

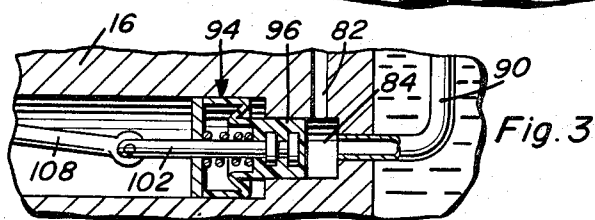
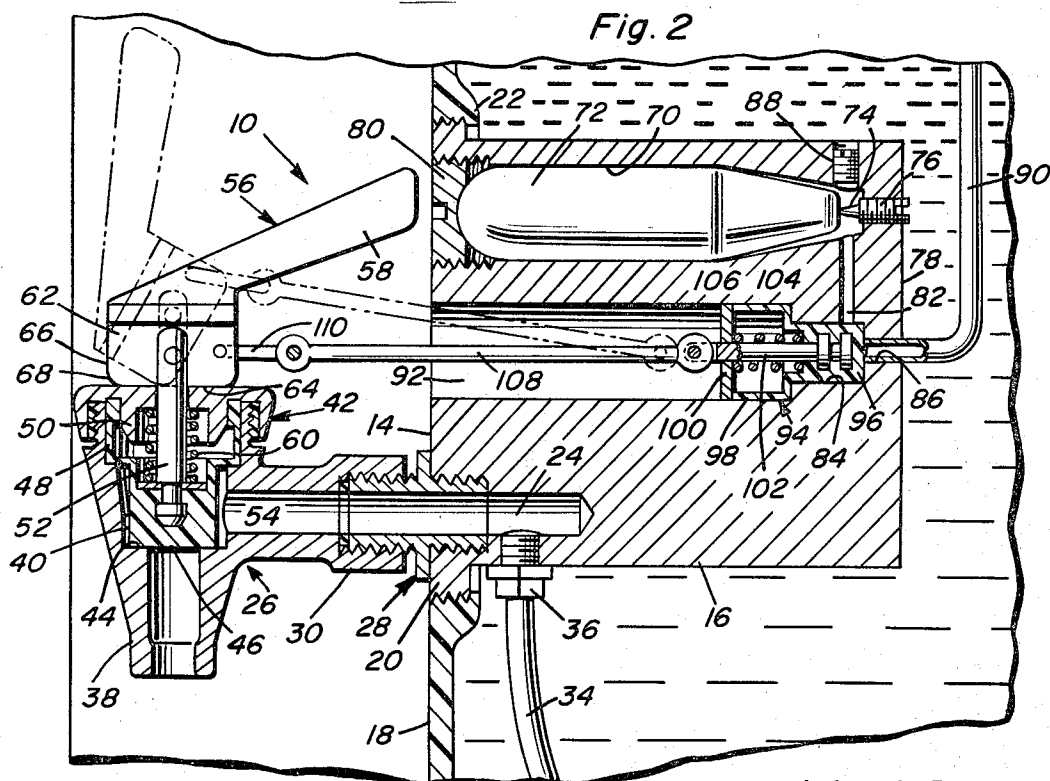
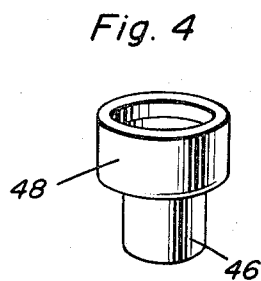
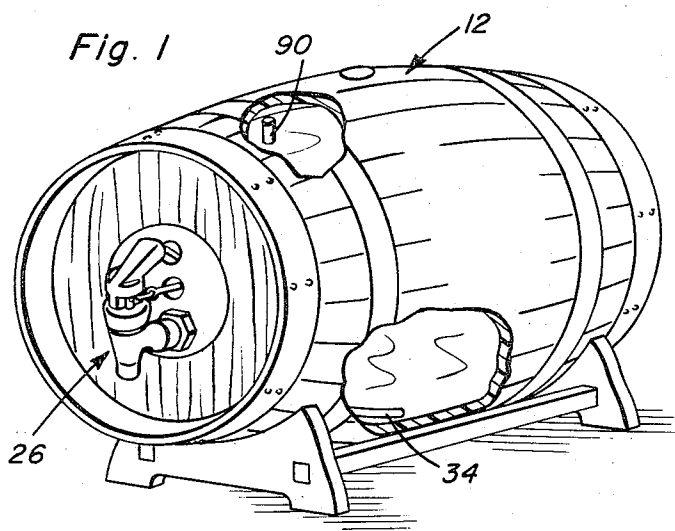
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3,373,907

