Nov. 17, 1942. F. R. JOHANSSON 2,302,497

AUTOMATIC GASOLINE DISPENSER

Filed Sept. 10, 1941 2 Sheets-Sheet 1

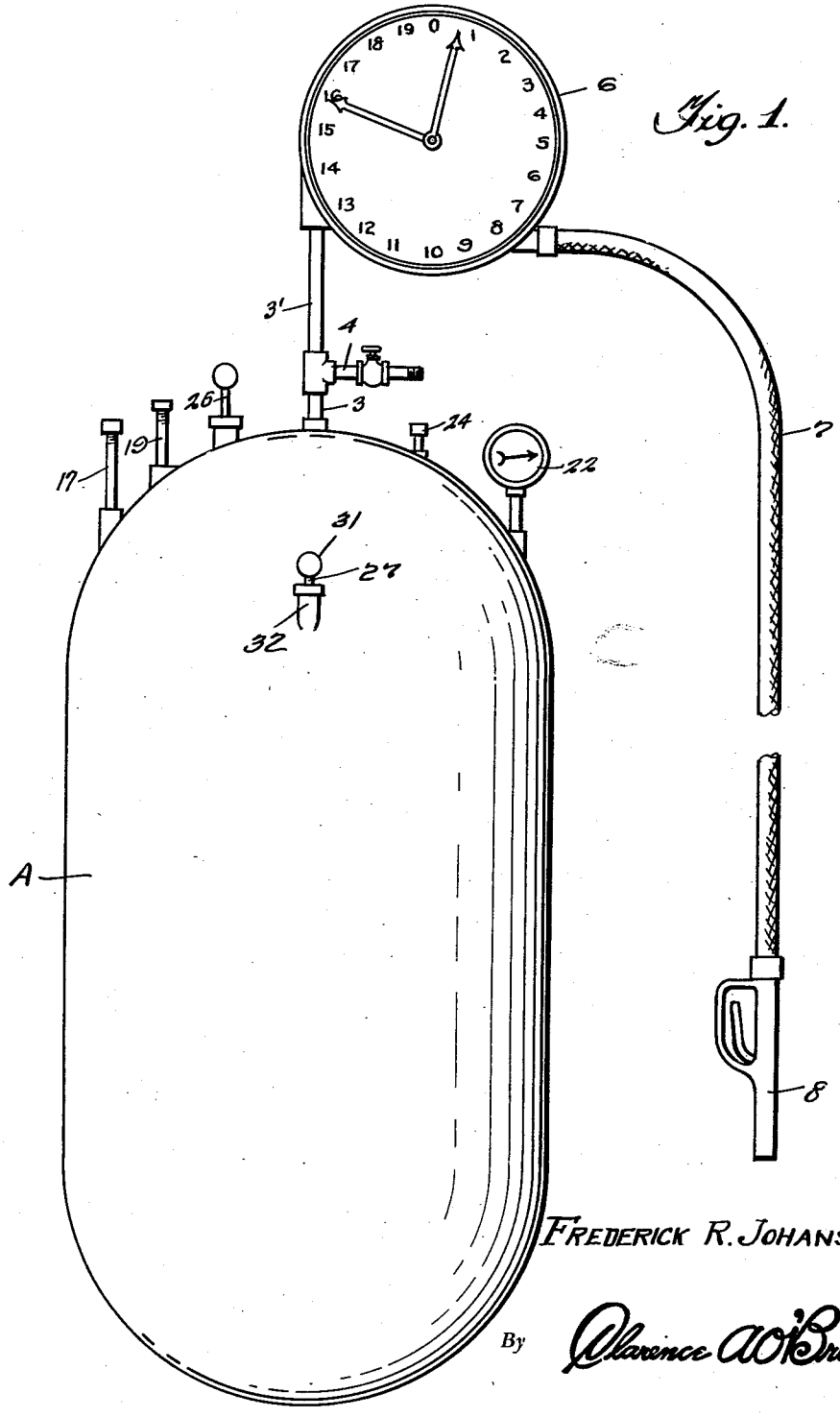


Fig. 1.

