

Dec. 17, 1935.

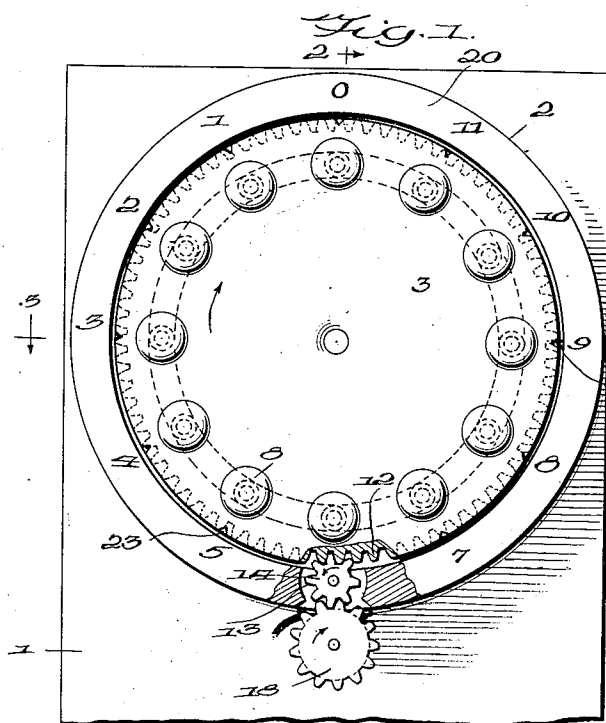
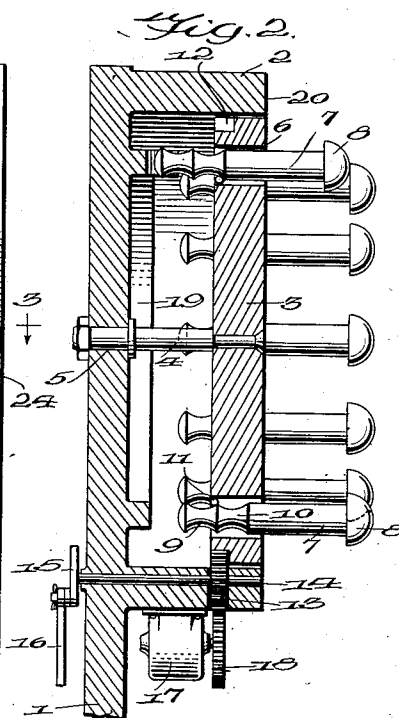
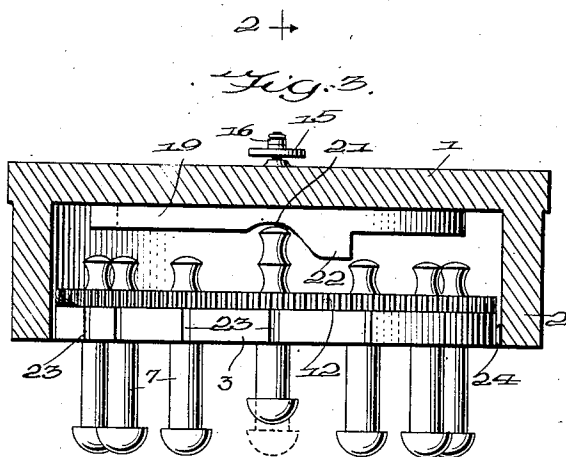
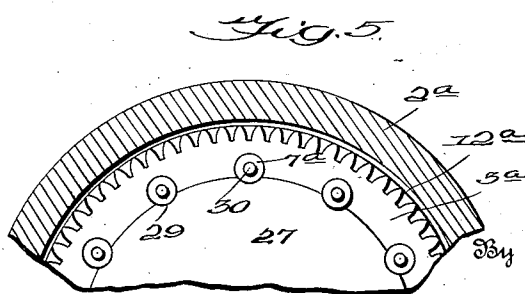
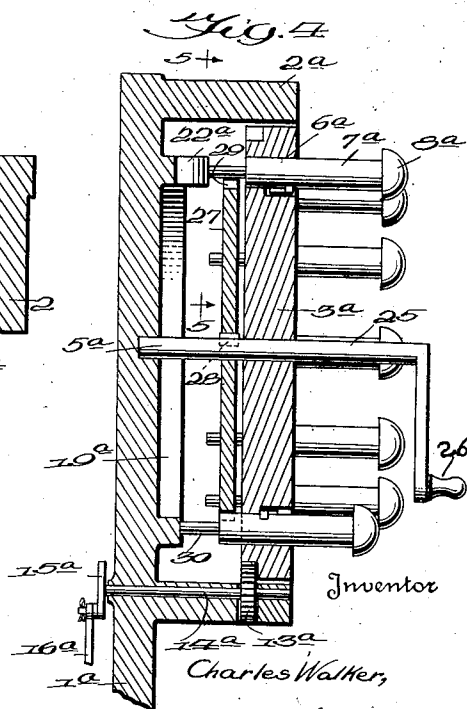
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2,024,320

