Oct. 25, 1932. M. W. FARNHAM 1,885,091

GASOLINE VENDING MACHINE

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Fig. 1.

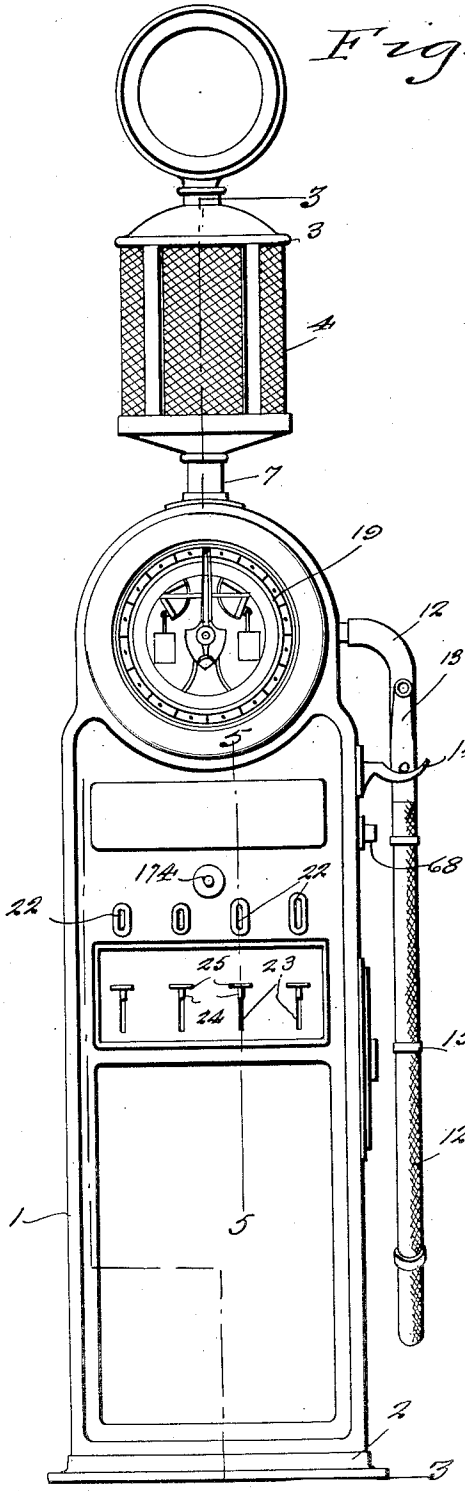
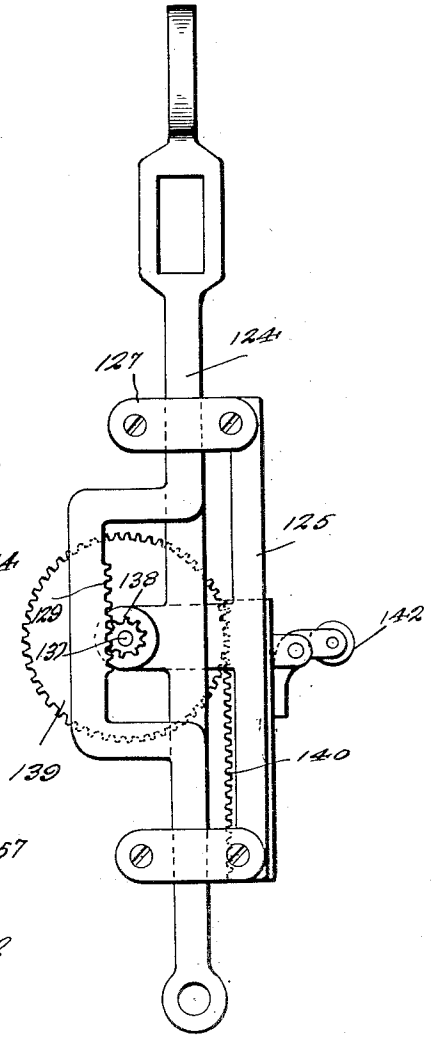


Fig. 8.



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Fig. 2.

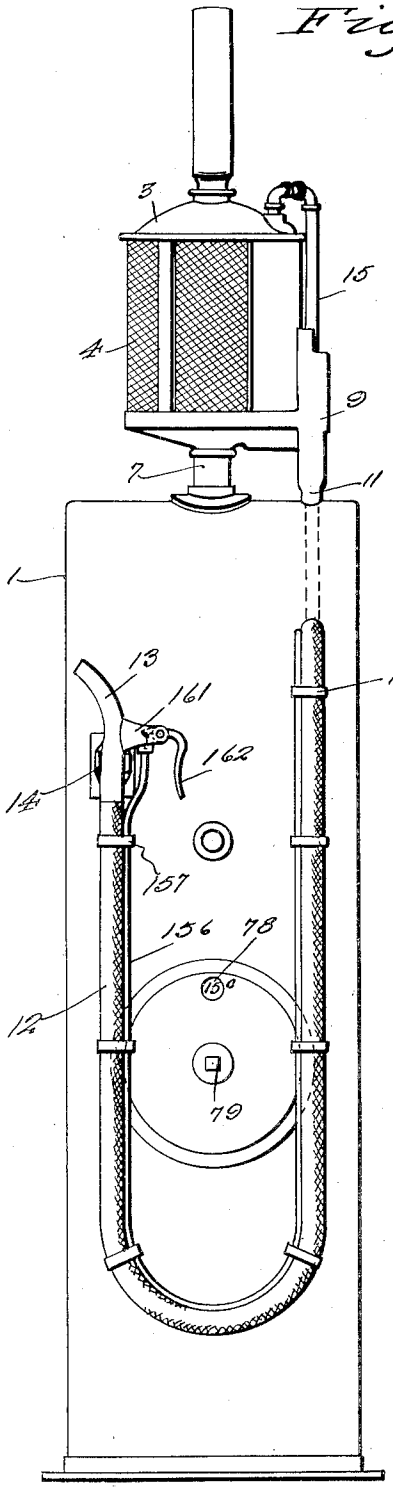


Fig. 2a.

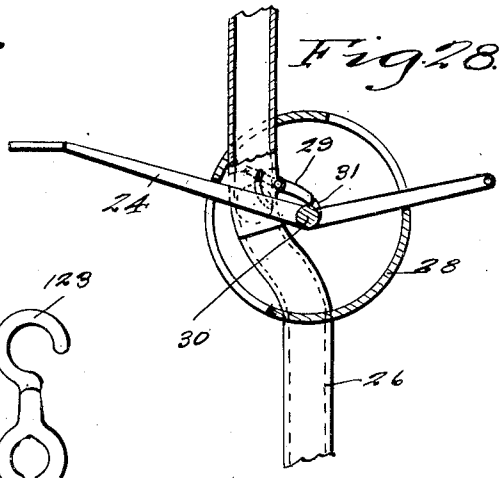
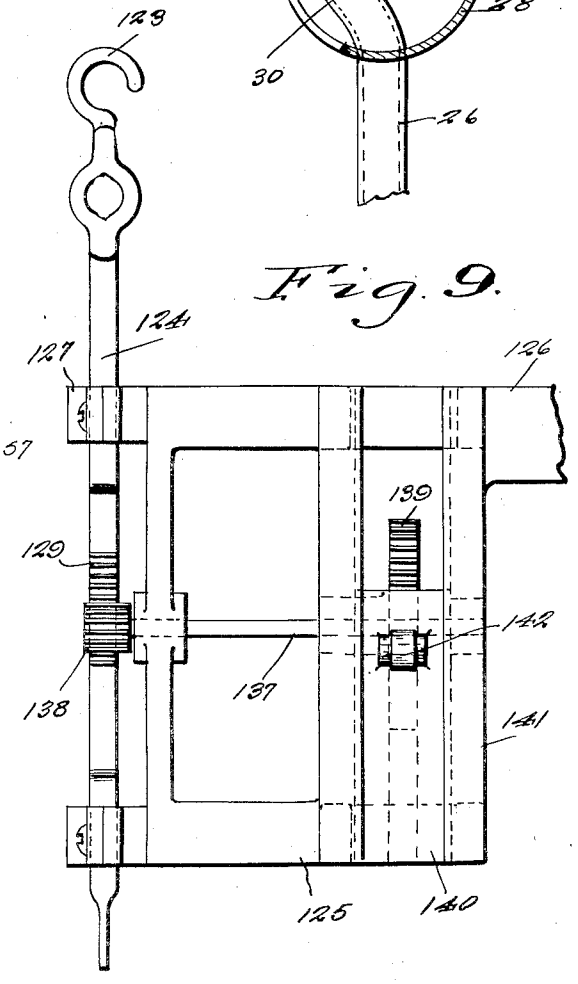


Fig. 9.



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Fig. 3.

