

Sept. 4, 1928.

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L. P. STARKEY

VENDING MACHINE

Filed Oct. 5, 1922

2 Sheets-Sheet 1

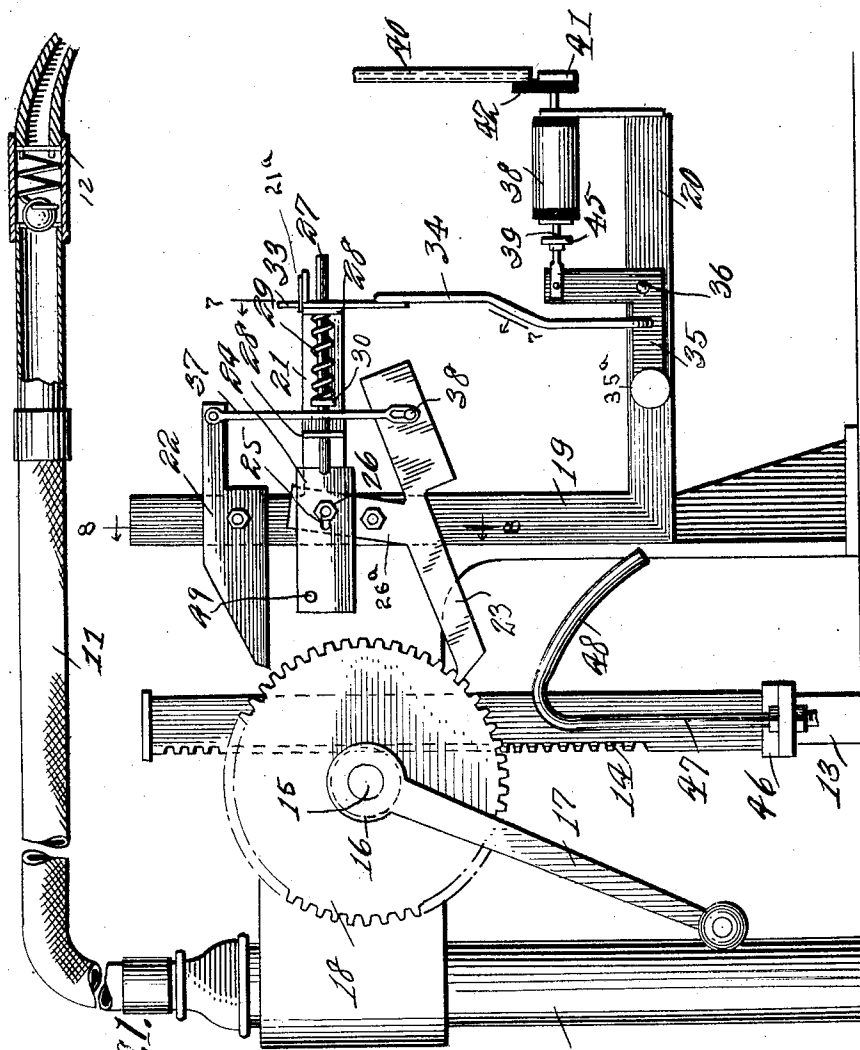


Fig. 1.

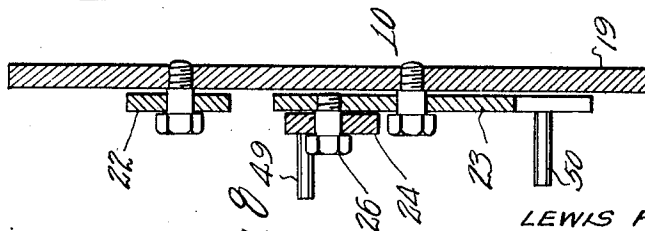


Fig. 2.

WITNESSES  
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Sept. 4, 1928.

