D. W. ANTHONY.

OIL DISPENSING MACHINE.

APPLICATION FILED MAR. 8, 1916.

1,303,215.

Patented May 6, 1919.

5 SHEETS—SHEET 1.

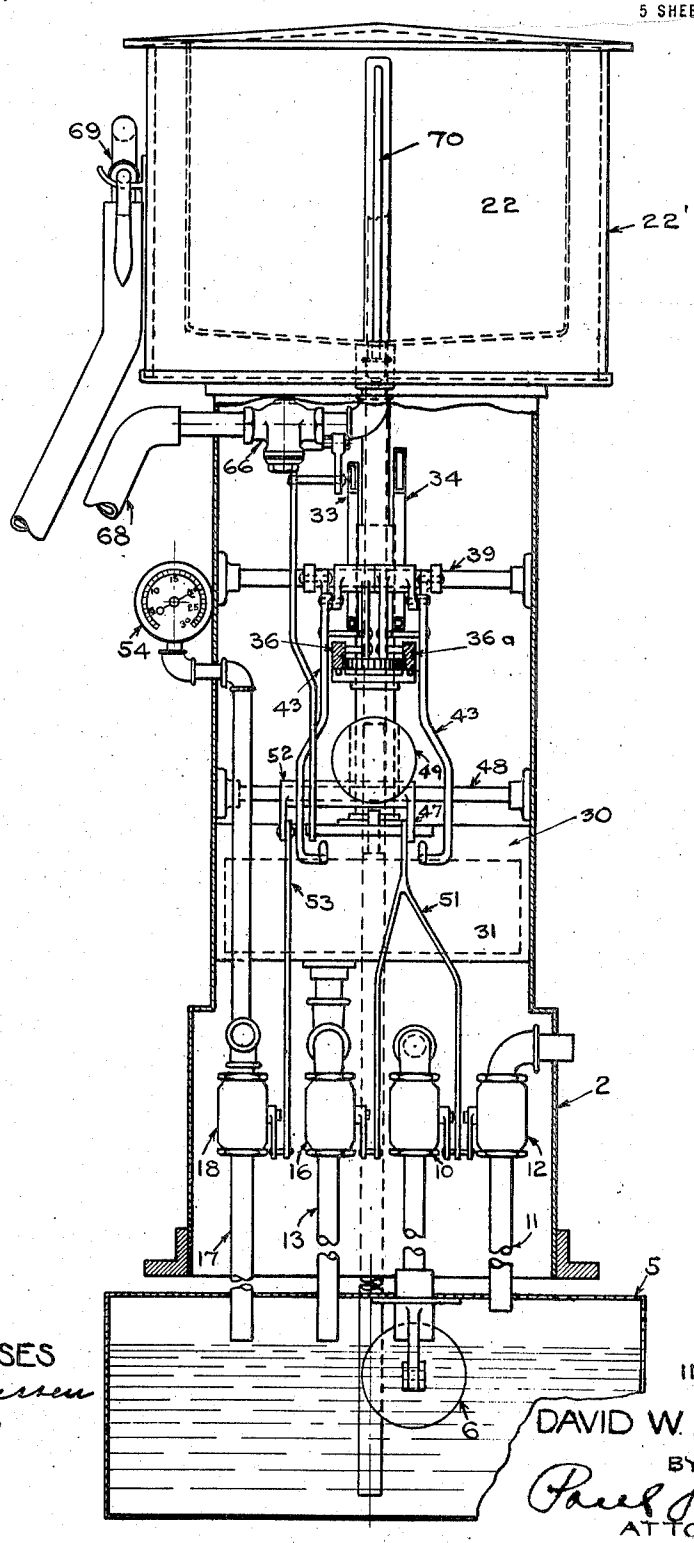


FIG 1

WITNESSES

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Paul & Paul

ATTORNEYS

