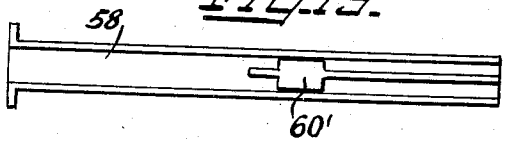
Oct. 15, 1940. S. E. FRUITT 2,218,103

SELF-SERVICE LIQUID DISPENSING DEVICE

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Fig. 13.



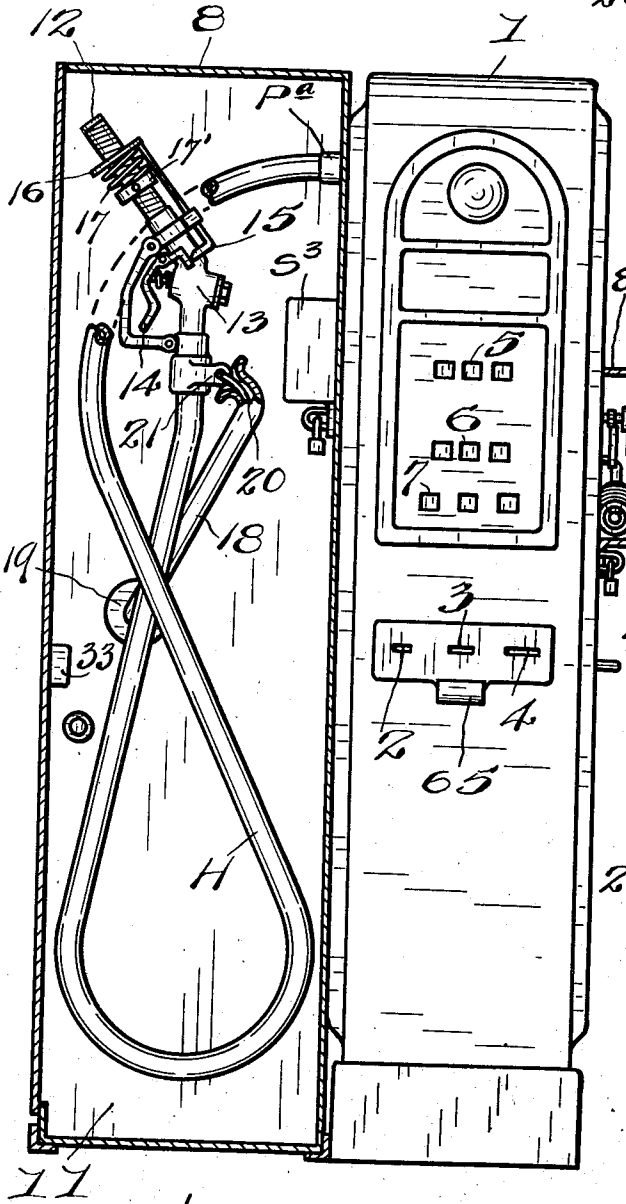


Fig. 1

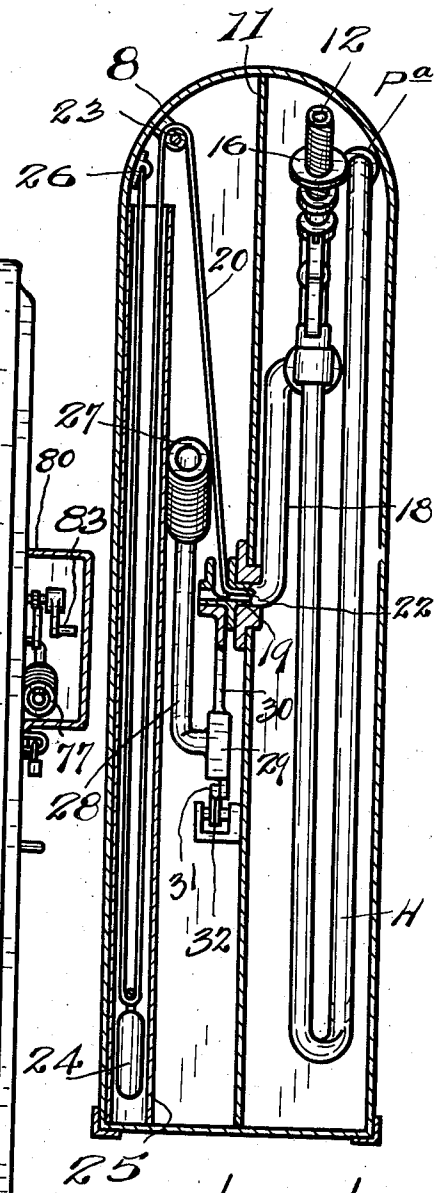


Fig. 2

