July 17, 1962 G. W. WRIGHT ETAL 3,044,662

PRINTER AND INTERLOCK STRUCTURE FOR MOTOR FUEL DISPENSER

Filed May 2, 1960 4 Sheets-Sheet 1

FIG. 1

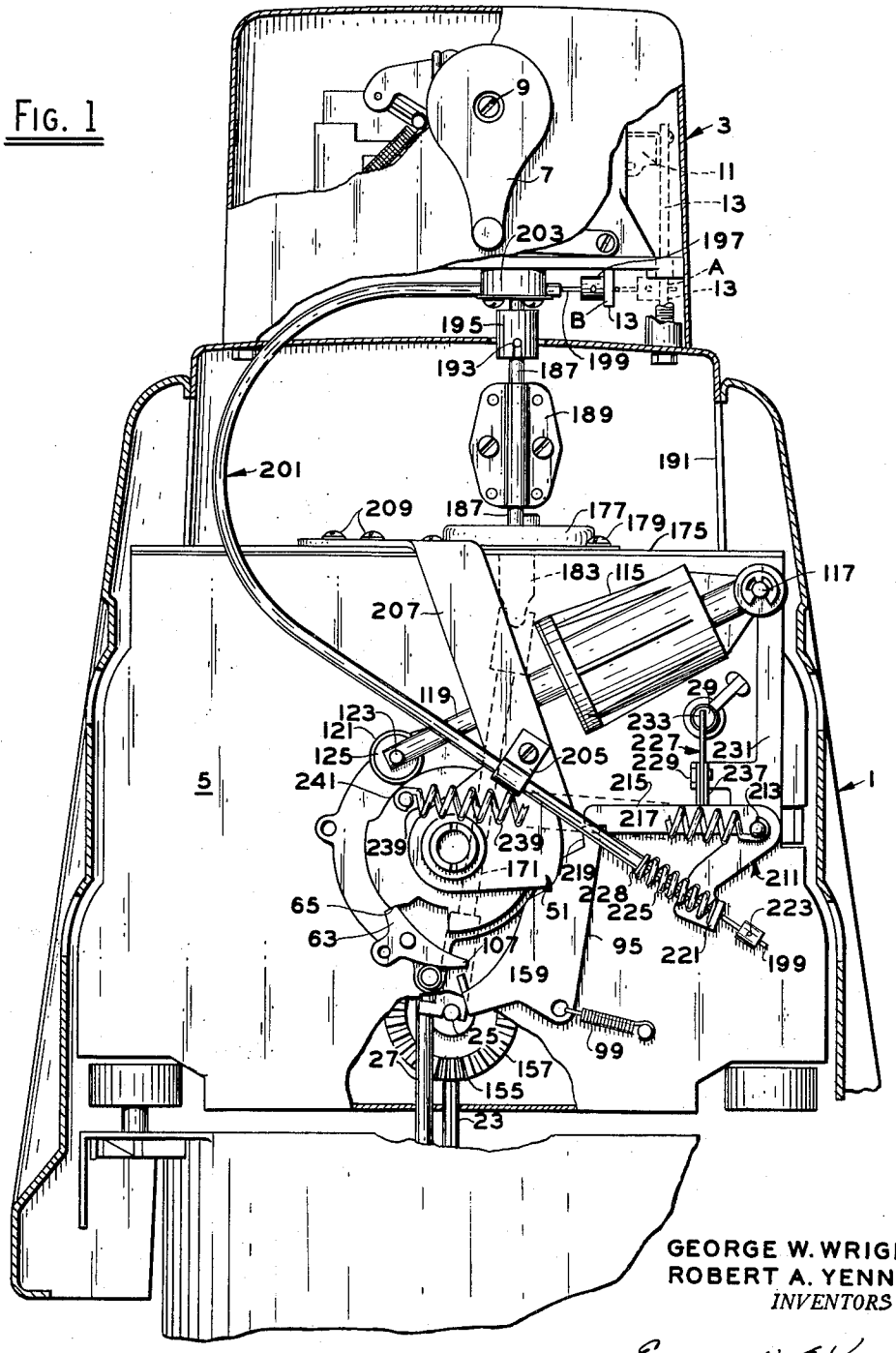

