April 26, 1938. J. M. DAYTON 2,115,303

CONTROL MECHANISM FOR DISPENSING APPARATUS

Filed July 10, 1935 2 Sheets-Sheet 1

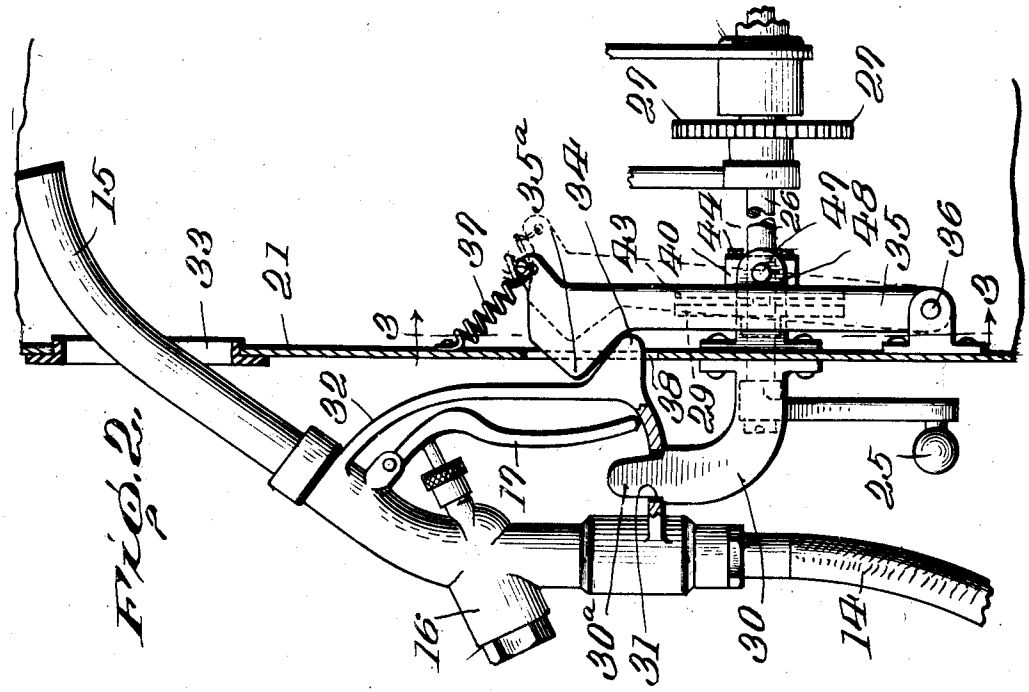


FIG. 2.

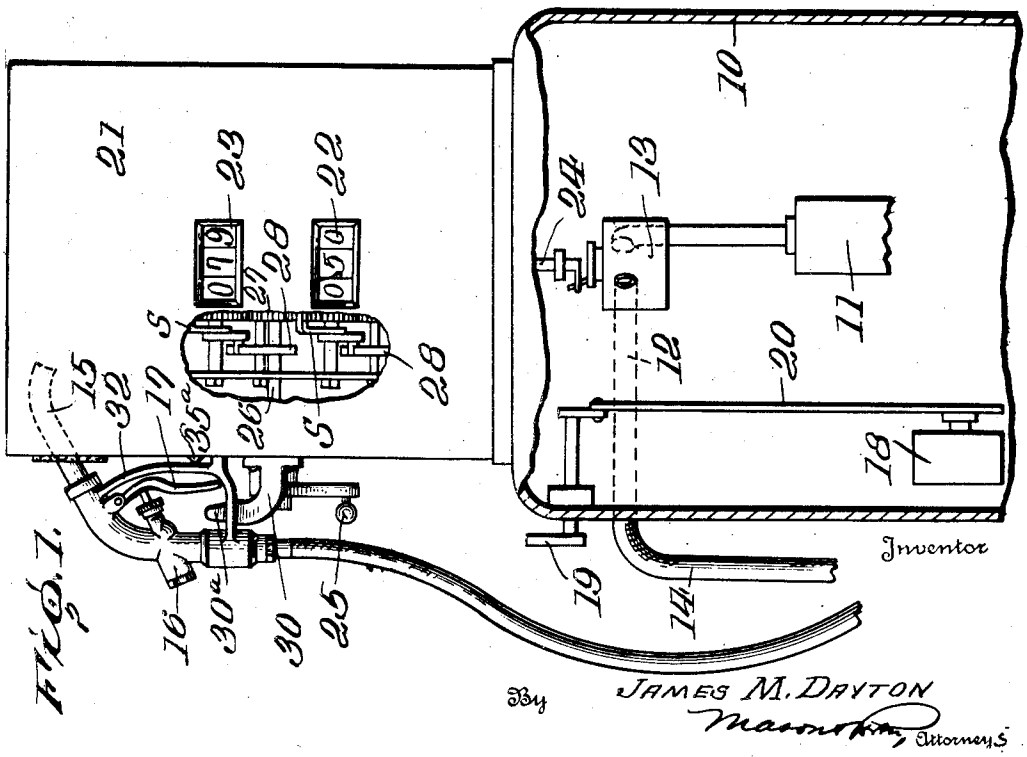


FIG. 1.

