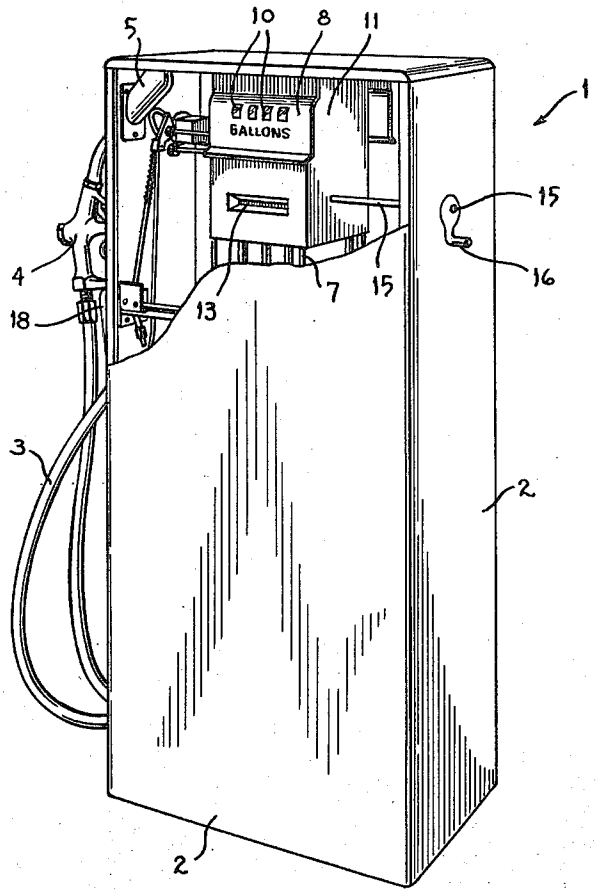
March 30, 1965 H. C. DEKKER 3,175,730

INTERLOCK MECHANISM FOR A FLUID DISPENSING PUMP

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FIG. 1



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INTERLOCK MECHANISM FOR A FLUID DISPENSING PUMP

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FIG. 2

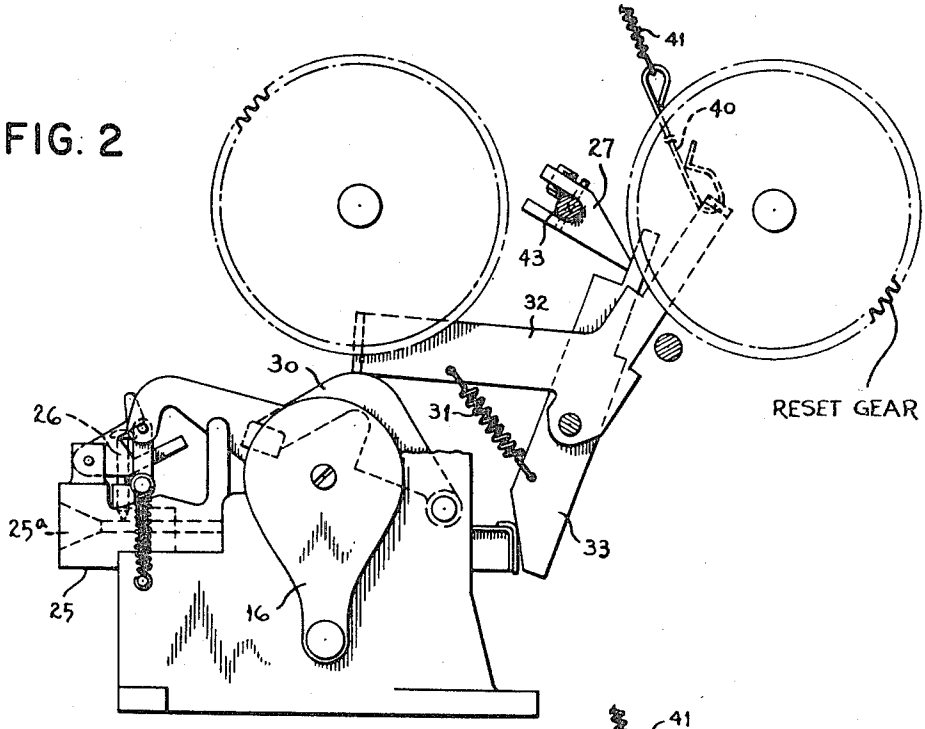
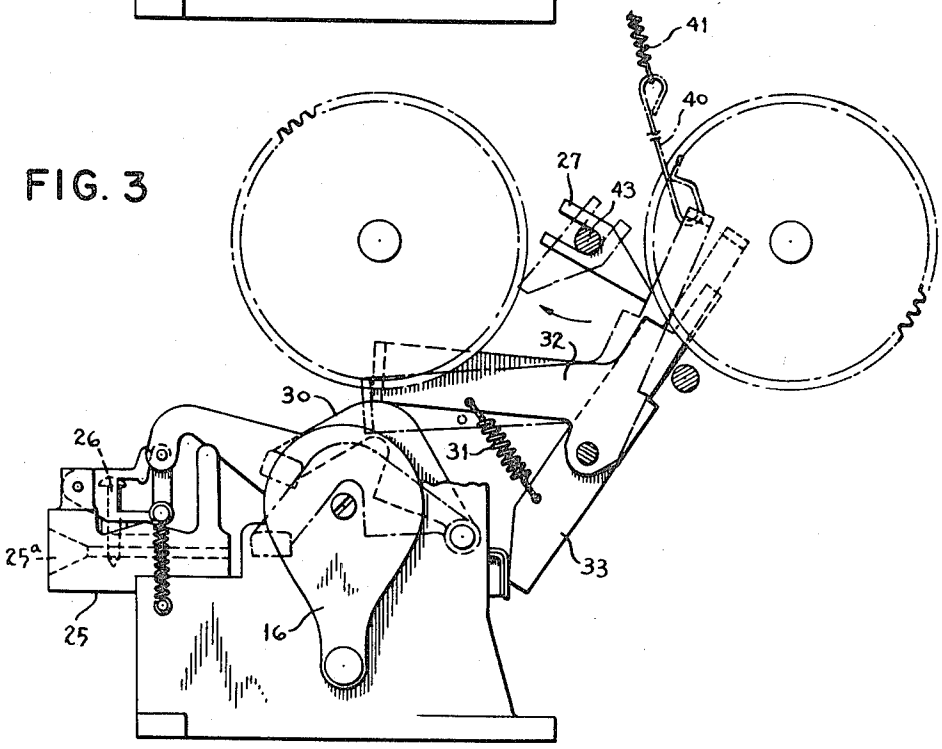


