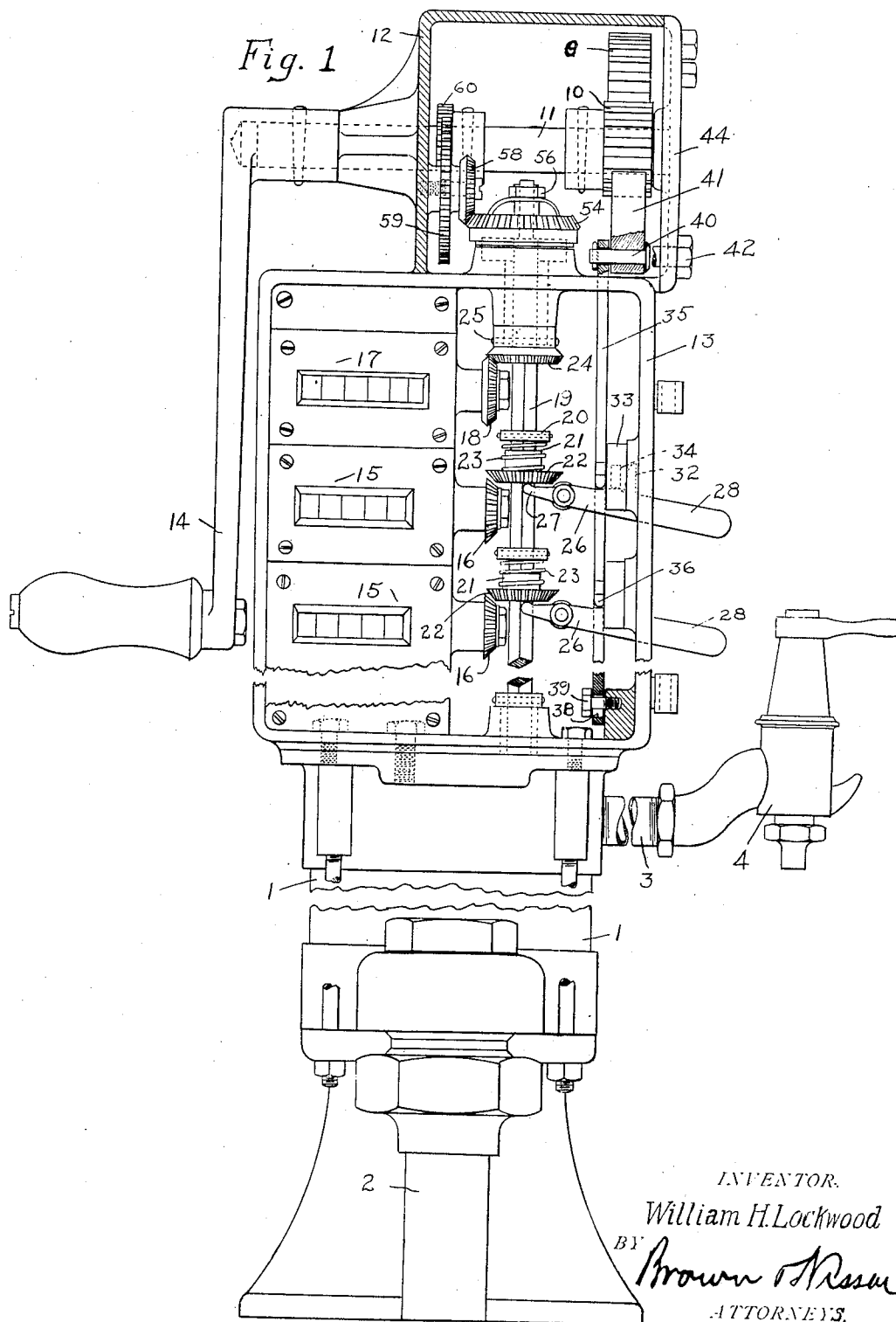


Dec. 26, 1922.

W. H. LOCKWOOD.
MULTIPLE LOCK PUMP.
FILED JUNE 3, 1918.

1,439,904.

