Dec. 7, 1937. A. L. DALE 2,101,468

OIL DISPENSER

Filed Sept. 11, 1935

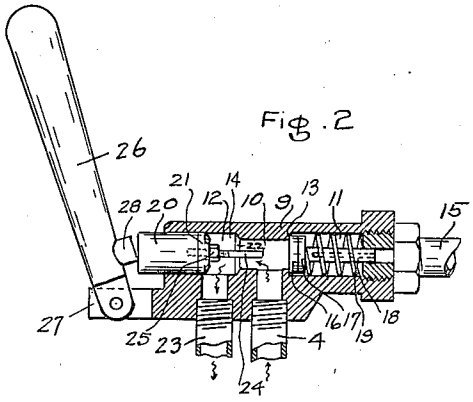


Fig. 2.

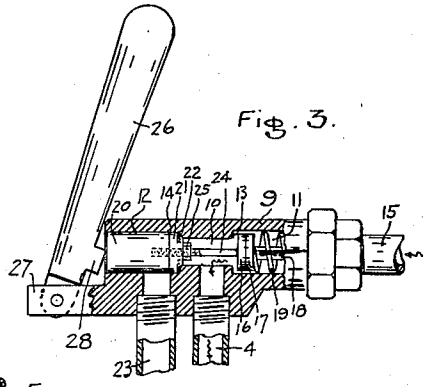


Fig. 3.

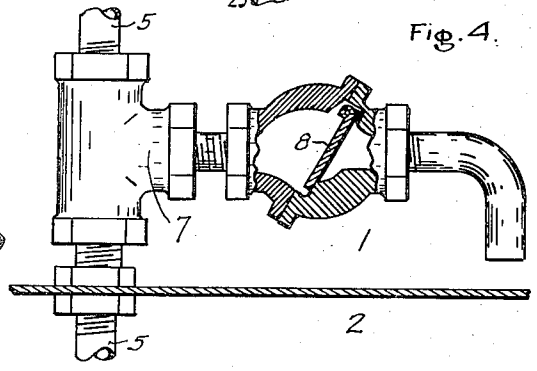


Fig. 4.

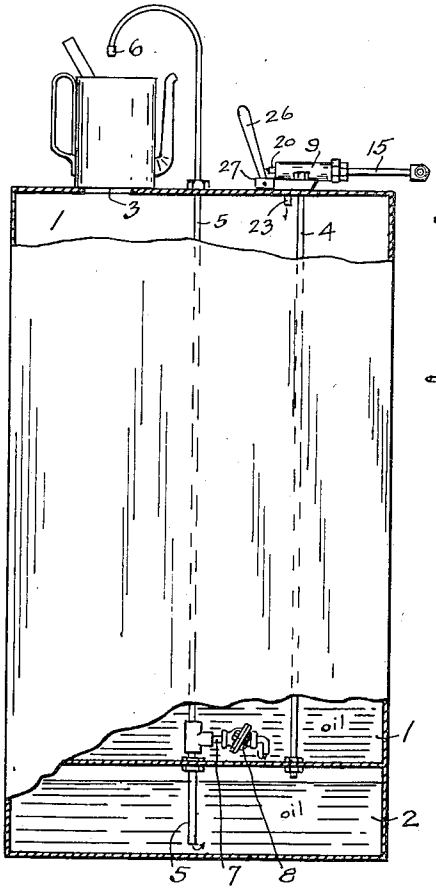


Fig. 1.

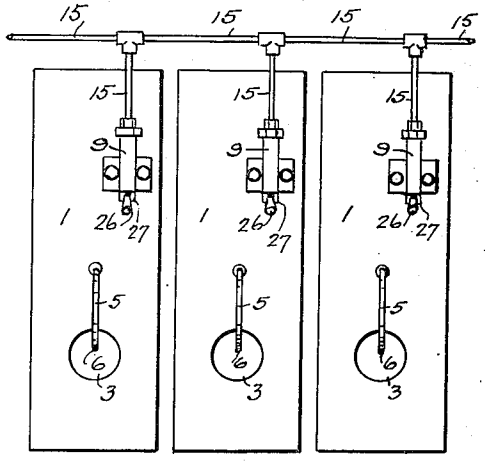


Fig. 5.

