Feb. 10, 1942. G. S. GREEN 2,272,460

GASOLINE DISPENSING REGISTER

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Fig.1.

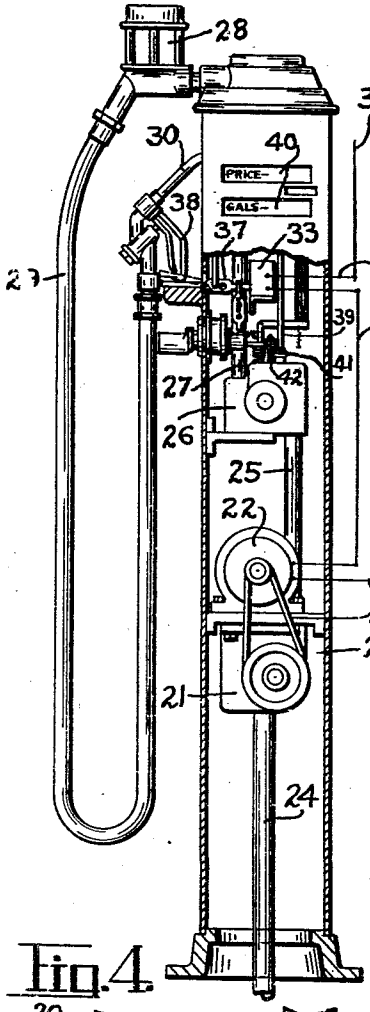


Fig.2.

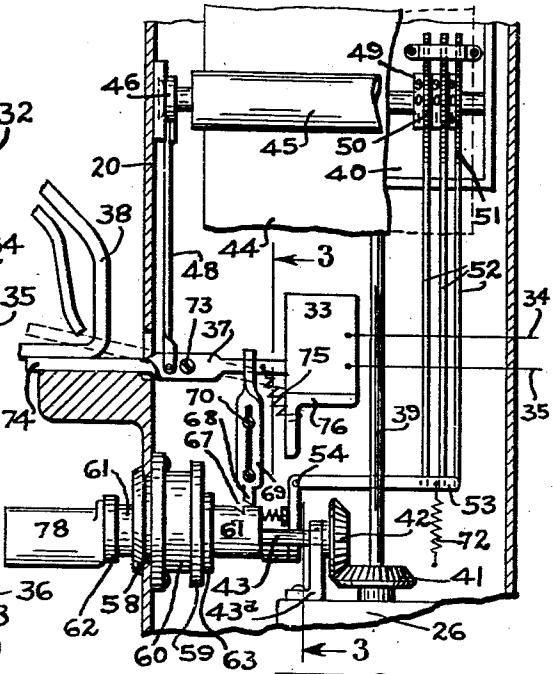


Fig.3.

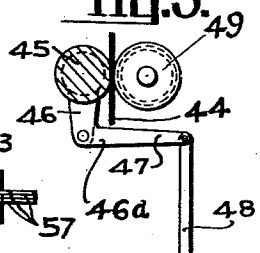


Fig.5.

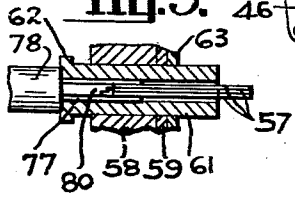
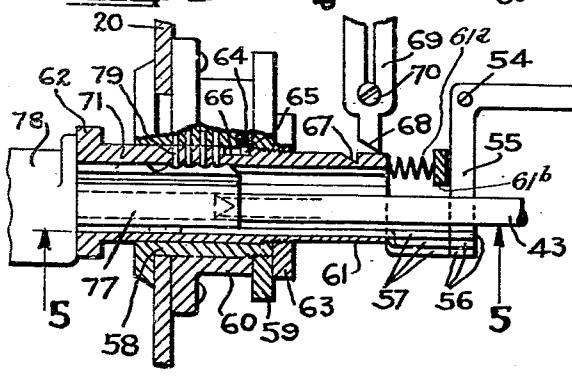
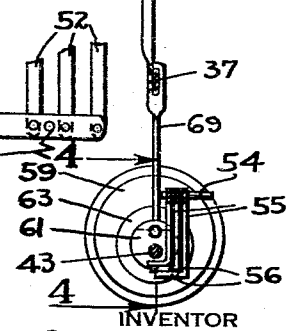


Fig.4.