FILLING STATION PUMP

Filed Nov. 22, 1934

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

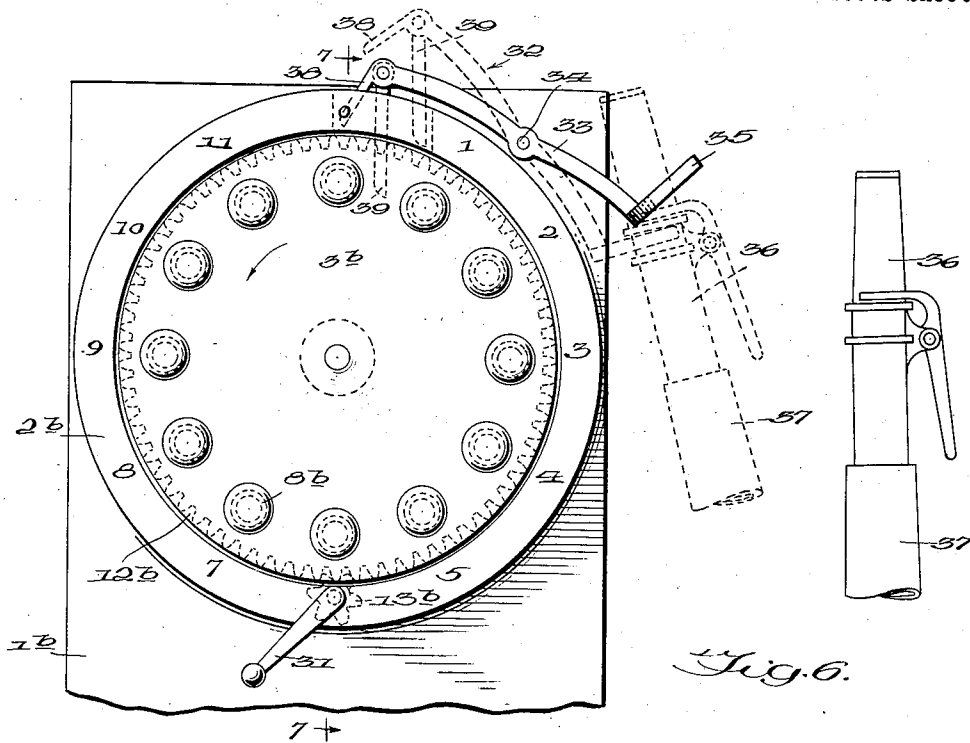


Fig. 7.

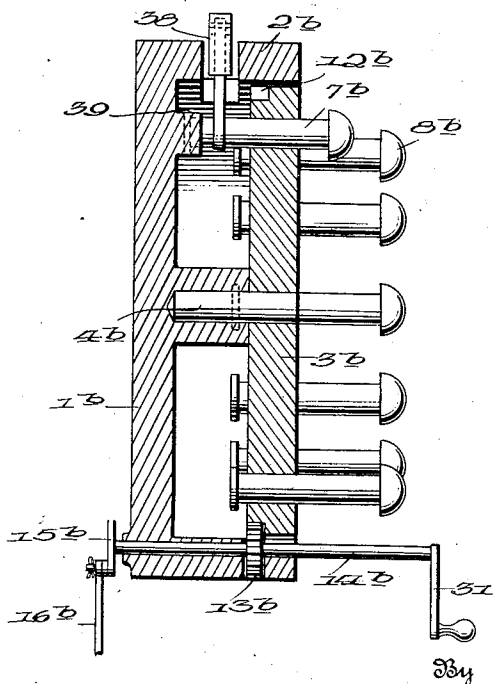
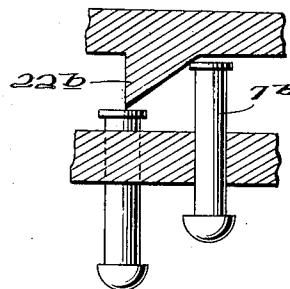


Fig. 8.



