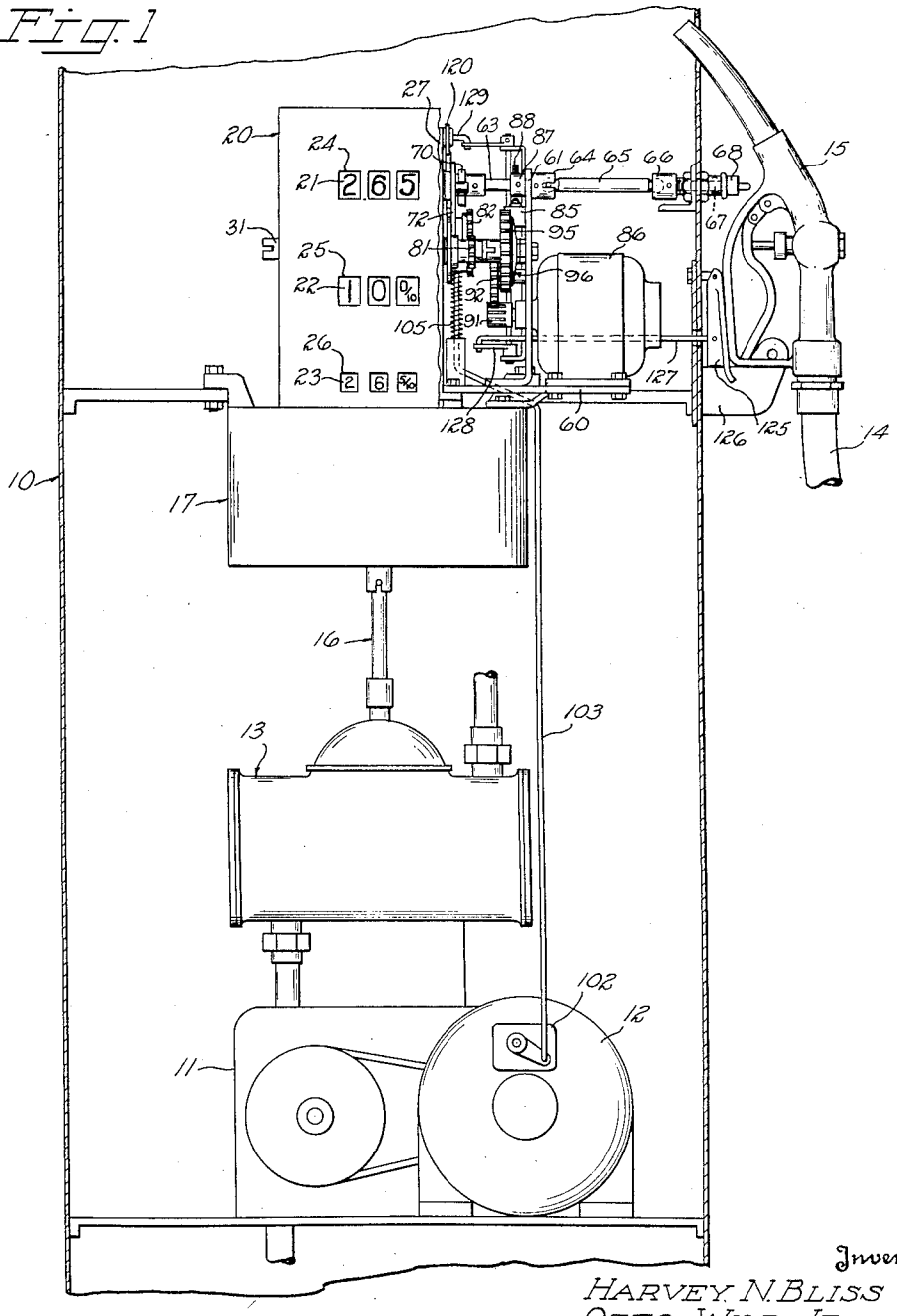
Jan. 20, 1953 H. N. BLISS ET AL 2,626,082

