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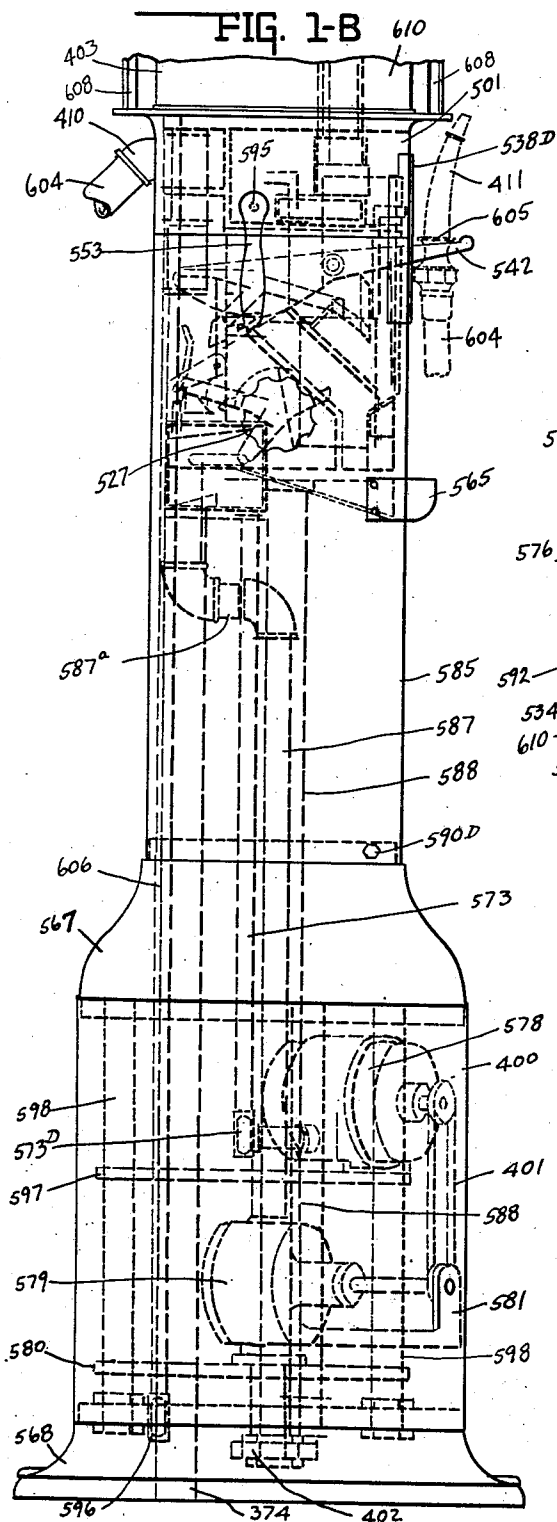
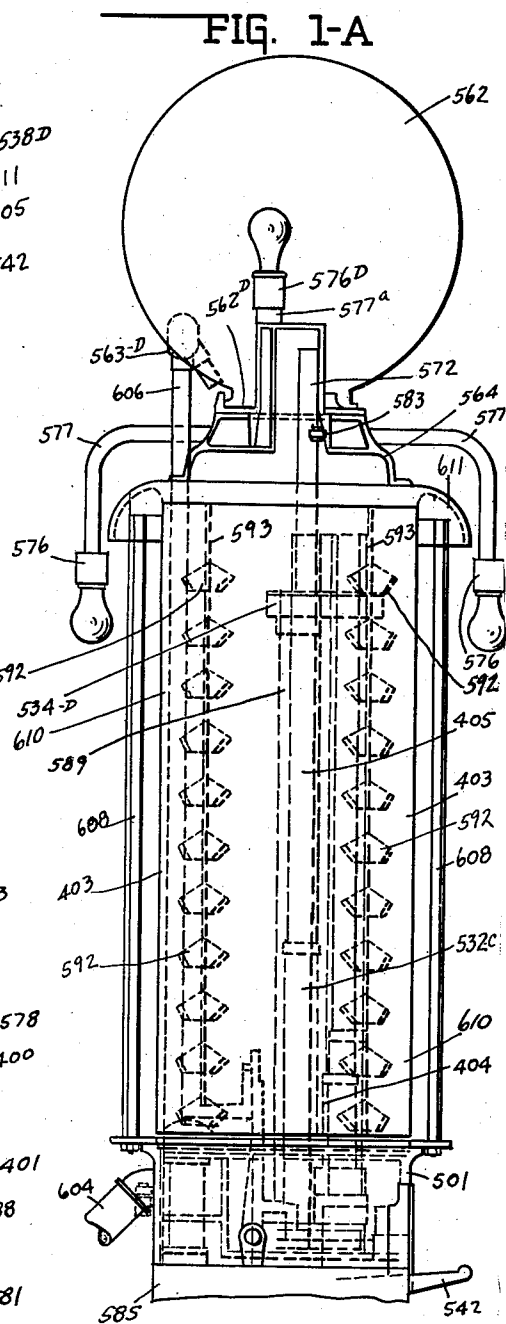
L. E. RUSH

1,891,950

COMBINATION MANUAL AND COIN AUTOMATIC PUMP

Filed June 24, 1929

6 Sheets-Sheet 1



INVENTOR.  
LEO E. RUSH.

BY *Lawson, Peterson, & Smith, Inc.*  
ATTORNEYS.

Dec. 27, 1932.

