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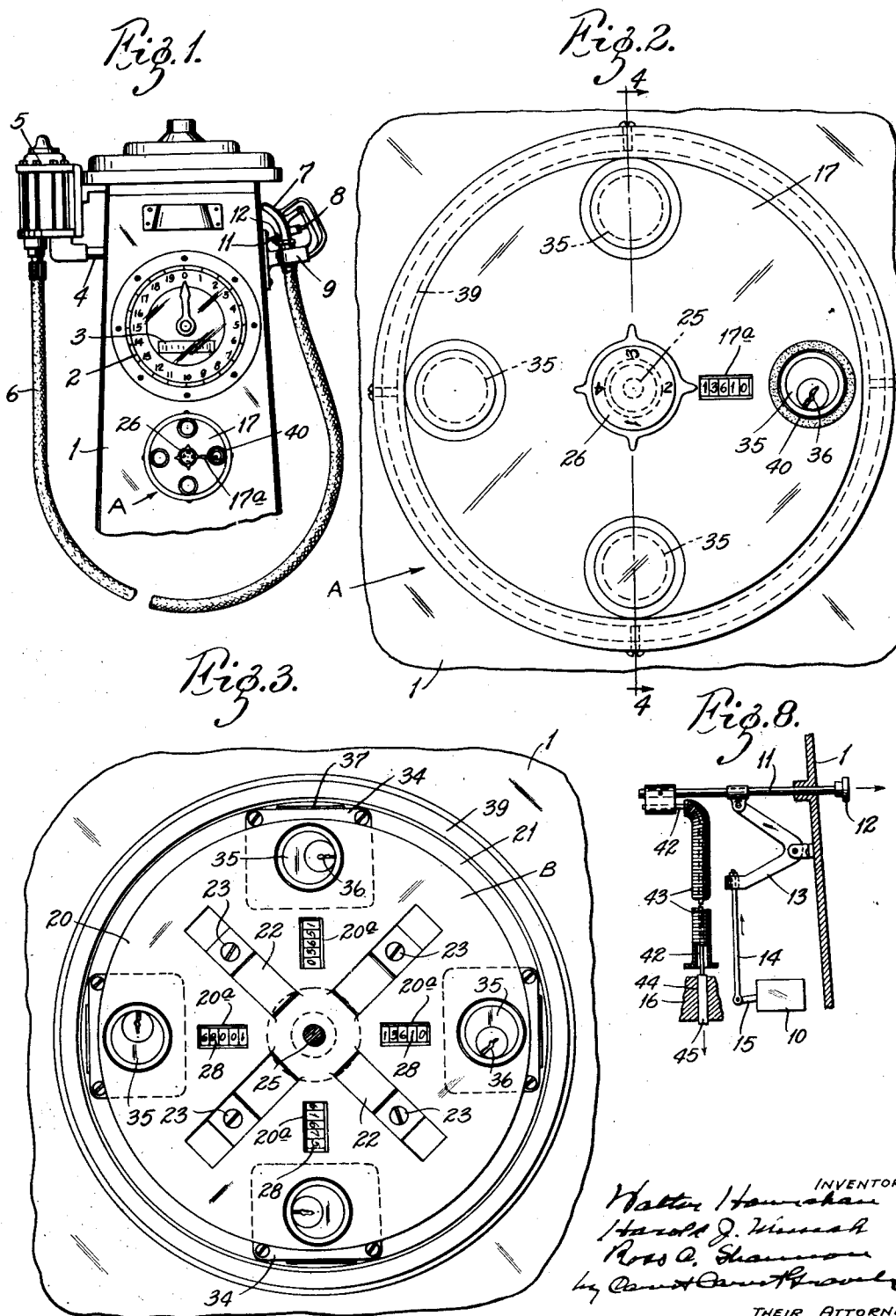
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SELECTIVE REGISTERING MECHANISM