RESETTING AND INTERLOCK MECHANISM FOR LIQUID DISPENSING APPARATUS

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Fig. 1



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RESETTING AND INTERLOCK MECHANISM FOR LIQUID DISPENSING APPARATUS

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Fig. 2

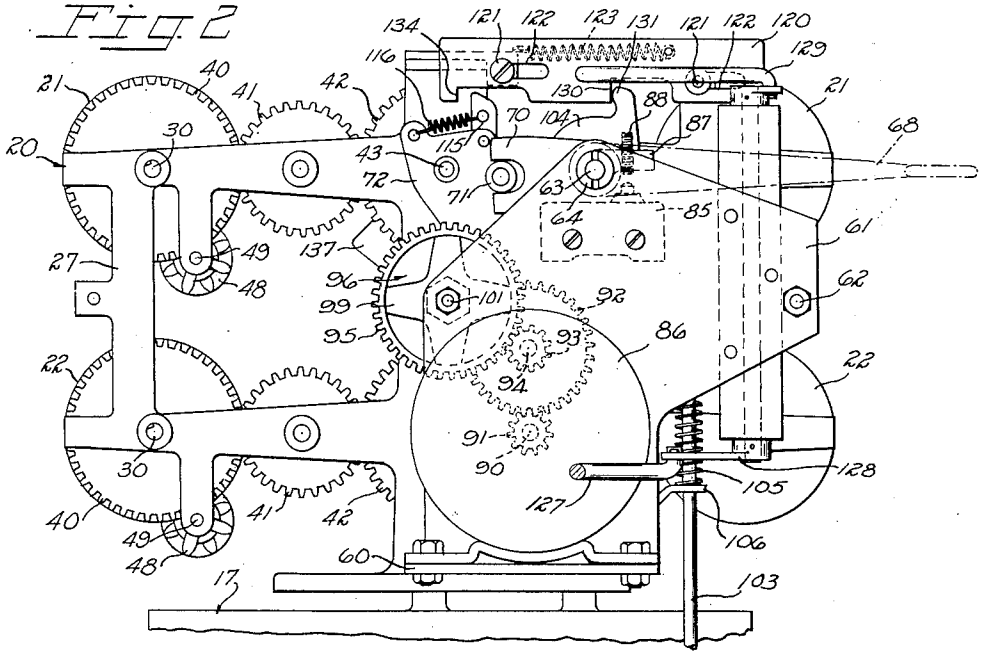
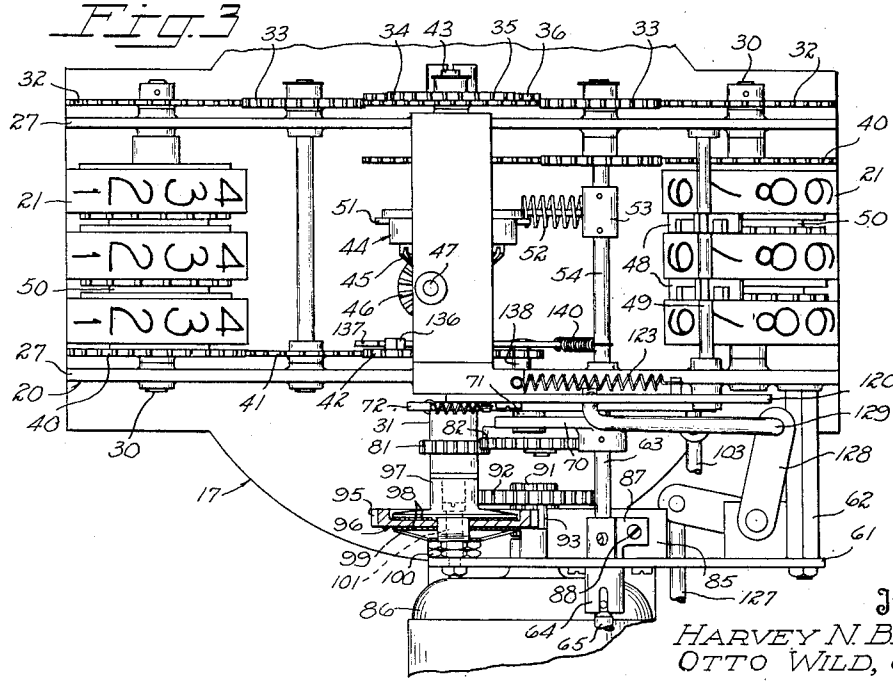


Fig. 3



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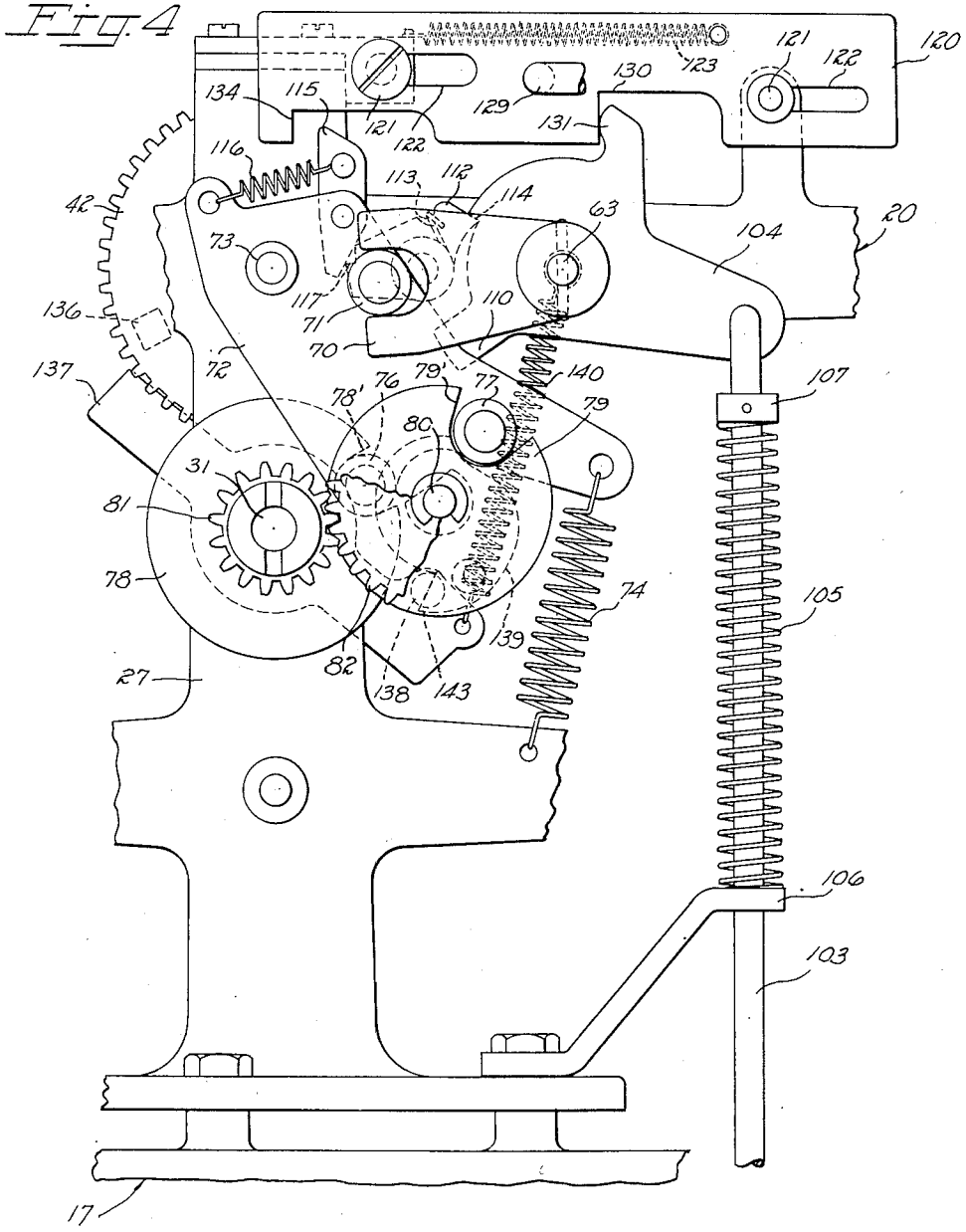
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Fig. 4