3 SHEETS—SHEET 1.



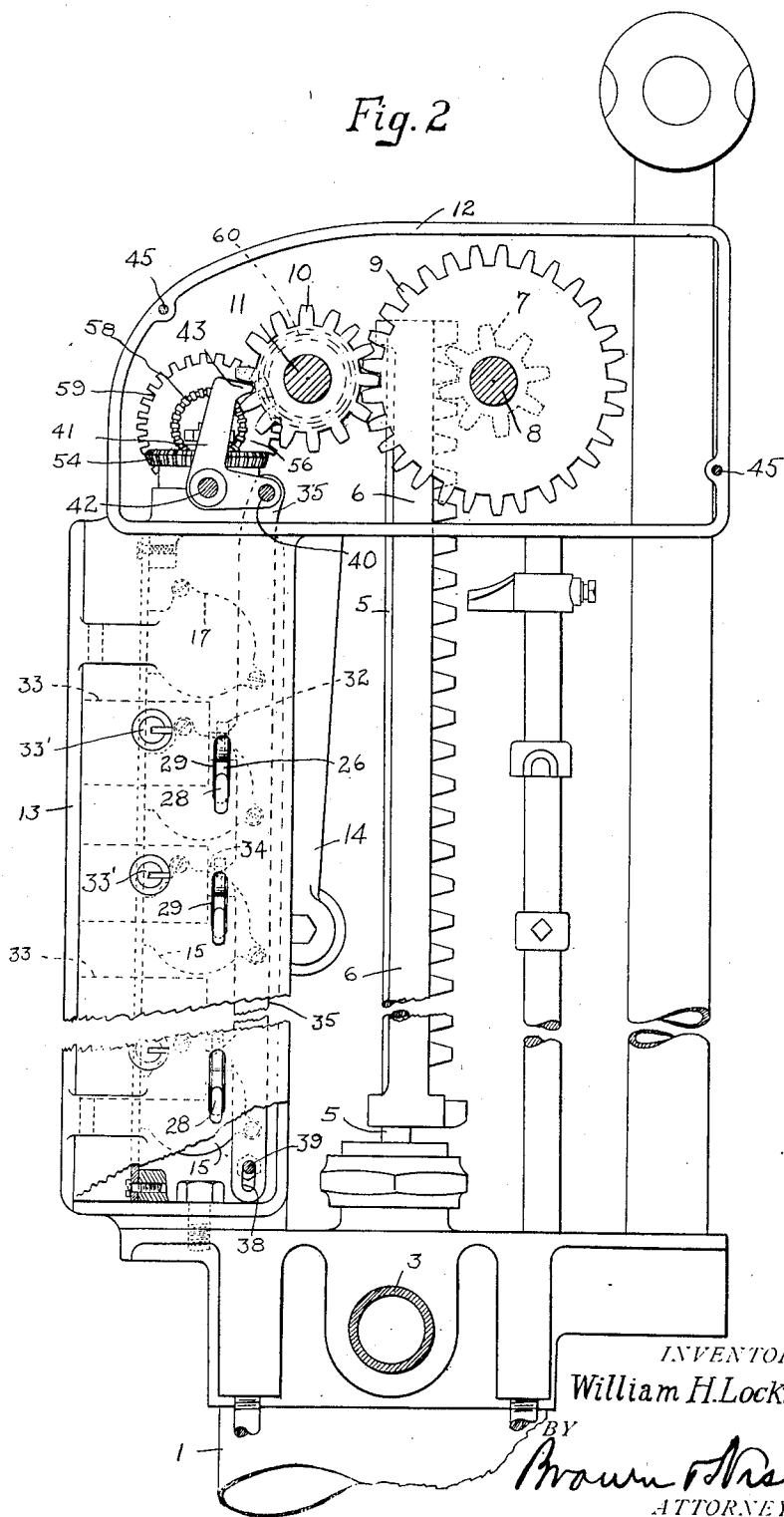
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1,439,904.

3 SHEETS—SHEET 2.

Fig. 2



INVENTOR;
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1,439,904.