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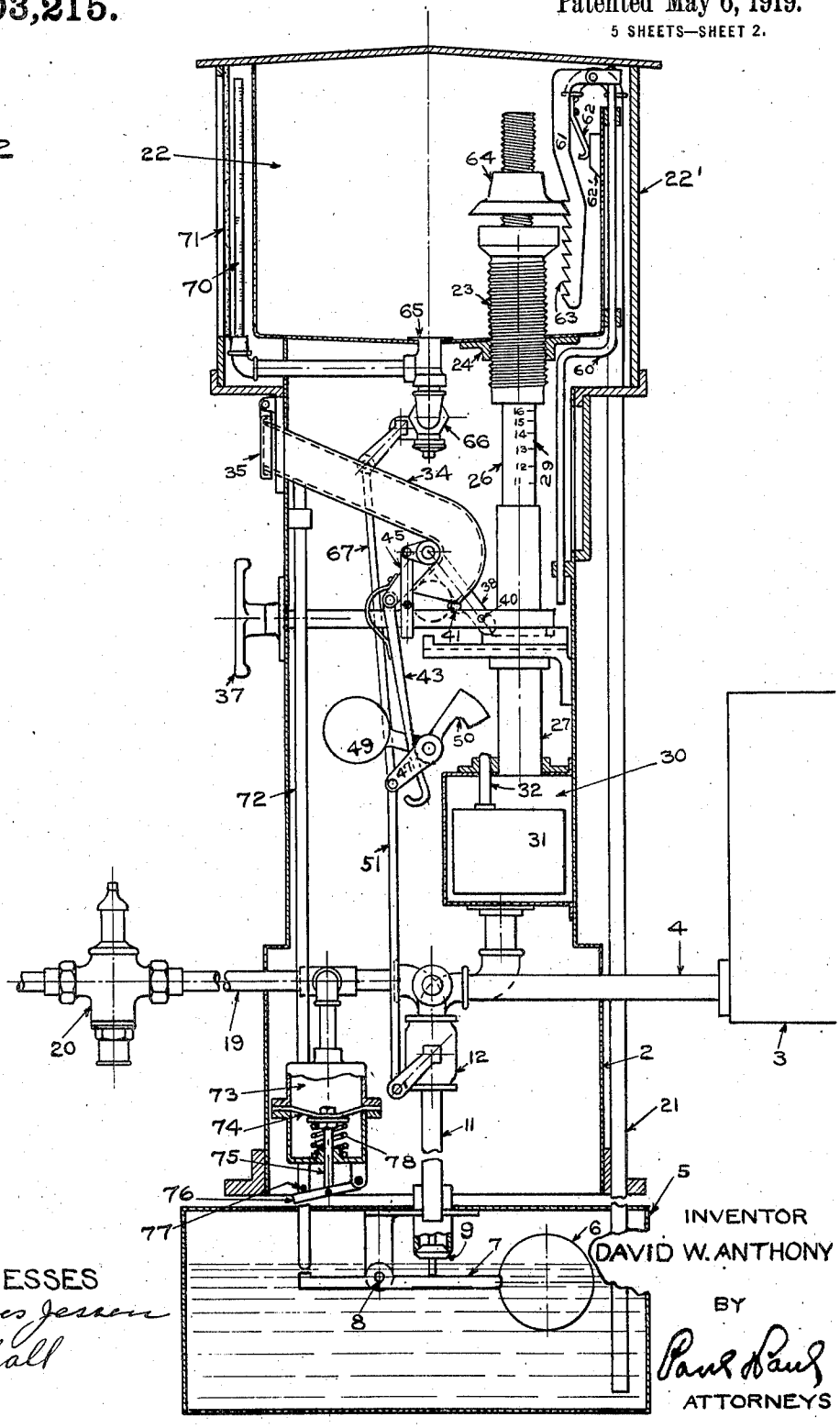
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Patented May 6, 1919.

5 SHEETS—SHEET 2.

FIG-2



WITNESSES

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5 SHEETS—SHEET 3.

