H. D. POWERS.

LIQUID FUEL TANK.

APPLICATION FILED JAN. 13, 1920.

1,361,614. Patented Dec. 7, 1920.

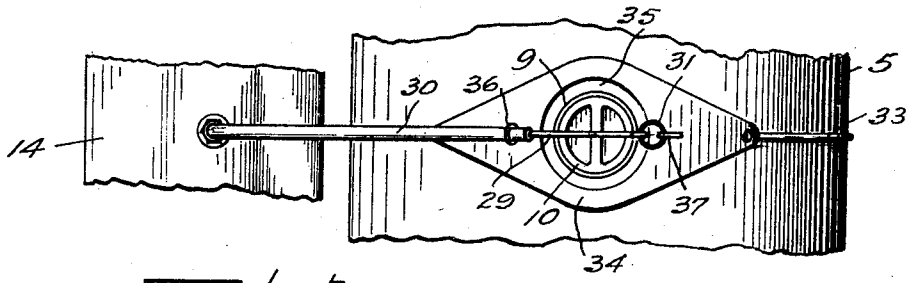


FIG. 2

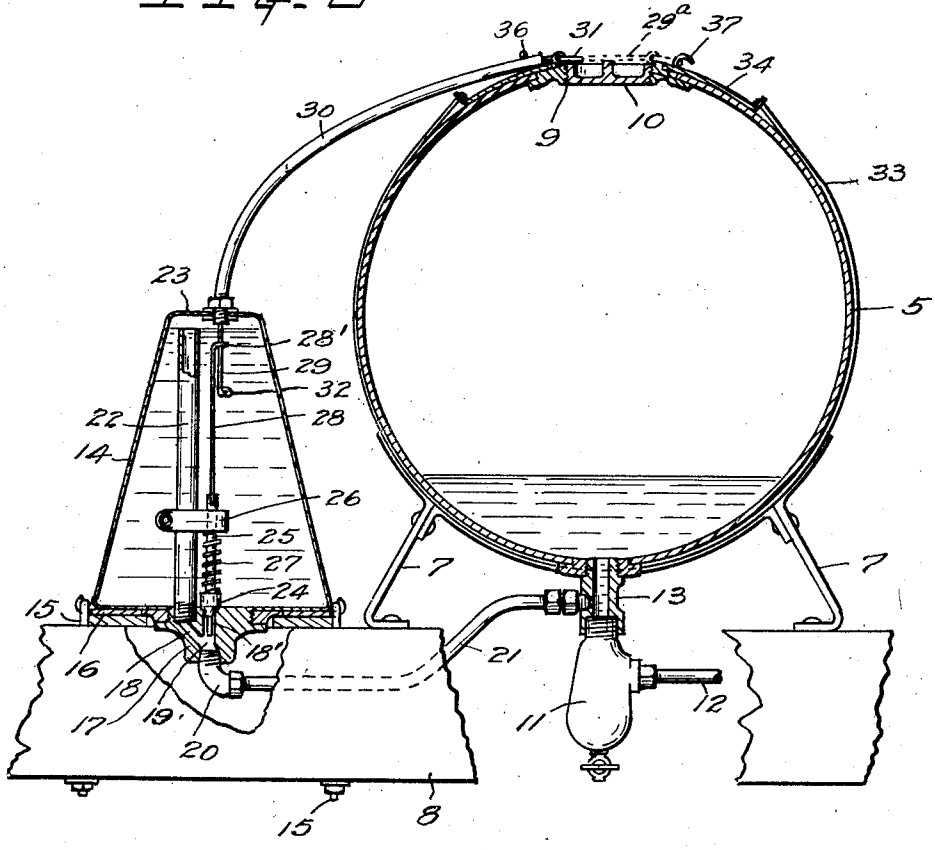


FIG. 1

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HUBERT D. POWERS, OF SEATTLE, WASHINGTON, ASSIGNOR OF ONE-FOURTH TO FRANK W. PORTER AND ONE-FOURTH TO ALBERT E. PORTER, BOTH OF SEATTLE, WASHINGTON.

LIQUID-FUEL TANK.

1,361,614. Specification of Letters Patent. Patented Dec. 7, 1920.

Application filed January 13, 1920. Serial No. 351,111.

To all whom it may concern:

Be it known that I, HUBERT D. POWERS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Liquid-Fuel Tanks, of which the following is a specification.

This invention relates to improvements in fuel supply apparatus for internal combustion engines.

Its object is the provision of an auxiliary tank which is to be used supplementary to the main liquid-fuel tank or reservoir so that upon the latter becoming exhausted a supply of fuel will be available to insure the propelling of the motor vehicle to a service station for replenishing the reservoir.

A further object of the invention is the provision of devices for regulating the discharge valve of the auxiliary tank to prevent the same inadvertently remaining open until an emergency arises.

The invention consists in the devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of liquid fuel tanks embodying my invention. Fig. 2 is a fragmentary plan view of the same, with the valve controlling wire in the position in which it is indicated by dotted lines in Fig. 1.

In said drawings, the numeral 5 designates a main tank or reservoir for liquid fuel which, as shown, is supported upon legs 7 which are rigidly connected to a body or frame work 8. In its top, the tank 5 is provided with a threaded filling opening 9 into which is screwed a plug 10.