Filed Nov. 21, 1935

2 Sheets-Sheet 1



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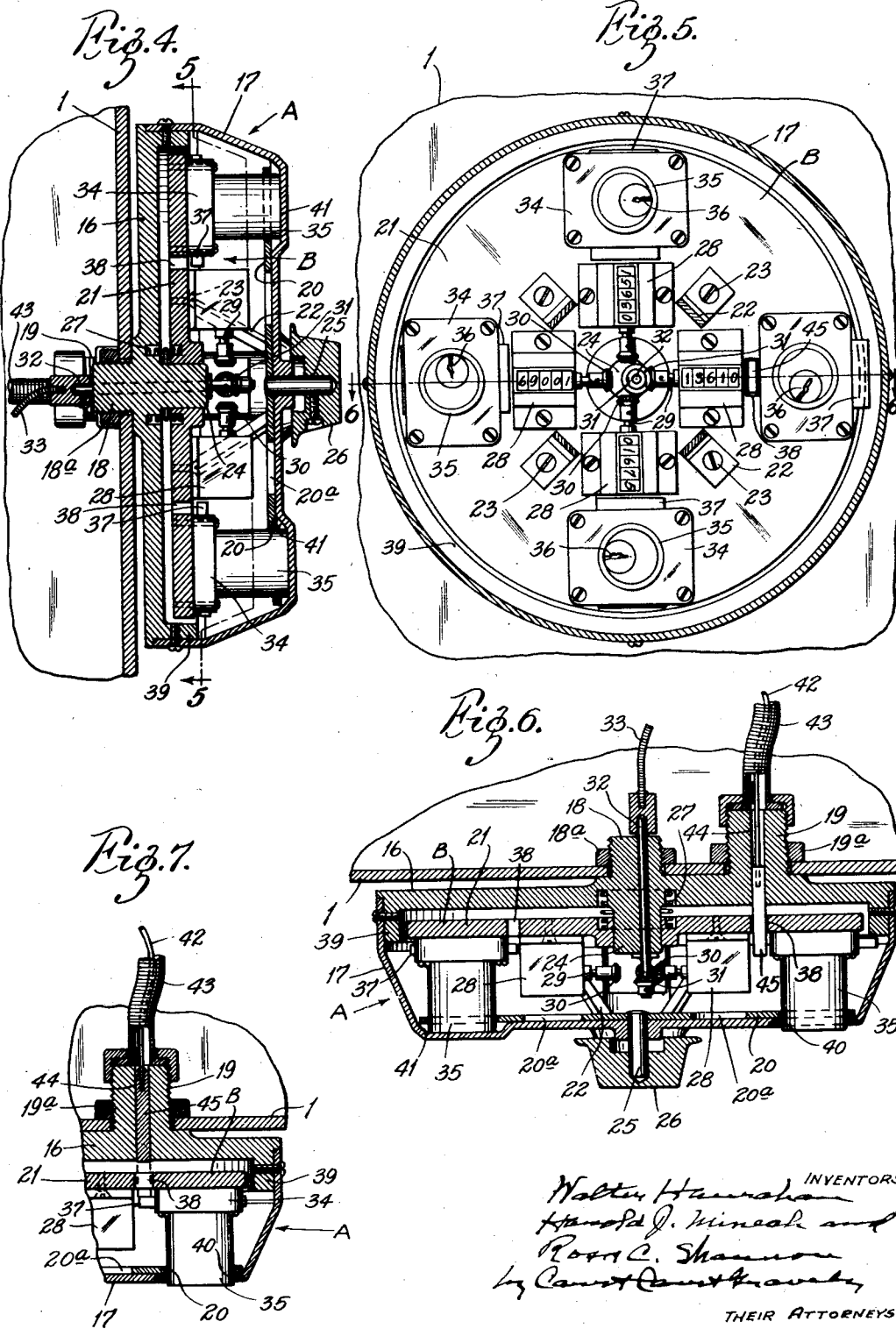
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SELECTIVE REGISTERING MECHANISM

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5 Claims. (Cl. 235—91)

Our invention relates to registering pumps for dispensing gasoline and other liquids, particularly to registers of the selective type, that is providing separate registers for individual attendants dispensing liquids from the pump, these registers being selectively operable so that there will be a record as to the quantity of liquid dispensed by each individual attendant.