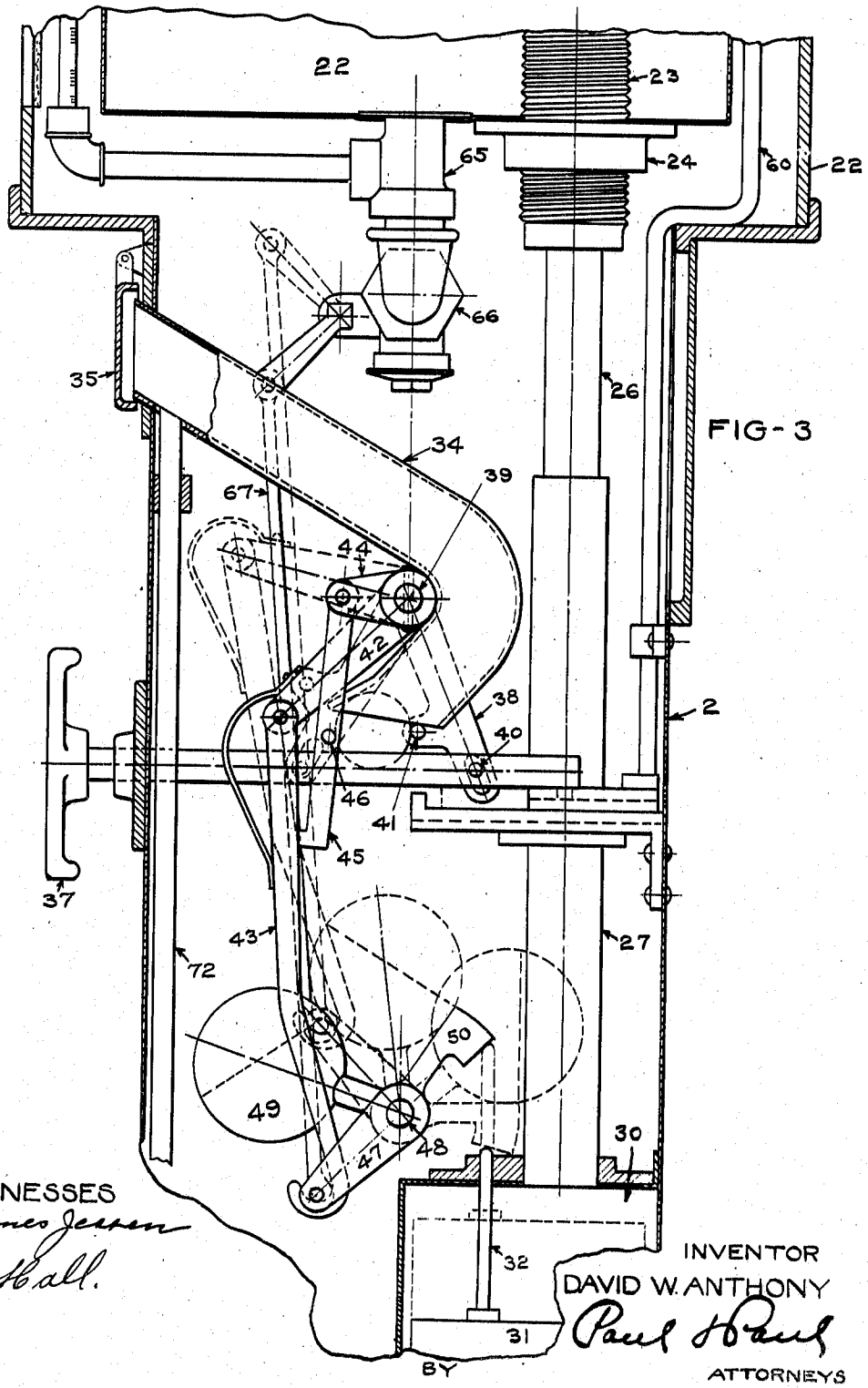


FIG-3

WITNESSES

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OIL DISPENSING MACHINE.

APPLICATION FILED MAR. 8, 1916.

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5 SHEETS—SHEET 4.

FIG-4

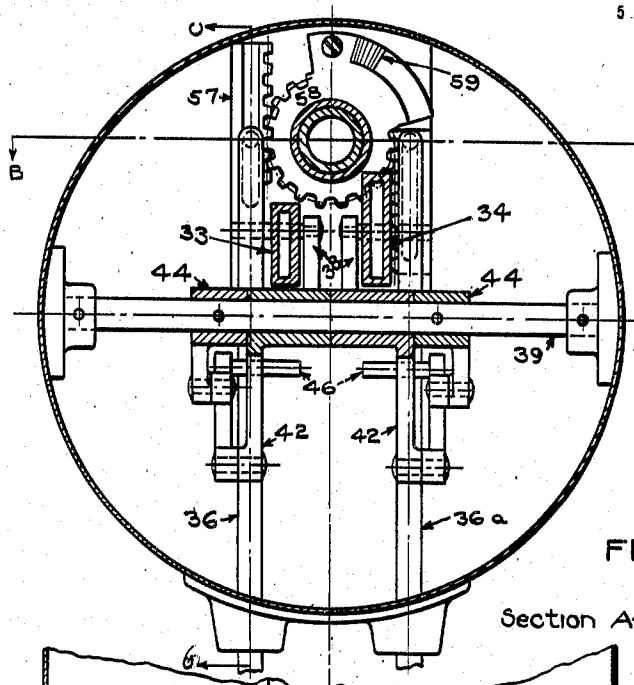
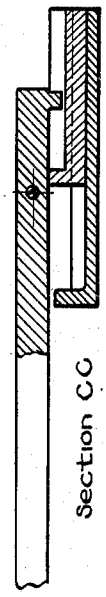
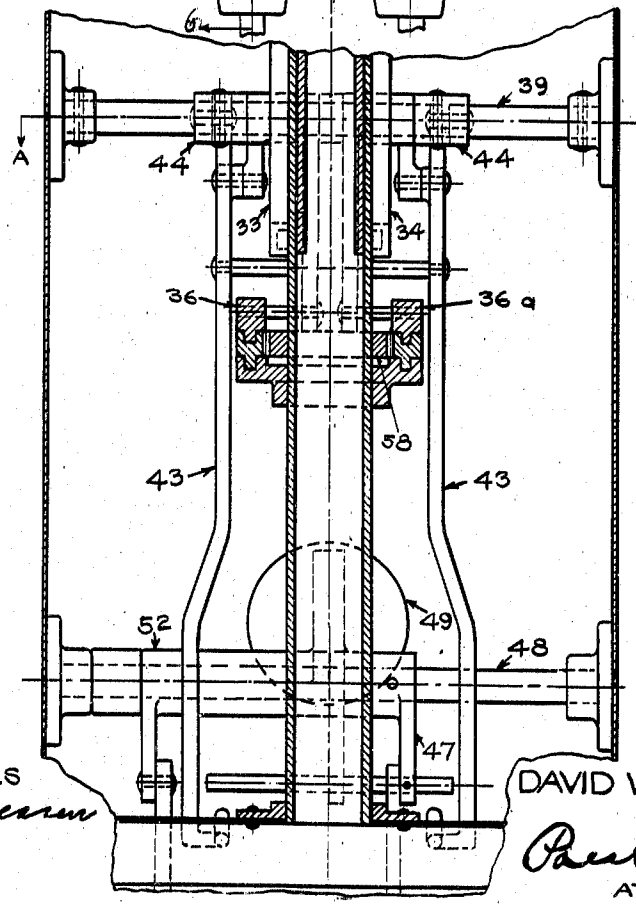


