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R. S. SHANNON

1,742,285

TELEPHONE OPERATED SERVICE STATION

Filed May 24, 1927

3 Sheets-Sheet 1

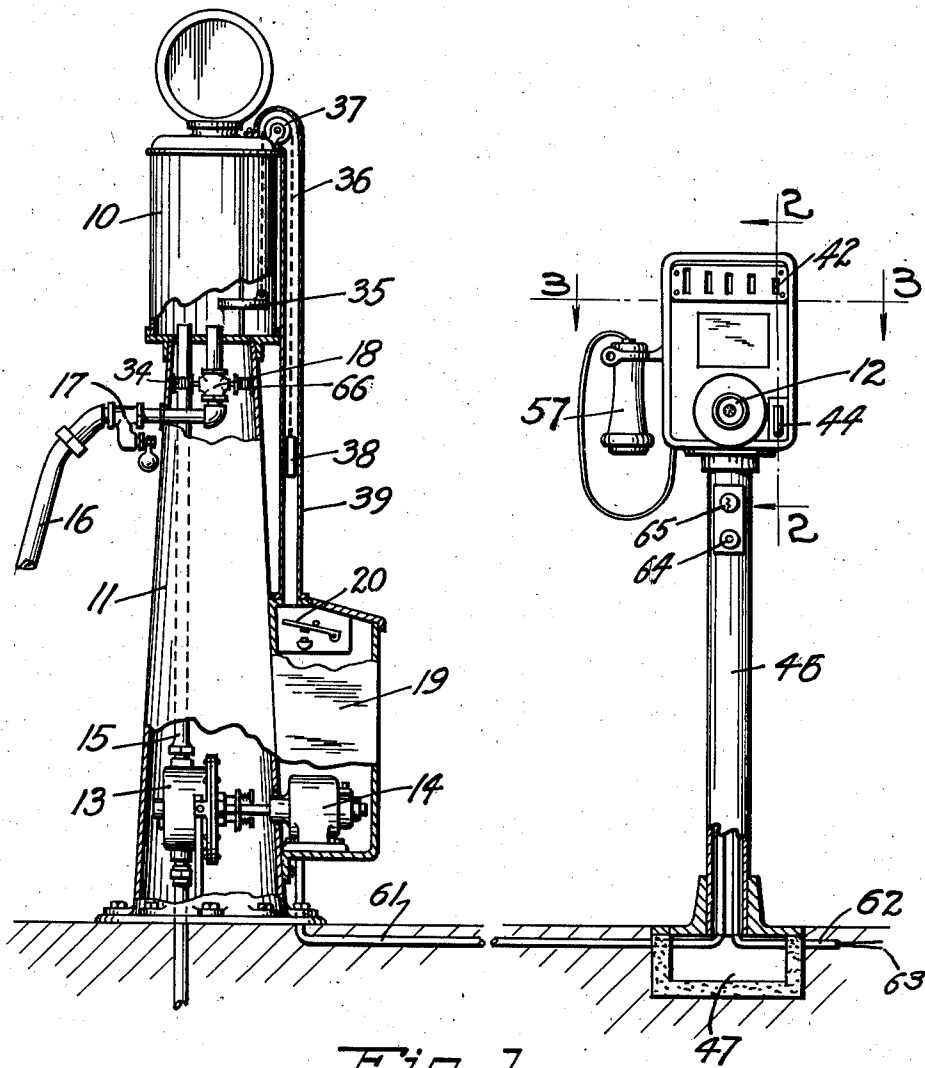


Fig. 1.

Inventor
RICHARD S. SHANNON

By

[Signature]

Attorney

Jan. 7, 1930.