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UNITED STATES PATENT OFFICE

2,024,320

FILLING STATION PUMP

Charles Walker, Knoxville, Tenn.

Application November 22, 1934, Serial No. 754,286

7 Claims. (Cl. 221-100)

My invention consists in new and useful improvements in a selective control mechanism for use in connection with liquid dispensers or pumps of the type commonly used at motor fuel filling stations, and has for its object to provide a mechanism of this character which is simple in construction, economical to manufacture and convenient to operate.

Another object of my invention is to provide a selective control mechanism which is both positive and accurate in controlling the operation of a fluid dispensing pump, and one which can be installed in connection with various types of pumps.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawings and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views,

Fig. 1 is a front view of one form of my invention applied to a motor-driven filling station pump or the like, certain parts being shown broken away and in section to illustrate the details of construction.

Fig. 2 is a sectional view taken on line 2-2 of Fig. 1.

Fig. 3 is a sectional view taken on line 3-3 of Fig. 1.

Fig. 4 is a view similar to Fig. 2 showing the invention applied to a manually operated device.

Fig. 5 is a fragmentary section taken on line 5-5 of Fig. 4.

Fig. 6 is a front view of a still further modification of my invention applied to a manually operated pump.

Fig. 7 is a sectional view taken on line 7-7 of Fig. 6, and

Fig. 8 is a fragmentary detail showing the means for returning the selective pins to normal position.

In the drawings, referring to Figs. 1 to 3 which illustrate the invention as applied to a motor-driven pump, 1 represents a vertical supporting member which may be the front wall of a filling station pump, the front face of said supporting member being provided with an outwardly projecting annular housing 2 open to receive a disc 3 which is rotatably mounted on a central shaft 4 journaled as at 5 in the supporting member 1, as shown in Fig. 2.

The disc 3 is provided with a series of openings 6 arranged in an annular row adjacent its

periphery, said openings being adapted to receive a corresponding series of pins 7, each of which is provided with a head or knob 8 at its outer end. These pins are preferably rounded at their inner ends, and adjacent said rounded ends are provided with peripheral grooves 9 and 10 adapted to cooperate with a spring clip 11 in each of the openings 6 to retain the pins 7 in either one of two positions as hereinafter set forth more in detail.

The rear portion of the disc 3 is provided with a series of peripheral teeth 12 adapted to mesh with a gear 13 carried by a shaft 14 in the lower wall of the housing 2, the inner end of said shaft 14 carrying a driving disc 15 which, through the medium of a connecting rod 16 eccentrically mounted on the disc at one end, is adapted to operate a fluid dispensing pump, not shown.

An electric motor 17 secured in any suitable manner to the housing 2 or supporting member 1, drives a gear 18 which is arranged to mesh with the gear 13, whereby upon the operation of the motor, the gear 18 drives the gear 13 and shaft 14, and through disc 15 and connecting rod 16, operates the pump. It will be apparent from the relation of gear 13 with the gear teeth 12 in disc 3 that upon the operation of the motor and pump, the disc 3 will also be rotated a degree proportionate to the number of rotations of the motor, and dependent upon the gearing ratio.

Inside the housing 2, the face of the support 1 carries an annular ring 19, best seen in Fig. 3, in line for engagement by the inner ends of the pins 7, said ring and pins being suitably connected in electric circuit with the motor 17 and a source of current, whereby when any one of said pins engages the front face of the ring 19, said circuit is closed to energize the motor.

The outer face 20 of the housing 2 is provided with a series of numerals or other indicia corresponding in number to the pins 7 in the disc 3, and in the form shown in Figs. 1 to 3, arranged in counterclockwise direction as shown in Fig. 1. The ring 19 at a point preferably adjacent the zero mark on the front face of the housing is recessed as at 21, which recess merges into an outward projection or lug 22 at its posterior terminus, whereby when a selected pin reaches the recess 21, the circuit to the motor will be broken.