FIG-6



Section A-A

FIG-5



Section B B

WITNESSES

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OIL DISPENSING MACHINE.

APPLICATION FILED MAR. 8, 1916.

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5 SHEETS—SHEET 5.

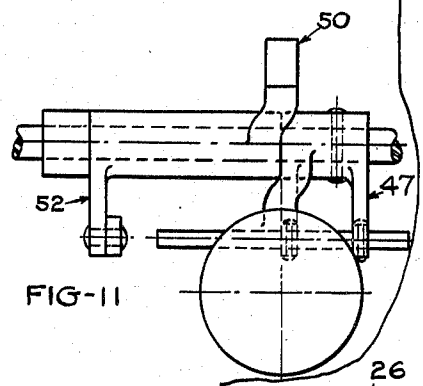


FIG-11

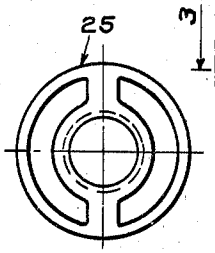


FIG-10

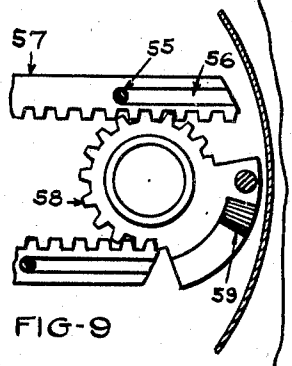


FIG-9

FIG-7

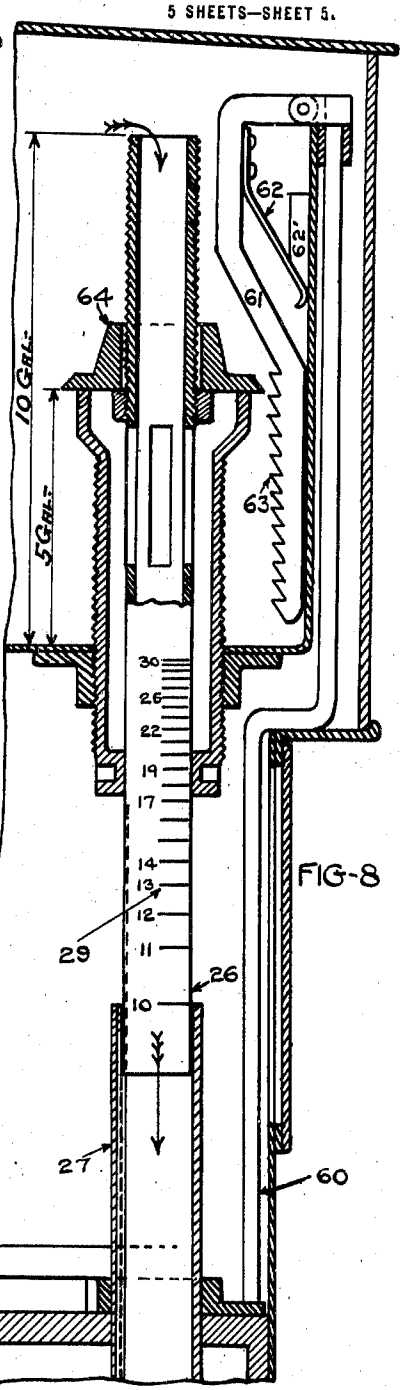


FIG-8

WITNESSES

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BY Reed & Reed

ATTORNEYS

UNITED STATES PATENT OFFICE.

DAVID W. ANTHONY, OF WORTHINGTON, MINNESOTA.

OIL-DISPENSING MACHINE.

1,303,215. Specification of Letters Patent. Patented May 6, 1919.

Application filed March 8, 1916. Serial No. 82,854.