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Fig.6.

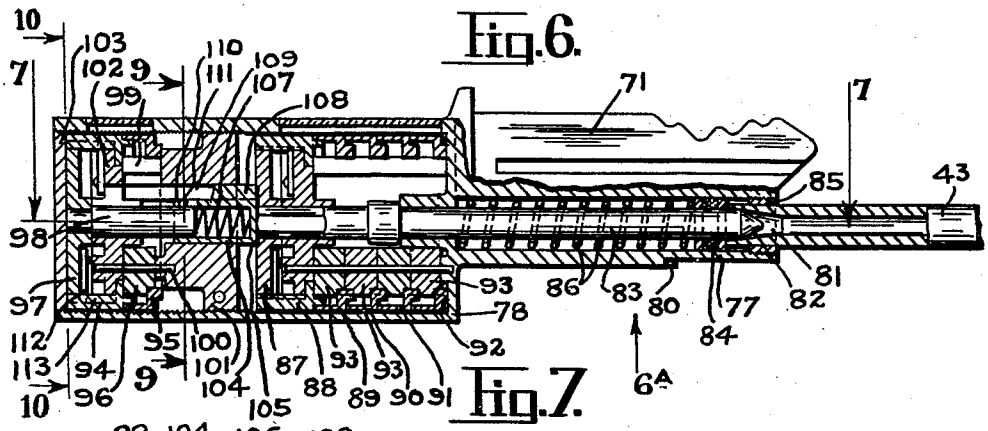


Fig.7.

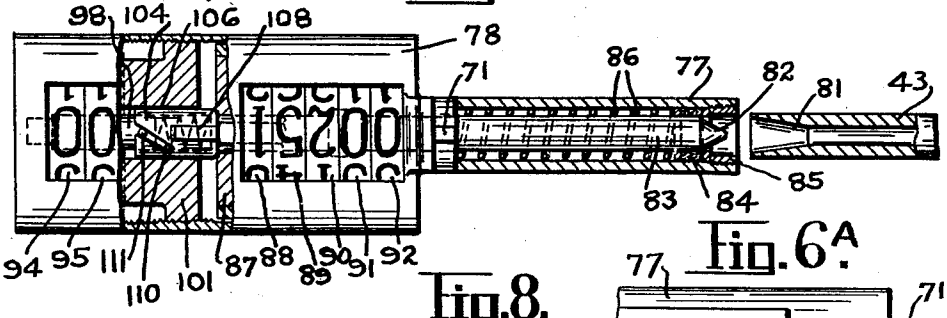
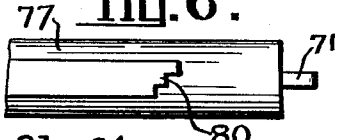


Fig.8.

Fig.6A.



