

W. P. HAMMOND & E. Q. MOSES.
 REGISTERING MECHANISM.
 APPLICATION FILED OCT. 12, 1915.

1,219,939.

Patented Mar. 20, 1917.

2 SHEETS—SHEET 1.

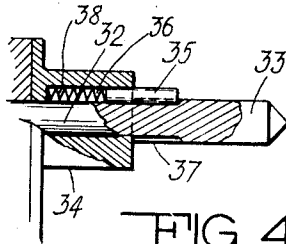
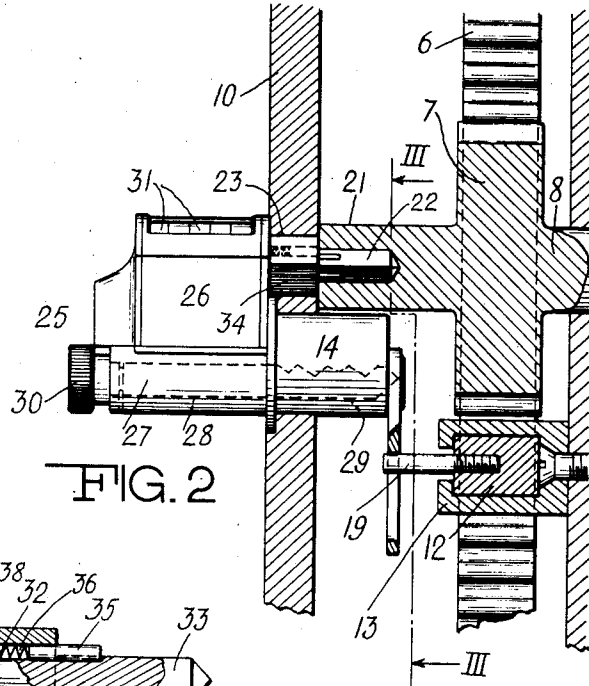
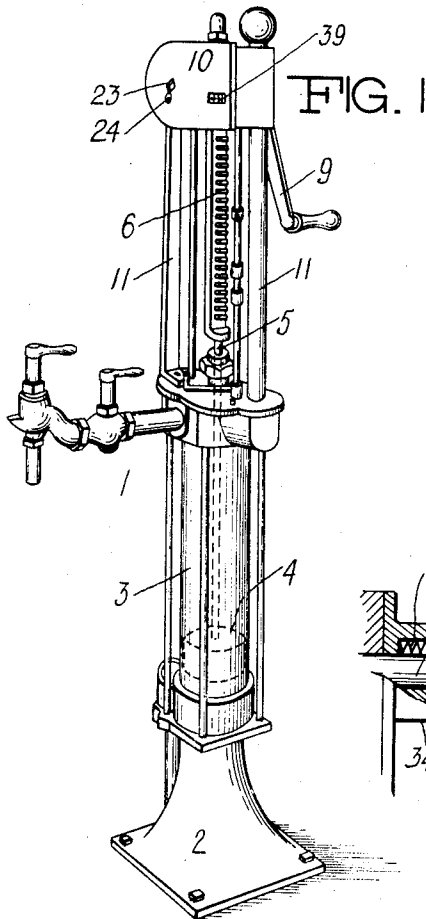


FIG. 4

FIG. 3

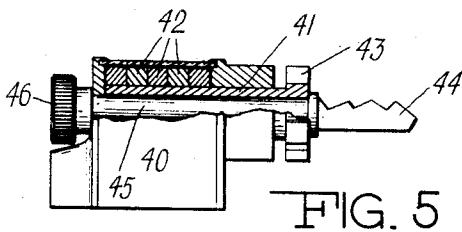


FIG. 5

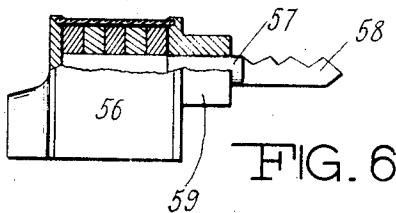


FIG. 6

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2 SHEETS—SHEET 2.