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RESETTING AND INTERLOCK MECHANISM FOR LIQUID DISPENSING APPARATUS

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Fig. 5

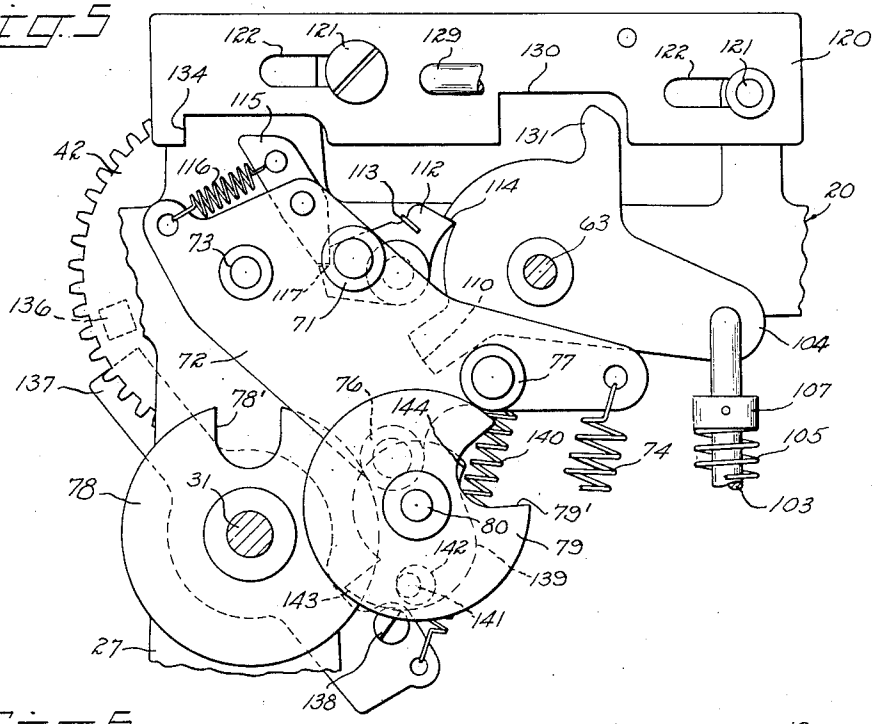
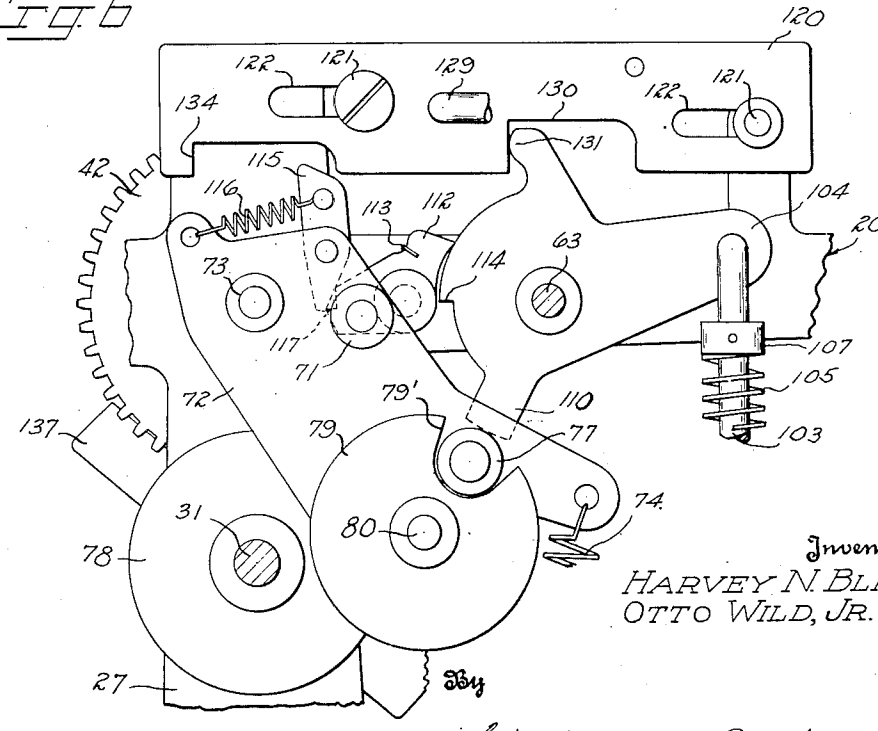


Fig. 6



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2,626,082

UNITED STATES PATENT OFFICE

2,626,082

RESETTING AND INTERLOCK MECHANISM FOR LIQUID DISPENSING APPARATUS

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Application July 11, 1950, Serial No. 173,202

18 Claims. (Cl. 222—34)

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The present invention relates generally to liquid dispensing apparatus and more particularly to an improved resetting means for a register of the type utilized in liquid dispensing apparatus and including an interlock with the control means associated therewith.

It is an aim of the present invention to provide an automatic resetting mechanism for the register of a liquid dispensing apparatus, i. e. one which may be power-operated and whose operation may be initiated in a simple manner by the operator. It is a further aim of the invention to provide an automatic resetting mechanism of the character described which may be interconnected with the pump motor control and the hose nozzle support of the dispensing apparatus so as to provide automatic initiation of the operation of the pumping means if it is desired to commence a dispensing operation at the completion of resetting, and also so as to interlock these devices to prevent dispensing during resetting, and vice versa, and to prevent a subsequent dispensing operation following a previous dispensing operation unless the register is first reset to zero.

It also is an aim of the invention to provide an apparatus for accomplishing the above-described purposes, which apparatus is of simple and effective design so that it may be easily fabricated and assembled with a minimum of difficulty and expense and which will be sufficiently rugged and foolproof in operation so as to accomplish the desired aims in an efficient manner over long periods of use.

Other objects will be in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplied in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claims.