To all whom it may concern:

Be it known that I, DAVID W. ANTHONY, citizen of the United States, resident of Worthington, county of Nobles, State of Minnesota, have invented certain new and useful Improvements in Oil-Dispensing Machines, of which the following is a specification.

My invention relates to a dispensing machine designed particularly for delivering a predetermined quantity of fuel oil upon the deposit of a coin of a certain denomination in the machine, but the invention may also be adapted for vending a lubricating oil, if desired.

The primary object of the invention is to provide a mechanism by means of which the driver of a car can easily and quickly obtain a supply of fuel or other oil upon the deposit of a coin, the supply being regulated by the denomination of the coin without requiring the services of an attendant or person in charge of the machine, thereby making it possible for a driver to obtain fuel for his engine at any time of day or night.

A further object is to provide a mechanism by means of which the supply of fuel delivered can be accurately determined, provision being made for increasing or decreasing the quantity dispensed as the market price rises and falls.

A further object is to provide a dispensing machine which, when the driver deposits a coin and operates a lever, will be automatic in its action to deliver the desired quantity of fuel and automatically return the overplus to the supply tank.

A further object is to provide a dispensing machine of comparatively simple, inexpensive construction and one which can be built and maintained with a comparatively little expense.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Figure 1 is a vertical sectional view through a dispensing machine embodying my invention,

Fig. 2 is a similar view, taken on a section line at right angles substantially to the section line of Fig. 1,

Fig. 3 is a vertical sectional view through the middle portion of the machine, illustrating the coin operated mechanism,

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 5,

Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 4,

Fig. 6 is a sectional view on the line 6—6 of Fig. 4,

Fig. 7 is a vertical sectional view through a portion of the machine, illustrating the means for measuring the volume or quantity of the oil dispensed for a coin of a certain denomination,

Fig. 8 is a similar view, showing the means for adjusting or regulating the quantity of oil dispensed according to the price per gallon,

Fig. 9 is a detail sectional view, showing the means for uncovering or exposing the overflow opening,

Fig. 10 is a detail of the overflow spider,

Fig. 11 is a detail of the tripping mechanism.

In the drawing, 2 represents a suitable casing or jacket, within which the mechanism of the machine is inclosed. 3 (Fig. 2) is a main supply tank for the fuel oil, having a pipe 4 leading therefrom to the supply tank 5 located below the level of the tank 3 to receive the oil by gravity therefrom and provided with a float 6 mounted on a lever arm 7 pivoted at 8 and positioned to open a valve 9 and permit the fuel oil to flow into the supply tank when the level therein has dropped below a predetermined point. In the pipe 4 a controlling valve 10 (Fig. 1) is mounted. An air exhaust pipe 11 communicates with the tank 5 and is provided with a valve 12. An overflow pipe 13 has a valve 16 therein and an air intake pipe 17 has a valve 18 for controlling the flow of air through said pipe. These pipes all communicate with the tank 5, the walls of which are hermetically sealed against the escape of air. An air supply pipe 19 communicates with the pipe 17 and is provided with a suitable reducing valve 20 by means of which the air pressure in the main can be cut down or reduced to the desired pressure per square inch.

A pipe 21 leads from a point near the bottom of the tank 5 to a tank 22 arranged within a suitable casing 22′ in the upper part of the machine. Through this pipe 21

the oil is forced when air pressure is admitted to the space in the top of the supply tank, the valves 10, 12 and 16 being automatically closed before the air is admitted to the supply tank through the operation of a coin controlled mechanism, which I will hereinafter describe in detail.

The air pressure on the oil in the supply tank will be sufficient to raise the oil to the dispensing tank 22 and I make provision therein for returning the overflow to the supply tank and utilizing such overflow to check the delivery to the dispensing tank. This overflow return or control I have shown in detail in Figs. 7 and 8, and it consists of a sleeve 23 exteriorly threaded to engage the threads of a hub 24 in the bottom of the dispensing tank and projecting up into the tank and vertically adjustable therein and open at its upper end and provided with a spider 25 therein that is interiorly threaded to engage an exteriorly threaded pipe 26, the upper end of which is open, its lower end telescoping with a pipe 27 and its intermediate portion having longitudinal slots 28 therein communicating with the space within the sleeve 23.

This particular dispensing tank and the overflows are adapted for dispensing fifty cents and one dollar's worth of oil, the open upper end of the sleeve 23 being adjusted to receive the overflow and prevent the oil from rising above a predetermined level in the tank and the open end of the pipe 26 being positioned to take care of the overflow in excess of one dollar's worth in the tank, the oil passing through the slots 28 from the fifty cent overflow pipe and from thence down into the pipe 26 and through the pipe 26 into the return pipe 27.