FIG. 3



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INTERLOCK MECHANISM FOR A FLUID DISPENSING PUMP

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FIG. 4

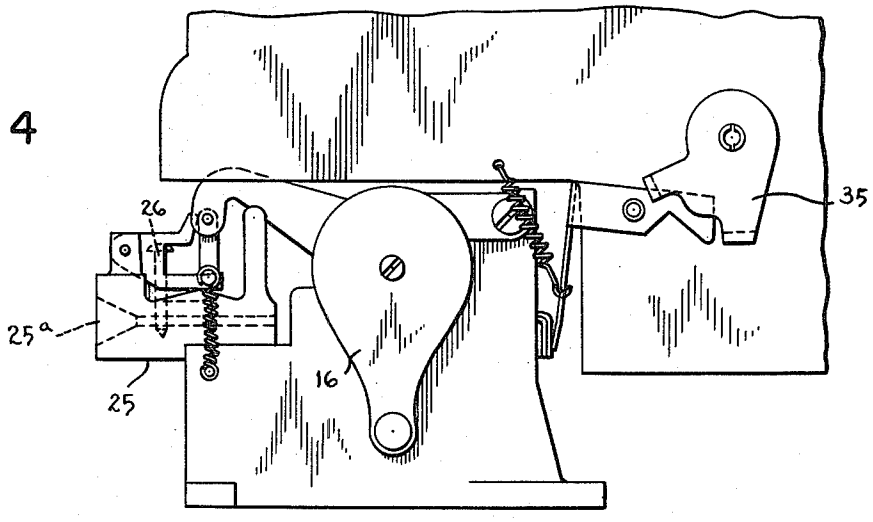
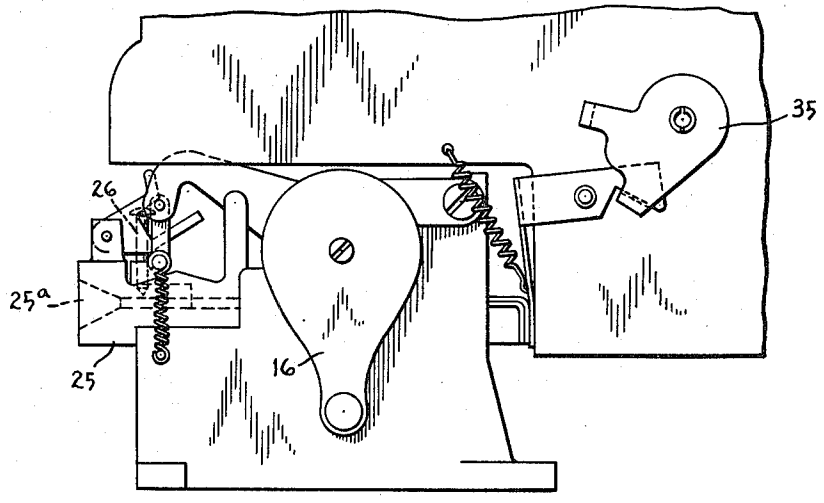


FIG. 5



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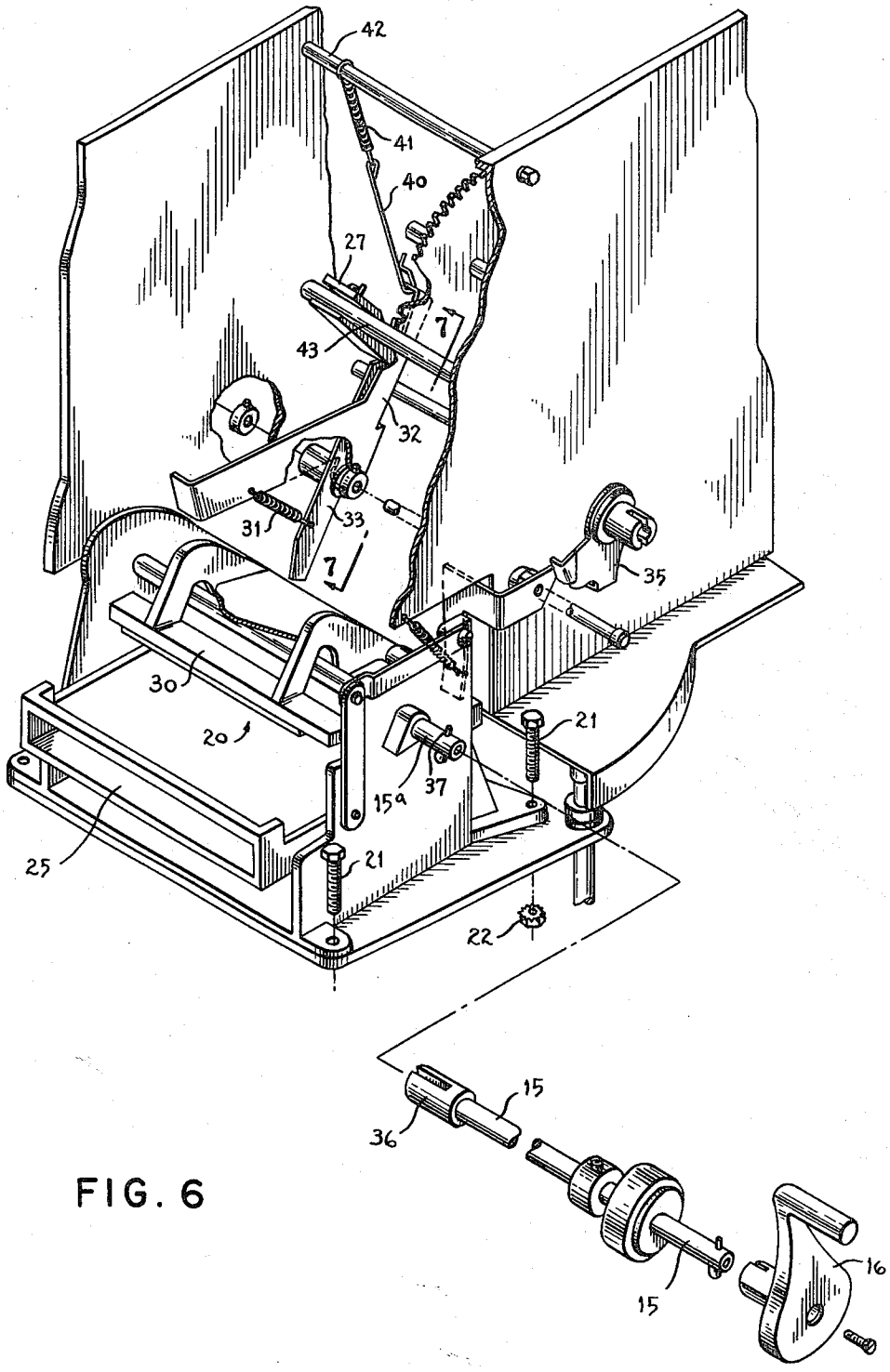