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AUTOMATIC GASOLINE DISPENSER

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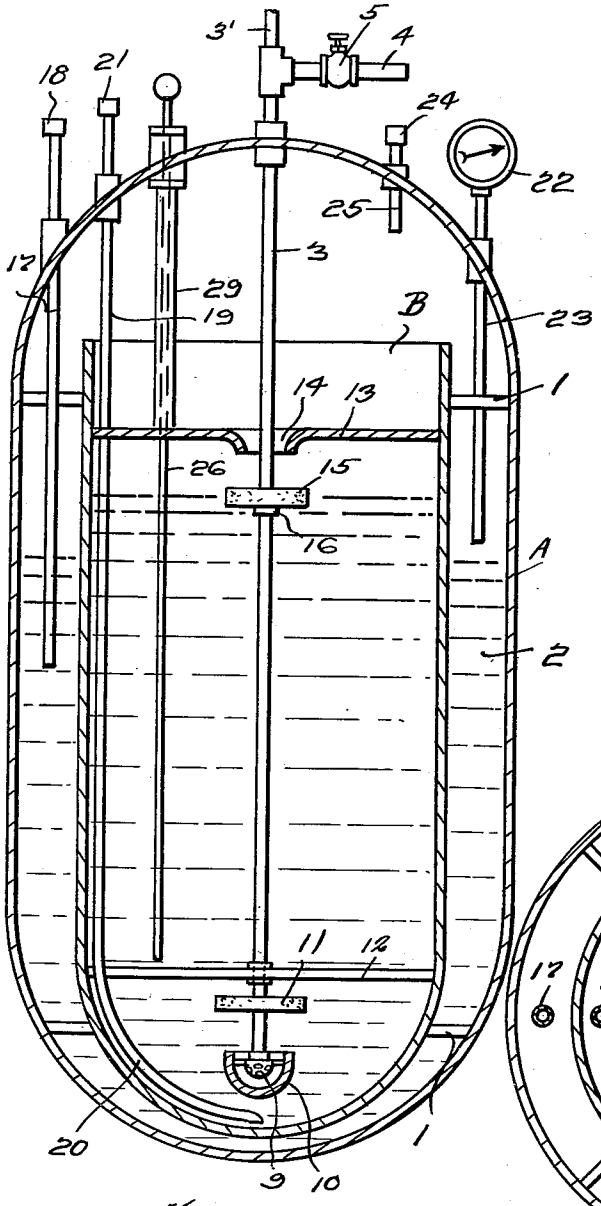


Fig. 2.

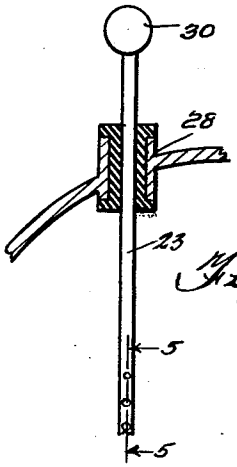


Fig. 4.

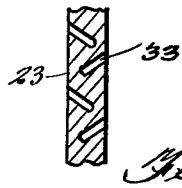


Fig. 5.

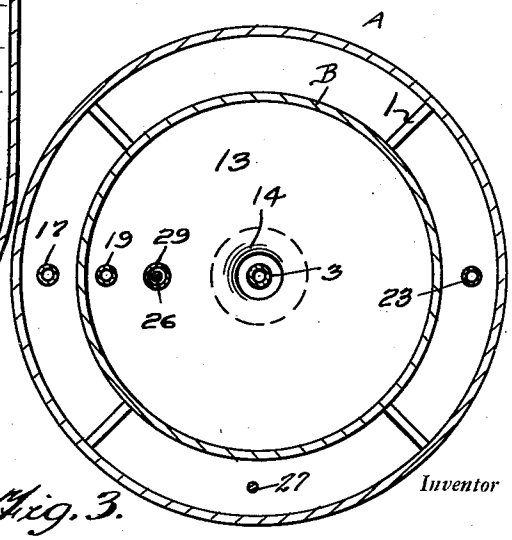


Fig. 3.

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UNITED STATES PATENT OFFICE

2,302,497

AUTOMATIC GASOLINE DISPENSER

Frederick R. Johansson, Alta Loma, Tex.

