Aug. 16, 1938. A. WEISS 2,126,847

LIQUID DISPENSING MEANS

Filed Feb. 6, 1936

Fig. 1

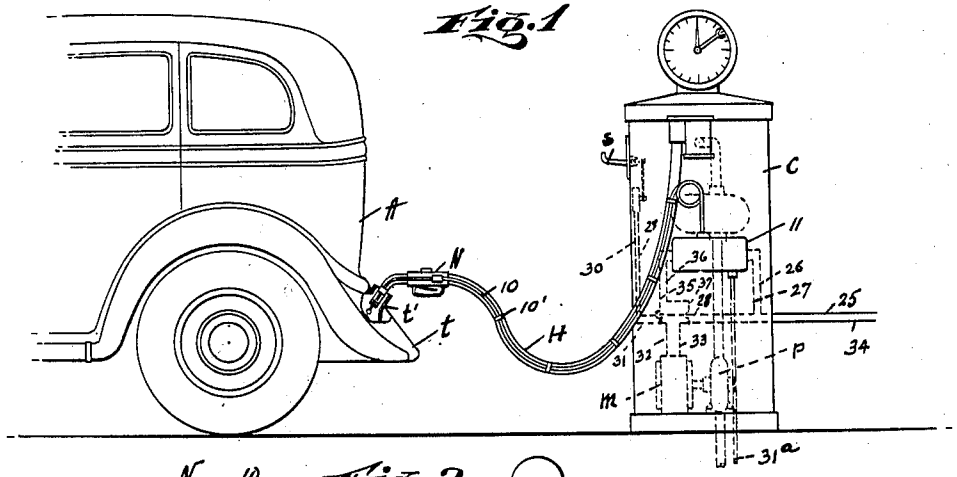


Fig. 2

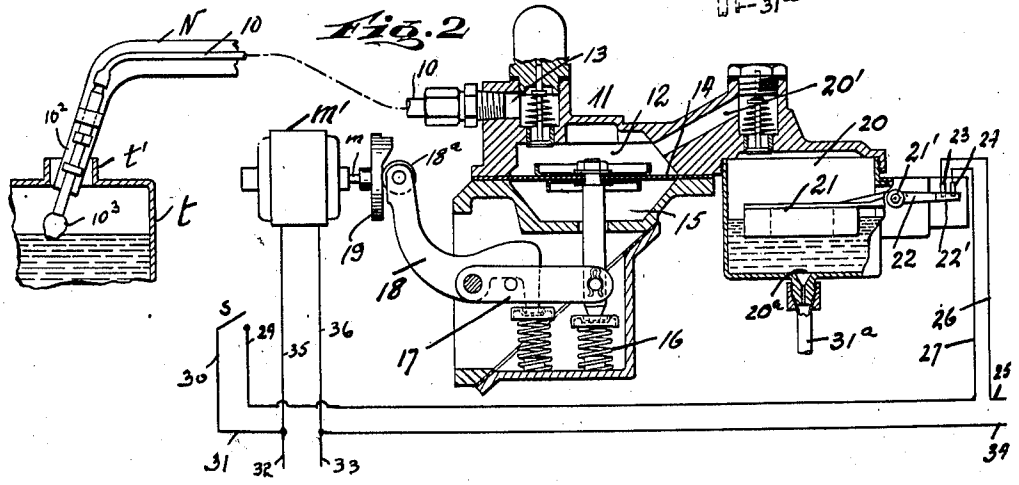


Fig. 3

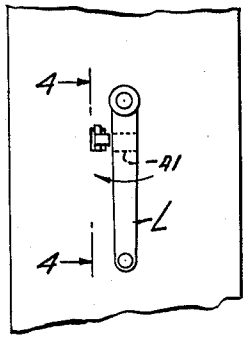
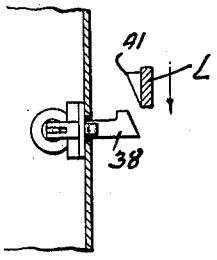


Fig. 4

Fig. 5



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LIQUID DISPENSING MEANS

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3 Claims. (Cl. 226—127)

This invention relates to liquid dispensing means and more specifically to liquid fuel, such as gasoline, dispensing means for automobiles or the like.

It is a commonly recognized evil that when filling the gasoline tank of an automobile at a gasoline station, the gasoline will often overflow and be spilled over the tank and on the ground, thereby not only causing considerable waste but a fire hazard. Various means have been suggested and tried to avoid this evil without success.

The principal object of my invention is to provide automatic means whereby the dispensation of the liquid fuel by the station pump into the automobile tank or the like will be automatically prevented the instant said tank is filled or the liquid therein reaches a certain level.

Another object is to make said automatic device of simple and relatively inexpensive construction.

With these objects in view my invention consists in the novel construction, combination and arrangement of parts as will be hereinafter fully described and defined in the appended claims.

In the accompanying drawing which constitutes part of this specification and in which similar reference characters denote corresponding parts:

Fig. 1 is an elevation of my device as applied to the dispensing hose of a pump and shows the same in use for filling the tank of an automobile;

Fig. 2 is sectional elevation of a detail of my device and electrical means for controlling the motor driving the dispensing pump;

Fig. 3 is an elevation of a modified detail of my device;

Fig. 4 is a vertical section on line 4—4 of Fig. 3 and,

Fig. 5 a cross section on line 5—5 of Fig. 4.

Referring specifically to the drawing *t* denotes the gasoline tank of an automobile A, C the stationary housing of a pump *p* used at a gasoline station and which, as shown in Fig. 1, is of the automatic type, i. e. operated by an electric motor M, the circuit of which has an automatic switch *s*, generally in form of a hook to which the hose H, when not in use is hooked holding the switch open and which upon the removal of the hose automatically closes the circuit through the motor M to operate the pump. The hose is provided as usual with a dispensing nozzle N provided with a hand operated valve, which after the nozzle is passed into the mouth *t'* of the automobile tank, is opened to permit the gasoline to be discharged into said tank. Thus far the construction is well known.

As stated at the outset when filling the tank it frequently happens that the gasoline is allowed to flow over and be spilt on the outside of the tank and onto the ground which not only entails waste of the fuel but also becomes a very serious fire hazard. The gage on the dashboard is generally not reliable and even by careful watching spilling cannot be avoided. To obviate this evil I provide an automatic means which will at the instant the liquid reaches the desired level in the tank either cause the motor to be shut off so as to stop pumping (when using an electrically driven pump) or cause the handle pump to be unkeyed from the crank shaft of a pump (if of hand operated type), or otherwise stop the dispensation of the gasoline.

First referring to Figs. 1 and 2, my new device comprises a tube 10, preferably a metal flexible tube, which extends along and is suitably attached to the hose as by braces 10'. The outer end of said tube is adapted to be attached to the nozzle N of the hose and may be made adjustable in length in any desired manner and formed with a mouth piece 10^3 to be passed into the spout *t'* of the tank *t* together with the nozzle N and project into it to a suitable extent. The opposite end of said tube is connected to a vacuum chamber of a vacuum pump 11 or the like, whereby when the level of the gasoline in the tank *t* reaches the mouth piece 10^3 of the tube, gasoline will be sucked up through said tube, for the purpose hereinafter stated. Any suitable suction producing pump or device may be employed which can be caused to be actuated automatically from a motor M driving the dispensing pump *p* or as shown from a separate motor M'. In the present example the suction pump is of well known type, comprising a suction chamber 12, formed with a valve controlled inlet 13 into which terminates the rear end of the tube 10. Suction in said chamber is produced through a diaphragm 14 which is operatively connected to a rod 15 influenced by a spring 16 and connected by a link 17 to a lever 18 whereby it is adapted to be reciprocated so as to actuate the diaphragm. The lever 18 at its free end carries a roller 18*a* which contacts with a cam disk 19 fixed on the shaft *m* of the auxiliary motor M'. The gasoline so drawn into the chamber 12 through the tube 10 is forced into a collector chamber 20 through a valve controlled passage 20' connecting the suction chamber and said collector chamber, wherein it is allowed to collect during the dispensation of the gasoline from the

pump *p*. Provided in said collector chamber is a float 21 which is fulcrumed or otherwise tiltably mounted therein as at 21', and from which projects outwardly from said chamber 20 an arm 22 the free end 22' of which constitutes a part of an electric make and break mechanism or switch 23, 24. The motor M is set into operation immediately the hose H is lifted from the hook *s*, the current flowing from the power supply through wires 25, 26, the normally closed switch 22', 23, 24, wires 28, 29 switch controlled by hook *s*, wires 30, 31 and 32 to one pole of motor M, and from the other pole thereof through wires 33 and 34 back to the power system. The auxiliary motor is connected in parallel with motor M through wires 35 and 36 as shown. The switch 22', 23 and 24 is adapted to be closed as long as the float is either tilted downwardly or in horizontal position in which it is shown in Fig. 2. But when the level of gasoline collected in the chamber 20 rises beyond a certain level, which level depends upon the adjustment of the inner end 10^2 of the tube 10, the float 21 will be caused to rise and swinging on its fulcrum 21' will cause the tail 22 to swing in the opposite direction unbridging the contact pieces 23, 24 and thereby opening the circuit through the motors M, M'. As a result thereof, the pump *p* will be instanstaneously stopped and further dispensation of the liquid ceases.

By providing a slow leak 20^a which may be connected through a tube 31^a with the main tank (not shown) of the gasoline station, the gasoline accumulated in the chamber 20 may be caused to flow back into the main tank.

When using a hand operated dispensing pump suitable means may be provided for stopping dispensation of the gasoline at the instant the latter reaches the desired level in the automobile tank *t*, which means will be automatically actuated through the closure of an electric switch actuated by the float 21. In the modification shown, in Figs. 3, 4 and 5, such means comprise a cam member 38 capable of being positioned into the path of the crank or handle L used for operating the pump. This lever L is keyed to the shaft *p'* of the hand operated pump (not shown) by means of a tongue 39 engaging a notch 40' of a sleeve 40 fixed on said shaft. It is also provided intermediate its ends with a cam surface 41. The cam lever 38 is operatively connected to the armature 42 of a relay 43. This relay is included in a circuit energizing it and which is controlled through a switch of which contacts 44, 45 are adapted to be bridged by contact 46 provided on the tail or arm 22' of the float 21 (not shown in Fig. 4). When the float rises beyond a certain level in the collector chamber 20, the said switch will be closed and cause the relay 43 to be energized. As a result thereof, the armature 42 will be attracted and swing the cam member 38 into the path of the operating handle L, as a result of which it will push the lever L laterally disengaging the tongue 39 from notch 40' and causing said handle to become unkeyed from the shaft *p'* of the pump (not shown).

It is obvious that the stopping of the discharge of liquid into the tank the instant it rises to a certain level may be effected through the medium of the suction tube in many other different ways.

The main idea of this invention resides in the provision of means which is to be passed together with the dispensing hose into the tank to be filled so that when the liquid reaches a certain level in said tank, said means will automatically stop the further dispensation of the liquid.

I do not wish to restrict myself to the mechanisms described and shown in the several modifications, nor to the details thereof, since various changes may be made without departing from the spirit of my invention.

Thus, instead of having the electric circuit affected by the liquid sucked up through the suction tube opened to stop the motor, as shown in Fig. 1 or energize the relay for unkeying the operating handle as shown in Figs. 3, 4 and 5, the same may, in well known manner, be caused to light a signalling light or sound a bell (not shown).

What I claim is:

1. In a liquid dispensing means having a pump and a hose leading from said pump and having a dispensing nozzle, a device for controlling the discharge of the liquid into a receptacle from said pump, including a tube associated with and adjacent to said nozzle to be passed together with the latter into said receptacle, a liquid collecting chamber, means associated with said pump to draw liquid from said receptacle through said tube when it reaches a certain level therein and to discharge the same into said collecting chamber, a float in said collecting chamber, and electric means for controlling the operation of said pump and controlled from said float.

2. In a liquid dispensing means according to claim 1 in which the means for drawing and discharging liquid into said collecting chamber includes a diaphragm and cam controlled means for actuating said diaphragm.

3. Means for dispensing liquid including a liquid discharge nozzle, a tube associated with and adjacent to said nozzle whose one end is adapted to be passed together with said nozzle into said receptacle, a liquid collecting chamber at the other end of said tube, means to cause liquid to be drawn through said tube from said receptacle into said collecting chamber when the liquid in said receptacle rises to a certain level, means within said collecting chamber affected by the overflow liquid, and means actuated by said last named means to automatically shut off the flow of the liquid through said nozzle.

ABRAHAM WEISS.