11 represents the usual filter attachment connected to a delivery pipe 12 as usual and, in the present invention, by a T-fitting 13 with the discharge opening provided in the bottom of said tank. In carrying out my invention I provide a second tank 14, hereinafter designated as the reserve tank, shown as being rigidly secured to the frame work 8 by bolts 15 engaging lugs extending from a base plate 16 fixedly connected to the reserve tank. This tank is of less capacity than the main tank 5 and extends to a lower elevation than that of the top of the main tank. Provided at the bottom of tank 14 is a fitting 17 having two passages 18 and 18^1 making communication between the interior of the tank and an opening 19 in which is engaged an elbow 20 which, in turn, is connected to an end of a tube 21 whose other end is connected in the branch opening of the T-fitting 13.

Connected in the passage 18 is an upright pipe 22 whose upper open end terminates in proximity of the top 23 of the reserve tank 14.

The upper end of the passage 18^1 is formed to provide a seat for a conical valve 24 which has a stem 25 extending through a guide 26 secured to the pipe 22. A spring 27 interposed between said guide and the valve serves to yieldingly retain the latter on its seat.

28 represents a rod connected at its lower end to the valve stem and is provided with a loop 28^1 at its other end. 29 is a wire passing through said loop and a flexible vent tube 30 which extends from the top 23 of the tank 14 to an elevation above the tank 5 into proximity of the filling opening 9 thereof. Connected to the upper end of the wire 29 is a loop or ring 31, and at a distance below the loop 28 of rod 27 said wire is formed or provided with a relatively large portion 32.

Secured as by a band wire 33 to the tank 5 is a plate 34 having an aperture 35 through which is exposed the tank filling opening 9. The tube 30 is secured by an eye attachment 36 to the plate 34 at one side of aperture 35 and at the diametrically opposite side of the same is a hook 37 over which the ring 31 is engageable.

The operation of the invention is as follows: In filling the main tank or reservoir 5, the liquid fuel flows through pipes 21 and 22 to supply the reserve tank 14. When the liquid contents of the main tank 5 is exhausted, as will be evidenced by the stopping of the associated engine, the driver pulls upon the ring 31 causing the wire 29 to be drawn through the vent tube 30 whereby the enlarged portion 32 of such wire engages the looped end of rod 28 to raise the valve 24 from its seat, whereupon the reserve liquid fuel discharges from the tank 14. The operator then temporarily retains the valve open by engaging the ring 31 over

the hook 37 which causes the wire to extend over the plug 10, as indicated by full lines in Fig. 2 and by dotted lines 29ª in Fig. 1.

From the foregoing it is apparent that the reserve tank is filled with liquid in charging the main tank; that the reserve tank retains its supply of liquid until the operator unseats the spring closed valve thereof; and that by detachably securing the valve-opening wire across the top of the plug in the filling hole of the main tank, prevents the plug being removed until after the wire is disconnected from the hook.

In order then to supply gasolene, or the like, to either tank it is essential that the wire 29 be disconnected from said hook upon the occurence of which the spring 27 asserts itself to close the valve 24 against its seat where it remains while the tanks are being replenished and until manually opened for escape of the fuel from the auxiliary tank.

What I claim, is:—

1. In apparatus of the class described, the combination of a main tank having inlet and outlet openings, a closure for said inlet opening, an auxiliary tank communicatively connected to said main tank for filling both tanks with liquid through the medium of said inlet, said auxiliary tank having a liquid outlet in the bottom thereof, a spring closing valve for the last named outlet, means extending above the main tank for opening said valve, and means engageable by the aforesaid means when the latter extends over the top of said closure for retaining the valve open.

2. In apparatus of the class described, the combination of a main tank, an auxiliary tank, inlet and outlet openings for the respective tanks, a valve for the outlet of the auxiliary tank, a spring tending to maintain said valve in position to close the respective outlet, a removable closure for the inlet of the main tank, manually actuated means extending into proximity of the last named inlet for opening said valve, and means engageable by the aforesaid means to temporarily retain the valve in its open position and prevent the closure being removed for supplying liquid to the main tank.

3. In apparatus of the class described, the combination with the main tank having inlet and outlet openings at the top and bottom respectively, and a removable closure for said inlet opening, of an auxiliary tank, pipe connections from the outlet of the main tank to afford filling and discharge openings respectively in the upper and lower portions of the space within said auxiliary tank, a valve for the opening of said pipe connections with respect to the lower portion of the auxiliary tank, a vent pipe extending from the top of the latter to an elevation above the top of the main tank, and means extending through said vent pipe for regulating said valve.

4. In apparatus of the class described, a main tank having inlet and outlet openings at the top and bottom respectively, a removable closure for said inlet opening, an auxiliary tank having a discharge opening, communicative connections between the tanks for supplying the same with liquid through the medium of said inlet opening when the closure thereof is removed, a valve controlling said discharge opening, and means for regulating said valve to allow the discharge of liquid from the auxiliary tank, said means also serving to prevent said closure being withdrawn from said inlet opening.

Signed at Seattle, Washington, this 6th day of January, 1920.

HUBERT D. POWERS.

Witnesses:

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ALBERT E. PORTER.