3 SHEETS—SHEET 3.

Fig. 3

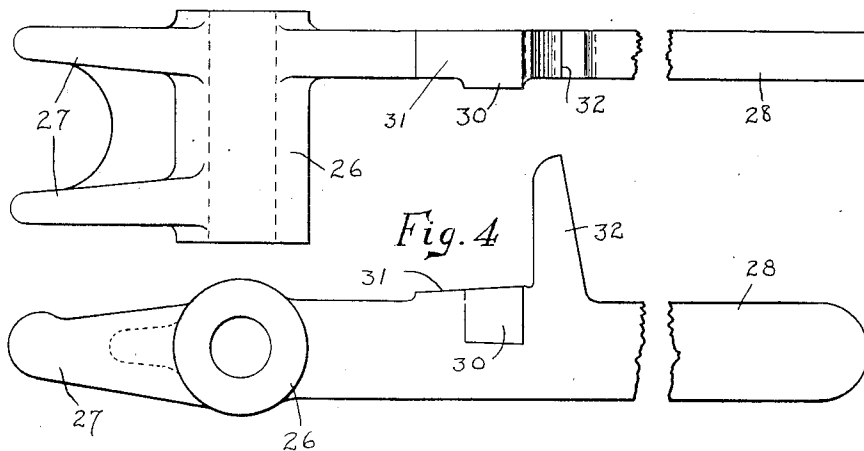


Fig. 6



Fig. 5

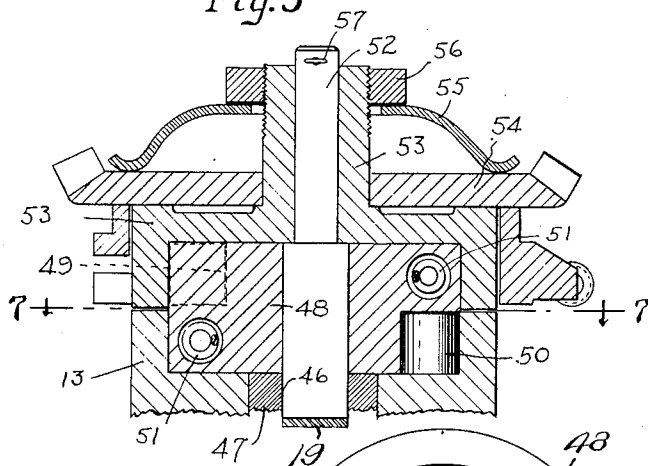
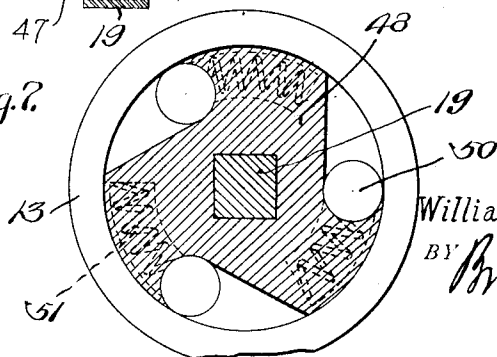


Fig. 7



INVENTOR:
William H. Lockwood
BY *Brown & Messer*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM H. LOCKWOOD, OF FORT WAYNE, INDIANA.

MULTIPLE-LOCK PUMP.

Application filed June 3, 1918. Serial No. 237,849.

To all whom it may concern:

Be it known that I, WILLIAM H. LOCKWOOD, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in a Multiple-Lock Pump, of which the following is a specification.

This invention relates to a pump in which any one of a number of operators may separately unlock the pump for operation and in the unlocking operation connect an individual register or counter which will register the amount each operator has operated the pump or the amount of liquid discharged, the pump being provided with a total register which registers the amounts of all of the separate operators.

The invention consists in the novel construction, combination and arrangement of the parts.

In the accompanying drawings—

Fig. 1 is a front elevation of a pump constructed in accordance with the principles of this invention.

Fig. 2 is a side view.

Figs. 3 and 4 are plan and side views, respectively, of one of the locking levers.

Fig. 5 is a sectional detail of the register driving mechanism; and

Fig. 6 is an elevation of a locking bar.

Fig. 7 is a section on line 7—7 of Fig. 5.

This invention is particularly described as applied to a dispensing pump for gasoline, oil, and the like, but of course it may have a more general application to any dispensing or measuring apparatus which is accessible to a number of different operators where it is desired to keep an accurate account of the amounts sold by each operator, and also the total amount measured or sold by all of them. As a dispensing pump it is particularly valuable in oil stations, garages, and the like, where any one of a number of persons may be called upon to operate the pump, and where it is desired to keep a check upon the various persons, as well as to register the total amount of liquid which is dispensed.

In the present invention a pump cylinder 1 with an inlet pipe 2, an outlet pipe 3, and a discharge faucet 4, of the usual type, is shown having a piston rod 5, to which an operating rack 6 is secured. The rack is reciprocated by a pinion 7 secured to a shaft 8 and driven by a gear 9 secured to

the shaft 8 and a meshing gear 10 secured to an operating shaft 11. These gears are preferably mounted in a casing which has an upper portion 12 and a lower portion 13. Attached to one end of the driving shaft 11 is an operating crank and handle 14.

