N. H. BULLARD.

LIQUID DISPENSING CAN.

APPLICATION FILED FEB. 2, 1916.

1,242,137.

Patented Oct. 9, 1917.

2 SHEETS—SHEET 1.

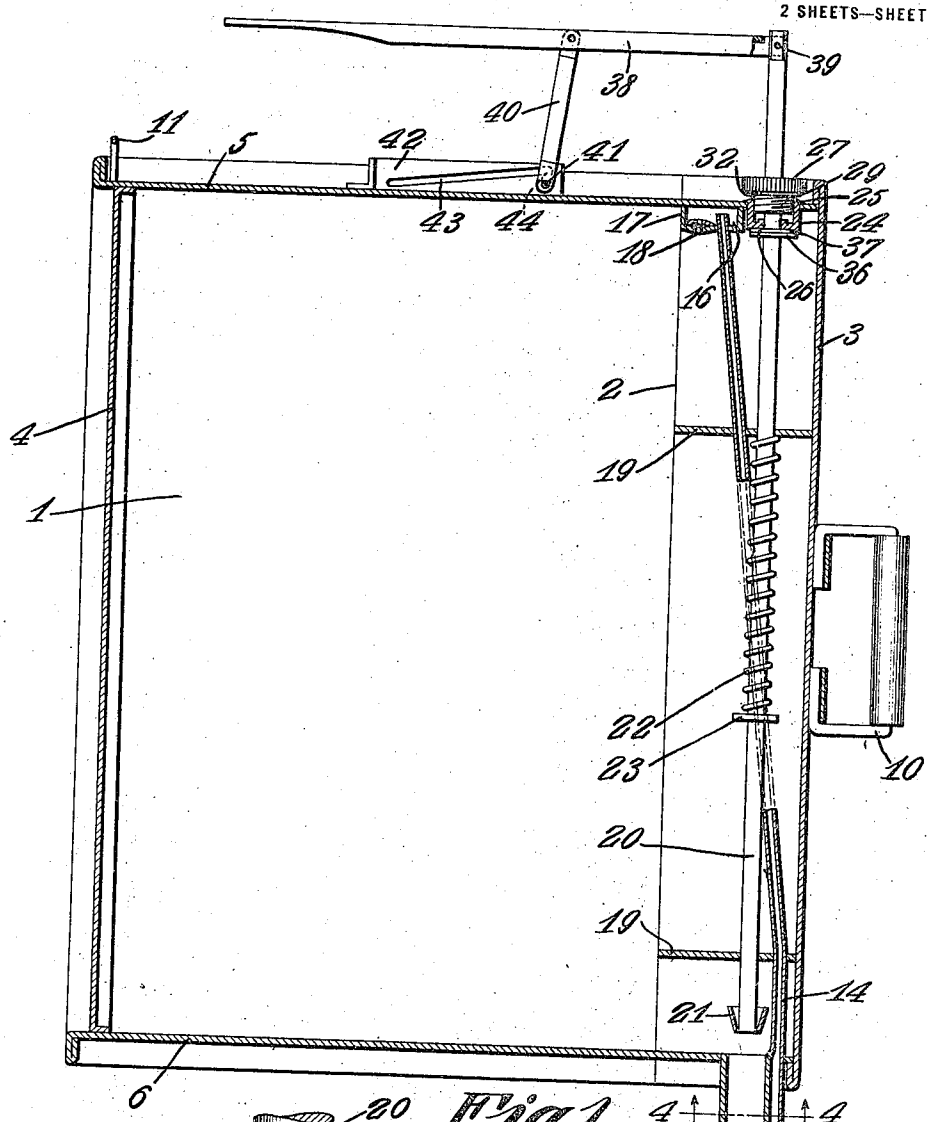


Fig. 1.

