Dec. 8, 1936. T. T. GRASER 2,063,430

LIQUID DISPENSER

Filed Sept. 24, 1935

FIG. 1.

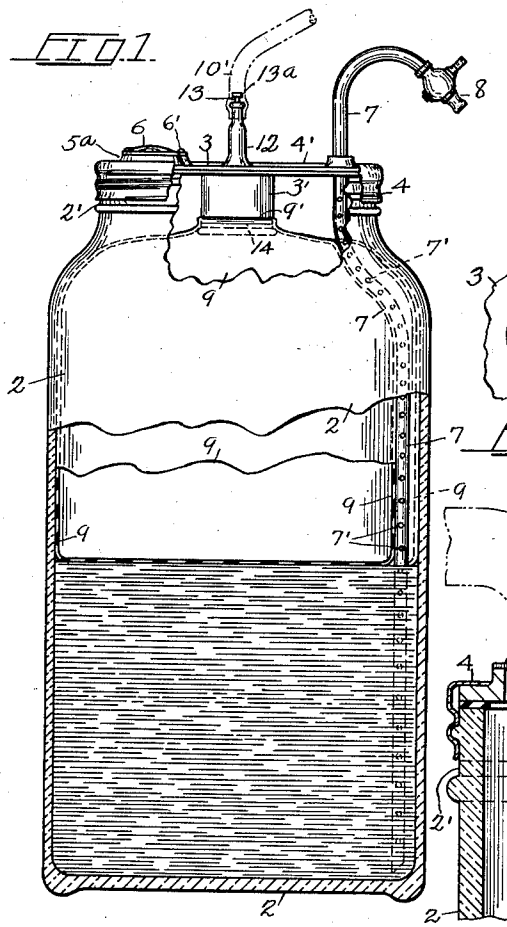
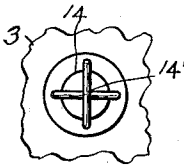
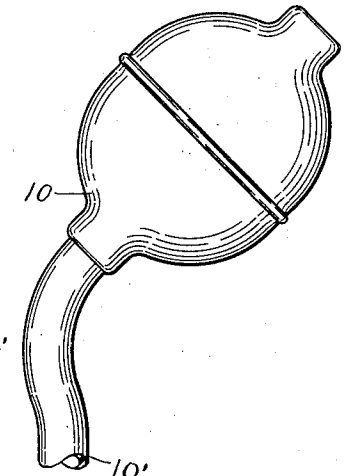


FIG. 4.





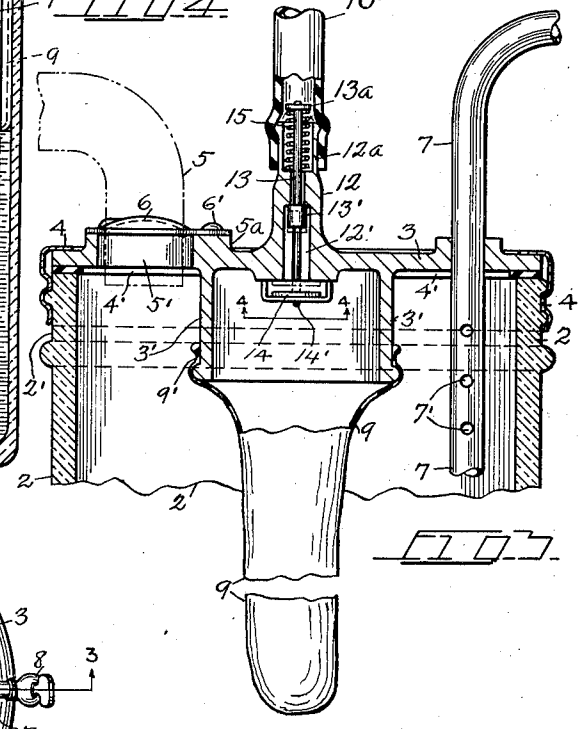


FIG. 3.

