

(No Model.)

F. C. WILSON.

VALVE MECHANISM FOR LIQUID RECEPTACLES.

No. 523,094.

Patented July 17, 1894.

Fig. 1.

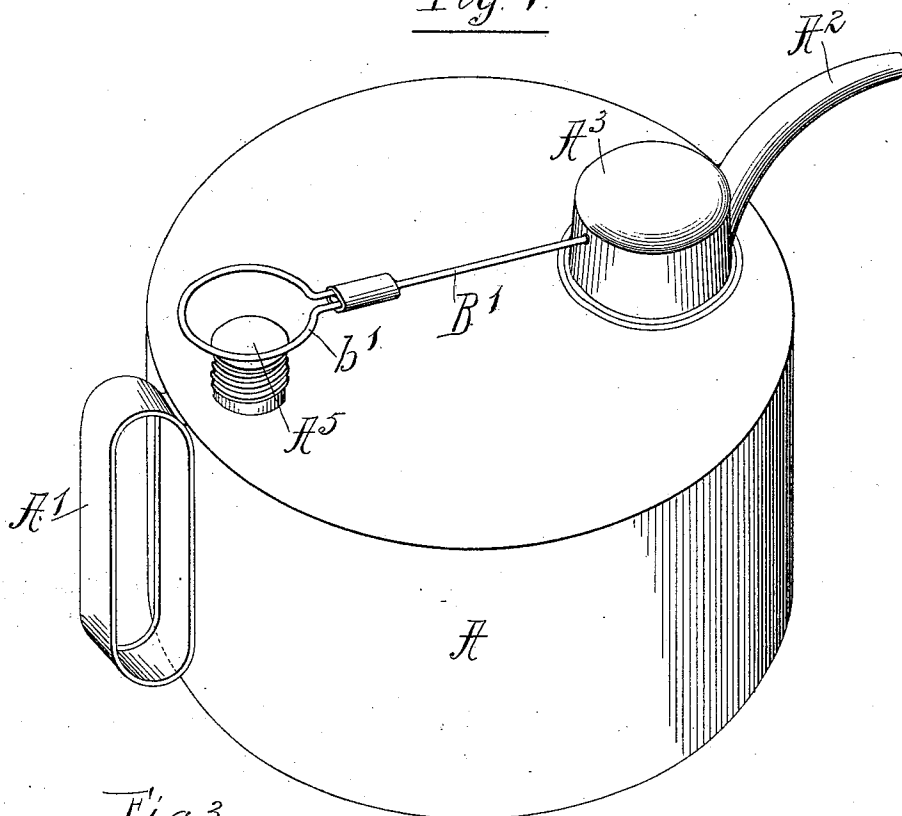


Fig. 3.

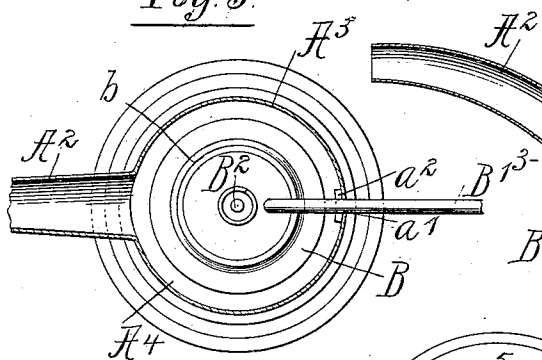


Fig. 2.

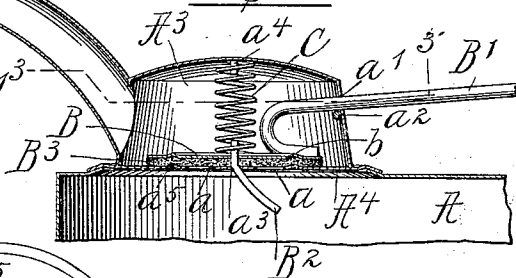
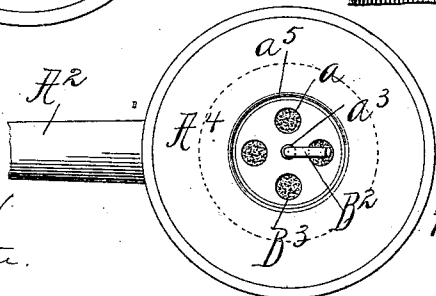


Fig. 4.



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VALVE MECHANISM FOR LIQUID-RECEPTACLES.

SPECIFICATION forming part of Letters Patent No. 523,094, dated July 17, 1894.

Application filed November 14, 1893. Serial No. 490,899. (No model.)

To all whom it may concern:

Be it known that I, F CORTEZ WILSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valve Mechanisms for Liquid-Receptacles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in valve mechanism for oil cans, oilers, and similar receptacles.

The object of the invention is to provide an improved construction in devices of the character referred to, and it consists in the matters hereinafter set forth and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of an oil can embodying my improvements. Fig. 2 is a vertical sectional detail of the valve mechanism thereof. Fig. 3 is a horizontal section taken on line 3-3 of Fig. 2. Fig. 4 is a bottom plan view of the valve mechanism detached.