R. S. SHANNON

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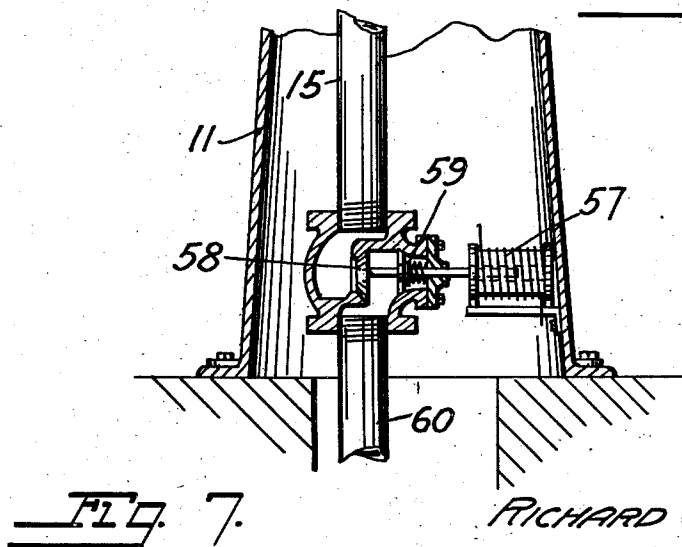
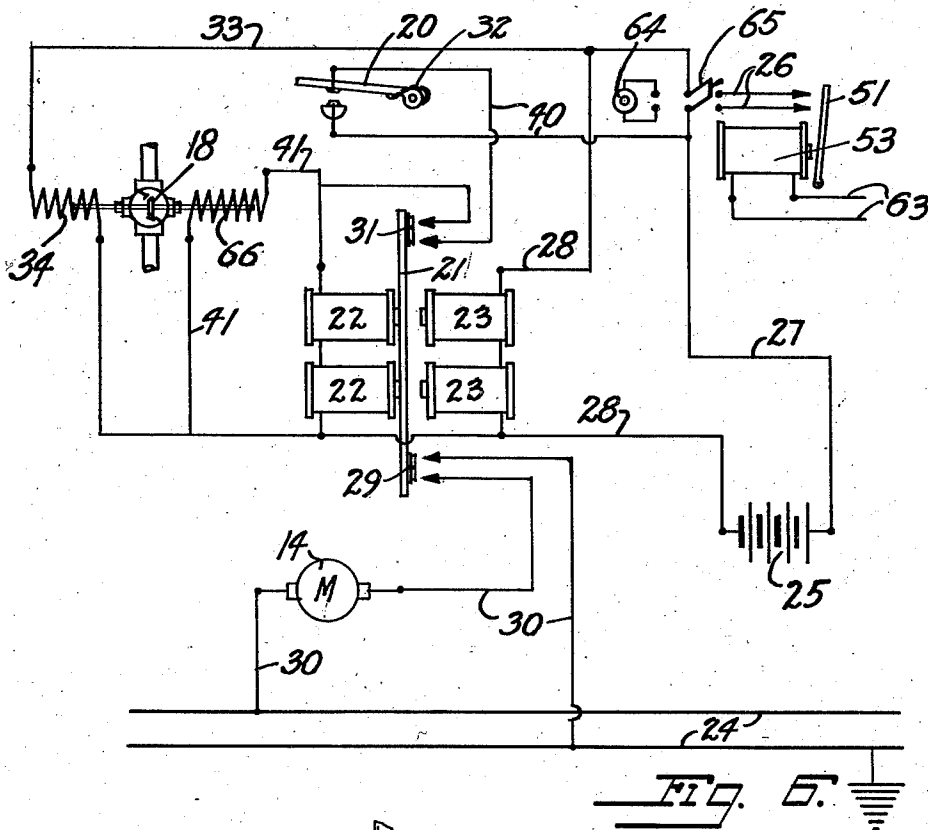
R. S. SHANNON

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Inventor

RICHARD S. SHANNON

By

W. G. Lambert

Attorney

UNITED STATES PATENT OFFICE

RICHARD S. SHANNON, OF DENVER, COLORADO

TELEPHONE-OPERATED SERVICE STATION

Application filed May 24, 1927. Serial No. 193,870.

This invention relates to a system and apparatus for dispensing gasoline at a series of filling stations from a central station by telephone, and has for its principal object, the provision of means whereby a customer at an unattended station may call a central operator by telephone and request gasoline. The operator will then demand the deposit of the necessary coins. If the proper amount is not deposited, the money will then be returned to the customer. If the proper amount is deposited, the money will be released to a cash box and a gasoline dispensing mechanism actuated so that the customer may withdraw the amount of gasoline for which he has paid.

Another object of the invention is to provide an automatic liquid dispenser having a delivery tank so constructed that when the tank is filled the supply thereto will be automatically shut off.

