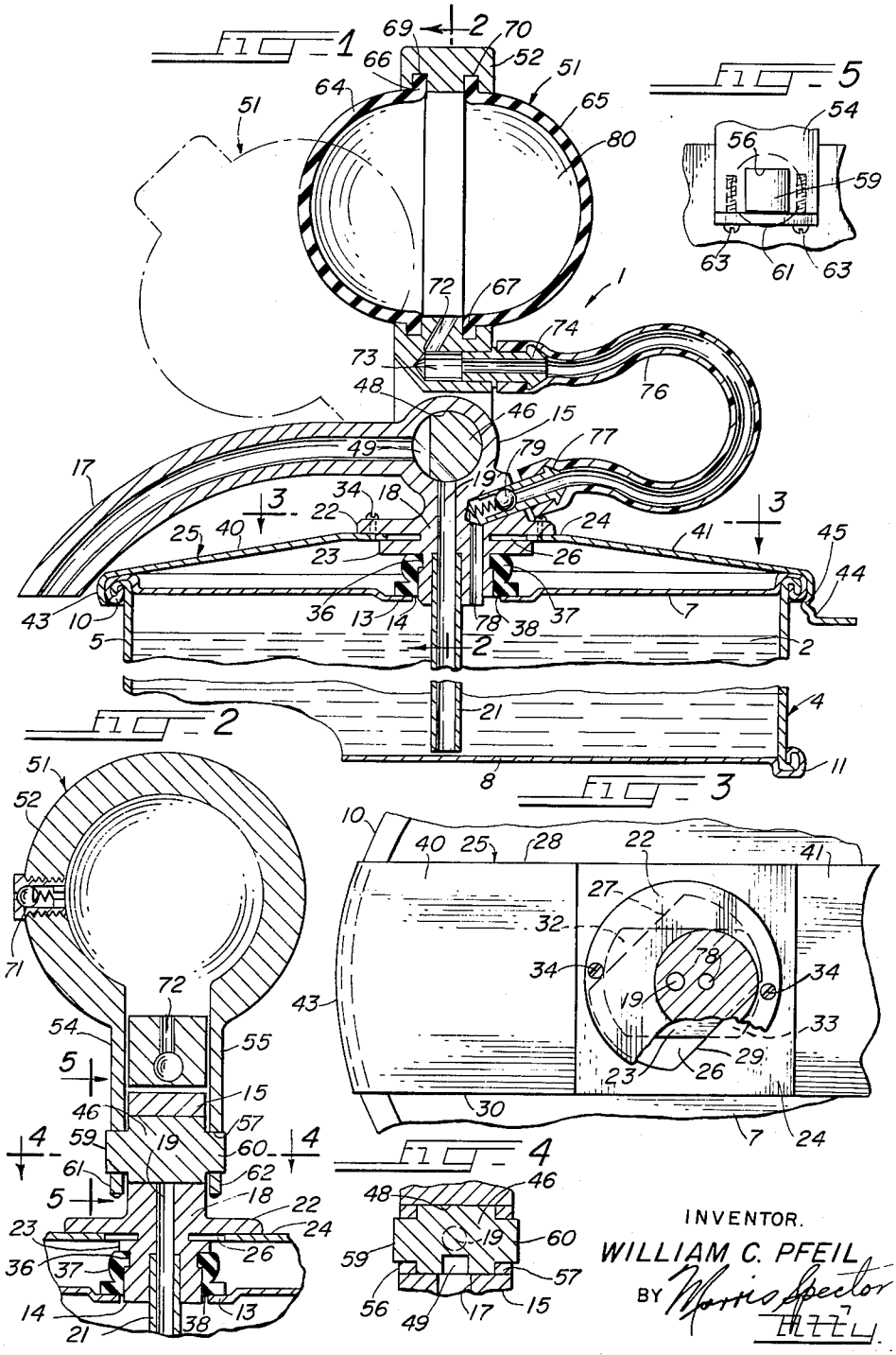
Aug. 3, 1965 W. C. PFEIL 3,198,405

DISPENSER

Filed April 29, 1964



United States Patent Office 3,198,405 Patented Aug. 3, 1965

3,198,405

DISPENSER

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Filed Apr. 29, 1964, Ser. No. 363,519
9 Claims. (Cl. 222—400.8)

This invention relates to improvements in devices for dispensing liquids from cans or the like.