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FIG. 6

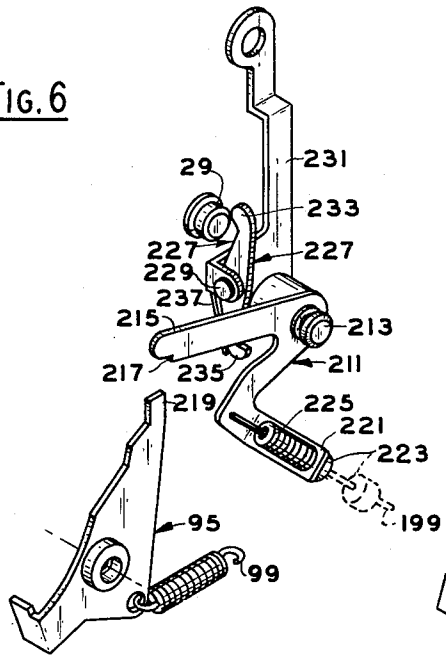

FIG. 7

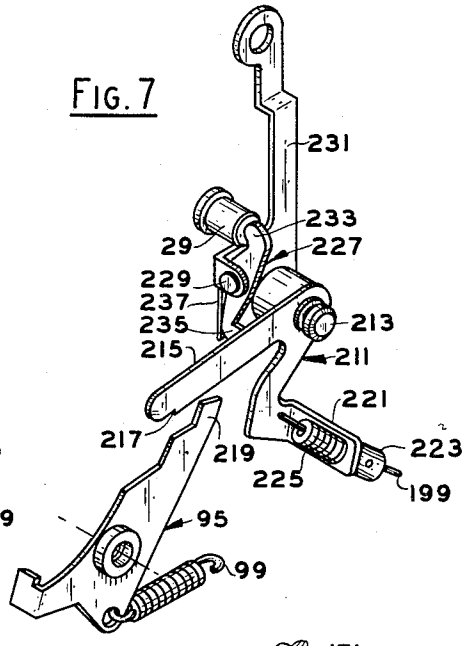

FIG. 2