FIG. 7

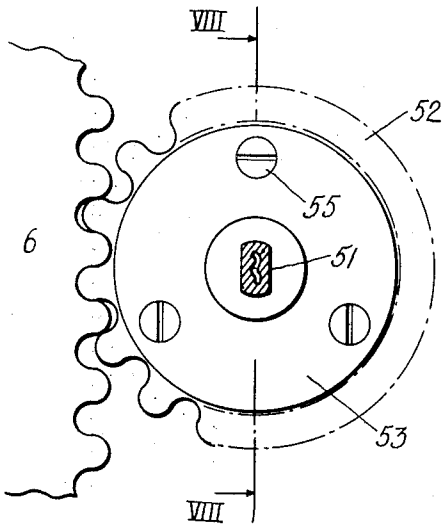


FIG. 8

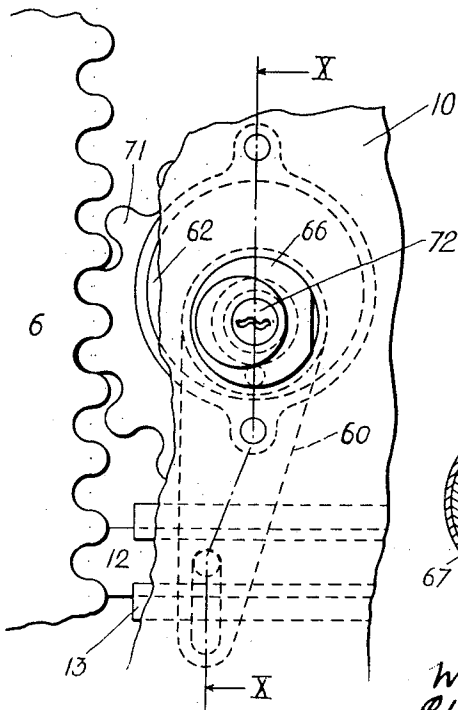
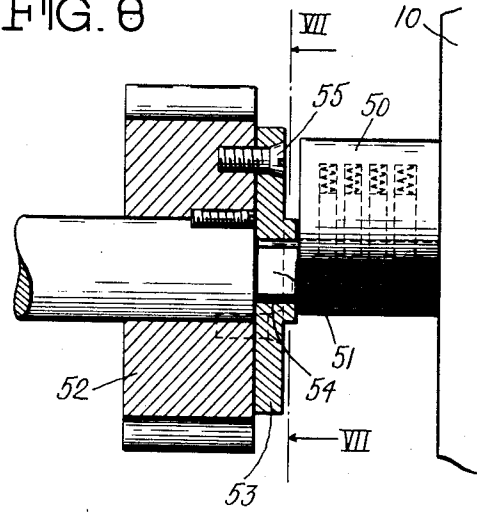


FIG. 9

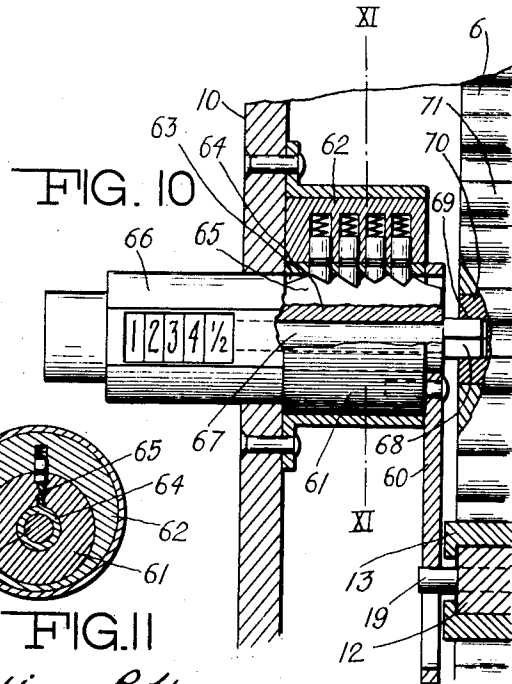
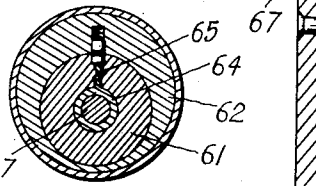


FIG. 11



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WILLIAM P. HAMMOND, OF PASSAIC, NEW JERSEY, AND EDMUND QUINCY MOSES, OF NEW YORK, N. Y.

