D. W. FLINT.

LIQUID DISPENSING APPARATUS.

APPLICATION FILED FEB. 6, 1915.

1,231,006. Patented June 26, 1917.

Fig. 1.

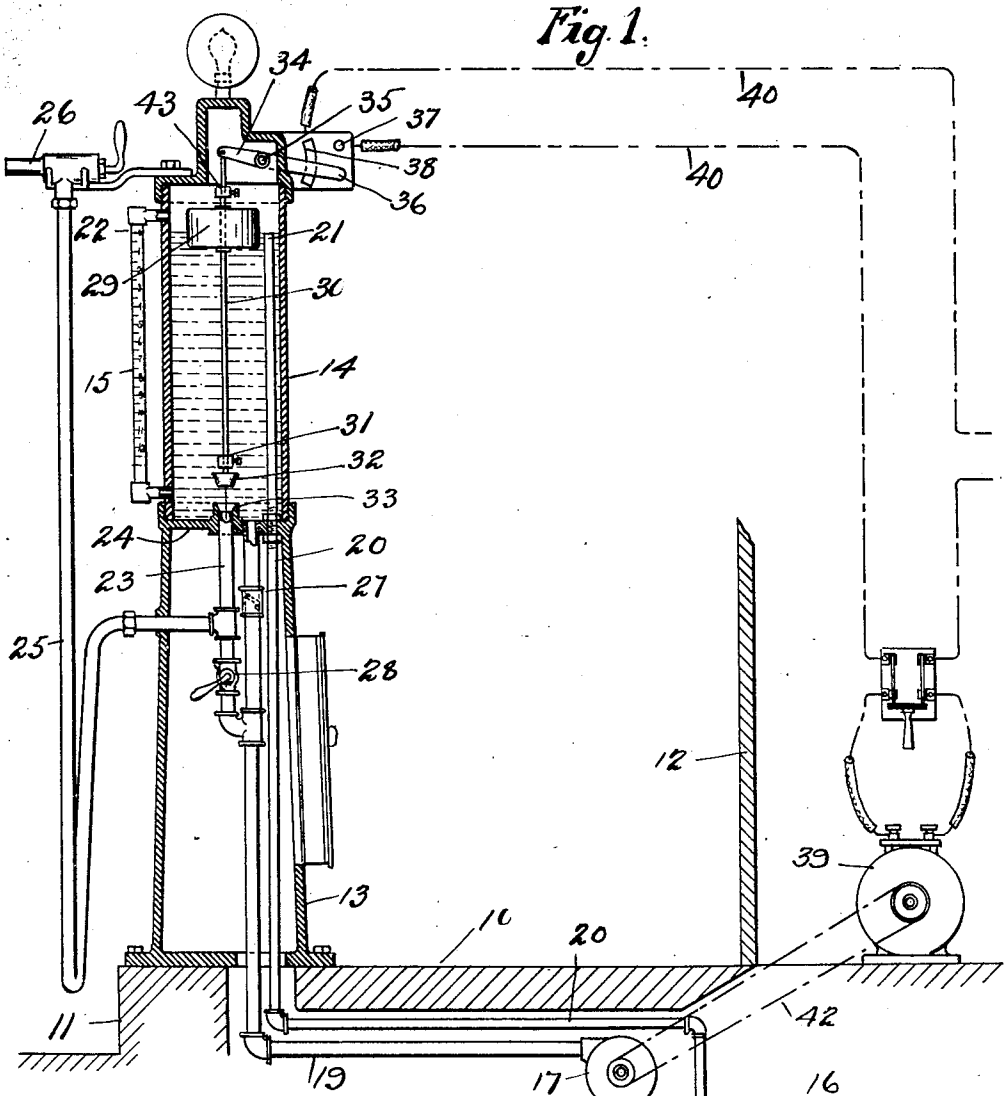
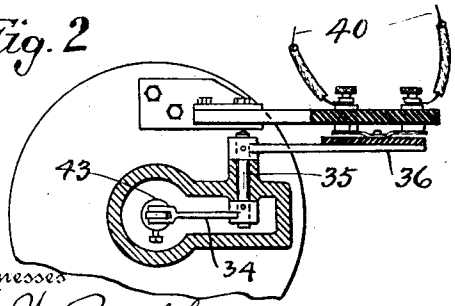


Fig. 2



Witnesses

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LIQUID-DISPENSING APPARATUS.