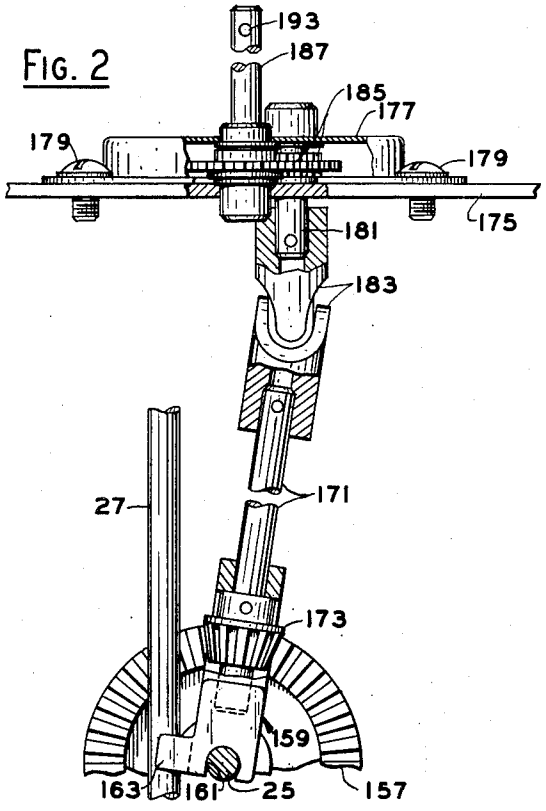

FIG. 3

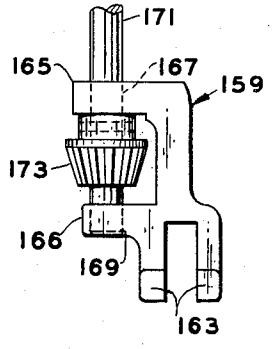

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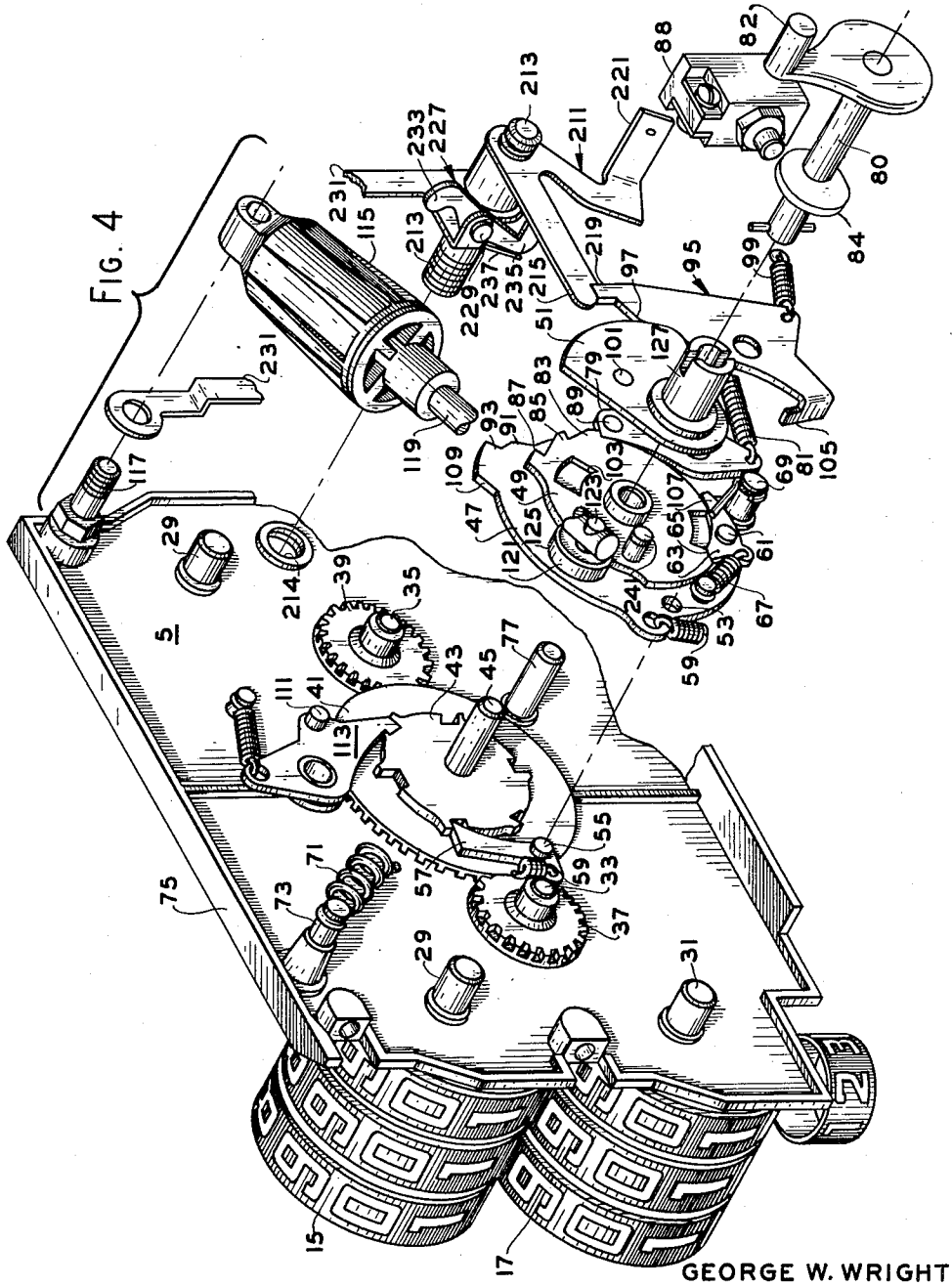
FIG. 4