Application September 10, 1941, Serial No. 410,329

3 Claims. (Cl. 221—67)

This invention relates to an automatic gasoline dispenser, the general object of the invention being to provide means for subjecting the gasoline to the action of vapor under pressure, produced by gaseous liquid, such as butane or protane or the like, so that the gasoline is forced from the tank by this pressure as soon as a valve in the outlet of the tank is open.

This invention eliminates the use of pumps and the like, also eliminates fire danger, reduces the cost of installation and maintenance and creates a constant and uniform pressure for the expulsion of the gasoline.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is an elevational view of a gasoline delivery tank constructed in accordance with this invention.

Figure 2 is a vertical sectional view through the tank.

Figure 3 is a transverse sectional view through the tank.

Figure 4 is a detail view partly in section showing one of the gauge rods.

Figure 5 is a section on the line 5—5 of Figure 4.

In these views the tank is shown at A and it is preferably formed with rounded ends and the tank may be supported in any suitable manner. A small tank B is arranged in the main tank and is of less length and diameter than the main tank, the tank B being supported in spaced relation from the internal walls of the large tank by the supporting members 1 which are preferably made in the form of rods. Thus the two tanks form a chamber 2 between them and extends under the bottom of the inner tank and the inner tank receives the gasoline through a combined inlet and discharge pipe 3 which passes through the top of the main tank and into the tank B to a point adjacent the bottom of the tank B, the upper end of the pipe being connected to a filling pipe 4 which is provided with a valve 5. The upper part 3' of the pipe 3 extends into a gauge 6 of any suitable construction for indicating the amount of gasoline passing from the device and the outlet of the gauge is connected to the usual hose 7 which contains the valve equipped nozzle 8. The lower end of the pipe 3 is formed with a perforated head 9 and a cup-shaped member 10 is held by the head so that the gasoline passing from the perforations of the head 9 will be caused to flow upwardly into the tank B by the cup-shaped member 10 and this cup-shaped member also acts as a seat for a float valve 11 slidably arranged on the pipe 3. A spider 12 supported from the lower part of the tank B supports the lower end of the pipe 3. A plate 13 extends across the upper part of the tank B and has openings 14 therein, the walls of which curve downwardly to form a seat for a second float valve 15 slidably arranged on the pipe 3 and limited in its downward movement by a collar 16 on the pipe. This float valve will close the opening 14 when the gasoline fills the tank B and when the level of gasoline reaches a low point the float valve 11 will engage the cup-shaped member 10 and thus prevent the passage of any more gasoline to the pipe 3.

The chamber 2 is to receive a gaseous liquid such as butane, protane or the like and this liquid is placed in the chamber 2 through means of a filling pipe 17 passes through the top of the main tank into the chamber 2 and having its upper end closed by a cap 18. By removing the cap the gaseous liquid can be placed in the chamber 2 after which the cap is put back in place.

Both the gasoline and the gaseous liquid in the chamber 2 should be introduced under pressure and all the connections between the pipes and other parts entering the device should be made air-tight.

By opening the valve 5 and connecting the pipe 4 with a suitable pump the gasoline is forced through the pipe 3 to fill the tank B and, of course, when the tank becomes filled the float valve 15 will engage the seat around the opening 14 and close the opening so that no more gasoline can be introduced into the tank B. Then the gaseous liquid is introduced into the chamber 2 under pressure. The vapor produced by this liquid in chamber 2 will pass into the top of the main tank and then through the opening 14 lowering the float valve 15, if the same is in closed position, and thus this vapor will produce a pressure upon the gasoline in tank B so that when the valve in nozzle 8 is open the gasoline will flow through the pipe connection and the gauge into the receptacle into which the nozzle is inserted. Of course, as soon as the valve in the nozzle is closed the flow of gasoline will cease.

When the gasoline reaches a low level in the tank B the valve 11 will engage the member 10 and thus prevent the loss of vapor from the device.

In order to remove sediment in the bottom of the tank B, I provide a pipe 19 which passes through the top of the main tank into the tank B to a point at the bottom thereof, the lower end of the pipe being curved, as shown at 20 to conform with the curved bottom of the tank B.

