet passageway 82 into the pump gas chamber. When the solenoid valve assembly 83 is deenergized, the valve plug 87 returns to its normal position against the seat 86 by means of a spring 85 sealing off the compressed gas passageway 81. In this position of the valve plug, gas is free to escape from the gas side of the pump cavity into the solenoid casing and through the gas exhaust opening 92. Conventional spring means 85 are included in the solenoid assembly biasing the armature and valve plug in the direction to close against the seat 86.

To insure that liquid is not discharged from the liquid chamber of the pump cavity through the liquid discharge conduit 68 at an undesirably rapid flow rate through the faucet, such as would cause liquid to splatter out of the glass 33, a variable restriction 97 (FIG. 5) is provided in the flow control regulator 27. More particularly, a passageway 98 in communication with the discharge conduit 68, receives a movable plug 99 threadably mounted within the body of the regulator 27. Flow through the passageway 98 may be varied by advancing the plug with respect to the passageway to increase the back pressure or resistance to the piston thus controlling the rate of the piston's dispensing stroke.

With a single stroke of the pump piston 71, either the full capacity of the net swept volume of the pump cavity may be dispensed therefrom, or a smaller volume may be dispensed when that is desired. A smaller volume of liquid is dispensed by limiting the forward or dispensing stroke of the piston. This is preferably achieved through control of the gas volume presented to the gas side of the piston and by bringing into mechanical contact portions of the pump moving parts with the nonmoving parts. More particularly, the forward travel of the piston may be defined by deenergizing the solenoid actuated valve 83 through actuation of a piston stroke switch or cutoff switch 101, FIG. 7. A zee-shaped bracket or standard 102 extending outwardly from pump body portion 61 supports the switch 101 so that the switch operator 103 projects toward an arm 104 which is fixedly secured to an axially shiftable adjustment rod or shaft 106. The knurled head or outer portion of the shaft extends through a flange 105 in the bracket 102 while the inner portion of the adjustment rod 106 projects into a complementary cavity in the pump body portion 61 and is biased outwardly by a coil spring 110 therein so that the arm 104 on the rod 106 engages normally the flange 105 as shown in FIG. 7. A second arm or yoke 107 is adjustably mounted on a threaded portion of the rod 106. The yoke 107 extends towards a collar 108 arranged on the end of the piston rod 72. Rotation of the adjustment rod 106 serves to move the yoke 107 toward or away from the pump body serving as a pump volume indicator by cooperating with the adjacent portions of

the bracket 102 which are graduated, corresponding to selected volumes discharged by the pump (FIGS. 4, 7). Contact by the piston rod collar 108 with the yoke 107 serves to shift the adjustment rod 106 axially inwardly against the bias of the return spring 110, bringing the first arm 104 into actuating engagement with the operator 103 of switch 101 and also effecting mechanical engagement of the enlarged knob on the rod 106 with the bracket flange 105. The switch 101 is arranged in a control circuit (FIG. 9) to cause the solenoid-actuated valve to deenergize and shut off flow of gas to the pump gas chamber. Thus by selecting positions of the yoke on the adjustment rod, the quantity of liquid within the capacity of the pump in a single stroke may be varied over a wide range.

As shown in FIGS. 2 and 3 a unit counter 111 of conventional mechanical arrangement is mounted on the support 37 adjacent to each pump and includes a counter actuator arm 112 projecting downwardly for engagement with an upwardly and outwardly extending finger 108*a* of the collar 108. Thus, as the piston and piston rod is returned by the return spring 76, the collar finger portion 108*a* engages and actuates the counter arm 111 to indicate on the counter 112 that the pump has completed one liquid dispensing cycle. An accounting of the number of pump cycles may be readily made on each dispensing unit by visual examination through an opening 113 (FIG. 1) in a covering transparent door 114 hingeably mounted in the support 36. Should it be desired, the door 114 may be locked to prevent tampering with the counter.