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PRINTER AND INTERLOCK STRUCTURE FOR MOTOR FUEL DISPENSER

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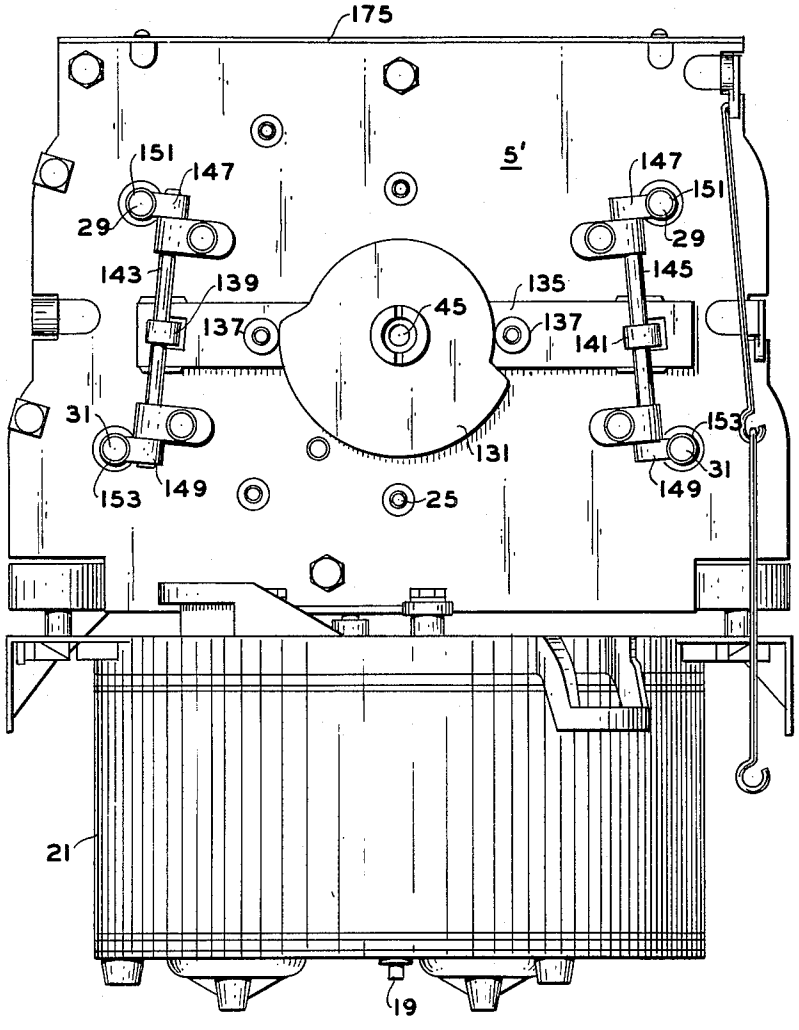
FIG. 5



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United States Patent Office 3,044,662 Patented July 17, 1962

3,044,662
PRINTER AND INTERLOCK STRUCTURE FOR MOTOR FUEL DISPENSER

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Filed May 2, 1960, Ser. No. 26,091
16 Claims. (Cl. 222—30)

This invention relates to a printer and interlock structure for a motor fuel dispenser. More specifically it relates to a mechanism for driving a printer from a commercial type of computer and for interlocking the operation of the dispenser with the operation of the computer and printer so that after a ticket has been inserted in the printer and initially printed to indicate a starting or zero condition of the register and after a delivery has been made from the dispenser, a second delivery from the dispenser will be prevented until the ticket has been printed with the amount of the first delivery.

It is a further object of the invention to provide a mechanism which will permit numerous, successive deliveries from the dispenser when the printer has not been actuated to initially print the ticket.

Another object of the invention is to provide driving mechanism for connecting a commercially available printer to a commercially available dispenser so that the printer may be driven from the computer and the printer operating mechanism may be interlocked with the reset and delivery control mechanism of the dispenser.

Other objects will become apparent from the study of this specification and the drawings in which:

FIGURE 1 is an elevation showing the printer and computer mounted in the dispenser and the driving and interlock connections between them.

