June 24, 1930. S. J. POCOCK 1,767,256

APPARATUS FOR DISPENSING GASOLINE AND THE LIKE

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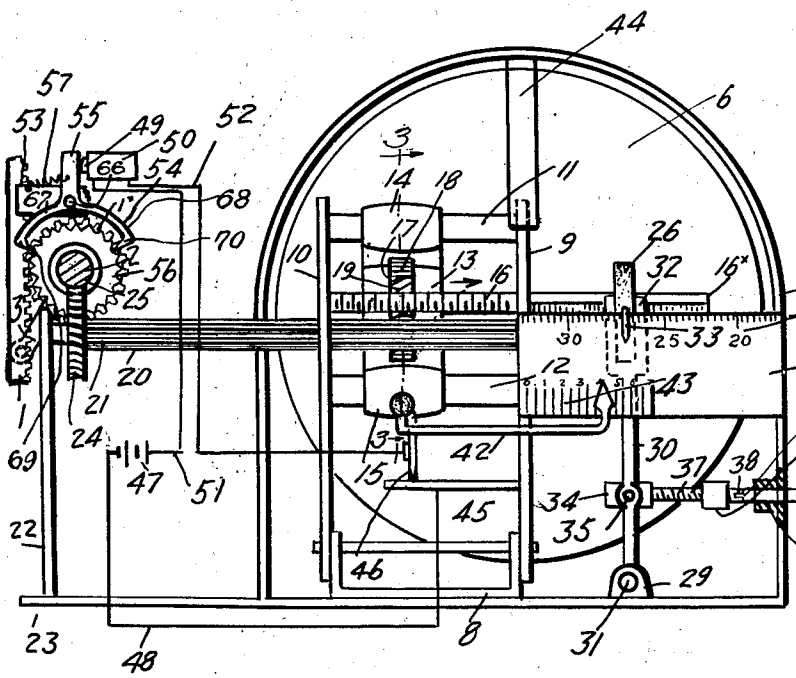


FIG. 1.

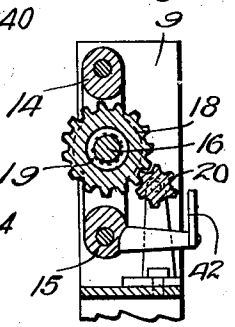


Fig. 3.

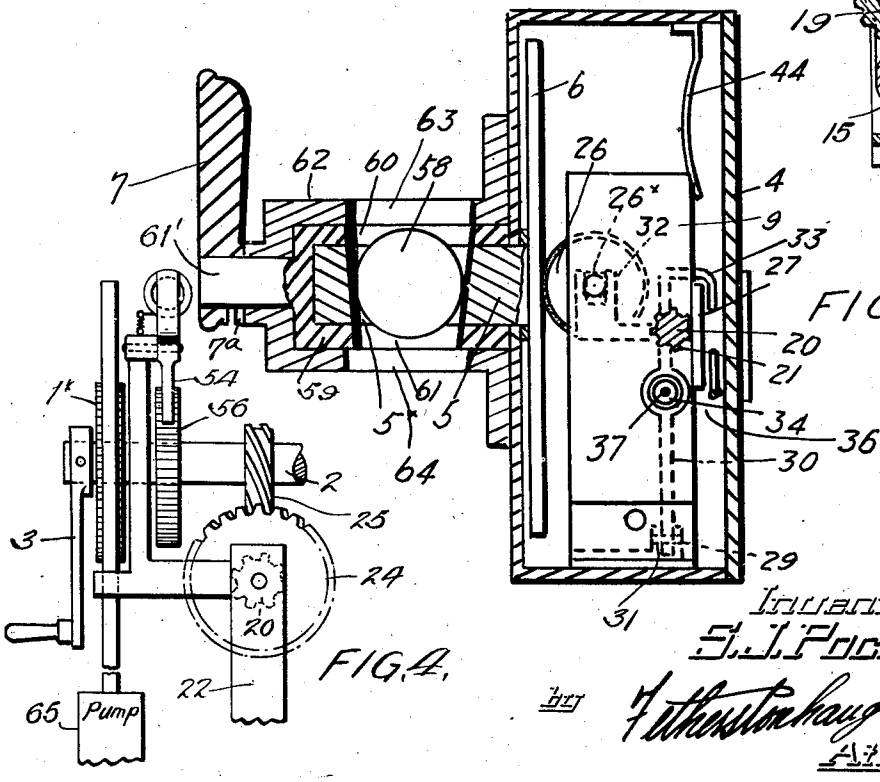


FIG. 2.