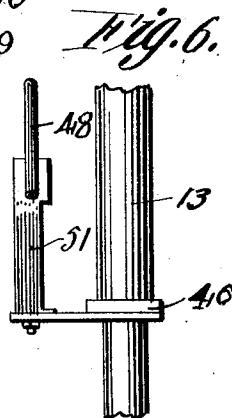
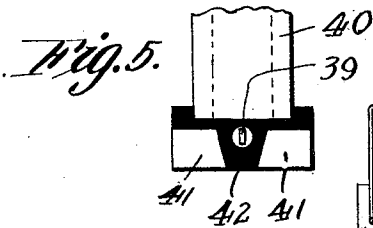
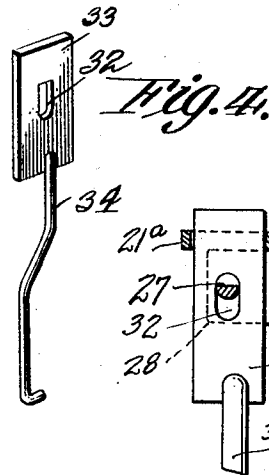
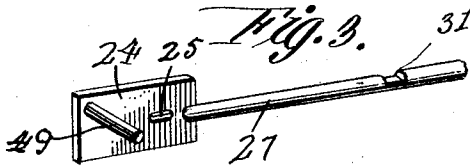
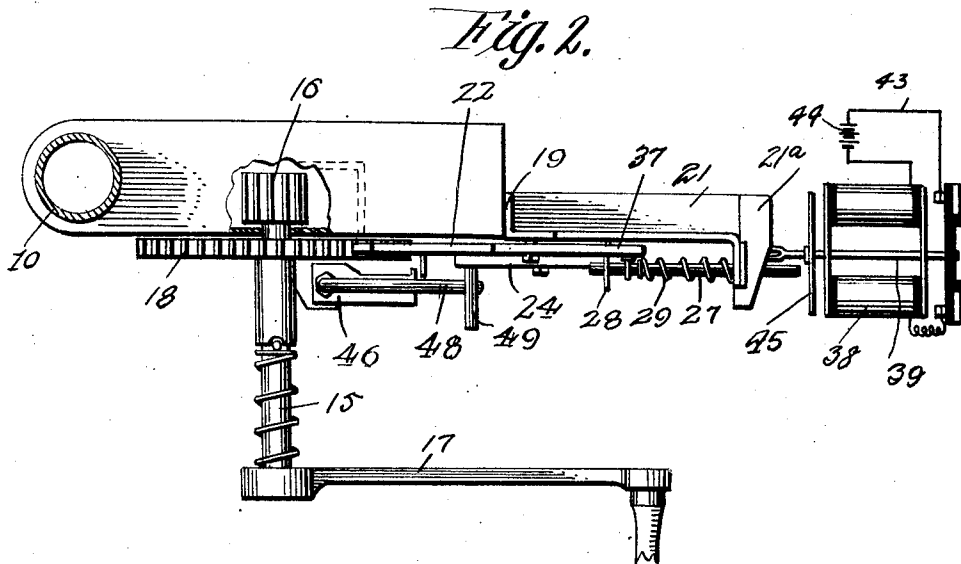
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2 Sheets-Sheet 2



WITNESSES  
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## UNITED STATES PATENT OFFICE.

LEWIS P. STARKEY, OF FORT COLLINS, COLORADO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ROSE E. STARKEY.

## VENDING MACHINE.

Application filed October 5, 1922. Serial No. 592,515.

This invention relates to liquid dispensing devices and has special reference to an attachment for oil and gasoline pumps.

One important object of the invention is to improve the general construction of devices of this character.

A second important object of the invention is to provide a novel coin controlled attachment which may be applied to the usual oil and gasoline pump so that this pump may be operated by any person depositing the proper coin and thus making it unnecessary to have an attendant constantly at the pump.

A third important object of the invention is to provide a novel attachment of this character having a pair of pawls controlled by an improved arrangement of coin controlled latch.

A fourth important object of the invention is to provide a device of this character having novel electrical controlled mechanism wherein momentary closing of an electric circuit will effect the release of the latch mechanism to permit operation of the pump.

A fifth important object of the invention is to provide a novel arrangement of coin controlled circuit closer wherein the closing of the circuit will be followed almost instantly by the breaking of the same.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:—

Figure 1 is a side elevation of a portion of the gasoline pump showing the attachment applied thereto.

Figure 2 is a plan view of the apparatus as shown in Figure 1.

Figure 3 is a perspective view of one of the latch elements used herewith.

Figure 4 is a perspective view of a second latch element.

Figure 5 is a detail illustration of the coin controlled circuit closer.

Figure 6 is a detail showing a front view of the resetting mechanism.

Figure 7 is an enlarged section along the

line 7—7, Figure 1. Figure 8 is an enlarged section taken on the line 8—8, Figure 1.

The invention forming the subject matter of this application has been shown as applied to a pump having the usual supply pipe 10, delivery pipe 11, nozzle 12, plunger 13, plunger rack 14 and operating shaft 15 provided with a gear 16 engaging the rack 14. On the shaft 15 is also the usual crank handle, 17 and ratchet gear 18.