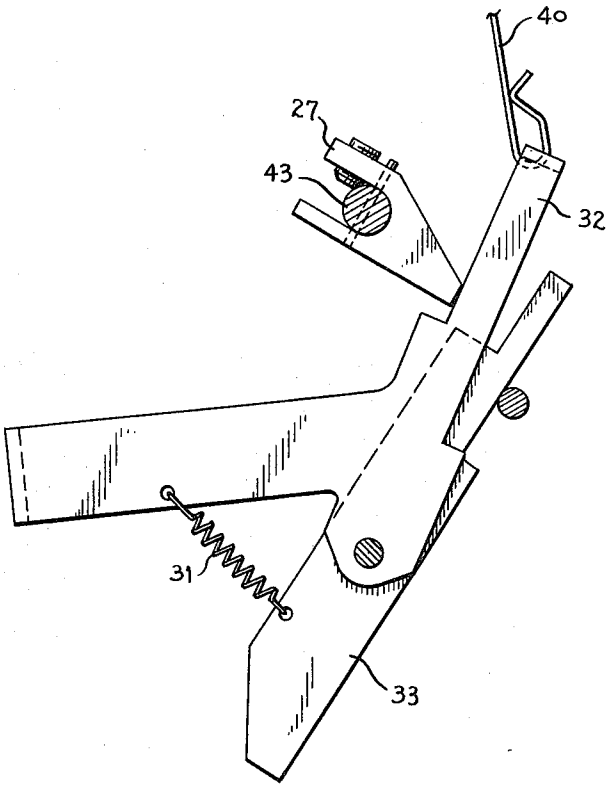
FIG. 6

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INTERLOCK MECHANISM FOR A FLUID DISPENSING PUMP

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FIG. 7



United States Patent Office 3,175,730 Patented Mar. 30, 1965

3,175,730

INTERLOCK MECHANISM FOR A FLUID DISPENSING PUMP

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Filed July 16, 1963, Ser. No. 295,471
6 Claims. (Cl. 222—30)

My invention relates to interlock mechanism for fluid dispensing pumps, and is particularly applicable for use in a gasoline dispensing pump which includes a record ticket printing mechanism and a tens-transfer register mechanism including dial wheels visibly indicating the volume of gasoline dispensed.