In the drawings:

Fig. 1 is a fragmentary front view of a liquid dispensing apparatus in which the mechanism of the present invention has been incorporated, the housing of the dispensing apparatus being in section so as to reveal the interior thereof;

Fig. 2 is an enlarged side view of the device of the present invention mounted in operative relationship on the frame of the register;

Fig. 3 is a plan view corresponding to Fig. 2;

Fig. 4 is a fragmentary side view of the apparatus of the present invention further enlarged and with the side plate removed, the parts

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being shown in the position occurring at the completion of a dispensing operation and before resetting;

Fig. 5 is a fragmentary view similar to Fig. 4 with the parts in the position occurring just prior to the completion of a resetting operation; and

Fig. 6 is a view similar to Fig. 5 with the parts in position occurring during a dispensing operation.

Referring first to Fig. 1 of the drawings, there is shown somewhat diagrammatically a conventional liquid dispensing apparatus of the type widely used for dispensing gasoline. The apparatus is mounted in a suitable housing 10 and includes a pump 11, driven by an electric motor 12, the pump 11 being connected at one end to a reservoir of liquid to be dispensed (not shown), and at the other end to a meter 13. The liquid pumped through the meter 13 is delivered to a flexible hose 14, having at its outer end a conventional dispensing nozzle and valve 15. The meter 13 is connected by shaft 16 to a speed change mechanism or variator 17 which, in turn, is connected to a register 20.

In the embodiment of the register shown in Fig. 1, the register has three sets of number wheels denoted at 21, 22, and 23 which can be viewed through windows 24, 25 and 26, respectively. A duplicate set of wheels and corresponding windows (not shown) are provided at the opposite end of the register. The number wheels 21 register the cost of the liquid dispensed; the number wheels 22 register the quantity of liquid dispensed; while the number wheels 23 indicate the price per gallon at which the variator and register are set to operate.

The register 20 of itself does not form a part of the present invention and the register may be any one of the types widely used in liquid dispensing apparatus such as that shown, for example, in the patent to Slye No. 2,264,557, granted December 2, 1941. Additional details of the construction of the register 20, if desired, may be obtained by reference to said Slye patent. Those portions of the register required in order to describe the present invention are shown, however, in Figs. 2 and 3 of the drawings.

Referring to Figs. 2 and 3, it will be seen that the sets of number wheels 21 and 22 are mounted at the ends of the register frame 27 on reset shafts 30, which remain stationary during a registering operation but which are adapted to be rotated in order to return the number wheels to zero position as viewed through the windows

24 and 25. The reset shafts 30 are connected for simultaneous rotation by a main reset shaft 31. It will be noted that the ends of the reset shafts 30 have fixed thereto driven gears 32 in mesh with idler gears 33. A driving gear 34 attached to the end of the main reset shaft 31 meshes with the idler gears 33 at the top of the register and also drives the idler gears 33 at the bottom of the register through intermediate gears 35 and 36.

The number of wheels 21 and 22 are mounted on the reset shafts 30 so that they may be freely rotated in a registering direction relative to the shafts, but when the shafts are turned in a registering direction, means is provided for causing the shafts to pick up the number wheels and return them to zero. The means whereby the reset shafts pick up the number wheels and return them to zero has been omitted from the drawings and the present description in the interests of brevity since such means are well known in the art and are described, for example, in the Slye Patent No. 2,264,557, previously referred to.

The driving means for driving the number wheels 21 during a dispensing operation is best shown in Fig. 3 of the drawings. As there shown, the number wheels are provided with driven gears 40 fixed to the side of each wheel, respectively. The driven gears 40 of the number wheels of lowest order are driven through idler gears 41 by driving gears 42 fixed to a transverse shaft 43 centrally of the register. The shaft 43 is connected through a clutch 44 and bevel gear 45 with a bevel gear 46 secured to the cost drive shaft 47 coming from the variator. A similar arrangement is provided for driving the number wheels 22 of lowest order from the volume drive shaft of the variator (not shown). The number wheels of higher order in each case are advanced in a stepwise fashion by the usual transfer means which, as illustrated in the drawings, may comprise mutilated pinions 48 disposed on auxiliary shafts 49 so that each meshes with the driven gears 40 of the adjacent number wheel of higher order and also with a two-toothed driving gear 50 secured to the adjacent number wheel of lower order.

When the number wheels 21 and 22 are advanced to zero position by rotation of the reset shafts, as previously described, the gear trains operating on the driven gears of the number wheels of lowest order will also be driven in a registering direction, this being permitted by the clutches 44 previously described. In order to prevent any movement from being transmitted to the variator, each of the clutches 44 is provided with an associated brake 51 which can be operated to lock the variator drive shafts against rotation. The brakes 51 are urged to a released position by springs 52 and may be actuated by connecting arm 53 fixed to a transversely positioned brake operating shaft 54.

The portions of the register thus far described are all shown in the Slye Patent No. 2,264,557, previously referred to, and this description is repeated here merely by way of background and to assist in the full understanding of the functioning of the apparatus of the mechanism of the present invention hereinafter described.

Referring to Fig. 1 of the drawings, it will be seen that the apparatus of the present invention is mounted for the most part on a base plate 60 attached to the register frame and an upright side plate 61 extending upwardly therefrom and

connected to the frame of the register by a post 62. Journaled at the top of the side plate 61 is a stub shaft 63 which is connected to the brake operating shaft 54, previously referred to. The outer end of the stub shaft 63 is provided with a coupling 64 by means of which the shaft 63 may be connected through an extension 65 to a coupling 66 provided on the interior of a shaft 67 extending through the housing 10 and provided at its outer end with an operating handle 68. As will be thus apparent, the operator can readily engage the brakes 51 of the register by turning the operating handle 68.

In accordance with the invention, the operation of the handle 68 for applying the brakes 51 simultaneously initiates the operation of the resetting mechanism. As best shown in Fig. 4 of the drawings, there is pinned to the shaft 63 a yoke 70, in the bifurcated end of which there is received a roller 71 which is mounted on an elongated plate 72 pivoted to the frame at 73. Turning of the shaft 63 and hence the yoke 70 in a clockwise direction as viewed in the drawings will cause the elongated plate 72 to pivot in a counter-clockwise direction. Attached to the outer end of the elongated plate 72 and to the frame of the register is a spring 74 which urges the elongated plate in a clockwise direction.