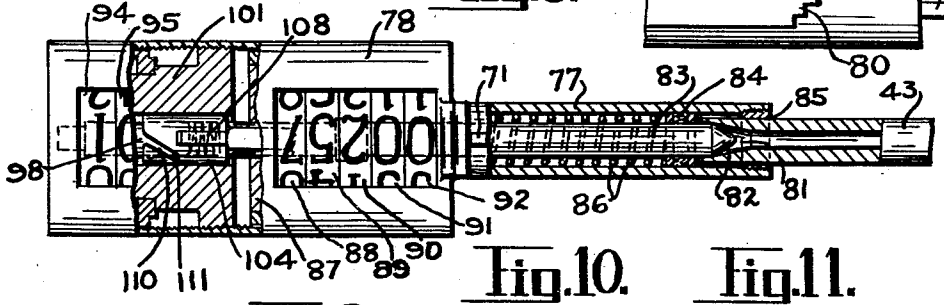
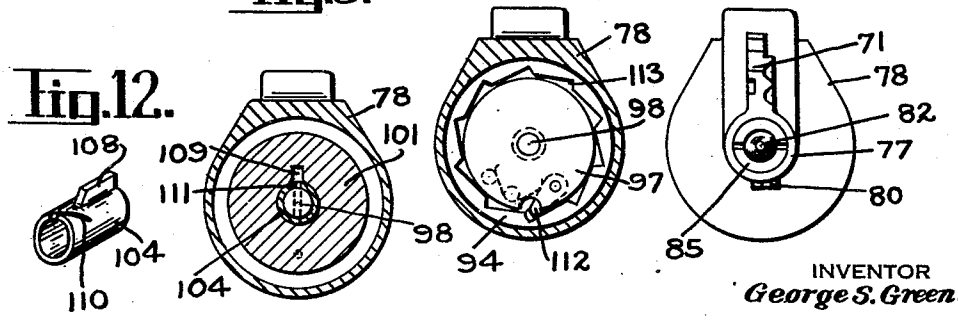


Fig.9.

Fig.10.

Fig.11.

Fig.12.



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GASOLINE DISPENSING REGISTER

George S. Green, Cape Elizabeth, Maine

Application September 4, 1937, Serial No. 162,466

7 Claims. (Cl. 235—91)

This invention relates to gasoline dispensing apparatus, and more particularly to a combination key and counter for use at gasoline stations to unlock the pump and to register the amount of gasoline dispensed by each attendant.

One object of this invention is to provide a combined key and counter mechanism of the above nature, which is adapted when inserted in the lock to actuate a switch for controlling an electric motor or manual or other means for operating a gasoline pump.

Another object is to provide a combined key and counter of the above nature in which the counter is adapted to be detachably connected with the interior registering mechanism of the pump and is driven in synchronism therewith.

A further object is to provide a combined key and counter of the above nature in which the counter is adapted not only to register the quantity of gasoline dispensed, but also the number of times the pump is operated.

A still further object includes the provision of means by which the key will also actuate a tape-recording mechanism whereby a permanent printed record may be obtained, the salesman handling each individual transaction.

A still further object is to provide an apparatus of the above nature which will be simple in construction, inexpensive to manufacture, easy to manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there has been illustrated on the accompanying drawings one form in which the invention may be conveniently embodied in practice.

In the drawings:

Fig. 1 is a front view, partially in section, of a gasoline dispensing pump having the present invention associated therewith.

Fig. 2 is a fragmentary enlarged sectional view of the pump unlocking, operating, and recording mechanism.

Fig. 3 is an end view, partly in section, of a portion of the type setting and tape printing mechanism, taken along the broken line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is a sectional view through the motor switch locking mechanism, taken on the line 4—4 of Fig. 3.

Fig. 5 is a bottom view of the same, taken on the line 5—5 of Fig. 4.

Fig. 6 is an enlarged longitudinal sectional view taken through the improved combined key and counter.

Fig. 6A is a fragmentary bottom view of the same, looking in the direction of the arrow 6A in Fig. 6.

Figs. 7 and 8 are partial sectional views similar to Fig. 6, taken on the line 7—7 of Fig. 6, and showing two different operating positions of the combined key and counter.

Fig. 9 is a transverse sectional view taken on the line 9—9 of Fig. 6.

Fig. 10 is a similar transverse sectional view taken on the line 10—10 of Fig. 6.

Fig. 11 is a right-hand end view of Fig. 6.

Fig. 12 is a perspective view of the slidable cup member for operating the mechanism for counting the number of operations of the pump.