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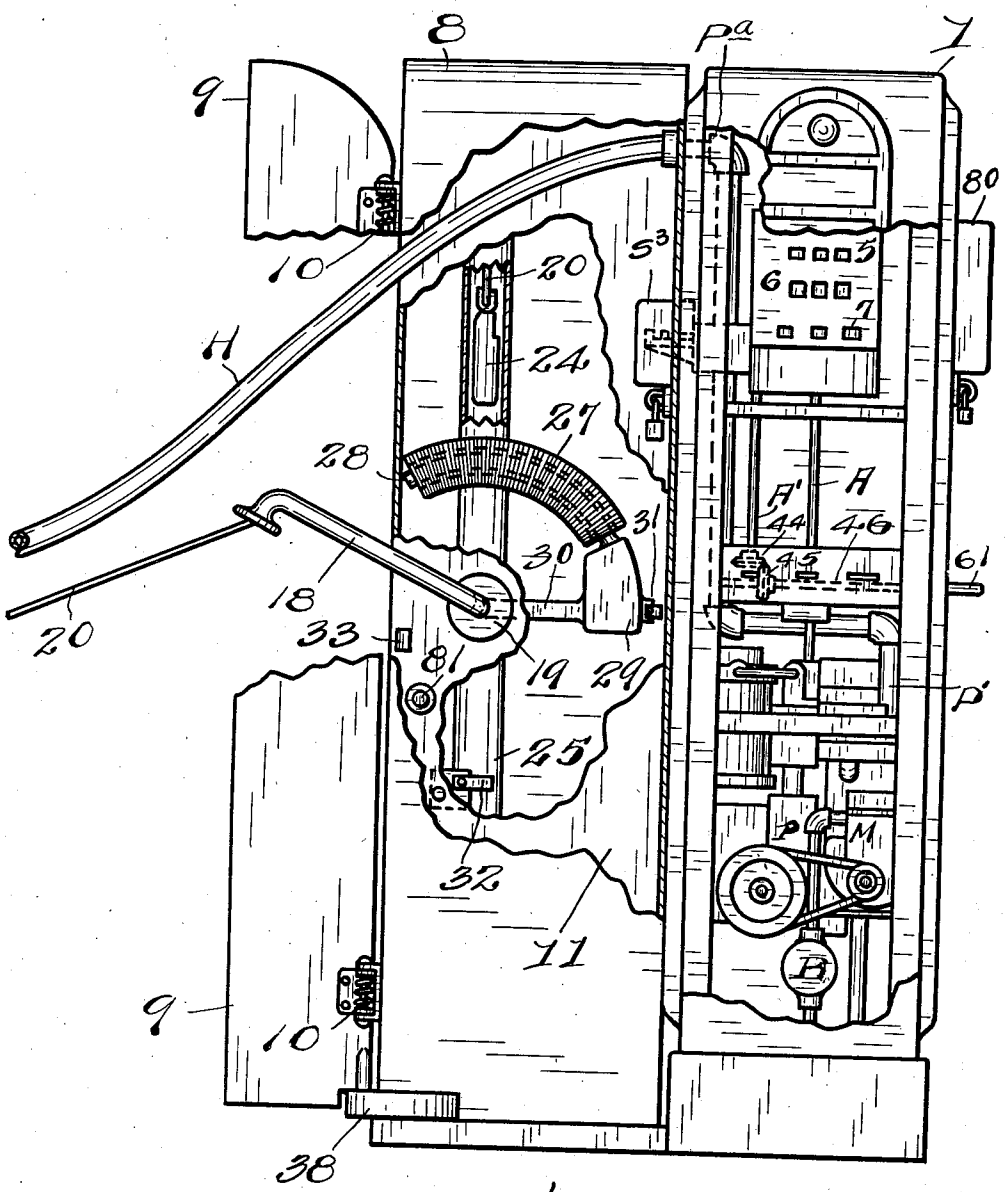


Fig. 3

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SELF-SERVICE LIQUID DISPENSING DEVICE

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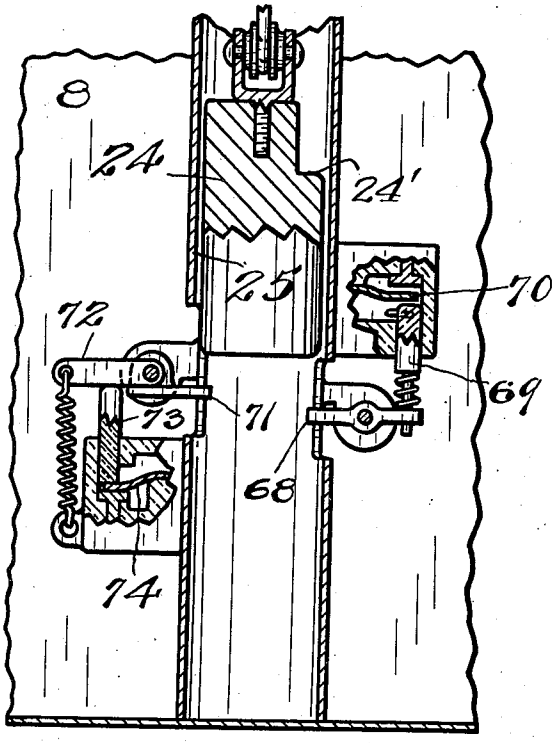