Adjacent each pin 7, the periphery of the disc 3 is provided with a V-shaped notch 23 adapted to be engaged by a suitable spring clip 24 arranged at a predetermined point on the inner wall of the housing 2 so as to normally prevent overrunning of the disc after a predetermined degree of rotation.

In the operation of this form of my invention, let us assume that five gallons of gasoline are to be dispensed. The head 8 of the pin adjacent the numeral 5 on the outer face of the housing 2 is depressed causing the inner end of the pin to engage the face of the ring 19 to close the electric circuit and energize the motor 17, the pin being held in engaging position by the spring clip 11 and groove 10. The motor rotates in clockwise direction and with it the driving gear 18 which causes the intermediate gear 13 to rotate in counterclockwise direction. The gear 13 through shaft 17, disc 15 and connecting rod 16, operates the pump (not shown), and at the same time, through teeth 12, causes the main disc 3 to rotate in clockwise direction as shown by the arrow in Fig. 1. The motor continues to rotate and drive the pump until the depressed pin reaches the indentation or recess 21 in the ring 19, whereupon the circuit is broken, as before mentioned, and the motor stops. At this point, the spring 24 on the inner face of the housing 2 engages an adjacent notch 23 which causes the disc 3 to remain in this position and prevents overrunning of the disc beyond the recess 21 in the ring 19.

Now then, when it is desired to vend gasoline to the next customer, the head 8 of the pin adjacent the numeral corresponding to the quantity of gasoline to be dispensed is depressed and the operation just described is repeated. It will be noted, however, that as soon as the disc 3 begins to rotate after the circuit is closed again, the previously depressed pin engages the raised member or lug 22 and is forced back to its normal inoperative position where it is retained by engagement of the spring clip 11 with the groove 9.

In the form of the invention shown in Figs. 4 and 5, the device is employed in connection with a manually operated mechanism and generally speaking, the construction is substantially the same as that just described. In this form, however, instead of the motor for driving the pump and main disc, I provide a driving shaft 25 which carries at its outer end a handle 26, said shaft passing freely through the main disc 3a and being journaled at 5a in the supporting member 1a. Adjacent the inner face of the disc 3a and in slightly spaced relation therefrom, I provide a circular clutch plate 27 which is keyed as at 28 to the shaft 25. This clutch plate is provided around its periphery with a series of notches 29 corresponding in number and in spacing to the number of pins 7a.

The inner ends of the pins 7a are reduced as at 30, the length of the reduced ends being substantially equal to the distance between the clutch plate 27 and the ring 19a, whereby when any one of the pins 7a is depressed, its inner end will engage the face of the ring 19a with the body of the pin lying in the respective notch 29 in the periphery of the clutch plate 27. With the pins in their outward position, the diameter of the clutch plate 27 is such that its periphery clears the reduced ends 30 of the pins.

Thus, upon the rotation of the handle 26 and in turn the clutch plate 27, if none of the pins are depressed, the main disc 3a and the dispensing pump will remain inoperative. However, upon depressing a predetermined pin, the body of said pin will engage the adjacent notch 29, and as the handle 26 and clutch plate 27 are rotated, said rotation will be transmitted to the

main disc 3a, and through gear 13a, shaft 14a, disc 15a and connecting rod 16a, to the dispensing pump.

As in the case of the motor-driven assembly heretofore described, the ring 19a is provided with a raised portion or lug 22a, whereby when the depressed pin reaches a point adjacent the zero mark on the outer face of the housing 2a, its inner end engages the raised member 22a and is forced outwardly, thus disengaging the body of the pin 7a from the notch 29 in the clutch plate 27 and preventing further operation of the main disc 3a and through it, the pump.

Here again, as in the other structure, peripheral notches are provided in the main disc 3a for engagement by a spring clip to prevent overrunning of the disc 3a. Any suitable means may be provided for limiting the inward and outward movement of the pins 7a in their respective openings 6a and for retaining said pins in one of their two positions.

In the third form of my invention illustrated in Figs. 6 to 8, the manually operated handle 31 is mounted on an extension of shaft 14b, which through gear 13b and disc 15b, operates the main disc 3b and pump connecting rod 16b, respectively. The main disc 3b is freely rotatable upon a shaft 4b suitably secured within the housing 2b and is rotatable in counterclockwise direction upon the clockwise rotation of the handle 31. The numerals on the face of the housing 2b are arranged in clockwise direction as will be seen from Fig. 6 instead of the counterclockwise arrangement described in connection with Fig. 1.