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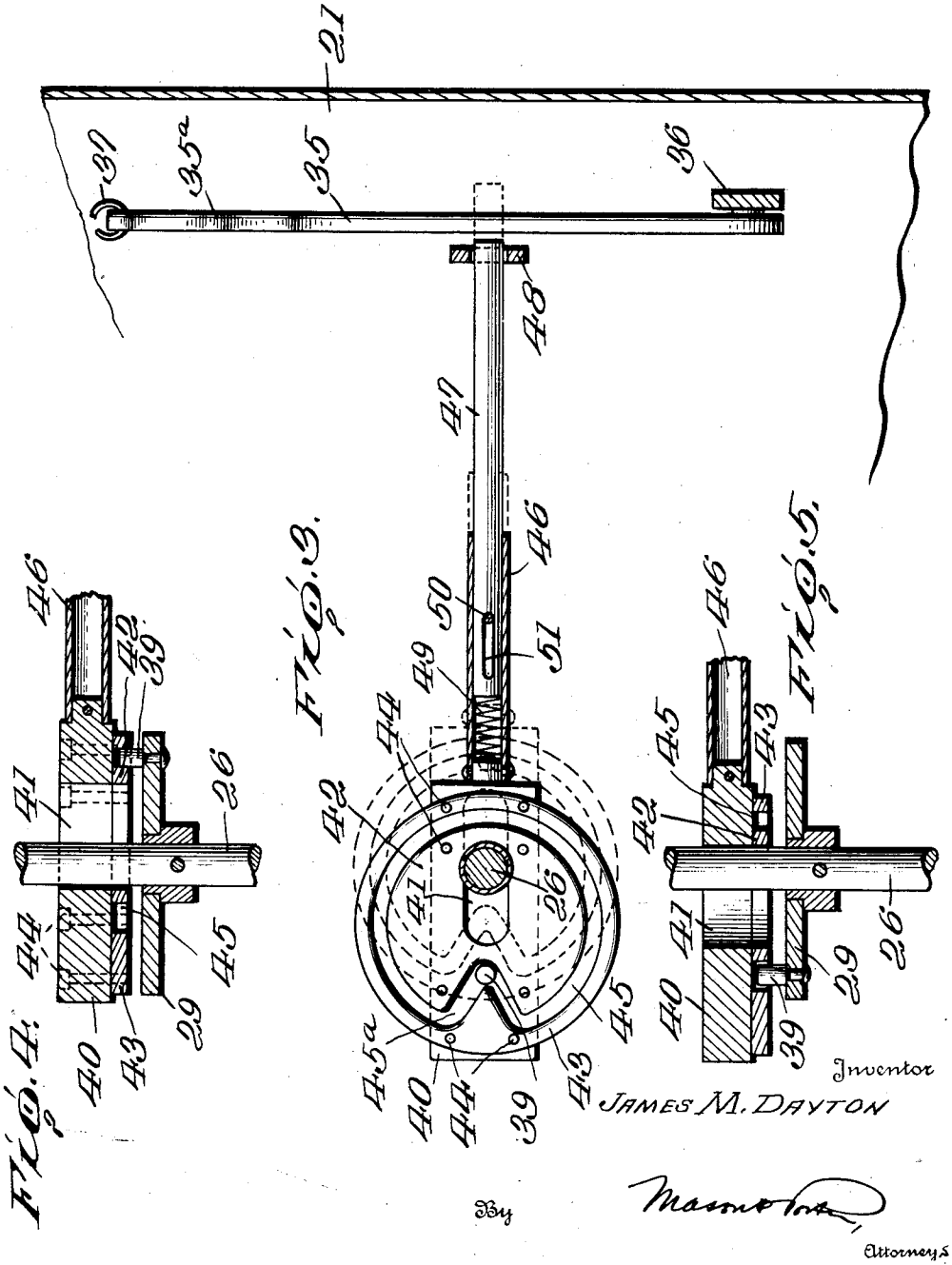


FIG. 3.

FIG. 4.

FIG. 5.