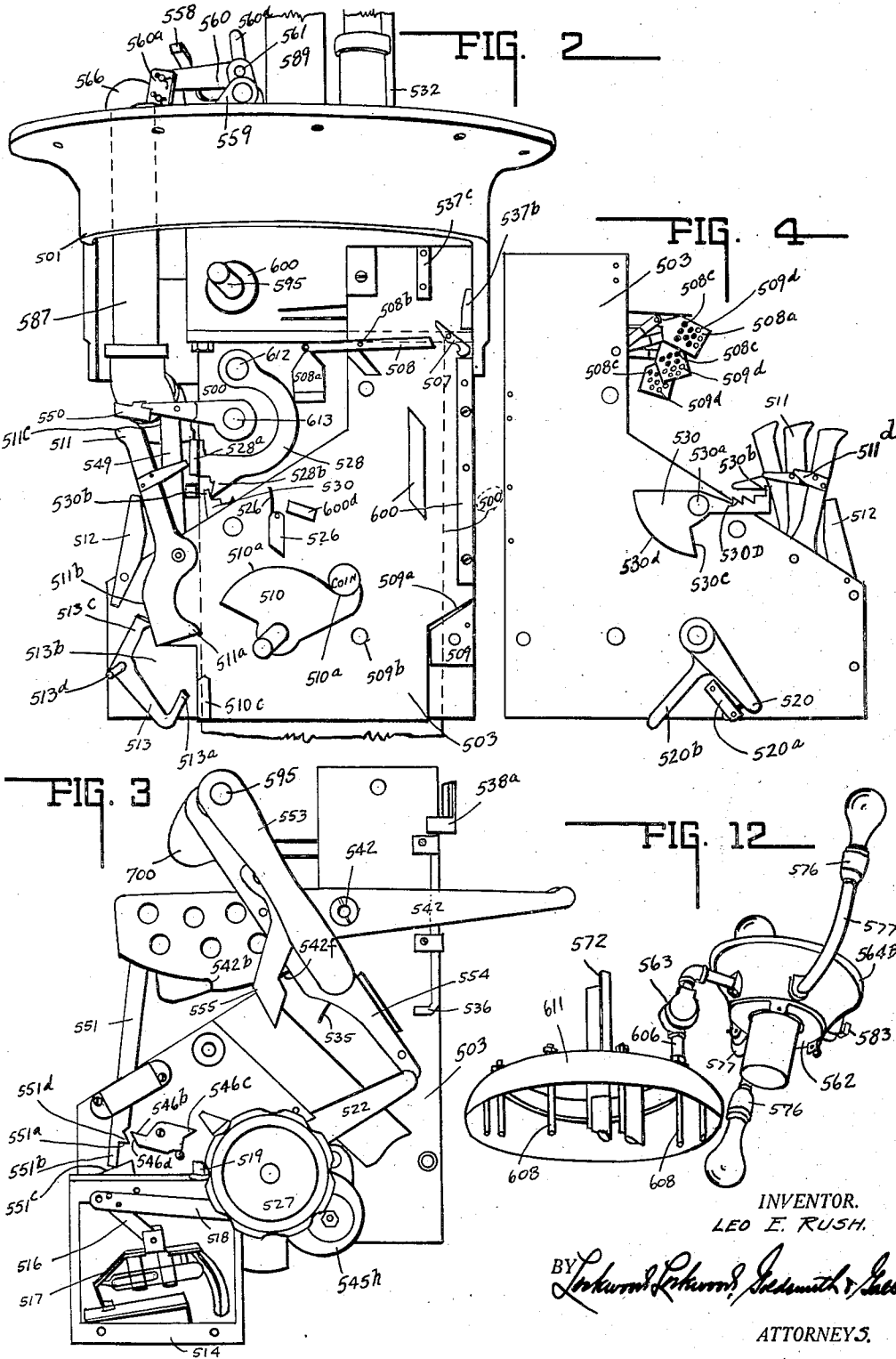
L. E. RUSH

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COMBINATION MANUAL AND COIN AUTOMATIC PUMP

Filed June 24, 1929

6 Sheets-Sheet 2



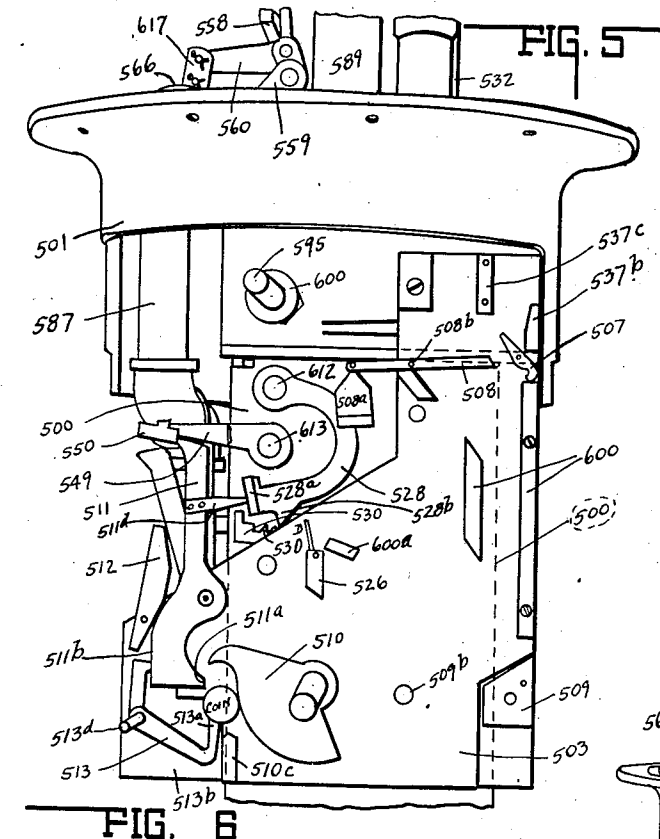
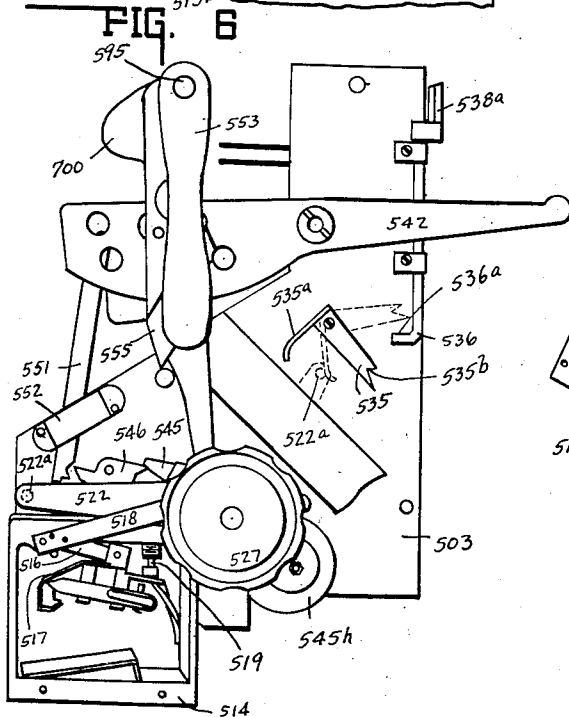
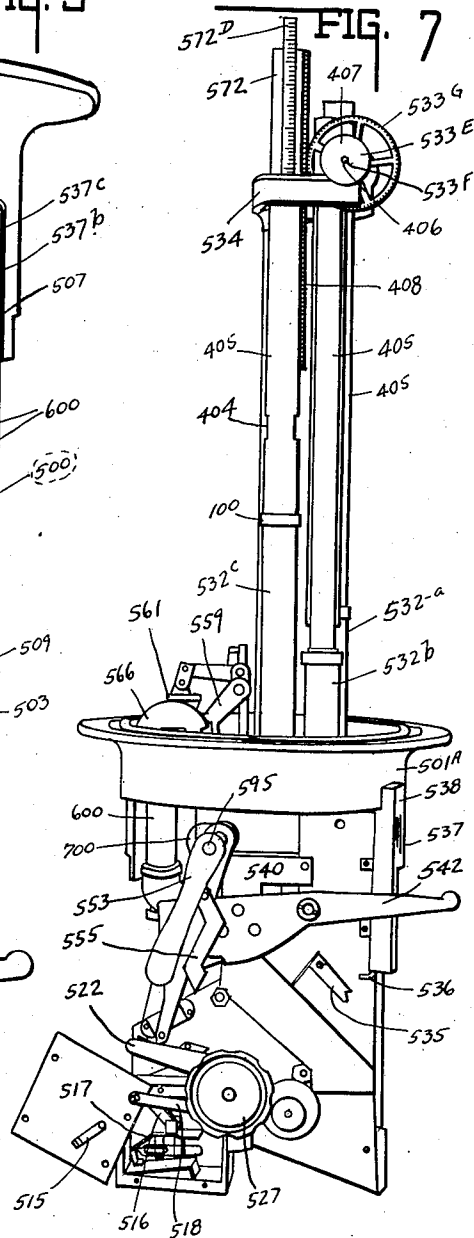
Dec. 27, 1932.

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COMBINATION MANUAL AND COIN AUTOMATIC PUMP

1,891,950

Filed June 24, 1929

6 Sheets-Sheet 3



INVENTOR.  
LEO E. RUSH.

BY *Linkwood, Linkwood, Goldsmith & Salt*  
ATTORNEYS.

Dec. 27, 1932.

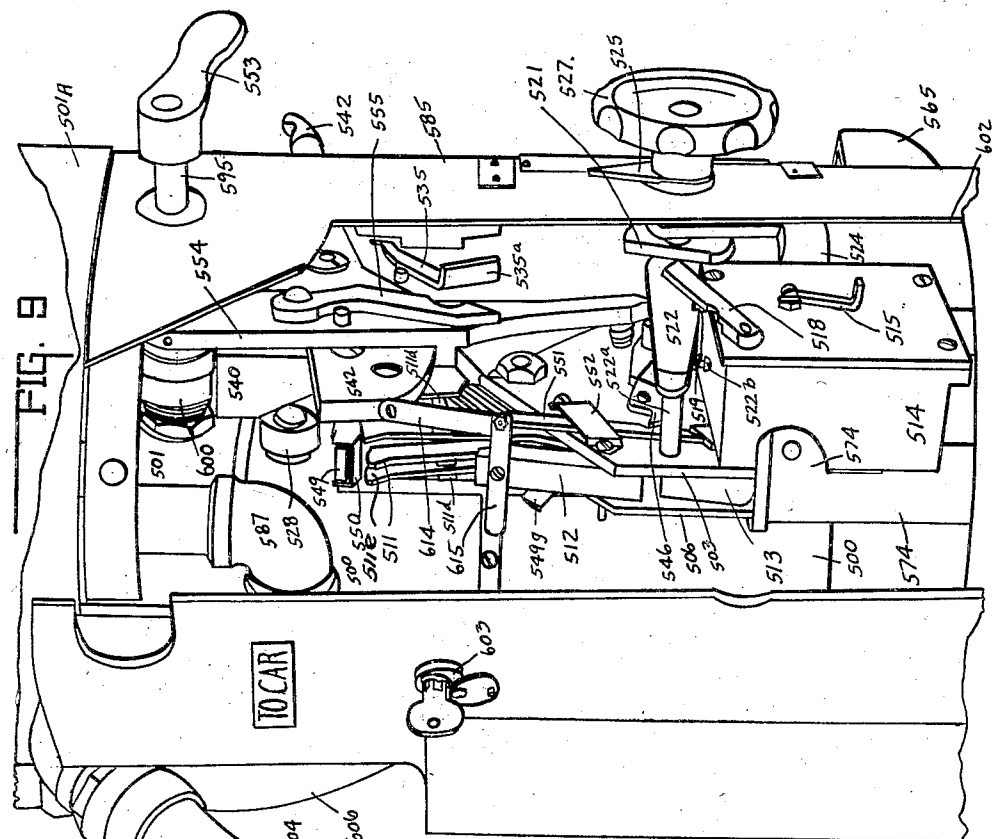
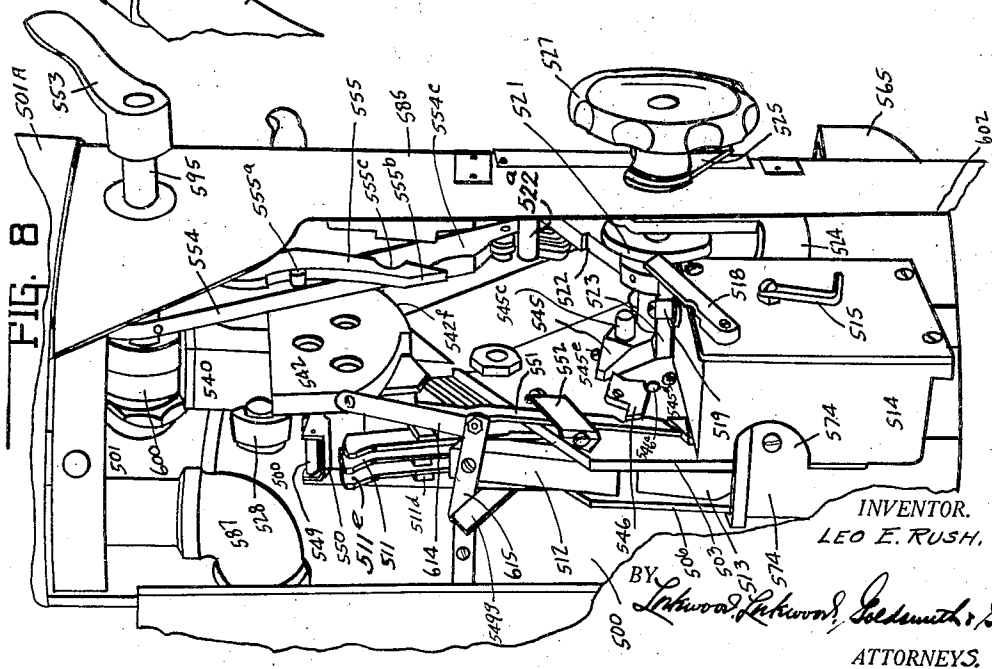
L. E. RUSH

**1,891,950**

COMBINATION MANUAL AND COIN AUTOMATIC PUMP.

Filed June 24, 1929

6 Sheets-Sheet 4



INVENTOR.  
LEO E. RUSH.

*ATTORNEYS.*

Dec. 27, 1932.