CONTROL UNIT FOR LIQUID DISPENSING

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3,373,907

CONTROL UNIT FOR LIQUID DISPENSING

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Continuation of application Ser. No. 553,347, May 27, 1966. This application Apr. 27, 1967, Ser. No. 634,147
10 Claims. (Cl. 222-399)

ABSTRACT OF THE DISCLOSURE

A self-contained liquid dispensing unit, mountable on a liquid container, incorporating a pressurized gas container and means for effecting a controlled introduction of the gas into the liquid container solely during the dispensing of the liquid.

This application is a continuation on now abandoned application No. 553,347 filed May 27, 1966.

The instant invention is generally concerned with a control unit for the dispensing of beer, soft drinks, etc., under pressure, and more specifically relates to a control unit incorporating and selectively effecting the discharge of a pressurized gas container for the purpose of facilitating the dispensing of the liquid.

It is a significant object of the instant invention to provide a control unit which is particularly adapted for use with beer kegs, barrels, or the like and which incorporates therein a means for selectively introducing a charge into the keg or barrel simultaneously with the dispensing of the liquid.

In conjunction with the above object, it is also a significant object of the instant invention to provide a control unit wherein the pressurized gas, generally carbon dioxide, is introduced solely during the dispensing operation.

Further, it is a significant object of the instant invention to provide a device which eliminates the necessity of providing a constant high gas pressure and the corresponding necessity of providing a tank, seals, and the like capable of withstanding a constant high pressure. Also, along these lines, it is significant that the use of the control unit of the instant invention for the selective introduction of gas avoids any tendency for an excessive buildup of pressure.

Another important object of the instant invention resides in the provision of a control unit which is both structurally and operationally simple, and capable of effectively providing trouble-free operation.

In addition, it is a significant object of the instant invention to provide a control unit, including a dispensing spigot, which is compact in structure and capable of being simply adapted for mounting upon any conventional beer container, the control unit finding equal adaptability in both commercial and home use.

Basically, the control unit of the instant invention includes a solid cylindrical body, constructed of Bakelite or the like, mountable flush with the end face of a beer keg, barrel, or the like through a diametrically enlarged mounting flange. The body includes a first bore therein which is communicated, toward the inner end thereof, with a siphon tube through which the beer is drawn, a dispensing spigot being mounted in communication with this bore and projecting forwardly therefrom. Vertically above the dispensing bore is an enlarged cartridge chamber which receives a suitable pressurized gas cartridge, such as a conventional CO₂ cartridge. This cartridge chamber has a cartridge piercing pin adjustably mounted on the inner end thereof in a manner whereby upon an insertion of the cartridge and a threaded locking of the plug therebehind, the cartridge is pierced and the gas

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released. The gas travels through a pair of perpendicularly related flow passages in the body, and into the upper portion of the interior of the keg by means of a suitable gas discharge tube. These gas flow passages are selectively closed by a sealing plug which is positioned at the inner end of a second bore provided parallel between the first bore and the cartridge chamber. This plug is controlled directly from the spigot handle through an elongated link whereby upon a movement of the handle toward its dispensing position, the plug is so moved as to allow for free flow through the gas flow passages into the gas discharge tube. Upon a release of the spigot handle so as to stop the dispensing of the beer, the flow line plug automatically returns to prevent a further discharge of gas into the keg.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective illustration of one form of beer keg having the control unit of the instant invention mounted thereon;

FIGURE 2 is an enlarged partial cross-sectional view through the mounted control unit;

FIGURE 3 is a partial cross-sectional detail illustrating the gas flow line plug in its retracted position; and

FIGURE 4 is a perspective view of the similar plugs used in both the spigot and in the control unit body.

Referring now more specifically to the drawings, reference numeral 10 is used to generally designate the control unit comprising the instant invention. This control unit is to be mounted centrally within one end of a beer keg or barrel 12 in a manner so as to position the forward end or face 14 of the body 16 of the unit 10 flush with the end wall 18 of the keg.