Referring to the drawings in which like reference characters denote corresponding parts throughout the several views, the invention is shown in combination with a gasoline pump having means for indicating and recording the price and quantity of gasoline delivered at each operation of the pump. As most clearly shown in Fig. 1, the dispensing apparatus includes a pedestal-like casing 20 which encloses a pump 21 driven by an electric motor 22 through a belt 23. A depending pipe 24 communicating with a source of gasoline supply (not shown) leads to the pump 21, and a pipe 25 leads upwardly from said pump to a meter 26, which is provided with suitable mechanism to record and register the price and amount of the gasoline dispensed. A pipe 27 leading upwardly from the meter 26 communicates through an overhead sight gauge 28 with a flexible dispensing hose 29 to which is connected the usual manually controlled filling nozzle 30.

The motor 22 is energized from a pair of electrical main line conductors 31 and 32 under the control of a suitable switch enclosed in a box 33, from which a conductor 34 is connected with the line conductor 31, and a conductor 35 is connected with the motor 22, said motor also being connected by a conductor 36 with the other line conductor 32. The switch is provided with an externally projecting upwardly spring-pressed actuating lever 37 pivoted at 78, which switch, when engaged by a rigid handle 38 of the nozzle 30, is adapted to be retained in open position by the weight of said nozzle and associated parts, as shown in full lines in Fig. 1. It will be understood that the removal of the handle 38 wil permit the switch lever 37 to move automatically into the dotted position by the action of its spring 76 to close the switch and energize the motor 22.

A vertical shaft 39 (see Fig. 2) extends up-

wardly from the meter 26, and serves to drive the operating mechanism (not shown) in the visual "price" and "gallons" indicator 40 above it. A bevel gear 41 is secured on the lower end of the shaft 39 and meshes with a bevel gear 42 secured to the end of a horizontal hollow shaft 43, herein shown journaled in an upstanding bracket 43a mounted on the casing of the meter 26. The shaft 43 is herein shown as extending toward the front of the casing 20 and is disposed at right-angles to the shaft 39.

In order to obtain a permanent printed record the salesman handling each dispensing transaction, a tape printing mechanism is provided in which a strip of paper tape 44 is adapted to be fed between a pressing roll 45 and a plurality of printing wheels 49 located behind said tape 44. The pressing roll 45 is journaled in one arm 46 of a bell-crank lever 46a (see Fig. 3), which is adapted to be actuated to press the roller 45 into engagement with the tape 44 to cause said tape to engage the type of the plurality of printing wheels 49. The bell-crank lever 46a has a horizontal arm 47 connected through a vertical link 48 to the switch lever 37. It will be understood that if desired, a presser block (not shown) actuated by a trip cam may be substituted for the roller 45 within the scope of this invention. It will be understood that the strip 44 may be readily removed when the key and counter are inserted to release the lever 37 and separate the roll 45 from the printing discs 49. A record of the particular key employed will be made on the strip 44 to identify the person manipulating the mechanism for this purpose.

Associated with the tape recording mechanism are the plurality of printing wheels 49, each having a line of type representing the numerals 1–0 on its periphery and adapted to be set by the particular key used by the individual filling station attendant, whereby the particular number assigned to said attendant will be printed on the tape 44 together with the printing of a sale record of the number of gallons dispensed and the price to be charged therefor by suitable mechanism (not shown). Each of the printing wheels 49 is rigidly connected to a gear 50 thereof, which gears are adapted to mesh with vertical toothed racks 51 formed on the upper ends of a plurality of vertical bars 52. Each bar 52 is rigidly connected at its lower end to a horizontally disposed arm of one of a series of bell-crank levers 53 pivoted on a common horizontal rod 54 mounted on any suitable support within the casing 20. The other arm 55 of each bell-crank lever 53 extends downwardly from the pivot 54 and is provided with a short horizontal laterally extending end portion 56 located at right-angles to the respective arm 55, and in alinement with the ends of a plurality of slidable rods 57 located within a spring-pressed key barrel 61 to be hereinafter described.