FIGURE 2 is an elevation partially in section showing the drive mechanism for connecting the printer to be driven by the computer.

FIGURE 3 is detail of the lower portion of FIGURE 2 showing the parts rotated ninety degrees.

FIGURE 4 is an exploded view of the computer reset and control mechanism.

FIGURE 5 is an elevation of the end of the computer opposite that shown in FIGURE 4.

FIGURE 6 is a view of the interlock mechanism in the position in which multiple deliveries may be made from the dispenser and

FIGURE 7 is a view similar to FIGURE 6 showing the interlock mechanism in a position to prevent further deliveries from the dispenser.

Referring first to FIGURE 1, numeral **1** indicates generally the dispenser while numeral **3** indicates generally the ticket printer which is of the type shown and fully disclosed in the C. L. McMullen Patent 2,086,363, issued July 6, 1937.

Numeral **5** indicates generally a computing and registering mechanism such as that shown generally in the patent to H. N. Bliss No. 2,814,444, issued November 26, 1957.

The printer **3** includes an operating crank **7** which drives a shaft **9** and through gearing and other mechanism not shown herein but which is fully disclosed in said Patent 2,086,363, will reciprocate a ticket holder **11** as described below.

A lug or plate **13** is attached to the ticket holder **11** and moves between the positions B and A shown in full and dashed lines respectively in FIGURE 1. In the idle condition of the ticket printer, the holder occupies the normal dashed line position A in this figure, and the operation of the ticket printer is such that, upon rotation of the crank **7** one revolution, the mechanism will imprint a ticket against the printing wheels to show their

condition at the start of dispensing and will thereafter shift the ticket holder **11** and plate **13** to the displaced, full line position B. The delivery will be made from the dispenser in a manner to be described below and upon completion of the delivery, the crank **7** of the ticket printer will be rotated a second revolution, which causes the printer mechanism to again imprint the ticket and thereafter restore the ticket holder and plate **13** to the normal, dashed line position A. The printing wheels, having been advanced by the computing mechanism during the delivery operation, will print the amount of this delivery when the second impression is taken.

The structure of the computer mechanism will now be briefly described, reference being had to FIGURES 1, 4 and 5. A fuller description of the computer is found in the Bliss patent supra. The computer is indicated generally by numeral **5** and has indicator dials **15** which comprise a cost register and similar dials **17** which comprise the gallons register. The input shaft **19** shown in FIGURE 5 drives a variator mechanism indicated generally by numeral **21** and the variator has a gallons output shaft **23** which is connected by gearing **155—152** to drive a gallons shaft **25** and the gallons register **17**. This variator also has a cost output shaft **27** which is connected by gearing (not shown) to drive the cost register **15**. The individual indicator wheels of registers **15** and **17** respectively, are mounted to rotate on shafts **29** and **31**, FIGURE 4, and have clutch mechanisms (not shown) which are operated by endwise motion of the shafts **29** and **31** to connect the registers either to the output drives from the variator or to the resetting mechanism shown in FIGURE 4.

The resetting mechanism, FIGURE 4, comprises shafts **33** and **35** to which are fixed respectively gears **37** and **39**. These mesh with a master gear **41** to which is attached a ratchet **43**. The gear **41** and ratchet **43** rotate freely on shaft **45**. A resetting disc **47**, a control disc **49** and a cam **51** are mounted by suitable hubs on shaft **45**. Reset disc **47** is provided with a hole **53** which receives a trunnion **55** of a pawl **57** which is disposed to engage the teeth of ratchet **43**. A spring **59** is connected to the pawl and the disc **47** so as to urge the pawl into engagement with the ratchet. The disc **47** also carries a pin **61** upon which is pivotally mounted a dog **63** which is urged into engagement with a stop **65** on the control disc by means of a spring **67**. An anchor post **69** projects axially from the reset disc **47** past the edge of the control disc and a resetting spring **71** has one end hooked to this post and the other end to a post **73** mounted on the side frame **75** of the computer. A journal **77** mounted in the side frame **75** extends axially past the edges of the gear **41** and discs **47** and **48** and a pawl **79** is pivotally mounted thereon and is urged by a spring **81** into engagement with teeth **83**, **85** and **87** formed on the edge of the control disc **49** substantially opposite to the stop **65**. This pawl has a pin **89** which extends axially toward the frame **75** past the disc **49** into the path of a cam **91** and a stop **93** formed on the reset disc. A cam follower lever **95** is also rotatably mounted on the journal **77** and has a cam follower surface **97** which is urged into contact with cam **51** by spring **99**. Cam **51** also has a pin **101** which extends toward the control disc **49** and enters a lost motion slot **103** formed therein. Cam follower **95** is provided with a projection **105** which overlies the tail **107** of dog **63**. Reset disc **47** also has a cam **109** which coacts with a pin **111** on the latch pawl **113** which is normally engaged with ratchet **43**. A dashpot **115** is pivotally mounted on a stud **117** on side frame **75** and has a plunger **119** which carries a roller **121** on a pin **123**. The roller comprises an outer metal rim mounted on a rubber center portion **125**. Cam **51** is attached to a hub **127** which is operated manually in a