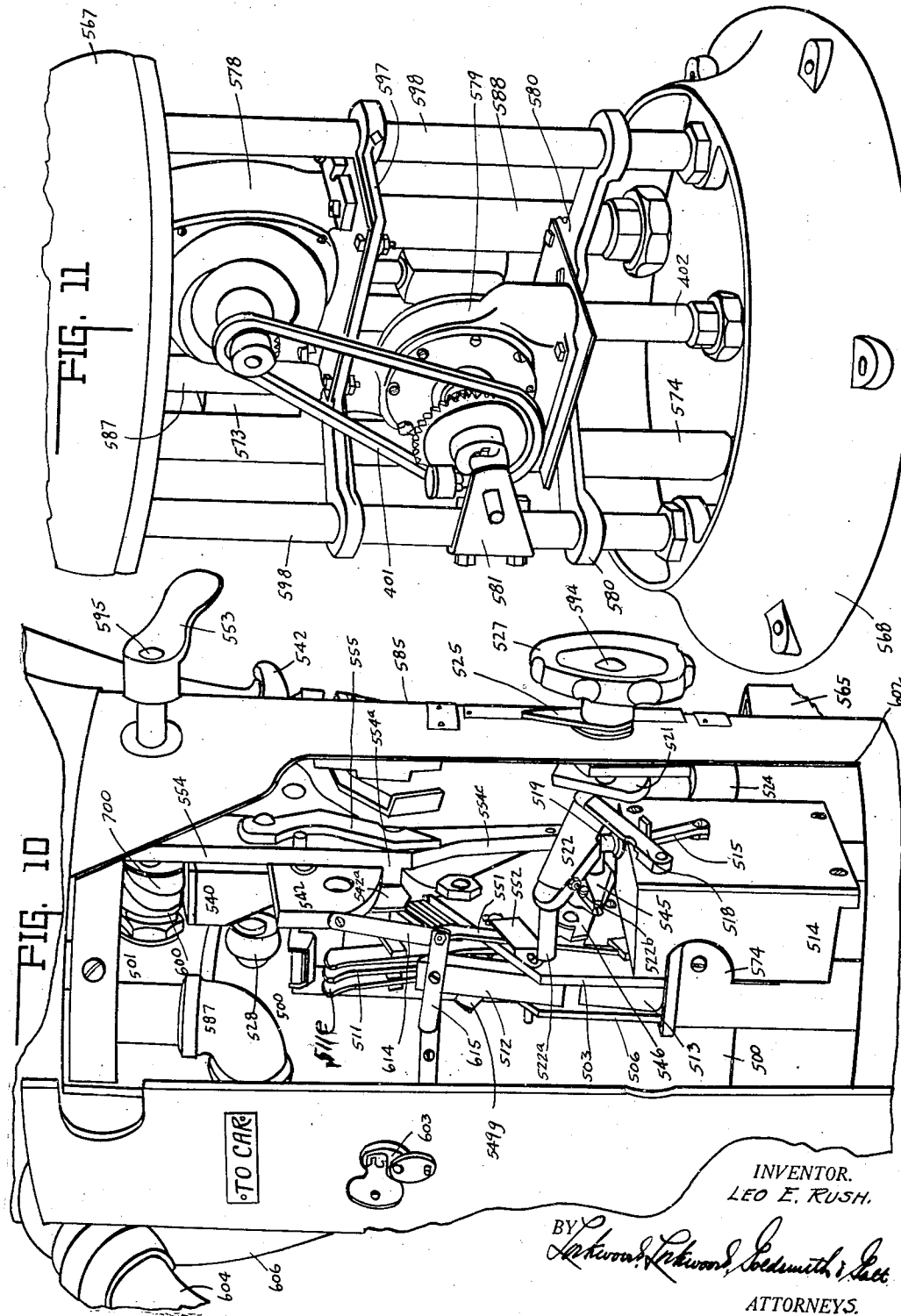
L. E. RUSH

1,891,950

COMBINATION MANUAL AND COIN AUTOMATIC PUMP

Filed June 24, 1929

6 Sheets-Sheet 5



Dec. 27, 1932.

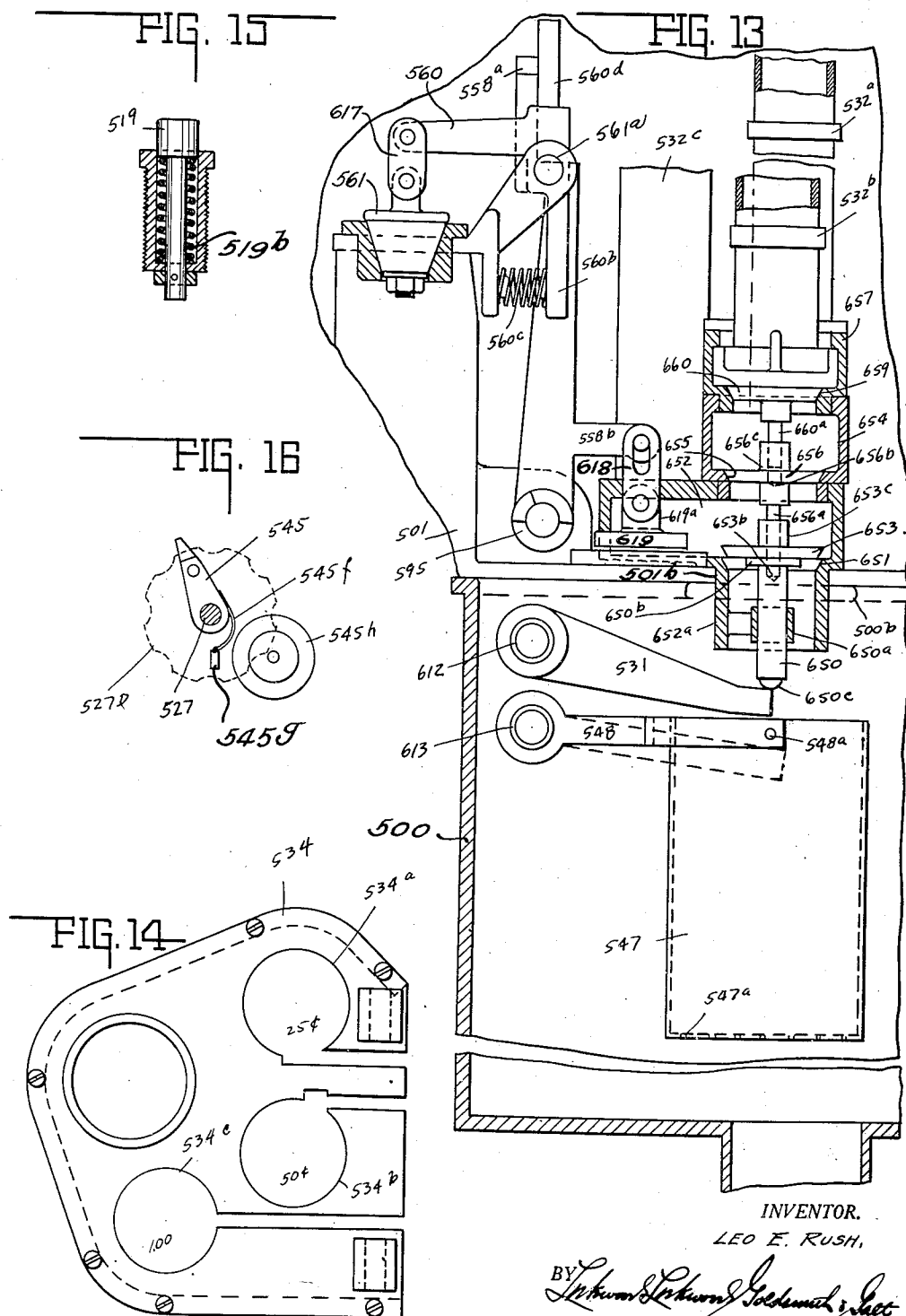
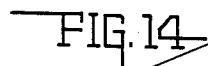
L. E. RUSH

**1,891,950**

COMBINATION MANUAL AND COIN AUTOMATIC PUMP

Filed June 24, 1929

6 Sheets-Sheet 6



INVENTOR.

LEO E. RUSH,

BY

BY *William L. Lusk, Goldsmith & Co.*

*ATTORNEYS.*

## UNITED STATES PATENT OFFICE

LEO E. RUSH, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO RUSH PUMP COMPANY, OF  
LA FAYETTE, INDIANA, A CORPORATION

## COMBINATION MANUAL AND COIN AUTOMATIC PUMP

Application filed June 24, 1929. Serial No. 373,229.

This invention relates to an automatic pump intended to dispense liquid to a purchaser without requiring the attendance of an operator.

5 The chief object of this invention is to provide a pump which is so constructed that for its operation it does not require the presence of an attendant but will automatically dispense to a purchaser the required amount of  
10 liquid upon deposition of a coin, and upon actuation of certain levers by the purchaser according to directions.

Another object of the invention is to construct an automatic pump of the aforesaid  
15 character which automatically will dispense the predetermined amount of liquid corresponding to the coin deposited, the pump being adapted to receive a plurality of coins of different denominations.

20 Another object of the invention is to construct a pump so that the amount of liquid dispensed for each coin can be varied as the base price level varies, and one feature of the mechanism provided for the accomplish-  
25 ment of this object is that the several coin selective capacities are simultaneously adjusted by a single adjusting member.

Another object of the invention is to construct a pump so that a single bowl, pump-  
30 ing unit and a single discharge mechanism is associated with and controlled by the several capacity selective mechanisms.

Another object of the invention is to construct the control mechanism such that until  
35 the time that the mechanism is conditioned for the subsequent discharge of the liquid without further hindrance or control, the coin can be returned to the purchaser and the liquid automatically returned to the initial  
40 supply, and as a corollary, immediately upon the conditioning of the discharge for such free and unrestricted discharge of the measured liquid, the coin is passed beyond the control of the purchaser.

45 Another object of the invention is to construct the control mechanism such that all slugs or defective coins are automatically returned to the purchaser, and will not operate the machine.

50 Another object of the invention is to pre-

vent the purchaser from inserting more than one denomination of coin at the same time.

Another object of the invention is to prevent the insertion of more than one coin of  
55 the same denomination at one time.

Another object of the invention is to construct the mechanism such that the device may be manually controlled by an attendant and the coin actuated feature dispensed with.

Another object of the invention is to ar-  
60 range the mechanism such that the coin will be returned to the purchaser upon failure of the device, particularly if the liquid supply be exhausted or if the pumping unit become  
65 inoperative.

Another object of the invention is to construct the mechanism such that the volume dispensed is always directly proportional to the selected level.

The full nature of the invention will be  
70 understood from the accompanying drawings and the following description and claims:

In the drawings Fig. 1 is an elevational view of the pump and the figure is divided  
75 into two parts, 1-a and 1-b, to which reference will be had particularly hereinafter. Fig. 2 is an elevational view with the casing and cover part of the control mechanism broken away to show the control mechanism  
80 in the first or receiving position. Fig. 3 is a similar view of the same mechanism including the cover plate with other parts omitted and the illustrated parts in the same position. Fig. 4 is a rear view of the back plate  
85 and part of the mechanism supported thereby, but the normal position of the parts is disarranged better to show the construction and relation of the same. Fig. 5 is a view similar to Fig. 2 and of the same parts but  
90 in the second or pump operating position. Fig. 6 is a view similar to Fig. 3 and shows the parts in the second or pump operating position. Fig. 7 is a view on a smaller scale corresponding to Figures 3 and 6 but shows  
95 the parts in the third or draw-off position and also shows the immediate draw-off control mechanism and the level determining tubes and the associated parts. Fig. 8 is a perspective view of the control mechanism incorporated in the standard but with the  
100

door removed exposing the mechanism and with the parts in the first or coin receiving position corresponding to the position of the parts shown in Figs. 2 and 3. Fig. 9 is a view similar to Fig. 8 but shows the position of the parts corresponding to those shown in Figs. 5 and 6, to wit, the second or pumping position. Fig. 10 is a view similar to Figs. 8 and 9 but shows the control mechanism adjusted for manual operation only. Fig. 11 is a perspective view of the power and pumping unit with the tubular casing removed. Fig. 12 is a perspective view of the hinged cap construction.

Fig. 13 is a diagrammatic view of the level selecting valves the control mechanism therefor, the combination drawoff and drain-back valve control and the over-flow control. Fig. 14 is a top plan view of the head and tube support. Fig. 15 is a central sectional view through the switch actuating plunger. Fig. 16 is a diagrammatic view of the bell and striker mechanism.

Before proceeding to a detailed description of the several parts and the details of their immediate operation and association with each other, the following brief summary is included here for assistance in an understanding of the invention hereinafter set forth in detail.