The invention proper consists of two parts. The frame of these parts includes a bracket 19 having an arm 20 projecting from its lower end and an arm 21 projecting from its upper end parallel to the arm 20. Pivoted above the arm 21 is a pawl 22 adapted to engage the ratchet wheel 18 to lock the same against pumping movement, that is to say, against downward movement of the plunger 13. Below the arm 21 is pivoted a second pawl 23 which is capable of engagement with the wheel to prevent upward movement of the plunger 13. The pawl 23 has an upwardly extending arm 26<sup>a</sup> upon which is mounted a plate 24. The plate has a longitudinal slot 25 and the arm 26<sup>a</sup> carries a bolt 26 which passes through the slot. From the plate 24 extends a stem 27 which passes through bearing guides 28 projecting from the arm 21. Around this stem between these guides is coiled a spring 29 one end of which engages the outer guide 28 while the other end engages a collar 30 on said stem so that the parts are constantly urged into the position shown in Figure 1. This stem 27 is provided with a notch 31 and the stem passes through an opening 32 in a latch plate 33 having a rod 34 projecting downwardly therefrom and connected to a bell crank lever 35 pivoted as at 36 to the lower arm 20. The bell crank 35 carries a weight 35<sup>a</sup> which serves to return it by gravity to its normal position after each operative movement as will hereinafter be more fully described. The latch plate 33 passes through a suitable opening in an angle extension 21<sup>a</sup> of the plate 21 and the arrangement of the notch 31 is such that when the parts are in the position shown in Figure 1 the upper end of the opening 32 will engage in the notch and hold these parts in such position. Connected to the rear end of the pawl 22 is a link 37 which also has pin and slot con-

nection 38 with the rear end of the pawl 23. Now as seen from Figure 1 the plunger 13 may be raised by counter-clockwise rotation of the wheel 18 when the pawl 23 is out of engagement and the pawl 22 engages with the teeth thereof while when the position of the two pawls is reversed as shown in the drawing, the lower pawl locks the wheel against counter-clockwise rotation but permits of its being rotated in the opposite direction to lower the plunger and thereby discharge a quantity of liquid from the pump.

With the parts in the position shown in Figure 1, the plunger of the pump is in its lowermost position and the latch 33 locks the pawl 23 in the position in which it engages the toothed wheel 18, by engagement in the notch 31 of the stem 27 on the plate 24, and in order to release the wheel to permit of the upward movement of the plunger by rotation thereof, it is required that the latch be disengaged from the stem whereby to permit of the plate 24 moving to the left in Figure 1 under the influence of the expanding spring 29.

The movement of the plate causes the pawl 23 to move about its pivot to the position in which it disengages the wheel and the link 37 compels the upper pawl 22 to simultaneously engage the wheel for the purpose of preventing the operative movement of the plunger until after the parts are returned to their original position as shown in the drawings. In order to release the latch from the stem 27 there is provided a pair of magnets 38 having a stem 39 which is connected to the remaining arm of the bell crank lever 35. At 40 is a coin chute through which a coin may pass to engage between a pair of contacts 41 supported on an insulating plate 42 having a suitable opening so that the magnet stem 39 may pass therethrough. These contacts are connected in series by wiring 43 through a battery 44 and the magnets 38. On the magnet stem is an armature 45 so that when the magnets are energized the armature is attracted and the stem projected through the opening in the plate 42 to knock the coin from between the contacts 41. Thus, if a coin be dropped through the coin chute, the magnets will be energized and the plate 33 released from the notch in the stem 27, immediately upon which the coin is removed from the contacts 41 and the circuit is in consequence broken to again deenergize the magnets. The weight 35<sup>a</sup> of the bell crank 35 aids in returning the latch 33 to its original position for its subsequent reengagement in the notch of the stem 27 when by the upward movement of the pump plunger the plate 24 is moved to the right of Figure 1 as will hereinafter be explained. The other part of the apparatus consists of a bracket

46 adapted to be carried by the plunger 13 and extending upward from this bracket is a rod 47 having a cam arm 48 formed at its upper end by bending the rod downward as shown in Figure 1. From the plate 25 projects a pin 49 for engagement by the cam arm 48. Under these circumstances upward movement of the plunger 13 will bring the arm 48 into contact with the pin 49 and will consequently urge the plate 24 to the right against the action of the spring 29.

The mechanism as hereinabove described is normally in the condition illustrated in the drawings, in which the latch 33 acting upon the stem 27 of the plate 24, holds the pawl 23 in engagement with the teeth of the wheel 18 while the pawl 22 is separated from the wheel. The plunger 13 which occupies its lowermost position, is thus locked against upward movement and the pump can not be operated until after the position of the pawls has been reversed by the deposit of a coin of the proper denomination in the coin slot 40 as has been explained hereinbefore.