A further object of the invention is to so construct the delivery tank mechanism that liquid cannot be drawn from the delivery tank until the tank has been completely filled.

A still further object of the invention is to provide a mechanism which may be attached to any of the telephone pay stations so that it may be operated by a distant operator.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawings which form a part hereof. Like numerals refer to like parts in all views of the drawings and throughout the description.

In the drawings:

Fig. 1 is a side elevation of my improved telephone operated service station, partly broken away to show the interior construction.

Fig. 2 is a vertical section through the telephone, taken on the line 2—2, Fig. 1.

Fig. 3 is a horizontal section through the telephone, taken on the line 3—3, Fig. 1.

Fig. 4 is a detail view of the control mechanism employed on the dispensing device.

Fig. 5 is a detail view of the magnetic valve employed on the discharge from the delivery tank.

Fig. 6 is a circuit diagram of the device.

Fig. 7 is a detail view of a magnetic valve which may be employed in place of the motor of Fig. 1 for dispensing mechanisms in which the liquid is raised by compressed air and not pumped.

The invention comprises a gasoline delivery tank 10 supported on a suitable base 11 adjacent a telephone, designated in its entirety by the numeral 12. In one form of the invention a pump 13 is employed driven by an electric motor 14. The pump 13 raises gasoline from any suitable storage tank into the delivery tank 10 through a supply pipe 15. The gasoline may be fed to the tank of an automobile through a delivery hose 16 controlled by a self-closing valve 17 and a magnetic valve 18.

Along side of the base 11 a control box 19 is mounted containing the various switches, relays, etc., for electrically controlling the dispensing mechanism. These controls comprise a float operated switch 20, a relay armature 21 arranged to oscillate between two opposite pairs of electro-magnets 22 and 23, respectively.

The connections for the controls are illustrated in diagram in Fig. 6 in which the power mains for operating the motor 14 are illustrated at 24. These receive their current from the ordinary light circuit of the station.

A battery for operating the relays is illustrated at 25 and the control conductors from the telephone 12 are indicated at 26. Within the telephone is a mechanism, which will be later described, for closing a circuit between the conductors 26. The circuit may, however, be closed by means of a push button 64 when it is desired to operate the device independently of the telephone. In the latter case, the telephone is disconnected by means of a switch 65 and the push button is placed in the circuit.

Let us assume that the circuit is closed between the conductors 26. This allows cur-

rent to flow from the battery 25 through a battery conductor 27, and relay conductors 28, energizing the electro-magnets 23. Current also flows from the battery 25, through the conductors 27 and 26, and a conductor 33 to a solenoid 34 of the magnetic valve 18, thence returning to the battery 25. The energizing of the solenoid 34 causes the valve 18 to close and prevents withdrawal of gasoline from the delivery tank 10. The energizing of the magnets 23 causes them to snap the armature 21 away from the magnets 22 and closes the circuit, by means of a relay switch blade 29, between motor feed wires 30 to allow current to flow from the mains 24 and start the motor. The armature 21 also closes a relay switch blade 31 in series with the electro-magnets 22, the float switch 20 and the battery 25. This latter circuit, however, is maintained open at the float switch by means of a spring 32.

The motor 14 now operates the pump 13 to supply gasoline through the pipe 15 to the delivery tank 10. As the level of the gasoline rises in the tank 10, it will raise a float 35 therein which is connected through the medium of a chain 36, over a pulley 37, with a weight 38 in a weight tube 39. The weight tube 39 terminates immediately over the arm of the float switch 20. When the float has reached a predetermined position in the tank 10 the weight 38 will contact with and close the float switch 20. This allows current to flow from the battery 25 through the conductors 27 and 40, float switch 20, relay blade 31, a conductor 41 to the other solenoid 66, thence returning to conductors 41 and 28 to the battery 25, opening the magnetic valve 18. The magnets 22 are bridged between the conductors 41 and 28 and current will also flow to the magnets 22 causing them to snap the armature 21 away from the magnets 23 and to open the motor circuit at the blade 29, allowing the motor to come to rest. The movement of the armature also opens the circuit at the blade 31, deenergizing the solenoid 66 of the magnetic valve 18, and deenergizing the magnets 22 of the relay. In other words, the armature now opens all of the circuits and shuts off all current in the device.