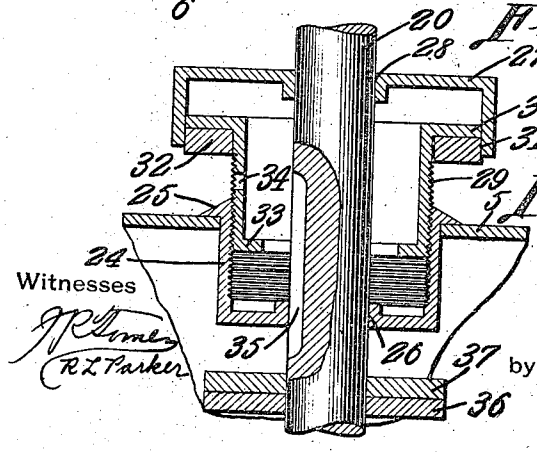


Fig. 2.

Witnesses

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Fig. 3.

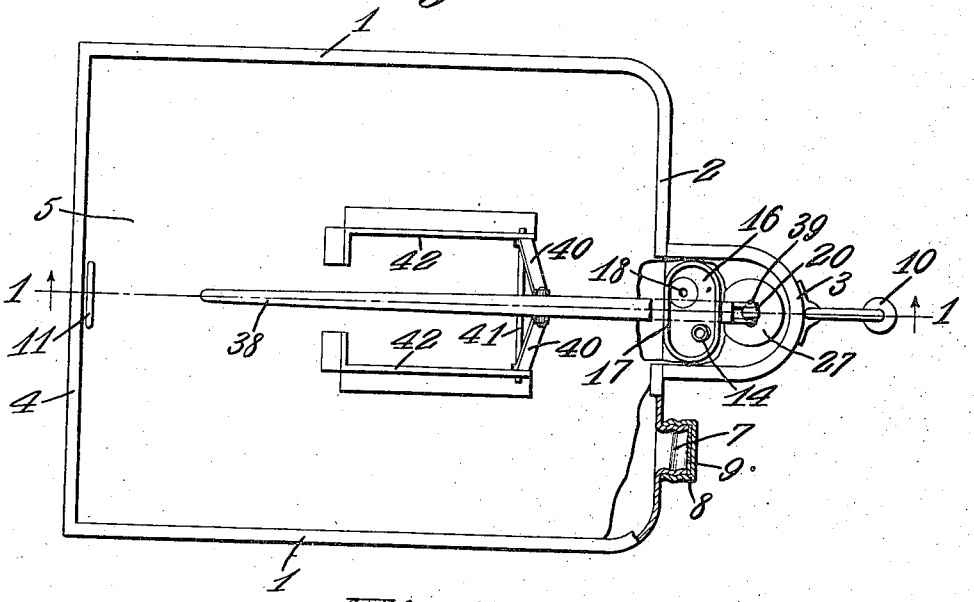


Fig. 5.

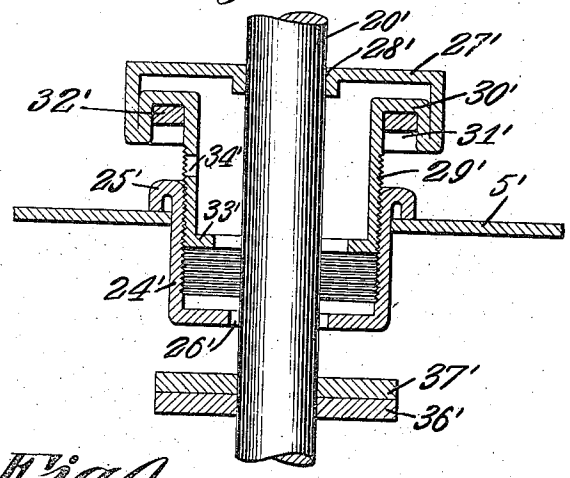
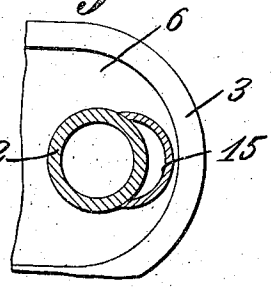


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

NEWTON H. BULLARD, OF MILLEDGEVILLE, GEORGIA.

LIQUID-DISPENSING CAN.

1,242,137. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed February 2, 1916. Serial No. 75,819.