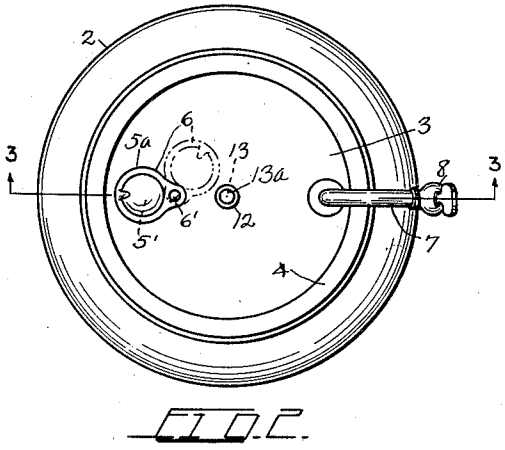


FIG. 2.

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2,063,430

LIQUID DISPENSER

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Application September 24, 1935, Serial No. 41,877

3 Claims. (Cl. 225—11)

This invention relates to improvements in portable containers for beer and other liquids, and has for its general object to provide a transparent bottle or jar having a relatively large normally open mouth, and being provided with a removable cover or cap by which the mouth may be closed and sealed; said cover being equipped with means for filling the container without removing the main closure, as well as with facilities for expelling or extracting the atmospheric air and the usual gases that naturally become trapped in the top portion of the container during the filling thereof, in order to keep the beer fresh for indefinite periods. A particular object is to provide a dispensing tube that is fixed to and penetrates the cover, the said tube extending substantially to the bottom of the container, to the end that, the entire fluid contents may be drawn off by means of an auxiliary faucet which is carried by the portion of the tube that extends beyond the cover; said dispensing tube within the container being perforated at short intervals throughout its length in order to primarily facilitate the extracting of the air and gases immediately following each filling of the container, as well as to effect the free and copious outflow of the liquid contents when the latter is drawn off for beverage or other uses.

A further object is to provide an expansible bladder-like element that is preferably made of flexible or elastic rubber which is employed when inflated for expelling, by the aid of a hand pump, all the contents of the container; said bladder being in the form of a bulb having an open end which receives and grips an inverted cup-shaped integral portion of the cover that aligns axially and communicates with an integral tubular portion which extends above the cover and loosely houses a stem or rod which may depress a check valve that controls the inflating, as well as the deflating of the bladder; the said housing being fitted with tension means which tends to normally hold the stem out of contact with the valve, but allows the pulsations of the air pump to unseat the valve and effect the expansion of the bladder for expelling the air and dispensing the liquid contents of the container via the perforated pipe and said auxiliary faucet; the said valve being loosely disposed concentric to the mouth of the bladder, and being normally held in engagement with its seat by the upward pressure exerted by the air that inflates the bladder. The construction and arrangement of the valve stem is such that the inflating air may be released from the bladder by the manipulation of said stem for unseating the check valve and effecting the collapse of the bladder, which ordinarily contracts when deflated and limply depends from the aforesaid cup-shaped portion, where it may remain until the container is again called into use.

I attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawing, in which—

Figure 1 is a broken side elevation and central vertical cross-section, showing the expander inflated and ready to dispense the liquid contents of the container. Fig. 2 is a top plan view of the container shown in Fig. 1. Fig. 3 is an enlarged broken central vertical cross-section, taken on line 3—3 of Fig. 2, showing the expander substantially deflated, also showing the check valve open, and the hand pump and related parts ready to inflate the expander, also showing means for charging the container with beer or other liquid, also showing the perforated pipe for expelling the air and dispensing the liquid contents via the auxiliary faucet. And Fig. 4 is a broken bottom plan of the main closure, showing the cage that supports and loosely holds the check valve in substantially axial alignment with the valve stem and the expansible element.