FIG. 4.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR DISPENSING GASOLINE AND THE LIKE

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My invention relates to improvements in apparatus for dispensing gasoline and the like. The object of the invention is to devise a very simple attachment to a gasoline dispenser which may be manufactured at minimum cost and which is manually operated and coin actuated so that the correct amount of gasoline or oil or other liquid may be delivered to the customer at the price prevailing at any given time, in which the responsibility of the attendant for the dispensing of the gasoline is relieved, and by which gasoline may be dispensed at any time during the night or day without the employment of an attendant. With these and other objects in view I have devised a coin actuated device for the dispensing of gasoline essentially of the arrangement and construction of parts hereinafter more particularly described.

Figure 1 is a side elevation of my device with the cover plate removed and showing it connected to the coacting parts of a gasoline dispenser;

Fig. 2 is a cross sectional view through the center of Fig. 1;

Fig. 3 is a view taken on the line 3—3 of Fig. 1 looking in the direction of the arrows; and

Fig. 4 is an end elevation showing the dispensing crank and associated parts.

In the drawing like characters of reference indicate corresponding parts in each figure.

1 indicates the vertically movable rack of a gasoline dispenser. 2 is the operating shaft of the dispenser and 3 is the operating crank. 4 is a casing which is suitably mounted on the body of the dispenser. 5 is a short shaft journalled in the one wall of the dispenser and upon which is mounted within the casing 4 a friction wheel 6.

The friction wheel 6 is manually turned by a lever 7 which is put into actuating connection with the friction wheel 6 by any suitable form of coin controlled mechanism, such as I will hereinafter describe.

8 is a bracket secured to the bottom of the casing 4 and upon which is pivotally mounted a frame comprising the upwardly extending members 9 and 10. Horizontal guide bars 11 and 12 extend between the members 9 and 10 and connect them together. 13 is a casting provided with upper and lower sleeves 14 and 15 slidably mounted upon the guide bars 11 and 12. 16 is a threaded spindle turnably mounted in the members 9 and 10 and extending freely through the casting 13. 17 is an orifice extending transversely through the casting 13 at right angles to the orifice through which the spindle 16 extends. 18 is a gear wheel or nut provided with external gear teeth and an internally threaded orifice 19 with which the threaded spindle 16 meshes.

It will thus be seen that when the gear wheel 18 is turned it will travel longitudinally of the shaft 16 carrying the casting 13 with it.

20 is a spindle provided with longitudinal ribs in the form of gear teeth 21 which mesh with the outer teeth of the gear 18. The spindle 20 is mounted at one end in the member 9 and at the opposite end is a supplemental standard 22 carried by an extension 23 of the bottom of the casing 4. 24 is a worm gear secured to the spindle 20. 25 is a worm secured to the operating shaft 2 and meshing with the worm gear 24.

It will be seen by turning the operating crank 3 the shaft 2 will be revolved, revolving the worm 25 and worm gear 24 which in turn revolves the spindle 20 and the gear teeth 19 engaging the threaded spindle 16 as hereinbefore described.

The spindle 16 is provided at one end with a squared portion 16^{x} upon which a friction driving pinion 26 is slidably mounted.

It will be noted that the spindle 16 is parallel with the horizontal diameter of the friction wheel 6 and that by moving the pinion 26 radially in or out upon the squared portion of the spindle 16 the driving ratio may be varied according to the requirements. A convenient means of adjusting pinion 26 is shown in Fig. 1 as a rod 30, the lower end of which is pivoted as at 29 and its upper end provided with a fork 32 engaging with pinion 30 on either side as shown. Rod 30 may be swung either to the right or the left as desired by any suitable means, such for example as the threaded shaft 37 which engages with

a complementarily threaded sleeve 34 pivotally secured to rod 30 and supported near its free end in a suitable bearing so designed that rod 37 may turn but may not move endwise. Shaft 37 may be adjusted from without the device by means of a key 39 suitably shaped to engage with a slot in the end of shaft 37, as shown at 38. When the desired adjustment has been made key 39 may be removed rendering the device tamper proof in this respect. The position of pinion 26 may be indicated by a pointer 33 carried by the arm 30 and coacting with a suitable scale 28.

42 is a pointer carried by the casting 13 and co-acting with the scale 43 inscribed upon the plate 27 and indicating the total amount of prepaid gasoline. 44 is a spring secured at the top of the casing 4 and bearing at its lower end against the upper end of the member 9 so as to force the pinion 26 into frictional engagement with the friction face of the friction wheel 6.

I will now describe the means by which the lever 7 and friction wheel 6 are operatively connected together by the insertion of a coin.