To all whom it may concern:

Be it known that I, NEWTON H. BULLARD, a citizen of the United States, residing at Milledgeville, in the county of Baldwin and State of Georgia, have invented a new and useful Liquid-Dispensing Can, of which the following is a specification.

The present invention appertains to liquid dispensing cans, and aims to provide a novel and improved device for dispensing liquids.

One of the objects of the invention is the provision of a liquid dispensing can having means for filling lamps and other vessels, and provided with an audible signal whereby the operator is advised when the receiving vessel is filled by the liquid from the can, so that the liquid flow may be cut off and thus prevent the overrunning of the vessel, said signal being operated by the air rushing into the can to permit the outflow of the liquid from the same.

Another object of the invention is the provision of a liquid dispensing can of such construction and operation as to particularly adapt it to the filling of large metal lamps, in which case the liquid flow from the can can be checked quickly when the lamp is properly filled.

A further object of the invention is the provision of novel, yet easy and convenient means for operating and controlling the present device.

Further objects of the invention are to provide a can of the nature indicated which can be conveniently carried; to provide a dispensing can which does not necessarily need a horizontal surface to be rested upon in operation; to provide a leak proof valve for closing the discharge spout; to eliminate the necessity of a cap for closing said spout; to provide means for holding said valve seated in the discharge spout; and to provide a device of this nature which is improved generally in its construction and details to enhance the utility and efficiency thereof.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a vertical section of the device, taken on the line 1—1 of Fig. 3, portions being shown in elevation.

Fig. 2 is an enlarged sectional detail of the air inlet means.

Fig. 3 is a plan view of the device, portions being broken away and shown in section.

Fig. 4 is an enlarged sectional detail taken on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 2 illustrating a modification.

In carrying out the invention, the can, which is preferably constructed of sheet metal, has the opposite side walls 1, the front wall 2—provided between its side edges with the longitudinal or vertical ridge or outstanding portion 3, the back wall 4, the upper end or top 5, and the lower end or bottom 6. The can is illustrated in operative position in Fig. 1, and the parts are described accordingly, but the can can be carried or set on a support with the wall 4 lowermost when the device is not in use. The side walls 1 and the front wall 2, with its ridge 3, project beyond the ends 5 and 6, so that the ends are inset, and the side walls 1 and the ends 5 and 6 project beyond the back wall 4, so that said back wall is inset, and the folded rear edges of the ends 5 and 6 are bent outwardly as shown, thereby providing outstanding flanges surrounding the ends and back wall, for purpose of strength and protection.

The front wall 2 is provided at a suitable point, at one side of the ridge 3, with a filling nipple 7 upon which is threaded a removable cap 8, normally closing the filling opening, and preferably provided with a cork or equivalent gasket 9 to effect a tight closure. The cap 8 can be readily removed for filling the can when the can is disposed with the wall 4 lowermost, and it is evident that when the can is filled the level of the liquid will be below the ridge 3, and the parts which lie within the ridge 3 will be above the liquid when the can is in horizontal position with the wall 4 lowermost, and when the can is being carried by the bail handle 10, attached to the ridge 3 between the ends of the can. This handle 10 provides convenient means for

carrying or handling the can. The can can be set upon a suitable support with the lower end 6 lowermost, as seen in Fig. 1, and with the ridge 3 projecting from the support, or it can be supported from a vertical wall or support by means of a loop 11 attached to the upper end 5 adjacent the rear edge thereof and engageable over a nail, hook or other supporting element carried by the support, whereby the can will be hung in a vertical position from the support and will rest against the support. It is thus possible to support the can from either a horizontal or a vertical support, whichever is convenient or necessary.