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OIL DISPENSER

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2 Claims. (Cl. 277—20)

This invention relates to devices for dispensing liquids, and especially to that class adapted for use in service stations, for the purpose of storing and dispensing lubricating oil.

The objects of this invention are, first, to provide a device which may be connected up to an air pressure line, whereby the oil is delivered upon the opening of a valve; second, to provide for the adjustment of the several valves in a series of such dispensers whereby, uniform air pressure being applied to all the said containers, each may be regulated to suit the several types of oils in the separate containers; third, to provide an improved valve whereby the manual pressure applied to the relief valve closes the said valve before it opens the air-supply valve.

I attain these and other objects by the devices, mechanisms and arrangements illustrated in the accompanying drawing, in which—

Fig. 1 is a side elevation of my improved oil dispenser, parts being broken away to reveal the interior thereof, and showing it in the act of refilling the auxiliary tank; Fig. 2 is a vertical section of the control valve, showing the parts in their normal positions, permitting the refilling of the auxiliary tank; Fig. 3 is a similar view thereof, showing the parts in the positions for dispensing the oil from the auxiliary tank; Fig. 4 is a view, partly in section, of the oil delivery pipe connection to the check valve; and Fig. 5 is a plan view showing a battery of tanks, each adapted to contain a different oil, and all connected to a common air-supply line.

Similar numerals of reference refer to similar parts throughout the several views.

It will be seen by the drawing that each container comprises two compartments, 1 and 2, one below the other, the upper compartment 1 comprising the oil storage tank and being open to the air through the hole 3 in its upper wall, while the lower compartment 2 comprises a comparatively small auxiliary tank which is air-tight and entirely separated from the storage tank.

An air-supply pipe 4 leads from the hereinafter described control valve through the storage tank 1 and into the upper part of the auxiliary tank 2. An oil delivery pipe 5 extends from near the bottom of the auxiliary tank 2 upward, through the storage tank 1, to a suitable nozzle 6. This oil delivery pipe 5 is provided with a side inlet 7 near the bottom of the storage tank 1, and said inlet 7 is controlled by a check or flap valve 8 (Fig. 4), so arranged as to permit oil to flow freely from the storage tank 1 into the auxiliary or dispensing tank 2, by the pipes 7 and 5, when the pressure in the auxiliary tank 2 is at atmospheric pressure.

The control valve is usually mounted on top of the storage tank 1 and comprises a cylindrical body 9, having an axial cavity extending completely therethrough. This cavity is in three sections, the central section 10 being of smaller diameter than the two end sections 11 and 12, thereby forming valve seats 13 and 14 on each side of said central cavity 10. The cavity 11, into which the pressure line 15, leading from a suitable source of air supply, is led through suitable connections, is provided with a valve 16 adapted to seat itself on the valve seat 13, between this cavity 11 and the central cavity 10. This valve 16 does not fit tightly within the cavity 11 but a slight air space is provided around its periphery. This valve 16 is mounted on a metal disk 17, having a stem 18 adapted to guide it in the cavity 11. The valve 16 may be made of fiber or other suitable material, which may be removably attached to the inner disk 17 of the valve. A spring 19 is mounted in the outer cavity 11 and is adapted to press the valve 16 against the seat 13.

A plug 20 is loosely mounted in the outer portion of the other cavity 12 and is adapted to be engaged and moved axially by manually actuated means. This plug 20 is provided with a renewable valve 21 on its inner end; the plug 20 fits neatly, but not tightly, in the outer cavity 12. The valve 21, secured to the inner end of the plug 20, similarly fits in the seat 14 between the outer cavity 12 and the central cavity 10. This second valve seat 14 is constructed substantially as shown and comprises a beveled portion 22 and a cylindrical portion. The valve 21 fits neatly in the cylindrical portion 14 and may be moved to press tightly against the beveled portion 22. The air-supply 4, for the auxiliary tank 2, leads from the central cavity 10 between the two valve seats 13 and 14—22, and an air exhaust pipe 23 leads from a point slightly to the rear of the valve seat 14 in the cavity 12 and enters the upper end of the storage tank 1, or may be led elsewhere, if so desired.