One object of my invention is to provide means wherein during a dispensing operation of the pump, both the ticket printing mechanism and the tens-transfer register mechanism are detained from resetting operation whenever the motor switch is closed and the motor running.

Another object of my invention is to provide means wherein, after the motor switch has been opened, the ticket printing mechanism must be cycled, by means such as a crank, before the register mechanism can be reset to zero indication.

Another object of my invention is to provide means to insure that a ticket inserted in the ticket printing mechanism will be imprinted with zero indication before the electrical switch for the pump motor can be moved to closed position so that a dispensation of gasoline may be effected.

Another object of my invention is to provide means wherein the ticket in the ticket printing mechanism must be imprinted with an indication of the volume of gasoline dispensed before the ticket may be removed from the ticket printing mechanism and the register mechanism reset to zero indication.

Another object of my invention is to provide means to insure that the register mechanism must be reset to zero position before the motor switch can be closed to start the pump motor.

My invention includes the various novel features of construction, arrangement, and method of operation hereinafter more fully described.

In said drawings:

FIG. 1 is an elevation view of a non-computer type gasoline pump embodying my invention with a portion of the outer housing broken away to show some mechanism, and the ticket tray slot in which the ticket is inserted by the operator, and which slot is in alignment with a coinciding opening in the outer housing.

FIG. 2 is a side elevation, partly in section, showing the position of the elements of the interlock mechanism after a delivery has been made, and the number of gallons delivered has been printed on a ticket, and the ticket removed from the ticket printer mechanism.

FIG. 3 is a side elevation, partly in section, showing the changed position of the elements of the interlock mechanism, after a new ticket has been inserted in the ticket tray of the ticket printer, and the crank rotated in a reverse direction approximately one inch, and the crank then turned forwardly one full turn to effect the movement of the locking pin to punch a hole through the ticket to lock the ticket in the mechanism, and to print the first impression on the ticket.

FIG. 4 is a side elevation, partly in section, showing the position of the elements with the ticket still locked in place by the ticket pin, and in which position the ticket printer cannot be reset to zero until the ticket has been imprinted a second time with the number of gallons dispensed.

FIG. 5 is a side elevation, partly in section, showing the changed position of the elements when the ticket has been printed a second time, which effects the retraction of the ticket pin from the ticket and moves the tray to permit resetting of the mechanism to zero.

FIG. 6 is an exploded view of the ticket printer and interlock to show the relative positioning of the elements.

FIG. 7 is a side elevation of the latch in position on its shaft, etc., taken on the line 7—7 in FIG. 6.

Referring to FIG. 1 of said drawings, the gasoline pump, indicated generally at 1 includes an outer housing 2, and a dispensing hose 3 connected to the outlet of a meter of the commonly used well-known construction for gasoline pumps. The distal end of the hose 3 is provided with a manually operated nozzle 4 adapted to be positioned in the nozzle boot 5 when the pump is not in use.

The meter of the pump is provided with a driver shaft 7 which is connected to the tens-transfer register mechanism of the well-known type as indicated at 8, which includes dial wheels 10 which visibly indicate the volume of gasoline dispensed.

The tens-transfer mechanism 8 is enclosed within a housing 11 which also houses the record ticket printing mechanism. The housing 11 includes an open slot 13 into which a multiple copy ticket placket is adapted to be inserted. Said placket is of a well-known form, and such as shown in FIGS. IV and VII of Goldberg et al. Patent No. 2,327,584, said placket including a plurality of sheets of paper to be imprinted, with carbon paper interposed between the sheets. The register mechanism is of a well-known type, and adapted to be reset to zero by means of rotation of the shaft 15 which is provided at its outer end with a manually operative crank handle 16. Of course, the mechanism may be reset to zero automatically by any of the well-known constructions available on the market. The switch for the electric motor is adapted to be opened and closed by movement of the handle means 18, indicated in FIG. 1, which is connected by well-known means to said electric motor switch.