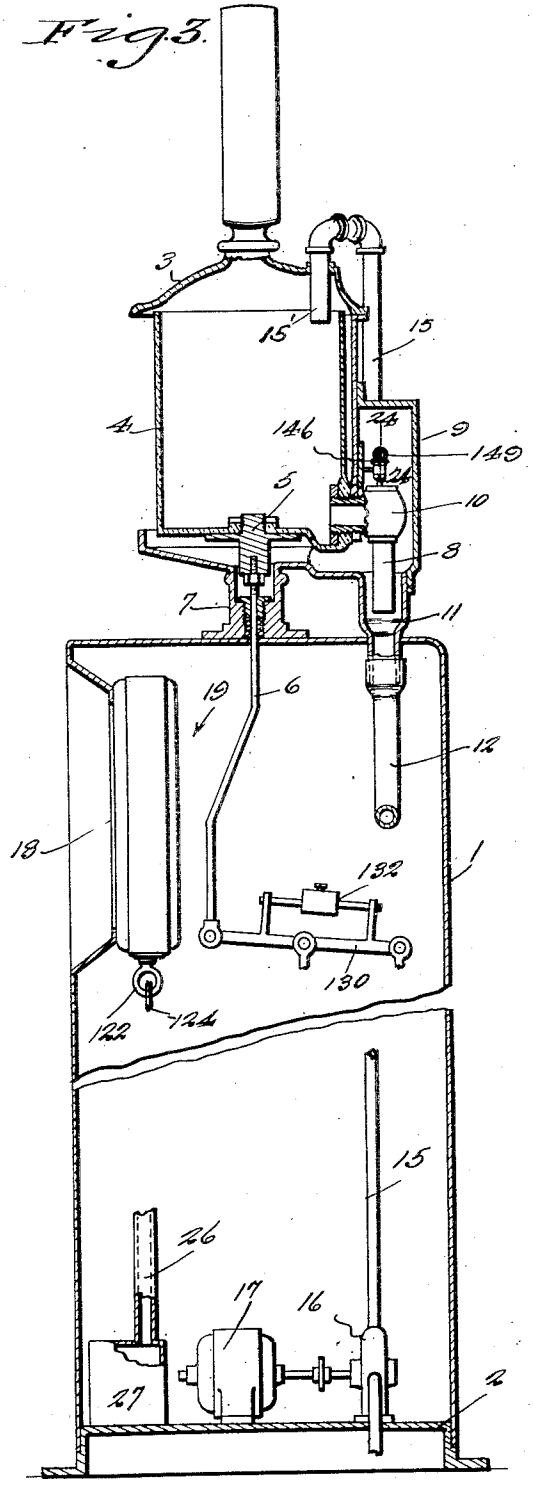


Fig. 20.

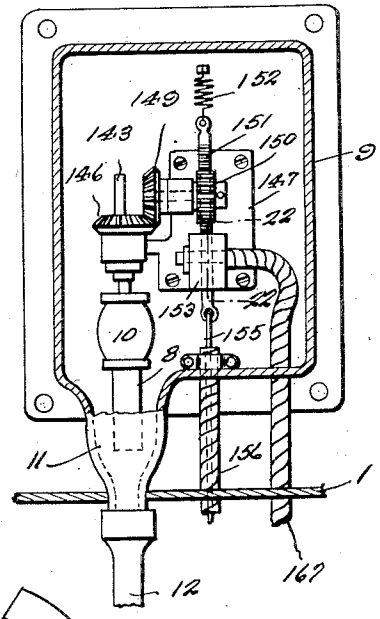
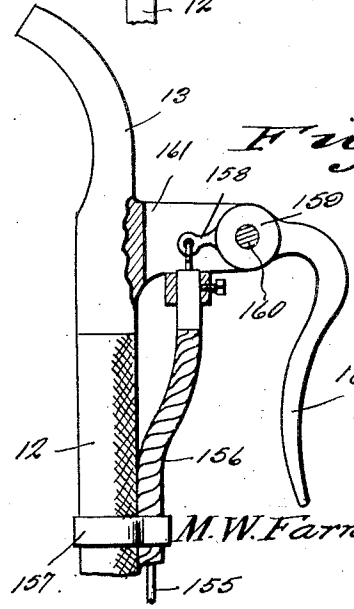


Fig. 21.



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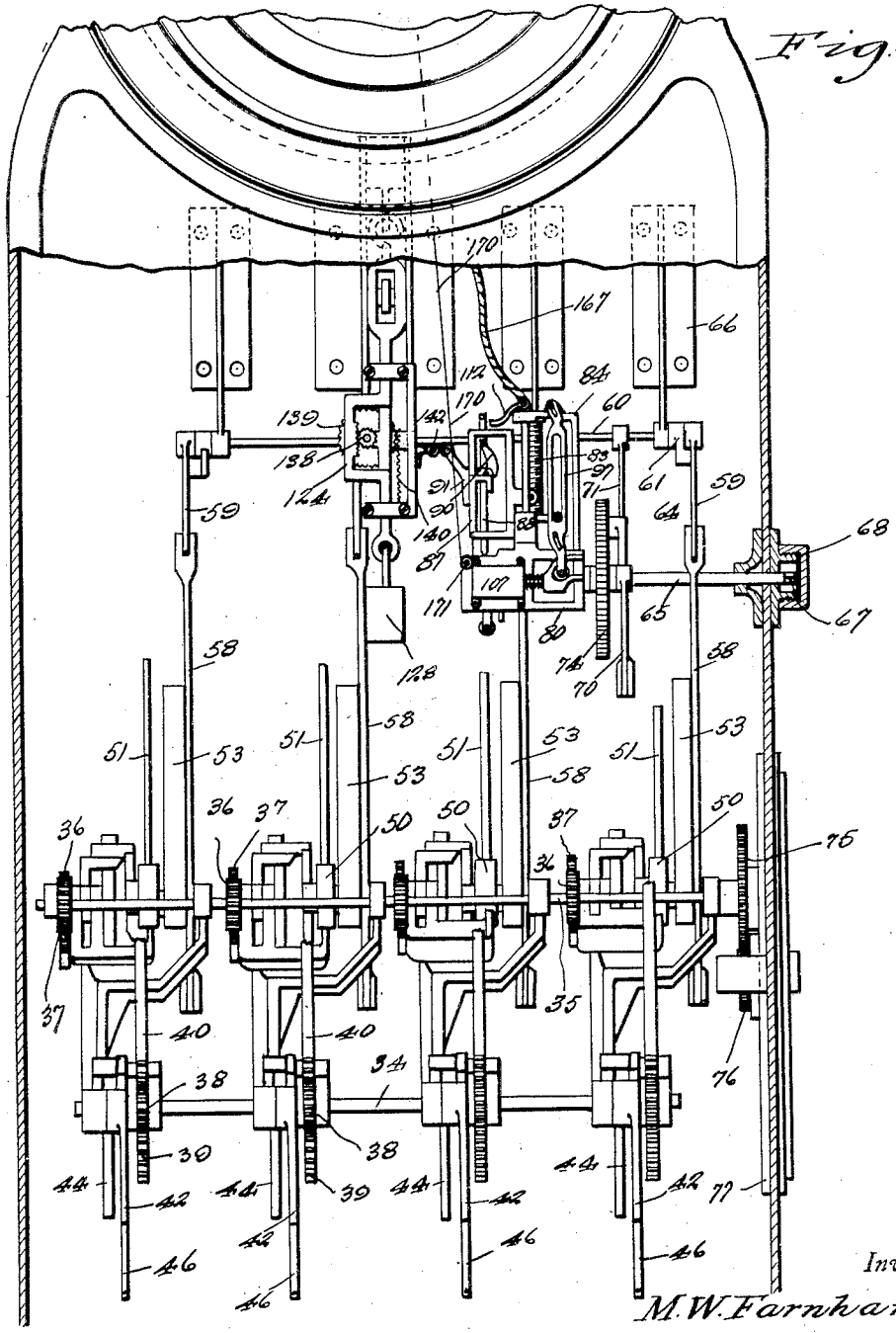
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Fig. 4.



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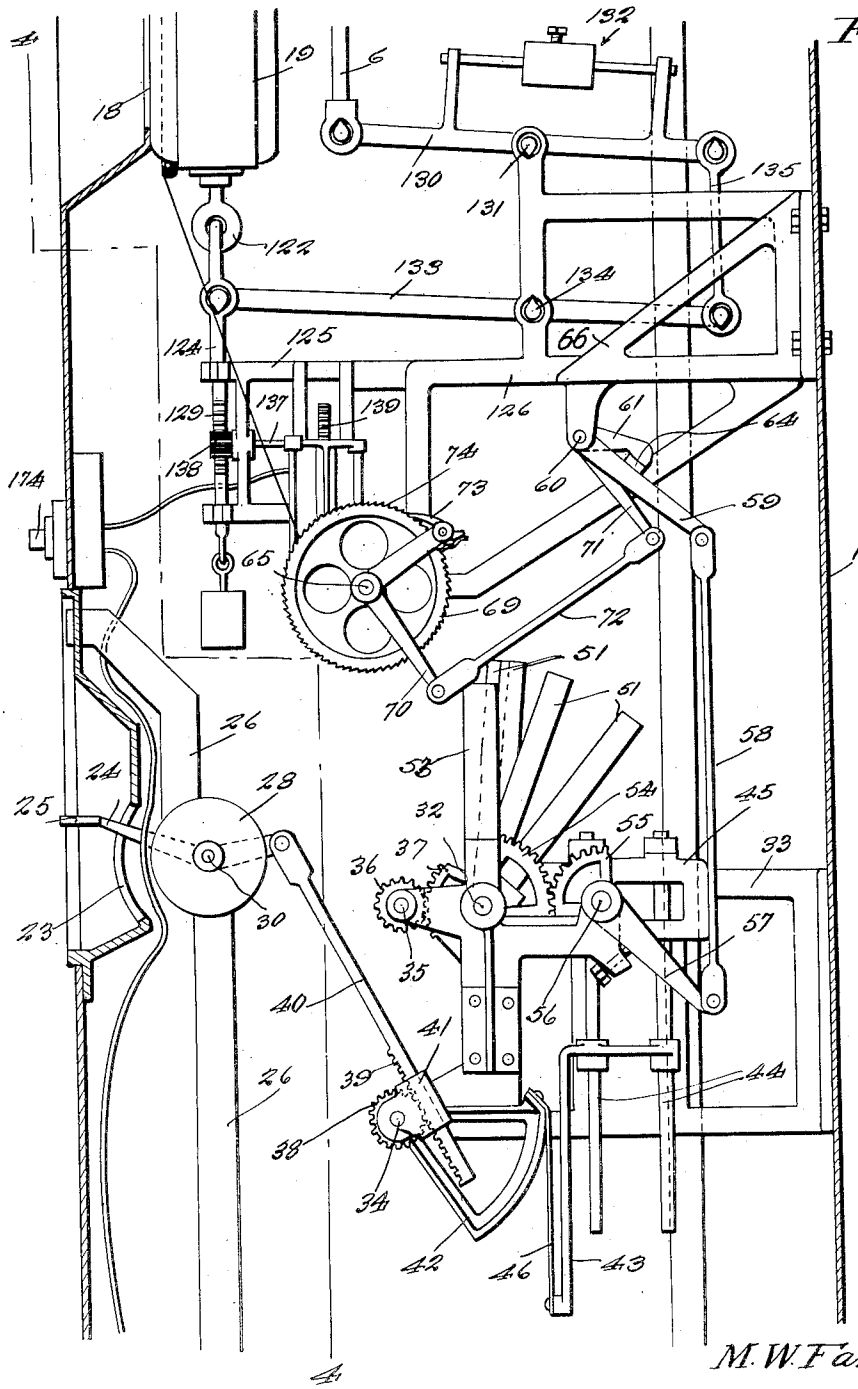
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Fig. 5.