The pipe 26, as shown in Fig. 8, is preferably provided with a series of graduations 29 representing the price per gallon of the oil and the sleeve 23 preferably has a right hand thread connection with the hub 24 and the pipe 26 has a left hand thread connection with the spider 25 so that when the sleeve 23 is adjusted vertically to adapt the tank for dispensing, for example, five gallons at a predetermined price, the pipe 26 will be simultaneously adjusted so that its open or overflow end will be exactly twice the distance of the open end of the sleeve 23 from the bottom of the tank, thereby adapting the tank for dispensing five or ten gallons at the same price per gallon, the adjustment of the graduations 29 opposite the end of the pipe 27 adapting the mechanism for the price to be charged per gallon. When this adjustment has once been obtained for a certain price of the oil, it will be unnecessary to make any change in the mechanism until it is desired to dispense oil of another price and, as heretofore stated, the adjustment of the mechanism for delivering fifty cents' worth of oil of a certain price per gallon will automatically make the proper adjustment for the dispensing of oil to the value of one dollar, the cubic contents of the dispensing tank below the upper overflow being automatically maintained to be always double that of the contents below the lower overflow.

The lower end of the pipe 27 communicates with a closed tank 30 having a float 31 therein on which is mounted a pin 32 that projects upwardly through the top of the tank. The overflow pipe 13 communicates with the tank 30 through the bottom thereof to allow the overflow of oil to flow back into the supply tank when the overflow valve is opened.

Referring now to Fig. 1, I prefer to equip this dispensing machine with coin chutes adapted to receive coins of two denominations, a fifty cent piece and a silver dollar. These coin chutes I will designate by reference numerals 33 and 34. They project through the front of the machine, as indicated in Fig. 2, in position to receive a coin deposited by a person desiring to obtain a supply of oil from the dispensing machine. Each chute is preferably provided with a suitable concealing cap or cover 35. There are two slides provided in this machine, one for the fifty cent piece and the other for the dollar and I will designate them by reference numerals 36 and 36a. A description of one of them will be sufficient, as they both operate in substantially the same way and are mounted in a similar manner in the machine. Each slide is provided at its outer end with a suitable hand grip 37.

Referring now to the slide 36, I have shown in Fig. 3 an arm 38 mounted to oscillate on a stationary shaft 39 and having a slot and pin connection at 40 with the slide 36. A pin 41 is mounted in the arm 38. An arm 42 is integrally connected to the arm 38 and is pivotally connected at its outer end to a hook 43 having a comparatively long shank. An arm 44 is fast on the shaft 39 and is provided with a pivoted depending link 45 having a pin 46 in opposing relation to the pin 41 and between which a fifty-cent piece is delivered from the chute 33, temporarily forming a connection between the pins. The lower end of the link 45 bears on the shank of the hook 43 and when the slide 36 is drawn out after the deposit of the coin, and the closing of the gap between the pins 41 and 46 by the coin, the hook 43 will be thrown from the position indicated by full lines in Fig. 3 to that indicated by dotted lines in the same figure. A yoke 47 is loosely mounted on a shaft 48 and a weight 49 is carried by said shaft in the path of the yoke 47 and is raised by the upward movement of the yoke from the position indicated by full lines in Fig. 3

to that shown by dotted lines in said figure, where it is in position to contact with an arm 50, also loosely mounted on said shaft to engage the upper end of the pin 32. This downward movement of the arm 50 is effected through the force of gravity of the weight 49 when it is moved to a point past its center on the shaft 48. The yoke 47 is connected by a fork 51 with the overflow and the oil supply and exhaust valves 10 and 12 for closing them upon the initial upward movement of the hook 43. After these valves have been closed, the yoke 47 will engage the weight 49 and rock the arm 52 and move the rod 53 lengthwise to open the air valve 18 and admit the fluid pressure through the pipe 17 to the supply tank 5, the gage 54 indicating the pounds of pressure in the pipe. The closing of the valves 10, 12 and 16 is for the purpose of preventing the flow of oil therethrough when the pressure is admitted to the tank, and obviously, before the air valve is opened.

Referring now to Figs. 4, 5, 6 and 9, the slide 36 has a pin 55 depending therefrom to enter a groove 56 in the upper surface of a rack bar 57, the teeth of which mesh with a pinion 58 mounted to rotate in a horizontal plane and provided on one side with a cam surface 59 in position to contact with the lower end of a rod 60 which projects up beside the oil dispensing tank and carries a depending pivoted arm 61 that is pressed inwardly toward the overflow sleeve 23 by the tension of a spring 62 engaging a cam 62′. The lower end of this arm is provided with a series of teeth 63 positioned to engage the edge of a cover 64 that is slidable on the upper end of the pipe 26 and is adapted to close the open end of the sleeve 23. When the teeth 63 engage the edge of this cap, it will be lifted to the position shown in Fig. 7, thereby exposing the overflow opening and allowing the excess of oil above the quantity purchased to flow back through the sleeve 23 and the pipes 26 and 27 to the overflow chamber. The initial movement of the slide 36 will have no effect on the rack bar, owing to the pin and slot connection between them, it being desirable to actuate the mechanism for closing the valves of the supply tank during the initial movement of the slide, and raising the cap to expose the overflow opening during its final movement. The operation described will be the same with respect to the other slide. A series of teeth are provided on the lifting arm 61 to adapt it for engaging the cap 64 at different elevations in the dispensing tank.