The delivery tank 10 is now full of gasoline which may be drained into the tank of an automobile through the hose 16 by manually opening the self-closing valve 17. All or any part of the gasoline in the delivery tank 10 may be withdrawn, after which, the above described operation may be repeated to again fill the delivery tank.

Should it be desired to leave the station unattended, the switch 65 is turned to entirely disconnect the push button 64 and connect the terminals of conductors 27 and 28 to the conductors 26, which lead to the telephone. The telephone may now be used to

close the circuit between conductors 26 and operate the dispensing apparatus as follows: The telephone 12 is provided with a coin slot 42 which passes within the telephone and divides at 43 into a passage extending to the exterior of the telephone at 44, and a passage 45 which extends downwardly through a standard 46, which supports the telephone, to a money receiving box, preferably embedded in the ground at the base of the telephone. Immediately above the division 43 a return pin 48 and a receiving pin 49 are arranged to support the coin, indicated at 50, in the passage 42. The pins 48 and 49 are carried in a pivoted armature 51 which oscillates between vertical pivots 52 before an electro-magnet 53. The armature 51 is caused to normally lie in the broken line position of Fig. 3 by means of springs 54, and carries a contact 55 adapted to close a circuit between switch blades 56 to which the conductors 26 are attached.

In operation, the customer removes the telephone receiver, indicated at 57, from its hook and informs the operator of his desire for gasoline. The operator then requires that a suitable coin be dropped in the coin slot 42. The operator is informed by any of the usual bell and gong systems employed in telephone pay stations, of the dropping of the coin. The coin comes to rest between the pins 48 and 49. Should the coin dropped be not of the proper denomination, the operator informs the customer and energizes the electro-magnet 53 by a current in a direction which will rock the armature 51 so as to withdraw the pin 48, allowing the coin to pass out to the exterior of the box through the passage 44. Should the coin be of the proper denomination, however, the operator will energize the electro-magnet 53 with a reverse current causing the armature 51 to swing so as to withdraw the pin 49 and allow the coin to drop to the money receiver 47. As the pin 49 is withdrawn the contact 55 will pass between the blades 56 and close the circuit through the conductors 26 thus causing the relay magnets 23 to perform the operation previously described to start the motor 14.

It is desired to call attention to the fact that means are provided to prevent the withdrawal of gasoline from the delivery tank 10 while it is being filled so as to prevent the float from measuring the proper amount. This is accomplished through the magnetic valve 18 which is closed at all times that the motor is operating and is open at all times that the motor is quiescent.

Some of the present filling stations are equipped with compressed air pressure systems on their gasoline storage tanks. The present invention would operate equally well with this type of station, in which case the pump and motor 13 and 14 are dispensed with and a valve 58 operated by a solenoid 57, indi-

cated in Fig. 7, is used in their stead. The motor feeds 30 are connected direct to the solenoid 57. The valve is opened by the solenoid 57 and closed by means of a spring 59.

In this instance, the gasoline is under pressure in a pressure pipe 60 below the valve 58 and, when the solenoid 57 is energized, will flow into the feed pipe 15 under force of this pressure until the delivery tank 10 is filled. The float switch 20 will deenergize the solenoid 57 and shut off the supply.

The conductors 26 are led between the telephone and the control box 19 preferably in an under-ground conduit 61, the main telephone wires, indicated at 63, being similarly enclosed in a suitable conduit 62. The conduits 61 and 62 pass upwardly in the standard 46.

The invention has been described as employing a single coin slot. It is desired to be understood, however, that it is equally applicable to any number of differing coin slots as may be desired.

With this invention, filling stations may be operated from a single central station at locations where it would not pay to employ a regular attendant. Stations where the volume of business during the day would necessitate an attendant could employ the push button 64 for filling the tank during the day and then could connect the dispenser with the telephone by means of the switch 65 for operation after hours and during the night.

The switch 65 is preferably of a double throw, double pole, lock type, so that the push button could be entirely locked from operation when no attendant is in charge.

The invention has also been described as applied to a gasoline dispenser. It is desired to be understood that the mechanism would be equally valuable for the dispensing of any liquid, and it is conceivable that it might be employed for dispensing powdered, granular or pulverulent material.