The can illustrated in this instance is of that common type in which the can body A, ordinarily made cylindrical in shape, has soldered or otherwise rigidly attached to its side wall a handle A', and at a point usually diametrically opposite to the handle A', is provided with a spout A² leading from the top or upper portion of the can, and through which the contents of the can are discharged. In my present improvement as herein shown, however, said spout A² instead of communicating directly with the can body, leads out of a valve chamber A³ secured to the top of the can, this chamber being in communication with the interior of the can through one or more apertures a in the bottom A⁴ of the chamber. Said bottom A⁴ may obviously be integral with the can top, but as herein shown is made of a separate piece soldered or otherwise sealed above a suitable orifice in said top. Within the chamber A³ is provided a valve plate B normally held down to close the apertures a by a suitable spring C, herein shown as an ordinary coil spring inserted between the valve plate and the top of the valve chamber. An operating lever B' is secured

to the upper side of the valve plate and passes out of the valve chamber through an aperture a' provided in the side wall thereof at a point opposite the spout A². The lower margin of the aperture a' serves, in this instance, as a fulcrum for the operating lever B' and is herein shown as reinforced for this purpose by having soldered thereto a short piece of wire a².

As herein shown the valve plate B is further provided with a rigidly attached guide pin B² extending downwardly from the center of the plate and engaging a small guide aperture a³ in the bottom of the valve chamber, said aperture a³ in this instance marking the center about which the apertures a, herein shown as four in number, are arranged. Such guide pin B² is herein shown curved substantially upon an arc struck from the fulcrum of the operating lever B', i. e., the lower edge of the aperture a', so that the valve plate is guided in its movement as though the lever were positively pivoted at said fulcrum. The upper end of the pin B², in this instance, projects through and a short distance above the valve plate and serves to maintain the lower end of the spring C in proper position, while a short pin a⁴ depending from the top of the valve chamber serves the same purpose for the upper end of said spring.

To insure against leakage when the valve is closed, the valve plate B is herein shown provided upon its under side with a washer B³ of leather or similar material by which the joint is sealed, and as a further precaution said valve plate and the bottom of the chamber beneath it are formed with interfitting concentric corrugations b and a⁵, respectively, which increase the effectiveness of the seal and at the same time aid in centering the valve plate on its seat.

With the construction thus described it is obvious that the contents of the can will be normally prevented from escaping, no matter in what position the can is held, but that it will only be necessary to depress the free end of the operating lever B' in order to permit said contents to be discharged freely through the spout after the can has been tipped sufficiently to submerge one or more of the orifices a. In the arrangement of said

orifices a herein shown they are located symmetrically about the guide aperture a^3 , two of them being in line with the spout and handle and the other two being on a line at right angles thereto, so that when the can is tipped to discharge the contained liquid, that hole which is uppermost or nearest the handle will act as a vent, while the liquid will flow out through the other holes. The areas of said apertures a and of the spout A^2 are so proportioned that the maximum flow through said apertures will readily pass off at once through the spout. That portion of the valve chamber remote from the spout and which will necessarily be uppermost when the can is tipped to discharge its contents is, therefore, always free from liquid and there is no tendency to leakage around the operating lever at the aperture a' out of which it passes, but, on the contrary, said aperture acts as a vent through which air enters as the liquid runs out of the spout. Consequently no stuffing-box is required at this point and there being no other aperture in the valve chamber no leakage whatever can occur.

When the operating lever is released the spring C instantly and automatically closes the valve and at the same time the pin B^2 guides it to its proper seat, aided, in this instance, by the corrugations b and a^5 . The flow of liquid is thus instantly and completely cut off without changing the position of the can, when the desired quantity has been drawn off. This is of particular advantage in cans having a side handle, as herein shown, as it enables the can to be carried about in the inclined position which it will naturally assume when lifted and permitted to hang freely by such handle, without any leakage or spilling of the contents, the latter being permitted to flow as desired by the manipulation of the valve lever.

The specific construction described in which the operating lever is rigidly attached to the valve plate and the latter provided with the guide pin is especially advantageous from its simplicity and small number of working parts, by reason of which great economy of manufacture as well as durability is secured. It is, moreover, free from any stuffing boxes to leak or bind and from any pivots to get loose and require replacing. At the same time the exact return of the valve to its seat is insured and all liability of the displacement of the valve plate and consequent leakage is obviated.

The valve mechanism described may readily be made as a separate article of manufacture and sale to be afterward applied to any suitable can body, as desired, it being only necessary in such case to cut out the top of the can and solder the bottom of the valve chamber to the edges of the orifice thus provided, as shown in Fig. 2.