In this form of my invention, the extent of rotation of the disc 3b and the pump is controlled by a stop mechanism generally indicated by the numeral 32 instead of the recessed ring of Fig. 1 or the notched clutch plate in Fig. 4.

This stop mechanism 32 comprises a rocker arm 33 pivoted to the supporting member 1b at 34, one end of said rocker arm terminating in a U-shaped hook member 35 adapted to receive the nozzle 36 of a hose 37, as shown in dotted lines in Fig. 6. The other end of the rocker arm 33 is bent at substantially right angles to form an abutment 38 and carries a normally downwardly depending pivoted arm 39. This arm 39, when the rocker arm 33 is in the full line position shown in Fig. 6, that is, when it is not engaging the nozzle 36, is sufficiently long to lie in line for engagement by a depressed pin 7b as shown in Fig. 7, the abutment 38 lying in a position adjacent the zero mark on the front face of the housing 2b.

Thus, upon the counterclockwise rotation of the disc 3b, when a depressed pin reaches the depending arm 39, said arm is moved to the left until it engages the abutment 38 which prevents further rotation of the disc 3b after a depressed pin has reached the zero mark. When the nozzle 36 is placed in the U-shaped hook 35, the arm 33 is rocked on its pivot 34, elevating the free end of said arm and lifting the stop arm 39 out of engagement with the depressed pin. Now, when a second pin is depressed for further operation of the vending pump and the disc 3a turned in counterclockwise direction, the formerly depressed pin 7b engages an inclined lug 22b as shown in Fig. 8, and is forced outwardly to its normal inoperative position.

It will be understood that in this form, as in those heretofore described, any suitable means may be provided for retaining the pins in either

of their two positions, and notches are arranged in the periphery of the disc 3b for engagement with a spring clip to prevent overrunning.

From the foregoing it is believed that the construction and advantages of my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details disclosed without departing from the spirit of my invention as set out in the following claims.

What I claim and desire to secure by Letters Patent is:

1. In combination with the operating element of a liquid dispenser, a selective control mechanism comprising a rotary member, means for rotating the same, a series of movable pins carried by said member for selectively controlling the extent of rotation thereof, means operatively associated with said rotary member for driving said dispenser operating element, and means for automatically returning a selected pin to inoperative position.

2. In combination with the operating element of a liquid dispenser and means for driving the same, a rotary member operatively associated with said driving means, a stop member adjacent said rotary member, a series of movable elements carried by said rotary member and selectively engageable by said stop member, means for releasing said engagement, and means for returning said selected movable member to inoperative position.

3. In combination with the operating element of a liquid dispenser and a shaft for driving the same, a rotary disc geared to said shaft, a stop member adjacent said disc, a series of movable pins extending transversely through said disc and adapted to be selectively moved into line for engagement by said stop member, means for re-

leasing said engagement, and means for returning said pins to inoperative position.

4. The combination as claimed in claim 3 wherein said stop member comprises a pivotally mounted arm, one end of which carries an abutment engageable by said selected pins, the other end of said arm forming a lever for rocking said arm to release said abutment.

5. In combination with the operating element of a liquid dispenser, a selective control device comprising a rotary member operatively associated with said operating element, a second rotary member co-axial with said first rotary member, means for rotating said second rotary member, clutch means for operatively connecting said rotary members to drive said dispenser operating element, and means for selectively releasing said clutch engagement to limit the rotation of said first named rotary member.

6. The combination as claimed in claim 5 20 wherein said selective means comprises a series of movable pins carried by said first named rotary member and adapted to be moved into operative engagement with said second rotary member, said releasing means comprising an inclined surface engageable by the projecting end of a selected pin to return the same to inoperative position.

7. In combination with the operating element of a liquid dispenser, an electric motor for driving said element, a rotary member operatively associated with the shaft of said motor, a stationary contact ring arranged co-axial with said rotary member and spaced therefrom, a series of movable contact members carried by said rotary member and selectively engageable with said ring to close the motor circuit, means at a predetermined point on said ring for breaking said circuit, and means for returning the selected contact member to non-contacting position.

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