Thus by removing the cap 21 from the outer end of the pipe 19 the vapors will blow out the remaining gasoline in the bottom of the tank B and any sediment therein through the pipe 19. I also provide a gauge 22 for the liquid in the chamber 2 and this gauge being connected with the upper end of a pipe 23 which extends through the top of the tank A into the chamber 2. A safety valve 24 is connected with the upper end of a short pipe 25 which passes through the top of the main tank. I also provide a gauge rod 26 for indicating the amount of gasoline in the tank B and a gauge rod 27 for indicating the amount of liquid in the chamber 2. The rod 26 passes through a packing gland 28, see Figure 4, in the top of the tank A and through a tube 29 which extends from the top of the tank to the plate 13, the rod having a handle 30 at its upper end. The gauge rod 27 also has a handle 31 at its upper end and this rod passes through a packing gland 32 in a side portion of the tank A adjacent the top thereof and into the chamber 2.

Each gauge rod is formed with a plurality of holes 33 therein which slope downwardly and inwardly as shown in Figure 5 so that when a gauge rod is put in place that part of the rod extending into the liquid will have the holes 33 filled so that when the rod is removed one can ascertain the level of liquid by noticing the last upper hole which is filled with liquid. Suitable graduations are placed on the rod and, of course, the packing means in the glands will close when the rods are removed to prevent the escape of fluid under pressure.

The advantageous features of this invention are as follows:

1. There is less danger of fire than in the present and common electric gasoline dispensers used at the average filling stations.

2. Cost of maintenance and operation is low.

3. The initial cost of the tank and equipment necessary to be used will be far less than the cost for installation of the commonly used pump and tank at average filling stations.

4. The use of pressure created by butane gases is more constant and more reliable than other types of power commonly available.

5. All openings must be kept closed on account of pressure, thereby eliminating the hazards of explosions from open vents as in conventional gasoline tanks.

6. On account of pressure sediment in bottom of tank can be blown out at any time through the opening of a relief valve so designed to bleed the tank.

7. It is superior over present systems because of less probability of air or water being mixed with gasoline.

8. It is superior over present electric systems because no electricity needed for power; therefore when electric current fails, this system can constantly operate.

9. System can be built without meters for home or farm use.

10. It can be used where no electricity is available and yet be completely automatic.

It will, of course, be understood that instead of using the caps 18 and 21 valves can be used.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

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

1. In a device of the class described, a main tank, a second tank within the main tank and spaced therefrom to form a chamber between itself and the main tank, independent means for placing liquid in the second tank and a gaseous liquid in the space between the two tanks, an outlet pipe extending through the top of the main tank into the inner tank to a point adjacent the bottom thereof, said tanks being in communication whereby the vapors formed by the gaseous liquid will act upon the liquid in the second tank to force the liquid through the discharge pipe, and float-controlled valve means controlling communication between the tanks.

2. In a device of the class described, a main tank, a second tank within the main tank and forming a chamber between itself and the main tank, a combined inlet and discharge pipe passing through the top of the main tank and into the second tank to a point adjacent the bottom thereof, means for filling the second tank through said pipe, means for introducing a gaseous liquid into the chamber, the vapors from which will act upon the liquid in the second tank to force the liquid through the pipe, a closure for the top of the second tank having a port therein through which the pipe passes, a float valve on the pipe for closing the port when the liquid level in the second tank is adjacent the closure, a cup-shaped member surrounding the lower end of the pipe and a second float valve on the lower end of the pipe engaging the cup-shaped member, when the liquid level in the second tank is low to prevent further escape of the liquid through the pipe.

3. In a device of the class described, a main tank, a second tank within the main tank and forming a chamber between itself and the main tank, a combined inlet and discharge pipe passing through the top of the main tank and into the second tank to a point adjacent the bottom thereof, means for filling the second tank through said pipe, means for introducing a gaseous liquid into the chamber, the vapors from which will act upon the liquid in the second tank to force the liquid through the pipe, a closure for the top of the second tank having a port therein through which the pipe passes, a float valve on the pipe for closing the port when the liquid level in the second tank is adjacent the closure, a cup-shaped member surrounding the lower end of the pipe and a second float valve on the lower end of the pipe engaging the cup-shaped member, when the liquid level in the second tank is low to prevent further escape of the liquid through the pipe, and a sediment discharge pipe passing through the top of the main tank into the second tank to a point adjacent the bottom thereof, whereby when the discharge pipe is opened and the second float valve is engaging the cup-shaped member the vapor will force the remaining liquid and sediment therein through the sediment discharge pipe.

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