June 1, 1943. T. W. CROWELL 2,320,913

LIQUID FUEL OR LUBRICANT SUPPLY TANK

Filed May 28, 1941

Fig. 1.

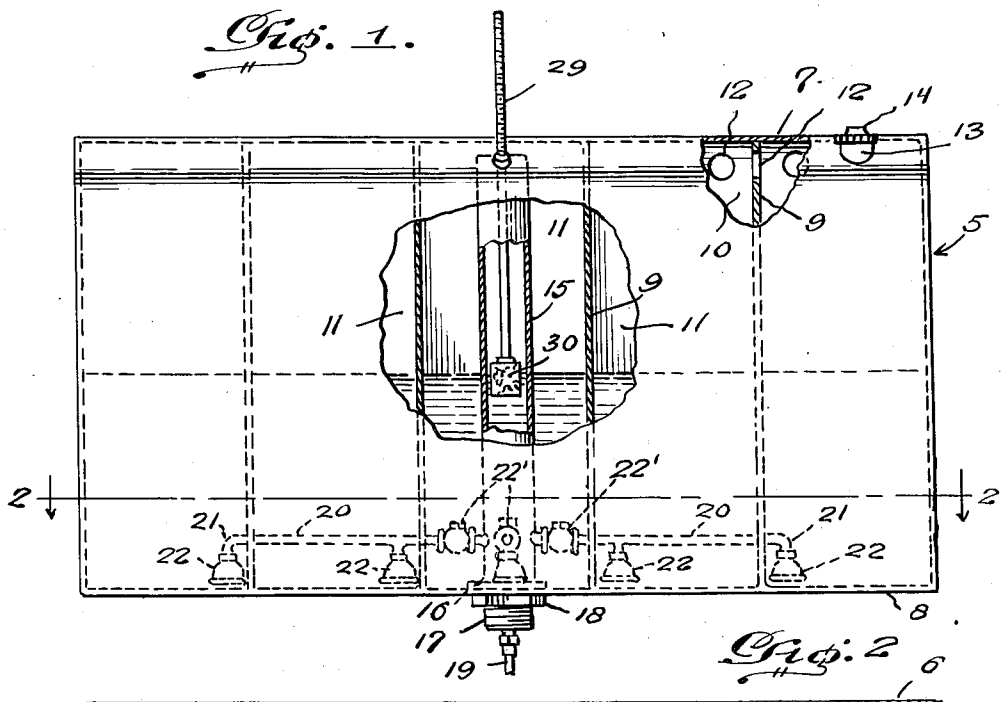
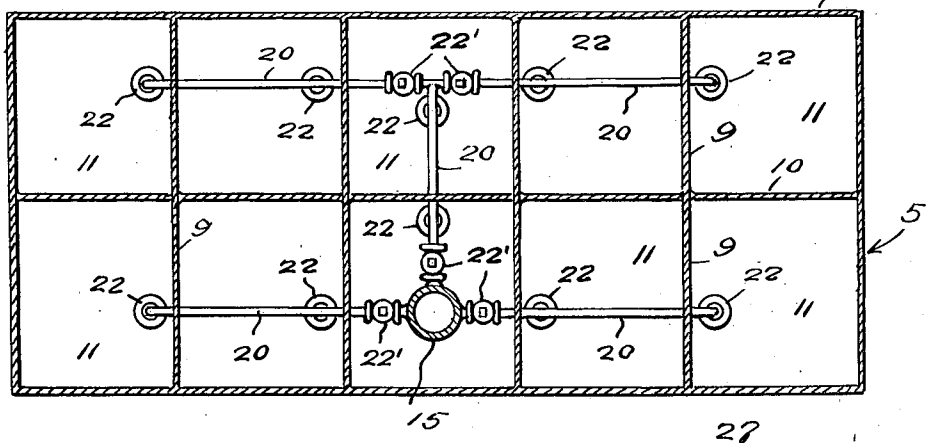


Fig. 2



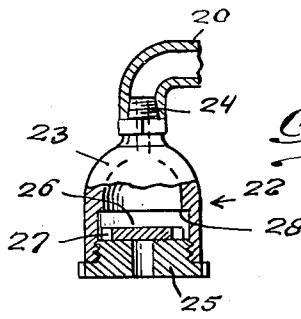


Fig. 3.

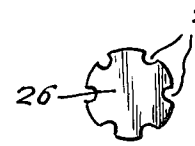


Fig. 4.

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LIQUID FUEL OR LUBRICANT SUPPLY TANK

Thomas W. Crowell, Matthews, N. C.

Application May 28, 1941, Serial No. 395,657

1 Claim. (Cl. 137—21)

This invention relates to a liquid fuel or lubricant supply tank for engines, and is especially adapted for use on any kind of land, water or air vehicle, and has for the primary object the provision of a device of this character which will provide a maximum amount of storage space for the liquid therein without having its overall size increased over the size of conventional storage tanks employed for the same purpose and will prevent total loss of the liquid should the tank leak from any cause, such as being damaged from a collision, vibration or penetration by a bullet or the like, consequently leaving sufficient fluid therein for the maintenance of operation of the engine until such time that the device employing the engine may be brought to a selected designation.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a side elevation partly in section illustrating a liquid storage tank constructed in accordance with my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a fragmentary vertical sectional view illustrating one of the check valves.