Fig. 4

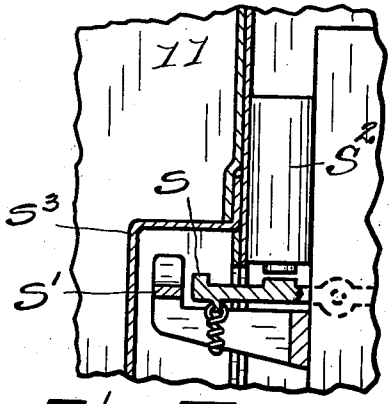


Fig. 5

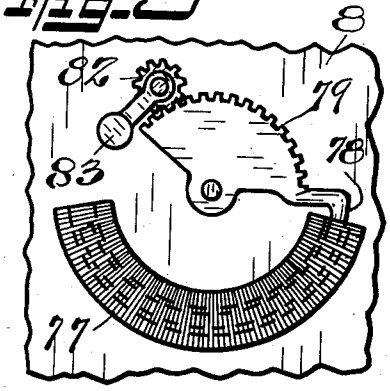


Fig. 6

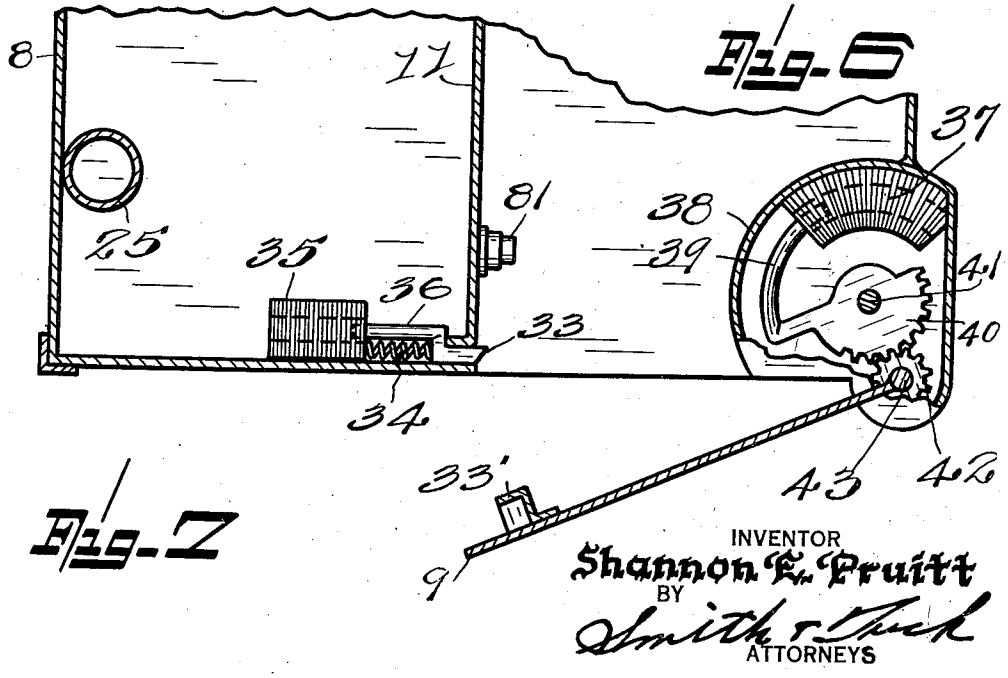


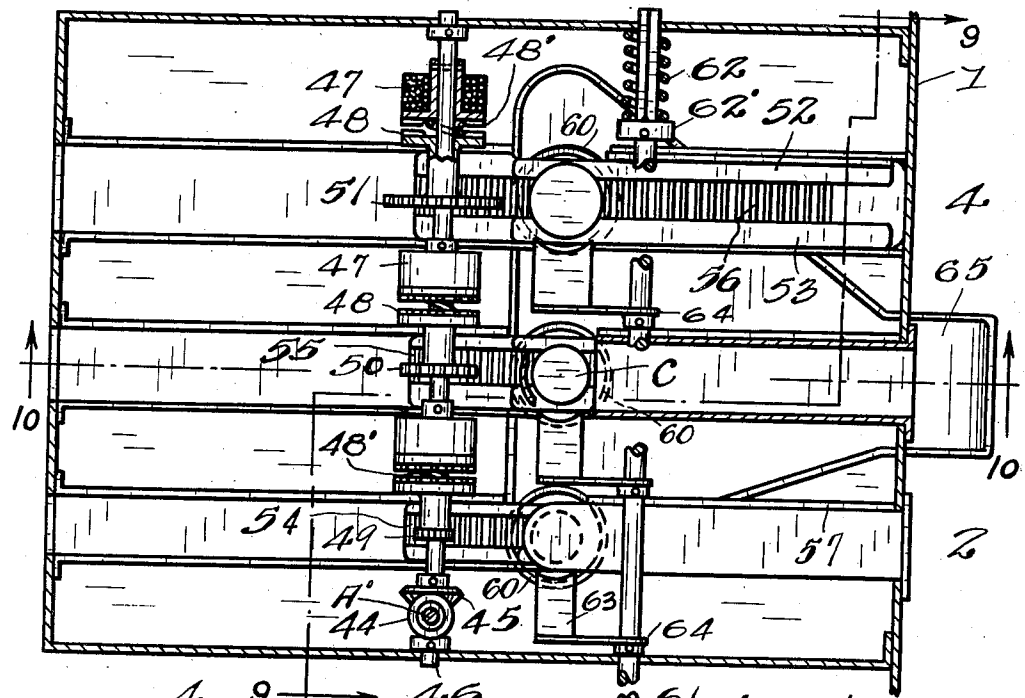
Fig. 7

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SELF-SERVICE LIQUID DISPENSING DEVICE