REGISTERING MECHANISM.

1,219,939.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM P. HAMMOND, a citizen of the United States, residing in Passaic, county of Passaic, and State of New Jersey, and EDMUND QUINCY MOSES, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Registering Mechanism, of which the following is a specification.

This invention relates to registering mechanism of such a nature as to register the performance of a given operation which may be performed by any one of a number of individuals in such a way as to indicate the particular individual performing the operation. It is particularly adapted for use in connection with dispensing devices which are normally locked, the registering mechanism being associated with the locking mechanism so that when the dispensing mechanism is unlocked and operated the amount of commodity dispensed will be registered in such a way as to be charged to the individual operating the mechanism. In general this is accomplished by providing a registering device or means for each individual who may use the dispensing mechanism, each registering device being associated with unlocking means in such manner that the dispensing device cannot be unlocked without placing the registering mechanism in such condition as to register the amount of commodity withdrawn or other operation performed.

The nature of the invention will more fully appear from the following description:

In the accompanying drawings, forming a part of this specification, we have illustrated certain preferred embodiments of our invention as applied to a gasoline measuring and dispensing pump, but it will be understood that the invention is in no way limited to such use.

Figure 1 is a perspective view of a measuring dispensing pump to which the invention is applied. Fig. 2 is a view showing a part of the gear casing of the pump in vertical section and showing in elevation registering mechanism embodying one form of our invention applied thereto. Fig. 3

is a section on line III—III of Fig. 2. Fig. 4 is a detailed view of a portion of the registering device. Fig. 5 is a view partly in section and partly in elevation of a modified construction of the registering device. Fig. 6 is a similar view of another modified construction. Fig. 7 is a view of a portion of the mechanism adapted to be used in connection with the registering device shown in Fig. 6, this view being taken on line VII—VII of Fig. 8. Fig. 8 is a vertical sectional view taken on line VIII—VIII of Fig. 7, the lock being shown in elevation. Fig. 9 is a face view of a construction embodying a modified form of our invention. Fig. 10 is a sectional view on line X—X of Fig. 9. Fig. 11 is a sectional view on line XI—XI of Fig. 10.

Referring to the drawings in detail, and particularly to Figs. 1 to 4, the numeral 1 designates a measuring pump of the type commonly used for dispensing gasoline, this pump having a base 2, and a cylinder 3 in which works a piston 4. The piston is reciprocated by the rod 5, the reciprocating movement being imparted by means of a rack 6, which is engaged by a pinion 7 (see Fig. 2). On the shaft 8 of the pinion is a hand crank 9 by which power is applied. The pinion 7 is contained within a casing 10, mounted on standards 11 above the pump cylinder. This construction of pump is well known and is used merely for purposes of illustration in showing one application of the invention. These pumps are usually so constructed that each reciprocation of the piston will deliver a fixed quantity of the liquid to be dispensed, for instance, one gallon, and they are at the present time quite extensively used at garages and elsewhere for the dispensing of gasoline. These pumps have often been provided with total counters which indicate the total amount of commodity dispensed, but difficulty has been experienced by reason of the fact that no satisfactory means has been available for checking up the amounts of the commodity dispensed by the various employees who might be called upon to utilize the device. The present invention provides means by which deliveries made by different individuals may be checked, and each individual using the device, therefore, made account-

able for so much of the commodity as is delivered by him. The mechanism of the device illustrated in Figs. 1 to 4 is as follows:

Mounted in the casing 10 is a bolt 12 which slides in a guide 13, and which is adapted to engage the teeth of the rack 6 so as to lock the same, and consequently the piston of the pump, against movement. This bolt is controlled by a lock of suitable construction. As illustrated, a lock 14 of the ordinary cylinder type is provided, which is mounted upon the front wall of the casing 10, and which has a rotatable barrel 16 in which is the usual key slot 17. Secured to the end of the barrel is a slotted lever 18 which is connected to the bolt 12 by means of a pin 19 working in the slot 20 in the lever. Rotation of the lock barrel by means of a suitable key will cause the bolt 12 to engage or disengage the rack in an obvious manner. The lock 14 is mounted adjacent to the pinion 7, which is preferably provided with a boss 21 extending close to the front wall of the casing. This boss is provided with a socket 22 of suitable shape, such as square. An opening 23 is formed in the front wall of the casing in front of the socket 22, this opening being adjacent to the keyhole 24 of the lock 14.