The invention has for its principal objects to simplify the construction of such a selective register construction, and to furnish adequate safeguard insuring proper use of the individual registering devices. Other objects and advantages of the invention will appear hereinafter.

The invention consists principally in mounting on a rotatable disk a plurality of individual, lock controlled registers having gears adapted to be selectively engaged with a main drive gear rotated by the operating mechanism for the main register of the pump. The invention further consists in the selective registering device, and in the parts and arrangement of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification and wherein like reference numerals refer to like parts wherever they occur,

Fig. 1 is a front elevation of the upper portion of a registering pump provided with a selective registering device embodying our invention,

Fig. 2 is an enlarged front elevation of the selective registering device,

Fig. 3 is a view similar to Fig. 2 with the cover of the selector housing removed,

Fig. 4 is a vertical central longitudinal section on the line 4—4 in Fig. 2,

Fig. 5 is a vertical transverse section on the line 5—5 in Fig. 4,

Fig. 6 is a horizontal central longitudinal section on the line 6—6 in Fig. 5 with the exposed lock in unlocked position,

Fig. 7 is a fragmentary section similar to Fig. 6, with the exposed lock in locked position; and

Fig. 8 is a fragmentary vertical section through the side wall of the pump housing showing the lock controlled mechanism for manually actuating the switch for the motor that drives the pump mechanism.

Referring to the accompanying drawings, our selective registering device is shown as a complete unit adapted for attachment to an existing type of pump without material alterations thereof; but said device may also be incorporated in the pump at the time of manufacture. The gasoline metering pump shown in the drawings comprises an upright housing 1 provided with a counting dial 2 having a register 3 built therein providing a continuous record of all gasoline dispensed by said pump. The pump is also provided with an electric motor driven pump mechanism

(not shown) for forcing the liquid through a delivery conduit including a pipe 4, a gage 5 for visibly indicating the flow of the liquid and a hose 6 terminating in a nozzle 7 provided with a control valve 8 and adapted to be placed in a suitable supporting hook 9 provided therefor on one side of the pump housing 1.

As shown in Fig. 8 of the drawings, the electric motor (not shown) for driving the pump mechanism is controlled by a switch 10 located in the pump housing 1 and operated by a horizontal push-and-pull rod 11 that is slidable endwise through the side wall of the housing 1 and is provided at its outer end with an operating knob 12 adapted to be forced inwardly by the hose nozzle 7 when the latter is placed on its supporting hook 9. The connection between the rod 11 and the switch 10 controlled thereby comprises a bent lever 13 pivotally mounted in the pump housing 1 with one arm operatively connected to said rod to be actuated thereby and with the other arm connected by a link 14 with the actuating arm 15 of said switch. With this arrangement, when the rod 11 is pulled outwardly, the bent lever 13 is swung upwardly and closes the switch 10 to start the pumping operation, and when the rod is pushed inwardly, as by placing the hose nozzle 7 on its supporting hook 9, the bent lever is swung downwardly and thus opens the switch and stops the pumping operation. The type of metering pump thus far described is well known and it is considered unnecessary to illustrate it in detail.

In accordance with the present invention, the above metering pump is provided just below the counting dial 2 with a device having a plurality of selectively operable registers for individual attendants dispensing liquids from the pump, so that there will be a record as to the quantity of liquid dispensed by each individual attendant. Said selective registering device comprises a hollow cylindrical casing or housing A consisting of a circular base plate 16 and a removable cover 17. The base plate 16 is provided with a central threaded boss 18 and with a second threaded boss 19, which extend through holes provided therefor in the front wall of the pump housing 1, and are provided with nuts 18a and 19a, respectively, that firmly hold said base plate in position.