Mounted on opposite sides of the elongated plate 72 are a pair of rollers denoted at 76 and 77 which cooperate with notched discs 78 and 79, respectively. The notched disc 78 is fixed to the main reset shaft 31 while the notched disc 79 is freely rotatable on a stud 80 secured to the register frame.

The notched disc 79 is rotated at a 1 to 2 speed ratio with respect to notched disc 78 by reason of a pinion 81 fixed to the reset shaft 31 and a gear 82 fixed to the notched disc 79. When the device is in its "at rest" position, i. e. at all times except during a resetting operation, the notches 78' and 79' of the discs 78 and 79 are positioned so as to receive the rollers 76 and 77, as best shown in Fig. 4 of the drawings. The engagement of the rollers 76 and 77 at the notches 78' and 79' of discs 78 and 79, respectively, will of course halt a resetting operation by preventing turning of the main reset shaft 31 until the rollers 76 and 77 are again disengaged.

As previously mentioned, the turning of handle 68 through the yoke 70 causes pivoting movement of the elongated plate 72 sufficient to disengage the rollers 76 and 77 from the notches 78' and 79', which thus conditions the apparatus for a resetting operation. At the same time the turning of the handle 68 causes the closing of a switch 85 for energizing a reset motor 86. As shown in Fig. 2 of the drawings, the shaft 63 which is turned by the handle 68 is provided with an arm 87 provided with a set screw 88 for engaging the switch 85. The set screw 88 may be adjusted so that the reset motor switch 85 is closed in proper timing relationship, i. e. when the rollers 76 and 77 have been sufficiently disengaged from the notched disc 78 and 79 to free the apparatus for a resetting operation. The switch 85 is biased into open position so that when it is not engaged by arm 87, the reset motor is turned off.

The reset motor 86 is mounted on the plate 60 and is adapted to turn the main reset shaft 31. Fixed to the end of the reset motor shaft 90 is a pinion 91 which meshes with a gear 92 to which is fixed a pinion 93, the gear 92 and pinion 93 being rotatably supported on a stud 94. The pinion 93 meshes with the toothed periphery of

a driving plate 95 of a clutch 96 which is supported on a stud 101 fixed to the plate 61. As best shown in Fig. 3, the clutch 96 comprises a hub 97 rotatably supported on stud 101 and coupled to the reset shaft, a pair of friction discs 98 on opposite sides of the driving plate 95, and a resilient spider 99 which urges the assembly into frictional engagement, the spider 99 being adjustable by nuts 100. By the driving means just disclosed, the reset motor 86 will drive the main reset shaft 31 at a reduced rate of speed and the clutch 96 normally provides sufficient friction to cause driving of the reset shaft and thus the resetting mechanism. However, when turning of the resetting mechanism is prevented, as at the end of a resetting operation, the clutch 96 will harmlessly absorb the driving force of the reset motor 86.

It thus will be seen that, when the operator turns the handle 68, he will first cause pivoting movement of the plate 72, thus disengaging the rollers 76 and 77 from the notched discs 78 and 79, respectively, and then turn on the reset motor 86 by closing the switch 85. Thereupon the reset motor 86 will turn the reset shaft 31 through two complete revolutions (causing one revolution of the notched disc 79) whereupon the rollers 76 and 77 will again be received in the notches 78' and 79', respectively, thus halting the resetting operation. The resulting pivoting movement of the plate 72 also returns the shaft 67 and operating handle 68 to initial position, thus releasing the pressure on switch 85, thus permitting the switch 85 to open and turn off the reset motor. Any coasting of the reset motor will be absorbed, of course, by the clutch 96.

In addition to the notched discs 78 and 79 for halting the resetting operation, additional stop means may be employed to ensure that the number wheels 21 and 22 will be accurately reset to zero during a resetting operation. As best shown in Figs. 4 and 5 there is provided a projection 136 on the gear 42 which is adapted to be engaged by the nose of a stopping lever 137 which is pivotally mounted on the reset shaft 31. The opposite end of the stopping lever 137 is provided with a stud 138 which is urged into engagement with the periphery of a cam 139 by a spring 140. The cam 139 is fixed to the notched disc 79 by a lost motion connection comprising a pin 141 extending into an enlarged aperture 142.. The cam 139 is so formed that the stopping lever 137 will ride on the high point 143 of the cam and thus be cammed into stopping position for engaging the projection 136 at the end of a resetting operation. At this point, of course, the notched disc 79 will be turned to a rotated position such that the roller 77 will enter the notch 79'. When this occurs, the roller 77 will engage against a shoulder 144 on the cam 139, thus turning the cam in a reverse direction sufficient to permit the stud 138 to move off the high point 143 of the cam, thus unlocking the register wheels and drive.

In accordance with the present invention, the above-described resetting mechanism is interconnected with the control of the main pump motor and also interlocked so as to be responsive to the position of the hose nozzle 15. As shown in Fig. 1 of the drawings, the main pump motor 12 is provided with a switch 102 which is connected by a connecting rod 103 with the end of a control lever 104 pivotally mounted on the shaft 63. The upper end of the rod 103 extends through a spring 105 which at its lower end abuts against a bracket 106 secured to the plate 60 and at its upper end abuts against a collar 107 fixed to the rod. As a result, the rod 103 and the control lever 104 are urged in a direction for closing the main motor switch 13.

Pivoting movement of the control lever 104 in a direction for permitting the main motor switch 102 to be closed may be prevented by several agencies. It will be noted that the lever 104 is provided with a projection 110 which, as best shown in Fig. 5 of the drawings, will engage against the roller 77 when a resetting operation is in progress, i. e. with the roller 77 riding on the periphery of the notched disc 79. It is thus ensured that the main pump motor 12 cannot be turned on during a resetting operation. At the completion of a resetting operation, when the roller 77 is received in the notch 79', the lever 104 is free to turn to the position shown in Fig. 6 of the drawings which is the position in which the main pump motor is turned on. As best shown in Fig. 6, the projection 110 on the lever 104 now extends above the roller 77 and thus effectively prevents the roller from being moved out of the notch 79'. Accordingly, it is impossible to initiate a resetting operation while the main pump motor is in operation. In summary, therefore, the apparatus of the present invention is constructed and arranged so that it is impossible to initiate a dispensing operation while a resetting operation is in progress and, conversely, it is impossible to initiate a resetting operation while a dispensing operation is in progress.

