

Dec. 5, 1944.

A. L. GRISE

2,364,138

LIQUID DISPENSING APPARATUS

Filed Sept. 18, 1942

4 Sheets-Sheet 1

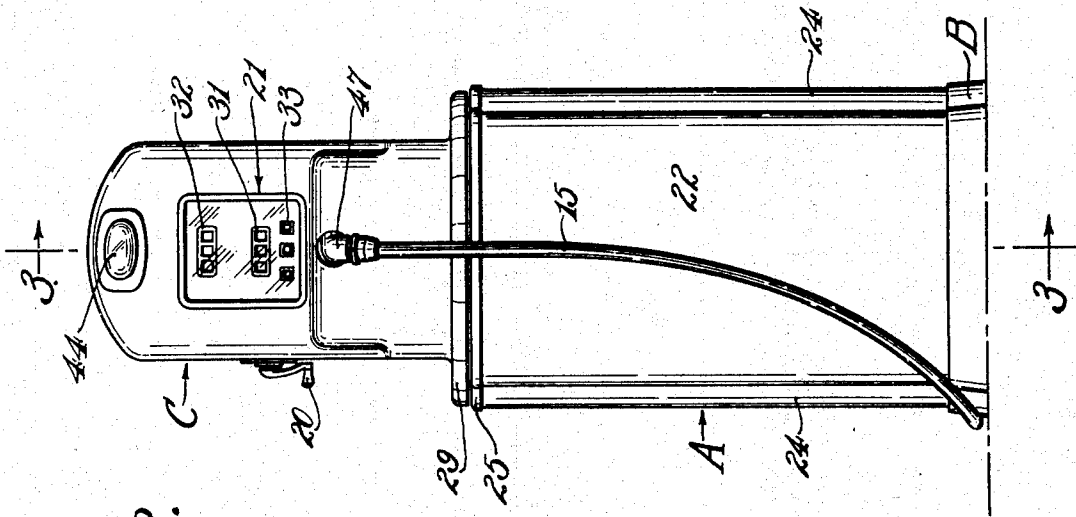


Fig. 2.

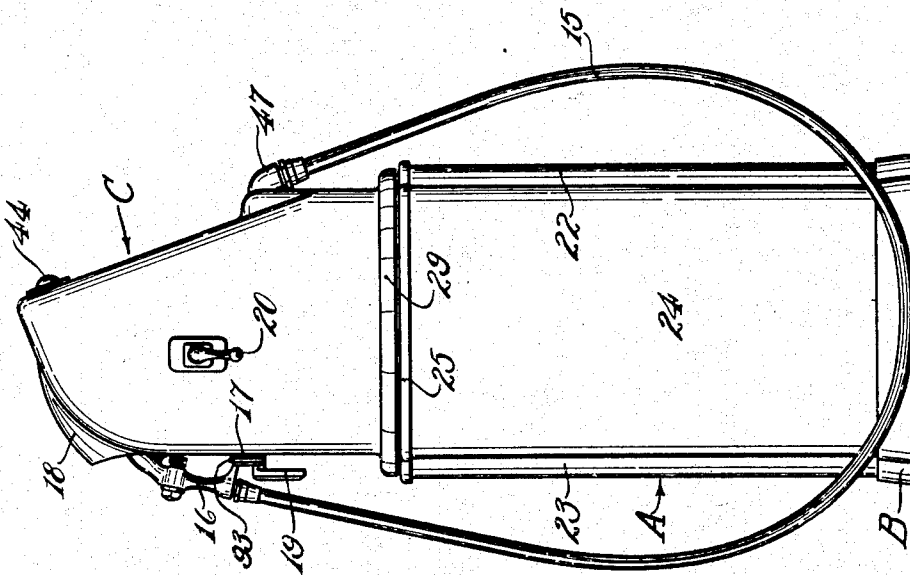


Fig. 1.

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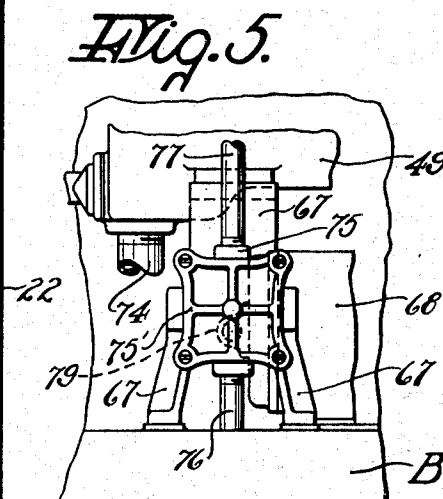
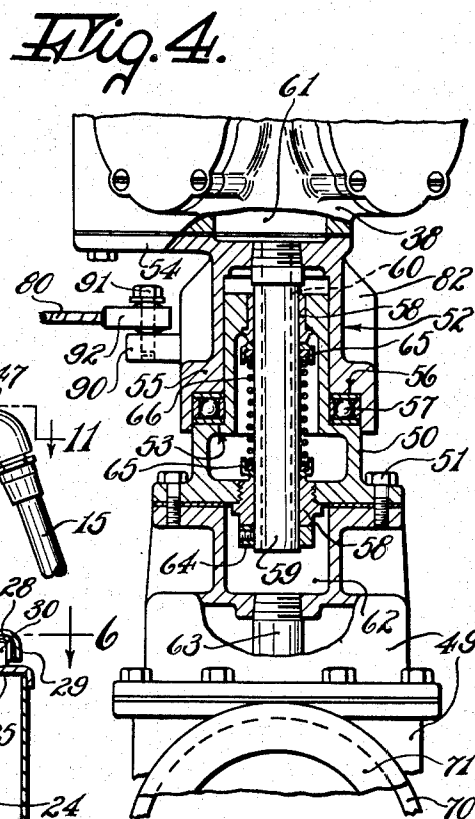
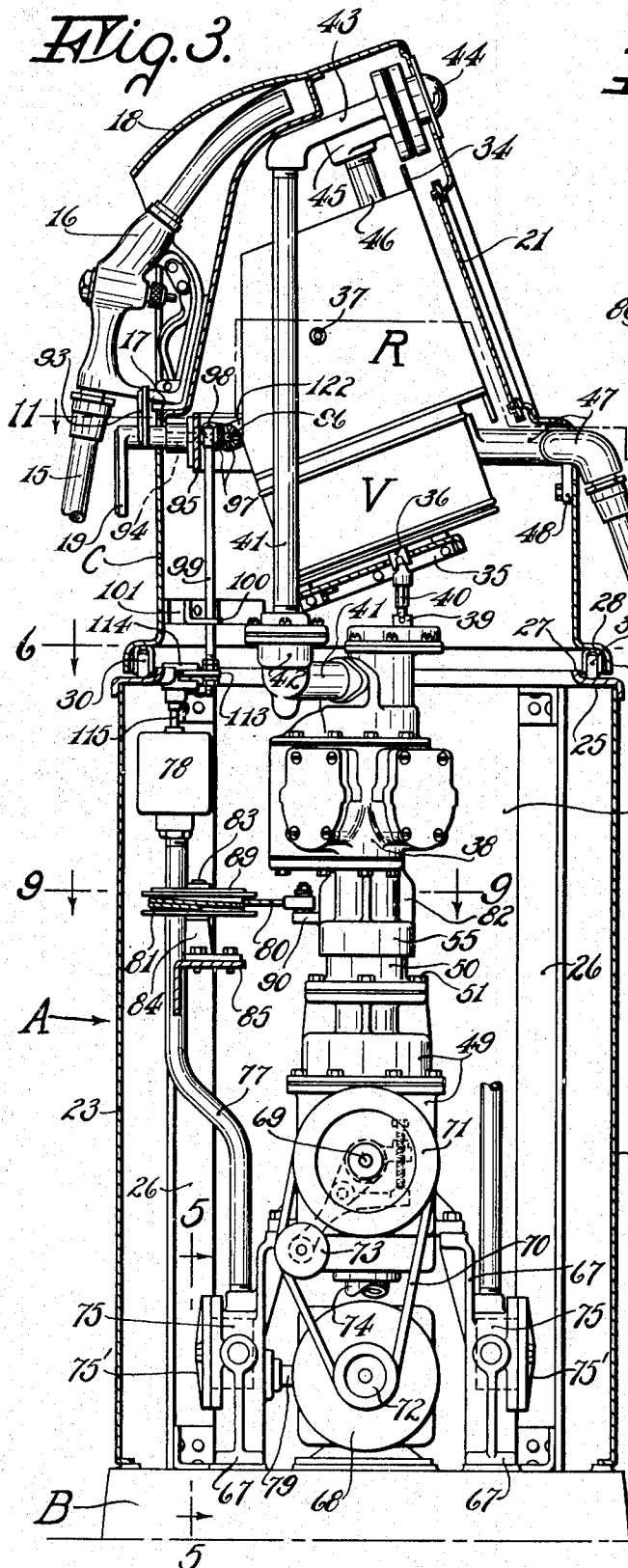
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Fig. 6.