5^{x} is a slot formed in the shaft 5 arranged to receive the coin 58 in the position indicated in Fig. 2. 59 is a sleeve provided with slots 60 and 61 diametrically opposite and normally in alignment with the slot 5^{x}. The sleeve 59 is turnable upon the shaft 5 and is provided at its outer end with a pintle 61' upon which the lever 7 is secured. 62 is a housing provided with diametric slots 63 and 64 also in alignment with the slots 60, 61 and 5^{x} when the parts are in the normal position. The length of slot 64 should be somewhat longer than the diameter of coin 58.

When the coin 58 is inserted in the position indicated and the lever 7 turned the shaft 5 and sleeve 59 will thereby be locked together so as to turn in unison and thereby turn the friction wheel 6 until the coin is carried to an inverted position when it will of necessity drop out of the broad end of the slot 5^{x} and through the slots 60 and 64 into a suitable receptacle (not shown). The lever 7 and attached sleeve 59 are then returned to their initial position for the next coin. For convenience the extent of rotation of lever 7 may be limited to 180° by some such stop as 7^{a} shown in Fig. 2.

Having described the principal parts involved in my invention I will briefly describe the operation of the same.

The operator of the device at the beginning of the days sale inserts the key 39 so as to engage the spindle 37 which is turned to swing the arm 30 and carrying the pinion 26 to a position corresponding to the amount or rate at which the gasoline is sold. The purchaser in order to obtain a quantity of gasoline, for example a quarter's worth, inserts the coin 58 which may be a quarter in the position shown in Fig. 2 and turns the lever 7 so as to carry the coin 58 to an inverted position to discharge it as above described. By this means the friction wheel 6 is turned a half turn rotating the pinion 26 a distance corresponding to its radial position in relation to the friction wheel 6, that is to say, when the pinion is close to the center of the friction wheel 6 it will travel a corresponding short distance when driven by such friction wheel and a proportionately long distance when situated towards the outer periphery of such friction wheel. By the turning of the pinion 26 the spindle 16 is revolved a corresponding distance carrying the casting 13 in the direction of arrow by reason of the threaded connection 19 between the spindle 16 and gear 18.

During the travel of the casting 13 in the direction of arrow the gear 18 slides upon the spindle 20, the teeth of the gear and spindle remaining in mesh.

When this operation is complete the purchaser operates the crank 3 rotating the spindle 20 which being in driving engagement with the gear 18 rotates such gear so as to carry it and casting 13 in the reverse direction of the arrow upon the spindle 16.

The turning of the shaft 2 will also rotate the gear 1^{x} in mesh with the vertical rack 1 of the dispensing device 65 so as to supply the gasoline to the purchaser as the casting 13 travels back to the member 10. When the casting 13 engages the member 10 it is stopped from further movement thereby limiting the discharge of gasoline.

Obviously some means must be provided to make the operation of the device dependent upon the insertion of a coin and to prevent its continued operation thereafter by simply turning the crank 3 backward and forward. That is to say, a means should be provided to permit crank 3 to be turned in one direction only while gasoline is being pumped and in the other direction only when the pumping is completed. One way of accomplishing this is by the double pawl ratchet device shown in Fig. 1.

The action of a double pawl ratchet is so well known that a description of its construction and mode of operation is hardly necessary. However, for the sake of completeness it may be briefly described as follows: A double ratchet wheel 56 is keyed to shaft 2. A double pawl 54 pivoted at 66 on bracket 53 bears at the end of each of its arms 67 and 68 a dog 69 and 70, respectively. Arms 67 and 68 are so shaped and positioned with respect to ratchet wheel 56 that when one dog is in engagement with the ratchet wheel the other dog will clear it entirely. Also each dog is shaped so as to permit the ratchet wheel to turn in one direction but not in the other, the effect of the two dogs in this re-

spect being opposed. This is, of course, simply the usual construction and mode of operation of a double pawl ratchet.

Thus in Fig. 1 when ratchet wheel 56 is rotated in a clockwise direction if dog 70 is in engagement with it the inner face of the dog will yieldingly engage with the ratchet teeth whereas the outer face of the dog will lock with the teeth if an attempt is made to turn the ratchet wheel in the opposite direction. Similarly dog 69 will operate to control rotation of the ratchet wheel in the reverse direction when it is brought into engagement with the ratchet wheel.

The means provided for shifting the double pawl from one operating position to the other consists of a threaded arm 55 integral with or attached to the double pawl. This is shown in Fig. 1 as extending upwardly to form the armature of an electromagnet 50. Normally arm 55 is maintained in the opposite position from that shown in Fig. 1 by spring 57 with dog 69 in engagement with ratchet wheel 56 to prevent operation of the gasoline dispenser. By exciting the electromagnet 50 armature 55 will be attracted to the core 49, dog 69 released and dog 70 engaged to permit the dispenser to be operated.