In the type of can herein illustrated the filling nozzle A^5 is usually provided on the top of the can at a point as remote as possi-

ble from the spout A^2 and immediately adjacent to the handle A' , this construction reducing to the minimum the tendency of the liquid to leak out through said nozzle, and enabling the same to be utilized as a vent even when the can is substantially full. Therefore to enable the operating lever B' to be extended directly back to within reach of the operator's thumb as he grasps the handle A' , the end of said lever is herein shown provided with a circular loop b' large enough to encircle the nozzle, by reason of which the lever may be depressed without striking the nozzle A^5 , and through which the cap of said nozzle may be readily removed when it is desired to fill the can. By such construction it is obvious that the operator may easily use the can and control the discharge of the same with either hand alone, the handle being held by the fingers and the valve operated by the thumb to start or cut off the flow as desired. Obviously also if one side of the loop were dispensed with the result would be the same, so far as the operating of the valve is concerned, as long as the lever extended to within convenient reach of the thumb without interfering with the filling nozzle. The complete loop is advantageous, however, in affording also an additional support for a funnel when a can is being filled.

My improved valve mechanism has proved effective with kerosene and other light hydrocarbons as well as with heavier oils, and while primarily intended for use upon oil cans and oilers may obviously be used effectively upon cans intended for holding other liquids, if so desired.

I claim as my invention—

1. A liquid receptacle having an exterior valve chamber secured thereto, an orifice in the wall of the receptacle leading into the valve chamber, a spring pressed valve plate normally covering said orifice, a valve operating lever extending out through an aperture in the wall of the chamber and fulcrumed at the edge of the aperture, and a discharge orifice in the wall of the chamber apart from said aperture, substantially as described.

2. A liquid receptacle having an exterior chamber the top and sides of which are formed by an integral, drawn metal cap secured at its edges to the exterior of the receptacle, an orifice in the wall of the receptacle beneath said cap, a spring pressed valve plate normally covering said orifice, a rod for opening the valve, and a discharge orifice in the cap, substantially as described.

3. As a new article of manufacture, a valve mechanism for sheet metal receptacles comprising a chamber the top and side walls of which are formed by an integral, drawn metal cap, a sheet metal bottom to which the edges of the cap are secured, and which is adapted to be secured at its edges above an aperture in the wall of the receptacle so as to form a part of said wall, an orifice in said bottom, a spring pressed valve plate normally covering

said orifice, a rod for operating the valve, and a discharge orifice in the cap, substantially as described.

4. A liquid receptacle having a closed valve chamber secured to its top, an orifice affording communication between the interior of the receptacle and valve chamber, a spring pressed valve plate within the chamber normally closing said orifice, an operating lever rigidly attached to the valve plate and extending out of the chamber through an aperture in the wall thereof, said lever being fulcrumed on the margin of said aperture, and a discharge spout on the chamber remote from said aperture, substantially as described.

5. A liquid receptacle having a closed valve chamber secured to its top, an orifice affording communication between the interior of the receptacle and valve chamber, a spring pressed valve plate within the valve chamber normally closing said orifice, an operating lever rigidly attached to the valve plate and extending through an aperture in the wall of the chamber, said lever being fulcrumed on the margin of said aperture, a guide pin rigidly attached to said valve plate and engaging a guide aperture in the wall beneath, said pin being curved on an arc struck from said fulcrum, and a discharge spout on the chamber opposite said aperture, substantially as described.

6. A valve mechanism for liquid receptacles comprising a closed valve chamber provided with an inlet and outlet for the liquid, a spring pressed valve plate normally closing said inlet, an operating lever rigidly attached to said valve plate and extending out of the chamber through an aperture in the wall thereof, and a guide pin engaging the said valve plate and the wall of the chamber to insure the exact seating of the plate, substantially as described.

7. A valve mechanism for liquid receptacles

comprising a closed valve chamber having an inlet for the liquid in its bottom wall and provided with a discharge spout, a spring pressed valve plate normally closing said inlet, an operating lever rigidly attached to the valve plate and extending out of the valve chamber through an aperture in the wall thereof remote from the discharge spout, said lever being fulcrumed on the lower edge of said aperture, a guide pin rigidly secured to the valve plate and curved on an arc struck from the fulcrum of the lever, and a guide aperture in the bottom of the chamber to engage said guide pin, substantially as described.

8. A valve mechanism for liquid receptacles comprising a closed valve chamber provided with an inlet and outlet for the liquid, a spring pressed valve plate normally closing said inlet, concentric interfitting corrugations on the valve plate and inlet wall, a guide pin engaging said plate and wall, and a lever for operating the valve, substantially as described.

9. A liquid receptacle provided at one side with an exterior valve chamber, and on the other side with a handle, and a filling nozzle eccentrically located adjacent to said handle, an orifice affording communication between the interior of the receptacle and valve chamber, a spring-pressed valve plate normally closing said orifice, an operating lever attached to said valve plate and extending out of the valve chamber through an aperture in the wall thereof, said lever being fulcrumed at said aperture and the free end of the lever being provided with a bend passing around the filling nozzle, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

F CORTEZ WILSON.

Witnesses:

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