Pivoting movement of the lever 104, such as to permit the main pump motor switch to be closed, may also be prevented by a holding pawl 112 which is pivoted on the register frame 27 and which is biased by a spring 113 into engagement with a shoulder 114 on the control lever 104. In accordance with the invention, the holding pawl 112 is adapted to be disengaged from the shoulder 114 as an incident to a resetting operation. The mechanism employed is an unlocking pawl 115 pivotally mounted on the plate 72 and biased by a spring 116 for engagement with a notch 117 in the tail of the holding pawl 112. As a result of the arrangement shown, pivoting of the elongated plate 72 to initiate a resetting operation will cause the unlocking pawl 115 to engage the holding pawl 112 as best shown in Fig. 5 of the drawings. Then at the end of a resetting operation, when the rollers 76 and 77 enter the notches 78' and 79', thus permitting clockwise pivoting of the elongated plate 72 under the influence of spring 74, the unlocking pawl 115 bears on the tail of the holding pawl 112 and disengages the holding pawl 112 from the control lever 104, thus freeing the latter for pivoting movement such as to permit closing of the main pump motor switch. This condition is best shown in Fig. 6 of the drawings. The arrangement of the notch 117 and the nose of the unlocking pawl 115 is such that they will be cammed out of engagement at the completion of the clockwise pivoting of the elongated plate 72, whereupon the holding pawl 112 will merely ride on the periphery of the control lever 104 until the lever is again returned to switch open position.

A further restriction upon pivoting movement of the control lever 104 may also be imposed by a slide 120 which is mounted for horizontal sliding movement on the register frame by means of pins 121 and elongated slots 122. The slide 120 is urged in a left-hand direction as viewed

in the drawings by means of a spring 123. It also is connected for operation by a thrust plate 125 pivotally mounted at the nozzle support 126. The arrangement of the thrust plate 125 and nozzle support 126 is such that, in order to place the nozzle 15 on the support, it is necessary to move the thrust plate 125 inwardly as shown in Fig. 1 of the drawings. The thrust plate 125 is connected by a rod 127 to one end of a bell crank 128 which, in turn, is connected at the other end by a rod 129 to the slide 120. By means of these connections, placing the nozzle on the nozzle support will result in the slide 120 being moved to the fullest extent possible in a right-hand direction as viewed in the drawings. Conversely, when the nozzle is removed from its support, the spring 123 will return the slide 120 to the initial position.

As shown in the drawings, the lower edge of the slide 120 is provided with a notch 130 in which is received a finger 131 made integral with the control lever 104. As a result, when the hose nozzle is on its support, thus moving the slide 120 to its right-hand position (this position being shown in Fig. 4 of the drawings) the finger 131 will engage against the end of the notch 130, thus effectively preventing the control lever 104 from pivoting such as to turn on the main motor switch. However, if the hose nozzle is off the support, which permits the slide 120 to move to the left-hand position shown in Figs. 5 and 6, the notch 130 will be so positioned that it will not interfere with finger 131 and thus control lever 104. The primary purpose of notch 130 and finger 131, however, is to permit the main motor switch to be opened when the nozzle is placed on its support, thereby finally terminating a dispensing operation. As will be apparent, the resulting movement of the slide 120 to the right-hand position shown in Fig. 4 by bearing against the finger 131 will turn the control lever 104 against the influence of spring 105, thus opening the main motor switch 102.

In order to further ensure that the control lever 104 cannot be turned to the "on" position when the nozzle is on its support, there is provided at the left-hand end of the slide 120 a shoulder 134 against which the upper end of the unlocking pawl 115 is adapted to engage, in the event a resetting operation is initiated when the hose nozzle is on its support, i. e. when the slide 120 is in the right-hand position shown in Fig. 4 of the drawings. The abutment of the unlocking pawl 115 against the shoulder 134 prevents it from pivoting under the influence of spring 116 into engagement with the notch 117 of the holding pawl 112. Accordingly, at the end of the resetting operation and if the hose nozzle is still on its support, the unlocking pawl 115 cannot engage the holding pawl 112 and thus disengage the holding pawl 112 from the shoulder 114 of the control lever 104.

As a result of the mode of operation of the mechanism as above described, it will be apparent that the operator cannot turn on the main pump motor unless he resets the register by turning the handle 68 and also removes the nozzle from its support. The operator may reset the register at any time without removing the nozzle from its support but this will not cause the main pump motor to turn on. Accordingly, the operator, if he prefers, may reset the register to zero immediately after a preceding dispensing operation and without waiting until such time as a second dispensing operation is carried out. Although the operator may have reset the register to zero previously, he must repeat the resetting operation in order to turn on the pump motor because the holding pawl 112 can be disengaged only in this manner. It thus is ensured that there can be no subsequent dispensing operation without first resetting the register to zero.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

We claim as our invention:

1. In a liquid dispensing apparatus, a register provided with reset means including a rotatable reset shaft, a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, pivotally mounted means engageable with the reset means when the reset shaft is in zero position for locking the reset shaft in such position, means biasing the locking means into locking position, means movable with the locking means for closing the reset motor switch when the locking means is in unlocking position and for opening the reset motor switch when the locking means is in locking position, manually operable means for moving the locking means to unlocking position to initiate a resetting operation, and clutch means in said driving connection means for permitting overrunning of the reset motor at the completion of a resetting operation.

2. In a liquid dispensing apparatus, a register provided with reset means including a rotatable reset shaft, a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a member having a notch rotated by the reset shaft, a pivoted locking member biased into engagement with said notch, said members being constructed and arranged so that engagement of the locking member with the notch occurs at full reset position of the reset shaft, manually operable means for moving the locking member to unlocking position, means movable with the locking member for opening the reset motor switch when the locking member is in engagement with the notch and for closing the reset motor switch when the locking member is moved to unlocking position, and a clutch in said driving connection means for permitting overrunning of the reset motor at the completion of a resetting operation.