These steps in the operation of my device are effected as follows: Electromagnet 50 in connected by wires 51 and 52 to one side of a battery 47 and to a contact point 46 carried by casting 13. The other side of battery 47 connects by a wire 48 with a contact strip 45. Contact point 46 is so positioned that while it is normally out of engagement with contact strip 45 it will make contact with it when the casting 13 is moved from its normal position by the operation of lever 7. Contact is maintained thereafter until casting 13 has been returned to its normal position. Then, the contact being broken, the electromagnet will become deenergized, the armature will be pulled away by spring 57 and the dogs shifted to permit the dispenser being returned to its initial position.

What I claim as my invention is:

1. In a gasoline dispenser, a casing, a friction means rotatably mounted in the casing, means coacting with the purchasing coin for manually rotating said friction means a definite distance, a friction pinion contacting with the face of said friction means, and means operated by the pinion for limiting the amount of gasoline dispensed.

2. In a gasoline dispenser, a casing, a friction means rotatably mounted in the casing, means coacting with the purchasing coin for manually rotating said friction means a definite distance, a friction pinion contacting with the face of said friction means, means operated by the pinion for limiting the amount of gasoline dispensed, and means for varying the limit to correspond to the market value of the gasoline at the date of sale.

3. In a mechanism for operating a gasoline dispenser, the combination with the dispensing mechanism and the operating shaft, of a casing, a friction wheel mounted in the casing, means coacting with a purchasing coin for manually rotating the friction wheel a definite distance, a friction pinion contacting with the face of said wheel, spaced members, a movable member slidably mounted between the spaced members and having an opening, a threaded shaft journalled in the spaced members and extending through the movable member and the opening thereof, a gear located in said opening and having an internally threaded orifice through which the threaded shaft extends, a toothed spindle, the teeth of which slidably engage the teeth of the internally threaded gear, a gear connection between the spindle and dispensing mechanism, and a gear connection between the spindle and operating shaft of said dispensing mechanism.

4. In a device for operating a gasoline dispenser, the combination with the dispensing mechanism and the operating shaft, of a stationary and adjustable stop, coin actuated means for moving the stops apart, means actuated by the rotation of the main shaft for returning the adjustable stop to the stationary stop, a toothed wheel secured to the operating shaft, a double pawl one member of which is normally spring held in engagement with the toothed wheel to prevent the rotation of the shaft in the dispensing direction, and means operated by the adjustment of the movable stop from the stationary stop for reversing the pawl so that the other member thereof engages the gear to prevent the rotating of the operating shaft in the dispensing direction and permit of its rotation in the opposite direction.

5. In a device for operating a dispensing mechanism, a casing, a friction wheel rotatably mounted in the casing, means coacting with a coin for manually rotating said friction wheel a definite distance, a friction pinion contacting with the face of said wheel, and means operated by the pinion for limiting the amount of liquid dispensed.

6. In a device for operating a liquid dispenser, a casing, a friction wheel rotatably mounted in the casing, means coacting with the purchasing coin for manually rotating said friction wheel a definite distance, a friction pinion contacting with the face of said friction wheel, means operated by the pinion for limiting the amount of liquid dispensed, and means for varying said limit to correspond to the market value of the liquid at the date of sale.

7. In an attachment for operating dispensing mechanism, a casing, a friction wheel rotatably mounted in the casing, means coact-

ing with the purchasing coin for manually rotating said friction wheel a definite distance, a friction pinion contacting with said wheel, means for adjusting the pinion radially of the wheel, a movable member, means for moving said member within limits controlled by the radial position of the pinion upon the friction wheel, and means operated by the movement of the movable member for dispensing liquid in quantity in proportion to the extent of the movement of such movable member.

8. In a device of the class described, a casing, a friction wheel rotatably mounted in said casing, a pinion mounted to engage the face of said friction wheel, means for varying the position of said pinion on the face of said friction wheel to thereby cause the pinion to move through a degree of rotation commensurate with the position of said pinion, a spindle slidably mounted in said pinion to rotate a definite distance in response to the movement of said friction wheel.

9. In a device of the class described, a casing, a friction wheel rotatably mounted in said casing, a pinion mounted to engage the face of said friction wheel, means for varying the position of said pinion on the face of said friction wheel to thereby cause the pinion to move through a degree of rotation commensurate with the position of said pinion, a spindle slidably mounted in said pinion to rotate a definite distance in response to the movement of said friction wheel, means connected to said friction wheel and extending without said casing whereby a limited rotation may be repeatedly imparted to said friction wheel, a stop casing slidably mounted adjacent said pinion spindle to be moved in one direction in response to the repeated limited rotations of said friction wheel.

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