clockwise direction to cause the computer registers to be reset and to close the motor control switch of the dispenser after resetting has been completed. The hub is rotated in a counterclockwise direction (FIGURE 4) to open the switch and to cock the spring **71** after dispensing has been completed as described in detail below. This hub **127** is fixed to the shaft **45** which extends through the computer mechanism and projects from the opposite side frame **129** shown in FIGURE 5. This end of the shaft is connected to rotate a cam **131** which reciprocates a slide bar **135** by acting on rollers **137** mounted thereon. The reciprocation of the slide bars is transmitted through levers **139**, **141** to respective shafts **143**, **145** which carry gear sectors **147** and **149** at their opposite ends. Sectors **147** engage rack teeth **151** formed on the ends of the clutch shafts **29** and sectors **149** engage rack teeth **153** formed on the ends of the clutch shafts **31**.

Operation of Computer Reset Mechanism

Referring to FIGURE 4, the cam **51** has an initial position which is shown in FIG. 4. The lever **82**, shaft **80**, hub **127** and cam **51** are movable from this initial position through a distance representing the lost motion provided by slot **103** in disc **49**. Assuming that arm **215** is lifted to free **95**, the first operation of hub **127**, by means of lever **82** and shaft **80**, in the clockwise direction from such initial position is limited by the contact of pin **101** with the right hand side of slot **103**. This movement of cam **51** causes the follower **95** to be rotated clockwise about journal **77** and causes the projection **105** thereof to depress the tail **107** of dog **63** so as to free the dog from the stop **65** on control disc **48**. Reset spring **71** is under full tension in this condition of the parts and control disc **49** has teeth **83** engaged by pawl **79** so that the disc cannot rotate clockwise. Upon release of dog **63** as described, spring **71** will rotate disc **47** in a clockwise direction and pawl **57** which is mounted in disc **47** will rotate ratchet **43** and resetting gear **41** clockwise. The gear **41** in turn rotates the resetting gears **37** and **39**, reset shafts **33** and **35** and through additional gearing will reset the registers **15** and **17** to zero.

It should also be noted that the rotation of hub **127**, cam **51** and shaft **45**, through the distance permitted by the lost motion, will not alter the position of cam **131** (FIGURE 5) sufficiently to move the bar **135** which therefore maintains the shafts **29** and **31** in the position in which the indicator wheels of registers **15** and **17** are clutched to the reset mechanism and are declutched from the output shafts **23** and **27** of the variator.

As disc **47** is rotated clockwise by the spring as described, the cam **91** thereof will act on pin **89** of pawl **79** to cam the pawl free of the teeth **83** of the control disc and will thereupon rotate further until the stop **93** of disc **47** rests on pin **89** of the latch pawl **79**.