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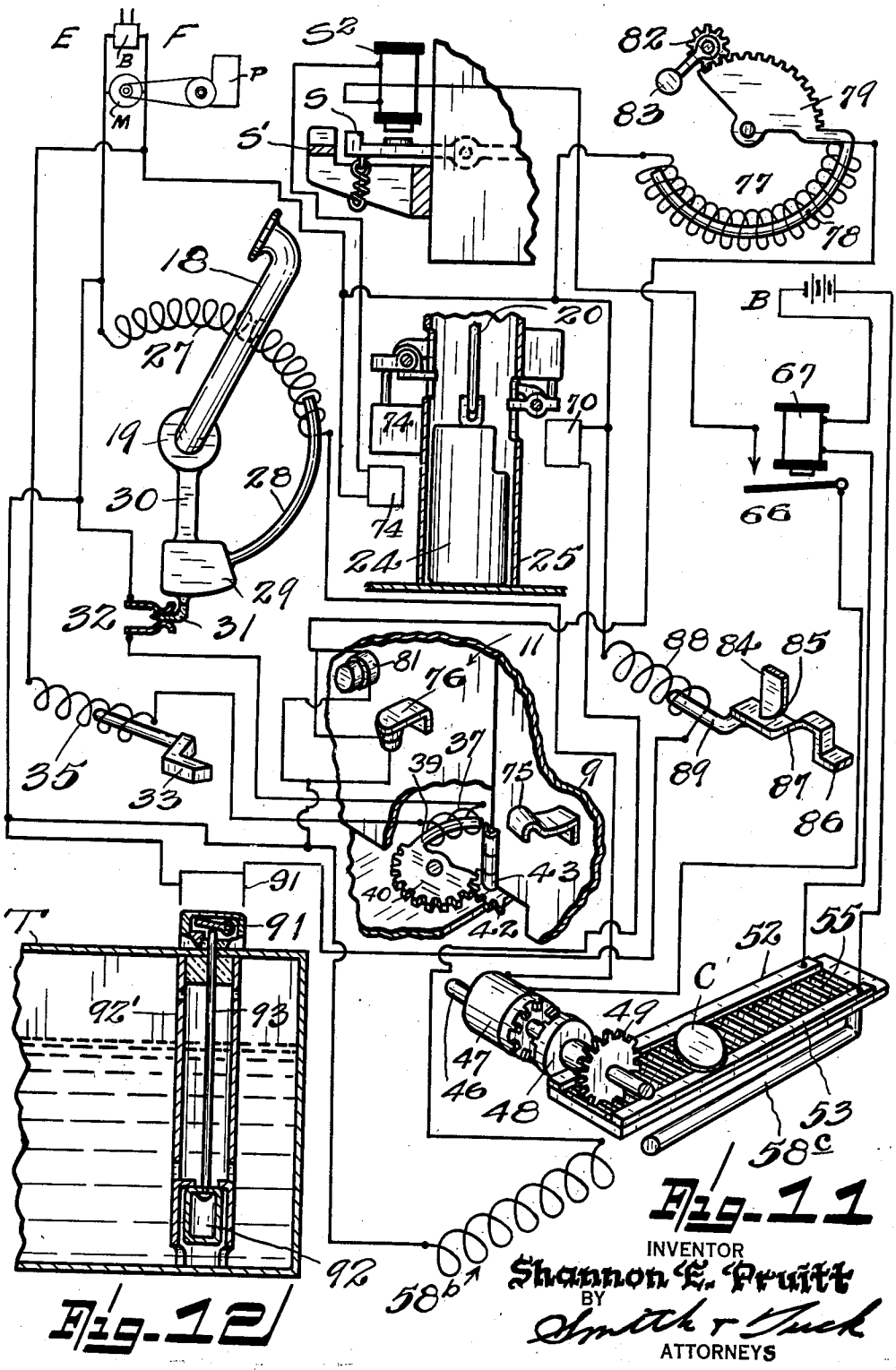


Fig. 12

Fig. 11

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Patented Oct. 15, 1940 2,218,103

UNITED STATES PATENT OFFICE

2,218,103

SELF-SERVICE LIQUID DISPENSING DEVICE

Shannon E. Pruitt, Los Angeles, Calif., assignor of one-half to Edward Byrd Pierce, Los Angeles, Calif.

Application June 9, 1936, Serial No. 84,342

2 Claims. (Cl. 194—6)

My present invention relates to an improved self-service liquid dispensing apparatus of the coin controlled, anomalous fluid delivery type, which is automatically controlled and electrically operated for the sale of fluids or liquids. While the apparatus of my invention is well adapted for dispensing various fluids or liquids, it is especially designed for selling and dispensing gasoline, and while I shall hereinafter refer to the use of the apparatus in the sale of gasoline, it will be understood that other similar commodities may be dispensed by the apparatus. As is well known the general trend of merchandising is toward a service arrangement that will permit of handling commodities with the minimum of expense, thus making it possible for the consumer to have the merchandise at the minimum price, and following this general trend I have provided a self-service liquid dispensing apparatus which is especially adapted for selling and dispensing gasoline to motorists.

With the apparatus of my invention it is practicable to provide single units at comparatively small roadside locations, and which units, because of the limited initial investment together with a slight overhead cost due to the absence of an attendant, can be distributed at frequent intervals along the highways. The units may also be used in a group with the grouped apparatus arranged and positioned so that cars may draw up in front of the apparatus, and the driver of a car may serve himself. In such an arrangement of the apparatus in a group, it is easily possible to maintain the attendance of one or more service men to take care of unusual conditions that might arise, and to explain the use of the apparatus, with a minimum overhead expense. Such an arrangement is distinguished from the present day superservice stations for dispensing gasoline, in that one or two attendants could take care of a comparatively large number of the dispensing units and thus effect the purpose of the units, namely, that of selling motor fuel, lubricating oil, or other liquid commodity, in large quantities at a minimum of expense.

In order to produce a dispensing apparatus that is suitable for self-service there are many conditions and factors that must successfully be met, as for instance, the apparatus must be operable by the customer with a minimum of instructions; and the apparatus must be free from the factor of mal-functioning or failure to operate, with the assurance of the return of his purchase price in the event of failure to operate. Means are provided against the insertion of a coin into the apparatus in the event the latter is out of working order, or when there is not a sufficient supply of gasoline to fill an order, and means are also provided whereby the apparatus is inaccessible for use under fraudulent conditions and is only accessible for use after deposit of the required coin complementary to the desired quantity of gasoline to be purchased.

In carrying out my invention the apparatus is readily adapted for use with standard types of computing pumps such as those disclosed in Patents Nos. 1,439,163 and 1,888,533, and the coin control mechanism of my apparatus may be operated, as by a train of gears, by and with the driving shaft of the computing mechanism of the pump for controlling the operation of the pump. The dispensing hose and nozzle of the apparatus, when not in use, are confined in a tamper-proof casing, housing, or cabinet provided with an automatically operating door, which is released and opened, and also closed, at proper times and under correct conditions, and the nozzle of the hose is provided with a safety device to prevent accidental discharge of gasoline from the nozzle. Other meritorious features are embodied in the apparatus, as will hereinafter be more fully set forth and described.