Located in the selector housing or casing for rotation about the axis thereof is a rotor B comprising front and rear circular plates or disks 20 and 21, respectively, that are secured together in proper spaced relation by means of flanges 22 that are struck from openings in the front plate 20 and have their ends removably secured by screws 23 to the rear plate 21. The rotor B is supported for rotary and axially sliding movement in the selector casing A by a central stud 24 on the front face of the base plate 16 of said casing and by a forwardly projecting axial stud

25 that is fixed to the front plate 20 of said rotor and is rotatably supported in an axial hole provided therefor in the cover 17 of said casing. The stud 25 projects forwardly beyond the front face of the housing A and has a knob 26 rigidly secured thereto for rotating and axially sliding the rotor B in said housing. The rotor B is yieldably held with its front plate 20 in engagement with the front cover 17 of the housing B by means of a coil spring 27 which surrounds the stud 24 between the base plate 16 of the rotor housing and the rear plate 21 of the rotor.

Mounted on the front face of the rear plate of the rotor B is a plurality of annularly spaced selectively operable registering devices 28, each provided with a shaft 29 disposed radially of the rotor axis and provided at its inner end with a bevel gear 30 adapted to be selectively meshed with a bevel drive gear 31 fixed to the forward end of a shaft 32 journaled in the base plate 16 of the selector housing A eccentric to the rotor axis. The eccentric shaft 32 is rotated by a flexible cable 33 suitably connected to and driven by the main register mechanism 3 of the pump. As shown in Fig. 5, the mounting of the main drive gear 31 eccentric to the axis of rotation of the rotor B enables the bevel gears 30 of the respective registering devices 28 to be selectively engaged with said main drive gear by rotating said rotor. The rotor B is provided with a plurality of locks 34 mounted on the front face of the rear plate 21 of the rotor beyond the outer end of each individual metering device 20. Each lock 34 has a barrel portion 35 extending forwardly from the rear plate 21 of the rotor through an opening in the front plate 20 thereof and is provided at its front end with an opening 36 for receiving a key for actuating the bolt 37 of said lock. The bolt 37 of each lock is slidable radially of the rotor axis and, in the normal or locked position of the lock, is disposed with its inner end over a slot 38 in the rear plate 21 of the rotor, while, in the unlocked position of said lock, the inner end of said bolt clears said slot and its outer end overlaps a peripheral flange 39 on the front face of the base plate 16 in the housing A. The front face of the housing A of the selector is provided with an opening 40 adapted to receive the barrel 35 of any one of the locks 34 so that access may be had to the keyhole 36 thereof; and circular recesses 41 are provided in the inner face of the cover 17 of said housing to provide seats for the forward ends of the barrels of the remaining locks. The front plate 20 of the rotor B is provided opposite each register 28 with an opening 20a; and the cover 17 of the housing A is provided adjacent to the lock barrel receiving opening 40 with a sight opening 17a through which the operating register may be observed.

As shown in Figs. 6, 7 and 8, the mechanism for actuating the switch 10 that controls the pump operating motor is operatively connected to the selector device so as to permit operation of the pump only when one of the locks 34 is exposed and unlocked. As shown in the drawing, this connection preferably comprises a flexible rod 42 connected at one end to the push-and-pull rod 11 of the manual operable switch actuating mechanism and passing through a suitable conduit 43 which is suitably fastened to the boss 19 on the rear plate 16 of the selector housing A. The rod 42 extends beyond the conduit 43 through an axial opening 44 extending through the boss 19 and base plate 16 and terminates in

a plunger 45 slidable in said opening and adapted to enter a slot 38 formed in the rear plate 21 of the rotor B adjacent to each lock when that particular lock is positioned with its barrel in the opening 40 in the front face of the housing A.