The lower end 6 of the can is provided with a depending discharge spout or pipe 12 below the ridge 3, and the lower end of the said discharge pipe 12 has a tapered or frusto-conical valve seat 13. The spout 12 is adapted to enter the opening of a lamp or other vessel, whereby the liquid contained in the can can flow into the vessel from the spout. The air necessary to the emptying of the can rushes up from the vessel through an air tube or pipe 14, preferably of small diameter, disposed within the ridge 3 and having its lower end of arcuate cross section, as seen in section 4, and soldered or otherwise attached to one side of the spout 12, to provide a relatively wide inlet terminal 15 for the tube 14 which terminal 15 terminates slightly above the lower end of the spout 12 and which is adapted to enter the opening of the vessel with the spout. The tube 14 extends through the lower end of the can immediately adjacent the spout 12, and the upper end of the tube 14 enters an air chamber or pocket 16 with which the can is provided therein adjacent the upper end 5 and within the upper end of the ridge 3. The chamber or pocket 16 is provided by means of a cup 17 attached to the upper end 5 of the can, the tube 14 extending through the bottom of the cup. In the bottom wall of the air chamber 16, near its posterior edge, is an opening over which is suitably fixed a biconvex whistle 18 or audible signal of the acoustic type, through the openings of which the air chamber communicates with the interior of the can, the air entering through the tube 14 operating the signal as it passes from the air chamber through the whistle 18 into the can. When the can is in horizontal position, the said openings are lowermost, so that any liquid within the chamber 16 will drain out of the same into the body of the can, and the tube 14 is arranged obliquely within the ridge 3, so as to be on an incline from the chamber 16 when the can is in horizontal position, in order that any liquid which might splash into the tube 14 will flow out of the same by gravity into the chamber 16 and thence back into the body of the can. The inner end of the air tube 14 projects through the bottom of the air chamber nearly to the top of the same so that any liquid in the air chamber, at the time the can is set up vertically, as in operation, will run back through the whistle holes into the can instead of running down and out through the air tube. Wastage of the liquid is thus prevented, it being noted that the air chamber is above the level of the liquid in either position of the can.

The can is provided within the ridge 3 with a pair of webs 19 through which the tube 14 extends, and which webs provide guides for a reciprocatory rod 20 which is slidable through said webs. The rod 20 is disposed vertically and has attached to its lower end a hollow or tubular frusto-conical valve 21 movable into the spout 12 and seatable upon the seat 13 for effectively closing said spout to prevent the discharge of the liquid when not wanted. The rod 20 is spring pressed for normally closing the spout 12, and to this end a coil wire expansion spring 22 is disposed upon the rod and is confined between the upper web 19 and a collar 23 secured upon the rod below said web, whereby the spring 22, in expanding, will force the rod 20 downwardly to seat the valve 21.

The air inlet means embodies a cup 24 engaged downwardly through an opening in the upper end 5 of the can within the outline of the ridge 3, the rim of said cup having a flange 25 seating or secured upon the upper end 5 of the can, and the bottom of the cup having a central aperture through which the rod 20 is slidable. A cap 27 has a central aperture 28 through which said rod is slidable, said cap 27 being above the cup 24, and a hollow or tubular plug 29 is threaded into the cup 24 and is provided at its upper end with an out-turned annular flange 30 soldered or otherwise secured to the rim or apron of the cap 27 to provide an annular groove 31 in which is fitted an annular gasket 32. When the cap 27 is screwed downwardly, the gasket 32 is seatable upon the flange 25 and top 5 to prevent leakage between the cup and cap. The lower end of the plug 29 has an inturned annular flange 33 spaced from the rod 20, and the plug 29 is provided at one side with an opening 34 to communicate with the atmosphere when the plug 29 is unscrewed sufficiently, as seen in Fig. 2. In order to conduct air from the opening or aperture 34 into the can, the rod 20 is provided with a longitudinal slot 35 at one side, which when the rod 20 is moved downwardly extends above and below the bottom of the cup 24, thereby permitting air to flow from the aperture 34 through the groove or slot 35 past the bottom of the cup into the can to let the liquid in the tube 14