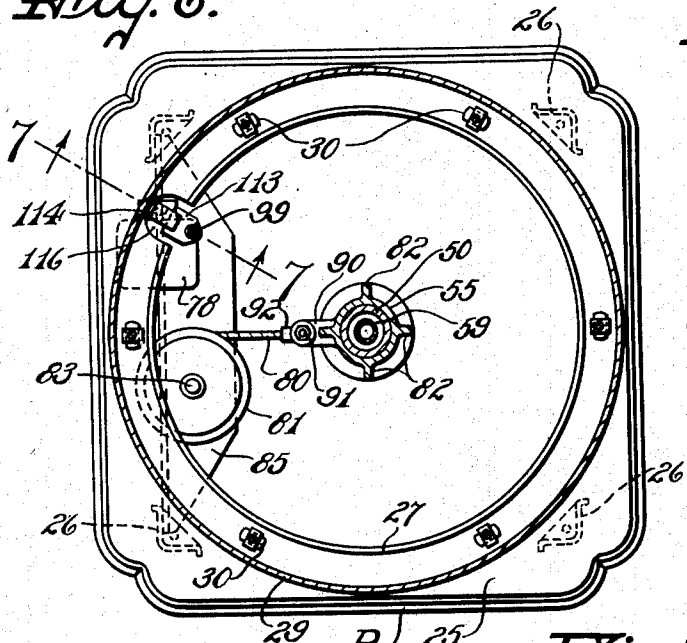


Fig. 8.

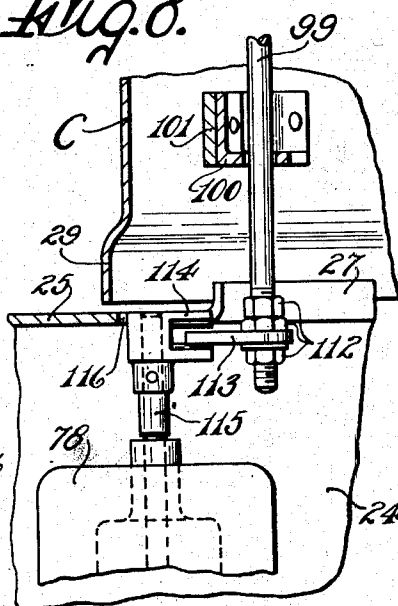


Fig. 7.

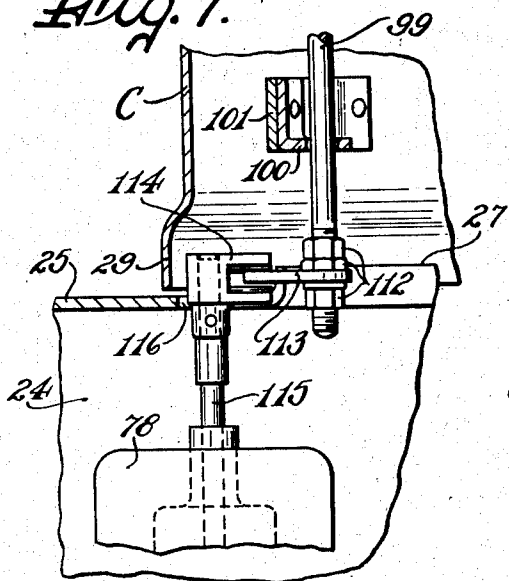


Fig. 9.