The several mechanisms associated together to accomplish the foregoing objects permit the following cycle of operation: (1) Movement of all parts to the initial position or conditioning of the machine to the first position which corresponds to the coin receiving position. This may be followed by the insertion of a coin which, through suitable mechanism, prevents the insertion of any other coin until the first coin becomes ineffective either through rejection by the machine because of mutilation or improper denomination, or counterfeit characteristics. (2) After coin insertion and retention the control mechanism is moved by the purchaser of the liquid to be dispensed into a position for closing the circuit of the pump power circuit substantially at the same time. Immediately preceding this operation the draw-off valve is automatically locked against all movement. The coin selects the level and opens the overflow valve controlling such selection and the power switch is moved into position for subsequent closing. The pump supplies liquid to the bowl and after the bowl has been filled to the selected level, such level being manually adjustable for price variation and automatically selected as aforesaid, the continued filling results in an overflow which is effective to open the pump power circuit and the pump supply ceases and at the same time the coin is passed on to the coin box.

Subsequently the overflow through the drain back pipe is returned to the initial supply leaving in the bowl the measured quan-

tity of liquid to be dispensed. Upon the return of the overflow to the drain back pipe the mechanism associated with the former unlocks or releases the valve mechanism controlling the discharge from the bowl. (3) Manual movement of the then unlocked draw-off lever operating the valve controlling said discharge permits the measured quantity of liquid to be discharged. Return of all the mechanism to the initial position locks all the valves, except the drain-back valve which is open, effected by conditioning the machine for subsequent operation and the drain-back valve is subsequently closed as aforesaid.

The initial parts of the device, it will be apparent, are the control mechanism whereby the aforesaid automatic locking and interlocking is obtained. The automatic dispensing device includes a base, column, bowl and head. For convenience the motor and pump operated by the latter is mounted in the base. The control mechanism is mounted in the column immediately beneath the bowl. The level selecting tubes, as well as the overflow tube and the price adjusting mechanism are mounted in the bowl, the price adjusting mechanism extending into the head, the latter being above the bowl and supporting suitable sources of illumination for advertising and display purposes as well as for cleaning and repair of the bowl and inclosed mechanism.

The control mechanism includes a coin lock out arrangement preventing the insertion of more than one coin at any one time. A coin selective arrangement automatically discards all coins improperly inserted, that is, the insertion of smaller denomination coins in a larger denomination slot or inserting badly worn coins, or inserting heavier or lighter counterfeit coins or slugs. The coin receiver mechanism receives the selective coin and retains the same under the control of the purchaser until the draw-off or discharge valve is released for liquid discharge. Prior to that time the coin may be returned to the purchaser and the machine reconditioned. The control mechanism includes also the level selecting mechanism actuated by the coin, an overflow operable device or discharge valve controlling device, level controlling valves selectively operable by the level selecting device and interlocking controls permitting only a predetermined sequence of operation.

Before proceeding to a detail description of the control mechanism before outlined, parts therein being referred to under the aforesaid headings, a brief description of the general pump construction will be given and is as follows:

#### *Base construction*

The pump unit is mounted upon a suitable block, platform or pavement and connected to an under ground electrical conduit and

under ground liquid supply tank, such as a tank containing gasoline or the like, by a supply line and a combination overflow and drainback line and is also connected to a money safe.

The pump unit includes a base ring, see Fig. 1b, supported in spaced relation with a connecting ring 567 by the rods 598 and sheet metal cover 400 closes the compartment formed thereby. The rods 598 support the plates 597 and 580 in spaced relation and the latter supports a rotary pump 579 driven by a vapor-proof motor 578 through a sprocket and chain construction 401, see Fig. 11. The inlet of the pump is connected to the supply line 402 and the discharge 587 therefrom including an offset 587a extends upwardly through the column 585.

Extending from the column and within the same and through the base into a suitable coin receiving safe positioned beneath the pump unit is the coin chute 574 see Fig. 11. The cover 400 forming a portion of the base compartment may be suitably subdivided, provided with doors, or may be arranged for complete disconnection so that access may be had to the pump and motor. A conduit box 596 in said base is mounted on conduit 606 within the base and column which incloses the energy supply for the lighting circuit and the motor circuit. The conduit box 596, connected to the under ground electrical supply, is included within the column and the lines therefrom are inclosed in the conduit 573, one branch terminating in the junction box 573D adjacent the motor 578. Extending through the base and column is the combination overflow and drain-back line 588. The connection to the overflow and the drains, as set forth more specifically hereinafter, is included in the head portion of the column. The aforesaid includes all of the lower base construction.

#### *Bowl construction*

Mounted upon the head of the heavy pipe or tubular column 585 is the top casting 501 (see Fig. 1a) which forms the bowl base. The bowl ring casting 611 is connected to the bowl base casting 501 by the rods 608. Interposed between the castings 501 and 611 and mounted within the protective and clamping rods 608 is a glass cylinder 403. Extending through the bowl chamber thus formed is the conduit 606 which extends through the top casting 611 and projects beyond the same. Mounted within the bowl are two rods 593 and rigidly secured upon said rods in spaced relation are the gallon indicators 592. The indicators are faced both ways and are so arranged that they will indicate the level in substantially all directions. These are provided for two purposes, the primary one being for use in the manual operation of the pump and the other for approximately in-

dicating the number of gallons obtained for the coin deposited.

As heretofore stated, the pump, through line 587, discharges into the base of the bowl and the main overflow 589 extends upwardly through the bowl and terminates in a casting 534. The overflow pipe thus serves as a support for the casting 534D which is the level selecting tube locating plate. In manual operation the pump supplies liquid until it overflows and then upon the motor being cut off by the operator the desired number of gallons may be drawn off by referring to the indicators 592.

#### *Manual operation*

To obtain manual operation the operator opens the door to the control mechanism, see Fig. 9, through the key 603. In the lower portion of that figure as well as Fig. 8 the lever 515 is shown in the automatic pumping position. Fig. 10 shows the same in the manual actuated pumping position. The operator has in this last mentioned position moved the hand wheel 527 counter clockwise until it engages the switch actuating member 519 normally constrained in its upward and open circuit position. The operator upon continued counter clockwise movement of the hand wheel 527 depressed plunger 519 through lever 522. This closes the motor circuit and the pump fills the bowl to the desired height. The plunger 519 is held depressed until the liquid overflows through pipe 589 which indicates a full tank has been pumped. The zero level is the top of pipe 589. The operator then releases the hand wheel 527. The spring backing the plunger 519 returns the hand wheel a short distance clockwise together with the associated mechanism. The draw-off valve and associated levers are now released from locking position as will appear more fully hereinafter. The operator then engages the draw-off lever 553 mounted on shaft 595 and moves it clockwise and holds it in this position. This movement opens the draw-off valve and the valve is held open as long as desired which is until the desired level of the liquid is obtained in the bowl, said levels being determined by the indicators 592 previously described. The operator thereupon releases the draw-off lever 555 and the weight of 554 normally tilts the said lever into closed position together with the handle 553, said lever being carried by the shaft 595. Thus the draw-off valve is automatically returned to or normally constrained to closed position.

As long as the operator does not turn the hand wheel 527 in a counter clockwise direction but permits it to remain in the position shown in Fig. 10 the pump is conditioned or arranged for manual operation. The cycle may be repeated for each sale as often as desired; that is hand wheel 527 is rotated coun-

ter clockwise to its full movement and held in that position until the bowl is filled, then the drawoff handle is rotated clockwise until the desired amount is discharged through the drawoff valve and hose. The cycle may then be repeated.

Upon the operator moving the hand wheel 527 clockwise the lever 518, which rides upon the cam 521, normally drops by reason of gravity and is released from the cam and tilts in a clockwise direction. The locking member 515 is normally constrained toward movement from the position shown in Fig. 10 to the position shown in Figs. 8 and 9 and when said catch member 515 is released by the clockwise movement of the hand wheel 527, the entire device automatically returns to the automatic pump status.

Access, however, must be provided to manually shift member 515 from the position shown in Figs. 8 and 9 to that shown in Fig. 10 whereupon the cover can be closed and locked through the lock 603.

Since the pump unit is intended to accommodate three different coin denominations, three tubes are provided, to wit, 532a, b and c, each of which includes an orifice 404 and an extension 405. The extension is telescopically associated with one of the tubes 532a 532b or 532c and is slidably supported by the plate 534 see Fig. 7. Transversely mounted on shaft 406 is a hand wheel 407 and keyed or otherwise secured to said shaft for rotation therewith is a plurality of gears 533g, respectively, which mesh with racks 408, respectively, carried by the tube extensions 405 respectively, telescopically associated with the tubes 532a, b and c, respectively, each tube extension having the level determining orifice 404, respectively. Thus rotation of the hand wheel 407 with which is associated a suitable pointer and scale 572D graduated to the base price in cents per gallon of gasoline, will permit simultaneous adjustment of all the lever determining tubes for positioning the orifice 404 at the predetermined level corresponding to the particular amount of liquid to be dispensed for a predetermined coin at the base price per unit of measure (gallon) of that liquid at that time. The several gears, of course, are arranged so as to cause the proportionate amount of change in each level.

Since the level selecting tubes are of substantially uniform diameter throughout, the adjustment for price variation does not vary the direct proportion between the included volume and the height of the level selecting orifice. Also the individual adjustments of indicators 592 permit the bowl to be graduated to exact volumes substantially independent of the price variations.

The top casting 611 is covered by a globe supporting base 564 when in closed position. The conduit 606 is rigidly connected

to said casting 564 by a hinge joint 563 which not only serves as a hinge but also serves as a junction box for the current carrying wires leading to the head. The base 564 also includes depending tubular arms 577 terminating in lamp sockets 576 and these receive light bulbs for illuminating the indicators 592 and the bowl and contents. The cover may be swung as shown in Fig. 12 to permit cleaning of the bowl or removal or adjustment of any part therein and while illumination is supplied for that purpose, if necessary, by the aforesaid connection and combination hinge joint. Also there extends upwardly from the cover casting 564 another conduit 577a terminating in a similar socket 576D to receive a light bulb for illuminating the globe 562 which may bear the desired legending indicating the kind and type of liquid dispensed by the device. The head casting also includes an upper air vent construction 583 for venting the fumes. It will, of course, be understood that the globe is rigidly secured to the casting 564 by any of the usual standard anchorages.

After the bowl has been filled with liquid to the desired level the lever 553 is actuated by either the operator or the purchaser. This opens the drawoff valve and the liquid is dispensed through the discharge outlet 410 to the hose 604 which terminates in a nozzle 411 connected by fitting 605 that may or may not include a hand valve as desired, but which is adapted to be mounted upon the hose hanger lever 542 which has another function as set forth hereinafter.

The mechanism which controls the supply of the liquid to the bowl, measures the quantity therein, cuts off the supply of liquid when the desired amount has been supplied and releases the drawoff lever 553, constitutes the automatic control mechanism hereinafter set forth and illustrated in detail in the remaining figures.

#### *Automatic control*

Before proceeding to a detailed description of the automatic control mechanism, reference will first be had to the control and selection of coins.