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Fig. 6.

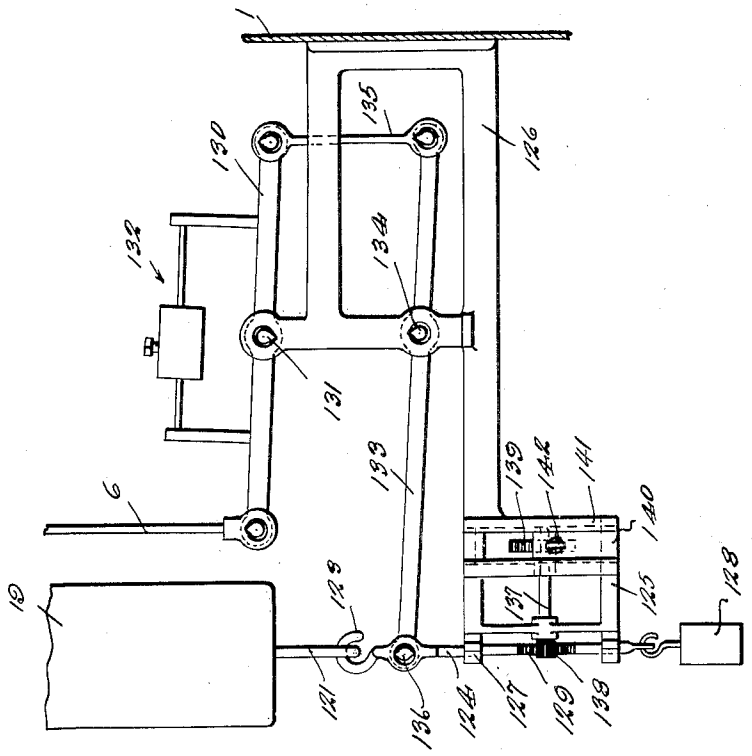
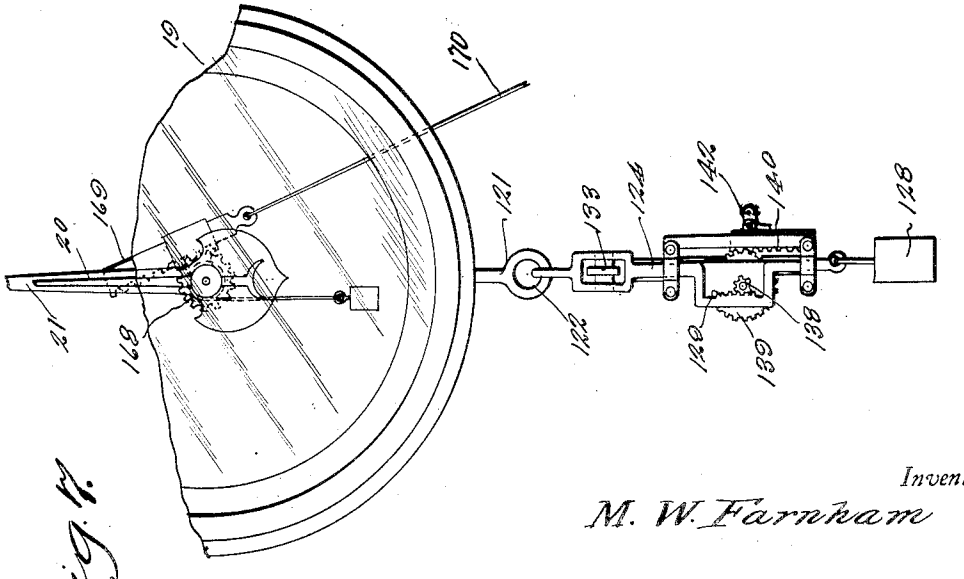


Fig. 7.



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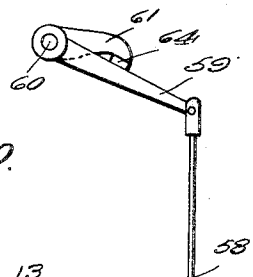
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Fig. 10.



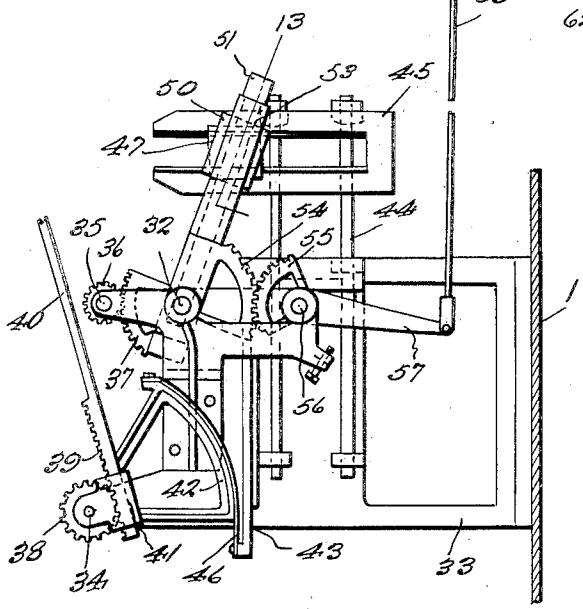


Fig. 11.

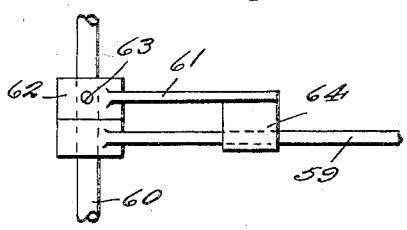


Fig. 12.

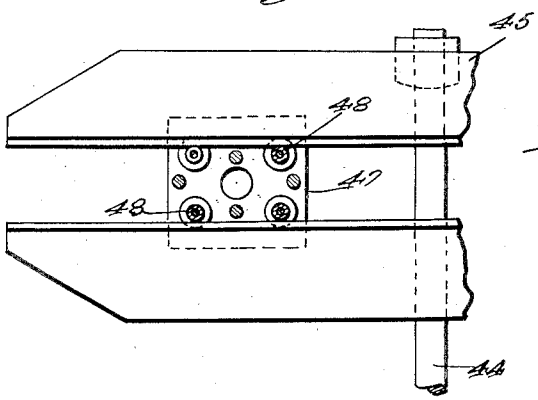


Fig. 13.

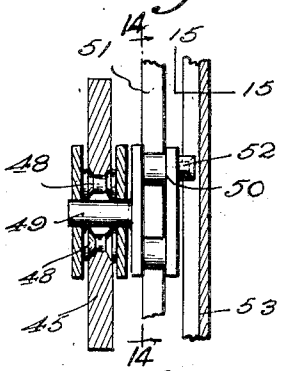


Fig. 22.

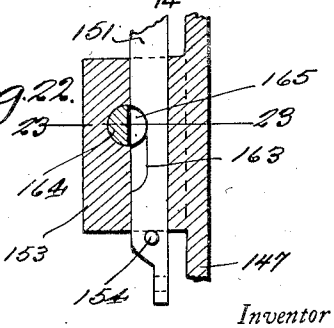
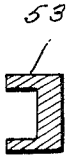


Fig. 15.



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GASOLINE VENDING MACHINE

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Fig. 17.