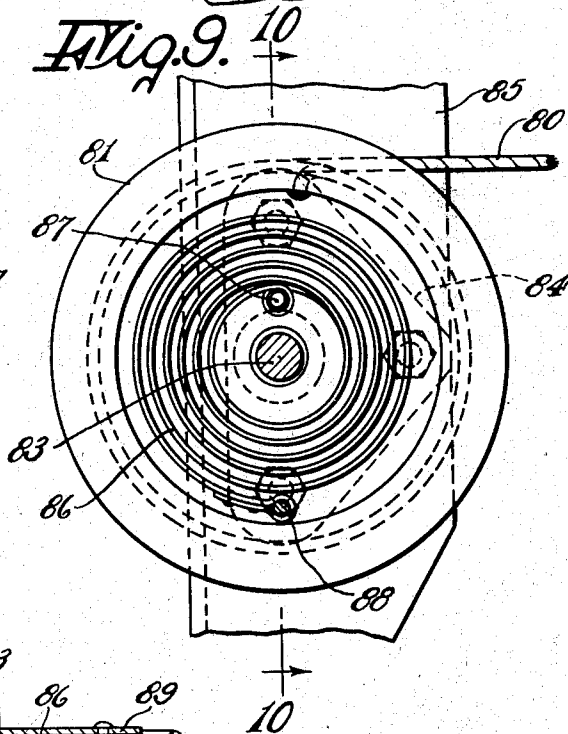
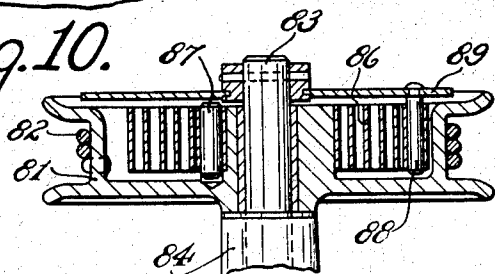


Fig. 10.



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Fig. 11.

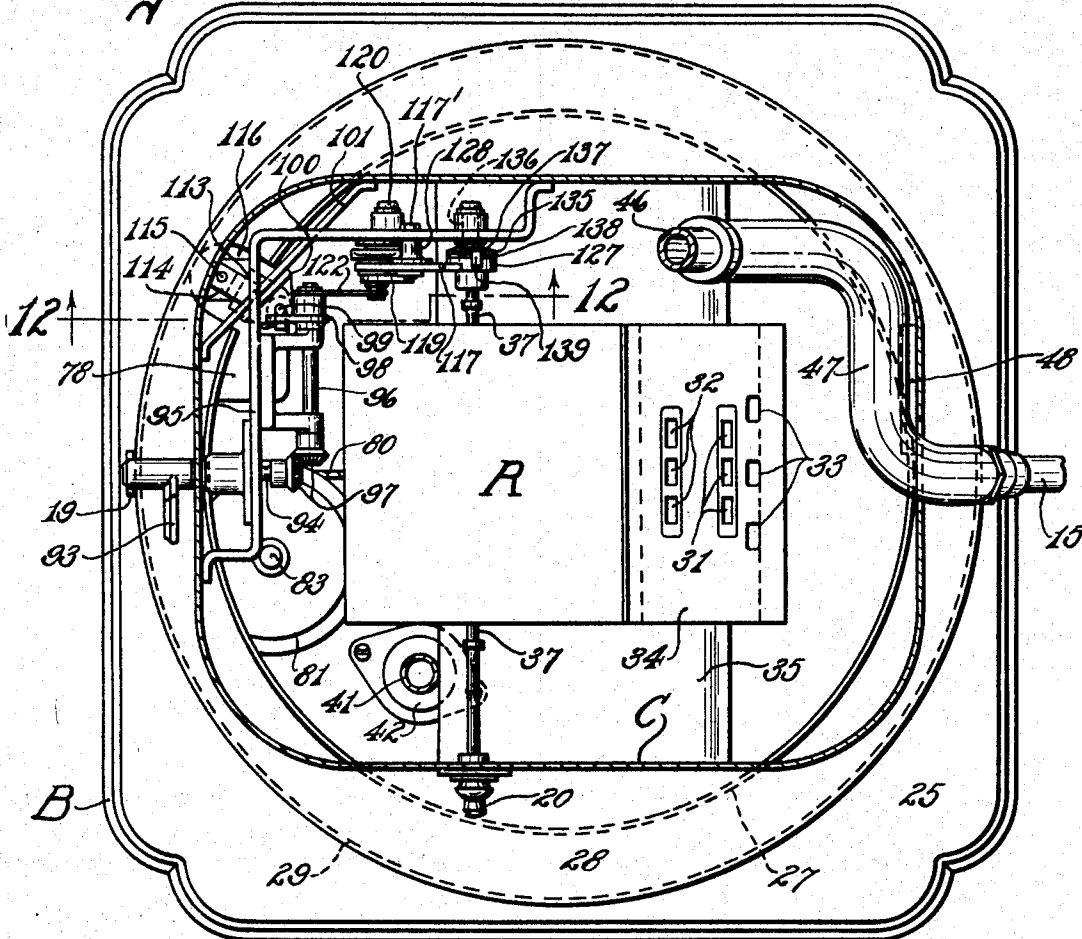


Fig. 12.

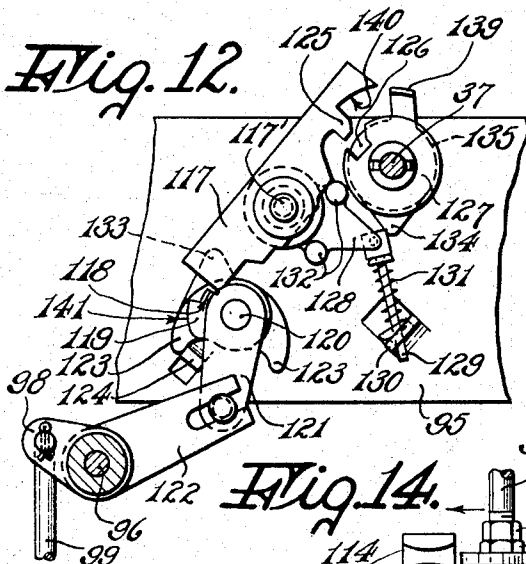


Fig. 13.

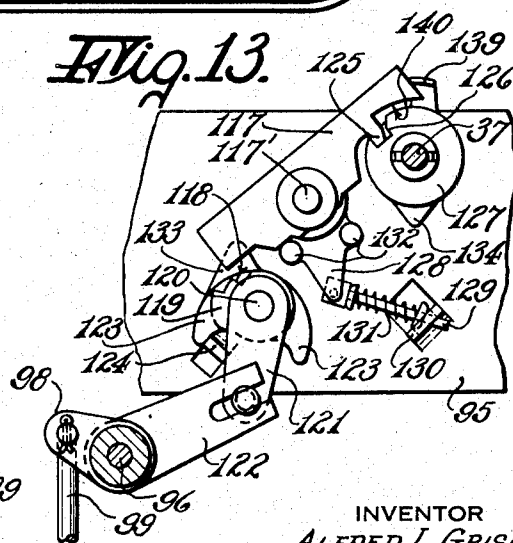
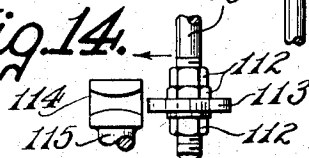


Fig. 14.