The operation of the hereinbefore described selective registering pump is as follows: Assuming that the number of attendants dispensing liquid from the pump corresponds with the number of registers carried by the rotor B, a separate register is assigned to each attendant who is provided with a key for the lock associated with this particular register. When one of the attendants desires to operate the pump, the rotor B is pressed inwardly by means of the knob 26 to free the barrels 35 of the locks from the opening 40 and recesses 41 in the cover 17 of the rotor housing A and the rotor then rotated to bring opposite the opening 40 the barrel of the lock associated with the register assigned to that attendant, whereupon the knob 26 is released and the lock barrel forced outwardly by the coil spring 27 into said opening. In this position of the rotor, the selected register can be observed through the sight opening 17a in the rotor housing and the gear 30 of said register is brought into operative engagement with the eccentrically disposed main drive gear 31 so as to be driven thereby. The attendant then inserts his key in the exposed lock and moves the bolt 37 thereof clear of the slot 38 in the rear plate 21 of the rotor. The attendant then removes the hose nozzle 7 from its supporting hook 9 and pulls outwardly on the rod 11 far enough to close the motor switch 10 and thus start the operation of the pump, the complete closing movement of said switch being permitted by the movement of the plunger 45 through the slot 38 uncovered by the bolt 37 of the lock in the unlocked position thereof.

The pump is stopped in the usual manner by placing the hose nozzle 7 on its supporting hook and thus forcing the rod 11 inwardly so as to open the switch 10. This inward movement of the rod also withdraws the plunger 45 from the slot 38 in the rear plate 21 of the rotor so as not to again interfere with the rotation thereof.

After the switch 10 has been opened, the withdrawal of the plunger 45 from its position opposite the inner end of the bolt 37 of the lock permits said bolt to slide inwardly clear of the flange 39 of the rotor and across the opening 38 from which the plunger has been withdrawn by the operation of opening said switch. Preferably the lock will be of a spring type so as to return the bolt automatically to locked position. In this position of the parts, the rotor may be pushed inwardly and rotated on its axis to dispose the desired lock in the opening 40.

In the unlocked position of the lock the outer end of the bolt 37 thereof overlaps the front face of the peripheral flange 39 of the rear plate 16 of the rotor and thus prevents the rotor from being moved inwardly far enough to free the lock barrels from the recesses 41 and opening 40, which movement is necessary to permit rotation of the rotor. The front plate 20 of the rotor closes the opening 40 in the rotor housing when the lock barrels are out of register therewith and thus prevents tampering with the mechanism inside said housing; while the bolt of an exposed and unlocked lock extends across the peripheral flange 39 of the rear plate 16 of the rotor and thus prevents the rotor from being pushed inwardly to disengage the gear 30 of the

selected register from the main gear 31. If, in the locked position of the lock, the rotor is pushed inwardly far enough to disengage the gear 30 of the selected register from the main drive gear 31, the lock cannot be unlocked to start the pump, because of the annular flange 39 which constitutes an abutment that prevents unlocking movement of the lock bolt.

Obviously, the hereinbefore described arrangement admits of considerable modification without departing from the invention. Therefore, we do not wish to be limited to the precise arrangement shown and described.

What we claim is:

1. A device of the kind described comprising a stationary housing, a rotor mounted in said housing for rotary and axial sliding movement therein, said rotor being provided with a portion extending exteriorly of said housing for rotating and axially sliding said rotor therein, a drive shaft extending into said housing eccentric to the rotor axis and having an inwardly facing drive gear on its inner end, a plurality of registering devices on said rotor, each having a gear said gears being concentric with the axis of said rotor and adapted to be selectively engaged with said drive gear by rotary and axial movement of said rotor, and locks on said rotor each in proximity to one of said registering devices, said housing being provided in its outer end with an opening adapted to receive and expose the key receiving portion of any one of said locks and prevent rotation of said rotor, each of said locks being adapted when exposed and unlocked to prevent inward axial movement of said rotor.