In the accompanying drawings I have illustrated the apparatus in use with a standard pumping system, and computing mechanism to indicate the purchase price, the quantity of gasoline in gallons, and the price per gallon of the gasoline being sold, but it will be understood that various changes and alterations may be made in the exemplifying structures of the drawings, within the scope of my claims, without departing from the principles of my invention.

Figure 1 is a view in elevation of a standard pumping and computing mechanism, showing also the enclosing cabinet in section for the hose and nozzle, and other parts of the apparatus.

Figure 2 is a vertical sectional view of the hose-cabinet with parts enclosed therein, as seen from the left in Figure 1.

Figure 3 is a view similar to Figure 1, but with parts broken away, and some parts in section, to disclose the interior arrangement of the apparatus, and with the door of the hose-cabinet open and the hose withdrawn therefrom.

Figure 4 is an enlarged, detail, vertical sectional view of part of the hose-cabinet disclosing electric circuit closers that are operated by movement of the counterbalancing weight of the hose.

Figure 5 is a detail view of the main electric switch of the pumping mechanism.

Figure 6 is a detail view of the electrically operated (or manually operated) means for resetting the registering and computing mechanism to neutral position after a sale.

Figure 7 is a horizontal sectional view of part of the hose-cabinet, with the door open, and illustrating the electrically operated release latch for the spring-opened door, together with the electro-magnetic means for closing the door.

Figure 8 is a horizontal sectional view through the pump-housing, disclosing the coin control mechanism comprising three units which may be adapted for control through the use of a silver dollar, a half-dollar, and a quarter.

Figure 9 is a vertical sectional view at line 9—9 of Figure 8 showing the three coin-control slides and one of the operating means, together with a coin-ejector, and showing also one of the emergency coin-stops used in a coin chute.

Figure 10 is a detail vertical sectional view at line 10—10 of Figure 8 of the half-dollar coin-control unit.

Figure 11 is a diagrammatical view showing the electric controls and connections for the interrelated mechanical devices of the apparatus.

Figure 12 is a vertical sectional view of a portion of the gasoline supply tank, usually underground, indicating a float-controlled, emergency, circuit breaker, operable in the absence of a sufficient supply of gasoline to be dispensed.

In order that the utility of parts, and the general arrangement of parts may readily be understood, I have indicated in Figures 1 and 3 a standard pumping mechanism including the electric motor M, and the pump P, which lifts the gasoline from the tank T in Figure 12, through pipe P′ of Figure 3 to the connection P*a*, and thence to the hose H of suitable length. The electric power lines E and F of Figure 11 are brought to the junction box B in Figure 3 and distributed therefrom to the various electrically operated devices of the apparatus. In Figure 3 a central upright operating shaft A rises from the driving mechanism of the motor to transmit power to the computing and indicating mechanism, and the parallel, upright drive shaft A′ is revolved in connection with the computing mechanism, to operate the coin-controlled mechanism of the dispensing apparatus.

The pumping mechanism and the computing and indicating mechanism are confined within a usual housing 1, and the slots for the coin chutes 2, 3, and 4 open at the front exterior of the housing, for depositing the desired coin, as a dollar, half-dollar and a quarter-dollar. The slots for the computing and indicating mechanism are shown at the exterior in Figure 1, the slot 5 discloses the record of the amount of sales in dollars and cents; 6 discloses the quantity of gasoline in gallons and tenths; and slot 7 discloses the price per gallon of the gasoline.

With the pumping housing 1 I combine a hose-cabinet 8 having a front door 9 which is automatically closed by its spring hinges 10, and an upright partition 11 divides the cabinet into a front and rear compartment, the former for the hose H and its carrier, and the latter for inaccessible operating parts of the hose equipment. The free end of the hose is provided with a nozzle 12 having a discharge valve 13 and a hand operated valve-lever 14, and the valve lever is provided with a safety detent 15 in engagement therewith, as in Figure 1, to prevent accidental or undesired opening of the valve. The detent is provided with a perforated, annular, presser-plate 16 that is slipped over the free end of the nozzle, and a spring 17 coiled about the nozzle is interposed between this plate and a collar 17′ on the nozzle, to hold the detent in locked position on the valve lever. When using the hose to fill a tank on an automotive vehicle, the free end of the nozzle is placed in the filling nipple of the tank, the nozzle is pressed downwardly to bring the presser plate into contact with the nipple and then a continued pressure on the plate effects the release of the valve lever from its detent. The valve may then be opened by pressing on the lever 14 in the usual manner. When the gasoline has been dispensed and the nozzle removed from the filling nipple, and after the valve lever has been released, the detent automatically locks the lever in closed position.