Referring to FIGS. 2 and 9, a piston full return switch 116 is secured to the support member 37 so that the switch operator may be engaged by a second finger 108*b* of collar 108, when the piston rod has been returned to the fully retracted condition. The return switch is closed by engagement with the finger 108*b* and is connected in the control circuit to require full return of the piston before a subsequent energization of the solenoid may be effected.

A liquid level sensor 117 is mounted as indicated in FIG. 3 so that the liquid-sensing elements project through the wall of the receptacle 38, and is connected in the control circuit to open the circuit when there remains in the receptacle a volume of liquid smaller than the full capacity of a single stroke of the pump, thereby insuring that a short measure is not distributed by the pump. The liquid level sensor is arranged in the circuit as illustrated diagrammatically in FIG. 9 and also serves to illuminate a red indicating light 118 when the minimum liquid level is reached, thereby signalling the operator that the bottle 41 is empty and should be replaced.

The dispensing faucet 23 has mounted in the hand piece 24 a selector switch 119 for actuating each pump (FIG. 5). Thus, each hand piece 24 on a two station installation, FIG. 1, would be provided with six selector switches 119, one for each dispensing unit. Alternately, one hand piece could be connected to only three liquid-dispensing units each containing two pumps. Thus the operator in this arrangement would have available to distribute from a single hand piece, two different measures of each beverage in each of the three units connected to the hand piece and faucet, as indicated in FIG. 5. The discharge conduit 68 of the two pumps would join at a wye within the control regulator 27 as shown in FIG. 5.

A preferred arrangement is indicated in FIG. 8 wherein each hand piece is connected to each of the six beverage dispensing units, thereby enabling each of the two operators to dispense from a single hand piece six different beverages. The hose 26, 28 may contain a great plurality of liquid conduits as well as the associated electrical wiring, and such is presently known in the art.

The electrical circuit for the liquid-dispensing apparatus is shown in FIG. 9 and is preferably a 24-volt DC potential in the line 121. The switches are arranged in a circuit as shown with the symbol NO indicating a "normally open" switch and the symbol NC indicating a "normally closed" switch condition.

OPERATION

Let it be assumed that a 6-unit liquid-dispensing apparatus having two dispensing stations is arranged as shown in FIG. 1, and it is desired to dispense at each station six different beverages. For example, each station is arranged to distribute discrete volumes of from one ounce to two ounces as desired, a quantity of whiskey, gin, vodka, rum, scotch, and rye. With the cap removed, a bottle of each of the six beverages is placed in an upside-down condition within the receptacle or reservoir 38 so that the curved flanges 39 engage the bottle shoulder and the neck of the bottle extends into the neck guide 42 which serves to maintain the bottle in a substantially upright condition. The liquid drains from the bottle to fill the pump conduit 48 through the check or one-way valve 49 and the reservoir 38 until the meniscus is formed about the end of the bottle neck.

A source of compressed air or gas is connected with the gas passageway 81 and a supply of electric current is furnished to the line 121. Each operator should select the volume of liquid desired from each of the six pumps under his control and to this end should adjust each of the six adjustment rods 106 to supply the desired volume through placement of the yoke 107 in relation to the scale on the adjacent bracket 102. The counters 111 may also be set to a desired reading at this time, whereupon the cover 114 may be secured in place in a closed condition. By depressing a selected one of the six selector switches 119 on the hand piece, there will be effected energization of the solenoid valve 83 permitting gas to enter the gas chamber of the pump and move the piston toward the right (FIG. 3) against the bias of the return spring 76, to urge a volume of liquid through the conduit 68 past the variable restriction 97, to the hand piece discharge line and into the beverage glass. It is only necessary for the operator to depress the selector switch 19 momentarily, in that a holding circuit is established through the switch 96 actuated by the rod 93 extending from the solenoid armature and when the operator releases the selector switch 119, the pump will continue through its full cycle. When the collar 108 on the pump rod 72 is carried to an inward position for engagement with the yoke 107, the piston stroke switch 101 is opened, thereby deenergizing the solenoid 83, causing the valve plug to shift to the normal position against the valve seat. The piston return spring returns the piston to its original condition expelling gas from the gas side of the pump cavity through the solenoid valve casing and also causing liquid to be drawn into the pump cavity on the liquid side of the pump. When the piston and piston rod are returned to the original position, the collar finger 108*b* actuates full return switch 116 to the closed condition, thereby permitting a subsequent actuation of the selector switch 119. It should be noted here that the pump will not cycle again through actuation of the selector switch 119 until the piston has made its full return for closing switch 116. Upon return of the piston and piston rod to its original condition, the collar finger 108*a* will engage a counter arm 112 to indicate the dispensing from the pump of the selected volume of liquid. Should the liquid level in the reservoir supplying the two pumps fall below a level insufficient to fill one pump to capacity, the liquid level sensor 117 will be actuated to open the control circuit and illuminate the bulb 118 indicating that the unit is empty and the bottle 41 must be replaced.