It is an object of the present invention to provide a dispenser for use in dispensing liquids from a can and in which the dispenser has a dispensing conduit that includes a spout, a normally closed dispensing valve in the conduit, and a pump that may be used to build up air pressure within the can to a desired amount, whereupon the normally closed dispensing valve may be opened to allow the air pressure in the can to force the liquid through the conduit for discharge at the spout. The dispenser is primarily intended for home use in the dispensing of beer or other carbonated beverages, especially beverages that are stored in large sized cans, as for instance one gallon cans, wherein it is generally desired that only a part of the contents of the can be dispensed at any one time.

It is a further object of the present invention to provide a dispenser of the type stated which is used with a can having a dispensing opening preformed therein and wherein the dispenser may be quickly and easily attached to the can in a manner to form a sealed closure over the opening so that air pumped into the container by the pump to build up air pressure therein does not escape prior to opening of the dispensing valve. The dispenser may be easily attached to the can as by snap fitting over the end seam of the can and may likewise be easily removed from the end seam. However, the dispenser is intended to remain attached to the can until the latter is empty. Furthermore, the dispenser is compact so that the can with the dispenser thereon may be stored in a household refrigerator.

It is another object of the present invention to provide a dispenser of the type stated in which the pump constitutes a handle for opening and closing the dispensing valve.

The attainment of the above and further objects of the present invention will be apparent from the following specification taken in conjunction with the accompanying drawing forming a part thereof.

In the drawing:

FIG. 1 is a vertical sectional view of a dispenser constructed in accordance with and embodying the present invention and showing the dispenser mounted upon a liquid-containing can;

FIG. 2 is a fragmentary sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view taken approximately along line 3—3 of FIG. 1;

FIG. 4 is a fragmentary sectional view taken along line 4—4 of FIG. 2; and

FIG. 5 is a fragmentary side elevational view as seen from line 5—5 of FIG. 2.

Referring now in more detail and by reference characters to the drawing, which illustrates a preferred embodiment of the present invention, 1 designates a dispenser for dispensing liquid 2, such as beer or the like, from within a can 4. The can 4 is conventional and has a can body formed in the usual manner by a cylindrical side wall 5. Circular can ends 7, 8 are secured to the opposite ends of the side wall 5 in a conventional manner as by roll seams 10, 11. One of the can ends 7 has a central well 13 in which there is a hole 14. The hole 14 may be initially closed by a conventional plug (not shown) which provides a gas tight seal across the hole 14 and which is removed when it is desired to dispense the liquid 2 from the can. The can 4 may be of any capacity, as for instance one gallon, and may have a standard diameter and height for that capacity can.

The dispenser 1 comprises a housing 15, which may be of plastic, and integrally includes a laterally projecting curved spout 17 and a stem 18 having a bore 19. The lower end of the bore 19 is diametrally enlarged and rigidly secures a tube 21, as for instance of stainless steel, which depends from the lower end of the stem 18 and is adapted to project downwardly into the liquid 2, terminating adjacent to the lower can end 8. Also formed integrally with the stem 18 above the lower end thereof are axially spaced flanges 22, 23 which lie above and below, respectively, a sheet metal bracket 25 by which the housing 15 may be removably mounted onto the can 4, as will presently be more fully described. The central part 24 of the bracket 25 has an elongated hole 26 the sides of which are at an acute angle to the sides 28, 30 of the bracket 25 (see FIG. 3). The lower flange 23 is of a shape similar to that of the hole 26 but is smaller than the hole 26. Thus, when the bracket 25 is assembled with the housing 15, the two are oriented so that the flange 23 will pass through the hole 26 whereupon the bracket and housing may be rotated so that diagonally opposed sections 32, 33 of the flange 23 underlie the bracket 25. Screws 34, 34 project through the upper flange 22 and are threaded into the central part 24 of the bracket 25.

Formed in the stem 18 below the flange 23 is an annular external groove 36 for receiving a cup-shaped annular rubber sealing ring 37 which extends downwardly around the lower end of the stem 18 and terminates in a radial flange 38. The flange 38 bears against the well 13 adjacent to the hole 14 to form a gas tight seal across the hole 14.