The hose H, one end of which is permanently connected at P*a* to the gasoline pipe P′ at the upper part of the apparatus, when not in use, is confined in the hose-cabinet, but under proper control the hose is automatically carried toward and presented to the customer, through the use of a carrier 18, and returned to confinement in the cabinet, after use. The carrier 18 is a tubular arm, pivoted on an open trunnion 19 in the partition 11 of the hose cabinet, and an operating cable or cord 20 passes through the arm and through the trunnion, with its end 21 attached to the nozzle of the hose. After passing through the trunnion at 22, the cable extends upwardly in the rear compartment of the hose cabinet, to, and over a guide pulley 23 located in the upper part of the cabinet, and then the cable is formed into a loop in which a counterbalancing weight 24 is loosely suspended and adapted to reciprocate vertically in a tubular guide 25 within the hose cabinet and attached to the back wall of the cabinet. The looped end of the cable is attached at 26 to the cabinet wall just above the open upper end of the tubular guide 25, and a little below the guide pulley 23, in order that the looped formation may readily be maintained within the tubular guide and the counterbalancing weight may freely reciprocate in the guide as the loop is lengthened and shortened. In presenting the hose and nozzle to the customer, the carrier or arm 18 swings through an arc of approximately ninety degrees from the upright position of Figure 1 to the approximately horizontal position of Figure 3, and as the nozzle-end of the hose is pulled out by the customer it will be apparent that the cable is pulled, with the nozzle, from and through the carrier, to a limited length that is ample for the purpose of filling the vehicle tank. As the hose is withdrawn, the counterweight is lifted, and the cable is pulled from the carrier as in Figure 3; then as the nozzle end of the hose is returned to the cabinet by the customer, the counterweight falls, takes up the slack in the cable, and the weight pulls the nozzle end of the hose back to the retracted position of Figure 1.

The carrier is swung to operative position for use of the hose through the instrumentality of an electro-magnet or segmental solenoid 27 in Figure 3, which is rigidly mounted in suitable manner in the rear compartment of the hose-cabinet and is energized as will be explained. The core 28 of the magnet is also the segment of a circle struck from the trunnion 19 as a center, and the core has a weighted head 29 connected by a radial arm 30 with the trunnion and car-

rier, and it will be apparent that the action of the energized magnet has swung the carrier to "out" position in Figure 3; while the weight 24, with the electro-magnet de-energized has returned the carrier to the "in" position of Figure 1. For control of the electro magnet a circuit maker and circuit breaker is provided through the co-action of an insulated tongue 31 mounted on the head 29 with the spaced, resilient contact terminals 32, 32 rigidly mounted on the partition 11 in the path of movement of the tongue. In Figure 3 where the movable contact 31 is freed from the two blades 32, 32, these blades are in contact and the circuit is thus closed to energize the magnet; while in Figure 11, the tongue 31 has entered between and separated the two spring blades 32, thus opening the magnetic circuit of the carrier.

The main, electrical switch for the pumping mechanism is indicated at S in Figure 11, where the switch is open, but automatically closed by a solenoid or magnet S2. The hook S' illustrated is of the type that is usually employed for suspending the hose nozzle and thereby opening the switch; but in this instance I prefer to use the automatic switch which is enclosed within the housing S3 which is mounted on an interior wall of the cabinet for confining the hose, and it will be understood that the switch is closed by action of the solenoid S2 when the latter is energized.

The hose-cabinet door 9, which is automatically closed by action of its spring hinges 10, 10, swings through an arc of approximately ninety degrees, when its latch bolt 33 is released. The latch bolt is projected by means of a spring 34, and as indicated in Figure 7 the latch device is mounted on the cabinet wall for co-action with the keeper or hasp 33' mounted near the free edge of the door 9, so that the latch will operate to retain the door when the latter is closed. The latch bolt is released from its hasp 33' to release the door by electrically operated means comprising a core 36 fashioned integrally with the bolt, but offset from the plane of the bolt, so that it may be pulled into the solenoid magnet 35 when the latter is energized, and this solenoid as indicated is rigidly mounted on a wall within the hose-cabinet.

The door is opened against the tension of its spring hinges by electrically operated means including a segmental shaped solenoid 37 mounted in a casing 38 within the hose cabinet, and preferably at the bottom or floor of the cabinet. The core 39 of the solenoid is also segmental in shape and is fashioned with a segmental rack or ratchet head 40 that is pivoted on a vertical axis or pin 41 supported from the bottom or floor of the cabinet. The ratchet head engages the teeth of a ratchet wheel 42, which is disposed in a horizontal plane and fixed to the door 9 on its hinge bar 43, and as indicated in Figure 7, the door will be swung to open position through the co-action of the ratchet head and ratchet wheel when the solenoid 37 is energized.

The operation of the electric pump and flow and control of gasoline from the pump to the dispensing hose is timed by the use of coin-control mechanism rendered operative by the insertion of a coin in the proper slot provided therefor, and the deposited coin is employed as a circuit maker in the selected pump-circuit for timing the operation of the pump to deliver or dispense the predetermined quantity of gasoline.

The duration of the time for operation of the pump, and the predetermined quantity of gasoline dispensed to a customer, is controlled in connection with the price and quantity indicating mechanism of the computing mechanism, which latter mechanism transmits power to the upright operating shaft A' that extends downwardly, from the computing mechanism to the coin-control mechanism. At its lower end this shaft is provided with a bevel driving gear 44 which meshes with a complementary driven gear 45 on the horizontally extending clutch shaft 46 journaled at its ends in the side walls of the housing 1. On the clutch shaft are mounted three electrically controlled clutches, each comprising as its drive member an electromagnet 47 rigid with and rotatable with the shaft, and a driven member 48 loosely mounted and slidable longitudinally on the shaft under influence of the magnet when the latter is energized. When the magnet is inactive, the drive member and the driven member of a clutch are separated by an interposed spring 48'. Each of the loose driven members of the clutch is provided with a rigid rack wheel, as 49, 50, and 51, the smallest wheel controlling the longest period of time for operation of the pump, the intermediate wheel 50 controlling the intermediate period of time for operation of the pump, and the largest wheel 51 controlling the shortest period of time for operation of the pump.

When the coin (a half-dollar for instance) is deposited in the slot for the chute 3 (Figure 10) it slides down the chute and is deposited on top of a slidable control device located horizontally in the housing 1. There are three of these slides or control devices, and each slide comprises a pair of spaced parallel conductor bars as 52 and 53, the bars being fastened in pairs on a slide rack as 54, 55, and 56 and these slide racks are fashioned of non-conducting material, to insulate conductor 52 from the complementary conductor 53.