A pin and tumbler lock cylinder 58 is rigidly secured to the pump casing 20 by means of a nut 59 screwed upon said cylinder and engaging the end of an exterior sleeve 60 also secured to said casing 20 (see Fig. 4). The spring-pressed key receiving lock barrel 61 mentioned above is adapted to slide longitudinally within the stationary cylinder 58, its rearward movement being limited by an annular shoulder 62 on the front end of said barrel 61, and its forward movement being limited by means of a second nut 63 threaded upon the rear end thereof. A transverse screw 64, mounted in the cylinder, is provided with a reduced pointed end 65, which enters a longitudinally extending slot 66 formed in the exterior of the barrel 61 to prevent relative rotative movement between said cylinder and said barrel.

The slidable lock barrel 61 is extended rearwardly beyond the lock cylinder 58 and has a notch 67 formed in its upper surface into which a detent 68 on the lower end of a vertically slidable slotted arm 69, guided by screws 70, is adapted to drop whenever the barrel 61 is pushed rearwardly against a return spring 61a after first being unlocked from the cylinder 58 by inserting a key blade 71. The spring 61a reacts between the inner end of the barrel 61 and a stationary frame part 61b to return the barrel 61 to its normally protruding position shown. The slotted arm 69 loosely embraces the horizontal switch lever 37 at its upper end, and assuming the nozzle to be off the arm 74, when the detent 68 drops into the notch 67, the lever 37 will swing to the dotted line position shown in Fig. 2 and actuate the motor control switch disposed in the box 33. The switch lever 37 extends through the front of the casing 20, and is provided with a manipulating exterior arm 74. A coiled tension spring 75 connected at one end to an angle bracket 76 is also connected to the switch lever 37 to urge it clockwise, as viewed in Fig. 2.

The combined key and counter for unlocking the pin tumbler lock 58 and registering the amount of gasoline dispensed includes a pin tumbler actuating key blade 71 disposed on the upper surface of a reduced tubular member 77 which extends from a counter casing 78. The key blade 71 and the tubular member 77 are readily insertable as a unit into the lock barrel 61, and during the insertion thereof, the key blade 71 will engage the pin tumblers 79, and the tubular member 77 will telescope over the end of the horizontal hollow shaft 43, which extends partly through the barrel 61. When the key blade 71 and tube 77 have been pushed into the barrel 61 as far as they will go, the pin tumblers will be pushed laterally into alinement, permitting the barrel 61 to be pushed inwardly until the notch 67 comes beneath the detent 68. At this time the switch lever 37 will be caused by its spring 75 to swing to the dotted line position indicated in Fig. 2, and close the switch circuit through the pump motor 22.

In order to "set" the printing wheels 49 to print the symbol of the particular attendant who is operating the pump, the tubular member 77 is provided on its under surface with a plurality of stepped lugs 80 (three in this instance, see Figs. 5, 6, and 6a). The lugs 80 are located in horizontal alinement with the slidable rods 57, the ends of which are in engagement with the end portions 56 of the bell-cranks 53. It will be understood that the tubular member 77 of each key will have a special arrangement of stepped lugs 80 to correspond with the individual number assigned to the particular attendant.

The rack bars 52, the printing wheels 49, the bell-crank levers 46a and 53, and the slidable rods 57 will be automatically returned to zero position by means of a plurality of springs 72, one for each bell-crank (Fig. 2), whenever the key blade 71 is removed from the lock key barrel 61.

For the purpose of forming a yieldable clutch connection between the pumping mechanism and

the key counter, the horizontal hollow shaft **43** is provided with a tapered counterbore at its outer end **81** (see Figs. 6 to 8), so as to adjustably fit the conical end **82** of an elongated counter shaft **83** located concentrically within the tubular section **77**. The interior counter shaft **83** extends from the counter casing **78** almost through the tubular member **77**, and is held in centralized position by an intermediate sealing washer **84** slidably mounted thereon, the sealing washer **84** being normally held against a screw collar **85** by means of a coiled spring **86**.