#### *Coin control and selecting mechanism*

This mechanism is illustrated most clearly in Figs. 1—b, 2, 3, 5, 6 and 7. Plate 538 is apertured at 537 and exposes three slots indicated at 537, see Fig. 7, the height of the same being determined by spacing members interposed between the four side plates 503 forming three coin channels. Slidably mounted parallel to the plate 538 and between the same and the edges of said plates 503 is a slot guard 538a the same being rigid with the member 536 having an angular end 536a. Pivottally mounted adjacent the end 536a is an angular actuating lever and lock

535 which normally is constrained to positioning in both of two positions, one being shown in Fig. 6. By reason of the weight thereof it assumes the full line position. 5 Lever 522 carries a pin 522a which in addition to another function to be described, engages the end 535a of the actuating member 535, see Fig. 9, tilts the latter counter clockwise when the hand wheel is moved clockwise to conditioning position. In such tilting movement the end 535b engages the angular end 536a and is elevated which elevates the guard member 538. Continued clockwise rotation of the handle 527 to condition the machine for coin reception has no further control upon the actuating member 535. Lever 535 thus holds guard plate 538a elevated exposing the coin slots 537.

The positioning of the several parts is such however, that the guard member while retained in an elevated position but partially exposes the several coin slots. The desired coin is positioned in the respective coin slot. In doing so the guard member 538a is elevated which releases the angular end 536a from the actuating member 535 and the latter returns from its upwardly directed position shown in Fig. 9 to the position shown in Figs. 3 and 6. The coin thereupon passes through the opening into coin slot and beyond the plate. The plate then drops by gravity which prevents further insertion of any coin into any one of the slots. If the coin is not released but is held by the purchaser and the plate 538a is elevated, the aforesaid release of member 535 immediately takes place. The hand wheel 527 then will have to be moved counter clockwise to bring the pin 522a to the left of the member 535 and then reversed to tilt the lever 535 clockwise to again elevate the guard 538a.

Since the mechanism associated with each coin slot is identical with the others a description of one will suffice. The present device receives quarter, half and single dollar silver pieces of United States coinage.

The spacing members defining the slots are indicated at 537b. Positioned immediately to the rear of the opening thus defined is a stop member 537c, see Figs. 2 and 5. The inserted coin passes downwardly through the channel to a pivotally supported lever 507. It engages said lever and its further movement is checked. No matter with what pressure the purchaser inserts the coin it can only drop by gravity and therefore the kinetic energy that the coin possesses is only that due to falling through the distance from the slot to the lever and track member 507. The speed of the coin thus is checked and it is discharged to a teeter bar 508, said teeter bar being counter balanced by a weight 508a and being pivotally supported at 508b. The

counter weight and relationship of the several parts is such that a lighter coin will run along the top of the bar and run over the same and discharge into a chute that connects to a receptacle 565, see Figs. 8 and 9. As shown in Fig. 4 each counter weight is accurately adjusted by the insertion of a suitable number of shot 508c into recess 509d.

When the coin is thus returned it means that the coin is lighter than the desired coin. Even if the purchaser makes a mistake and puts a quarter into the half dollar slot or a half dollar into the dollar slot that coin will be returned though the coin be perfect. Of course all lighter slugs will likewise be returned even though of the desired size. In other words the only coin that does not roll over the teeter is the desired coin or a slug equal to or heavier than the desired coin.

When the desired coin or a slug heavier than the same is deposited, the teeter bar 508 upon receiving the same from the speed checking lever 507, tilts clockwise and the coin is discharged downwardly and to the right, see Figs. 2 and 5, into the vertical passage way defined by the members 600. At the end of that passage way the coin or slug impinges upon the inclined face 509a of an anvil 509. All coins drop the same distance and all coins have the same speed. All the proper coins therefor rebound from the anvil and move upwardly and to the left. Coins which do not properly rebound pass downwardly between the anvil and the pin 509b into the receptacle 565 and are returned to the purchaser. Coins which rebound to a greater degree than silver pass upwardly between the lower end of the left hand member 600 and a stop member 600a and pass over the coin receiving mechanism and are returned to the purchaser at the receptacle 565.

The proper coin only rebounds a sufficient amount to seat the same into a seat 510a, see Fig. 2, over a coin carrier plate 510. In order to insure positioning of the coin in this seat a stop member 526 is provided. This stop member has a spring extension 526a. The coin is positively seated in its predetermined position in the coin seat 510a of the coin carrier 510, as the coin carrier is rotated to the left by stop 526. Spring 526a permits passage of the carrier with the coin beneath the stop 526 and permits return of the latter. This is in a counter clockwise direction of the hand wheel 527 for completing the control circuit and energizing the motor for automatic pump operation.

Interposed in the path of each coin as it moves from the position shown in Fig. 2 to the position shown in Fig. 5 is a coin selecting lever 511 which has one portion 511a and another opposite portion 511b. In the counter clockwise rotation of the coin carrier 510 the coin engages portion 511a and tilts

the lever 511 clockwise. The coin does not tilt the lever by its weight or independent movement but only in conjunction with the carrier movement. This constitutes the liquid level selection when applied to a tank and pump construction as described herein. Continued movement of the coin carrier positions the coin beneath and beyond the lever 511, see Fig. 5.

The coin unless otherwise restrained would be free from the coin carrier. Such restraint comprises a U-shaped lever 513 one arm 513a of which constitutes a coin stop or rest, see Fig. 5. The normal position of lever 513 by reason of its weight is that shown in Fig. 2. Tilting of lever 511 causes the portion 511b to engage the other end 513c of lever 513. This tilts lever 513 counter clockwise and positions the stop 513a in position to restrain further coin movement before the coin can get through between the coin carrier 510 and the lever portion 511a and become released therefrom.

If the purchaser then desires the return of the coin, the hand wheel 527 is rotated clockwise and the surface 510a of the coin carrier 510 moves out of coin sustaining position. The coin is then free to move downwardly to the right from the position shown in Fig. 5, by reason of the stationary guide or stop 510c and maintenance of lever 513 with end 513a immediately adjacent thereto. The levers 513 and 518 are mounted on the same shaft 513d. 518 rests upon 521 carried by the hand wheel supporting shaft. When the coin has passed over and to the right side of the guide and stop 510c it discharges into the receptacle 565 and is returned to the purchaser.

The lever 511 in the coin release movement of the hand wheel 527 has been released from its constraint permitting said parts to return to their normal positions, but lever 513 is held in position by member 518 until hand wheel 527 is moved counter clockwise either with or without coin to a position where member 518 drops past the clearance provided on cam 521. This is the only function of member 521. The timing is such that member 518 drops past member 521 before the coin arrives at member 521, and the clearance then is such that when the coin is released toward money box or safe it also has clearance to allow member 513 to drop allowing coin to roll to the left into money safe chamber leading to chute.

Upon the pump 579 supplying sufficient liquid to the bowl 610, the over-flow is employed to automatically shut off the supply. That operation also returns the lever 511 to normal position. This permits the angular lever 513 to drop from the position shown in Fig. 5 to the position shown in Fig. 2. This provides a sufficient channel between the stationary member 510c and the end 511a of

the lever 511 for the coin to pass into the portion indicated at 513b and thence to the coin box or safe previously described. The money is then beyond recall or return to the purchaser.

The aforesaid condition to release the coin releases the draw-off valve so that it can be operated to release the liquid in the bowl to the customer. Up until this time, however, the draw-off valve could not be released so that the pump could not be defrauded in the sense of returning the coin and operating the draw-off valve at substantially the same time.

#### *Level selecting mechanism*

Three levers 511 are provided, one for each of the three coin slots although but one lever 513 and but one stop 512, see Figs. 2 and 5, is provided. In Fig. 5 the closest lever 511 has been tilted clockwise by the coin. In Fig. 2 all the levers are in the normal or non-selecting position. Each lever 511 mounts a lateral extension 511d, see Fig. 4 also, which engages the single cross bar portion 528a see Figs. 2 and 5, of the lever 528 and tilts said curved lever 528 counter clockwise together with shaft 612, which controls the level selecting valves. The lever 528, see Figs. 2 and 5, has a tongue or tooth 528b which has a cam action in riding over a single toothed member 530 having the teeth 530d, see Fig. 4. The end notch of the three notches, see Fig. 4, is associated with the most remote lever 511 while the closest lever 511, see Fig. 5, is associated with the notch closest to the pivot 530a.

As shown in Fig. 4 the catch 530 is counter weighted and normally retains lever 528 in one of the successive tilted positions after a coin has tilted a level selecting lever 511. For initially positioning the lever 528 the member 530 includes a stop extension 530b that is engaged by the tooth 528b, see Fig. 2. In Fig. 5 the closest level selecting lever 511 is tilted and tooth 528b is in the notch 530d closest to the pivot. Mounted upon the shaft carrying the hand wheel 527 and the coin carriers 510 and upon the reverse side of the plates 503 or more remote from the hand wheel, is a lever 520, see Fig. 4. This lever in the clockwise movement of the hand wheel, (or counter clockwise movement of lever 520 as shown in Fig. 4) engages the face 530c and tilts the lever 530 in opposition to the counter weight 530d to release the tooth 530c from the tooth 528b. It will be recalled that the bar 528a on the end of the lever 528, see Fig. 5, extends across the full width of the three levers 511. In addition to the previous function mentioned an adjustable stop 520a is provided, see Fig. 4. This stop limits the counter-clockwise movement of the hand wheel actuated shaft. The

lever 520 includes an extension 520b for a purpose hereinafter set forth.

*Level selecting valve and lever connection*

5 The level selecting levers 511 each tilt lever 528 mounted on shaft 612 a certain amount. The remote lever 511 in Fig. 5 tilts lever 528 the slightest, and the closest lever 511 tilts lever 528 the greatest. The first mentioned  
10 lever is the dollar actuated member and the last mentioned lever is the quarter actuated member, it being assumed that the machine is adapted to receive quarters, halves and whole dollars.

15 Shaft 612 carries a lever 531. In sump 500 there is formed an opening 500b and the casting 501 which supports the sump 500 is apertured as at 501b, see Fig. 13. A housing including chamber 652 has an extension 652a  
20 that extends through the opening 501b and opening 500b and forms a discharge conduit from the chamber 652. A valve seat 651 is formed at the entrance to said discharge 652a and a valve 653 is adapted to close said open-  
25 ing. A plunger 650 is slidably supported in a guide 650a carried by the discharge 652a and said plunger terminates in a plate portion 650b that bears against the under face of the conical valve 653. The opposite end of  
30 the plunger 650 terminates in a contact member 650c engaged by the end of the lever 531. The plunger or stem 650 therefore has four positions, its lower-most position, its first elevated position corresponding to the dollar  
35 selection, the second elevated position corresponding to the half dollar position, and its third or highest elevated position corresponding to the quarter selection.

