April 7, 1931. C. W. DAVIES, JR 1,799,737

AUTOMATIC GASOLINE DISPENSER

Filed Dec. 29, 1927

Fig. 1.

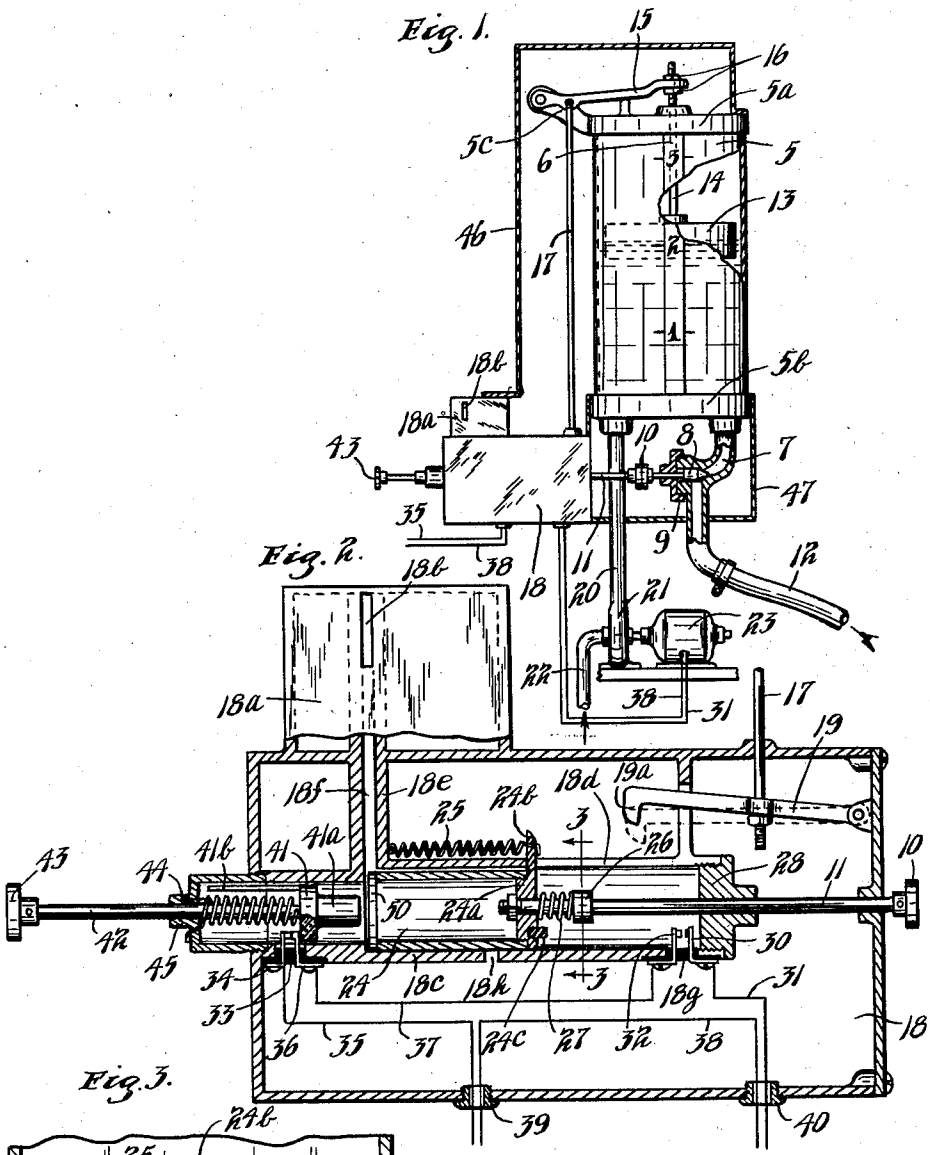
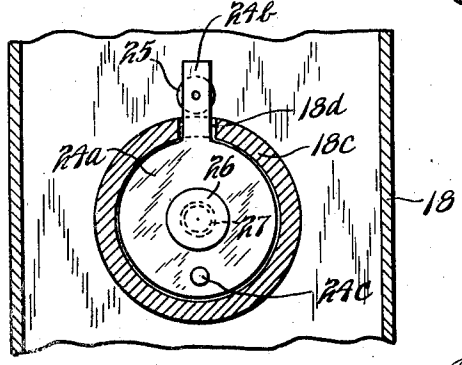


Fig. 2.

Fig. 3.