It will appear from the foregoing that there has been described an improved liquid-dispensing apparatus which is flexibly adapted to supply a plurality of stations at a service bar or the like with the facility of dispensing a single beverage in two different volumes or to supply a variety of beverages at a preselected volume each. The volume of beverages may be readily adjusted and an accurate tabulation may be kept over the number of portions served while preventing serving of short portions or too generous portions. The liquid-dispensing apparatus 10 is relatively inexpensive and can be readily installed in existing facilities without interfering with proper operation of the beverage-dispensing establishment.

I claim:

1. In apparatus for dispensing discrete, measured volumes of liquid, having a substantial content of alcohol as exemplified by whiskeys, gin, vodka, brandy, etc., from a supply thereof, the combination comprising a supply vessel for the liquid to be dispensed, a pump including a pump body, a dispensing faucet remote from said pump, said pump body having a cavity for pump action therein, a piston arranged in said cavity for reciprocation, said piston being spaced from the sidewalls of said cavity, a flexible membrane seal arranged in the annular space between the cavity sidewalls and said piston, a central portion of said membrane seal being supported by and sealingly secured to said piston, the outer peripheral portion of said membrane being sealingly secured to the cavity sidewalls serving to define in said cavity a gas chamber on one side of said piston and a liquid dispensing chamber on the opposite side of said piston, said pump body having a liquid inlet and outlet with respect to said liquid-dispensing chamber, first conduit means providing the liquid inlet with communication to said supply vessel, second conduit means providing the liquid outlet with communication to said remote dispensing faucet, means defining a gas passageway in said pump body communicating with said gas chamber, gas conduit means connecting said passageway means with a source of compressed gas for advancing said piston through said liquid chamber to expel a measured volume of liquid therefrom to said dispensing faucet, a hollow piston rod closed at one end extending from said pump body and fixedly secured to said piston, an elongated piston return spring arranged in said hollow piston rod and extending across said liquid-dispensing chamber, said spring means serving to return said piston to a starting position for filling said liquid chamber from said supply vessel, check valve means operatively arranged in said pump liquid inlet, solenoid actuated valve means arranged for selectively opening and closing said gas passageway means for regulating gas flow to said gas chamber for advancing said piston, said solenoid-actuated valve means including means biasing said valve to a closed condition upon deenergization of said solenoid, and dispensing faucet switch means, said switch means and said solenoid being arranged in a control circuit serving to energize said solenoid in response to actuation of said dispensing faucet switch means.

2. The liquid-dispensing apparatus of claim 1 wherein there is included flow-adjusting means arranged in said second liquid conduit means serving to control the rate of advancement of said piston in the liquid-dispensing stroke and the rate of discharge of liquid from said dispensing faucet.