A push rod 24 is screwed into the above described plug 20, through the valve 21, and is locked in adjusted position therein by means of a lock-nut 25. This push rod 24 extends into the central cavity 10 a distance which is controlled by screwing it more or less into the said plug 20. This push rod 24 is adapted to engage the air valve 16, above described, but its length is so adjusted that it does not so engage the said air valve until the valve 21 on the plug 20 has closed

the outer or cylindrical part 14 of the valve seat. Further pressure on the said plug 20 opens the air-supply valve 16, permitting the air from the pressure supply pipe 15 to pass into the auxiliary tank 2 by means of the above-described pipe 4. When several of the above-described storage tanks 1 are placed on the same air-supply line 15, it is necessary to adjust the lengths of the several push rods 24 so that the same pressure in the air-supply pipe 15 (which may be from 15 to 25 pounds per sq. inch) will act on the several kinds of oil in the said tanks 2 with substantially equal effect, independent of their viscosity, so that for the heavier oils the said push rod 24 is screwed out further than for the lighter oils, thereby opening the air valve 16 wider for said heavier oils.

A handle 26 is pivotally mounted on an extension lug 27, in front of the said control valve 9, said handle 26 having a suitable lug 28 thereon, adapted to engage the end of the said plug 20 of the valve, so that by pushing on the said handle 26, the valves above described are operated.

When this handle 26 is thus pushed to open the air valve 16, as above described, (Fig. 3) the air under pressure will enter the top of the dispensing tank 2 and will force the oil therein out through the oil delivery pipe 5. While this is being done, the check valve 8 automatically closes thus insuring the delivery of the oil from the auxiliary tank 2 to the nozzle 6. As soon however, as the pressure is removed from the handle 26 the air pressure and the spring 19 act to close the air valve 16; and the plug 20 and its valve 21 are pushed outward by the pressure which is in the air line 4 leading to the auxiliary tank 2. Thus the second valve 21 is opened and connection is made between the air pipe 4, leading to the auxiliary tank 2, and the air exhaust 23, thus permitting the air in the auxiliary tank 2 to escape and the pressure thereof to drop to atmospheric pressure, with the result that the oil in the storage tank 1 then flows freely through the check valve 8 into the auxiliary tank 2 until the said tank 2 is full.

Therefore it is evident that the auxiliary tank 2 is always ready with oil, so that as soon as the handle 26 is pressed, oil will be delivered from the nozzle 6, and that as soon as the handle is released, the auxiliary tank 2 is immediately refilled.

Although I have shown that the auxiliary tank 2 is made integral with the storage tank 1, it is, of course, understood that it may be a separate tank located at any convenient point so long as it is in position to be automatically filled by gravity or otherwise from the storage tank.

It is evident that many variations may be made in my invention without departing from the spirit thereof as outlined in the appended claims.

What I claim and desire to secure by Letters Patent is:—

1. A control apparatus for an oil dispenser, having an air pressure line, an air-supply pipe, and a relief pipe attached thereto and comprising a fixed body having three connected chambers therein, the air pressure line entering the first chamber, the air-supply pipe entering the central or second chamber, and the relief pipe entering the third chamber; valve seats formed between said chambers, said valve seats opening outward from the central chamber; an automatic valve adapted to normally close the connection between said first and second chambers; a plug valve lying in the third chamber and normally open, thereby connecting the air-supply pipe with the relief pipe but adapted to be moved to close said connection; and a push rod adjustably mounted on said plug valve and extending inward therefrom into adjustable spaced relation with said automatic valve, whereby said automatic valve is engaged, after the said plug valve has closed off connection between the air-supply pipe and the relief pipe, to open said automatic valve a predetermined amount to connect the air pressure line with the air-supply pipe.

2. A control apparatus as set forth in claim 1 wherein said relief pipe enters the third chamber at a point well removed from the valve seat therein; and wherein said plug valve passes over and closes said relief pipe before it engages its said valve seat, whereby said relief pipe is closed prior to the admission of air pressure to said air supply pipe by the opening of said automatic valve; whereby the said relief pipe is closed by said plug valve before it ceases its forward movement.

ARTHUR L. DALE.