drain therefrom. The groove 35 is so arranged as not to reach the top of the cap 27 when the valve 21 is seated. By rotating the cap 27, the position of the plug 29 is adjusted, to bring the aperture 34 either above or below the rim of the cup 24 to establish or shut off the inflow of air, as desired. When the rod 20 is moved downwardly to close the valve, the groove 35 is moved partially through the aperture 26, to the position illustrated in Fig. 2, thereby establishing communication between the interior of the can and the atmosphere, so that air can flow into the can and upper end of the tube 14 so that any liquid in the tube can flow therefrom to clear the tube. When the rod 20 is raised to open the valve, the groove 35 is moved above the bottom of the cup 24, to prevent the inflow or outflow of air through the groove 35 and aperture 34 thus constraining the air to flow through the tube 14. A collar or disk 36 is secured upon the rod 20 below the cup 24 and it is preferable to provide the collar 36 with an upper facing or gasket 37 of leather or other equivalent material, whereby when the rod 20 is moved upwardly, either the gasket 37 or the collar 36, as the case may be, in seating against the bottom of the cup will effectively close the aperture 26 to provide a tight closure therefor.

The means for manually raising the rod or stem 20 embodies a hand lever 38 above the upper end of the can and having one end pivotally connected, as at 39, with the upper end of rod 20. The lever 38 is pivoted between its ends to the upper end of a triangular rocking or swinging fulcrum member 40 having a transverse rod or pin 41 at its lower end. The protruding ends of the rod 41 are movable in slots 43 in upstanding flanges or members 42 secured upon the upper end 5 of the can. The slots 43 are inclined upward toward the front wall or ridge 3, and their forward ends extend downwardly to provide notches 44 in which the pin 41 is seatable when the fulcrum member 40 is brought to operative position, as seen in Fig. 1. When the device is not in use, with the valve 21 seated, and the upper end of the rod 20 adjacent the cap 27, the pin 41 can be lifted out of the notches 44 so as to move to the remote ends of the slots 43, and this will let the members 40 move snugly onto the top 5 between the flanges 42 and the lever 38 will then move adjacent the top 5, thereby to provide a compact arrangement of the parts when they are folded. To bring the parts into operative position, the lever 38 is swung so as to pull the member 40 away from the can, thus pulling the pin 41 along the slots 43 into the notches 44, thereby positioning the lever 38 and its fulcrum member 40 for the operation of the device.

In operation, supposing the can to be held in vertical position either upon a horizontal support or from a vertical support, as above indicated, the lamp or vessel to be filled is moved upwardly under the spout 12 so that said spout enters the vessel, and the rear arm of the lever 38 is then swung downwardly by the hand to raise the rod 20 and its valve 21. When the valve 21 is moved out of the spout 12 the liquid can flow from the can through the spout into the vessel, and the air displaced from the vessel is sucked upwardly through the tube 14 into the chamber 16, passing from the chamber through the whistle 18 into the can, thereby creating an audible signal as long as air flows up through the tube 14. When the vessel is filled up to a certain level, slightly above the lower end of the spout 12, the liquid will enter the tube 14 and this will stop the flow of the air through the tube 14, and consequently, the audible signal is stopped, apprising the operator of the fact that the vessel is filled, in which event the lever 38 is released by removing the hand therefrom so that the valve 21 is again seated. As above indicated, it will be noted that when the rod 20 is raised to unseat the valve 21, air cannot enter the can by way of the aperture 34 and groove 35 so that it must flow through the tube 14 to blow the whistle 18, but when the valve is again seated, air can enter the can by way of aperture 34 and groove 35 and then flow into the tube 14 to let back into the receiving vessel the liquid drawn up into the air tube 14 by the suction after the lower end of the air tube was reached by the level of the liquid in the vessel. In this manner, the tube 14 is cleared of any liquid therein, whereby this will avoid the flow of liquid into the chamber 16 and whistle, to assure of the proper subsequent operation of the whistle.

The valve 21, with its lower and smaller end secured to the lower end of the rod 20, is flared or of hollow tapered form and is thin so that when it is driven by the spring 22 into the seat 13 it will form a perfect closure to prevent leakage, even without the assistance of a cap or closure upon the end of the spout 12. The upper end of the tube 14 is above the whistle's openings in either position of the can, whereby any liquid flowing into the chamber 16 will flow back into the body of the can without passing into and on out through the tube 14, thus preventing wastage through the said tube and keeping it clear of liquid for the unrestricted flow of air through it when desired. When the can is not being used the cap 27 can be screwed down to close the aperture or air vent 34, thereby preventing leakage.