Figure 4 is a plan view illustrating the movable element of the check valve.

Referring in detail to the drawing, the numeral 5 indicates a liquid tank constructed of any material suitable for the purpose and of any selected size. The tank 5 includes vertical walls 6, a top wall 7, and a bottom wall 8. Said walls may be of integral construction or secured together in any well known manner so as to render the tank leak-proof.

Arranged within the tank are transverse and longitudinally extending partitions 9 and 10 dividing said tank into a plurality of liquid compartments 11. The partitions may be joined onto the walls of the tank in any well known manner so that said compartments will each be leak-proof and noncommunicative except at their upper ends in close proximity to the top wall 7 of the tank. The partitions 9 and 10 are ported, as shown at 12, so that in filling the tank from a common fill spout 13 the overflow from one compartment to another may be accomplished for the purpose of filling each compartment to a selected level. The location of the fill spout 13 may be varied to suit different requirements or application of the tank to different devices.

A closure cap 14 is provided for the fill spout.

The tank 5 is provided with a stand-pipe 15 arranged interiorly thereof or exteriorly if desired. However, the stand-pipe 15 is shown in the drawing as being arranged within one of the compartments and terminates at its upper end adjacent the top wall 7 of the tank. The stand-pipe adjacent its lower end is shouldered, as shown at 16, to rest upon the bottom wall 8 of the tank while the lower screw threaded end 17 thereof extends through an opening provided in the bottom wall 8 and has threaded thereon a packing nut 18 to engage with the bottom wall and cooperate with the shoulder 16 in providing a leak-proof connection between the stand-pipe and the tank.

The lower screw threaded end 17 of the stand-pipe which is arranged exteriorly of the tank has a liquid line or pipe 19 connected thereto for the purpose of conveying the liquid of the tank to an engine.

A plurality of branch pipes 20 are connected with the stand-pipe 15 a limited distance above the bottom wall 8 of the tank and extends into the various compartments terminating in downwardly directed ends 21 to which are connected check valves 22 that will permit liquid from the compartments to flow to the stand-pipe but which will prevent the liquid from re-entering the compartments from the stand-pipe.

Check valves 22′ of a conventional construction are arranged in the branch pipes 20, so that should any one of said branch pipes be broken at the line of drainage to any one of the compartments, the flow of liquid from the stand-pipe and any of the undamaged compartments will be prevented from wasting from the damaged compartment and the damaged portion of the branch pipe.

This arrangement of check valves will prevent liquid from flowing from one compartment to another by way of the different branch pipes and the stand-pipe, but as stated, the liquid of any compartment may readily flow to the stand-pipe for passage therefrom to the engine.

Each check valve 22 consists of a substantially cup-shaped housing 23 having a reduced screw threaded end 24 for connection with a branch pipe. The other end of the cup-shaped housing is internally screw threaded to receive a ported plug

25, acting as a seat for a check valve element 26 in the form of a disc having its periphery provided with a series of notches 27. Further, the cup-shaped housing 23 is provided with an internal shoulder 28 acting to limit the distance in which the valve element 26 may move off its seat and when disengaged from said seat liquid may flow into the housing 23 by passing through the various notches 27 and the ported plug 25.

A gauge rod 29 may extend through the top wall 7 of the tank and enter the upper portion of the stand-pipe and is equipped with a float 30 adapted to move the gauge rod 29 in accordance with the level of the liquid within the tank and consequently permit a person to readily determine the approximate amount of liquid in said tank.

When the stand-pipe 15 is located exteriorly of the tank it is secured thereto in any well known manner and the various branch pipes 22 connected thereto and leading to the various compartments may enter certain walls of the tank.

Thus it will be seen from the foregoing description taken in connection with the drawing, that a very efficient supply tank has been provided that may be easily installed in any type of vehicle for the purpose of supplying the engine thereof either with liquid fuel or lubricant. Furthermore it will be seen that should the tank at any given point be damaged as to cause leakage only the compartment where the damage occurs will lose its contents, consequently leaving the liquid within the other compartments undisturbed and useable by the engine.

As before stated, the tank may be constructed of any material suitable for the purpose and its design or shape may be varied to facilitate its installation, as for instance, the tank may be of such a shape that it may be installed in a wing of an aeroplane or some other type of flying machine.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described the invention, what I claim as new is:

In a liquid supply for engines, a tank, a plurality of connected partitions dividing the tank into a plurality of compartments and each partition having an opening connecting said compartments with each other adjacent an upper wall of the tank, a stand pipe located in one of the compartments and including means for connecting thereof to an engine and extending through the bottom wall of the tank, branch pipes connected with the stand pipe adjacent the lower end thereof and each having a free end portion curved to extend downwardly and terminating within a compartment at a selected distance above the bottom wall of the tank, a cup-shaped depending housing secured on each of said ends of the branch pipes and having an internal shoulder and a screw threaded lower end, a ported plug threaded in each of the housings and spaced in close relation to the bottom wall of the tank, and a notched disc-like valve element operating in each of said housings between the shoulder and the plug to provide a check valve to permit flow of liquid from the compartment to the stand pipe and preventing reverse flow of liquid from the stand-pipe to said compartment and from one compartment to another.

THOMAS W. CROWELL.