The unlocking and registering mechanism 25 comprises a revolution counter 26, which may be of any suitable well known construction, and to the casing of which is affixed the sleeve 27. Rotatably mounted in this sleeve is a shaft 28 carrying a key 29 adapted to cooperate with the lock 14. The projecting end of this shaft is provided with suitable means, such as the knob 30, by which it and the key may be rotated so as to turn the barrel of the lock and shift the bolt 12 to unlock or lock the pump. The counter or register 26 may be of any suitable construction, and is illustrated as being provided with a series of number wheels 31. These number wheels are driven by the spindle 32, which is provided with the squared end 33 adapted to fit in the socket 22 in the pinion boss. The counter is preferably of the well known ratchet type in which the number wheels are moved only by the rotation of the spindle in one direction, and it may be provided with suitable setback mechanism which is preferably controlled by a lock and key. Counters of this type are well known, and the detailed construction of the interior mechanism thereof will not, therefore, be illustrated or described. The counter is provided with a sleeve 34 surrounding the spindle 32 and adapted to fit in the opening 23 in the front of the casing. The opening 23 and this sleeve are preferably of square or other non-circular form so as to firmly lock the counter against rotation, or the engagement of the key in the keyhole of the lock may,

if desired, be relied upon for this purpose. Means are also preferably provided to prevent the accidental rotation of the counter spindle when removed from the casing. These means may be of any suitable construction and as illustrated comprise the locking pin 35 mounted in a recess 36 in the sleeve 34 adjacent to the spindle 32. The squared portion 33 of the spindle is provided with a series of recesses 37 adapted to receive the locking pin 35, and into one of which the pin is normally urged by a spring 38. When the pin 35 is pushed back into the recess 36, it will be seen that the spindle is free to turn.

The operation and use of the device are as follows: One or more of the combined key-and-counter devices are provided, preferably each employee, or other person authorized to use the pump having his individual device which he may carry in his pocket, or keep in a suitable locked receptacle, or otherwise dispose of. Normally the pump stands as shown in Fig. 1, with the registering mechanism and key removed, and the pump rack locked by the bolt 12. When a particular employee wishes to dispense the gasoline or other commodity he takes his combined counter and key and applies it by inserting the key 29 in the keyhole 24 and the sleeve 34 and the squared end 33 of the spindle, in the opening 23 in front of the casing and the socket 22, respectively. While handling the device or carrying it in his pocket the spindle is held against accidental rotation by the engagement of the pin 35 with one of the notches 37. The application of the device to the pump casing, however, causes the end of the pin 35 to engage with the end of the boss 21 which pushes the pin back into the recess and out of engagement with the notch 37, thus releasing the spindle and permitting it to be rotated. The operator having thus applied the device turns the knob 30, thereby revolving the barrel of the lock and throwing the bolt 12 out of engagement with the rack. The crank handle may now be turned to operate the pump by means of the pinion and rack. The rotation of the pinion will obviously cause a corresponding rotation of the counter spindle, the amount of rotation being duly registered by the number wheels. The first wheel of the counter may be suitably divided to register fractions of a rotation in the usual manner. The unit number wheels may, for instance, be made to register gallons, if the pump delivers one gallon at each stroke, while the fraction wheel may be divided so as to register one-eighth of a gallon, or pints. So long as the key remains turned in the lock in such a way as to permit the pump to be operated, the engagement of the key with the lock prevents its withdrawal therefrom,

in a well understood manner, and thereby prevents the removal of the register from its operative engagement with the mechanism. It can only be removed after the key is turned to such a position as to reengage the bolt 12 with the rack which thereby prevents the further dispensing of the commodity. It will thus be seen that whenever the commodity is being dispensed the register must be engaged with the mechanism so that every particle of the commodity dispensed will be indicated by the register.