Each of the control slides has a longitudinal, upright flange 57 extending from its rear end toward the inner or front end of the slide, but the flange terminates just short of the point where the coins are deposited on the conductor bars. This flange is employed as a stop to prevent fraudulent ejection of a coin from the control slide after the latter has been started in its timing movement for the pump, by fraudulent use of the ejector 61 to be described.

During the timing movement of the control slide, it is positively moved by rotation of rack wheel 50 in engagement with the rack 55 (as for instance in Fig. 10). The return movement, to the right in Figure 10 is accomplished by the use of a return spring 58*e*. The control slide, or rack, reciprocates on a slotted plate 58 which forms the top wall of a cylindrical spring housing 58*a* in which is located a fixed solenoid 58*b* having its core-bar 58*c* bent upwardly at one end and attached rigidly to the rear end of the insulating rack 55 of the control slide. A tubular casing 58*d* is mounted on the core-bar in position to telescope over the solenoid as the control slide moves in its timing stroke to the left in Figure 10. The return spring 58*e* surrounds this tubular casing and the solenoid 58*b* and the spring is interposed between the bent end of the core bar and the opposite end of the spring housing, so that the spring is compressed by the timing movement of the control slide. It will be apparent that the compressed spring will return the slide to its original position after clutch-

magnet 47 has been de-energized to disengage member 47 from member 48, and therefore rack wheel 50 is revolved freely by the rack 55 on the return stroke of the control slide.

Each of the three slide controls is reciprocated in the same manner, it being understood from Figure 8 that rack wheel 49 meshes with slide rack 54, and rack wheel 51 meshes with slide rack 56, to perform the functions just described, and of course these two control devices are returned by springs as heretofore described.

The control slides are all of the same length, and therefore the differential timing for the operation of the pump is accomplished by use of the three rack wheels 49, 50, and 51, which vary in diameter, and therefore move their respective slides at varying speeds on the timing strokes.

The coin C is employed as the circuit maker in controlling the operation of the pump, and as the coin slides down its guide chute and is deposited on the two conductor bars 52, 53, it is stopped and confined in stationary position on the conductors by an arcuate wall 59 fashioned at the delivery end or mouth of its chute. Thus the coin rests upon the conductor bars, the control slide moves under the stationary coin in contact therewith, and the coin holds the timing circuit closed until the ends of the conductor bars have passed from beneath the coin, whereupon the coin falls by gravity through the slotted plate 58 and into a chute 60 into a suitable receptacle.

In Figure 10, if the rack wheel 50 fails to move the control slide sufficiently to free the slide from beneath the coin, the solenoid 58*b* will accomplish this function, as will be described.

In the event that the circuit is cut off from the clutch magnet 47, solenoid 58*b* will cause the coin slide 55 to continue to the extent of its permitted movement due to the fact that the core bar 58*c* is positively connected to the coin slide 55 as at 55*a*. Under such circumstances the clutch magnet 47 being de-energized and disconnected from 49, the other elements will not be operated, and all operations including that of the core bar 58*c* will cease when the coin leaves the coin slide.

If for any reason it becomes necessary to dislodge a coin from a slide and return the coin to the customer, ejecting means are provided, which include a horizontally disposed ejector bar 61 passing transversely through the housing 1, above the three chutes, and supported for reciprocal movement in the side walls of the housing. One end of the ejector bar projects outwardly through one side wall of the housing for use as a push handle or knob, and the other end of the bar has a return spring 62 coiled thereabout and interposed between the housing wall and a fixed collar 62′ on the bar. The ejector bar is provided with three heads 63, each connected by an angular arm 64 to the bar, and these ejectors or heads 63 are positioned in different planes complementary to the three different slide controls so that each head is in position to contact with one coin, and as the heads or ejectors move in unison when the ejector bar is pushed, a coin on any one of the slide controls will be ejected laterally of the slide and removed from in contact with the parallel conductors. Such ejected coin will fall by gravity and be returned to the customer through a return chute 65 that opens upwardly at the front of the housing 1 just below the coin slots, and is readily accessible to the customer.

Thus, in the event the gasoline fails to flow, after the coin has been deposited, the customer may regain possession of his deposited coin.

In Figure 11 one of the three electro-magnetically closed timing switches 66 is indicated for closing the power circuit E, F, by means of the relay 67, the latter being energized when the time-circuit is closed by the deposition of the coin C on the two conductor bars 52 and 53, and of course this relay is de-energized and the switch 66 is opened, when the coin C falls from the slide, thereby stopping the pump motor M.

A week circuit passes through the coin to obviate sparking and arcing when the coin contacts the slide. A storage battery as B is provided to furnish the current which passes through switch 66, which is operated by solenoid 67 in the coin-operated and closed, circuit.

The closing of the timing switch 66, in Figure 11, it will be seen causes the relay S2 to be energized, thereby closing the main switch S for power to energize the solenoid 47 of the electro-magnetic clutch, as well as the solenoid 27 which swings the hose carrier 18. The initial movement of the hose-carrier permits switch 32 to automatically close the circuit for the solenoid 37 which is energized to open the door 9 of the hose cabinet, after the latch bolt 33 has been released by action of the energized solenoid 35.