3. In a liquid dispensing apparatus, a register provided with a rotatable reset shaft, a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a rotatable notched disc, means operated by the reset shaft for driving the disc at a rate of speed such that the rate of speed of the reset shaft is a multiple of the rate of speed of the disc, a pivotal control member biased toward the disc having a follower for engaging in the notch

at the completion of a resetting operation to lock the reset shaft against rotation and for riding on the periphery of the disc during a resetting operation, manually operated means for pivoting the control member to disengage the follower from the notch, and means movable with the control member for closing the reset motor switch when the follower is disengaged from the notch and for opening the switch when the follower is engaged in the notch.

4. In a liquid dispensing apparatus, a register provided with reset means including a rotatable reset shaft, driving means for the register provided with a brake, a reset motor connected to the reset shaft, a switch for controlling the operation of the reset motor, a movable member engageable with the reset means when the reset shaft is in zero position for locking the reset shaft in said position, means biasing the movable member into locking position, means movable with the movable member for closing the reset motor switch when the movable member is in unlocking position and for opening the reset motor switch when the movable member is in locking position, and manually operable means for applying the brake and for moving the movable member to unlocking position to initiate a resetting operation.

5. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a liquid pump, power means for actuating the pump, and a switch for controlling the operation of the power means, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movable member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such rotated position, means biasing the movable member into locking position, manually operable means for moving the movable member into unlocking position, means operated by the movable member for closing the reset motor switch when the movable member is in unlocking position and for opening the reset motor switch when the movable member is in locking position, a power control lever connected to the said power means switch for opening and closing the switch, and means for mounting the power control lever in position such that movement of the said movable member to unlocking position is prevented by the power control lever when the latter is in switch closed position, and movement of the power control lever to switch closed position is prevented by the said movable member when the latter is in unlocking position.

6. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, an electric motor for actuating the pump, and a switch for controlling the operation of the motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movable member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such rotated position, means biasing the movable member into locking position, means operated by the movable member for closing the reset motor switch when the movable member is in unlocking position and for opening the reset motor switch when the movable member is in locking position, manually operable means for moving the movable member into unlocking position to initiate a resetting operation, a power control lever connected to the said pump motor switch, means for mounting the power control lever in position such that movement of the lever to switch closed position is prevented by the said movable member when the latter is in unlocking position, means for latching the power control lever in switch open position, and means operated by the movable member for unlatching said latching means when the movable member is moved from unlocking position into locking position.

7. In a liquid dispensing apparatus of the type having a register provided with a reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor, and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movable member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such rotated position, means biasing the movable member into locking position, means operated by the movable member for closing the reset motor switch when the movable member is in unlocking position and for opening the reset motor switch when the movable member is in locking position, manually operative means for moving the movable member into unlocking position to initiate a resetting operation, a power control lever connected to the said pump motor switch, means biasing the power control lever into switch closed position, means for preventing movement of the control lever into switch closed position when the movable member is in unlocking position, means for latching the power control lever in switch open position, means for unlatching the latching means when the movable member is moved from unlocking position into locking position, and means operable when the hose nozzle is on its support for rendering said last-named means inoperable.

8. In a liquid dispensing apparatus, of the type having a register provided with a reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor, a switch for controlling the operation of the pump motor, means for driving the register in response to operation of the pump, and a brake for the driving means, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movable member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such rotated position, means biasing the movable member into locking position, means operated by the movable member for closing the reset motor switch when the movable member is in unlocking position and for opening the reset motor switch when the movable member is in locking position, manually operative means for applying the brake and for moving the movable member into unlocking position to initiate a resetting operation, a power control lever connected to the said pump motor switch, means biasing the power control lever into switch closed position, means for preventing movement of the control lever into switch closed position when the movable member is in unlocking position, means for latching the power control lever in switch open position, means for unlatching the latching means when the movable member is moved from unlocking position into locking position, and means actuatable by plac-

ing the hose nozzle on its support for holding the power control lever in switch open position.

9. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor, and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a pivotally mounted locking member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such position, means biasing the locking member into locking position, means operated by the locking member for closing the reset motor switch when the locking member is in unlocking position and for opening the reset motor switch when the locking member is in locking position, manually operable means for moving the locking member into unlocking position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for pivotally mounting the power control lever in position such that movement of the power control lever to switch closed position is prevented by the locking member when the latter is in unlocking position, a slide biased into a first position, means for moving the slide to a second position when the hose nozzle is placed on its support, and means on the slide for moving the power control lever to switch open position when the slide is moved to said second position.

10. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor, and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a pivotally mounted locking member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such position, means biasing the locking member into locking position, means operated by the locking member for closing the reset motor switch when the locking member is in unlocking position and for opening the reset motor switch when the locking member is in locking position, manually operable means for moving the locking member into unlocking position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for pivotally mounting the power control lever in position such that movement of the power control lever to switch closed position is prevented by the locking member when the latter is in unlocking position, a slide biased into a first position, means for moving the slide to a second position when the hose nozzle is placed on its support, latching means for latching the power control lever in switch open position, means operated by the locking member when the latter is moved from unlocking position to locking position for unlatching the latching means, and means on the slide for preventing the operation of said unlatching means when the slide is in said second position.

11. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor, and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a pivotally mounted locking member operative when the reset shaft is in an initial rotated position for locking the reset shaft in such position, means biasing the locking member into locking position, means operated by the locking member for closing the reset motor switch when the locking member is in unlocking position and for opening the reset motor switch when the locking member is in locking position, manually operable means for moving the locking member into unlocking position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for pivotally mounting the power control lever in position such that movement of the power control lever to switch closed position is prevented by the locking member when the latter is in unlocking position, a slide biased into a first position, means for moving the slide to a second position when the hose nozzle is placed on its support, means on the slide for moving the power control lever to switch open position when the slide is moved to said second position, latching means for latching the power control lever in switch open position, means operated by the locking member when the latter is moved from unlocking position to locking position for unlatching the latching means, and means on the slide for preventing the operation of said unlatching means when the slide is in said second position.

12. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, a pump motor, and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movably mounted plate, rotatable means driven by the reset shaft for maintaining the plate in a first pivoted position except when the reset shaft is in an initial rotated position, means biasing the plate into a second position, means connected to the plate for closing the reset motor switch when the locking member is in said first position and for opening the reset motor switch when the plate is in said second position, manually operable means for moving the plate into said second position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for pivotally mounting the power control lever in position such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in said first position, and movement of the plate to said first position is prevented by the power control lever when the latter is in switch closed position.

13. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, a pump motor, a switch for controlling the operation of the pump motor, means for driving the register responsive to operation of the pump, and a brake for the register driving means, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the re-

set motor, a movably mounted plate, rotatable means driven by the reset shaft for retaining the plate in a first position except when the reset shaft is in an initial rotated position, means urging the plate into a second position, means for locking the reset shaft against rotation when the plate is in said second position, means connected to the plate for closing the reset motor switch when the plate is in said first position and for opening the reset motor switch when the plate is in said second position, manually operable means for applying the brake and for moving the plate to said first position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in said first position and movement of the plate to said first position is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, and manually controllable means for holding the power control lever in switch open position.

14. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, a pump motor and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a movably mounted plate, rotatable means driven by the reset shaft for retaining the plate in a first position except when the reset shaft is in an initial rotated position, means urging the plate into a second position, means for locking the reset shaft against rotation when the plate is in said second position, means connected to the plate for closing the reset motor switch when the plate is in said first position and for opening the reset motor switch when the plate is in said second position, manually operable means for moving the plate to said first position to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in said first position and movement of the plate to said first position is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, latching means for latching the power control lever in switch open position, means operated by the plate for unlatching the latching means when the plate is moved from said first position to said second position, and manually controllable means for preventing the operation of said unlatching means.

15. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, a pump motor and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a rotatably mounted disc having a notch in the periphery thereof, means forming a driving connection between the reset shaft and a disc, a movably mounted plate, a roller on the plate adapted to engage the periphery of the notched disc and to be received in the notch thereof, means urging the plate into such engaging position, means for locking the reset shaft against rotation when the plate is positioned with the roller thereof in the notch of the notched disc, means connected to the plate for closing the reset motor switch when the plate is positioned with its roller in the notch of said notched disc and for opening the reset motor switch when the plate is positioned with its roller on the periphery of said disc, manually operable means for moving the plate to disengage the roller from said notch to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in position with its roller engaging on the periphery of the notched disc and movement of the plate to disengage the roller thereof from the notch of the notched disc is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, and manually controllable means for holding the power control lever in switch open position.

16. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a pump, a pump motor and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a rotatably mounted disc having a notch in the periphery thereof, means forming a driving connection between the reset shaft and the disc, a movably mounted plate, a roller on the plate adapted to engage the periphery of the notched disc and to be received in the notch thereof, means urging the plate into such engaging position, means for locking the reset shaft against rotation when the plate is positioned with the roller thereof in the notch of the notched disc, means connected to the plate for closing the reset motor switch when the plate is positioned with its roller in the notch of said notched disc and for opening the reset motor switch when the plate is positioned with its roller on the periphery of said disc, manually operable means for moving the plate to disengage the roller from said notch to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in position with its roller engaging on the periphery of the notched disc and movement of the plate to disengage the roller thereof from the notch of the notched disc is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, latching means for latching the power control lever in switch open position, means for unlatching the latching means operated by the plate when the plate is moved to engage the roller thereof in the notch of the notched disc, and manually controllable means for preventing the operation of said unlatching means.

17. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a dispensing hose provided with a

nozzle, a support for the nozzle, a pump, a pump motor and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a rotatably mounted disc having a notch in the periphery thereof, means forming a driving connection between the reset shaft and the disc, a movably mounted plate, a roller on the plate adapted to engage the periphery of the notched disc and to be received in the notch thereof, means urging the plate into such engaging position, means for locking the reset shaft against rotation when the plate is positioned with the roller thereof in the notch of the notched disc, means connected to the plate for opening the reset motor switch when the plate is positioned with its roller in the notch of said notched disc and for closing the reset motor switch when the plate is positioned with its roller on the periphery of said disc, manually operable means for moving the plate to disengage the roller from said notch to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in position with its roller engaging on the periphery of the notched disc and movement of the plate to disengage the roller thereof from the notch of the notched disc is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, latching means for latching the power control lever in switch open position, means for unlatching the latching means operated by the plate when the plate is moved to engage the roller thereof in the notch of the notched disc, and means operated by placing the hose nozzle on its support for moving the power control lever to switch open position and for preventing the operation of said unlatching means.

18. In a liquid dispensing apparatus of the type having a register provided with a rotatable reset shaft, a dispensing hose provided with a nozzle, a support for the nozzle, a pump, a pump motor and a switch for controlling the operation of the pump motor, the combination therewith of a reset motor, means providing a driving connection between the reset motor and the reset shaft, a switch for controlling the operation of the reset motor, a rotatably mounted disc having a notch in the periphery thereof, means forming a driving connection between the reset shaft and the disc, a movably mounted plate, a roller on the plate adapted to engage the periphery of the notched disc and to be received in the notch thereof, means urging the plate into such engaging position, means for locking the reset shaft against rotation when the plate is positioned with the roller thereof in the notch of the notched disc, means connected to the plate for opening the reset motor switch when the plate is positioned with its roller in the notch of said notched disc and for closing the reset motor switch when the plate is positioned with its roller on the periphery of said disc, manually operable means for moving the plate to disengage the roller from said notch to initiate a resetting operation, a power control lever connected to the pump motor switch, means for mounting the power control lever for movement in a path such that movement of the power control lever to switch closed position is prevented by the plate when the latter is in position with its roller engaging on the periphery of the notched disc and movement of the plate to disengage the roller thereof from the notch of the notched disc is prevented by the power control lever when the latter is in switch closed position, means biasing the power control lever into switch closed position, latching means for latching the power control lever in switch open position, means for unlatching the latching means operated by the plate when the plate is moved to engage the roller thereof in the notch of the notched disc, a slide biased into a first position, means for moving the slide to a second position when the hose nozzle is placed on its support, means on the slide for moving the power control lever to switch open position and for preventing the operation of said unlatching means when the slide is moved to said second position, means operated by placing the hose nozzle on its support for moving the power control lever to switch closed position and for preventing the operation of said unlatching means.

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