In the drawing, 2 represents the body of the container which is preferably in the form of a glass or other transparent bottle or jar, having a relatively large mouthed externally threaded neck 2', which is fitted with and closed by a disc-shaped metal cover or cap 3 having substantially the same diameter as the neck, the cap being detachably secured to the neck by a threaded annular retainer 4 that engages the threads of the neck 2', overlaps and grips the cap, as shown in Figures 1, 2, and 3, and is therefore removable to enable the cap 3 and all of the attached and related parts to be separated from the bottle as one part, to afford access to its interior, and the joint between the neck and cap 3 being sealed by a packing ring 4'. The filling of the container 2 with beer or other liquid may be effected by inserting the spout 5 (see dotted lines in Fig. 3) of an ordinary bar faucet into a circular opening 5' that is formed in the web of the cap 3 eccentric to its axis; the top surface of the cap surrounding said filling opening being embossed, as at 5a, to provide clearance for the operation of a disc-like closure 6 that may be pivotally attached to the boss by a pin 6', and which may be applied in a manner to frictionally hold the closure 6 in different operated positions, as shown in Fig. 2. 7 rep-

resents the dispensing pipe which is permanently attached to and penetrates the cap 3; the said pipe preferably extending downwardly substantially to the bottom of the bottle 2; the portion of the tube 7 within the bottle preferably being perforated at frequent intervals substantially its full length, as at 7' in Figs. 1 and 3, so that any depth or amount of air and liquid contents may be poured or forcibly expelled from the container via an auxiliary faucet 8. The atmospheric air that naturally fills the void in the neck and adjacent portions of the bottle 2 above the level of the liquid is not ordinarily under greater than normal compression during the filling operations, but consists mainly of froth and gas bubbles, that must be eliminated to enable the bottle 2 to be charged with the proper amount or volume of beer, or the like, as well as to prevent the contents from going stale.

9 represents the inflatable bladder-like element that is preferably made of elastic rubber, or the like, which is employed, when expanded, for expelling the air and liquid contents from the container; the expander 9 being disposed entirely in the bottle and being in the form of a bulb having an open end 9' which receives and grips an inverted integral cup-like portion 3' of the cap 3 (see Fig. 3), that aligns axially and communicates with an integral tubular standard or portion 12 which extends above the cap and loosely houses a stem or rod 13, which is arranged to depress a check valve 14 that controls the inflating, as well as the deflating of the expander 9. The valve 14 consists of a plain disc that is not operatively secured to any other part, but is confined loosely within a cage 14' (see Figs. 3 and 4) that depends from the bottom face of the cap 3 and is free to float or to be moved to a slight extent in all directions. The valve 14 aligns substantially axially with the bore of the standard 12 and also with the stem 13 and when not under compression, is held by gravity in the full line open position of Fig. 3. The bore of the lower end of the standard 12 is enlarged at 12' to loosely receive a shouldered portion 13' of the stem, which limits its upward movement. Above the chamber 12' the bore of the standard is contracted so as to loosely receive the stem, and above this contraction the bore is again enlarged, as at 12a, to provide a socket for a compression spring 15 whose upper end is normally in constant engagement with a button or head 13a that is fixed to the top end of the stem 13. By this arrangement, the spring 15 resiliently holds the stem 13 disengaged from the valve 14. The free upper end of the standard 12 may be detachably engaged by the flexible tubular stem 10' of the hand pump 10, which when manipulated forces the stem 13 downwardly against the tension of the spring 15, to unseat the valve 14 and inflate the expander 9 for expelling or drawing off the fluid contents of the bottle 2 via the perforated tube 7 and the faucet 8, as explained. As soon as the inflating of the expander 9 is effected, the pressure exerted thereby acts to lift the valve 14 into engagement with its seat, where the valve will remain until the operator removes the pump 10 and manually depresses button 13a and stem 13 to unseat the valve and allow the expanding pressure to escape via the bore of the standard 12. When the bottle 2 is charged with beer or other liquid, there is always a void above the level of the liquid that is charged with atmospheric air and more or less gas, which should be eliminated immediately following the fillings. This may be effected promptly and completely, by first opening the auxiliary faucet 8 and then manipulating the pump 10 for initially expanding the bladder 9 and forcing the air and gas through the unsubmerged perforations 7' of pipe 7, as may be understood by consulting Fig. 1. After each round of drinks has been withdrawn from the container, the faucet 8 may be closed and the inflated bladder may be left in its expanded state, as shown in Fig. 1, until the next round of drinks is served, and so on. From the foregoing it will be seen that the disc 14 will be lifted toward its seat by a slight upward surging of the pressure from the bladder into bore 12' upon the sudden seating of the shoulder 13' under the action of spring 15, provided the disc is positioned when unseated ten to fifteen thousandths of an inch below the seat.