Mounted in the casing portion 13 are a plurality of individual registers 15 each having a driving bevel gear 16 and a total register 17, which has a driving gear 18. The amounts which the individual and total registers indicate are visible in the usual manner, as indicated in Fig. 1. These gears 16 and 18 are arranged adjacent a vertical shaft 19 which is fixed against longitudinal movement in the casing 13, but is freely rotatable therein. Attached to the shaft, adjacent each of the gears 16, is a collar 20, adjacent which is a sleeve 21 slidable longitudinally on the shaft and upon each sleeve, is a bevel gear 22 which makes a driving engagement with the shaft, but is normally pressed away from the collar 20 and in a direction to engage its corresponding gear 16 by means of a spring 23. Continuously meshing with the total gear 18 is a gear 24 which is secured to the shaft 19 by means of a fastening device 25.

Each of the movable gears 22 is held normally out of engagement with its corresponding gear 16 against the tension of its spring 23 by means of a locking lever 26 which is pivoted within the casing and has a forked extremity 27 which partially embraces and bears against the under side of the gear 22. The other end 28 of each lever extends through an opening 29 in the casing to the outside thereof, and this end of the lever is formed with a locking edge 30 at one side of the lever, and with a bearing surface 31 on top of the lever. Adjacent this bearing edge is an upward extension 32 which is adapted to abut the inside of the casing, as shown in Fig. 1, to prevent tampering with the lock through opening 29. Within the casing is a separate lock 33 for each lever having a keyhole 33' and a movable bolt 34 which engages over the bearing surface 31 for locking the lever in a position to hold the gear 22 raised from its engagement with the corresponding gear 16. The unlocking of any lock 33 withdraws its movable bolt 34 so that the corresponding locking lever 26 is raised and its gear 22 pressed into engagement with the register gear 16 by its spring 23. The particular

construction of the lock 33 forms no part of the present invention. Locks from which bolts are projected by means of a key are well known in the art. One form of lock that could be used in this connection is shown in Patent No. 283,776, granted August 28, 1883.

Cooperating with all of the locking levers is an upright locking bar 35 formed with extensions 36 at one edge, corresponding in number to the locking levers, and each of the extensions having a rounded under surface 37 which is adapted to bear upon a portion of the bearing surface 31 of its corresponding locking lever. The lower end of this bar is secured to the casing by means of a longitudinal slot 38 and a bolt 39 which permits a limited longitudinal movement. At the upper end of the bar it is connected by means of a bolt 40 to one arm of a locking pawl 41 in the form of a bell crank which is pivoted on a bolt 42 and has a tooth 43 which is adapted to be moved into engagement with the teeth of the gear 10 which is mounted on the driving shaft 11. It will be obvious that the raising of the bar 35 will move the tooth 43 of the locking pawl out of engagement with the teeth of the gear 10, and that this locking bar may be raised by the upward movement of any one of the locking levers 26, which at the same time permits its corresponding gear 22 to be moved into connection with the cooperating gear 16. The bolt 42 may be supported by a cover plate 44 for the upper casing portion 12 which is accurately guided in place by dowel pins 45 secured to the plate, and shown in section in Fig. 2.

At the top of the register shaft 19 is a squared portion 46 about which is a sleeve 47 forming a bearing for the shaft in the casing, and also secured to the squared portion of the shaft is a driving member 48, as shown more clearly in Fig. 3, which has an upper set of clutch rollers 49, and a lower set of clutch rollers 50, each having springs 51 and operative in opposite directions of rotation. The upper extremity of the register driving shaft is formed with a portion 52 of reduced diameter forming a shoulder at the top of the squared portion 46, upon which rests a driving member 53 which extends around the upper portion of the driving member 48 secured to the shaft and is engaged by the upper set of clutch rollers 49 in one direction of rotation. Carried by this member 53 is a gear 54 which is pressed yieldingly against the extending portion of this member by means of a spring 55 held in place by a nut 56 by which the tension of the spring can be varied. The member 53 itself is held in place by a cotter pin 57 on the upper end of the shaft 19. Meshing with the gear 54 is another gear 58 to which is secured a gear 59 that meshes

with a gear 60 secured to the driving shaft 11, all of these gears being mounted within the upper casing portion 12. It is obvious, therefore, that the rotation of the driving shaft 11 correspondingly rotates the gear 54, but the movement thereof in one direction only is communicated to the register shaft 19 through the upper set of clutch rollers 49, and then the register shaft itself is prevented from movement in a reverse direction because of the engagement of the lower set of clutch rollers 50 with that portion of the casing 13 adjacent thereto, thus the register shaft, and likewise the registers are actuated only in one direction of movement of the driving shaft 11, and the construction shown and described is particularly designed and adapted to be used in connection with a single acting pump. The clutch rollers 49 and 50 merely act as ratchet mechanism, the clutch roller 49 constituting a one-way drive between the members 53 and 48 where the clutch roller 50 acts as a holding pawl to prevent reverse movement of the member 48.