The invention has also been described in connection with the type of telephone in which the removal of the receiver places the customer in conversation with a telephone operator. The invention is not limited in its application to this type of telephone, but could also be used in connection with an automatic telephone system in the operation of which, no operator is required.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what I claim and desire to secure by Letters Patent is:—

1. In a vending apparatus having an elevated tank the combination of a pump adapted to supply fluid to said tank; a motor op-

eratively connected to said pump; a motor circuit; a relay opening circuit; a relay closing circuit; an operating contact in said relay closing circuit; a magnetic valve; a magnetic valve opening circuit; a magnetic valve closing circuit; a float in said tank; a float contact arranged to be closed in consequence of said float reaching a predetermined level, said float contact being in said magnetic valve opening circuit; said operating contact being in said magnetic valve closing circuit, so that when said operating contact is closed said relay will start said motor and close said magnetic valve and when said tank has filled to a predetermined level said float contact will open said magnetic valve to allow the contents of said tank to be discharged; a magnet operated mechanism arranged to close said operating contact and a remote controlled circuit adapted to operate said magnet so as to close said operating contact.

2. In a vending apparatus having an elevated tank the combination of a pump adapted to supply fluid to said tank; a motor operatively connected to said pump; a motor circuit; a relay opening circuit; a relay closing circuit; an operating contact in said relay closing circuit; a magnetic valve; a magnetic valve opening circuit; a magnetic valve closing circuit; a float in said tank; a float contact arranged to be closed in consequence of said float reaching a predetermined level, said float contact being in said magnetic valve opening circuit, said operating contact being in said magnetic valve closing circuit; so that when said operating contact is closed said relay will start said motor and close said magnetic valve and when said tank has filled to a predetermined level said float contact will open said magnetic valve to allow the contents of said tank to be discharged; a magnet operated mechanism arranged to close said operating contact and a remote controlled circuit adapted to operate said magnet mechanism so as to close said operating contact, said magnet acting simultaneously to release a coin at the time of said closing.

3. In a vending apparatus having an elevated tank the combination of: a pump adapted to supply fluid to said tank; a motor operatively connected to said pump; a magnetic valve; a float in said tank; a float contact arranged to be closed in consequence of said float reaching a predetermined level; a relay; a first contact, a second contact; said first and second contacts operated by said relay; a motor circuit controlled by said second contact; a magnetic valve opening circuit controlled by said first contact, said float contact being in said magnetic valve opening circuit; a relay opening circuit, said relay opening circuit being in said magnetic valve opening circuit so that when said tank has filled to a predetermined level said float contact will close said magnetic valve opening

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circuit to cause said valve to open to allow the contents of said tank to be discharged and said relay to open to break said motor circuit; a relay closing circuit, said relay closing circuit being in said magnetic valve closing circuit; and an operating contact in said magnetic valve closing circuit so that when said operating contact is closed, said magnetic valve will close and said relay will close said motor circuit to cause said motor to fill said tank until stopped by said float valve; a magnet operated mechanism arranged to close said operating contact and a remote controlled circuit adapted to operate said magnet so as to control said operating contact.

4. In a vending apparatus having an elevated tank the combination of: a pump adapted to supply fluid to said tank; a motor operatively connected to said pump; a magnetic valve; a float in said tank; a float contact arranged to be closed in consequence of said float reaching a predetermined level; a relay; a first contact; a second contact; said first and second contacts operated by said relay; a motor circuit controlled by said second contact; a magnetic valve opening circuit controlled by said first contact, said float contact being in said magnetic valve opening circuit; a relay opening circuit, said relay opening circuit being in said magnetic valve opening circuit so that when said tank has filled to a predetermined level said float contact will close said magnetic valve opening circuit to cause said valve to open to allow the contents of said tank to be discharged and said relay to open to break said motor circuit; a relay closing circuit, said relay closing circuit being in said magnetic valve closing circuit; an operating contact in said magnetic valve closing circuit so that when said operating contact is closed, said magnetic valve will close and said relay will close said motor circuit to cause said motor to fill said tank until stopped by said float valve; a magnet operated mechanism arranged to close said operating contact and a remote controlled circuit adapted to operate said magnet so as to control said operating contact, said magnet operating mechanism acting simultaneously to release a coin at the time of said latter closing.

In testimony whereof, I affix my signature.
RICHARD S. SHANNON.