The vessel which has been filled should

not be removed from its position under the discharge pipe until sufficient time has elapsed, after the valve 21 has become seated, to allow the air to flow into the can and tube 14 from above and let any liquid within the tube 14 flow back into the vessel. After the liquid in the vessel reaches the lower end of the air tube, during the filling operation, and shuts off the flow of air through the tube, the liquid flow from the can, if left to do so, will soon stop itself when the liquid level in the tube 14 reaches that in the can, but, since this little after-flow might overrun the vessel, it is safer, generally, to stop the flow of the liquid as soon as the signal is stopped, by simply letting go of the lever so that valve 21 will be instantly seated by the spring 22.

In the modification illustrated in Fig. 5, the air inlet means embodies a cup 24′ engaged downwardly through the top 5′ of the can, and having its rim bent back outwardly, as at 25′, and the bottom of the cup 24′ is provided with an aperture 26′ of larger diameter than the rod 20′ of the valve, whereby when the disk 36′, with or without its facing 37′ as the case may be, is moved downwardly away from the bottom of the cup, the air can flow through the aperture 26′ into the can, that is, when the aperture 34′ is open. The cap 27′, which has an aperture 28′ through which the rod 20′ slides, has an extension or plug 29′ threaded into the cup 24′, and the connecting portion 30′ between the plug 29′ and the cap 27′ provides an annular groove 31′ in which is an annular gasket 32′ adapted to engage against the rim 25′ of the cup to provide a tight closure when the cap 27′ is screwed downwardly onto the top 5′. The plug 29′ has an air vent or aperture 34′ at one side, and has an annular inturned flange 33′ at its lower end. This modification eliminates the use of the groove or slot in the rod, by making the aperture 26′ larger in diameter than the rod.

In both forms, rather than as shown in Fig. 2, it is preferred, if practical, to have the cap and plug of one piece, as illustrated in Fig. 5.

Having thus described the invention, what is claimed as new is:—

1. A liquid dispensing can having a lower discharge spout, an air tube extending from the spout into the upper portion of the can for the flow of air into the can, a signal operated by the flow of air through the tube, a valve for closing the spout, and means for admitting air into the upper portion of the can and said tube when said valve is seated and for shutting off the flow of air through the upper portion of the can when the valve is unseated so that the air must flow through said tube.

2. A liquid dispensing can having a lower discharge spout, an air tube extending from said spout into the upper portion of the can for the flow of air into the can, a signal operated by the flow of air through the tube, a valve stem slidable through the upper portion of the can and having a valve at its lower end seatable in said spout, and means whereby when the stem is lowered to seat the valve, air is admitted into the uper portion of the can and tube and when the stem is raised to unseat the valve, the flow of air into the upper portion of the can is stopped so that the air must flow through said tube.

3. A liquid dispensing can having depending discharge spout, an air tube extending from said spout into the upper portion of the can for the flow of air into the can, a signal operated by the flow of air through the tube, a depending cup carried by the top of the can, a valve stem slidable through the bottom of the cup, a valve carried by said stem seatable downwardly in the spout, a hollow cap and plug member movable upwardly and downwardly within the cup, said plug member having an air aperture at one side adapted to be closed by the cup when said member is moved downwardly therein, the bottom of said cup and valve stem having coöperating means for admitting air into the can when the valve stem is moved downwardly to seat the valve, and means carried by said valve stem seatable upwardly against the bottom of the cup when the stem is raised to prevent the flow of air between the cup and can and constrain the air to flow through the tube into the can.

4. A liquid dispensing can having a discharge spout, a valve controlling the flow of liquid through the spout having a stem projecting above the top of the can, a lever pivoted to the upper end of said stem and movable toward the top of the can when the valve is seated, a member carried by the top of the can having a slot terminating in a notch at one end, and a fulcrum member pivoted to the lever and having a pin working in said slot and seatable in said notch to hold the lever spaced from the top of the can.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

NEWTON H. BULLARD.

Witnesses:
W. H. MONTGOMERY,
L. H. CHANDLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."