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Application filed February 6, 1915. Serial No. 6,541.

To all whom it may concern:

Be it known that I, DUTEE WILCOX FLINT, a citizen of the United States, and resident of the city of Cranston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Liquid-Dispensing Apparatus, of which the following is a specification.

This invention relates to liquid dispensing apparatus more particularly adapted for use in the handling of gasolene, and the object of this invention is to provide a main tank, an auxiliary dispensing tank, means for supplying the latter tank from the former tank and means for drawing the liquid from the auxiliary tank by gravity when dispensing the same.

A further object of this invention is to provide an over-flow in the auxiliary tank whereby when an excessive amount is deposited in said tank, this excess will flow back by gravity into the main tank, the height of the over-flow pipe being positioned to coöperate with a measuring gage to control the filling level to correspond with the zero mark on said gage.

A further object of this invention is to provide means in the auxiliary tank, whereby the liquid may be drawn from the same back into the main tank when desired.

The invention further consists in the provision of a power driven pump for moving the liquid from the main into the auxiliary tank when desired and also the provision of means whereby when the level in said tank has fallen a predetermined amount the pump will be automatically started and again automatically stopped when the required level in the tank has been restored.

It is found in practice that many problems arise in the rapid handling of gasolene in dispensing the same to vehicles. To handle this liquid satisfactorily it is found desirable to position the dispensing apparatus so that the gasolene may be conducted to the edge of the street curbing, whereby a vehicle may drive up to the curbing and have the hose deposit the liquid directly into its tank so that it may be quickly and accurately supplied without either waste of time or gasolene. In the majority of cases where a vehicle stops at a curbing to be supplied from a station the liquid is drawn in five gallon cans from a supply inside of the building, carted out by hand and then poured from the cans through a funnel into the vehicle tank. In this way considerable of the gasolene is lost by evaporation or spilled by rough handling, and the occupants of the car are in danger of fire or explosion which may be caused by the lighting of a match or the coals from a pipe or cigar.

In some other instances a small supply tank wagon is wheeled to the curbing and the gasolene is pumped by hand from the wagon into the vehicle tank but this method is also unsatisfactory as pumps are found to be quite inaccurate for measuring gasolene. In order to obviate all of the above difficulties, I have provided a calibrated auxiliary tank which is supplied direct from the main tank buried in the ground, said auxiliary tank being of sufficient height to cause the gasolene to run therefrom by gravity directly into the vehicle, and I have also provided a measuring gage on the tank whereby the amount drawn is plainly visible to the purchaser. The pump simply serving as a means for supplying this dispensing tank from the main. By the use of this arrangement of apparatus, gasolene may be dispensed with the greatest accuracy and the individual customers may be served very rapidly and absolutely without waste.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1— is a diagrammatic view partially in section illustrating the general arrangement of my liquid dispensing apparatus.

Fig. 2— is a top view partly in section illustrating the connection between the float on the inside of the tank to the switch on the outside, by which the action of an electric motor is controlled to start and stop the supply pump.