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AUTOMATIC GASOLINE DISPENSER

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This invention relates to a dispensing device and particularly to a dispensing device for liquids. As is well known gasoline is now dispensed in very many places, for use in automobiles, and one use of applicant's device is for automatically dispensing such gasoline. There are many places and gasoline stations where it is not profitable to pay an attendant to be constantly at the station. At such places, it is desirable to have some automatic or coin controlled dispensing means so that the customers can secure the desired amount of gasoline without the services of an attendant.

It is an object of this invention, therefore, to provide a simple and efficient mechanism by means of which an operator can secure a certain amount of the gasoline or other liquid upon the deposit of a suitable coin.

It is another object of the invention to provide a liquid dispensing apparatus comprising a container, a motor-operated means for supplying liquid to said container, and a coin mechanism for operating said motor and the dispensing of the liquid from said container.

It is more specifically an object of the invention to provide a liquid dispensing apparatus comprising a container, means for charging liquid thereinto actuated by a motor, a liquid dispensing means connected to said container, a valve controlling said dispensing means, together with a coin controlled mechanism for starting and stopping said motor and controlling said valve.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views and in which:—

Fig. 1 is a view in side elevation of the device, certain parts being broken away and other parts being shown in vertical section;

Fig. 2 is for the most part a vertical section through a coin controlled mechanism, a small portion thereof being shown in side elevation; and

Fig. 3 is a vertical section taken on line 3—3 of Fig. 2, as indicated by the arrows, Figs. 2 and 3 being shown on an enlarged scale.

Referring to the drawings, a device is shown comprising a liquid container 5. While this container may take various forms and be made of various materials, it preferably is made of transparent material such as glass, and in the embodiment of the invention illustrated, it is shown as a cylinder having top and bottom portions 5*a* and 5*b* respectively. Said container is also shown as provided with a gauge strip 6 on which are marked numerals indicating certain units of volume, as for instance, gallons of liquid. Container 5 has a conduit 7 leading from the bottom thereof, a portion of which is formed as a valve seat and provided with a closing or shut-off valve 8, said valve having an operating rod secured thereto which extends through the packing flange 9 and is connected by a suitable coupling 10 with another operating rod 11. The conduit 7 has a dispensing hose 12 connected to its lower end which is of the type now commonly used in gasoline stations. The container 5 has a float 13 therein from which extends upwardly a rod 14 disposed centrally of said float, which rod extends through the top 5*a* and has a threaded upper end extending through an aperture in a lever 15. Said rod 14 is provided with nuts 16 at either side of the lever 15, whereby the end of said lever is adjustably connected to said rod. Lever 15 is pivoted at its outer end to a lug 5*c* on the top 5*a*, and has pivotally connected intermediate its ends the upper end of a downwardly extending rod 17, which rod extends into a casing 18 and has its threaded lower end extending through a latch lever 19 disposed in said casing and pivoted at one end to the end wall of said casing. The latch 19 has a downwardly extending tongue or hook portion 19*a* thereon, for a purpose to be later described. A supply pipe 20 communicates with the bottom of container 5, and is connected to the outlet of a pump 21 shown as of the rotary type, the inlet conduit 22 of said pump being shown as extending downwardly, and this will be in communication with a suitable storage tank or other supply

of gasoline. The pump 21 is shown as directly connected to an electric motor 23.