The body 16 of the control unit 10 is to be solid and cylindrical in shape with the mounting of the body 16 being effected through an integral enlarged circular flange 20 about the forward end thereof. This flange 20 is to be externally threaded for threaded engagement within an enlarged internally threaded hole in the forward wall 18 of the keg 12 as clearly detailed in FIGURE 2. If so desired, a suitable limit shoulder 22 can be provided so as to effect a proper positioning of the body 16 with the front face 14 thereof flush with the face of the end wall 18.

The cylindrical body 16 is provided with a first inwardly directed blind core 24 extending inwardly from the forward face thereof and within the lower portion of the body 16. The dispensing spigot 26 is mounted in longitudinal alignment and direct fluid transmitting communication with the bore 24 through a suitable adapter 28 having a first end thereof threaded within the internally threaded outer portion of the bore 24 and the other end thereof threaded within the internally threaded coupling end 30 on the inner end of the spigot 26. For ease in installation, a suitable enlarged tool gripping nut like portion 32 can be provided on the adapter 28. The inner end of the bore 24 is provided in direct communication with a laterally extending siphon pipe 34 by means of a suitable threaded coupling 36.

The spigot 26 includes a downturned outer end or spout 38 with the horizontal and vertical flow passages through the spigot 26 communicating with each other through an enlarged chamber 40 which in turn opens vertically upward through the spigot 26 and is selectively closed and sealed by a cap unit 42. The enlarged chamber 40 over the vertical flow passage through the outlet end 38 of the spigot 26 defines an annular shoulder or seat 44 upon which the sealing plug 46 selectively seats

so as to prevent discharge through the spout or outlet end 38.

The sealing plug 46 includes an upwardly directed diaphragm type hollow collar defining portion 48 which is snugly received and sealingly clamped within the upper portion of the enlarged spigot chamber 50 by means of an integral depending central collar 50 on the cap 42 which in effect clamps the thickened upper section of the cylindrical collar like portion 48 against the chamber wall. The collar like portion 48 is of course flexible so as to enable a vertical retraction of the sealing plug 46 away from the seat 44 so as to enable a flow of liquid therethrough.

The retraction of the plug 46 is effected through a vertically elongated rigid rod 52 having a head 54 on the lower end thereof permanently embedded within the plug 46 itself. The rod 52 projects vertically through the chamber 40 and the cap 42 for pivotal engagement with the handle 56 in a manner whereby a raising of the handle arm 58 will effect a vertical movement of the rod 52 and a vertical retraction of the plug 46 away from the seat 44. Upon a release of the handle 56, the plug 46 will be returned to its seated position through the action of a coiled compression spring 60 encircling the rod 52 within the chamber 40 and engaged between the inner end of the cap 42, within the integral depending collar 50 thereon, and the upper surface of the plug 46, this return movement of the plug 46 also causing an automatic positioning of the handle 56 into its at rest position.

The actual vertical raising of the rod 52 by the handle 56 is effected through the provision of an enlarged body 62 which includes a flat lower face 64 and a vertical forward face 66 with an arcuate camming corner 68 therebetween. Through this construction, as the handle arm 58 is moved forwardly, the body portion 62 will pivot upwardly about the arcuate corner 68 so as to effect a raising of the rod 52, the upper end of which is pivotally secured to the body portion 62 rearwardly of the vertical forward edge 66 thereof. Upon a release of the handle arm 58, as noted supra, the spring 60 will effect a return of the sealing plug 46 and a corresponding return of the handle 56.

Provided vertically above the spigot bore 24, adjacent the upper end of the control unit body 16, is an enlarged chamber 70 extending inwardly from the forward face 14 of the body 16, this chamber 70 being shaped so as to receive a suitable pressurized gas cartridge 72, such as a conventional CO₂ cartridge. The inner end of the chamber 70 is provided with a cartridge piercing pin 74 which can be provided with a threaded adjustable shank portion 76 exposed for adjustment through the inner face 78 of the body 16. The outer end of the chamber 70 is internally threaded and removably receives a cap or plug 80 which, subsequent to the introduction of a cartridge 72, acts so as to both close the chamber 70 and move the cartridge 72 into piercing engagement with the needle or pin 74.