For energizing the solenoid 58*b* to insure a full stroke of the coin control slide in its timing movement, I utilize the counterweight of the hose-carrier. As the hose is returned to its cabinet, the cable is retracted, and the counterweight 24 falls toward the bottom of its tubular guide 25. As best seen in Figure 4 the tubular guide, near its lower end or bottom, is provided with a slot through which a lever 68 projects with its projecting end in the path of the movement of the weight. As the descending weight contacts with the lever the latter, which is pivoted at the exterior of the guide, lifts a spring pin 69 to close a control switch 70, and the descending weight holds the switch closed during a period of time sufficient to insure the operation of the solenoid 58*b*.

The counterweight, near the end of its downward movement, also is instrumental in de-energizing the relay S2 for the purpose of releasing and opening the main armature S for the pump control circuit, and thus when solenoid S2 is energized, armature S lifts thus closing a switch in the pump mechanism which starts the pump motor and its associated mechanism ready to expel and compute the gasoline passing through the nozzle. In Figure 4 a second lever, as 71, projects through a slot in the tubular guide 25, and this lever, which is pivoted exterior of the guide, has its projecting end also in the path of movement of the weight. As the descending weight contacts with this lever, its spring held arm 72 lifts a pin 73 to release the resilient movable contact member of a control switch 74.

Levers 68 and 71 are pivoted so that when the weight 24 goes upwardly, switches 70 and 74 will not be operated, due to the fact that switch 74 is normally closed and switch 70 is normally open. When weight 24 drops, switch 70 is closed to operate solenoid 58*b* to eject the coin from conductor bars 52 and 53 and switch 74 will be operated to open all circuits to the rest of the mechanism. The notched or cut out portion 24′ of the weight 24 is a safety means insuring that solenoid 58*b* will be operated before switch 74 is closed to put the rest of the circuits in operating or closed condition.

The closing of the door 9 by its spring hinges 10 is utilized to initiate the re-setting of the com-

puting indicators and operating mechanism. When the door is nearing its closed position, a spring blade 75 mounted thereon (center of Figure 11) frictionally contacts with, and closes a control switch 76 which is mounted on the partition 11 of the hose-cabinet in the path of movement of the blade on the door. This switch is interposed in a control circuit that includes a segmental shaped solenoid 77 having for its core, arm 78 extending from rack-head 79 which engages with a rack wheel or gear 82 for operating the computing mechanism. These parts are enclosed within a box 80 mounted at the exterior of the housing 1, but the box is locked to prevent fraud of unauthorized access to the interior of the box.

The door and the hose need not necessarily be returned to closed and confined positions for re-setting of the operating mechanism to permit a repeat operation of the motor and pump after the pump has performed its functions. In some instances a manually operated push button or switch 81 mounted on the partition 11 may be pressed to control the solenoid 77 for actuating the rack head and gear wheel 82, to return the coin controlled computing mechanism to zero, and, further, when the box 80 is unlocked and opened by authorized parties, access may be had to a handle or crank 83 for manually re-setting the operating mechanism.

If an essential part of the apparatus is out of order, as for instance when the gasoline supply is exhausted rendering the dispensing apparatus inoperative, all of the coin chutes may be closed against insertion of coins, by means of stop gates as 84, one for each chute. These three gates are located within the housing 1, beneath the chutes, and each gate projects up into a chute-slot fashioned in the bottom of the chute from which it is adapted to be lifted into the chute. In its uplifted position the gate extends transversely of the chute and effectively closes the interior of the chute against insertion of a coin. Each stop-gate is fashioned with a bottom cam 85, which rests on the face of a cam bar 86 that is provided with three cam heads 87, one for each cam 84.

The bar 86 which extends transversely of the housing 1, below the chutes, is supported at its opposite ends on the housing walls in such manner that it may reciprocate, moving in one direction to lift all of the coinstops or gates into their respective chutes, and moving in the opposite direction to release the cam heads from the cam-gates, thereby permitting the gates to fall out of the chutes, by gravity. For sliding the cam bar to close the gates (in Figs. 9 and 11) I employ a solenoid magnet 88 mounted on the inner face of one of the side walls of the housing, and the end 89 of the bar forms the core for the solenoid magnet, a spring 90 being employed to return the bar after the solenoid is de-energized. This operating magnet or solenoid 88 is located in a power circuit that may be controlled in suitable manner, as by a switch 91 in Figure 11.

In Figure 12, an automatically operated float controlled electric switch for the power circuit, is illustrated in connection with the supply tank T, to cut off electric power of the pump in the event of an insufficient quantity of gasoline in the supply tank to supply a customer. The float 92 is confined in a tubular guide or pipe 92' in the interior of the tank, and the upright float rod 93, which projects upwardly through the slotted top of the tank, co-acts with the switch 91 to cut off the pump circuit, as an emergency device.

While I have, for convenience of illustration, disclosed only the power circuits necessary for operation of parts, that will give a clear understanding of the construction and operation of the apparatus, it will be understood that there are three timing circuits or coin control circuits, i. e. a circuit for each coin control device, and these circuits, and other circuits are arranged in suitable manner for the performance of the functions of the various devices of the apparatus.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a coin controlled timing circuit-maker, the combination with a sliding contact member, a coin chute having means for retaining a coin in wiping contact with the sliding member, and rotary means for reciprocating said member and a coin return chute, of a transversely arranged manually operated ejector bar, an ejector head carried by the bar for displacement of a coin on the sliding member, and said sliding member having a lateral stop wall to prevent displacement of the coin after initial starting movement of the sliding member.

2. In a coin-controlled timing circuit-maker, the combination with a movable contact member comprising spaced conductors bars, a coin-chute having means for retaining a coin in wiping contact with said bars, electromagnetically controlled rotary operating means for moving said member with relation to the stationary coin for timing purposes, auxiliary operating means for moving said contact member upon opening of the circuit of said electrically operated rotary means, and spring mechanism for retracting said movable contact member.

SHANNON E. PRUITT.