The bracket 25 is relatively narrow as compared to the diameter of the can 4 and the bracket has legs 40, 41 that are inclined downwardly from the central part 24. The leg 40 terminates in a downwardly curled lip 43 that grasps the seam 10 while the leg 41 terminates in a flange 44 having a nib 45 that underlies the seam 10. In mounting the bracket 25 onto the can end 7, the tube 21 is inover the seam 10. Then the flange 44 is pressed downwardly until the nib 45 snaps under the seam 10. This secures the bracket 25 to the can. The can or the bracket 25 or both will yield slightly to enable the nib 45 to pass over the seam 10. As the flange 44 is pressed downwardly, as aforesaid, pressure will be applied to the sealing ring 37 to press the flange 38 thereof into firm sealing engagement against the well 13.

The housing 15, together with the spout 17 and tube 21, provide a dispensing conduit. To open and close the conduit a valve 46 is rotatably mounted in the housing 15. This valve 46 may be of the same material as that of the housing 15. When the valve 46 is in the closed position as shown in full lines in FIG. 1, it blocks the passage of liquid upwardly out of the bore 19. The valve 46, furthermore, fits in a cylindrical bore 48 that extends at right angles to the bore 19. Formed in the valve 46 is a notch 49 of such depth and size that when the valve 46 is rotated to the broken line position in FIG. 1, communication will be established between the bore 19 and the spout 17 through the notch 49.

A pump 51 is provided for building up air pressure within the can 4. The pump 51 comprises a generally U-shaped frame 52 which may likewise be of plastic and which has spaced depending sides 54, 55 that lie on opposite sides of the housing 15 and terminate in rectangularly notched ends 56, 57. The notched ends 56, 57 receive companion shaped axial extensions 59, 60 on the opposite ends of the valve 46, and end caps 61, 62 are secured to the notched ends 56, 57 by screws 63, 63. Thus, the pump 51 constitutes a handle that is movable

to and from the full and broken line positions in FIG. 1 to rotate the valve 46 selectively to and from its open and closed positions.

The pump 51 is preferably of the collapsible chamber type that includes one or more squeeze bulbs 64, 65 which are approximately hemispherical in shape and have annular lips 66, 67 that are secured in any suitable manner in annular grooves 69, 70 in the frame 52. A conventional ball check air intake valve 71 is screw-threaded or otherwise mounted in the frame 52. Air discharged from the pump 51 passes through passageways 72, 73 in the frame 52, and the passageway 73 has a nipple 74 that projects outwardly of the frame 52. One end of a flexible tube or hose 76 of rubber or the like is attached to the nipple 74. The other end of the hose 76 is attached to a nipple 77 that projects outwardly from the housing and in communication with the upper end of a passageway 78 that terminates at the lower end at the stem 18. A conventional spring biased ball check valve 79 may be located in the nipple to prevent back flow of air from the passageway 78 to the pump chamber 80.

When it is desired to increase the air pressure within the can 4, the pump 51 is grasped and moved to its full line position shown in FIG. 1, thereby closing the valve 46. The bulbs 64, 65 may then be repeatedly squeezed to expel air from the pump chamber 80 through the passageways 72, 73, nipple 74, hose 76, nipple 77, and passageway 78 to the interior of the can 4. As the bulbs 64, 65 expand air will be drawn into the pump chamber through the ball check 71. When the desired pressure within the can 1 is reached, the pump 51 may be shifted to the broken line position shown in FIG. 1 to open the valve 46 and allow the liquid 2 to be expelled from the bore 19 through the spout 17. Usually the valve 46 may be opened and closed several times to dispense desired amounts of liquid before it is necessary to again increase the air pressure within the can 4.

In compliance with the requirements of the patent statutes I have herein shown and described a preferred embodiment of the invention. It is, however, to be understood that the invention is not limited to the precise construction herein shown, the same being merely illustrative of the principles of the invention. What is considered new and sought to be secured by Letters Patent is:

1. A dispenser comprising a housing, a spout leading from the housing and in communication with the interior thereof, a rotatable valve in the housing for opening and closing the spout, means by which the valve may be manipulated, said housing having flanges, and means for securing the housing to a container; said last means comprising a resilient bracket having a central opening through which the housing extends, said flanges being attached to the bracket at the walls thereof surrounding the central opening, said resilient bracket having legs that project away from said central opening, said legs terminating in flanges, one of the last mentioned flanges having a nib so that the last mentioned flanges and nib cooperate for detachable snap engagement with the rim of a container.