Since the control disc **49** is now free from pawl **79**, further rotation of lever **82**, cam **84**, hub **127**, cam **51**, control disc **49** and shaft **45** (FIGURE 4) and cam **131** (FIGURE 5) to the second, clockwise position, is now possible. Such rotation must be accomplished manually by lever **82** and is limited by stops (not shown). Such rotation causes cam **131** to shift bar **135** and through the mechanism described above, this, in turn, shifts the shafts **29** and **31** so that the indicator wheels of registers **15** and **17** will be declutched from the resetting mechanism and will be clutched to the output shafts **27** and **23** so as to be driven thereby when delivery is made. Such further rotation of cam **51** will produce further clockwise rotation of cam follower **95** to substantially the position shown in FIGURE 7. After completion of the delivery of the required amount of liquid, the lever **82**, hub **127**, cam **51**, control disc **49**, and shaft **45** will be rotated in a counterclockwise direction manually (FIGURE 4).

During the clockwise rotation of control disc **49**, as described above, the stop **65** will have passed the coacting end of pawl **63** so that upon the counterclockwise rotation of the control disc, the stop **65** will engage the pawl **63** and thereafter the reset disc will also rotate counterclockwise with the control disc, to tension or cock the reset spring **71**. Such motion of the reset disc also removes cam **91** from engagement with pin **89** of latch pawl **79** so that this pawl will again engage the edge of the control disc **49**. The counterclockwise rotation of hub **127** and its associated parts to their initial positions is limited by stop means not shown and, upon release of the hub **127** from manual operation, these parts will again be held in the initial position by the engagement of the teeth **83** of the control disc with the pawl **79**. During the described counterclockwise rotation of these parts, cam **131** will again operate bar **135** and its associated mechanisms to shift shafts **29** and **31** to the initial position, in which the indicators of registers **15** and **17** are disconnected from the output shafts **23**, **27** and are connected with the resetting mechanism.

Printer Drive

Referring to FIGURES 1, 2 and 3, the pinion **155** on the gallons output shaft **23** drives a gear **157** on shaft **25** and the cost output shaft **27** crosses shaft **25** in closely spaced relation thereto.

A support **159** is provided with a downwardly open yoke **161** which rests on the horizontal shaft **25** and with a laterally extending yoke **163** which spans the vertical shaft **27** to keep the support from moving along shaft **25**.

The support also has arms **165**, **166** extending at right angles to the yoke **163**, which are drilled at **167** and **169** to receive shaft **171** which has a pinion **173** pinned to it so as to be spanned by said arms. The hole **169** is a blind hole and supports the shaft with pinion closely adjacent arm **165** while the latter prevents the pinion and shaft from rising. This pinion is thus held in mesh with and is driven by gear **157**.

A plate **175** is fixed to the top of the end frames **5** of th computer and a gear box **177** is fastened thereto by screws **179**. The input shaft **181** of this gear box is connected to shaft **171** by a universal joint **183** (FIGS. 1 and 2). Shaft **181** drives the gears **185** which, in turn, drive the output shaft **187**. The latter is supported in a bearing **189** (FIG. 1) which is mounted on the ticket printer support **191** while the support **191** is mounted on plate **175**. A cross pin **193** in shaft **187** drives a slotted socket **195** which is mounted on and depends from the printer drive shaft.

The mechanism described, rotates the gallons type wheels of the printer (not shown) in time with the gallons dials **17** of the computer so that the number of gallons delivered will be printed on the ticket by the type wheels.

Interlock

As mentioned above, the plate **13** is moved between its dashed line position indicated by A to its full line position B during the initial operation of the printer crank **7**.

The plate **13** carries a boss **197** which receives and holds one end of the wire **199** of a "Bowden" cable **201**. The casing of the cable is clamped to the printer frame by clamp **203** and to a bracket **207**, which is fastened at **209** to plate **175** of the computer, by a clamp **205**.

A bell crank **211** is pivotally mounted on a threaded stud **213** which is fixedly mounted in a tapped hole **214** on the computer end frame **5** (FIGS. 1, 4, 6 and 7). This crank has a latching arm **215**, which is notched at one end to provide a tooth which overlies upwardly extending projection **219** on the cam follower **95**.

The other arm of the bell crank has an outwardly bent ear **221** through which the other end of the core wire **199** of the Bowden cable extends and a collar **223** is fastened to the projecting end of the wire.