The employee when through drawing gasoline relocks the pump and removes his register therefrom. The pump is now in condition to be operated by any other employee, who must, however, first insert his key and registering mechanism. In this way it will be seen that by examining the registers of the several employees the amount of commodity withdrawn by each may be determined, and that none of the commodity can be withdrawn without being registered upon one or the other of the different registering devices. Thus each employee may be held to strict accountability for that portion of the commodity which he has dispensed. If the counters are of the well known locked set-back type, as suggested, the employees cannot tamper with them so as to decrease their readings, but at desired intervals the manager, or other responsible person, possessing the key to the set-back mechanism may take the readings of the several counters and set them back to zero. The counters may be so constructed as not to permit of repeating upon reaching the maximum indication, in which case the operators cannot turn the counters ahead and pass the maximum so as to indicate less than the correct figure. This, in connection with the lock set-back feature, makes a counter which cannot be tampered with.

Such refinements are not, however, essential to our invention as the tampering with the instrument may be guarded against by suitable supervision, and by checking the readings of the individual registers with a total register 39, which is preferably provided upon the dispenser as is customary.

In Fig. 5 we have shown a modified construction of a locking registering mechanism in which the counter 40 instead of being provided with a solid central spindle, has a driving sleeve 41 which is surrounded by the number wheels 42. The inner end of this sleeve 41 is provided with suitable means for engagement with a movable part of the apparatus, such, for instance, as with the gear teeth 43, which may engage with gearing driven from the rack or pinion of the pump in any suitable manner. The key 44 is carried on a shaft 45 extending through the sleeve 41, the shaft being provided with

a knob 46, or other means for turning the key. The mode of using this form of counter is the same as already described.

In Figs. 6, 7 and 8, we have shown another modification of our invention in which a lock 50, preferably of very strong and solid construction, is employed, the barrel 51 of the lock being connected directly to the pinion 52 of the pump in any suitable manner, as by means of the plate 53, which has a central socket 54 receiving the end of the lock barrel, and which is secured to the pinion in any suitable manner, as by means of the screws 55. The lock barrel is normally held against rotation by means of the tumblers in a well understood manner, and it thereby prevents the rotation of the pinion 52, and the consequent operation of the pump. When the key is inserted in the lock the lock barrel is released so that the rotation of the crank handle of the pump will turn the pinion 52 without interference and operate the pump. The key and counter construction used with this mechanism is illustrated in Fig. 6, and consists of a counter 56 of any suitable construction, the spindle 57 of which carries the key 58. The casing of the counter is provided with a sleeve 59 of square, or other suitable formation, which fits in a correspondingly shaped socket (not shown) in the gear casing of the pump, and thereby holds the counter itself against rotation. The rotation of the pinion 52, however, during the operation of the pump, will be seen to rotate the barrel of the lock and through it the key 58 and counter spindle 57. Thus the counter will be caused to register every movement of the pump. As soon as the key and counter are withdrawn, however, the pump will be locked against further movement.

In Figs. 9, 10 and 11 we have shown another modification of our invention, in which the pump rack 6 is normally locked by a bolt 12, as in the construction shown in Figs. 1 to 4. The movement of this bolt is accomplished by means of a slotted lever 60, connected to the rotatable barrel 61 of a cylinder lock 62. This lock barrel has a peculiar key slot 63 formed therethrough, the key which coöperates therewith comprising the sleeve 64 and the key portion proper 65. The sleeve 64 is attached to the casing of the registering device or counter 66, while the rotatable driving spindle 67 of the counter passes through the sleeve 64, and is provided with a squared end 68 adapted to engage a socket 69 formed in the end of the shaft 70, upon which the driving pinion 71 of the pump is mounted. The counter may be of any suitable construction, and is preferably provided with set-back mechanism controlled by a lock 72 in a well understood manner.

The operation of the mechanism illus-

trated in these figures is as follows: The end of the counter comprising the sleeve 64, key portion 65 and driving spindle is inserted in the keyhole 63, the squared end of the driving spindle entering the socket in the pinion shaft. The combined key and counter is then given a partial rotation sufficient to turn the barrel of the lock and the lever 60, and throw the bolt 12 out of engagement with the rack. The pump may then be turned, this movement being registered through the pinion 71 and the counter spindle. When the pump has been operated to the desired extent, the counter and key is turned back so as to throw the bolt 12 again into locking engagement with the rack. The key and counter may then be withdrawn leaving the pump locked.