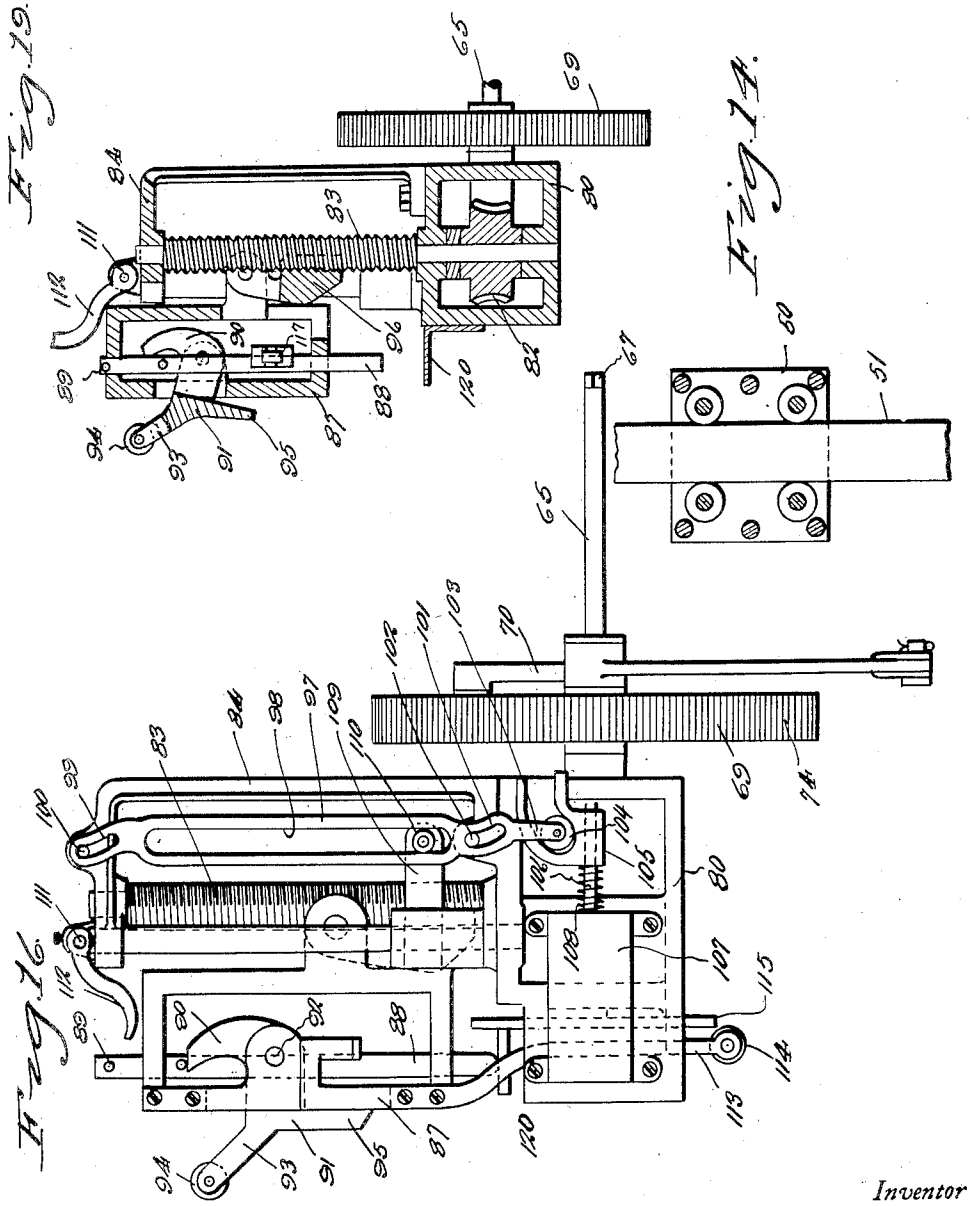


Fig. 17A.

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GASOLINE VENDING MACHINE

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Fig. 11.

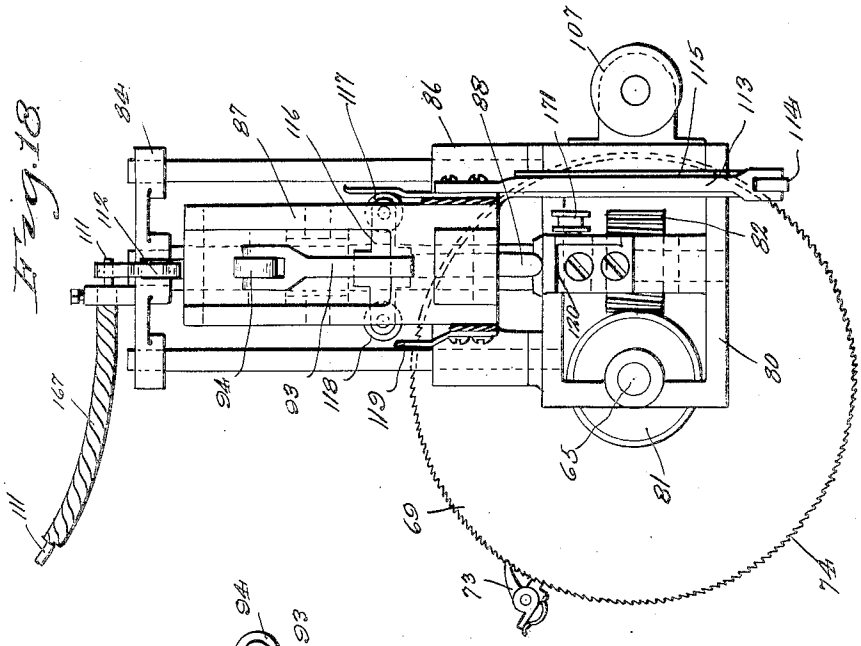


Fig. 12.

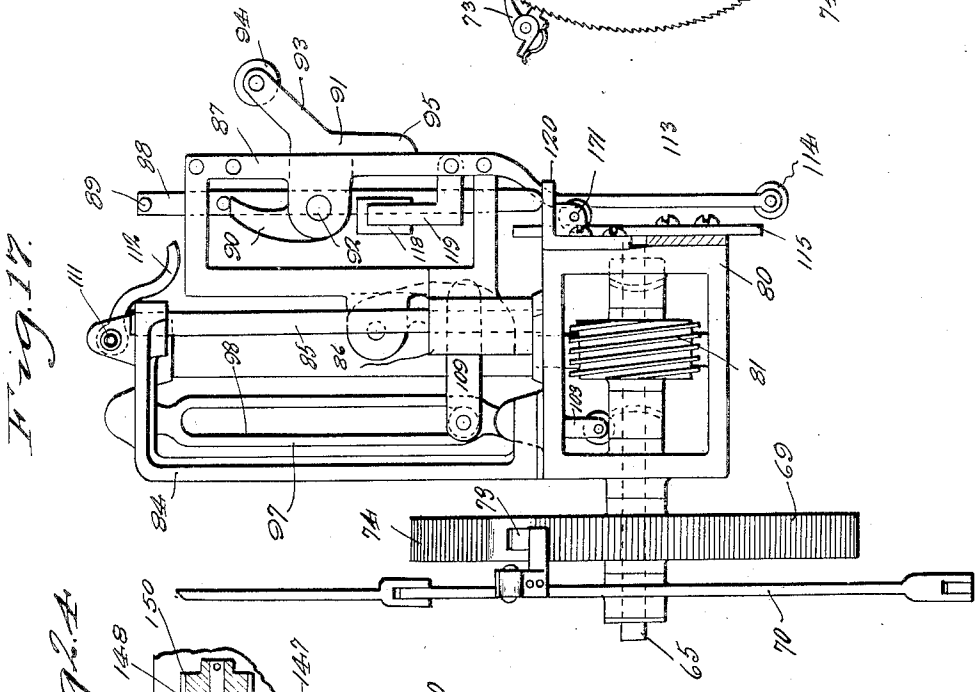
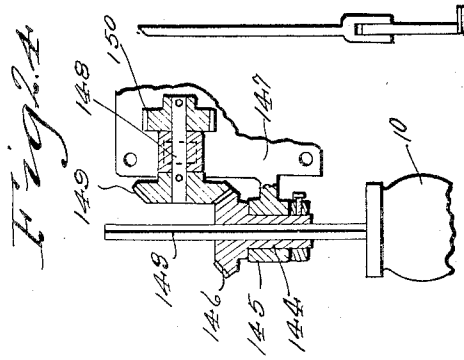


Fig. 14.



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Fig. 25.

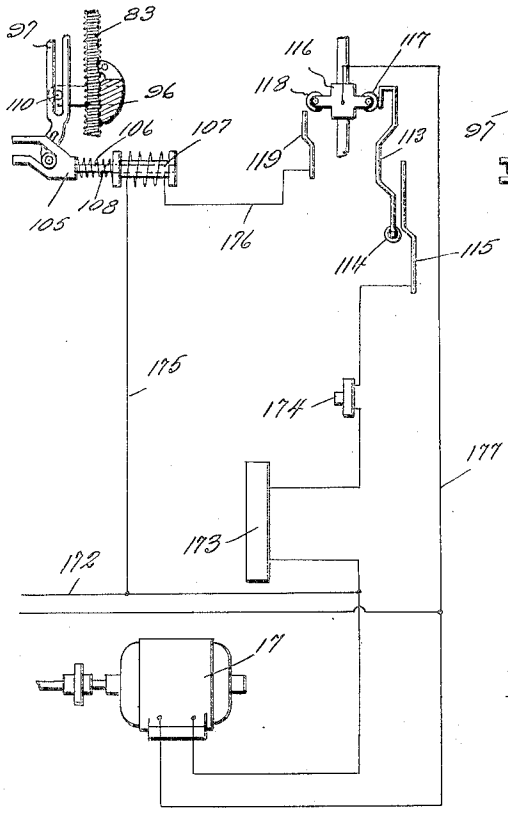


Fig. 26.