3. The liquid-dispensing apparatus of claim 1 wherein said control circuit having therein said solenoid-actuated valve means and said dispensing faucet switch means further includes circuit holding switch means, piston stroke cutoff switch means, piston starting position switch means and minimum liquid level switch means, wherein said switch means are arranged in circuit such that said holding switch means is responsive to energization of said solenoid means serving to maintain the control circuit in a closed condition, said solenoid means being responsive to said piston stroke cutoff switch means for deenergization of said solenoid means, said full return switch means serving in said circuit to maintain the circuit in an open condition until said piston has returned fully to the starting position, said minimum liquid level switch means serving in said circuit to retain a closed condition until the liquid level in said receptacle falls below a volume insufficient to fill said liquid chamber of said pump.

4. The liquid-dispensing apparatus of claim 1 and further including switch means in said control circuit serving to actuate said solenoid valve means to close said gas passageway and limit forward movement of said piston, and actuator means mounted on said pump body cooperable with said switch means and the portion of said piston rod extending from said pump body for actuating said switch means once the piston has reached a predetermined forward position in the liquid dispensing stroke.

5. The apparatus as defined in claim 4 wherein said actuator means includes a bracket supporting said switch means, a shaft supported at its outer end by said bracket in a generally parallel relationship to said pump rod, said shaft being mounted for axial movement with respect to said bracket, a first arm extending laterally from said shaft and overlying an actuator of said switch means, a second arm on said shaft extending toward said piston rod, said second arm being movable to selected positions on said shaft corresponding to selected stroke lengths of said piston, and means movable with said piston rod for engaging said second arm to shift said shaft axially bringing said first arm into an actuating condition with said actuator of said switch means serving to actuate said solenoid valve means to close said gas passageway.

6. The liquid-dispensing apparatus of claim 1 wherein said solenoid-actuated valve means includes a solenoid armature arranged for reciprocation, a rod movable with said armature extending outwardly from said solenoid valve means, holding circuit switch means mounted on said apparatus and equipped so that the actuator of said switch may be operated by said armature rod upon actuation of said solenoid valve means, said switch means serving in said control circuit to maintain said solenoid in an energized state upon opening of said dispensing faucet switch means.

7. In apparatus for dispensing a given number of different liquors, as exemplified by whiskeys, gin, vodka, brandy etc., from inverted bottles thereof at two separate dispensing stations, the combination comprising a support base, dispensing units equal in number to such given number, each unit being of substantially identical arrangement and disposed in side-by-side relationship on said support base, each dispensing unit including a liquid receptacle having means thereon for supporting one inverted bottle of liquor, two compressed-gas-actuated, reciprocating pumps, means defining liquid inlets to said pumps from said receptacle, means defining liquid outlets from said pumps, check valve means for said inlets operative to open said inlets for filling the pump with liquid and to close the inlets during liquid dispensing, each pump including a pump body having a cavity for pump action therein, a piston arranged in said cavity for reciprocation, said piston being spaced from the sidewalls of said cavity, a flexible membrane arranged in the annular space between the cavity sidewalls and said piston, a central portion of said membrane seal being supported by and sealingly secured to said piston, the outer peripheral portion of said membrane being sealingly secured to the cavity sidewalls serving to define in said cavity a gas chamber and a liquid-dispensing chamber on opposite sides of said membrane seal, two dispensing faucets each remote from said unit, multipassageway conduit means connecting each faucet with one of the pumps on each dispensing unit, means on said pump body defining a gas passageway to each of the gas chambers of said pumps, for advancing the respective pump pistons through a liquid-dispensing stroke, spring means acting upon each piston for returning the piston to a starting position for filling the pump liquid chamber from the liquid receptacle, each pump having solenoid-actuated valve means in the associated gas passageway arranged so that energization of said solenoid admits pressurized gas to the gas chamber of such valve, and including means biasing said valve means to a closed condition upon deenergization of said solenoid, and switch means on each dispensing faucet equal in number to said given number and each connected to a circuit containing said solenoid means so that closing said switch serves to operate a solenoid associated with one of said pumps in one of said dispensing units.