We have illustrated and described in detail only certain preferred embodiments of our invention for the purpose of explaining the nature thereof, and we do not thereby intend to limit ourselves to such specific embodiments. We desire, on the other hand, to protect our invention broadly in whatever form it may be embodied or to whatever purpose put.

We claim:

1. The combination with operation performing means, of a lock therefor, unlocking means for said lock, and registering means associated with said unlocking means, said registering means being brought into operative connection with said operation performing means when said unlocking means is used to unlock said lock.

2. The combination with a movable element, of a lock therefor, a key for operating said lock, a register combined with said key and means for placing said register into operative connection with said movable element when said key is brought into operative engagement with said lock.

3. The combination with operation performing means, of a lock therefor, a rotatable key for unlocking said lock, a registering device connected with said key and means driven from said operation performing means adapted to engage with and operate said register when said key is utilized to unlock said lock.

4. The combination with dispensing means, of locking mechanism for the same, a key adapted to actuate said locking mechanism, a register attached to said key and means for actuating said register to cause it to register the amount of commodity dispensed when said key is employed to unlock the dispensing device.

5. The combination with a measuring pump, of means for actuating the same, locking means for locking said pump against movement, a key for unlocking said locking means and registering mechanism attached to said key and adapted to be placed in op-

erative connection with said pump operating means when said key is utilized to unlock said locking means, whereby said register will register the amount of commodity dispensed by said pump.

6. The combination with a measuring pump, of a rack for actuating the same, means including a lock for normally holding said rack against movement, a key for unlocking said locking means and a register attached to said key and adapted to register the movements of said rack when said key is utilized to unlock the same.

7. The combination with a dispensing device, including a rotatable actuating member, of a lock for locking said device against movement, a key adapted to unlock said lock, a register associated with said key and having a rotary driving member, said member adapted to be placed in operative connection with the rotatable member of said dispenser when said key is inserted in said lock.

8. The combination of a rotatable member, a lock adjacent thereto and a combined key and registering mechanism, the latter being provided with rotatable driving means, said rotatable driving means being adapted to engage with said rotatable member when said key is inserted in said lock.

9. The combination with operation performing means, including a casing and a rotatable member mounted therein, said rotatable member having a clutch portion, of a lock for preventing the operation of said operation performing means, the keyhole of said lock being accessible from the outside of said casing, said casing having an opening therein permitting access to the clutch portion of said rotatable member, and a combined key and registering mechanism adapted to be applied to the outside of said casing, the driving member of said registering mechanism engaging with the clutch portion of said rotatable member when the key is inserted in said lock.

10. In a mechanism of the class described, the combination of a rack, an operating pinion engaging therewith, a bolt for locking said rack against movement, a lock operatively associated with said bolt, and a combined key and register mechanism, said register mechanism having means adapted to be driven by engagement with said pinion, whenever said rack is unlocked by the action of said key in said lock, said key and register mechanism being removable as a unit when the bolt is thrown to lock said rack.

11. In a removable registering device for normally locked, operation-performing means, the combination with a register, of a key permanently but rotatably mounted on said register and adapted to unlock the operation-performing means, said register

having a driving connection independent of said key adapted to be operatively engaged with said operation-performing means.

12. The combination of a casing having 5 registering means therein, a driving connection for said registering means projecting from said casing, a bearing in said casing, a member rotatably mounted in said bearing and a key carried by said member.

10 13. The combination with driving means, of a counter removably associated therewith and locking means for preventing accidental actuation of said counter when removed from said driving means, said locking means 15 being automatically moved to inoperative position when said counter is applied to said driving means.

14. The combination with operation-performing means, of a removable register, ac-

tuating means for the operation-performing 20 means capable of actuating the same only when said register is associated therewith, and means for actuating the register whenever the operation-performing means are actuated. 25

15. The combination with operation performing means, of a removable register, means for actuating the register in accordance with the operations of the operation performing means when the register is associated with said operation performing 30 means, and means associated with said register for rendering said operation performing means actuatable only when said register is operably associated therewith.

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