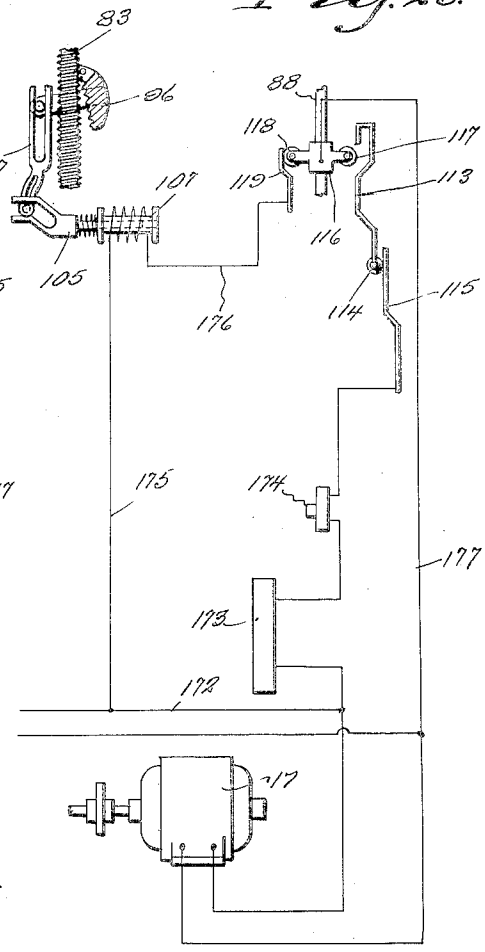


Fig. 27

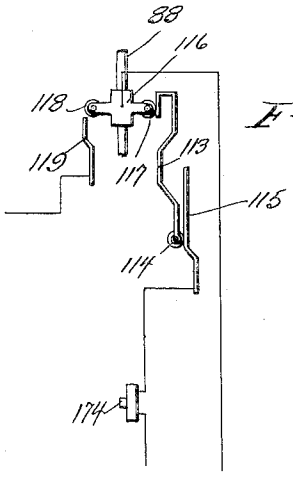
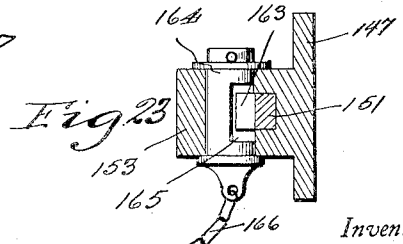


Fig. 23



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Patented Oct. 25, 1932

1,885,091

UNITED STATES PATENT OFFICE

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GASOLINE VENDING MACHINE

Application filed September 29, 1928. Serial No. 309,189.

The present invention relates to improvements in gasoline dispensing machines and has for its primary object to provide a machine wherein a predetermined amount of gasoline may be procured upon the insertion of the proper coin in said machine, thus obviating the necessity of an attendant having to operate the machine.

A further object is to provide a gasoline dispensing machine of the above mentioned character which includes a means for locking the valve associated with the discharge pipe of the tank for dispensing container during the filling of the tank, said locking means being released after a predetermined amount of gasoline has entered the tank.

A further object is to provide a gasoline vending machine which includes a pumping mechanism for supplying the tank with the liquid, said pumping mechanism being operable upon the insertion of a proper coin in the machine.

The weight of the liquid in the tank controlling mechanism for cutting off the pumping mechanism at a predetermined time thereby assures the proper amount being dispensed, depending upon the value of the coin inserted by the purchaser.

Still a further object is to provide a gasoline vending machine of the above mentioned character that includes a means for setting the pump operating means wherever the price of the gasoline varies, so that the customer will receive the proper amount of gasoline when a coin is inserted in the machine.

A further and important object of the present invention resides in the provision of an indicating means for association with the tank, whereby a customer may be appraised in regard to the amount of gasoline that is to be dispensed when a coin of a predetermined denomination is inserted.

A further object of the invention is to provide a vending machine wherein a tank is operatively associated with a cut-off mechanism for the pump, whereupon said pump will be rendered inoperative, when a predemined amount of gasoline is supplied to the tank, the weight of the liquid in the tank effecting the actuation of said cut-off means.

A further object is to provide a gasoline vending machine of the above mentioned character wherein means is provided for permitting the machine to be operated by an attendant in case the coin control mechanism becomes inoperative.

Another object of the invention is to provide a gasoline vending machine which will at all times be efficient and reliable in its operation, the same being further of a simplified construction, yet strong and durable.

Other objects of the invention will become apparent as the nature of the invention proceeds and when taken in connection with the accompanying drawings.

In the accompanying drawings, forming a part of this application and wherein like reference characters designate like parts throughout the views:

Figure 1 is a front elevation of my improved gasoline vending machine.

Figure 2 is a side elevation thereof.

Figure 3 is a vertical sectional view, taken approximately on the line 3—3 of Figure 1, for more clearly disclosing the tank, the supporting means therefor and the connection between the discharge pipe and said tank.

Figure 4 is a vertical sectional view, taken approximately on the line 4—4 of Figure 5, looking toward the rear of the machine.

Figure 5 is a sectional view, taken substantially on the line 5—5 of Figure 1, drawn on an enlarged scale and showing the normal position of the various movable parts arranged in the machine.

Figure 6 is a detail elevational view of the connection between the scale and the tank supporting rod and the movable trip unit operatively connected with the scale.

Figure 7 is a view, at right angles to Figure 6, looking at the front side of the scale.

Figure 8 is an enlarged detail elevational view of the tripping unit.

Figure 9 is a view looking at right angles with respect to Figure 8.

Figure 10 is a detail elevational view of the cam operating means.

Figure 11 is a detail top plan of the feeder that is fixedly secured on a shaft, and a co-

operating link that is loosely attached to said shaft.

Figure 12 is a fragmentary detail view of the yoke member and the cooperating slide.

Figure 13 is a sectional view, taken approximately on the line 13—13 of Figure 10, showing the relation between the cam follower, the cam arm and the yoke with its slide.

Figure 14 is a vertical sectional view, taken approximately on the line 14—14 of Figure 13.

Figure 15 is a cross sectional view through the pivoted arm, taken on the line 15—15 of Figure 13.

Figure 16 is a detail elevational view of the slidable carriage and the actuating means therefor.

Figure 17 is a view looking at the opposite side of the slidable carriage and its actuating means.

Figure 18 is a view taken at right angles to Figure 17.

Figure 19 is a sectional view of the carriage showing the same in its raised position and the controller element tripped.

Figure 20 is an elevational view of the valve actuating means, the housing therefor being shown in section.

Figure 21 is a detail of the nozzle on the discharge end of the hose showing the actuating handle mounted on said nozzle.

Figure 22 is a sectional view, taken approximately on the line 22—22 of Figure 20.

Figure 23 is a horizontal sectional view, taken substantially on the line 23—23 of Figure 22.

Figure 24 is a sectional view, taken substantially upon the line 24—24 of Figure 3, showing the valve stem and the actuating means therefor.

Figure 25 is a diagrammatic view showing the position of the parts of the second closing means when in their normal inoperative position.

Figure 26 is a similar view showing the position of the elements when the threaded follower associated with the movable carriage is disengaged from the feed screw.

Figure 27 is a diagrammatic detail view showing the manner in which the circuit to the pump is closed, and

Figure 28 is a detail of the coin release mechanism associated with each of the hand levers of the machine.

In the drawings, wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates a casing, within which is housed the actuating mechanism for the machine. The base or bottom of the casing is shown at 2. Arranged on top of the casing 1 is a cage denoted generally by the reference character 3 and arranged for vertical movement within the cage is the glass tank 4, that constitutes the measuring receptacle. The tank is visible through the cage. The glass tank 4 is supported on a supporting head 5, and the supporting bar 6 and is arranged for vertical slidable movement through the top of the casing 1 extending upwardly through the bottom neck portion 7 of the cage 3 and is connected at its upper end to the head 5.

A gasoline discharge pipe 8 has communication with the side of the tank 4 adjacent the bottom thereof and arranged in the discharge pipe 8 is a rotary valve unit, denoted generally by the reference character 10. The discharge pipe 8 extends through the slotted rear portion of the cage 3, and a suitable housing 9 is provided for the discharge pipe, and the valve as well as the actuating mechanism therefor. A gasoline outlet neck 11 extends downwardly from the housing 9 and the lower end of the discharge pipe 8 extends downwardly into the neck 11 as clearly suggested in Figure 20.

A flexible hose 12 is attached at one end to the lower end of the outlet neck 11, while attached to the other end of the hose is the nozzle 13. A supporting bracket 14 is arranged on the side of the casing 1, for receiving the nozzle 13, when the same is not in use, as suggested in Figures 1 and 2 of the drawings.

Upon referring to Figure 3 of the drawings, it will be observed that the rear lower portion of the cage 3 is cut out to permit the sliding movement of the horizontal portion of the angular discharge pipe 8 when the tank 4 is moved vertically. The gasoline is delivered to the tank 4 through the medium of a pipe 15, that extends through the top of the casing, the upper end of the pipe extending along the rear side of the cage 3 and having a downwardly disposed discharge nipple 15′ that extends through the top of the cage into the tank 4, as shown in Figure 3. A motor operated pump 16 is arranged in the bottom portion of the casing 1 for pumping the gasoline from a suitable source of supply through the pipe 15 into the tank 4 and an electric motor 17 is mounted on the base 2 for actuating the rotary pump. The means for starting and stopping the electric motor will be hereinafter more fully described. At the front side of the upper portion of the casing 1 is provided an opening 18, behind which is mounted a scale unit 19. The scale may be of any conventional construction, preferably of the type whereby the face of the scale dial will have double indications showing pounds and its equivalent in liquid measure from one half pound to the weight of five gallons. The scale will be equipped with a pair of indicating hands or pointers as shown in Figure 7, one of the hands being operated by the weight predetermining mechanism hereinafter to be more fully described.

Again referring to Figure 7, the indicating pointers are shown at 20 and 21 respectively.