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UNITED STATES PATENT OFFICE

2,364,138

LIQUID DISPENSING APPARATUS

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Application September 18, 1942, Serial No. 458,829

18 Claims. (Cl. 222—34)

This invention relates to an improved liquid dispensing apparatus of the type used to sell gasoline at service stations.

The principal object of the invention is to provide, in a dispensing apparatus of the class described, a turret or rotatable casing to carry a register showing the quantity and/or cost of the liquid dispensed, such casing having a window through which the indications of the register are visible, and being turnable by a pull on the dispensing hose to present the window at any desired radial position for convenient reading.

With prior art pumps, if the customer's car is pulled up alongside the pump so that the customer can see the register, then the operator cannot easily read it from the position where he has to stand to fill the tank. This invention allows the operator to swing the register around by a pull on the hose so that he can watch the register while filling the customer's tank and, after filling the tank, the register can be swung back into position so that the customer can read the amount of the sale. As another example of the utility of the invention, the register may be swung around so as to be read on either side of the "island" on which gasoline pumps are usually mounted. The common practice is to provide each pump with two registers, driven simultaneously by the meter, and two windows through which the indications of these registers are visible. These windows are arranged on opposite sides of the pump so that the amount of liquid dispensed can be read from either side of the island. This invention enables the desired result to be obtained with the saving of one register and one window, used for the reading at two places, and with the advantage of more convenient operation.

Another object of the invention is the provision of means for returning the turret to a predetermined radial position of rest, whenever the turning force on the turret is relaxed. Such position may, for example, be one wherein the face of the register parallels one side of the island on which the pump is mounted.

This arrangement is desirable to provide for neat, orderly appearance of the apparatus, which could not be had if the dial of the register could be left at random at any angle. The arrangement also enables the register, after having been turned for the convenience of the operator during filling of the tank, as above described, to be automatically restored to a position where the register can be read by the customer while seated in his car.

Another object of the invention is to locate

the dial face of the register at an angle to the vertical, thereby enabling the register to be more conveniently read, particularly in cases where the pump casing is of relatively low height.

5 A further object of the invention is to provide an improved mounting of the hose, whereby an extra long hose may be mounted in a single broad loop outside the pump casing and whereby the nozzle end, as well as the inner end of the hose 10 is carried by the turret when the hose is not in use.

A further object of the invention is to provide, in connection with the means for starting and stopping the pump, means whereby both starting and stopping must be performed while the rotatable casing or turret is in its initial or rest position.

15 A further object of the invention is to provide in connection with the means for resetting the register, an arrangement whereby such means 20 can be operated only when the rotatable turret or casing is in its initial or rest position.

These objects will best be understood as the detailed description proceeds and they will be pointed out in the appended claims.

25 The invention will be disclosed with reference to the accompanying drawings, in which,

Figs. 1 and 2 are side and front elevational views, respectively, of a gasoline measuring and dispensing apparatus embodying the invention;

30 Fig. 3 is a sectional elevational view taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary view taken from the same direction as Fig. 3 but drawn to a larger scale and partly in section to show the rotatable mounting of the meter and connected parts;

35 Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is a sectional plan view taken on the line 6—6 of Fig. 3;

40 Fig. 7 is a fragmentary sectional view, taken on the line 7—7 of Fig. 6 and drawn to a larger scale, showing the motor switch operating means in "off" position;

Fig. 8 is a view similar to Fig. 7 but showing said means in "on" position;

45 Fig. 9 is a fragmentary sectional plan view taken on the line 9—9 of Fig. 3;

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9;

50 Fig. 11 is a sectional plan view taken on the line 11—11 of Fig. 3 but drawn to a larger scale;

Fig. 12 is a fragmentary sectional view taken on the line 12—12 of Fig. 11 and showing the interlock between the switch actuating means and the register resetting means;

Fig. 13 is a view taken similarly to Fig. 12 but showing certain parts in different positions; and

Fig. 14 is a fragmentary elevational view showing a detail of the switch actuating means.

Referring to these drawings and first to Figs. 1 and 2 thereof, the dispensing and measuring apparatus, with the exception of the hose 15, its nozzle 16, nozzle support 17, nozzle boot 18, switch lever 19 and the crank 20 for resetting the register, is enclosed within a housing having a lower section A upstanding from a base B, and an upper section C. One novel feature of the housing is that the upper casing C is rotatable on the lower section about a vertical axis and carries the register, the indications of which are visible through a window 21. The casing C may therefore be turned, by pulling on the hose or otherwise, to present the window 21 in any desired radial position throughout a 360 degree range so that the amount of the measured liquid dispensed, in gallons or in dollars and cents, may conveniently be read. Another novel feature of the housing is that the window 21 is disposed at an acute angle to the vertical, enabling the register to be easily read even though the housing is made substantially shorter than has heretofore been customary.

It will be noted that both ends of hose 15 are supported from the rotatable casing C when the apparatus is not in use—the inlet end being fixed to the front face of said casing, centrally thereof and below window 21, and the outlet or nozzle end of the hose being supported from support 17 which is located on and centrally of the rear face of said casing. This arrangement enables a much greater length of hose to be draped in a single loop outside the housing than is possible with prior art arrangements. The hose at its inlet end leaves casing C with an outward and downward slope so that it is spaced away from the front wall 22 in its downward stretch. The nozzle 16 is so mounted on support 17 that the other end of the hose is also given an outward and downward slope to cause the hose to be spaced away from the rear wall 23 in its upward stretch along such wall. The weight of the hose, thus supported from its two ends, causes it to bend into a very broad loop with its lowest portion supported preferably just slightly above the ground, as shown. The lower portion of the hose will lie against the side wall of base B, so that the hose as it passes downwardly must bend toward one side wall 24 (the left as viewed in Fig. 2) and, as it passes upwardly, it must bend from such side wall 24 inwardly toward the center of rear wall 23. Thus, the one loop contains a much greater length of hose than is usual. Then, the fact that casing C can be turned to follow the hose in whatever direction it is pulled, enables full utilization of the extra long hose and a greater radius of service than would be possible with the same length of hose if the casing C didn't turn. At no time does the hose have to be bent around the casing to reach the tank to be serviced. Wherever the tank is located, the hose can extend from casing C to the tank in a direct radial path.