2. A dispenser comprising a housing, means for removably mounting the housing on a container having liquid therein, a tube depending from the housing and adapted to project into the container below the liquid, a spout projecting laterally from the housing, the tube and spout each being in communication with the interior of the housing, sealing means depending from the housing and surrounding the tube and cooperating with said removable mounting means for sealing the part of the container through which the tube projects, a dispensing valve in said housing and being rotatable to and from open and closed positions selectively to open and close communication between the tube and spout, an air pump carried by the valve and constituting a handle for shifting the valve between its two positions, said pump including collapsible wall bulb means, means including said housing for providing a passageway from the discharge of said pump to the region of the housing adjacent to said tube, said means including a flexible tube connecting the housing with the handle said passageway being surrounded by the sealing means at said region of the housing and being exposed to the interior of the container when the housing is mounted thereon by said removable mounting means, and a check valve in the passageway to prevent back flow of air from the container to the pump so that operation of the pump when the discharge valve is closed increases the air pressure within the container and the liquid is dispensed through the spout by said air pressure when the discharge valve is thereafter opened.

3. In combination with a can having an enveloping body wall, a can end seam sealed to an end of the body wall and wherein the can end has a hole therein; a dispenser having dispensing conduit means that includes a housing and a tube extending from the housing through said hole, a bracket snap fitting over and gripping the seam and removably securing the housing in assembled relation with the can, annular resilient sealing means surrounding the hole and tube and interposed between the bracket and can end and being sealed against the part of the can end adjacent to the hole by pressure applied from the bracket, a valve in said housing for opening and closing the conduit means, means for increasing the gas pressure within the can, and means for operatively supporting last named means on the bracket.

4. In combination with a liquid-containing can having an enveloping body wall, a can end seam sealed to an end of the body wall and wherein the can end has a hole therein; a dispenser comprising a housing, a tube depending from the housing and projecting into the container through said hole below the liquid level, a spout exteriorly of the can end and projecting laterally from the housing, the tube and spout each being in communication with the interior of the housing, a bracket snap-fitting over and gripping the seam and removably securing the housing in assembled relation with the can, said housing projecting through the bracket, annular sealing means depending from the housing and surrounding the tube and the hole and being sealed against the part of the can end adjacent to the hole by the pressure applied from the bracket, a dispensing valve in said housing and being rotatable to and from open and closed positions selectively to open and closed communication between the tube and spout, an air pump carried by the valve for supplying air to the interior of the container, said pump constituting a handle for shifting the valve between its two positions, said pump including collapsible wall bulb means, means including said housing for providing a passageway from the discharge of said pump to the region of the housing surrounded by said sealing means and said passageway being exposed at said region to the interior of the container, and a check valve in the passageway to prevent back flow of air from the container to the pump so that the pump is operable to maintain air pressure in the container and when the dispensing valve is rotated to its open position the liquid is discharged from the spout by the air pressure within the container.

5. A dispenser comprising a housing, a tube depending from the housing, a spout projecting laterally from the housing, the tube and spout being in communication with each other through the housing, a dispensing valve in the housing and being movable to and from open and closed positions selectively to open and close communication between the spout and tube, handle means for shifting the valve between its two positions, said handle means having means for supplying gas under pressure, means for providing a passageway from the discharge of

said gas pressure supplying means to an outlet at the region of the housing adjacent to said tube for supplying gas under pressure to the outlet when the valve is in its closed position, said last means including a flexible conduit connecting the handle means with the housing, and a check valve in said passageway.

6. A dispenser for mounting on a container having an end closure surrounded by a rim, comprising a housing, a tube depending from the housing, a spout projecting laterally from the housing, the tube and spout each being in communication through the housing, a dispensing valve in the housing and being movable to and from open and closed positions selectively to open and close communication between the spout and tube, handle means for shifting the valve between its two positions, said handle means having means for supplying gas under pressure, means for providing a passageway from the discharge of said gas pressure supplying means to an outlet at the region of the housing adjacent to the tube for supplying gas under pressure to the outlet when the valve is in its closed position, a resilient sealing member surrounding the tube and said region of the housing containing the outlet, a check valve in said passageway, a bracket having a central part secured to the housing and having legs projecting away from said central part with the legs terminating in flanges for detachable snap engagement with the rim of the container for mounting the housing on the container with the tube projecting thereinto, the bracket on the rim imposing pressure on the sealing member to form a seal against the container and around the tube.