The scale is visible through the opening 18. The purpose and operation of the scale unit will be presently apparent. With reference to Figure 1, it will be observed that the front wall of the casing 1 is formed with a plurality of coin receiving slots 22, for receiving coins of a predetermined denomination, and in the present instance, there are four coin slots provided for receiving coins of the value of five, ten, twenty-five, and fifty cents respectively. Immediately below the coin slots 22, the front wall of the casing is formed with the longitudinal slots 23, through which extends suitable hand levers 24. The outer end of each pivoted lever 24 is formed with an enlarged head 25, to facilitate actuating thereof during the use of the machine in dispensing gasoline.

A coin chute 26 extends downwardly from each coin slot 22, within the casing 1. The lower ends of these coin chutes extend into a coin receiving box 27, placed in the bottom portion of the casing for receiving the coins deposited in the machine, the coin chutes 26 being arranged directly in alignment with the respective slots 23. Associated with each coin chute adjacent its respective slot is a circular casing 28, within which is arranged a trip 29, shown in Figure 28, for releasing the rockable shaft 30, that extends centrally through the several casings and on which shaft is fixedly attached the inner end portion of each of the levers 24. An abutment 31 is formed on the shaft 30 for cooperation with each of the pivoted trips 29 to normally hold the levers 24 in a raised position, but the trip 29 is disposed in the path of movement of the coin, so that when the coin is deposited in the proper coin slot, it will, by gravity pass downwardly through the chute 26 and will engage the proper trip to release the same from its abutment whereupon the lever of this particular portion of the machine can be depressed to operate the dispensing mechanism.

The coin operating means will now be specifically described, and attention is particularly directed to Figures 4, 5, 10 and 13 respectively. A horizontally disposed shaft 32 is journaled in a suitable supporting structure 33 for disposition rearwardly of the coin chutes 26. An additional horizontal shaft 34 is mounted on the supporting structure 33 below and slightly forwardly of the shaft 32, as clearly suggested in Figure 5. A shaft 35 is supported directly in front of the shaft 32 and in alignment with a series of relatively small spur gears 36, secured on the shaft 35, at spaced intervals for meshing engagement with the segmental gears 37 secured on the shaft 32, and this arrangement is also shown very clearly in Figure 5, as well as in Figure 10. A plurality of spur gears 38 are mounted on the lower shaft 34, and these last mentioned gears or pinions cooperate with the teeth 39 formed at the lower end of each rack bar 40. A guide 41 is provided for each rack bar and the upper end of each rack bar is pivotally connected to the inner end of the respective levers 24 which are attached to the shaft 30.

In Figure 5 there is clearly illustrated the manner in which the levers 24 are operatively associated with the respective rack bars whereby said elements will operate simultaneously.

A plurality of segments 42 are carried by the several pinions 38 that are loosely mounted on the shaft 34. Adapted for association with each segment 42 is a lifting arm 43, the upper end of which is disposed horizontally for connection to a pair of vertically disposed rods 44, on the upper ends of which rods is mounted a yoke 45, the yoke being disposed horizontally and the rods extending through the spaced arms of the yoke as clearly shown in Figure 12. A steel tape 46 is attached at its upper end to the upper end of the segment 42 while at its lower end said tape is connected to the lower end of the adjacent lifting arm as shown in Figure 5. When the segment 42 is swung upwardly, the tape 46 will assume the position shown in Figure 10 and will obviously raise the respective lifting arm 43 so as to raise the rods 44 and the yoke supported thereon and at the same time, the rack bar 40 will move upwardly.

Arranged for slidable movement between the arms of the yoke 45 is the cross head 47, anti-friction rollers 48 being associated with the cross head for engagement with the inner opposed faces of the arms of the yoke 45.

The cross head 47 comprises a pair of spaced plates that are disposed at sides of the outer faces of the arms of the yoke and suitable connecting rods or bolts secure the plates together. Furthermore, these plates are formed with central registering openings for accommodating the pintle 49 that extends from one side of the pin follower 50 as suggested very clearly in Figure 13.

The cam follower 50 rides along the cam 51 and carried by each cam follower 50 is a stud 52 that is operable within the channel shaped pivoted arm 53, said arm being pivoted on the shaft 32, and having associated therewith a segmental gear 54. The cams are of all substantially the same construction, only differing from each other in their angular positions, and it is the angular positioning of the cams that governs the changing from one price to another. For instance, the cam for the five cent unit has an angle of four degrees to correspond to the value of gasoline at a certain price, the ten cent cam element would have an angle of eight degrees, the value of ten cents being twice that of a nickle.

The segmental gear 54 has meshing engagement with a similar segmental gear 55,

arranged directly behind the respective segmental gear 54, and being mounted on a horizontal shaft 56.

A lever 57 is associated with each of the segmental gears 55, for movement simultaneously therewith, and these levers extend rearwardly and downwardly as shown very clearly in Figure 5. The rear end of each lever 57 is operatively connected to the lower end of the vertically disposed rod 58, while the upper end of each rod 58 is connected to a lower rear end of a link 59, the forward upper end of said link being loosely connected to a horizontally disposed shaft 60 that is supported within the casing 1, at a point above the coin operating means just described.

Cooperating with each link 59 is a finger 61, that extends rearwardly from a sleeve 62, said sleeve being fixedly secured on the shaft 60, by the securing means shown at 63, in Figure 11.

As is further illustrated in this particular figure of the drawings, a lateral extension 64 is carried by the free end of each finger for disposition in the path of movement of the respective link 59.

A horizontal shaft 65 is supported below the shaft 60 and forwardly thereof, the supporting means for the shaft 60 being shown at 66. The shaft 65 has one end thereof extending through one side of the casing and terminates in a tool engaging portion 67.

A removable closure 68 is arranged over the tool engaging end of the shaft 65 for normally concealing the same. However, whenever it is necessary to operate the machine by hand, should the coin operating means become broken or otherwise inoperative, the closure 68 may be removed, and a suitable handle applied to the hand 67 for manually rotating the shaft 65.

A ratchet wheel 69 is secured on the shaft 65 for rotation therewith. A bell crank lever 70 is loosely mounted on the shaft 65 and the longer arm of said bell crank lever is operatively connected to the lower end of the lever 71 that is fixedly secured on the shaft 60 through the medium of a connecting link 72, as shown in Figure 5. A spring pressed pivotal pawl 73 is carried by the outer end of the other arm of the bell crank lever 70 for cooperation with the ratchet teeth 74 of the ratchet wheel 69 to turn the same and to actuate the shaft 65 in a counter-clockwise direction. The purpose of actuating the shaft 65 will also be presently described.

Associated with each cam 51 is a segmental gear 37, which has meshing therewith its respective pinion 36. This arrangement forms a part of the pipe fitting means and secured on one end of the shaft 35 is a gear 75, and the gear 75 has meshing engagement with the pinion 76 to which is attached a disc 77.

The disc 77 has arranged thereon the various prices of gasoline ranging from five cents to fifty cents and the price indicating indicia is visible through a sight opening 78 formed in one side of the casing 1, as shown in Figure 2. The disc 77 and its pinion 76 are mounted on a shaft which extends through the housing or casing and the outer end of the shaft is formed with a key engaging portion 79, for manually turning the disc at any predetermined position.

It is obvious that when the shaft 79 is turned the intermeshing gears 75 and 76 will be actuated to rotate the shaft 35 and the pinions 36 will cooperate with the segmental gears 37 to set the cams 51 at their proper positions.

The shaft 65 extends through suitable bearings provided therefor in a housing 80, which forms a part of the weight predetermining mechanism and arranged on the shaft 65 for rotation therewith is the worm 81, that has meshing engagement with a worm wheel 82 for driving the vertically disposed screw shaft 83, that is journaled in the housing 80 and extends upwardly through the top thereof. A bracket 84 is arranged on top of the housing 80 and the upper end of the screw shaft 83 is journaled in the top portion of the bracket as suggested very clearly in Figure 19.

A pair of spaced rods 85 extend upwardly from the top of the housing 80 through the top of the bracket 84 and arranged for slidable movement on the rods 85 are the sleeves 86 that are carried by a carriage 87. Arranged for vertical slidable movement through the carriage 87 is the circuit controlling bar 88, and as is clearly shown in the drawings, pins 89 project from this bar and cooperating with these pins is a dog 90 carried by a pivoted latch 91, pivotally supported on the carriage as at 92. This latch includes laterally extending upwardly inclined fingers 93 on the outer end of which is supported a roller 94. The latch is limited in its downward swinging movement by means of the depending leg 95 that engages with the outer face of the carriage 87. The pins 89 are vertically spaced apart a predetermined distance, in order to permit the proper functioning of the dog 90 carried by the pivoted latch 91, and when the dog is in engagement with one of the pins, the circuit controlling bar 88 is supported in the manner shown in Figure 16. The means for releasing the dog from the pin carrying bar 88 will be presently described.

Carried by the inner side of the carriage 87 for cooperation with the feed screw 83 is the pivoted threaded follower 96, and in Figure 19 of the drawings, there is clearly illustrated the manner in which the threaded follower 96 engages with the feed screw 93 to effect the raising of the carriage 87.

The means for releasing the threaded follower 96 from engagement with the feed

screw 83 comprises a vertically disposed slotted bar 97 that is formed with a longitudinal slot 98, for the major portion of its length. The upper end of this bar terminates in the slightly curved and slotted ear 99 that cooperates with the pin 100 projecting laterally from the top of the bracket 84. A reversely curved apertured slotted ear 101 is formed on the bottom end of the slotted bar 97 for cooperation with a similarly laterally projecting pin 102 arranged at the bottom of the bracket. In addition, a finger 103 extends downwardly from the curved slotted ear 101 and is adapted to carry a roller 104 for cooperation with a cam 105, that is supported on the plunger 106 of a solenoid 107 that is secured on the outside of the housing 80 as suggested very clearly in Figure 16. A coil spring 108 encircles the plunger 106 for normally urging the same outwardly to the position shown in Figure 16.