The dispensing tank has an outlet pipe 65 provided with a valve 66 connected by a rod 67 with the yoke 47. This valve is normally open, but when the yoke is raised to the position indicated by dotted lines in Fig. 3, the valve 66 is closed. When the overflow fills the chamber 30, and the float 31 is raised, it will lift the arm 50 and tilt the weight 49 to a point where it will swing on the other side of its supporting shaft, return the yoke 47 to the position indicated by full lines in Fig. 3, close the air valve and open the other valves communicating with the supply tank and also open the valve 66 which controls the discharge from the dispensing tank 22, whereupon the oil will flow out through the hose 68 and controlled by the valve or faucet 69, be delivered to the tank of the car. A gage 70 communicates with the discharge 65 to enable the purchaser of oil to determine the level of the oil in the dispensing tank in terms of gallons or fractions of a gallon. This gage is visible through a suitable sight glass 71 provided in the jacket or casing 23.

To prevent the insertion of coins in the coin chutes in case the oil supply tank is empty, a rod 72, (see Fig. 2), is mounted to be projected across the coin chute and depends into the supply tank 5 in position to be engaged by the arm 71 when the float has dropped below a certain predetermined point in the tank. This closing of the chute will prevent the insertion of a coin therein until such time as the supply of oil in the tank is sufficient to fill the dispensing tank to the proper level for a fifty cent purchase or for a dollar purchase, as the case may be.

I also prefer to provide a cylinder 73 communicating with the air supply pipe 19 and having a diaphragm 74 connected by a rod 75 with a lever arm 76 that is positioned to engage a pin 77 on the rod 72 for raising it when for any reason the air is off the upper side of the diaphragm. A spring 78 disposed in the cylinder below the diaphragm normally tends to raise it and the rod 72 and close the passage through the coin chute. When the normal pressure of air is on this diaphragm, however, it will be depressed to the position shown in Fig. 2 and the rod 72 will drop to the position shown, exposing the passage through the coin chute.

I claim as my invention:

1. A liquid vending machine comprising a dispensing tank having a discharge opening and valve, means for delivering liquid to said tank and an overflow device provided with means for shutting off such delivery when a predetermined volume of liquid has been delivered to said tank.

2. A liquid vending machine comprising a dispensing tank having a discharge opening and valve, means for delivering liquid to said tank, and an overflow device provided with means actuated by the overflow

from said tank for shutting off the delivery of liquid thereto and opening said discharge valve.

3. A liquid vending machine comprising a dispensing tank having a discharge opening and valve, means for delivering liquid to said tank, an overflow device comprising a casing and float therein communicating with said tank to receive the liquid therefrom when it rises above a predetermined level therein, and means actuated by said float for shutting off the flow of liquid to said tank.

4. The combination, with a supply tank, of a dispensing tank having a pipe connection therewith, mechanism for controlling the raising of the oil from said supply tank through said pipe connections to said dispensing tank, an overflow for said dispensing tank having a chamber and a float therein provided with means for operating said controlling mechanism to check the raising of the oil when the level in said dispensing tank rises above a predetermined point.

5. The combination, with an oil supply tank, of a dispensing tank having a pipe connection with said oil supply tank, an outlet pipe for said dispensing tank and a valve therefor, mechanism for raising the oil from said supply tank to said dispensing tank through said pipe connection and simultaneously closing the valve of said dispensing tank, and an overflow for said dispensing tank having means for operating said mechanism to check the raising of the oil to said dispensing tank when it rises above a predetermined level.

6. The combination, with a supply tank, of a dispensing tank having a pipe connection therewith, a valve for said dispensing tank, means for raising the oil from said supply tank through said pipe connection to said dispensing tank, means for rendering said raising means operative, an overflow connected with said dispensing tank for discharging the oil above a certain predetermined level, and means in connection with said overflow and actuated by the oil therein for checking said oil raising means and simultaneously opening the valve of said dispensing tank.

7. The combination, with an oil supply tank, and a dispensing tank upon a higher level than said supply tank and having a pipe connection therewith, means for raising the oil from said supply tank through said pipe connection to said dispensing tank, a valve for controlling the flow from said dispensing tank, mechanism for releasing said oil raising means, an overflow having means for adjustment and comprising telescoping pipes, and a sleeve mounted thereon within said dispensing tank and adjustable vertically in said tank for varying the position of the overflow opening to correspond to the price of the oil.