A vertical gas flow passage 82 depends from the inner end of the chamber 70 and is in turn communicated, through an enlarged plug receiving chamber 84, with a horizontal flow passage 86 which extends through the inner face 78 of the body 16. It is through these flow passages 82 and 86 that the pressurized gas is introduced into the keg 12. It will be noted that a plug closed passage 88 projects in longitudinal alignment above the vertical flow passage 82, this passage 88 acting as a clean out access for use as needed in cleaning the device. The horizontal flow passage 86 receives an elongated pressure introducing tube 90 which extends into the keg 12 and is upwardly directed so as to effect a discharge of the pressurized gas above the level of the beer, thereby providing for a constant pressure over the entire surface of the beer.

The chamber 84, provided between the flow passages 82 and 86, constitutes a reduced coaxial continuation of an elongated bore 92 vertically aligned with and positioned

between the bore 24 and the chamber 70. Mounted within this bore 92 is a sealing member 94 similar in construction to the plug 46 and integral collar 48 of the spigot 26. The plug 96 of the sealing element 94 is snugly received within the chamber 84 with the flexible sealing collar portion 98 thereof positioned in the enlarged forward end of the bore 92 by means of a fixed bulkhead 100. A control rod 102 has the headed end 104 fixed within the plug portion 96 thereof with the rod 102 projecting rearwardly therefrom through the bulkhead 100. A suitable coil compression spring 106 encircles the control rod 102 and is engaged between the plug 96 and the bulkhead 100 so as to effect a forward biasing of the plug 96 into sealed engagement within the chamber 84 so as to prevent flow of the pressurized gas between the passages 82 and 86. The rear end of the control rod 102 is pivotally engaged with an elongated link 108 which in turn has the rear end thereof pivotally engaged with the inner portion of the handle body 62 by means of a suitable pivot connector or yoke 110. In this manner, as the handle 56 is pivoted upwardly and forwardly about the corner 68, a generally straight line pull is effected on the rod 102 and the sealing plug 96 retracted so as to allow for a flow of the pressurized gas into the keg 12.

From the foregoing, it will be appreciated that a device has been defined wherein a simultaneous introduction of pressurized gas into the keg 12 is effected with the dispensing of the beer therefrom through the spigot 26. This introduction of gas is controlled directly from the spigot handle 56 with a release of the spigot handle resulting in an immediate ceasing of the dispensing of the beer along with an immediate cutoff of the pressurized gas. This has been effected utilizing a control unit which, while structurally and operationally simple, possesses a uniqueness and usefulness heretofore not contemplated in dispensing units for pressurized liquids.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A dispensing unit for selectively pressurizing and dispensing a liquid, said unit comprising an enlarged body having inner and outer ends, liquid passing means extending into said body through the outer end thereof, means communicating said liquid passing means with the exterior of said body inward of the outer end thereof, a chamber extending inwardly into said body from the outer end thereof, said chamber being laterally spaced from said liquid passing means and selectively receiving a pressurized gas container, a gas flow passage extending between and communicating the chamber and the exterior of the body inward of the outer end of the body, first movable seal means associated with and selectively opening and closing said liquid passing means, second movable seal means associated with and selectively opening and closing said gas flow passage, means for simultaneously moving both seal means for a simultaneous opening or closing of the liquid passing means and the gas flow passage, said liquid passing means including a pouring spigot mounted on the outer end of said body and a communicating bore extending inwardly from said spigot into said body, said first seal means being mounted within said spigot, said means for moving both seal means comprising a handle movably mounted on said spigot and separate means engaging said handle with both seal means, and a second bore extending inwardly from the outer end of said body into communication with the gas flow passage, said second seal means being mounted within said second bore and movable into and out of a sealing position within the gas flow passage, said means engaging said handle with the second seal means com-

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prising an elongated link engaged between the second seal means and the handle through the second bore.

2. The unit of claim 1 including separate spring means resiliently biasing both seal means to a closed position, said spring means being operative in conjunction with a releasing movement of the handle to effect a closing movement of both seal means.

3. The unit of claim 2 including mounting means on the outer end portion of said body for engaging said body within a mounting aperture in a liquid container.