Referring now to Fig. 3, the details of construction of the housing will next be described. The lower section A of the housing includes a top 25 supported from base B by four angle-iron columns 26, suitably secured as indicated to both the base and top. The front wall 22, rear wall 23, and two side walls 24 enclose the space be-

tween top 25 and base B. One or more of these walls will be made conveniently removable in accordance with usual practice to enable access to the interior mechanism. The top 25 has a large central circular opening embordered by an upstanding rim 27. The casing C which is approximately rectangular in cross-section is provided near its base with a circular flange 28 embordered by a downturned rim 29. To the flange 28 are attached a plurality of rolls 30 (six as shown) which ride on the trackway afforded by the top 25 immediately adjacent rim 27.

Within the upper casing C is located the register R which may be of any suitable type to indicate the quantity and/or cost of the liquid dispensed. In the particular form herein shown, the register is intended to show the quantity dispensed by a set of counter wheels 31 (Fig. 1) and the cost by a set of counter wheels 32. Also, the unit price of the liquid is displayed by wheels 33. The indications of these wheels are visible through slots in the dial plate 34 of the register. Beneath the register is a variator V, consisting of speed change mechanism for driving the cost wheels at various rates relative to the quantity wheels in accordance with the price displayed by wheels 33. The register and variator illustrated are constructed substantially as shown in U. S. patent to Slye, Wild and Hoyer, No. 2,151,239, dated March 21, 1939, except that only one set of cost wheels 31, one set of quantity wheels 32, and one set of price wheels 33 are necessary because the register, being fixed to the upper casing or turret C, is rotatable to present the one set of wheels of each kind in any desired radial position for reading. The register R and variator V are fixed together as one unit and this unit is suitably secured to a plate 35 extending from one side wall of casing C to the other and secured at its ends to such walls as indicated. The register has a driving shaft 36 (Fig. 3) for actuation by a meter and a shaft 37 (see also Fig. 11) which may be manually operated by the hand crank 20 to reset the counter wheels 31 and 32 to zero in the usual and well known manner.

The register is driven by a meter 38 which may be of any suitable type. Liquid forced into the meter rotates shaft 39 proportionately to the quantity of liquid passing through the meter. A short shaft 40 interconnects shafts 36 and 39 and has universal joint connections with each. The measured liquid leaves the meter through a pipe 41 having interposed therein a pressure control valve 42. Pipe 41 extends upwardly along one side of register R into casing C and near the top thereof is connected to the inlet pipe 43 of a suitable sight-glass flow indicator 44, which extends through the upper part of the front wall of casing C so as to be visible to the customer. The outlet pipe 45 of said indicator is connected to a pipe 46 which extends downwardly along the other side of register R and connects with a double elbow casting 47 to which the inlet end of hose 15 is connected. Casting 47 has a flange 48 which is secured to the casing C as indicated. Thus, a pull on the hose is transmitted to casting 47 and thence to casing C whereby the latter may be rotated.

To enable rotation of the casing C, the dispensing conduit which includes the elements 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48 and others to be described, must have a swivel joint therein. Such a joint might be located in that part of the dispensing conduit which lies beyond the meter. Rotation

of casing C would be permitted in this way. However, this arrangement would enable relative rotary movement between elements of the driving connections between the meter and register, whenever the casing C is turned. Such relative movement would cause actuation of the register to a small extent. Accuracy of the register would thus be affected by the turning of the casing C. To avoid this trouble and eliminate the necessity for elaborate compensating mechanism to correct the errors, the meter is made to turn with the register whenever casing C is turned and the swivel joint is located on the inlet side of the meter.

Fig. 4 shows one suitable mounting of the meter. On top of a casing 49, which houses the air separator, pump and related devices, a standard 50 is secured, as by cap screws 51. This standard has a finished cylindrical surface 52 and at the base of this surface a finished shoulder 53. A bracket 54, fixed to the bottom of meter 38, has a depending member 55 which is bored out to closely fit the surface 52 and has a shoulder 56 between which and shoulder 53 is located a thrust bearing 57. The weight of the meter and connected parts is taken by this anti-friction thrust bearing. The standard 50 is hollow and at its upper and lower ends has sleeve bearings 58 which rotatably receive a shaft 59 which is fixed to bracket 54. Shaft 59 has a passage 60 there-through which communicates at its upper end with the inlet port 61 of meter 38. The lower end of passage 60 communicates with a well 62. Into this well, a pipe 63 discharges such pipe being the outlet pipe for air-free liquid of the air separator. A collar 64 fixed to the lower end of shaft 59 engages the lower end face of the lower bearing 58 to take any upward thrust on the meter. Leakage from well 62 around shaft 59 is avoided by seal rings 65, mounted on the shaft and pressed apart by a spring 66 to engage one with each of the adjacent end faces of the two sleeve bearings 58.

The casing 49, which as described contains a pump, an air separator and related parts, is supported from and at a location substantially above base B by a pair of laterally-spaced brackets 67. Beneath the casing 49 and between the two brackets 67 is an electric motor 68 which is mounted directly on base B. Motor 68 drives the shaft 69 of the pump by a belt 70 and pulleys 71 and 72. 73 represents the usual belt-tensioning pulley. The suction pipe of the pump is shown at 74 and is adapted for connection to a low-level supply tank for the liquid to be dispensed.

Each of the supporting brackets 67, as shown in Fig. 3, is formed to provide a junction box 75. Each such box is formed, as shown in Fig. 5, between the two spaced legs of the bracket. Each box has a suitable cover 75'. One of these boxes 75, that on the left in Fig. 3, is utilized for the wiring to motor 68. A conduit 76 leads into the bottom of this box 75, another conduit 77 extends from the top of this box to a box 78, which houses the switch for the motor; and a conduit 79 extends from the back of the box to the motor 68. These conduits contain the wires which connect the motor 68 and its switch in circuit with a suitable source of supply of electricity. The right-hand box 75 may be used in connection with the wiring for the electric lamps (not shown) which are usually provided to illuminate the dial of the register and for other purposes.

Means are provided for automatically returning the casing C or turret always to a predeter-

mined position after the tension on hose 15 is relaxed. Such position will usually be one where the window of the register parallels the roadway on the edge of which the apparatus is mounted. In any case, it will be desirable for appearance to have the register window parallel with some one of the four sides of the lower casing A. For accomplishing this result, the depending member 55 of the meter is connected by a cable 80 (Figs. 3 and 6) to drum 81, which has a spring tending to turn it in a counterclockwise direction as viewed in Fig. 6. This drum winds up the cable until the member 55 is moved into the illustrated position. In this position, a line connecting the center of member 55 and the point of attachment of the cable thereto lies tangent to the periphery of the drum. Therefore, the drum cannot turn further in the counterclockwise direction and member 55, together with the meter, register, and upper casing C, is yieldingly held in the predetermined positions illustrated. The upper casing C can, however, be rotated in either direction and in each case the cable 80 will unwind from the drum 81 and wind on the webs 82 of the member 55. The member 55 can turn throughout 360 degrees and the amount that it can turn is limited only by the amount of cable wound on the drum.