Extending laterally from the pivoted threaded follower 96, adjacent the feed screw 93 is the arm 109 and this arm is positioned across the slotted bar 97 and carries on its outer end a roller 110, that is operable within the slot 98 as is clearly shown in Figure 16.

The manner in which these elements cooperate to swing the pivoted threaded follower out of engagement with the feed screw 83 to an inoperative position will be presently apparent.

Supported on the top of the bracket 84 is a shaft 111 and an arm 112 is fixedly attached at its inner end to the shaft for actuating the same, the outer end of said arm being weighted and furtherfore being disposed in the path of movement of the vertically movable carriage 87. The purpose of the shaft 111 will also be presently set forth in detail.

Carried by the carriage 87 for movement therewith is the downwardly extending arm 113, a roller 114 is carried by the lower end of this arm 113, for cooperation with the contact 115. Carried by the vertically movable circuit controlling bar 88 and insulated therefrom is the cross head 116 that carries on its opposite end the rollers 117 and 118 for engagement with the contact arm 113 and the contact 119 respectively at different times, also in the manner to be hereinafter more fully described.

A shelf or bracket 120 is attached to the housing 80 for disposition below the carriage 87, whereby to provide a stop for limiting the downward sliding movement of the circuit controlling bar 88.

The solenoid 107 is attached to the side of the housing 80 in the manner as shown in Figure 16 and the spring plunger 106 associated with said solenoid carries the cam 105, as stated.

The weighing mechanism includes in addition to the tank supporting rod 6 a pointer actuating arm 121, that is associated with the scale unit 19 and the lower end of the depending arm is formed with an eye 122 with which engages the hooked upper end 123 of a bar 124.

This bar is arranged for vertical slidable movement within a supporting frame 125, and the frame is carried by the bracket 126 that is attached to the casing 1. The guides through which the bar 124 is slidable are shown at 127. A weight 128 is detachably connected to the lower end of the bar 124, while the intermediate portion of said bar is formed with the transversely disposed rack teeth 129 as is more clearly illustrated in Figure 9 of the drawings.

A lever 130 is pivotally supported intermediate its ends on the upper portion of the bracket 126 as at 131. The inner end of the lever 130 is operatively connected to the lower end of the tank supporting rod 6.

Carried by the lever 130 is a slidable poise or weight for counter-balancing the glass tank 4 and this feature is denoted generally by the reference character 132.

An additional lever 133 is pivotally supported adjacent its outer end on the supporting bracket 126 as at 134., A link 135 operatively connects the outer end of the upper and lower levers 130 and 133 respectively, while the inner end of the lower lever 133 is operatively connected with the upper end portion of the vertically movable rack bar 124, as at 136. This arrangement is clearly shown in Figure 6 of the drawings. A shaft 137 is journalled for rotation on the frame 135, and by the inner end of the said shaft is a pinion 138 that engages with the teeth 129 formed in the offset intermediate portion of the sliding bar 124. A spur gear of relatively large diameter and denoted by the reference character 139 is secured on the other end portion of the shaft 137 and this gear has meshing engagement with the sliding rack bar 140, that is operable within suitable guides 141 provided therefor on the frame 125 as suggested in Figure 9.

In Figure 8 there is clearly illustrated the manner in which the gear 139 cooperates with the sliding rack bar 140.

Carried by the outer face of the sliding rack bar 140 is a roller 142, that is adapted to cooperate with the pivoted latch 91 that is associated with the movable carriage 87 and the particular manner in which the roller 142 cooperates with the pivoted latch 91 will be presently described in detail.

The weighing mechanism just described is located adjacent the weight predetermining mechanism as shown very clearly in Figure 4.

The valve stem that is associated with the rotary valve unit 10 is shown at 143 and said stem extends upwardly from the body of the valve for an appreciable distance. The valve stem is of rectangular shape and is slidable

through the rectangular shaped bore of a sleeve 144 that is journaled for rotation within a bearing 145.

A bevelled gear 146 is carried by the upper end of the sleeve 144, as clearly shown in Figure 24. The bearing 145 is carried by a plate 147 that is arranged within the housing 9 and is preferably secured to the rear wall of the cage 3. A horizontally disposed shaft 148 is journaled for rotation on the plate 147 and secured on one end of the shaft 148 is the bevelled gear 149 that has meshing engagement with the bevelled gear 146 as shown in Figures 20 and 24 respectively. A pinion 150 is secured on the other end of the shaft 148 for cooperation with the transverse teeth of the vertically movable rack bar 151 that is arranged for slidable movement on the plate 147. A retractile coil spring 152 is secured at its upper end within the housing and at its lower end to the sliding rack bar 151, for normally maintaining said rack bar in its raised position.

The lower portion of the rack bar slides through a housing 153 associated with the lower portion of the plate 147, in the manner as more clearly suggested in Figure 22. A pin 154 extends transversely through the lower portion of the sliding rack bar 151, for engagement with the bottom of the housing 153, to limit the upward sliding movement of said rack bar.

A flexible actuating cable 155 is attached at its upper end to the lower end of the rack bar 151, and said cable extends downwardly through a flexible conduit 156, that is attached to the hose 12, by a suitable clip 157, as shown in Figures 2 and 21. The other end of the flexible cable 155 is attached to an apertured ear 158, that extends radially from the inner side of a hub 159, that is supported on the pin 160. This pin extends transversely through the outer ends of the pair of spaced ears or lugs 161 formed on the nozzle 13 and a handle 162, extending from the outer side portion of the hub 159 and is directed downwardly so that when said handle is pushed inwardly toward the nozzle 13, the cable 155 will be actuated to move the rack bar 151 downwardly whereby to transmit rotary movement to the valve stem 143 and permit the discharge of the gasoline from the tank 4 into the hose 12, for filling an automobile tank or the like.

The invention further comprehends the provision of means for locking the rack bars 151 against movement in a downward direction, and to this end the rack bar is formed with a cut out portion 163 adjacent the lower end thereof with which cooperates the turning plug 164, that is supported within a transverse bore formed in the housing 153 and which bore intersects the vertical opening in the housing through which the rack bar 161 is operable. Upon referring to Figure 23, it will be observed that the turning plug 164 is cut out as at 165, and when the cut out portions are in communication with each other, a rack bar is unlocked and can be lowered and raised. However, when the solid portion of the turning plug 164 is disposed within the cut out portion 163, the rack bar 151 is limited in its sliding movement so that the valve 10 cannot be opened to discharge the gasoline from the tank 4 into the hose 12.

A flexible connection in the form of a chain 166 is arranged between one end of the turning plug 164 and a flexible shaft 111 whereby said plug will be actuated when the shaft 111 is operated. A conduit 167 is provided for the flexible shaft 111 as more clearly illustrated in Figure 18.

Also forming an important part of the present invention is the secondary hand actuating means and to this end, there is provided a pinion 168, for association with the secondary hand 20 of the scale unit 19 and cooperating with the pinion 168 is the rack bar 169 that is operable within suitable bearings.

A flexible connection in the form of a cable 170 is arranged between the rack bar 169 and the movable carriage 87 and this cable is trained over a guide pulley 171 that is attached on the housing 80. This construction will enable the person using the machine to readily ascertain exactly how much gasoline he will obtain for the amount of money that has been inserted in the machine.

The current to the motor 17 is supplied by the feed lines 172 that extend from a suitable source of supply (not shown) and arranged within the circuit is a motor starting and relay switch 173. A starting button 174 is mounted on the front wall of the casing, as shown in Figure 1.

A wire 175 connects the solenoid 107 with the feed line 172, and in addition this solenoid is connected with a contact 119 by a wire 176. The contact carrying head 116 is connected with the motor 17 by the wire 177, while the contact 115 is electrically connected with the motor starting switch 173 which switch is in turn associated with the motor 17 as illustrated in the wiring diagram in Figures 25 and 26.

A brief description of the operation of my gasoline vending machine is as follows: When the machine is operated by means of depositing a coin in a predetermined one of the coin slots 22, the shaft 30 will be unlocked, whereby the handle 24 may be pushed downwardly in the slot 23, to actuate the rack bar 40 and this rack bar will operate a cam mechanism which in turn will actuate the ratchet wheel 69 and the actuation of the ratchet wheel and the shaft 65 will cause the carriage 87 to move upwardly by reason of the feed screw cooperating with the pivoted threaded follower

carried by the carriage. The carriage moves upwardly a distance, which will correspond in weight to the amount, a certain coin of predetermined value will purchase in liquid measure. The weight predetermining device will actuate the secondary indicating hand, thus indicating to the customer the exact amount of gasoline that will be obtained, depending upon the amount of money inserted in the machine.

A pressure on the push button 174 will start the motor 17 operating the pump 16 for supplying the tank full of gasoline. When the proper amount of gasoline has been supplied to the tank 4, the weight of the gasoline in the tank will actuate the rod 6 to operate the pivoted levers, which, in turn will actuate the rack bar 124 and this rack bar will in turn actuate the rack bar 140 so that the roller 142 will cooperate with the roller 94 of the latch 91 to trip the dog 90 whereupon the circuit controlling bar 88 will by gravity drop downwardly and until the pin 89 strikes the top of the carriage 87 as shown in Figure 19.

When the exact amount of gasoline in pounds has been weighed by the scale corresponding to the amount predetermined indicated by the secondary pointer on the scale dial, the main indicator hand 21 will come to the exact point indicated by the secondary pointer hand 20 and at this position, that latch is tripped to break the circuit to the motor cutting off the supply of gasoline to the tank.