As soon as the operation of the pump 10 ceases, the spring 15 lifts the stem 13, and the built-up pressure in the bladder 9 instantly seats the valve 14, to prevent loss of the stored pressure until the pump is again operated, to sequentially expand the bladder commensurate to the drawing off of another portion of the contents of the container. By this arrangement, the drawing off of the beer does not noticeably affect the tension of the expanded bladder, due to the automatic closing of the valve, as supra. The first squeeze of the bulb 10, acting upon the button or head 13a depresses the stem 13 and unseats the valve to enable the bladder to be additionally inflated, in order to be ready to again expel the contents of the container whenever the faucet 8 is opened, as explained. When the present device is properly constructed and operated as herein shown and described, the undispensed liquid entirely free from air and gas may be kept for two or three days without losing its freshness and flavor.

Having thus described my invention, what I claim, is—

1. In a liquid dispenser, a container, a cap therefor having a filling opening, a perforated dispensing tube extending through the cap and terminating adjacent the bottom of the container, a faucet for the tube, a tubular member extending through the cap, a floating valve for controlling the lower end of the tubular member, a cage in which the valve is confined, an expandible bulb-like member connected to the cap and surrounding the lower end of the tubular member, a spring pressed stem in the tubular member, formed to be manually depressed so as to unseat the valve, means to normally hold the stem disengaged from the valve, an air pump for supplying compressed air to the expansible member thereby to force the stem downwardly to unseat the valve and to inflate the expandible member and upon inflation to cause the compressed air to move the valve to seated position, and means to removably connect the pump to the tubular member whereby upon removal to enable the stem to be manually operated, thereby to unseat the valve.

2. In a liquid dispenser, a container, a cap therefor having a filling opening, a perforated dispensing tube extending through the cap and terminating adjacent the bottom of the container, a faucet for the tube, a tubular member extending through the cap, a floating valve for controlling the lower end of the tubular member, means to restrict movement of the valve, an expandible member connected to the cap and surrounding the lower end of the tubular member, spring pressed means in the tubular member for unseating the valve, means for supplying compressed air to the expandible member thereby to

actuate the valve unseating means and to inflate the expansible member so that upon inflation of said member to cause the compressed air to move the valve to seated position, and means to removably connect the air compressing means to the expandible member whereby upon removal thereof to enable the spring pressed means to be manually operated thereby to unseat the valve.

3. In a liquid dispenser, a container, a cap therefor having a filling opening, a perforated dispensing tube extending through the cap and terminating adjacent the bottom of the container, a faucet for the tube, said cap having an inlet, a valve for controlling the inlet, means to restrict movement of the valve, an expandible member connected to the cap and surrounding the valve, spring pressed means carried by the cap for unseating the valve, means to normally hold the spring pressed means disengaged from the valve, means for supplying compressed air to the expandible member thereby to actuate the valve unseating means and to inflate the expandible member so that upon inflation of said member to cause the compressed air to move the valve to seated position, and means to removably connect the air compressing means to the expandible member, whereby upon removal thereof to enable the spring pressed means to be manually operated thereby to unseat the valve.

THOMAS T. GRASER.