Referring now to Figs. 9 and 10, the drum 81 is rotatably mounted on a stud 83 fixed to and up-standing from a bracket 84, secured as indicated in Fig. 9 to an angle iron cross bar 85. As shown in Fig. 6, this cross bar extends between, and is secured at its ends to, two of the angle iron columns 26. The spring, which drives the drum, is shown at 86 and is mounted in a circular recess in the drum. One end of the spring is fixed in a recess in the hub of the drum by means of a pin 87. The other end of the spring is fixed to a pin 88 which is fixed to and depends from a plate 89. Plate 89 is fixed, as shown in Fig. 10, to the stationary stud 83 which supports the drum. The ends of the cable 80 may be fixed to the drum and to member 55 in any suitable manner and suitable examples are shown in Figs. 6 and 9. In Fig. 6 the member 55 has a crank 90 and crankpin 91 to which an eye 92 of the cable is connected. In Fig. 9, the end of the cable passes through the periphery of the drum and is fixed to the inner face thereof.

It is customary to place the motor switch actuating lever 19 in such relation to the hose nozzle support 17 that the switch cannot be turned on while the nozzle 16 is in place on the support. This has been done and a lug 93 on the lever 19 engages the nozzle when on the support and prevents movement of the lever in the direction necessary to turn the switch on. Since it is also desired to have the nozzle support 17 on rotatable casing C, the switch lever 19 must also be supported thereby. Thus, the switch lever 19 will rotate with the casing C, whenever the latter turns, while the switch is stationarily supported within the casing A. Provision is made for relative movement in the connections between the lever 19 and the switch, which it actuates as set forth below. First, the lever 19 is fixed to a shaft 94 mounted in a bearing on a bracket 95 secured to casing A. A second shaft 96, also mounted in a bearing on bracket 95, is connected at one end by bevel gears 97 to shaft 94 and on the other end carries an arm 98. To this arm is connected a link 99 which extends downwardly to the casing A—the link being slidably mounted

near its lower end in a guide 100, mounted on a bracket 101, fixed to casing C, as shown in Fig. 11. Adjustably secured, as by the nuts 112, see Fig. 7, to the lower end of link 99 is an arm 113 which engages in a fork 114 fixed to the actuating rod 115 of the motor switch. The rod 115 is shown in its uppermost position in which the switch is off. When the members 113 and 114 are engaged as shown, the rod 115 can be moved downwardly by lever 19 (provided nozzle 16 has been removed from its support 17) into the position shown in Fig. 8 in which the switch is on. Rod 115 remains in each of the two extreme positions to which it may be moved. Thus, if the rod 115 has been moved into the Fig. 8 position to turn the switch on, the casing A may be turned in either direction, thereby moving arm 113 out of the fork 114.

It is to be noted, however, that the casing C cannot be turned far enough to disengage arm 113 from fork 114 when the switch is in "off" position. The arm 113 is then at such an elevation that it will engage one or the other of the two ends of flange 27 which ends lie on opposite sides of the recess 116 in top 25. Thus, the motor switch must be turned on while casing C is in its initial or rest position illustrated.

After the switch has been turned on and casing C has been turned out of its initial position, the arm 113 rides in under the top wall 25 or, more specifically, the circular marginal portion thereof adjacent the large central opening therein. Then, the arm 113 can no longer be raised by the switch lever 19 and it is maintained at the proper level to enable it to engage in fork 114 when the casing C moves back into its initial position. To facilitate entry of arm 113 into fork 114, the adjacent surfaces of its top and bottom walls may be beveled as shown in Fig. 14. It will be clear that the motor 68 can be stopped only when casing C is in its initial or rest position.

Means are also provided to compel resetting of the register before the casing C can be turned from its initial position and to prevent resetting while the casing is in any other position. Such means include a standard form of interlock, best shown in Figs. 12 and 13. A dog 117 pivoted on a stud 117' to bracket 95 is movable from one, to the other of the two extreme positions shown in these two figures. In Fig. 12, dog 117 engages a shoulder 118 on a member 119, fixed to a shaft 120, mounted in bracket 95, and this shaft is connected, by the two arms 121 and 122 and the pin and slot connection therebetween, to be turned by shaft 96 which operates the switch actuating devices described. Lugs 123 on member 119 are engageable with a stop 124 on bracket 95 to limit the movement of the member. Such member is shown locked in "switch off" position with one lug 123 engaging the stop. When unlocked, as shown in Fig. 13, the member is free to turn until the other lug 123 engages the stop and the member will then be in "switch on" position.

In Fig. 13, the dog 117 is shown in position to prevent operation of the resetting mechanism by crank 20. A tooth 125 on the dog engages in a notch 126 in a member 127 which is rotatably supported on bracket 95. Member 127 is connected as indicated in Fig. 11 to the reset shaft 37. Thus, the register cannot be actuated by the resetting means while the motor switch is unlocked preliminary to movement to "on" position or while in the last-named position. Actually, as above set forth, the casing C cannot be turned

until the switch has been moved to "on" position. Resetting of the register is necessary before the switch can be so moved. Hence, resetting is compelled before casing C can be moved out of initial position. Once the casing has been turned out of said position, the switch cannot be moved to "off" position and since it must be thus moved in order to unlock the member 127, resetting of the register is prevented when casing C is in any position other than its initial position.

The dog 117 is moved from one to the other of its two extreme positions by toggle mechanism. A toggle link 128 is pivotally mounted on stud 117' to swing independently of dog 117 and at its other end is pivoted to one end of a second toggle link 129. The lower end of link 129 slides in a lug 130 on bracket 95 and a spring 131 acts between this lug and a shoulder on the link. The toggle link 128 has pins 132 thereon which project outwardly in underlying relation with dog 117. When the toggle links are moved from one to the other of the two extreme positions illustrated, one or the other of these pins 132 will engage and move the dog 117. The toggle links are moved either by a cam 133 on member 119 or by a cam 134 on member 127. Each of these cams will engage the adjacent pin 132 and move it and the toggle links far enough to cross the line of centers connecting the pivot points of these links whereupon the spring 131, which has been stressed by this movement of the toggle links, will expand and move the links into the other extreme position and actuating the dog 117 with a snap action.