40 The tube 532c is the dollar level selecting tube and at its lower end upwardly communicates with chamber 652. Thus when valve 653 is elevated the liquid flows through the opening 404 in tube 405, the telescopic extension of the tube 532c, see Fig. 7, and thence  
45 through the chamber 652 downwardly through the discharge 652a and into a bucket 547, pivotally supported at 548a by the yoke type lever 548 carried by shaft 613. The weight of the several parts carried by shaft  
50 613 counter balances the bucket 547 and holds it in the position shown in Fig. 13. When the valve 653 is open and the liquid has overflowed through opening 404 in tube 405 the extension of 532c the excess liquid will dis-  
55 charge into the bucket, and since the rate of pumpage is greater than the rate of discharge from the bucket through the apertures 547a at the bottom thereof, the bucket will tilt shaft 613. This through suitable mechanism  
60 disconnects the motor circuit as described and the supply to the bucket ceases, thereupon the liquid in the bucket drains through the opening 547a into the sump 500 and is returned to the reservoir beneath the pump through the  
65 drain back line. After the liquid has suffi-

ciently drained so that the weight of the parts associated with shaft 613 is greater than the weight of the liquid, the bucket is automatically returned to the position shown in Fig. 13, and whatever liquid remains in the bucket continues to drain therefrom. A certain time lag element is therefore introduced into the operation. It will also be noted that the bucket completely drains at each operation.

The liquid, as it rises in the bowl successively discharges through each superposed opening 404 to fill the respective tube 532a, b or c immediately therebeneath and the extension tubes 405 to the level of the opening. The tubes are blocked immediately above openings 404 and the extensions serve as uniform displacement members through the length of the bowl. Regardless of the positions of the tubes the displacement is uniform for manual operation and none of the tube trapped liquid returns to the bowl. The liquid trapped in the tube portion and extension 405 below the opening 404 is not sufficient to overbalance the bucket. It only discharges through the bucket. However, it requires an additional amount to thus actuate the bucket and this the pump supplies at a rate greater than bucket discharge.

Extending upwardly from valve 653 is a stem 653c which is centrally apertured at 653b to receive a depending stem 656a of a valve 656. Valve 656 is adapted to seal valve seat 655 of the housing 654 which communicates with chamber 652. The stem 656a has a telescopic connection with the valve stem 653c so that valve 653 may be elevated without elevating valve 656. Additional tilting movement of shaft 612 then serves to elevate valve 656 to open the chamber in housing 654 to chamber 652 and to the sump by way of the bucket. Valve 656 includes a stem 656c provided with a bore 656b that receives the stem 660a of valve 660, the same sealing the seat 659 of the housing 657. Valve 660 upon additional movement of the shaft 612 is elevated, each of the valves is progressively closed as the shaft is reversely rotated and each closes by gravity, or if desired may be backed by springs. The travel of valve 653 is sufficient to open the two superposed valves. The housing 654 has free communication with tube 532b and housing 657 has free communication with tube 532a. The last mentioned is the quarter controlled tube and the first mentioned is the half dollar controlled tube.

If the quarter controlled tube valve is opened of course all the other valves are opened and the overflow takes place at a lower level than if the half or dollar tube valves were respectively opened.

After the desired level controlling valve has been selected and opened the mechanism is in condition to fill the bowl. The hand wheel 527 is rotated counter-clockwise and

held in its lowered position, the full throw being limited by the adjustment 522*b*, see Figs. 9 and 10. When this is accomplished, and as long as the hand wheel is held in this particular position, the plunger 519, see Fig. 15, is depressed, which closes the motor circuit through the switch, illustrated in detail in Figs. 3 and 6. These two figures illustrate the two positions of the switch. After the purchaser releases the hand wheel the spring pressed member 519 will turn the hand wheel 527 and lever 522 counterclockwise for approximately 5 degrees. This permits the switch to tilt into open position to de-energize the motor and the pumping stops.

Lever 513 pivoted on shaft 513*d*, see Figs. 2 and 5, is coin actuated. In this movement of the shaft, lever 518 outside of the switch box and the lever 516 within the switch box are moved into elevated position. This movement releases lever 518 from the manual lockout 515 if the same has been raised. The initial movement of shaft 513*d* conditions (positions) the switch for operation and this is as shown in Figs. 8 and 10 and corresponds to that when the plunger 519 is elevated. Further counter-clockwise rotation of the hand wheel 527 depresses plunger 519, see Fig. 9, and closes the motor circuit by tilting the carrier 517 of the mercury switch so that the latter moves from the open circuit position, see Fig. 7, over center and into the closed circuit position, see Fig. 6, which corresponds to Fig. 9. When the hand wheel is released the spring 519*b*, see Fig. 15 returns the plunger 519 into elevated position and the switch by reason of gravity and its eccentric mounting shifts from the tilted closed circuit position, see Fig. 6, to the tilted open circuit position, but the carrier 517 remains in the elevated or conditioned position as shown in Fig. 6 for Fig. 3 illustrates the switch carrier in the lowered position.

By this arrangement the electric motor automatically shut off whenever the hand wheel 527 is released. As long as the hand wheel is held in its extreme or closed circuit position the liquid is supplied to the bowl until it overflows therefrom through the desired level selecting tube and into the bucket 547. The overflow discharged into the bucket moves the carrier 517 to the position shown in Fig. 3, unlocks the drawoff lever, and simultaneously permits the coin to discharge to the coin safe. This arrangement prevents repeated circuit closing if attempted through reverse tilting of the hand wheel unless another coin be inserted.

Tilting movement of the bucket tilts the lever 549 in a clockwise direction, see Figs. 8 and 9. Said lever is mounted upon shaft 613 and the end of said lever carries a catch 550 that is so arranged that it normally rides over the upper end 511*e* of levers 511 and permits passage of said levers in the level select-

ing operation but prevents return thereof. This constitutes a single pivoted latch for all the level selecting levers. Thus lever 549 is normally retained in the operative or catching position and is elevated by the over-flow filling of the bucket which releases the level selecting levers from catch 550. Thus overflowing liquid automatically releases the level selecting mechanism.

The elevational movement translated through shaft 513*d* returns the switch from the conditioned position shown in Fig. 6 to the inoperative position shown in Fig. 3. Levers 518 and 516 have the movement shown by the change in position from Fig. 6 to Fig. 3. Thus the motor is immediately stopped and no further liquid can be pumped. The tilted position thus described is only maintained for a short interval because as soon as the pump stops supplying overflow liquid the liquid in the bucket continues its discharge without replenishment. The weight of the parts again overbalance the bucket which returns to its usual unloaded position. Whatever liquid remains in the bucket continues to discharge until the bucket is dry. Thus a slight time interval takes place between the stopping of the motor, by reason of the bucket tilting, and the return of the bucket to its initial and normal position, giving ample time for the liquid to seek its level in the bowl. The drawoff valve mechanism is now released for operation.

#### *Drawoff valve mechanism*

The drawoff position is shown in Fig. 7, the lever 553 being positioned differently from that shown in Figs. 8 to 10 inclusive. The drawoff mechanism includes the hose 604 connected to the discharge 410 and normally hung upon a forked hose hanger lever 542. Discharge 410 is controlled by a valve 561 the stem of which is connected by a link 617, see Figs. 2 and 5, to a bell crank lever 560 pivotally supported at 561*a*, the other arm 560*b* of which is yieldingly constrained toward seating position through a spring 560*c*. Another extension 560*d* of said lever is adapted to be engaged by the extension 558*a* of a tiltable lever 558 carried by shaft 595.

When the parts are conditions for draw-off release the lever 553 is turned clockwise from the position shown in Fig. 1*b* to the position shown in Fig. 7 and the liquid is discharged through the hose into the purchaser's receptacle or vehicle gasoline tank. The drawoff valve will remain open as long as the purchaser holds the lever in the position shown in Fig. 7. Upon release of the lever it will automatically return to the position shown in Fig. 1*b* by reason of the counter weight shown at 700. The valve parts are then positioned as shown in Fig. 13. This is to permit the purchaser to retain in the tank such portion of the liquid which he has pur-

chased, and if he should overfill the tank of his vehicle, until he obtains an additional receptacle. A "dry hose" discharge is one wherein the hose contains no liquid until dispensing is desired. A "wet hose" discharge is one wherein the nozzle includes a valve and the hose between pump and valve is filled at all times with liquid to be dispensed.

After the pump has filled the bowl to the desired level selected by the coin the purchaser may desire the return of the coin and endeavors to obtain the same. At the same time the prospective purchaser may try to defraud the machine and endeavor to actuate the drawoff valve in order to obtain the liquid as well. The initial return movement beyond open circuit position of the hand wheel 527 to return the coin causes pin 522a on lever 522 to engage cam 542a on the hose hanger lever 542. This tilts lever 542 sufficiently to release the catch 554a, see Fig. 10, seated in a notch 542b of said lever, see Fig. 3. The hose hanger lever is thus rotated slightly in clockwise direction for such release and upon that slight rotation the tooth 554a is released which permits lever 554, by reason of the counter weight 700, to be automatically rotated counter clockwise from the substantially vertical position as shown in Fig. 10 to the position as shown in Fig. 8. This opens the drain back valve 619, see Fig. 13, before the coin has been returned.

#### *Draw back valve construction*

The lever 554 and control handle 553 are rigid with shaft 595. The drain back control valve 619 controls bowl discharge to the drain back line. The valve stem 619a is connected by links 618, see Fig. 13, to arm 558b of lever 558 carried by shaft 595. The drain back valve is open when the lever 558 is positioned as shown in Fig. 2, and the drain back valve is closed when the lever is positioned as shown in Fig. 5. The discharge valve and the drain back valve are both closed when the lever 554 is in the vertical position, see Figs. 9 and 10 as well as Fig. 6. When the lever 554 is tilted to the right in a counter clockwise direction the drain back valve is open and the discharge valve remains closed. When the lever 553 is tilted in the clockwise direction from the position shown in Fig. 1b to the position shown in Fig. 7 only the draw-off valve is open. Both valves are closed when the lever is positioned as shown in Fig. 1b.

At the critical position the bucket may receive additional fluid and the hand wheel may be started upon its return movement to return the coin. To prevent the bucket control from operating and releasing the drawoff valve, after it has been so actuated, the bucket control is locked by the counter weight 700 being locked against movement by the link 614 raising and tilting clockwise the lever 615 which

prevents the raising and tilting counter clockwise the lever 549g. This prevents the raising of the bucket control lever 549 because, see Fig. 10, lock 549g thereof engages lever 516, see Fig. 8.

The drawoff and drain back lever 554, see Fig. 3, pivotally supports a latch 555 and also supports a stop 555a, see Fig. 8. This latch has a cam face 555b that rides over the pin 522a in the clockwise movement or conditioning movement of the hand wheel. Any return movement after the latch has been released causes the pin 522a to engage the surface 555c of this latch and causes the lever 554 to be returned or positioned in the central depending position.

The counter weight associated with the lever 554 normally would tend to tilt said member in the counter clockwise direction. To prevent manual operation of the drawoff valve and drain back valve lever 554 into the vertical position, the lever 554 is extended to 554c and this always rides upon or is positioned to the right of pin 522a. This prevents any attempt to position the drawoff or drain back lever 554 in the vertical position or in a position for drawing off the liquid in the bowl.