Referring more particularly to FIGS. 2 to 7, inclusive the record ticket printing mechanism is indicated generally at 20, and rigidly secured on a transverse member of the pump by means of a series of screws 21 and nuts and lock washers 22 as shown in FIG. 6. The ticket printer 20 is provided with a ticket tray member 25, the front opening 25a of which is in alignment with the slot 13 and in alignment with a slot formed in the outer housing 2.

With the elements of the interlock and ticket printer in the position as indicated in FIG. 2; after a ticket has been inserted through the slot 13 into the ticket tray 25, through the opening 25a, and the crank handle 16 rotated in a reverse direction approximately one inch, and the crank handle 16 then turned forwardly one full turn, the locking pin member 26 is moved from the position shown in FIG. 2 to the position shown in FIG. 3 to impale the ticket placket in locked position, as shown in FIGS. 3 and 4.

The ticket tray 25 is moved toward the left from the position shown in FIG. 2 to the position shown in FIG. 3, and the lock member 33 is moved out of engagement with the latch 27.

As the ticket tray 25 is moved forwardly, the first impression on the ticket is made by the printer arm member 30 to print the first impression, usually zeros, on the ticket placket which has been inserted in the ticket tray member 25. As the printer arm member 30 falls, it permits latch 32, actuated by spring 41 and coupler 40, to be moved into interference with latch 27.

The shaft 15, rigidly connected to the crank handle 16 at its outer end is provided with the coupling member 36 provided with slots to engage the pin 37 in the shaft extension 15a, as shown in FIG. 6.

The latch member 32 is provided with an extension connection 40 which is connected at its upper end to

the spring member 41 which is connected to the center tie bolt 42 of the mechanism.

Operation

Assuming that a delivery has been made, and that the number of gallons delivered has been imprinted on the ticket by the ticket printer 20, and the ticket removed from the ticket tray member 25 through the slot 13 and the slot formed in the outer housing 2; the apparatus is in the position shown in FIG. 2. When a new ticket has been inserted through the slot 13 to the ticket tray member 25 through the front opening 25a of the ticket printer 20, the crank 16 is rotated in the reverse direction approximately one inch, then rotated forwardly one full turn to print the first impression on the ticket, and to cause the ticket locking pin member 26 to move to the position shown in FIG. 3, with the locking pin member 26 having impaled the ticket placket in locked position.

Referring to FIG. 2, the latch 33 is moved out of engagement with latch 27 by coupler spring 31 when the ticket tray 25 has been moved forward, as in FIG. 3, to print the first impression. As the printer arm 30 falls, it pulls the coupler member 31 and latch 27 into engagement with its pawl.

The handle means 18 is then moved to effect closure of the electric motor switch. The shaft 43 within the bifurcations of the latch 27 is free to rotate because the latch 33 is disengaged, as shown in FIG. 3.

After the desired quantity of fluid has been discharged through the nozzle 4 into a container such as the tank of an automobile, the handle member 18 is then turned in the reverse direction to open the switch to the electric motor operatively connected to the pumping unit.

The non-computer interlock is now engaged, and the apparatus cannot be again operated until the crank 16 is moved in a reverse direction about one inch, and then moved forwardly one full turn to print on the ticket the number of gallons of gasoline, or other fluid, delivered during the dispensing operation. Such second rotation of the crank 16 withdraws the locking pin member 26 from the ticket placket, which permits the ticket to be removed from the ticket tray 25, the ticket having two imprinted figures thereon, to wit, the number of gallons at the start of the delivery operation, which would be the zero indication, and with the number of gallons which have been dispensed by the operation of the apparatus.

When the ticket tray 25 is in the forward position, FIG. 4, the lockout dog is in a position which will interfere with the motion of the reset trip lever 35. The reset trip lever 35 cannot be rotated until the ticket tray 25 has again been moved to its rearward position, as shown in FIG. 5, such motion raising the notched portion of the lockout dog so as to accept entry of the reset trip lever member 35.