The end of the shaft **83** within the counter casing **78** is herein shown as being polygonal in cross-section (Figs. 6, 7 and 8) to permit it to have a slidable driving connection with a counter driving disc **87** which is adapted to frictionally engage within the first counter wheel **88** of the gallons counter. Provision is also made of four additional successive counter wheels **89**, **90**, **91** and **92** of the counter, which are drivingly connected together in the usual manner by transfer pinions **93**. Rotation of the counter shaft **83** by the engagement of the hollow horizontal shaft **43** therewith, through its connection with the counter wheels **88–92** inclusive, will cause the quantity of gasoline dispensed by the pump during the time the key blade **71** is inserted in the barrel **61** to be accurately registered on the counter wheels **88–92** of the counter **78**.

In order to register the number of times each individual attendant inserts his key into the lock barrel **61** to operate the pump, an additional set of counter wheels **94** and **95** are provided (two in this instance), which are drivingly connected together by a transfer pinion **96**. The first counter wheel **94** of this latter counter set is driven by a ratchet disc **97** having spring-pressed driving pawls **112** pivoted thereon (Fig. 10) for engaging teeth **113** formed within the counter wheel **94**, said disc **97** having a short stud shaft **98** permanently secured thereto and extending toward the end of the main shaft **83**. The counter wheels **94** and **95** and the transfer pinion **96** are associated respectively with a boss **99** and a pin **100** extending forwardly from a spacing member **101** which is screwed into the counter casing **78**, and the counter wheels **94** and the pinion **96** are secured in place by the usual disc **102**. A plate **103** is screwed into the end of the casing **78** to close the same.

In order to cause the counter wheel **94** to be driven one tenth of a revolution, corresponding to one digit upon its periphery, each time the key blade **71** is inserted into the barrel **61**, a special actuating means is provided. This consists of a cylindrical cup-shaped member **104** (see Figs. 6, 7, 8 and 12) slidably fitting over the end of the stud shaft **98** with its closed end **105** held in abutment with the polygonal end of the shaft **83** through a bore **106** in the spacing member **101**, as by a coiled spring **107** reacting between said closed end **105** and the end of the shaft **98**. The cup-shaped member **104** is restrained from rotation relative to the spacing member **101** by a longitudinal key lug **108**, which is disposed in a key-way **109** provided in the spacing member **101**, whereby the cup-shaped member **104** will be permitted to slide within the bore **106** of the member **101** without rotating.

The cup-shaped member **104** is provided at its open end with an inclined slot **110** for receiving a transverse pin **111**, extending from the periphery of the stud shaft **98**, the arrangement being such that, when the cup-shaped member **104** is slid toward the counter wheels **94** and **95**, the slot **110** and the pin **111** will coact to give the shaft **98** and the counter wheel **94** a one-tenth rotation. The cup-shaped member **104** is given the sliding movement thus described whenever the shaft **83** is engaged by the shaft **43**, which occurs each time the key blade **71** is inserted into the key barrel **61**.

Operation

In operation, when an attendant of the dispensing apparatus desires to deliver a certain quantity of gasoline to a customer, he will first insert his counter key blade **71** and tube **77** into the lock barrel **61**, and push the combination key and counter inwardly as far as it will go to force the key barrel **61** inwardly. This operation will immediately be registered by the outer counter wheel **94** due to the rotation of the stud shaft **98** a one-tenth revolution by the coaction of the inclined slot **110** in the cup-shaped member **104** with the pin **111** on said shaft. At the same time, the notch **67** of the lock barrel **61** will come into alinement with the detent **68** and unlatch the switch lever **37**, and permit it under the urge of the spring **75** to automatically close the motor controlling switch in the box **33** after the handle **38** and nozzle **30** are manually removed from the exterior manipulating arm **74** of said switch lever **37**. The pump motor **22** will then be started and the horizontal counter-driving shaft **43** will rotate. By reason of the clutch connection between the shaft **43** and the conical end **82** of the counter shaft **83**, the latter will also rotate and drive the disc **87**, which in turn will frictionally drive the counter wheel **88** and register the amount of gasoline being dispensed by the pump on the counter wheels **88–92** inclusive.

It will thus be seen that a printed record of the gasoline dispensed and the key number will be made upon the tape **44** when the handle of the dispensing control **38** is again hung upon the outer extension of the lever **37** after the dispensing operation, whereby the roll **45** is actuated to press the strip **44** against the discs **49**.