#### *Draw off lever lock*

When the hand wheel 527 has been turned into the position corresponding to initially closing the motor circuit or into the motor circuit closing position the lever extension 554c engages an additional lock since the lever otherwise would be free, see Figs. 3, 6, 8 and 9. This lock is a tiltable member 545 that is normally positioned intermediate the extreme throw positions which are defined by the two stop pins 545d and 545e. The pin 545c on this lever will be engaged by the extension 554c when the parts are positioned as shown in Fig. 10. The lock 545 is positioned substantially mid-way between the two stop pins and is held in that position by a pivoted lock 546. Lock 546 when holding the lock 545 is prevented from any release movement in a clockwise direction by the stop 546a so that any pressure transmitted by the lever 554c to the pin 545c will not tilt the locking member 545 clockwise because the point thereof engages the lock 546.

When the bucket has sufficiently filled to overcome the weight of the parts, lever 549 is elevated. The link 551, see Fig. 3, is likewise elevated and this link 551 terminates in a catch portion 551a that engages the extension 546b of the tiltable lock 546. This operation is obtained by the end 551b engaging a cam 551c and being elevated as it moves inwardly. In so doing the cam face 551d engages the cam face 546d and rides over it until the catch 551a overlies portion 546b. Upon the emptying of the bucket, and the release of the parts by reason of such over-

flow action being dissipated, lever 551 normally turns downward, and in so doing it tilts the locking member 546 counter clockwise and thus removes the tooth 546c from engagement with the tiltable lock 545. Continuing movement of lock 545 frees it from the lock 546. When the two members, however, are associated in this tilting movement the initial part of said movement permits the tooth of lock member 545 to free itself from lock 546 and the lock 545 by gravity, or by spring action, if desired, drops past the locking position and engages the lowermost stop 545d and thus the extension 554c can be projected past the pin of the stop 545 and the drawoff valve can be opened.

The tiltable lock 545, see Fig. 16, carries an extension 545f that pivotally supports a striker 54g. The same in the movement of the lock 545 from its neutral position to its lowered position as just previously described permits the striker 545g to engage the bell 545h. The purchaser then is advised by the ringing of the bell that the draw off lever is ready for use and completely free and unlocked and that the drain back valve is locked against opening and that the coin has passed beyond the purchaser's control to the safe and that the motor has been de-energized through the switch. The hand wheel shaft mounts a pointer 525 associated with a suitable dial or scale.

The lever 522 carries an extension 523, see Fig. 8, and in the conditioning movement of the hand wheel, that is rotation clockwise, the extensions 523 of the lever 522 engages the underside of the lock 545 and moves the same from its lowered position into its intermediate position and past the locking end of the member 546 and forces the locking member upwardly but prevents complete rotation thereof beyond a predetermined limit by means of the upper stop 545e. This stop may serve as a stop for limiting the travel of the hand wheel into the conditioning position as well if desired but as previously set forth the extension 520b, see Fig. 4, serves that function so that preferably the stop 545e does not limit the movement of the hand wheel but does limit the movement of the stop. In other words the stop normally would permit a few more degrees of angular movement of the hand wheel if desired. The stop is retained in the elevated position above the stop 546 as long as the hand wheel is in the conditioning position. This corresponds to the position of the parts as shown in Fig. 3.

Immediately upon reverse movement of the handle 527 the portion 545 engages tiltable stop 546, see Fig. 8, and further rotational movement of the stop 546 in a counter clockwise direction is prevented. The handle 527, however, continues its rotational movement bringing with it the lever 554. The pin 522a in this movement engages the under face 542f

of the drawoff lever and tilts the same clockwise to a position to permit the locking tooth 554a to ride under the lever and receive said tooth after the pin has cleared the lever.

For automatic operation it is assumed that the manual change over lever 515 is in the depending position, the door closure is locked and the hose 604 is hanging upon the hose hanger lever 542. The hose is removed from the hose hanger lever and the nozzle is positioned in the purchaser's gasoline tank inlet.

If the hand wheel 527 is not positioned such that lever 522 is in its extreme right position it must be moved into that position. This movement it will be remembered has elevated the guard supporting member 536 and has partially exposed all of the coin slots and at this time the drawoff lever is in the locked position.

Upon the insertion of the coin into the selected slot the guard is released from its catch 535 and the catch returns to its normal position. The guard then remains in slot closing position. The coin passes into the coin slot and if it is not of the desired character or denomination for that slot or rather for the coin carrier 510, the coin or slug is passed on to the receptacle 565 for the purchaser to reclaim the same. If the proper coin has been inserted in the proper slot the coin bounces from the anvil and seats in the coin carrier seat. The hand wheel is then rotated counter-clockwise to condition the motor circuit by conditionally positioning the switch.

The motor circuit is controlled or conditioned by the coin engaging the level selecting lever member 511 and said lever is tilted clockwise. Clockwise tilting of said lever tilts counter clockwise the shaft 513e which as before set forth through member 516 initially positions the switch for subsequent operation. Continued clockwise rotation of the coin and carrier releases the coin from the carrier and deposits the same upon the portion 513a of lever member 513, see Fig. 5, where it is held and at the same time the motor circuit is closed by the member 522 carried by and with the hand wheel 527 depressing the plunger 519 to close the circuit through the switch, see Fig. 6.

This circuit remains closed so long as the coin is retained in the position shown in Fig. 5 and the coin carrier is retained in said position. The arm 522 is shown in Fig. 6 corresponding to this position. If the customer desires to break the motor circuit or to return the coin, clockwise rotation of the hand wheel 527 will permit return of the coin and also open the motor circuit, as before set forth.

As previously set forth, the selected lever 511 actuated, determines the degree of counter clockwise tilting to which lever 528 is subjected. Said lever 528, as before mentioned,

is held in the tilted position through the catch 530 until the handle 527 is rotated counter clockwise, which permits the selected coin selecting lever 511 to return to the non-selecting position upon release of the latch 530 by lever 520 engaging 530c, see Fig. 4, and permits return of the lever 528 to the initial position. The levers 511, as before set forth, are normally constrained toward neutral position but are latched in the selected position through the catch 530.

Assuming that the customer desires to complete the automatic dispensing, the motor driving the pump supplies fluid through the supply pipe and the same continues to flow into the bowl until the liquid therein overflows through the desired overflow level 404 and is discharged to the bucket 547 by the appropriate valve or valves being opened as determined by the lever 528 operating through shaft 612. When the bucket which is counter weighted has been sufficiently filled by surplus or overflow liquid it is tilted by said liquid and such tilting thereupon actuates shaft 613 and releases the latch 550 to permit return of the level selecting lever 511. The drawoff lever if this sequence of operation has been properly performed is released when the coin has passed into the coin box and has passed beyond the control of the purchaser. Thereupon the drawoff lever may be actuated to open the drawoff valve and permit the liquid measured in the bowl to discharge through the hose to the customer's tank.

The tilting of the bucket, as before mentioned releases the coin selected lever 511, and when said coin selected lever is released the coin also is released and passes to the coin safe, since the lever 513 was operated by the lever 511 in its return movement. Such operation also returns the switch into the inoperative position so that another coin must be deposited before the motor circuit can be closed. Said operation of the hand wheel likewise rings the bell or warning signal. At the same time also the member 546 associated with the rod or elongated member 551 is actuated.

In operation when the hose was removed from the hose hanger and the hand wheel was initially positioned to the right by clockwise rotation, lever 615 pivoted on the coin controlled lever stop 512, was rotated about the pivot point causing it to move to a position to clear the stop on the coin lever latch 549 and the bucket counter weight. When the bucket was actuated by filling the same the coin lever latch 549 and bucket counter weight, mounted upon the same shaft is moved clockwise and the stop rigid therewith clears the member 615, see Figs. 8 and 9. As long as member 549 remains in the bucket lowered position, which is until it has drained and the counter weight becomes

effective to return the shaft, it is impossible to move the operating hand wheel 527 in a clockwise manner and the entire mechanism is locked. This prevents any possibility of the coin being returned at the instant of overflow. It also prevents the operator from accidentally opening the drain-back valve by a clockwise movement of the hand operating wheel.

When the bucket drains the weight of member 549 returns the bucket to the upper position and this movement releases member 545 and the bell is rung which is notice to the customer that the drawoff lever is unlocked and can be actuated. The drawoff valve can be opened and closed any number of times so long as the hand wheel 527 is not moved in a clockwise direction. With the mechanism in this condition it is also impossible to insert a coin because to open the coin slot the hand wheel 527 must be moved to the full forward clockwise position, as previously explained, and in this movement in a clockwise direction the member 523, an integral part of member 522, engages the member 545 and carries it with it to a position beyond the member 546. This in itself has locked the member 554 against any further clockwise movement. The mechanism also is so constructed that the control lever 522 is always positionable upon the left side of the member 554.

It is also to be noted as the hand wheel 527 was moved clockwise, the control lever stop 520 which is mounted on the same shaft as hand wheel 527 being on the back side of the coin plate, see Fig. 4, becomes engaged with the angular portion of the coin lever latch and bucket counter weight 549 forcing it in a clockwise direction, and continuing its path it engages the lever latch 530 when the hand wheel 527 has been moved to its extreme right position, or which corresponds to the open position. This movement also unlatches the level selecting lever 528 and releases the level selecting levers and permits the member 528 to seek its initial position, which corresponds to that wherein all of the level selecting valves are closed. Control lever 522 also engages the coin lock-out trigger 535 and again releases the same so that a coin may be inserted as previously set forth. Any clockwise movement of hand wheel 527 therefore absolutely locks the mechanism against further operation without the insertion of an additional coin.

If after a coin has been inserted and rotated to the position as shown in Fig. 5, and the motor does not start, or if the motor does start and there is no liquid pumped into the bowl, the purchaser may rotate hand wheel 527 from the position shown in Fig. 5 to the position shown in Fig. 2 and the coin as previously explained will pass downwardly and

to the right of the stop and guide member 510c and into the return chute or receptacle 565.

The invention claimed is:

5 1. In a coin actuated pump, the combination of a plurality of liquid level selecting devices, a coin passage for each, a coin carrier for each device and associated with a passage for receiving a coin therefrom, means including a slot closure and fraud preventing mechanism for preventing the insertion of more than one coin to any coin carrier, and an operative connection between the devices and carrier for pump control by the selected coin.

15 2. In a coin actuated pump, the combination of a plurality of liquid level selecting devices, a coin passage for each, a coin carrier for each device and associated with a passage for receiving a coin therefrom, means for preventing the insertion of more than one coin to any coin carrier, including means for preventing the reception of any coin by any carrier other than the predetermined coin for said carrier, and an operative connection between the devices and carrier for pump control by the selected coin.

20 3. In a coin actuated pump, the combination of a plurality of liquid level selecting devices, a coin passage for each, a coin carrier for each device and associated with the passage for receiving a coin therefrom, means for preventing the reception by any coin carrier of any other than the predetermined coin for said carrier, and an operative connection between the devices and carrier for pump control by the selected coin.

30 4. In a mechanism of the character described, the combination of a plurality of coin receiving passages, a single guard plate simultaneously controlling the same, and means for moving the plate from slot closing position for coin reception, including means operable upon coin reception for releasing the plate for passage closure.