If for any reason because of improper operation the aforesaid sequence of operation becomes out of order, it may be arranged properly by turning the ticket printer crank 16 until the computer can be reset to proper position, as shown in FIG. 2.

It is noted that the motion of the ticket tray member 25 to the left allows the latch 33 to be turned clockwise by the spring 31 to release the latch lock 27. However, the latch 32 is also urged into interference with the lock latch 27 by the spring 41 (to overcome an open spot in the interlock) until the printer arm moves downwardly to print the ticket. Such motion locks the non-computer apparatus until the foregoing ticket printing sequence is completed, and exists until the printer arm raises after completion of the above described second printing sequence.

I do not desire to limit myself to the precise details of construction and arrangement as described above, as it is obvious that various modifications may be made

therein without departing from the essential features of my invention, as defined in the appended claims.

I claim:

1. Interlock mechanism for a fluid dispensing pump which includes a record ticket printing mechanism and a tens-transfer register mechanism having dial wheels visibly indicating the volume of fluid dispensed; said record ticket printing mechanism including a ticket tray means adapted to receive a ticket; said ticket tray means being adaptable to be moved forwardly at the beginning of a cycle of operation, and adaptable to be moved rearwardly to its initial position at the completion of said cycle of operation; crank operated means for effecting movement of said ticket tray means forwardly at the beginning of a cycle of operation, and for effecting movement of said ticket tray means rearwardly at the completion of said cycle of operation; means securing said ticket in said ticket tray means until the following cycle of operation has been completed; said crank means being connected to said ticket printing mechanism to effect imprinting on said ticket the initial setting of the printer wheels of said ticket printing mechanism; switch means operable to close the circuit to the motor of a dispensing fluid pump; tens-transfer register mechanism visibly indicating the volume of fluid dispensed, and to effect an equivalent register on said ticket printer wheels of said ticket printing mechanism; means to effect the imprinting of the volume of fluid dispensed on said ticket at a different position on said ticket than said initial imprint on said ticket when said ticket tray means has been moved by crank operated means; means operated by said crank means to return said printer wheels and said dial wheels to zero position, and to remove said ticket securing means out of said ticket so that said ticket may be removed manually from said record ticket printing mechanism.

2. Interlock mechanism for a non-computer dispensing pump which includes a record ticket printing mechanism and a tens-transfer register mechanism having dial wheels visibly indicating the volume of fluid dispensed; said record ticket printing mechanism including a ticket tray means adapted to receive a multiple copy ticket placket; said ticket tray means being adaptable to be moved forwardly at the beginning of a cycle of operation, and adaptable to be moved rearwardly to its initial position at the completion of said cycle of operation; crank operated means for effecting movement of said ticket tray means forwardly at the beginning of a cycle of operation, and for effecting movement of said ticket tray means rearwardly at the completion of said cycle of operation; pin means securing said ticket placket in said ticket tray means until the following cycle of operation has been completed; said crank means being operatively connected to printer arm means to cause printer wheel means in said ticket printing mechanism to effect imprinting on said ticket placket the initial setting of the printer wheels of said ticket printing mechanism; switch means operable to close the circuit to the motor of a dispensing fluid pump; tens-transfer register mechanism visibly indicating the volume of fluid dispensed, and to effect an equivalent register on said ticket printer wheels of said ticket printing mechanism; said printer arm means moved a second time by said crank means to effect the imprinting from said printer wheel means of the volume of fluid dispensed on said ticket placket at a different position on said ticket placket than said initial imprint on said ticket placket when said ticket tray means has been moved by crank operated means; means operated by said crank means to return said printer wheels and said dial wheels to zero position, and to move said ticket securing pin means out of said ticket placket so that said ticket placket may be removed manually from said record ticket printing mechanism.