The particular type of register used herein is so constructed that the resetting shaft 37 must be turned 405 degrees in a counterclockwise direction, as viewed in Figs. 12 and 13. When thus turned and released, the shaft will move back 45 degrees in a clockwise direction and come to rest. The net result is one complete revolution of member 127. However, the tooth 125 would, unless otherwise restrained, move into notch 126 at the end of 360 degrees' movement in a counterclockwise direction, and prevent the desired further movement of 45 degrees. To avoid such action, the following means are employed. A disk 135 (Fig. 11) is mounted on the stud 136, which carries member 127, and a star-shaped spring 137 on said shaft presses this disk against a friction washer 138 and the latter against member 127. Disk 135 carries an ear 139 which can move in under the arc-shaped surface 140 on dog 117. Such surface is coaxial with member 127 and ear 139, when the dog is in the Fig. 12 position. The ear 139 is driven from member 127 only through frictional engagement. It will travel with member 127 when the latter is turned in a counterclockwise direction, until it engages the tooth 125. The ear 139 will then have moved 45 degrees and come in under the surface 140 in position to support dog 117 when required. On continued movement of member 127 in the counterclockwise direction, ear 139 remains stationary. During this movement, cam 134 will engage the right-hand pin 132 on toggle link 128 and move the links to the left across their line of centers, after which spring 131 will move the links still further to the left and nearly into the position shown in Fig. 13 in readiness to move dog 117 when the latter is released from ear 139. The notch 126 is carried 45 degrees in a counterclockwise direction beyond tooth 125. Then, on the return 45 degree movement, the member 127 and ear 139 will move together and, at the mo-

ment when notch 126 moves into line with tooth 125, the ear 139 will have moved out from the end of dog 117. The latter, being thus released, will be moved by the toggle spring 131 into the position shown in Fig. 13, thus unlocking the switch lever for movement and locking the resetting mechanism against movement. Lever 19 is then moved, which turns member 119 in a clockwise direction until the right-hand lug 123 abuts stop 124. In the course of this movement, cam 133 will move the toggle links across their line of centers and spring 131 will move them the rest of the way into position to swing dog 117 in a counterclockwise direction. However, the notch 118 will have been moved beyond the left-hand end of dog 117 and such end will ride on surface 142 of member 119 and thus be held against clockwise movement. When, however, the switch is turned off, member 119 will be turned counterclockwise and, as soon as notch 118 comes into line with the left-hand end of dog 117, the latter moves into the notch to lock the switch and unlock the resetting mechanism.

In operation, the hand crank 20 is turned one and one-eighth revolutions in a counterclockwise direction, released and allowed to move back one-eighth of a revolution. This will reset the indicators of the register R to zero and will release one of the locks which holds the switch lever 19. The nozzle 16 is removed from support 17 which releases the other lock holding lever 19. The switch lever 19 is then turned to start the pump motor. This will lock the resetting means for the register and will release the casing C or turret. It is thus necessary to operate the resetting means and turn on the motor switch to free the casing for movement. The operator then carries the nozzle 16 to the tank of the car to be serviced. Assuming that this car is located so that the driver's seat is opposite the window 21, when the turret is in its initial position, the operator may, by pulling on hose 15, swing the turret until the window 21 faces the operator. In this way, the operator can watch the register during filling of the tank. When the tank has been filled, the operator relaxes his pull on the hose and the spring 87 will return the turret to initial position. The window 21 will then lie opposite the driver's seat so that the driver can observe the amount of the sale. The angle at which the window lies enables the readings to be conveniently observed. In the event that the turret is prevented from returning to initial position, as by the hose becoming caught on some obstruction, the operator will be obliged to locate the trouble and remedy it before he can stop the pump motor. The switch cannot be operated from lever 19 except when the casing has been brought completely back into the desired predetermined position. When the turret is so located, the switch lever 19 can be moved to stop the motor. On movement of the switch to closed position, it becomes locked by dog 117 and can only be released by the described actuation of the register resetting means. The hose nozzle is then hung up on support 17 and the apparatus is in rest position.

It sometimes happens that, no matter at what angle with relation to the pump a customer stops his car, he wants to read the meter. Or, the attendant may want to display the meter reading during dispensing. It will be seen that my apparatus is adapted to most conveniently display the meter reading at any angle and dur-

ing dispensing. For illustration, a useful operation is to start the display at the best angle for the customer to read the indicator. If he has asked for two dollars' worth, he can see the apparatus indications add up. And if the attendant wants to see where the apparatus is at any time, he can merely pull the hose, take a look, and return the indicator back for the customer's reading.

The apparatus may be used in other ways. As above suggested, the one pump having the one register may be mounted on an "island" at a service station and made to serve cars on both sides of the island. The apparatus, as shown, will serve a car on one side of the island. Then the turret, carrying the register, can be turned 180 degrees from the position shown to present window 21 to serve a car on the opposite side of the island. The turret is, of course, free to turn through any desired angle up to at least one complete revolution and may be turned into any desired radial position to present the window 21 for convenient reading.

The invention thus provides a dispensing and measuring apparatus which enables the register to be conveniently read from any desired radial position. It affords convenience of operation, and enables one register, and one window therefore, to do the work of two. The invention also provides for rotary movement of the register without necessitating relative movement between the register and meter, such as would affect the accuracy of the register. The invention also provides for the use of the usual accessories, such as switch actuating means, register resetting means, and interlocking mechanism between these means, in a dispensing apparatus of the special type disclosed where part of the housing must rotate relatively to other parts.

What I claim is:

1. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper section rotatably mounted relatively to the lower section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable for presenting the register to various positions for convenient reading.

2. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper section rotatably mounted relatively to the lower section, said register being connected to said upper section to turn therewith, said upper section having the register fixed thereto and a window through which the indications of the register are visible and being turnable for presenting the register to various positions for convenient reading, said

window being located in a plane at an angle to the vertical, whereby the indications of the register may be conveniently read from a higher level.

3. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, a meter interposed in said conduit, means for creating a flow of liquid through said conduit and a register mechanically driven from said meter, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a stationary lower section and an upper rotatable section, a swivel joint in said conduit coaxial with the axis of revolution of the upper section, said register and meter and the portion of said conduit beyond said joint in the direction of liquid flow being connected to the upper casing to turn therewith, said upper casing having an opening through which the indications of the register are visible and being turnable about its axis to present the register in various positions for convenient reading.

4. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, a meter interposed in said conduit, means for creating a flow of liquid through said conduit and a register mechanically driven from said meter, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a stationary lower section and an upper rotatable section, a swivel joint in said conduit coaxial with the axis of revolution of the upper section, said register and meter and the portion of said conduit beyond said joint in the direction of liquid flow being connected to the upper casing to turn therewith, said upper casing having an opening through which the indications of the register are visible and being turnable from an initial position to various other positions to present said register for convenient reading, and means yieldingly holding said upper casing in said initial position and for returning it to said initial position when released after having been moved to any of said other positions.

5. Liquid dispensing apparatus, having a housing including a stationary lower section and an upper section rotatable about a vertical axis, a register mounted in the upper casing to turn therewith, the latter having a window through which the indications of said register are visible, a dispensing hose connected to said upper casing to turn the same as the hose is pulled around to different radial positions, and a dispensing conduit within said housing including a stationary lower section and an upper section rotatable with the upper casing and to the outer end of which the inner end of the hose is connected.

6. Liquid dispensing apparatus, having a housing including a stationary lower section and an upper section rotatable about a vertical axis, a register mounted in the upper casing to turn therewith, the latter having a window through which the indications of said register are visible, a dispensing hose connected to said upper casing to turn the same as the hose is pulled around to different radial positions, and a dispensing conduit within said housing including a stationary lower section and an upper section rotatable with the upper casing and to the outer end of which the inner end of the hose is connected, and means for yieldably holding said upper casing in and for returning it to a predetermined radial position when the tension on the hose is relaxed.

7. Liquid dispensing apparatus comprising, a casing, a dispensing hose having a nozzle on its

outer end, a turret rotatably mounted on said casing and to which the inner end of the hose is connected, liquid-supply means in said casing and connected to said end of the hose, said turret adapted to follow the hose when the latter is pulled to any radial position for dispensing, means for supporting the hose nozzle when not in use, said means being fixed to the turret at a point opposite from that at which said inner end is connected, said hose being hung in a single loop outside said casing suspended from its ends, both of which are attached to the turret at opposite points thereon and at points above the casing and extending downwardly to the lower end of said casing.

8. Liquid dispensing apparatus comprising, a casing, a dispensing hose having a nozzle on its outer end, a turret rotatably mounted on said casing and to which the inner end of the hose is connected, liquid-supply means in said casing and connected to said end of the hose, said turret adapted to follow the hose when the latter is pulled to any radial position for dispensing, means for supporting the hose nozzle when not in use, said means being fixed to the turret at a point opposite from that at which said inner end is connected, said hose being hung in a single loop outside said casing suspended from its ends, both of which are attached to the turret at opposite points thereon and at points above the casing and extending downwardly to the lower end of said casing, and means for returning said turret to a predetermined position when the tension on the hose is relaxed, whereby the nozzle-supporting means is always returned to the same position for convenient access.

9. Liquid dispensing apparatus having a housing consisting of a lower and stationary section and an upper and rotatable section, a dispensing conduit including a flexible hose and located except for the hose within the housing, a meter interposed in said conduit to measure the liquid dispensed, a member stationarily supported within said housing and having a chamber supplied with liquid by said conduit and having a top for rotatably supporting said meter, the latter being mounted to turn with the upper casing and having its intake pipe extending into said chamber and located coaxially of said upper casing, a register, a window in the upper casing through which the indications of the register are visible, driving connections between the meter and the register, said register being mounted to turn with the upper casing, whereby the meter and register rotate together when the upper casing is turned without relative movement such as to cause change of indications of the register by rotation of the upper casing.

10. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, and means for starting and stopping said flow creating means

operable only when said upper section is in said initial position.

11. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, means for starting and stopping said flow-creating means, and means for preventing movement of said upper casing out of said initial position unless and until said flow-creating means is started.

12. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper section and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, means for starting and stopping said flow-creating means, and means preventing the stopping of said flow-creating means when the upper casing is in any of said other positions.

13. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, and means for starting and stopping said flow-creating means, said means including engageable and disengageable parts carried one by said upper casing and rotatable therewith and one by the lower casing, said parts being engaged on movement of the upper casing into its initial position and disengaged on movement of the upper casing to any other of said positions.

14. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the

hose, said casing having a lower and stationary section and an upper and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, means for starting and stopping said flow-creating means, said means including engageable and disengageable parts carried one by said upper casing and rotatable therewith and one by the lower casing, said parts being engaged on movement of the upper casing into its initial position and disengaged on movement of the upper casing to any other of said positions, and means preventing movement of said first-named part when the upper casing is moved out of said initial position and maintaining it so positioned as to engage with the second-named part when the upper casing moves back to its initial position.

15. In liquid dispensing apparatus of the type having a dispensing conduit including a flexible hose, means for creating a flow of liquid through said conduit, a meter interposed in said conduit for measuring the liquid dispensed, and a register driven by the meter and indicating the amount of liquid dispensed, the combination of a casing for housing all the aforesaid elements except the hose, said casing having a lower and stationary section and an upper and rotatable section, said register being connected to the upper section to turn therewith, said upper section having a window through which the indications of the register are visible and being turnable from an initial position to various other positions to present the register for convenient reading, means for resetting said register, and means preventing actuation of said resetting means while the upper casing is turned out of said initial position.

16. In liquid dispensing apparatus, a base, a pump, laterally-spaced brackets upstanding from the base and supporting said pump at a level substantially above the base, a motor mounted directly on the base and connected to drive the pump, said motor being located between said brackets and below the pump, one of said brackets having formed integrally therewith a junction box, a switch box and a switch therein for the motor, an electrical conduit connecting the switch box and junction box, and an electrical conduit connecting the junction box and motor, said junction box having an opening adapted to receive an electric conduit from a source of supply.

17. The combination in a liquid measuring and dispensing apparatus, of a standard, a turret supported by the standard for rotation about a vertical axis, a register and a meter for driving the register both carried by said turret, liquid supply means carried by the standard, and connections between said means and meter including an interposed swivel enabling rotation of the meter with the turret, and a discharge conduit from the meter terminating with a flexible hose suspended from the turret and by means of which the turret may be turned on the standard to various radial positions to present the register for convenient reading.

18. In liquid dispensing apparatus the combination of a display casing, a meter, and a registering mechanism therefor in the display casing, a liquid dispensing conduit part in and part

outside the casing, the outside part comprising a flexible hose and nozzle, the part of the conduit inside being connected to the hose through the meter, a turret from which the meter registrations can be read, said turret forming part of said casing and mounted to turn substantially 360 degrees, said hose being connected to said

turret and adapted to turn it as the hose is pulled around, whereby the registering mechanism can be read conveniently at any angle, and a hose nozzle support on said casing positioned to hold the hose in loop form when the nozzle is on the support.

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