45 5. In a coin operable mechanism including a manually operable member, a coin receiving member associated therewith, a coin receiving passage for the same, a guard plate controlling said passage, and means operable in the conditioning movement of the manually operable member for moving the plate for passage reception of a coin, said means being coin operable upon reception thereof, or operable by said manually operable member upon reverse movement for releasing the plate controlling means.

60 6. In a coin operable mechanism including a single manually operable member, a plurality of coin receiving members associated therewith, a coin receiving passage for each coin receiving member, guard plate means controlling said passages, and means operable in the conditioning movement of the manually operable member for moving the plate for passage reception of a coin, said means being

coin operable upon reception thereof or operable by said manually operable member upon reverse movement for releasing said plate moving means.

70 7. In a coin operable mechanism, the combination of a single manually operable member, a plurality of coin receiving passages, a coin receiving member associated with each passage, a single guard plate controlling said passages, and means operable in the conditioning movement of the manually operable member for moving the plate for passage reception of a coin, said means being coin operated upon reception of any coin or operable by said manually operable member upon reverse movement for passage closure by said plate.

85 8. In a mechanism of the character described, the combination of a plurality of liquid level determining valves, a common member having a plurality of operating positions one for each valve and including a lost motion connection whereby the valves are progressively operated, a plurality of liquid level determining members, and a single member selectively engageable by said liquid level determining members movable into a plurality of progressive positions by said members for moving said common member into a plurality of progressive positions, coin controlled means for operating the liquid level determining members, and catch means for said means.

100 9. In a mechanism of the character described, the combination of a plurality of liquid level determining valves, a common member having a plurality of operating positions one for each valve and including a lost motion connection whereby the valves are progressively operated, coin controlled means for operating the liquid level determining members, a plurality of liquid level determining members, a single member selectively engageable by said liquid level determining members and movable into a plurality of progressive positions by said members for moving said common member into a plurality of progressive positions, a catch associated with said last mentioned member, and a multiple position latch successively engageable by said catch in accordance with the liquid level determining member actuation for retaining said single members and the selected valve or valves in selected position.

120 10. In a mechanism of the character described, the combination of a plurality of liquid level determining valves, a common member having a plurality of operating positions one for each valve and including a lost motion connection whereby the valves are progressively operated, a plurality of liquid level determining members, a single member selectively engageable by said liquid level determining members and movable

into a plurality of progressive positions by said members for moving said common member into a plurality of progressive positions, a catch associated with said last mentioned member, a multiple position latch successively engageable by said catch in accordance with the liquid level determining member actuation for retaining said single members and the selected valve or valves in selected position, and a single mechanism for presenting an appropriate coin for actuating the appropriate liquid level selecting member and permitting release of said member and the single member and valve or valves and the latch on predetermined movement.

11. In a mechanism of the character described the combination of a plurality of liquid level selecting members each movably mounted for similar movement but varying in amount, a single liquid level determining member selectively operable by said liquid level selecting members, a manually operable shaft, a coin carrier for each of said liquid level selecting members, said coin carriers being similar and each adapted to receive a different sized coin, said coin carriers positioning the coin adjacent one of the similar level selecting members whereby continued movement of the manually operable shaft actuates said member through said coin and a valve for each level selecting member and controlled thereby through the single member.

12. In a mechanism of the character described the combination of a plurality of liquid level selecting members each movably mounted for similar movement but varying in amount, a single liquid level determining member selectively operable by said liquid level selecting members, a manually operable shaft, a coin carrier for each of said liquid level selecting members, said coin carriers being similar and each adapted to receive a different sized coin, said coin carriers positioning the coin adjacent one of the similar level selecting members whereby continued movement of the manually operable shaft actuates said member through said coin, a valve for each level selecting member and controlled thereby through the single member, a single coin retaining member normally projectable into the path of the coin by the movement of any one of the level selecting members, and a single coin receiving passage adjacent said coin engageable member for coin reception upon continued movement of the manually operable shaft beyond the coin operable level selecting member operation position.

13. In a mechanism of the character described, the combination of a tiltable coin carrier, a divided coin passage, one branch discharging to a safe and the other branch to an exposed coin receptacle, a guide positioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carriers being arranged to present a coin adjacent the junction of said branches, coin operable members for said coin stops and operable in the coin carrier movement for clearing the respective path determined by the coin carrier movement, a plurality of level determining valves, and means operable by the coin operable members for actuating the valves.

tioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carrier arranged to present a coin adjacent the junction of said branch, coin operable members for said stops and operable in the movement of the coin carrier for clearing the respective path determined by the coin carrier movement, a plurality of level determining valves, and means operable by the coin operable members for actuating the valves.

14. In a mechanism of the character described, the combination of a plurality of tiltable coin carriers having a common axis, a single divided coin passage, one branch discharging to a safe and the other branch to an exposed coin receptacle, a guide positioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carriers being arranged to present a coin adjacent the junction of said branches, coin operable members for said coin stops and operable in the coin carrier movement for clearing the respective path determined by the coin carrier movement, a plurality of level determining valves, and means operable by the coin operable members for actuating the valve.

15. In a mechanism of the character described, the combination of a plurality of tiltable coin carriers having a common axis and simultaneously movable, a single divided coin passage, one branch discharging to a safe and the other branch to an exposed coin receptacle, a guide positioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carriers being arranged to present a coin adjacent the junction of said branches, coin operable members for said coin stops and operable in the coin carrier movement for clearing the respective path determined by the coin carrier movement, a plurality of level determining valves, and means operable by the coin operable members for actuating the valves.

16. In a mechanism of the character described, the combination of a tiltable coin carrier, a divided coin passage, one branch discharging to a safe and the other branch to an exposed coin receptacle, a guide positioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carrier arranged to present a coin adjacent the junction of said branch, coin operable members for said stops and operable in the movement of the coin carrier for clearing the respective path determined by the coin carrier movement, an alarm member, means associated with said coin carrier and operable in timed relation therewith for actuating said alarm member when the coin is released from the coin carrier and is deposited in the coin safe communicating branch, a plurality of

level determining valves, and means operable by the coin operable members for actuating the valves.

17. In a mechanism of the character described, the combination of a plurality of tiltable coin carriers having a common axis, a single divided coin passage, one branch discharging to a safe and the other branch to an exposed coin receptacle, a guide positioned at the junction of said branches, a coin stop movably mounted in each branch adjacent the junction, said coin carriers being arranged to present a coin adjacent the junction of said branches, coin operable members for said coin stops and operable in the coin carrier movement for clearing the respective path determined by the coin carrier movement, an alarm member, means associated with said coin carrier and operable in timed relation therewith for actuating said alarm member when the coin is released from the coin carrier and is deposited in the coin safe communicating branch, a plurality of level determining valves, and means operable by the coin operable members for actuating the valves.

18. In a motor actuated pump, the combination of a pump, a power motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if the motor is not actuated.

19. In a motor actuated pump, the combination of a pump, a power motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if either the motor is not actuated, or the pump is not operative.

20. In a motor actuated pump, the combination of a pump, a motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if the pump is not operative.

21. In a motor actuated pump, the combination of a pump, a motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if the reservoir is empty.

22. In a motor actuated pump, the combination of a pump, a motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge,

and means returning the coin if either the pump is not operative or the reservoir is empty.

23. In a motor actuated pump, the combination of a pump, a power motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if either the motor is not actuated or the reservoir is empty.

24. In a motor actuated pump, the combination of a pump, a power motor for operating the same, a reservoir connected to the pump, a discharge from the pump, a control for said discharge, coin actuated means arranged to control said motor, pump and discharge, and means returning the coin if the motor is not actuated, if the pump is not operative, or if the reservoir is empty.

25. In a coin actuated pump, the combination of a liquid supply, a liquid reservoir, means controlling the supply from the former to the latter, other means controlling the discharge from the latter, coin actuated means controlling said supply control means, means for simultaneously returning the coin to the depositor, and preventing actuation of the discharge to release the reservoir contents to the depositor, and other means preventing over-supplying the reservoir.

26. In a coin actuated pump, the combination of a liquid supply, a liquid reservoir, means controlling the supply from the former to the latter, other means controlling the discharge from the latter, and coin actuated means controlling said supply control means, means for simultaneously returning the coin to the depositor and preventing actuation of the discharge to release the reservoir contents to the depositor, removing the reservoir supply from the control of the depositor.

27. In a coin actuated pump, the combination of means for controlling a motor circuit, a drawoff valve, an over-flow control, a drain-back valve, coin actuated level selecting mechanisms, lockable level selecting valves therefor, a coin insertion guard associated with a coin passage, drawoff valve locking means, locking means for the overflow control and a manually actuated oscillatable member having movement in one direction for successively opening the motor circuit, releasing the drawoff valve locking means and simultaneously actuating the locking means for the over-flow control and against normal operation, returning the drain-back valve, releasing and permitting return of the level selecting mechanism, actuating the coin guard for positioning the coin slot for coin reception, locking the drawoff lever, releasing the level selecting valves to closed position, and

finally moving into coin reception position.

28. A device as defined by claim 27 characterized by the addition of mechanism arranged to receive and return coins deposited in the coin slot after the slot has been conditioned for coin reception and prior to final positioning of the oscillatable member in the final position.

manally lock the lever in the neutral position upon movement of the lever from its initial normally constrained position into neutral position.

In witness whereof, I have hereunto affixed my signature.

LEO E. RUSH.

29. In a coin actuated pump, the combination of means for controlling a motor circuit, a drawoff valve, an over-flow control, a drain-back valve, locking means therefor, coin actuated level selecting mechanisms, locking means therefor, a coin insertion guard associated with a coin passage, and a manually actuated oscillatable member having movement in one direction for successively closing the drain-back valve after the coin guard has permitted reception of the coin in the coin passage, such reception automatically returning the guard to guarding position, then actuating the means for locking the drain-back valve in closed position, actuating the level selecting mechanism by the coin, and opening the valve control thereby, said level selecting mechanism locking means being actuated into locking position when the valve is open and then closing the motor circuit for supplying liquid to the pump.

30. In a coin actuated pump, the combination of a hose hanger lever, a pump discharge connected to the hose, a coin actuated control associated therewith, and a manually operable oscillatable member arranged for coin reception and association, said hose hanger lever being arranged to lock the pump discharge until the hose has been released from the hanger lever.

31. The combination of a reservoir, a drain-back valve, a discharge valve, a single lever arranged for oscillation from neutral and locked position to either extreme position for releasing one of the valves and locking the other valve, coin controlled means operatively associated with the lever, said lever being normally constrained toward one of the extreme positions, a tiltable catch carried by said lever, and an oscillatable member arranged to engage the lever for movement in one direction and the catch for movement in the other direction.

32. The combination of a reservoir, a drain back valve, a discharge valve, a single lever arranged for oscillation from neutral and locked position to either extreme position for releasing one of the valves and locking the other valve, coin controlled means operatively associated with the lever, said lever being normally constrained toward one of the extreme positions, a tiltable catch carried by said lever, an oscillatable member arranged to engage the lever for movement in one direction and the catch for movement in the other direction, and means arranged to nor-

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