3. Interlock mechanism for a non-computer dispensing gasoline pump which includes a record ticket printing mechanism and a tens-transfer register mechanism having

dial wheels visibly indicating the volume of fluid dispensed; said record ticket printing mechanism including a ticket tray means adapted to receive a multiple copy ticket placket; said ticket tray means being adaptable to be moved forwardly at the beginning of a cycle of operation, and adaptable to be moved rearwardly to its initial position at the completion of said cycle of operation; crank operated means for effecting movement of said ticket tray means forwardly at the beginning of a cycle of operation, and for effecting movement of said ticket tray means rearwardly at the completion of said cycle of operation; pin means securing said ticket placket in said ticket tray means until the following cycle of operation has been completed; said crank means being operatively connected to printer arm means to cause printer wheel arm means in said ticket printing mechanism to effect imprinting on said ticket placket the initial setting of the printer wheels of said ticket printing mechanism; coupler and latch means adapted to engage pawl means by said movement of said printer arm means; switch means operable to close and to open the circuit to the motor of a dispensing fluid pump; tens-transfer register mechanism visibly indicating the volume of fluid dispensed, and to effect an equivalent register on said ticket printer wheels of said ticket printing mechanism; non-computer interlock means, operable by movement of said switch means to open said circuit, to prevent operation of said non-computer until imprinting of said ticket placket with the volume of gasoline dispensed; said printer arm means moved a second time by said crank means to effect the imprinting from said printer wheel means of the volume of fluid dispensed on said ticket placket, at a different position on said ticket placket then said initial imprint of said ticket placket, when said ticket tray means has been moved by crank operated means; means operated by said crank means to return said printer wheels and said dial wheels to zero position, and to move said ticket pin securing means out of said ticket placket so that said ticket placket may be removed manually from said record ticket printing mechanism.

4. Interlock mechanism for a non-computer dispensing gasoline pump which includes a record ticket printing mechanism and a tens-transfer register mechanism having dial wheels visibly indicating the volume of fluid dispensed; said record ticket printing mechanism including a ticket tray means adapted to receive a multiple copy ticket placket; said ticket tray means being adaptable to be moved forwardly at the beginning of a cycle of operation, and adaptable to be moved rearwardly to its initial position at the completion of said cycle of operation; crank operated means for effecting movement of

said ticket tray means forwardly at the beginning of a cycle of operation, and for effecting movement of said ticket tray means rearwardly at the completion of said cycle of operation; crank operated pin means securing said ticket placket in said ticket tray means until the following cycle of operation has been completed; printer arm means in said ticket printing mechanism operated by said crank, to imprint on said ticket placket the initial setting of the printer wheels of said ticket printing mechanism; coupler and latch means adapted to engage pawl means by said movement of said printer arm means; switch means operable to close and to open the circuit to the motor of a dispensing fluid pump; tens-transfer register mechanism visibly indicating on said dial wheels the volume of fluid dispensed, and to effect an equivalent register on said ticket printer wheels of said ticket printing mechanism; non-computer interlock means, operable by movement of said switch means to open said circuit, to prevent operation of said non-computer until imprinting of said ticket placket with the volume of gasoline dispensed; said printer arm means moved a second time by said crank means to effect the imprinting from said printer wheel means of the volume of fluid dispensed on said ticket placket, at a different position on said ticket placket than said initial imprint on said ticket placket, when said ticket tray means has been moved by crank operated means; means operated by said crank means to return said printer wheels and said dial wheels to zero position, and to move said ticket pin securing means out of said ticket placket so that said ticket placket may be removed manually from said record ticket printing mechanism.

5. Apparatus as in claim 4; wherein said crank means is initially operated approximately one inch in a reverse direction and then forward one full turn to impale said ticket placket on said pin means and to imprint the initial setting of said printer wheels on said ticket placket.

6. Apparatus as in claim 4; wherein said crank is operated approximately one inch in a reverse direction and then forward one full turn to imprint the setting of the printer wheels after a dispensation has been completed and to move said pin means from said placket.

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LOUIS J. DEMBO, *Primary Examiner.*