The casing 18 houses a coin-controlled mechanism for controlling member 23 and valve 8, which will now be described. Said casing has at the upper side thereof a smaller casing 18*a* shown as having a slot 18*b* in the side thereof. This slot is provided for the insertion of a suitable coin and casing 18*a* will contain a coin-detecting means. Any suitable and known form of coin-detecting means may be used, and as this forms no part of the present invention, the same is not illustrated. The casing 18 has a substantially cylindrical portion or tube 18*c* therein, having disposed and slidable therein a plunger member 24, which plunger has one end thereof closed by the plate 24*a* having a projection 24*b* thereon extending through a slot 18*d* in the upper side of member 18*c*. The casing 18*c* has a slot 18*h* extending transversely thereof at its lower portion and substantially throughout 180° thereof. The projection 24*b* has secured thereto one end of a tensile spring 25, the other end of which is secured to one side of a flat conduit 18*e* extending upwardly from member 18*c* into the casing 18*a*. Said conduit 18*e* has a slot 18*f* extending therethrough, through which the coins will pass from the coin detector 18*a*, if they are good. The slot 18*f* terminates or communicates with the portion 18*c* directly at the end of the plunger 24 opposite plate 24*a*, which end of the plunger is open. The member 24*a* has secured therein one end of the rod 11 having secured thereto a collar 26, and a compression spring 27 is disposed between said collar and plate 24*a*. The rod 11 extends through a head 28 closing one end of the tube 18*c* and also extends through one end of the casing 18 at the outer side of which it is connected by coupling 10 to the rod secured to valve 8, as already described. The member 18*c* has a contact member 30 at the bottom thereof, connected to a conductor 31 and said member also has another contact member 32 secured thereto, slightly spaced from contact 30, but being resilient so as to be pressed into engagement therewith, said contacts being shown as carried in an insulating member 18*g* carried in member 18*c*. The plate 24*a* has inserted in its outer side and adjacent the bottom thereof, an insulating block 24*c* adapted in a certain position of plunger 24 to engage the contact 32. The member 18*c* is somewhat reduced in bore at its other end and has another block 33 secured therein in which is carried a contact member 34 having secured thereto a conductor 35. Member 33 also carries a resilient contact member 36 adapted to be pressed into engagement with contact member 34 and a conductor 37 connects the contact members 36 and 32. Another conductor 38 is shown, extending between conductors 35 and 31. Conductors 35 and 38 are shown as extending through a bushing 39 disposed in the bottom of casing 18 and conductors 38 and 31 are also shown as extending through a bushing 40 disposed in the bottom of casing 18. Another plunger 41 is disposed in the forward end of member 18*c* having a reduced portion 41*a* at its rear end. The plunger 41 is connected to a push rod 42 having a knob 43 at its outer end. A tensile spring 44 is connected at one end to rod 42 adjacent plunger 41 and at its other end to the end of a hollow casing or shell 45 threaded into the portion 18*c*. The plunger 41 is shown as having a forwardly extending strip 41*b* at its upper side. A casing 46 is provided, extending from casing 18*a* to the top of the container 5, and enclosing lever 15 and rod 17, and a casing 47 extends from casing 18 to the bottom of container 5, enclosing members 10, 7 and 11.

In operation the mechanism in casing 18 will normally occupy the position shown in Fig. 2. Spring 25 will retract plunger 24 and rod 11 will thus be retracted and valve 8 will be open. When a customer desires to secure gasoline, he will place a coin of the proper denomination into the slot 18*b*. If the coin is good, it will pass through the coin detector in casing 18*a* and will drop down through slot 18*f* into position in front of plunger 24. The customer now pushes in on knob 43 in accordance with directions, and the reduced portion 41*a* of the plunger 41 engages the coin 50 and said coin and plunger 24 will be pushed to the right as shown in Figs. 1 and 2 against the tension of spring 25. When plunger 24 reaches the end of casing 18*c*, the projection 24*b* will engage the tongue 19*a* of lever 19 and cam the same up, it being noted that the projection 24*b* has a convex surface at its top forward edge. Latch lever 19 thus engages projection 24*b* and plunger 24 is locked in its advanced position. When plunger 24 reaches its advanced position, the coin 50 drops through slot 18*h* and it will be received in casing 18 or some other coin receptacle. The block 24*c* at this time engages contact 32 and moves the same into engagement with contact 30. The operator now releases knob 43 and rod 42 and the same are retracted by spring 44 to the position shown in Fig. 2. In this position plunger 41 engages contact 36 and holds the same in engagement with contact 34. A circuit is thus closed for actuating and starting motor 23. The conductors 35 and 38 passing through one of the bushings 39 constitute the conductors extending to the source of current and the conductors 31 and 38 passing through bushing 40 extend to the motor. When plunger 24 is pushed to the right, valve 8 is also moved to closed position or to the position shown in Fig. 1, and is held in this position as long as long as plunger 24 is

held in its advanced position. The motor 23 now starts and operates pump 21 to supply gasoline to the container 5. As the gasoline accumulates in the container, it will raise float 13 and when this float has been raised a certain distance, it will actuate lever 15, moving upward rod 17. The rod 17 when elevated, raises lever 19 and releases the projection 24*b* so that spring 25 then retracts plunger 24, allowing contacts 32 and 30 to separate, thus breaking the motor circuit. The motor 23 is thus stopped and when plunger 24 is retracted, valve 8 is opened. The gasoline will now be dispensed through conduit 7 and hose 12, and will be directed into the storage tank of the automobile. It will be seen that if the rod 42 is pushed inward when there is no coin in casing 18*c*, the plunger 41 will merely enter the plunger 24 and the latter will not be moved. The projection 41*b* prevents a coin dropping into the rear of plunger 41. The lever 15 in float 13 will be adjusted in accordance with the current price of the gasoline, so that the desired amount will be dispensed in accordance with the coin deposited.