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CONTROL MECHANISM FOR DISPENSING APPARATUS

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Application July 10, 1935, Serial No. 30,725

10 Claims. (Cl. 221—95)

This invention relates to improvements in dispensing apparatus having a mechanism for controlling the resetting and dispensing operations thereof.

One of the features of the present invention is the provision in a dispensing apparatus having an indicator system and a discharge member, of means for preventing release of the discharge member, preparatory to dispensing, under control of the indicator system.

Another feature is the provision in a dispensing apparatus having an indicator system including resetting devices, and a discharge member, of means for preventing release of the discharge member, preparatory to dispensing, under control of the resetting devices.

A further feature is the provision in a dispensing apparatus having an indicator system including a concealing shutter and resetting devices for closing the shutter and effecting a complete resetting before effecting a reopening of the shutter, of means for preventing release of the discharge member, preparatory to dispensing, under control of the resetting devices, until the indicator has been reset.

With these and other features as objects in view, as will more fully appear hereinafter, an illustrative manner of practicing the invention is shown on the accompanying drawings, in which:

Fig. 1 is an elevation, with parts in section, of a dispensing apparatus, in the specific illustration a gasoline dispensing pump.

Fig. 2 is an upright sectional view of a part of Fig. 1 on a larger scale.

Fig. 3 is a section on lines 3—3 of Figs. 2 and 4.

Figs. 4 and 5 are sectional views on line 4—4 of Fig. 3 in two positions of operation.

In the drawings, the illustrative gasoline pump has a lower casing 10 containing a motor-pump assembly 11 for drawing gasoline from the usual underground tank and delivering it through the conduit 12 and the meter 13 to a hose 14 which is provided at its end with a nozzle 15 controlled by a valve 16 actuatable by a trigger lever 17. This casing 10 is also illustrated as containing the switch 18 for controlling the motor of the assembly 11 in the usual way, under control of a handle 19 by a link 20.

The pump also has an upper casing 21 containing an indicator system which is illustrated as including indicator devices displayed at the windows 22, 23 for designating the quantity dispensed by volume and price, according to the actuation of the indicator driving shaft 24 by the meter 13; a resetting device for restoring the indicator devices to zero including the handle 25 secured to a shaft 26 which passes into the upper casing 21 and has fixed thereto a gear 27 for producing the resetting, and a disc 29 which will be more closely described hereinafter. The system also includes shutters S for obscuring the indicator devices during the course of resetting, and means for moving shutters which are illustrated as including the cam pieces 28. Such an indicator system is described and shown in my copending application Serial No. 20,501, filed May 8, 1935, to which reference is made for a more complete detailing of a system of the type.

The upper casing 21 also supports the nozzle hook 30 having a nose 30a which extends into an aperture 31 of the trigger guard 32 and thus provides a definite location at which the attendant may position the nozzle between dispensing operations. The casing 21 likewise has an aperture 33 for receiving the end of the nozzle 15 when the latter is located upon the hook 30.

The trigger guard 32 has a toe 34 for cooperation with the nose 35a of the latch 35 which has a pivot support 36, and is normally held ready for engagement with the trigger guard by the spring 37. In the illustrated form, the toe 34 when in position extends inward through the slot 38 corresponding in length to the nose 30a in the casing 21 and thus the nozzle 15 is prevented from rotation about the hook 30 as an axis; while the latch nose 35a projects outwardly therethrough for an adequate engagement with the toe 34 without requiring an undesirably long toe.

The disc 29 on the resetting shaft 26 has an eccentric pin 39. A slide block 41 has a slot 42 which embraces the shaft 26, and supports the inner and outer cam pieces 42, 43, which are secured by screws 44, at a uniform spacing to provide the cam slot 45 which closely receives the pin 39.

A tube 46 is secured to the block 41, and telescopingly receives a latch bolt 47 which is guarded for sliding movement by a keeper 48 inside the casing 21. The bolt 47 has a slot 51 which receives a pin 50 fixed in the tube 46. A spring 49 tends to maintain the extension of the telescoping link comprised by the tube 46 and the bolt 47.

The operation of this illustrated form is as follows:

At the close of a dispensing operation, the indicator system reveals through the windows 22 and 23 the quantity which has been dispensed, by

volume and price. The customer pays according to the price indication; and is afforded a check through observation of the volume indication. The attendant hangs the hose nozzle upon the hook 30a and opens the switch 18 by moving the lever 19. This operation of immobilizing the hose nozzle and stopping the motor may be accomplished in any order. When the hose nozzle is placed upon the hook nose 30a, the toe 34 engages the inclined upper surface of the latch nose 35a and pushes the latch inward about its pivot 36. As the reset knob or handle 25 is in its normal position, the latch bolt 47 is out of the path of the latch 35, and the latter can move freely. When the nozzle attains the position shown in Figs. 1 and 2, the latch 35 is drawn back into engaging position above the toe 34, by the action of spring 37.