While there has been disclosed in this specification one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosure, but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent, is:

1. In a combined key and counter for use with a dispensing apparatus having a rotating part and a lock which is provided with a slidable barrel for receiving said key; a key adapted to enter said lock barrel and slide inwardly therewith, a casing connected with said key and having a quantity counter therein, a drive member for said quantity counter including a slidable clutch part engageable with said rotating part when said key is inserted in said lock and slid inwardly therein, said casing having a second counter therein, and pin and cam slot means connected with said clutch part to operate said second counter one unit each time said key is inserted in said lock and slid inwardly with said barrel.

2. In a combined key and counter for use with a dispensing apparatus having a rotating part and a lock which is provided with a slidable barrel for receiving said key; a key adapted to enter said lock barrel and slide inwardly therewith, a casing connected with said key and having a quantity counter therein, a drive member for said quantity counter including a slidable clutch part engageable with said rotating part when said key is inserted in said lock and slid inwardly therein, said casing having a second counter therein, and pin and cam slot means connected with said clutch part to operate said second counter one unit each time said key is inserted in said lock and slid inwardly therein, said means comprising a slidable, non-rotatable cup-shaped member engaging said slidable clutch part.

3. In a combined key and counter for use with a dispensing apparatus having a rotating part and a lock which is provided with a slidable barrel for receiving said key; a key adapted to enter said lock barrel and to slide inwardly therewith, a casing connected with said key and forming a handle therefor, said casing having a counter for indicating the quantity dispensed and a second counter mounted therein for indicating the number of dispensing transactions, clutch means shiftable to connect the rotating part of the dispensing apparatus with said quantity counter to actuate it in synchronism therewith, and means responsive to the shifting of said clutch means to actuate said second counter one unit each time said key is slid inwardly to indicate on said second counter the number of dispensing transactions.

4. In a combined key and counter for use with a dispensing apparatus having a rotating part and a lock which is provided with a slidable barrel for receiving said key; a key adapted to enter said lock barrel and to slide inwardly therewith, a casing having a counter to register the quantity dispensed and a second transaction counter mounted therein, slidable clutch means in said casing to connect said rotating part with said quantity counter to actuate it when said key is slid inwardly, said second counter being in alinement with said quantity counter, a slidable member moved outwardly by the sliding of said clutch means and having a cam slot, and a pin operating in said cam slot to actuate said second counter one unit at each dispensing transaction.

5. In a combined key and counter for use with a dispensing apparatus having a rotating part and a lock which is provided with a slidable barrel for receiving said key; a key adapted to enter said lock barrel and to slide inwardly therewith, said key having a casing extending rearwardly therefrom for use as a handle, said casing having a tubular extension located alongside said key, a first counter in said casing for indicating the quantity dispensed, a clutch shaft slidably and rotatably mounted in said tubular extension and detachably connecting said first counter with said rotating part to indicate the quantity dispensed, a second counter in said casing, and means actuated by the sliding movement of said clutch shaft to actuate said second counter to register thereon the number of dispensing transactions.

6. In a combined key and counter for registering the operations of a dispensing apparatus having a rotating part and a lock for said dispensing apparatus, said lock being provided with a slidable barrel for receiving said key; a key for insertion in said lock barrel and slidable inwardly therewith, said key having a casing extending rearwardly therefrom for use as a handle, a first counter in said casing for registering the quantity dispensed, a slidable clutch mounted in said casing for detachably connecting said first counter with said rotating part, a second counter in said casing for registering the number of dispensing transactions, and cam and pin means operated by the sliding of said clutch for actuating said second counter one unit each time said dispensing apparatus is unlocked and operated.

7. In a register, a casing, a shaft in said casing having rotary and sliding movements, two counters in said casing, means for connecting said shaft to the first of said counters to operate said first counter to count the rotations of said shaft, and means responsive to the sliding movements of said shaft to operate the second counter to count the sliding movements of said shaft.

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