From the above description it is seen that applicant has provided a very simple and efficient liquid dispensing apparatus, and one which is operated and controlled by a coin. The operation of the device is entirely automatic after the coin has been deposited, and the operator pushes in on the knob 43. The proper amount of the gasoline is dispensed and the apparatus immediately brought into position for a subsequent operation. The parts of the device are quite few and simple and there is little or no chance for any trouble to occur in the structure or operation. It will readily be seen that the device has a high degree of utility for the purpose intended.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, in the novel parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. A liquid dispensing device having in combination, a container, a dispensing means connected thereto, a valve for closing said dispensing means, means for supplying liquid to said container, a motor for actuating said last mentioned means, a circuit for said motor, a manually movable member, a spring holding said manually movable member in normal position, a pair of contacts closed by said latter member when in normal position, a plunger adapted to be moved by said manually movable member when a coin has been deposited, means for closing said valve operated by said plunger, a pair of contacts adapted to be engaged by said plunger when said valve is closed said latter contacts acting with said first-mentioned contacts to close the said circuit, means for holding said plunger in position with said valve closed, and means operated when a certain supply of liquid is received in said container to release said plunger, open said circuit and open said valve.

2. A liquid dispensing device having in combination, a container for receiving liquid, a dispensing means connected thereto, a valve for closing said dispensing means, means for supplying liquid to said container, an electrically operated means for actuating said last mentioned means, a circuit for said electrically operated means, a manually movable member, a member adapted to be moved to a certain position by said manually movable member to close said valve upon the deposit of a suitable coin, means for holding said last mentioned member in said position, separate sets of contacts acted upon by said manually movable member and the member moved thereby, respectively, for closing said circuit, and means for rendering the last mentioned one of said members inoperative and opening said circuit and said valve when a certain amount of liquid has been received in said container.

3. A liquid dispensing device having in combination, a container for receiving liquid, a dispensing means connected thereto, a valve for closing said dispensing means, means for supplying liquid to said container, electrically operated means for actuating said last mentioned means, a circuit for said electrically operated means, a manually movable member, means for holding said manually movable member in normal position and returning the same to normal position, a pair of contacts included in said circuit closed by said manually movable member when in normal position, a member adapted to be moved by said manually movable member when a suitable coin has been deposited, but which is non-movable by said member when a coin has not been deposited, a pair of contacts included in said circuit closed by said latter member when moved by said manually movable member said latter contacts acting with said first mentioned contacts to close said circuit, means actuated by said latter member for closing said valve, locking means for holding said latter member in position with said valve closed, a float in said container, and means actuated by said float for releasing said locking means, and means for retracting said last mentioned member to normal position to separate said last mentioned pair of contacts to open said circuit, and for opening said valve.

4. A liquid dispensing device having in combination, a container receiving liquid, a dispensing means connected thereto, an out-

let passage for said dispensing means which is normally open, a valve for closing said passage, a manually movable plunger, means for supporting a coin at the end of said plunger, a second plunger movable by said manually movable plunger and coin, means for supplying liquid to said container, a motor for operating said means, an electric circuit, means for closing said circuit including a set of contacts adapted to be closed by said manually movable plunger and a set of contacts adapted to be closed by said second plunger, means for holding said second plunger in position to close its corresponding set of contacts, means operated when a certain amount of liquid has been supplied to said container, and a connection between said last mentioned means and said second plunger holding means for releasing said second plunger and opening said circuit to stop said motor.

5. A liquid dispensing device having in combination, a container from which liquid is dispensed, having a dispensing outlet, manually movable means and coin operated means for closing said outlet, an electrically operated means for supplying liquid to said container, a circuit closed by said manually movable means and coin operated means, when moved to close said outlet, for operating said electrically operated means, a latch for holding said coin operated means in position with said outlet closed and said circuit closed, and means operated when a certain amount of liquid has been supplied to said container for releasing said latch and discontinuing the operation of said electrically operated means.

6. A liquid dispensing device having in combination, a container from which liquid is dispensed, having a dispensing outlet, manually movable means and coin operated means for closing said outlet, an electrically operated means for supplying liquid to said container, a circuit closed by said manually movable means and coin operated means, when moved to close said outlet, for operating said electrically operated means, means for holding said coin operated means in position with said outlet closed and said circuit closed, and means responsive to the supply of liquid to said container for releasing said coin operated means, allowing said outlet to open, and discontinuing the operation of said electrically operated means.

In testimony whereof I affix my signature.

CHARLES W. DAVIES, JR.