4. For use in combination with a liquid container, a dispensing unit for selectively pressurizing liquid in and dispensing liquid from the container, said unit including an enlarged body, said body having an outer end, an inner end, and a peripheral wall, a first bore extending into said body from the outer end, passage means communicating said bore with the exterior of said body inward of the outer end thereof, a chamber for a pressurized gas container defined in said body laterally of said bore, closable access means to said chamber through said outer end, a gas flow passage communicating the chamber with the exterior of the body inward of the outer end thereof, a second bore extending into said body from the outer end thereof, said second bore being laterally spaced from the first bore and intercepting said gas flow passage, a spigot mounted on said body forward of and in communication with said first bore, valve means in said spigot, a handle movably mounted on said spigot, means interconnecting said handle and spigot valve means for a selective opening and closing thereof, a sliding sealing plug within said second bore selectively movable into sealing position within the gas flow passage, and means interconnecting said handle and said sealing plug for a selective sliding of the plug into sealing position substantially simultaneously with a closing of the spigot valve means.

5. The unit of claim 4 wherein the means interconnecting said handle and sealing plug comprises a mounting member rigid with said plug, an elongated link extending from said mounting member to said handle through said second bore, and pivot means interconnecting the opposite ends of said link to said mounting member and said handle.

6. The unit of claim 5 including a laterally enlarged mounting flange about the outer end of said body, said flange including an externally threaded edge.

7. The unit of claim 5 including spring means resiliently biasing said plug and valve means into flow preventing position.

8. The unit of claim 7 wherein said handle is positioned for pivotal movement about a point thereon, said means interconnecting said handle and valve means comprising a rigid link fixed to the valve means and pivoted to the handle outward of the point about which the handle pivots, whereby a longitudinal movement of this link is effected in response to a pivotal movement of the handle.

9. For use in combination with a liquid container, a dispensing unit for selectively pressurizing liquid in and dispensing liquid from the container, said unit having an outer end and an inner end, a first bore extending into said unit from the outer end, passage means communicating said bore with the exterior of said unit inward of the outer end thereof, a chamber for a pressurized gas container defined in said unit laterally of said bore, closable access means to said chamber, a gas flow passage

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communicating the chamber with the exterior of the unit inward of the outer end thereof, a second bore extending into said unit from the outer end thereof, said second bore being laterally spaced from the first bore and intercepting said gas flow passage, a spigot mounted on said unit forward of and in communication with said first bore, valve means in said spigot, a handle movably mounted on said spigot, means interconnecting said handle and spigot valve means for a selective opening and closing thereof, a sliding sealing plug within said second bore selectively movable into sealing position within the gas flow passage, and means interconnecting said handle and said sealing plug for a selective sliding of the plug into sealing position substantially simultaneously with a closing of the spigot valve means.

10. For use in conjunction with a sealed liquid container, a dispensing unit for selectively pressurizing liquid in and dispensing liquid from the container, said unit having inner and outer ends, the outer end of said unit having a mounting flange projecting outwardly thereabout, said flange having mounting means thereon for a sealed locked engagement of this flanged end of the unit with an associated container, the unit inward of the flanged outer end being of a lesser cross-sectional area than the flanged outer end for reception within the container upon an engagement of the flange with the container, liquid passing means extending inwardly through and from said outer end into communication with the exterior of said unit inward of the flanged outer end thereof, a chamber within said unit inwardly of said flanged outer end, said chamber being laterally spaced from said liquid passing means and selectively receiving a pressurized gas container, a gas flow passage extending between and communicating the chamber and the exterior of the unit inward of said outer end, first seal means associated with and selectively closing said liquid passing means, second seal means associated with and selectively closing said gas flow passage, means for simultaneously operating both seal means for a simultaneous opening and closing of the liquid passing means and the gas flow passage, said liquid passing means including a pouring spigot mounted on the outer end of said unit and projecting outwardly therefrom, a communicating bore extending inwardly from said spigot into said body, said first seal means being mounted within said spigot, said means for simultaneously operating both seal means comprising a handle movably mounted on said spigot, means engaged between said handle and said first seal means for effecting the operation of said first seal means, a bore extending inwardly through said outer end, and link means extending through said bore and defining a means whereby the handle operates said second seal means.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,373,907

March 19, 1968

John A. Batrow

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading to the drawing, line 3, strike out "Original Filed May 27, 1966", and insert instead -- Filed April 27, 1967 -- in the heading to the printed specification, lines 5 and 6, strike out "Continuation of application Ser. No. 553,347 May 27, 1966. This application", and insert instead -- Filed --; column 1, lines 19 and 20, strike out "This application is a continuation on now abandoned application No. 553,347 filed May 27, 1966.".

Signed and sealed this 22nd day of July 1969.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents