July 15, 1924. 1,501,556

F. D. EWING

GASOLINE VENDER

Original Filed Dec. 9, 1919 3 Sheets-Sheet 1

Fig. 1.

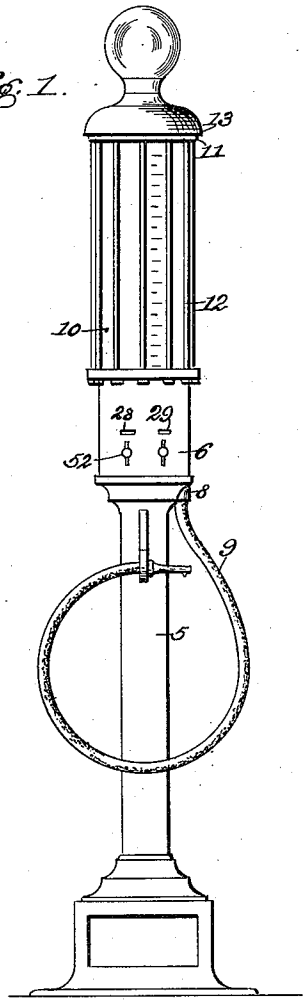
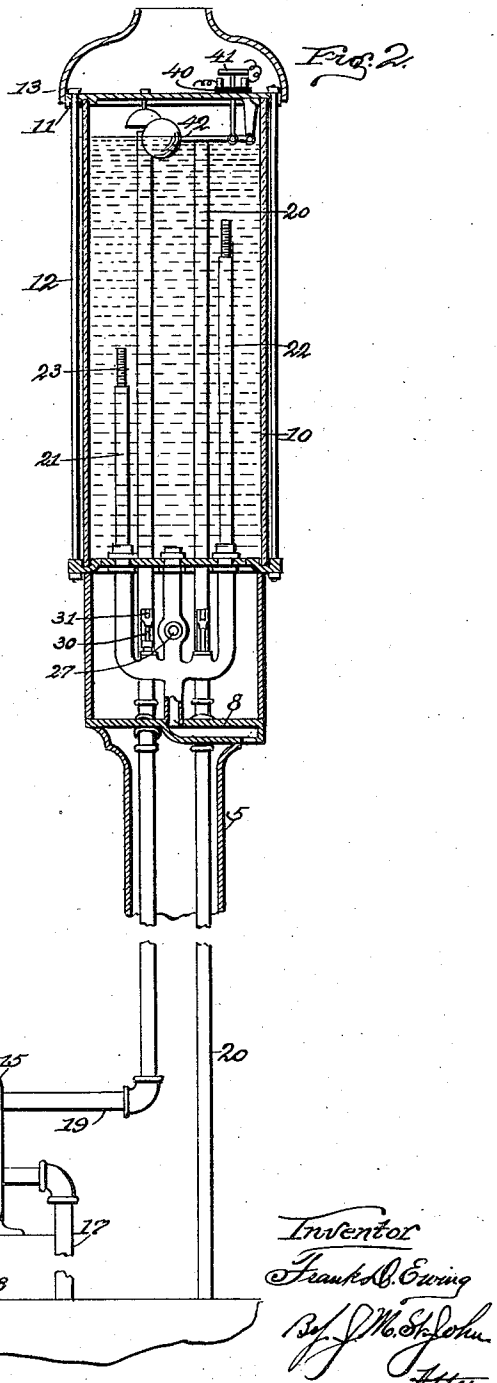


Fig. 2.



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Fig. 3.

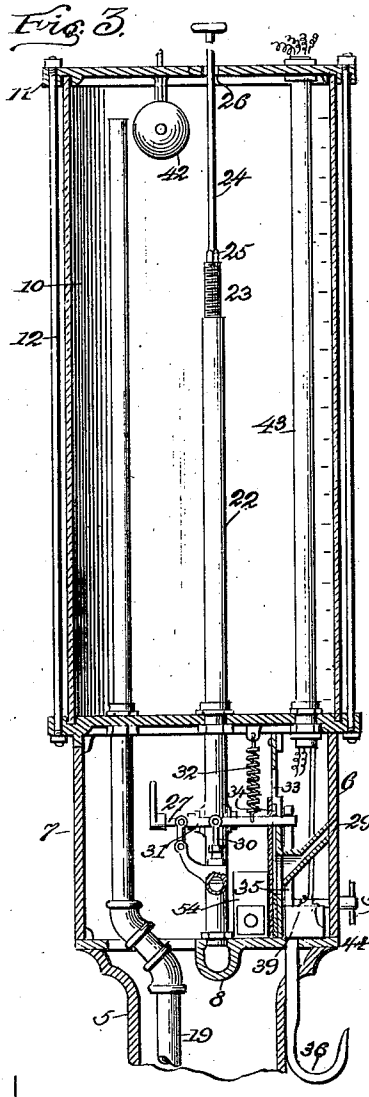


Fig. 4.

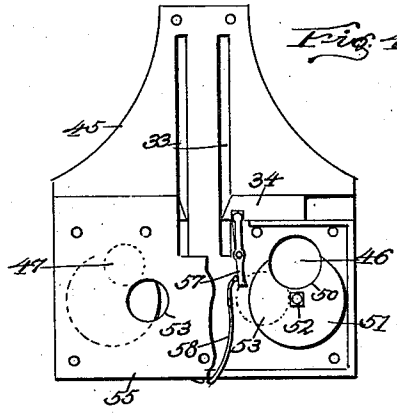


Fig. 6.

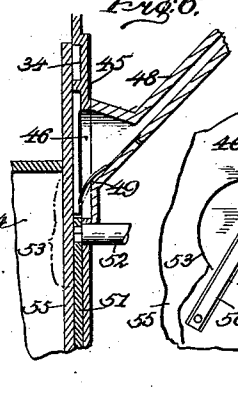


Fig. 5.

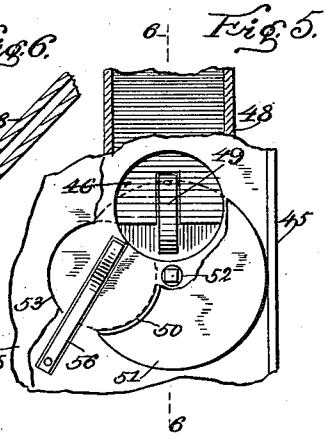
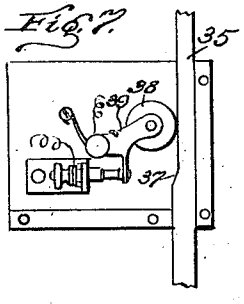


Fig. 7.



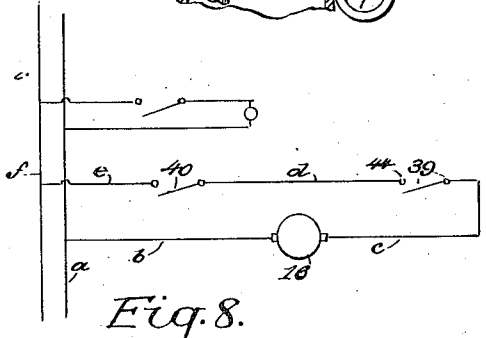


Fig. 8.

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GASOLINE VENDER

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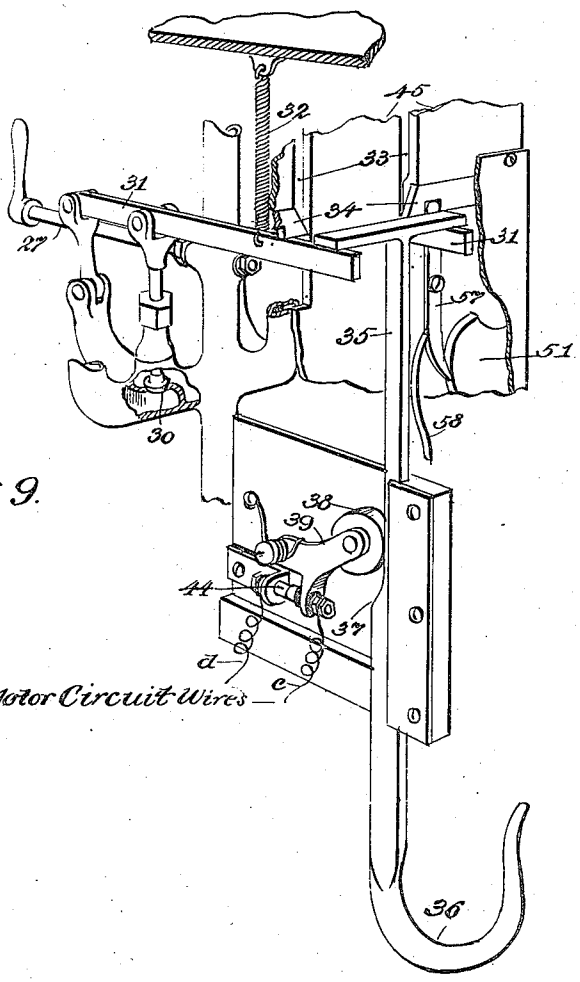


Fig. 9.

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Patented July 15, 1924. 1,501,556

UNITED STATES PATENT OFFICE.

FRANK D. EWING, OF CEDAR RAPIDS, IOWA, ASSIGNOR OF ONE-HALF TO OTIS W. GIBSON, OF CEDAR RAPIDS, IOWA, AND ONE-HALF TO W. A. NORTON, OF MARSHALLTOWN, IOWA.

GASOLINE VENDER.

Application filed December 9, 1919, Serial No. 343,626. Renewed January 25, 1924.

To all whom it may concern:

Be it known that I, FRANK D. EWING, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Gasoline Venders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to liquid dispensing apparatus, and more particularly to gasoline service for motor vehicles, the object of the invention being to provide means whereby the consumer may unaided secure his own supply of gasoline by paying therefor, and by slight manipulation of the machine.

The invention is fully set forth in the description and claims following, reference being had to the accompanying drawings, in which:—

Fig. 1 is a front elevation of the visible portion of my vending apparatus. Fig. 2 is a central section of the upper part of Fig. 1, and shows also the filling pump, the motor for driving the same, and a fragment of the main storage tank. Fig. 3 is a vertical section transverse to that shown in Fig. 2, and mainly central to the upper portion of the vender. Some of the parts are shown in other sectional planes, however, for convenience of illustration, the planes of section being evident by a comparison of the different figures of the drawing. Fig. 4 is an elevation of the coin-controlled locking mechanism, as seen from the inner side, with a part broken away to better show the construction. Fig. 5 is a fragmentary view showing in larger and fuller detail the coin-operating mechanism. Fig. 6 is a section on the line 6—6 of Fig. 5. Fig. 7 illustrates one of the circuit-breakers and its connections. Fig. 8 is a diagram of the electric wiring. Fig. 9 is a view in perspective illustrating in fuller detail the mechanism for controlling the flow of liquid into the receiver.

On a hollow pedestal 5 is mounted an enclosure 6, which may for convenience be called the service chamber, since it contains most of the apparatus by means of which the customer serves himself to gasoline. This should have at least one door or removable panel 7, so that access may be had to the interior by the proprietor, but locked in any well-known manner against others. The bottom of this enclosure is formed as an outlet 8, to which is connected the filling hose 9. Inwardly this outlet connects with a manifold, here shown as provided with three risers. These risers connect hermetically with the cover of the enclosure, which forms the floor of the receiving chamber 10, a simple cylinder of glass of such capacity as may be desired, and held hermetically between the bottom-plate and the top-plate 11 by rods 12, set rather closely together, so as to serve as a protection to the glass, as well as to hold it in place. The top-plate is capped by an ornamental crown 13, which should preferably carry an electric light and globe 14 in a manner too familiar to call for special description. It is to be understood, however, that the crown may be wholly or partially removed by the proprietor, so as to give access to the top-plate, for certain adjustments that will be referred to presently. From a predetermined line near the top, the cylinder is graduated by gallons downwardly, a total capacity of ten gallons being herein shown.

Gasoline is supplied to this receiver by a centrifugal pump 15 operated by an electric motor 16. The inlet side of the pump communicates by a pipe 17 with the underground storage tank 18. The other side of the pump communicates by a pipe 19 with the receiver, the upper end of this supply-pipe being herein shown extended a little above the zero level of the gasoline, so as to produce an overflow and thus insure positive and certain filling of the receiver. Terminating at the zero line is a pipe 20 leading back to the storage tank, and delivering back to it any overflow from the receiver.

From one riser of the manifold connects a stand-pipe 21, whose upper end is at the proper level in the receiver to permit the outflow of one dollar's worth of gasoline. From the other side riser a longer stand-pipe 22 rises to the proper half-dollar level. As the price of gasoline varies from time to time, and in different localities, provision is made for adjusting the up-reach of these stand-pipes. A simple device for the pur-

pose is a threaded section of tube 23 screwed into the upper end of the stand-pipe. By means of a long-shanked wrench 24, whose angular head 25 fits a corresponding socket in the tube, the latter may be turned up or down, according to the fluctuation in price. This can be done by the complete or partial removal of the crown, as above noted, and the passing of the wrench through a hole 26 provided in the top-plate over each stand-pipe.

The middle riser of the manifold terminates at or near the floor of the receiver, and is fitted with a hand-operated valve 27, to which access may be had by the proprietor, by removing the panel 7. This of course provides for service in case the purchaser does not have the proper coin, or wishes an amount of gasoline not represented in the self-serving apparatus, or a multiple thereof.

In serving himself, the purchaser does but three things: He uses the filling hose in the usual way; inserts a coin in one of the slots 28 or 29 in the face of the service chamber, and turns a small lever or key, finally restoring the hose to its original position. All the other operations are automatic, and will now be described.

Near each riser of the manifold is provided a simple, tight-closing poppet-valve 30, pressed to closing position by a lever 31. An oppositely pulling spring 32 tends to open the valve. The tail of the lever passes through a slot 33 in a coin-actuated releasing device, and is held in closed position by a latch or bolt 34 thereof. The outer end of each valve-lever engages the T-head of a vertical slide-bar 35, which passes down through suitable openings in the bottom of the service-chamber and the head of the pedestal, and terminates in a hook 36, on which the hose is hung when not in use. The weight of the hose is sufficient to close both the service valves, and they are locked in this closed position by the snap of the latches above mentioned. When the hook is relieved of the weight of the hose, and one of the valve-levers is released, the slide-bar is drawn upwardly by the valve spring, and in so moving a shoulder or cam 37 engages the roller 38 of a spring-pressed circuit-closing lever 39, and opens the circuit through the electric motor. On the top-plate of the receiver is mounted another circuit-closer 40, whose bridge 41 connects with the lever of a float 42 hung from the under side of said top-plate. The wires for the electrical service pass up through a conduit 43 hermetically mounted in the receiver.

The wiring of the apparatus is simple, and as shown in Fig. 8. From one of the main service wires *a* a conductor *b* leads to the motor. From the other motor terminal a conductor *c* connects with one terminal of the switch, or circuit-closer 39. The other terminal 44 connects by a conductor *d* with one terminal of the upper circuit-closer 40, and from its other terminal a conductor *e* leads to the other service-wire *f*. The wires for the light also are carried through the same conduit, but the wiring, as shown in the diagram, is so simple as to need no description.

It will be evident that the motor and pump will operate only while both switches are closed. This takes place at the moment the purchaser (or another) hangs the hose on the hook, and continues until the rise of gasoline in the receiver carries up the float, and breaks the circuit at the upper switch. So long as the hose is in its proper place the receiver will be properly filled, and ready to discharge its contents immediately. It is evident that the gasoline level in the receiver will not be affected by casual leaking, or overflow, since either variation, above or below the proper level, will affect the position of the float, and open or close the motor circuit, with corresponding action or idleness of the filling pump.

The valve-levers of the respective stand-pipes are released by coins. In Figs. 3, 4, 5 and 6 the coin mechanism is clearly shown. A face-plate 45 is slotted at 33, as above mentioned, and provided with holes 46 and 47 to admit a silver dollar, or half dollar, respectively. These holes communicate by inclined chutes 48, one of which is herein shown, with the slots in the face of the service chamber. The coin as slid down the chute is set vertically in the hole 46 (or 47) by a light spring 49. This brings it into the curved notch 50 of a crescent-shaped plate 51, to which is attached a key-lever 52 accessible to the operator. A partial turn of the crescent carries the coin to a position facing another hole 53 opening into the side of a cash-box 54 through the wall 55, where a light spring 56 ejects the coin into the cash-box. In this movement of the coin its projecting edge engages the tail of a lever 57, whose upper end engages a notch in the bolt or latch 34. A spring 58 restores the latch to the locking position.

The purchaser is not only enabled to serve himself to a half-dollar's worth of gasoline, or any multiple thereof, in a manner already indicated, but he is enabled to see exactly the quantity delivered to him, by simply comparing the level of the service stand-pipe in the receiver with the graduations on its face. At the same time the apparatus may be left to itself by the proprietor, with the assurance that it will deliver only the right amounts of the commodity, and only when the exact price is paid.

As to the purchaser who serves himself it will be noted that his gasoline always comes from the upper part of the receiver. The

result is that he gets the lightest of the gasoline, and that which is freest from dirt, water, or other impurities.

Having thus described my invention, I claim:

1. A gasoline vender, comprising a receiver having means to prevent the contents from rising beyond a given level, one or more service outlets adjustable at lower levels than said given level, a connected discharge hose, a filling pump and motor, means for actuating the motor, a hose-suspending device, means releasable by the hose-suspending device for actuating the motor, and means connecting said hose-suspending and motor-actuating means, whereby the hanging up of the hose starts the motor.

2. A gasoline vender, comprising in combination, a receiver, means adapted to prevent the contents from rising beyond a given level, a float set at that level, a service-hose connecting with an outlet in the receiver, means for suspending said hose, a filling pump and motor, means operable by depressing the hose-suspending hook cooperating with the float for actuating the motor, and means actuated by the float and by the weight of the hose upon the hose-suspending means to start the motor and to stop the motor when the level of liquid reaches the given level.

3. In a gasoline vender, a receiver having means adapted to prevent the contents from rising beyond a given level, a float adjusted to said level, a filling pump, an electric motor to drive the same, an outlet hose, suspending means therefor, electric switches in the motor circuit, and means operable by the hose-suspender and the float, respectively to actuate said switches, whereby the hanging up of the hose starts the motor, and the filling of the receiver automatically stops the same.

4. In a gasoline vender, a receiver having a discharge outlet, a valve to close the same, a valve-closing lever, a discharge hose, a suspender therefor engaging the valve-lever, a lock for the valve-lever, and coin-controlled means for releasing the lock.

5. A gasoline vender having a receiver to hold the gasoline, a chamber below the same with a removable panel, a discharge manifold mounted in said chamber, with inlets extending into the receiver, a valve to close one of said inlets, a hand-lever therefor, and coin-controlled mechanism to open and gravity mechanism to close the other inlet or inlets to said manifold.

6. A liquid measuring apparatus, comprising a liquid receptacle, pump actuating mechanism, a delivery valve for controlling the discharge of liquid from the receptacle, means for opening the valve, and connections between the valve-opening means and the pump-actuating mechanism for locking the latter when the delivery valve is open.

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

FRANK D. EWING.

Witnesses:
F. W. ARMSTRONG,
J. M. ST. JOHN.