7. A dispenser comprising a housing having a cylindrical bore, a spout projecting laterally from said housing and being in communication with said bore, said housing having a first passageway terminating at said bore, a tube secured in said first passageway and projecting out of said housing substantially at right angles to the axis of said bore, a dispensing valve rotatable in said bore and being movable to and from open and closed positions selectively to open and close communication between the spout and tube, handle means for moving the valve between its two positions, said valve in the closed position shutting off said first passageway, said handle means having spaced apart members that straddle said housing, means for securing said members to the ends of said valve, said handle means also having means forming a second passageway for gas under pressure originating at the handle, means including a flexible tube forming a conduit that receives gas from the second passageway and delivers it to an outlet in the housing adjacent to said first tube, said flexible tube making a telescoping fit with the second passageway and being thereby joined to the handle means and bypassing the dispensing valve and flexing upon moving of the handle means to and from the two dispensing valve positions whereby gas may be supplied to said second passageway independently of the position of said valve, a check valve in said conduit means, an annular resilient seal secured to the housing and surrounding the first tube and outlet, and means for securing the housing to a container.

8. A dispenser for mounting on a container having an end closure surrounded by a rim, said dispenser comprising a housing having a cylindrical bore, a spout projecting laterally from said housing and being in communication with said bore, said housing having a first passageway terminating at said bore, a tube secured in said first passageway and projecting out of said housing substantially at right angles to the axis of said bore, a dispensing valve rotatable in said bore and being movable to and from open and closed positions selectively to open and close communication between the spout and tube, handle means for moving the valve between its two positions, said valve in the closed position shutting off said first passageway, said handle means having spaced apart

members that straddle said housing, means for securing said members to the ends of said valve, said handle means also having means forming a second passageway for gas under pressure originating at the handle, means including a flexible tube forming a conduit that receives gas from the second passageway and delivers it to an outlet in the housing adjacent to said first tube, said flexible tube making a telescoping fit with the second passageway and being thereby joined to the handle means and bypassing the dispensing valve and flexing upon moving of the handle means to and from the two dispensing valve positions whereby gas may be supplied to said second passageway independently of the position of said valve, a check valve in said conduit means, an annular resilient seal secured to the housing and surrounding the first tube and outlet, and means for securing the housing to a container, said securing means comprising a bracket having a central part with legs projecting away from said central part and with the legs terminating in flanges having a portion of each thereof adapted to underlie the radially outermost portions of the rim for gripping the rim between the container end and the rest of the can body for detachable engagement with the dim of the container after mounting on the container with the tube projecting thereinto, the bracket on the rim imposing pressure on the seal to form a seal against the end of the container and around the tube.

9. A dispenser for mounting on a container having an end closure surrounded by a rim and in which the end closure has a hole, said dispenser comprising a housing, a bracket having a central part with non-circular aperture, said housing projecting through said non-circular aperture, means for securing the housing and bracket together, said means comprising flanges on the housing and on opposite sides of said bracket, at least one of said flanges being non-circular and being sized for projection through said non-circular aperture when the bracket and housing are in one position of relative orientation but being incapable of retraction through said non-circular aperture when the bracket and housing are oriented in their operative assembled positions, said housing having a first passageway, a tube secured in said first passageway and projecting out of said housing, a dispensing valve in said housing for opening and closing said first passageway, said housing having a second passageway with an outlet adjacent to said tube, a check valve in said second passageway to prevent flow of fluid therethrough in a direction from said outlet, an annular resilient seal surrounding the tube and the part of the housing containing said outlet, said bracket having legs that project away from said central part with the legs terminating in flanges having means for gripping the rim between the container end and the rest of the container for detachable engagement with said rim with the tube projecting into the container through the hole therein and with said outlet being in communication with the interior of the container, the bracket on the rim imposing pressure on the seal to form a seal against the end closure around the hole.

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