Upon referring to Figure 25, it will be observed that the circuit to the motor is opened, while in Figure 27, the circuit to the motor is closed. In Figure 26, the circuit to the solenoid is closed, while the slotted bar 97 will be actuated to disengage the threaded follower 96 from the feed screw, whereupon the carriage 87 will by gravity drop to its normally lowered position.

During the operation of the machine, the carriage 87 will strike the weighted arm 112 that is associated with the flexible shaft 111 to actuate the same, whereby to bring the turning plug 164 into locking engagement with the rack bar 151, so that during the filling of the gasoline tank 4, the discharge valve cannot be opened to permit the draining of the tank. However, when the carriage returns to its normal position, the weighted arm 112 will again drop causing the turning plug to be actuated, and to move the same to the position shown in Figure 23, so that the cut out portions 165 and 163 will communicate with each other, thus enabling the handle 162 to be actuated to open the valve in order to discharge the gasoline from the tank 4 into the automobile tank that is to be filled.

It is of course to be understood that any well known type of magnetic means may be associated with the coin plug to eject slugs and the like, and also suitable slot closures may be provided for the respective coin slots.

The provision of a gasoline vending machine of the above mentioned character will enable an automobilist to obtain gasoline whenever necessary and without requiring the attention of an attendant, it being only necessary that the driver of the automobile seeking the gasoline have the proper change to insert in the machine in order to purchase the desired amount of gasoline. The gasoline vending machine further is of such construction as to permit the parts to be readily and easily adjusted dependent upon the variations in the selling price of the gasoline, and in case of emergency, the machine can be operated by hand, where the coin mechanism becomes inoperative. A vending machine of this character can be constructed at a low cost and the same will at all times be positive and efficient in its operation.

While I have shown the preferred embodiment of my invention, it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the appended claims.

What is claimed is:

1. A liquid vending machine comprising in combination, a vertically movable tank, a motor operating pump for supplying a liquid to the tank, means for closing the circuit to the pump, mechanism controlled by the weight of the liquid in the tank for breaking the circuit to the motor, for cutting off the supply of the liquid to the tank after a predetermined amount has entered said tank, an additional means for effecting the return of the first mentioned means to its normal position subsequent to the breaking of the circuit to the motor.

2. A liquid vending machine comprising in combination, a tank, a scale, primary and secondary indicator pointers associated with the scale, means for setting the secondary indicator pointer to indicate the amount of gasoline an inserted coin will purchase, means for supplying a fluid to the tank, mechanism controlled by the weight of the liquid in the tank for cutting off the supply after a predetermined amount has entered the tank, said primary indicator hand noting the contents of the tank as the same is gradually filled, and a discharge pipe associated with the tank, a valve in the discharge pipe, actuating means therefor, and means for locking the valve in a closed position during the filling of the tank.

3. A liquid vending machine comprising in combination, a vertically movable tank, an electric motor operated pump for supplying a liquid to the tank, an electric circuit including said motor, means for closing the circuit to the motor for actuating the pump, mechanism controlled by the weight of the liquid in the tank for breaking a circuit to

the motor to cut off the further supply of liquid to the tank, additional means for effecting the return of the first mentioned means to its normally lowered position subsequent to the breaking of the circuit to the motor, said first mentioned means comprising a circuit controlling bar, a movable carriage supporting the same.

4. A liquid vending machine comprising in combination, a tank, means for supplying a liquid thereto, a mechanism controlled by the weight of the liquid in the tank for cutting off the further supply to the tank after a predetermined amount has entered said tank, and a scale operatively associated with the tank and said means for indicating the amount of liquid in the tank and the amount of liquid that is to be dispensed, respectively.

5. A liquid vending machine comprising in combination, a tank, means for supplying a liquid thereto, a mechanism controlled by the weight of the liquid in the tank for cutting off the further supply to the tank after a predetermined amount has entered said tank, and a scale operatively associated with the tank and said means for indicating the amount of liquid in the tank and the amount that is to be dispensed, respectively.

6. A liquid vending machine comprising in combination, a tank, means for supplying a liquid to the tank, a discharge pipe connected with the tank, a valve in the discharge pipe, actuating means therefor, means for locking the actuating means to prevent the actuation of the valve during the filling of the tank, and means for actuating the locking mechanism operable co-incident with the means for supplying the tank with a liquid.

7. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a rotatable shaft, actuating means therefor, a vertically movable carriage, means operable by the shaft for actuating the carriage, a circuit controlling bar carried by the carriage for closing the circuit to the motor when the carriage moves upwardly, a mechanism controlled by the weight of the liquid in said tank for actuating the circuit controlling bar, to break the circuit to the motor.

8. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a rotatable shaft, actuating means therefor, a vertically movable carriage, means operable by the shaft for actuating the carriage, a circuit controlling bar carried by the carriage for closing the circuit to the motor when the carriage moves upwardly, a mechanism controlled by the weight of the liquid in said tank for actuating the circuit controlling bar, to break the circuit to the motor, and means operable with the release of the circuit controlling bar to release the carriage and permit the same to drop to its normally lowered position.

9. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a vertically movable carriage, a vertically movable circuit controlling bar mounted on the carriage, a latch for holding the circuit controlling bar in a raised position, means for raising the carriage, means for closing the circuit to the motor when the carriage reaches a predetermined raised position, the mechanism controlled by the weight of the liquid in the tank for releasing the latch to drop the circuit controlling bar and simultaneously breaking the circuit to the motor to cut off the further supply to the tank.

10. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a vertically movable carriage, a vertically movable circuit controlling bar mounted on the carriage, a latch for holding the circuit controlling bar in a raised position, means for raising the carriage, means for closing the circuit to the motor when the carriage reaches a predetermined raised position, the mechanism controlled by the weight of the liquid in the tank for releasing the latch to drop the circuit controlling bar and simultaneously breaking the circuit to the motor to cut off the further supply to the tank, and additional means cooperating with the aforesaid mechanism and the circuit controlling bar to effect the lowering of the carriage to its normal position.

11. A liquid vending machine comprising in combination a tank, an electric motor operated pump for supplying liquid to the tank, a vertically movable carriage, a vertically movable circuit controlling bar mounted on the carriage, a latch for holding the circuit controlling bar in a raised portion, means for raising the carriage, means for closing the circuit to the motor when the carriage reaches a predetermined raised position, the mechanism controlled by the weight of the liquid in the tank for releasing the latch to drop the circuit controlling bar and simultaneously breaking the circuit to the motor to cut off the further supply to the tank, said mechanism including a vertically movable tripping member adapted for engagement with the latch to move the same to an inoperative position.

12. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a vertically movable carriage, a vertically movable circuit controlling bar mounted on the carriage, a latch for holding the circuit controlling bar to a raised position, means for raising the carriage, means for closing the circuit to the motor when the carriage reaches a predetermined raised position, the

mechanism controlled by the weight of the liquid in the tank for releasing the latch to drop the circuit controlling bar and simultaneously breaking the circuit to the motor to cut off the further supply to the tank, said mechanism including a vertically movable tripping member adapted for engagement with the latch to move the same to an inoperative position, the elevating means for the carriage comprising a rotatable feed screw, and a threaded follower carried by the carriage for engagement with the feed screw.

13. A liquid vending machine comprising in combination, a tank, an electric motor operated pump for supplying liquid to the tank, a vertically movable carriage, a vertically movable circuit controlling bar mounted on the carriage, a latch for holding the circuit controlling bar in a raised position, means for raising the carriage, means for closing the circuit to the motor when the carriage reaches a predetermined raised position, the mechanism controlled by the weight of the liquid in the tank for releasing the latch to drop the circuit controlling bar and simultaneously breaking the circuit to the motor to cut off the further supply to the tank, said mechanism including a vertically movable tripping member adapted for engagement with the latch to move the same to an inoperative position, the elevating means for the carriage comprising a rotatable feed screw, and a threaded follower carried by the carriage for engagement with the feed screw, the threaded follower being pivotally associated with the carriage, and electrically operated means for moving the threaded follower out of engagement with the feed screw simultaneously with the breaking of the circuit to the motor operated pump, the carriage returning to its normal lowered position by gravity.

14. A liquid vending machine comprising, in combination, a casing, a tank arranged on the casing, an electrically operated pump for supplying the liquid to the tank, a movable carriage, a circuit controlling bar carried by the carriage for closing the circuit to the motor operated pump when the carriage is in a predetermined position, and mechanism controlled by the weight of the liquid in the tank for actuating the circuit controlling bar to break the circuit to the motor to cut off further supply of the liquid.

15. A liquid vending machine comprising, in combination, a casing, a tank arranged on the casing, an electrically operated pump for supplying the liquid to the tank, a movable carriage, a circuit controlling bar carried by the carriage for closing the circuit to the motor operated pump when the carriage is in a predetermined position, and mechanism controlled by the weight of the liquid in the tank for actuating the circuit controlling bar to break the circuit to the motor to cut off further supply of the liquid, and electrically operated means for releasing the carriage from its raised position to permit the same to return to its normally lowered position by gravity, simultaneous with the opening of the circuit to the pump.

16. A liquid vending machine comprising, in combination, a casing, a tank arranged on the casing, an electrically operated pump for supplying the liquid to the tank, a movable carriage, a circuit controlling bar carried by the carriage for closing the circuit to the motor operated pump when the carriage is in a predetermined position, and mechanism controlled by the weight of the liquid in the tank for actuating the circuit controlling bar to break the circuit to the motor to cut off further supply of the liquid, a scale mounted on the casing, and indicator means associated with the scale for denoting the amount of fluid entering the tank.

In testimony whereof I affix my signature.

MERTON W. FARNHAM.