In operation the pump must first be unlocked by manipulating any one of the locks 33 which releases the corresponding locking lever 26, the spring 23 pressing the gear 22 in engagement with the gear 16 and raising the locking bar 35 to rotate the locking pawl 41 out of engagement with the gear 10, whereupon the crank 14 can be rotated. The rotation of the crank, and likewise of the shaft 11, causes the reciprocation of the pump rack 6, and in one direction of rotation the register shaft 19 is operated it actuates the total register 17, and whichever one of the registers 15 that happens to be connected with the register shaft through the gears 16 and 22. After the desired amount has been discharged by any one of the operators, his register 15 is disconnected by pressing the outer end 28 of his locking lever downwardly, thereby raising the gear 22 from engagement with the gear 16 against the spring 23 and allowing the locking bar 35 to drop, the tooth 43 of the locking pawl engaging the teeth of the gear 10 to prevent rotation of the driving shaft 11 in either direction. The pump is then locked against further actuation until the same, or another one of the locking levers 26 is released.

I claim:—

1. In a meter for pumps, and the like, having a total register and individual registers, the combination of a common register operating shaft connected with the total register, rotatable driving means for the shaft, a locking device for said driving means, means on the shaft for selectively connecting it with the individual registers, and lock controlled means including a lever to release said locking device and at the

same time to connect the individual registers with the shaft.

2. In a meter for pumps, and the like, having a plurality of registers, the combination with a register operating shaft and means for rotating it, of a locking device for the rotating means comprising a longitudinal bar parallel with the shaft, and means including a gear and lever for operatively connecting said shaft to each register, said connecting means being arranged to move the bar in one direction and permit the gear to move in the other direction.

3. In a meter for pumps, having a plurality of individual registers, the combination with a register operating shaft and means for rotating it, of a locking device comprising a movable bar, a spring-pressed gear for each register, and a lever engaging the bar and the gear and movable by the spring of the gear to move the bar and disengage the locking device.

4. In a meter for pumps, having a plurality of individual registers, the combination with a register operating shaft and means for operating it, of a locking device for the operating means including a longitudinally movable bar, means for connecting each of the registers with the shaft comprising a gear mounted on the shaft and a spring for pressing it into engaging position, a locking lever for each register engaging the gear and the bar, and means for locking the lever to hold the gear out of engaging position.

5. In a meter for pumps, having a plurality of individual registers, the combination with a rotatable register operating shaft, of means including a spring-pressed gear on the shaft for connecting each of the registers therewith, a locking device for preventing the rotation of the shaft including a longitudinally movable bar, an individual locking lever for each register pivoted between the shaft and the bar and having its opposite arms engaged by the gear and the bar, the spring of the gear tending to press the bar to disengage the locking device, and a lock also engaging the upper edge of the lever adjacent the bar for holding the latter out of engaging position.

6. In a meter for pumps, having a plu-

rality of individual registers, the combination with a rotatable register operating shaft, of means for connecting each register with the shaft including a spring-pressed gear, a locking lever engaged by the gear, and a lock for the lever to hold the gear out of engaging position.

7. In a meter for pumps, having a plurality of individual registers, the combination with a register operating shaft, of means including a spring-pressed gear for connecting each register with the shaft, a casing in which the registers and shaft are mounted, a locking lever pivoted within the casing having one extremity engaging the gear and the other extremity extending through the casing, a lock inside of the casing for engaging the lever to hold the gear out of engaging position, and a projection on the lever to prevent tampering with the lock through the lever opening in the casing.

8. In a meter for pumps, having a plurality of individual registers, the combination with a register operating shaft, of means including a spring-pressed gear for connecting each register with the shaft, a device for locking the shaft against rotation including a longitudinally movable bar, and a locking lever having one extremity to engage the gear and having a bearing surface engaged by the bar and a lock for also engaging the bearing surface to hold the lever against the pressure of the spring-pressed gear.

9. In a meter for pumps, having a total register and a plurality of individual registers, the combination with a rotatable register shaft, of means for continuously connecting said total register with said operating shaft, means for separately connecting said individual registers with the shaft, driving means rotatably in both directions, a casing in which the driving means and the shaft are mounted, and a one-way driving connection between the driving means and the shaft, said connection also including means for preventing the rotation of the shaft in one direction.

In testimony whereof I have signed my name to this specification on this 18th day of May A. D. 1918.

WM. H. LOCKWOOD.