2. A device of the kind described comprising a stationary housing, a rotor mounted in said housing for rotary and axial sliding movement therein, said rotor being provided with a portion extending exteriorly of said housing for rotating and axially sliding said rotor therein, a drive shaft extending into said housing eccentric to the rotor axis and having an inwardly facing drive gear on its inner end, a plurality of registering devices on said rotor, each having a gear said gears being concentric with the axis of said rotor and adapted to be selectively engaged with said drive gear by rotary and axial movement of said rotor, locks on said rotor associated with the respective registering devices, said housing being provided in its outer end with an opening adapted to receive the key receiving portion of any one of said locks and recesses adapted to receive the key receiving portions of the remaining locks, a spring interposed between said rotor and the inner end of said housing for yieldably holding said locks in said opening and recesses, and means on said housing cooperating with the exposed lock to prevent inward movement of said rotor when said lock is unlocked.

3. A device of the kind described comprising a stationary housing, a rotor mounted in said housing for rotary and axial sliding movement therein, said rotor being provided with a portion extending exteriorly of said housing for rotating and axially sliding said rotor therein, a drive shaft extending into said housing eccentric to the rotor axis and having an inwardly facing drive gear on its inner end, a plurality of registering devices on said rotor, each having a gear said gears being concentric with the axis of said rotor and adapted to be selectively engaged with said drive gear by rotary and axial movement of said rotor, locks on said rotor associated with the

respective registering devices, said housing being provided in its outer end with an opening adapted to receive the key receiving portion of any one of said locks and recesses adapted to receive the key receiving portions of the remaining locks, a spring interposed between said rotor and the inner end of said housing for yieldably holding said locks in said opening and recesses, and means on said housing arranged to prevent unlocking of the exposed lock except when said rotor is in its outermost position.

4. A device of the kind described comprising a stationary housing, a rotor mounted in said housing for rotary and axial sliding movement therein, said rotor being provided with a portion extending exteriorly of said housing for rotating and axially sliding said rotor therein, a drive shaft extending into said housing eccentric to the rotor axis and having an inwardly facing drive gear on its inner end, a plurality of registering devices on said rotor, each having a gear said gears being concentric with the axis of said rotor and adapted to be selectively engaged with said drive gear by rotary and axial movement of said rotor, locks on said rotor associated with the respective registering devices, said housing being provided in its outer end with an opening adapted to receive the key receiving portion of any one of said locks and recesses adapted to receive the key receiving portions of the remaining locks, a spring interposed between said rotor and the inner end of said housing for yieldably holding said locks in said opening and recesses, and means on said housing arranged to prevent unlocking of the exposed lock except when said rotor is in its outermost position, said means also cooperating with said lock to prevent inward movement of said rotor when said lock is unlocked.

5. A device of the kind described comprising a stationary housing, a rotor mounted in said housing for rotary and axial sliding movement therein, said rotor being provided with a portion extending exteriorly of said housing for rotating and axially sliding said rotor therein, a drive shaft extending into said housing eccentric to the rotor axis and having an inwardly facing drive gear on its inner end, a plurality of registering devices on said rotor, each having a gear said gears being concentric with the axis of said rotor and adapted to be selectively engaged with said drive gear by rotary and axial sliding movement of said rotor, locks on said rotor, one adjacent to each of said registering devices, a plunger slidably mounted in said housing, said rotor having a plurality of openings therein, one adjacent each lock and adapted when in register with said plunger to slidably receive the same, said housing being provided in its outer end with an opening adapted to receive and expose the key receiving portion of any one of said locks and recesses adapted to receive the key receiving portions of the remaining locks, and a spring interposed between said rotor and the inner end of said housing for yieldably holding said locks in said opening and recesses, the exposed lock in the locked position thereof cooperating with said plunger to limit the sliding movement thereof in one direction, said exposed lock in the unlocked position thereof preventing inward movement of said rotor.

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