The momentary energization of the magnets during the short period in which the coin bridges the space between the contacts 41, releases the pawl 23 from the wheel 18 by movement of the spring-urged plate 24 and the operator is thus enabled to raise the plunger by counter-clockwise rotation of the hand crank 17.

It will be understood that the pump operates for the discharge of liquid only by downward movement of the plunger and that the pawl 22 prevents this movement until after the plunger has been lifted to a predetermined extent.

The length of the upward stroke of the plunger is determined by the position of the cam-arm 48 relative to the pin 49 on the member 24 of the pawl 23, it being evident that when the arm engages the pin the pawl is forced to move about its pivot against the resistance of the spring 29, until the notch of the stem 27 is brought in register with the slot of the latch 33 when the parts again occupy the normal position illustrated in the drawings.

The pawl 23 while engaging the teeth of the wheel 18 to prevent of further upward movement of the plunger, permits of the wheel being rotated in the opposite or clockwise direction, thereby enabling the operator to obtain the quantity of liquid purchased by the coin deposited in the coin chute 40.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact

form herein shown and described but it is desired to include all such as properly come within the scope claimed.

Having thus described the invention what is claimed as new, is:—

1. The combination with a pump and a toothed wheel in operative connection therewith, of a mechanism including interconnected pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, resilient means to reverse the position of the pawls relative to the wheel, a latch normally restraining said means, a coin-controlled element to release the latch, and means actuated by movement of the wheel to restore the mechanism to its original condition at a determinate point in the operation of the pump.

2. The combination with a pump and a toothed wheel in operative connection therewith, of a mechanism including two pivoted pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, a link connecting the pawls for conjoint movement, resilient means to reverse the position of the pawls relative to the wheel, a latch normally restraining said means, a coin-controlled element to release the latch, and means actuated by movement of the wheel to restore the mechanism to its original condition at a determinate point in the operation of the pump.

3. The combination with a pump and a toothed wheel in operative connection therewith, of a mechanism including interconnected pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, a locking member connected with one of the pawls, a spring acting upon the locking member to reverse the position of the pawls relative to the wheel, a latch co-operating with the locking-member to restrain the operation of the mechanism by action of the spring, a coin-controlled element to release the latch, and means actuated by movement of the wheel to restore the mechanism to its original condition at a determinate point in the operation of the pump.

4. The combination with a pump including a reciprocating member and a toothed wheel operatively connected with the member, of a mechanism including interconnected pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, resilient means to reverse the position of the pawls relative to the wheel, a latch normally restraining said means, a coin-controlled element to release the latch, and means carried by the reciprocating member to restore the mechanism to its original condition at a determinate point in the operation of the pump.

5. The combination with a pump including

a reciprocating member and a toothed wheel operatively connected with the member, of a mechanism including interconnected pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, resilient means to reverse the position of the pawls relative to the wheel, a latch normally restraining said means, a coin-controlled element to release the latch, and a cam carried by the reciprocating member to restore the mechanism to its original condition by engagement with one of the pawls at a determinate point in the operation of the pump.

6. The combination with a pump and a toothed wheel in operative connection therewith, of a mechanism including two pivoted pawls adapted to alternately engage the wheel to prevent its movement in opposite directions, a link connecting the pawls for conjoint motion, a longitudinally slidable member connected with one of the pawls to reverse the position of the pawls relative to the wheel, a spring operatively engaging said member, a latch cooperating with the member to restrain its operation by action of the spring, a coin-controlled element to release the latch, and means actuated by movement of the wheel to restore the mechanism to its original condition at a determinate point in the operation of the pump.

7. The combination with an operating member of a pump, of mechanism normally preventing motion of said member, an electro-magnetic device acting upon said mechanism to release the member, a normally broken circuit for said device, a contact device adapted to complete the circuit by means of a deposited coin, means included in said device to separate the coin from the contact device and thereby reopen the circuit after actuation of the mechanism by the device, and means actuated by movement of the pump-member to restore the mechanism to its original condition at a determinate point in the operation of the pump.

8. The combination with an operating member of a pump, of mechanism normally preventing motion of said member, an electro-magnetic device acting upon said mechanism to release the member, a normally broken circuit for said device, a contact device adapted to complete the circuit by means of a deposited coin, means included in the device to separate the coin from the contact device and thereby reopen the circuit after actuation of the mechanism by the device, and means separate from the device to restore the mechanism to its original condition at a determinate point in the operation of the pump.

In testimony whereof I affix my signature.

LEWIS P. STARKEY.