Referring to the drawings 10 designates the street side walk, 11 the curb stone and 12 the side of the building at the inner edge of the walk. At the edge of the walk, I have mounted my dispensing apparatus comprising a frame 13 on the upper end of which is mounted a calibrated auxiliary gasolene tank 14 to which is connected a glass sight gage 15 arranged to indicate in gallons or other convenient unit of measure the quantity being drawn from time to time

from this dispensing tank. At 16, I have shown a main tank which is preferably buried beneath the surface of the side walk, whereby it may be readily filled by gravity from the main supply such as a tank car or the like by a pipe (not shown) and in order to supply the auxiliary tank from the main tank, I have provided a pump 17 which communicates with the main tank through pipe 18 and with the auxiliary tank through pipe 19. A check valve 27 is shown in this pipe just below the auxiliary tank to prevent the liquid from flowing back into the main tank. I have also provided an over-flow pipe 20 which leads from the main tank up through the auxiliary tank and its upper end 21 is placed on a level with the zero mark 22 on the gage 15, whereby when the liquid is pumped into this tank it cannot fill above the desired level, at which the gage begins to measure. I have also provided a supply outlet pipe 23 leading from the bottom 24 of this tank and to which is connected a flexible hose 25 having a supply nozzle 26, whereby the hose may be extended into the tank of the different vehicles as they drive up to the curbing to be supplied.

At night, when the attendant leaves he opens the valve 28 which communicates with the supply pipe 19 at a point below the check valve and so permits the contents of the tank to drain back into the main thus preventing gasolene being surreptitiously obtained during the absence of the attendant.

In order that the filling of the auxiliary tank may be controlled automatically, I have provided a float 29 which slides on the vertical rod 30. The upper end of this rod is connected to the shaft 35 which leads out through the side of the casing, see Fig. 2, and to the outer end of which is connected a second arm 36 which when moved to up position completes the electric circuit through the contacts 37 and 38 to start the motor 39. At the lower end of the rod is a collar 31 and a plug valve 32 so arranged that when the float descends it engages the collar and forces the plug valve into the end of the discharge pipe 33 effectually closing the same while the tank is being filled. This downward movement of the rod causes the arm 36 to complete the circuit through the contacts 37 and 38 to start the electric motor 39 through the wires 40 to drive the pump 17 through the belt 42. As the liquid is now forced from the main tank into the auxiliary tank the float rises sliding along the rod 30 until it engages the collar 43 at its top thereby lifting the plug from its seat breaking the circuit to stop the pump, the surplus gasolene, if any, runs out through the over-flow pipe and the level is brought to the zero mark on the gage ready to start supplying the next vehicle. This operation is repeated automatically as often as the tank is emptied. The device is most practical in its operation and by the use of the gravity tank gasolene can be dispensed very rapidly and measured very accurately into the vehicles as fast as they present themselves at the curb stone, and that without loss of time or waste of gasolene.

I claim:

1. A liquid dispensing apparatus comprising a main tank, an auxiliary tank located above the level of the main tank, a rock shaft mounted in the upper part of the auxiliary tank, a supply pipe leading from the main tank to the auxiliary tank, a discharge pipe leading from the auxiliary tank, a pump for forcing liquid from the main tank to the auxiliary tank, a motor for operating the same, a rectilinearly movable rod within said auxiliary tank, an arm attached to said rock shaft and to the upper end of said rod, a valve attached to the lower end of the rod, a contact arm attached to said rock shaft and controlling the starting and stopping of the motor, and means controlled by the level of the liquid in the auxiliary tank for moving said rod.

2. A liquid dispensing apparatus comprising a main tank, an auxiliary tank located above the level of the main tank, a rock shaft mounted in the upper part of the auxiliary tank, a supply pipe leading from the main tank to the auxiliary tank, a discharge pipe leading from the auxiliary tank, a pump for forcing liquid from the main tank to the auxiliary tank, a motor for operating said pump, a movable guide rod in the auxiliary tank, an arm attached to said rock shaft and to the upper end of said rod, a valve attached to the lower end of the rod, a contact arm attached to said rock shaft and controlling the starting and stopping of the motor, a float slidable on said guide rod, and abutments on said rod positioned to be engaged by said float.

In testimony whereof I affix my signature in presence of two witnesses.

DUTEE WILCOX FLINT.

Witnesses:

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