It will be noted that resetting to zero may be accomplished at once; although it is customary to await the arrival of the next customer.

Before beginning the next dispensing operation, it is necessary to (1) reset the indicator system, (2) present the hose nozzle end 15 in the receptacle provided for or by the new customer, (3) start the pump, in this illustrative form. The pump may be started at any time, and is in entire independence of the rest of the system. It will further be noted that the trigger 17 may be operated so that liquid will flow, although of course no benefit of this will accrue to the attendant or to the customer.

Normally, the attendant will reset the indicator by rotating the shaft 26 by handle 25, giving the latter a full single revolution. This operates in the usual manner through the gear 27 and associated parts to reset the indicator system; being accompanied by a movement of the cams 28 which produce a movement of the shutter means S for obscuring the indicator during the course of the resetting. This shutter means is not opened again until resetting is completed. On some occasions, attendants have failed to complete a resetting, or have moved the handle 25 through more than a single revolution, so that the shutter is in obscuring position during delivery. This has no effect upon the movement of the indicator system, but the shutters prevent the attendant and customer from determining the quantity which has been dispensed. The owner of the pump is protected by the usual totals registry as indicated in my copending application; but the pump attendant has no recourse against the customer.

According to the present invention, however, the start of the resetting movement of shaft 26 is accompanied by the rotation of the disc 29, so that one leg of the V-shaped portion 45a of the track or slot 45 is traversed by the pin 39. While the reset handle 25 has been at rest in its normal position of stoppage, the parts are in the full line position of Fig. 3, with the pin 39 at the bottom of the V 45a. As the pin 39 is carried in rotation, however, this produces a sliding movement of the block 40, as the pin bears against the walls 42 and 43 of the cam track 45, and thus the tube 46 and latch bolt 47 are moved toward the right in Fig. 3, so that the latch bolt is presented (dotted line position of Fig. 3) across the path of rocking movement of the latch 35. Therefore, if the nozzle 15 is on the hook nose 30a with its toe 34 engaged by the nose 35a of the latch 35 (position of Fig. 2), the latch bolt 47 prevents a movement of the latch 35 which would release the nozzle, so long as the pin 39 is engaged in the circular portion of the cam track 45. It will be seen from Fig. 3 that this constitutes the major portion of the revolution of shaft 26; and during this time, the full resetting is accomplished, the shutter means is moved to obscuring position and there maintained. Finally, at the end of the single revolution of shaft 26, the disc 29 presents pin 39 against the other leg of the V 45a and thus produces a movement of the block 40 from the position of Fig. 4 (dotted lines in Fig. 3) back to the position of Fig. 5 (full lines in Fig. 3), and therewith the latch bolt 47 is retracted from position in the path of the latch 35. Thus, the latch is released when the resetting is completed, and the attendant may now lift the hose nozzle from the hook 30a and withdraw the nozzle end from the aperture 33 without difficulty.

In the event that the hose nozzle has been improperly positioned on the hook nose 30a, so that the latch 35 is in a depressed position (such as indicated by dotted lines in Fig. 2), the movement of the block 40 and tube 46 toward the right (Fig. 3) is accompanied by the engagement of the latch bolt 47 against the side of the latch 35, and thereafter the telescoping connection yields to avoid breakage of parts.

Thus it will be seen that when the attendant properly follows the prescribed routine, he does not regain control of the hose nozzle for useful dispensing operations until the routine is completed; and he has no unjust cause of complaint to the effect that the resetting mechanism does not operate properly on his pump.

It will be noted, further, that the suspension of the hose nozzle upon the hook nose 30a does not prevent the attendant, if the customer and he so desire, from giving a further delivery to the same customer, and establishing a total for the two partial deliveries which is the quantity set up at windows 22 and 23, as the "dispensing operation" in this phase of the matter, may be regarded as the interval and operations between two resettings.

It is obvious that the invention is not limited to the form of construction shown and described, but that it may be practiced in many ways within the scope of the appended claims.

I claim:

1. A dispensing apparatus including a movable dispensing member, means for measuring the quantity dispensed and means for indicating the same, resetting devices for the indicating means, devices for supporting said member in one position, and means controlled by the resetting devices for holding said member against removal from said one position, said holding means including a latch member interposed in the path of removal movement of said dispensing member, means actuated by the resetting devices for detaining the latch member against releasing the dispensing member during resetting, and a resilient lost-motion connection in said actuated means for permitting resetting regardless of the position of said latch member and being effective for causing a detention of said latch member when the latter is moved into position for detention and during the course of resetting.

2. A dispensing apparatus including a hose and nozzle and means for moving fluid therethrough, a meter for the quantity dispensed and means for indicating the same, resetting devices for the indicating means, a nozzle hook, a latch for holding the nozzle on said hook, and means controlled by the resetting devices for maintaining said latch

during resetting and releasing the same at the completion of resetting, said controlled means including a latching member moved into and out of the path of movement of the latch and positively moved by the resetting devices into working position at the beginning of the resetting movement.

3. A dispensing apparatus including a hose and nozzle and means for moving fluid therethrough, a meter for the quantity dispensed and means for indicating the same, resetting devices for the indicating means, a nozzle hook, a nose on the nozzle, a resilient latch depressible by the nose while the nozzle is being placed on the hook and engaging to hold the nozzle in seated position on the hook, and control devices including an element positively moved by the resetting devices at the beginning of the resetting movement, said control devices also including a part movable into and out of the path of movement of the latch and thereby being effective upon positive movement of said element for maintaining the latch in holding engagement with the nozzle.

4. An apparatus as in claim 3, in which the control devices include yielding devices for permitting yielding of said part if the latch is not in holding position when the resetting devices are actuated.

5. A dispensing apparatus including a casing, a hose and nozzle and means for moving fluid therethrough, a meter for the quantity dispensed and means for indicating the same, resetting devices for the indicating means, a hook on said casing for supporting the nozzle, said casing having an aperture adjacent the hook into which the end of the nozzle may be extended, a latch for detaining the nozzle on the hook with its end in said aperture, and devices controlled by the resetting devices for maintaining the latch in holding engagement with the nozzle, said devices including a latch bolt movable into and out of the path of movement of said latch, and a latch bolt actuating means moved positively with the resetting devices for projecting the latch bolt into the path of movement of the latch during the course of resetting and for withdrawing and holding said bolt out of the said path at the completion of resetting, said apparatus being constructed and arranged for the free positioning and removal of the nozzle prior to and upon completion of the resetting movement of said resetting devices.

6. A dispensing apparatus including a casing, a hose and nozzle and means for moving fluid therethrough, a meter for the quantity dispensed and means for indicating the same, resetting devices for the indicating means, and means controlled by the resetting devices for holding the nozzle against movement to dispensing position during the course of resetting, said devices including a latch bolt and a latch bolt actuating means moved with the resetting devices for projecting the latch bolt into the path of movement of the latch during the course of resetting and for withdrawing said bolt out of said path at the completion of resetting, and a resilient lost-motion connection for permitting movement of the actuating means without corresponding movement of the latch bolt when the latch is not in position for said projecting movement of the latch bolt.

7. A dispensing apparatus including a casing, a hose and nozzle and means for moving fluid therethrough, said nozzle having an extension member, support means on the casing for supporting said nozzle in a position in which the extension member projects through a slot in said casing, a latch pivotally mounted on the casing and having a nose opposite the upper end of the slot and cooperative with the extension for holding the nozzle in fixed position, and devices controlled by the resetting devices for maintaining the latch in holding engagement with the nozzle.

8. A dispensing apparatus including a movable dispensing member, means for measuring the quantity dispensed, an indicator system including indicator devices driven by said measuring means and resetting devices for returning the indicator devices to an initial position, devices for supporting said member in a non-dispensing position, means controlled by said indicator system for preventing removal of said dispensing member from said non-dispensing position, said preventing means including a movable latch and a latch bolt for projection into the path of movement of the latch at the beginning of the resetting movement, said apparatus being constructed and arranged for the free positioning and removal of the dispensing member prior to and upon completion of the resetting movement of said resetting devices.

9. A dispensing apparatus including a movable dispensing member, means for measuring the quantity dispensed, an indicator system including indicator devices driven by the measuring means and resetting devices for returning the indicator devices, devices for supporting said member in a non-indicating position; said preventing means including an eccentric pin carried in revolution with the resetting devices, a cam member actuated by said pin and receiving therefrom a movement in one direction at the beginning of resetting and a movement in the other direction at the end of resetting and being held by said pin against movement during the course of resetting, a latch bolt connected with said cam member to be moved therewith, and means controlled by said latch bolt for engaging the dispensing member.

10. A dispensing apparatus as in claim 9, in which the latch bolt has a resilient telescoping connection, and the means controlled by said latch bolt comprises a member moving into and out of the path of movement of said latch bolt.

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