8. A liquid vending machine comprising a dispensing tank having a discharge opening and a valve therefor, a supply tank having a pipe connection with said dispensing tank, a valve for controlling the flow of liquid from said supply tank to said dispensing tank, and an overflow device communicating with said dispensing tank and provided with means actuated by the overflow from said dispensing tank for closing said controlling valve and opening said discharge opening valve.

9. The combination, with an oil supply tank, of a dispensing tank upon a higher level than said supply tank and having a pipe connection therewith, an air pressure pipe for said supply tank, and a valve therefor, a mechanism for opening said air pressure valve, and an overflow device communicating with said dispensing tank and arranged to close said air valve when the oil in said dispensing tank rises above a predetermined level.

10. The combination, with an oil supply tank and a dispensing tank upon a higher level than said supply tank and having a pipe connection therewith, an air pressure pipe for said supply tank and a valve for said pressure pipe, a mechanism for opening said air pressure valve, an overflow for said dispensing tank having means for closing said valve when the oil in said dispensing tank rises above a predetermined level, said overflow having means for adjustment for varying its height in said dispensing tank to correspond to the price of the oil per gallon.

11. The combination, with an oil supply tank having intake and return pipes and valves therefor, and an air supply pipe and valve therefor, of a dispensing tank having a pipe connection with said oil supply tank, mechanism for first closing said oil supply intake and return valves and then opening said air valve to admit pressure to said supply tank, said return pipe communicating with said dispensing tank and conducting the oil therefrom back to said supply tank when it rises in said dispensing tank above a predetermined level.

12. The combination, with an oil supply tank, of a dispensing tank having a pipe connection therewith and a discharge opening, means for raising the oil from said supply tank to said dispensing tank through said pipe connection, an overflow pipe comprising adjustable sections projecting into said dispensing tank, and an overflow device provided with means actuated by the overflow liquid in said pipe for shutting off the flow of liquid to said dispensing tank when it reaches a predetermined level therein.

13. The combination, with an oil supply

tank, of a dispensing tank having a pipe connection therewith, means for admitting air under pressure to said supply tank to force the oil therefrom into said dispensing tank, an overflow leading from said dispensing tank to said supply tank and having means for receiving the oil at a point a certain distance from the bottom of the dispensing tank and also at a point twice that distance from the bottom of the tank, said overflow having means for simultaneously raising or lowering the receiving points of the oil to vary the distance thereof from the bottom of the tank and adapt the device for dispensing oil in varying quantities according to the difference in price.

14. The combination, with an oil supply tank, of a dispensing tank having a pipe connection therewith, means for causing the oil to be delivered from said supply tank through said pipe to said dispensing tank, an overflow pipe for said dispensing tank having openings therein upon different levels, and means actuated by the overflow in said pipe for shutting off the delivery to said dispensing tank when a predetermined volume has entered said dispensing tank.

15. The combination, with an oil supply tank, of a dispensing tank having a pipe connection therewith and valve therefor, means for delivering the oil from said supply tank to said dispensing tank through said pipe connection, an overflow pipe composed of telescoping sections projecting into said dispensing tank and mechanism actuated by the overflow liquid in said overflow pipe for shutting off the flow of oil from said supply tank to said dispensing tank.

16. The combination, with an oil supply tank, of a dispensing tank having a pipe connection therewith and a valve for said pipe connection, an overflow pipe projecting into said dispensing tank and mechanism actuated by the overflow liquid from said overflow pipe for closing said valve and cutting off the supply of liquid to said dispensing tank when a predetermined level has been reached therein.

17. The combination, with a liquid supply tank, of a dispensing tank having a pipe connection therewith and provided with a discharge port and valve therefor, an inlet valve for said pipe connection, mechanism, for operating said inlet valve to open said pipe connection to the flow of liquid therethrough or to close said pipe connection, an overflow pipe projecting upwardly into said dispensing tank and vertically adjustable therein and communicating with said supply tank for returning the liquid to said supply tank when it rises above a predetermined level in said dispensing tank and an overflow cup communicating with said pipe and connected with said inlet valve operating mechanism.

18. The combination, with a liquid supply tank, of a dispensing tank having a pipe connection therewith and provided with a discharge port and valve therefor, an inlet valve for said pipe connection, mechanism for operating said inlet valve to open said pipe connection to the flow of liquid therethrough or to close said pipe connection, and an overflow pipe composed of telescoping sections projecting upwardly into said dispensing tank and vertically adjustable therein and communicating with said supply tank for returning the liquid to said supply tank when it rises above a predetermined level in said dispensing tank, and means communicating with said overflow pipe to be actuated by the overflow liquid therein and connected with said inlet valve operating mechanism for closing said inlet valve.

In witness whereof, I have hereunto set my hand this 2nd day of March 1916.

DAVID W. ANTHONY.

Witnesses:
RICHARD PAUL,
M. R. MCINNIS.