A helical compression spring **225** surrounds the core

wire 199 on the opposite side of the ear from the collar and bears at one end on the ear and at the other end on a washer 228 which rests against the end of the cable sheath. Thus the spring will continuously urge the bell crank to rotate counterclockwise thereby urging the latch arm 215 toward engagement with the projection 219 on follower 95. The rotative position of the bell crank is determined by the position of collar 223 which is dependent upon the position of the ticket chute 11. Thus if the latter and plate 13 occupy the "A" position, the collar will hold the bell crank in its clockwise position, whereas if ticket chute occupies the "B" position, the collar 223 will be moved so that the bell crank can be moved to its counterclockwise position under the action of spring 225.

However, such rotation of the bell crank may be prevented by a latch pawl 227 which is pivotally mounted on a pin 229 supported on a bracket 231. The latter is supported on the stud 213 and the stud 117 which supports the dashpot 115.

The pawl 227 has one end 233 disposed in the path of one of the clutch shafts 29 and the other end is provided with a hook 235 which is adapted to engage the lower edge of pawl arm 215 of the bell crank.

A spring 237 is fixed to bracket 231 and depends behind to hook end of pawl 227 so as to urge the hook into engagement with arm 215.

A spring 239 (FIG. 1) is connected at one end to a pin 241 extending from the control plate 49, past the edge of cam 51 and the other end of the spring is anchored on a projection on the stud 213 which supports the bell crank.

OPERATION

Without Ticket Printing

Assume that both the dispenser and ticket printer occupy their idle positions which they normally occupy at the end of a dispensing operation, with the power shut off and the previous ticket printed and removed.

In such condition, the ticket chute 11 and plate 13 will occupy the "A" position (FIG. 1) and collar 223 will hold the bell crank 211 in its clockwise position (FIG. 6), in which the arm 215 is above the level of the hook 235 of pawl 227. The shaft 29 is withdrawn into frame 5 as indicated in FIGURE 6, so that spring 237 holds the pawl 227 with its hook 235 projecting beneath arm 215. The arm is, however, raised slightly above the hook so that it does not rest thereon.

The cam 51, cam follower 95, control crank 82 and cam 84 will be positioned as shown in FIGURE 1. The switch 88 will be in the open or "off" condition so that the motor pump (not shown) will be idle. It must be remembered however, that the arm 215 is not in the position shown in figure but is lifted out of blocking position relative to follower 95 as shown in FIGURE 6.

In this condition it will be seen that the crank 82 can be operated to rotate cam 51 from the initial position to the limit of the lost motion 101—103. This rotates cam follower 95 which trips dog 63 and frees the resetting disc 47. The spring 71 then rotates this disc to reset the gallons and cost registers to zero. Upon completion of resetting, cam 91 unlatches pawl 79 so that the lever 82 can be rotated clockwise to its fullest extent which is its second position. During this operation cam 84 closes and holds closed the motor switch 88.

The first part of the rotation of shaft 45 (FIGURE 5) after resetting is completed operates cam 131 and the associated parts to move the shaft 29, at the upper left of this view, inwardly, away from the observer. This shaft, as viewed in FIGURES 1, 4, 6 and 7 moves outwardly against the upper end 233 of pawl 227 and withdraws the hook 235 of the pawl from underneath the arm 215.

This action produces no result, under the conditions assumed, because the arm 215 is held in its uppermost position by the collar 223 of the "Bowden" cable.

Accordingly, the delivery may be made and at the completion thereof, the handle 82 will be rotated counterclockwise to its initial position. This causes cam 84 to release switch 88, which opens the control plate 49 and dog 63 restore the resetting plate 47 and the parts associated therewith to their initial positions and the movement of the plate 47 cocks the reset spring 71. The shaft 45 also actuates cam 131 which restores the clutch shafts to their initial positions.

It will be obvious that so long as the latch pawl arm 215 of the bell crank is retained in its FIGURE 6 position, the dispenser may be operated through any number of dispensing cycles at will.

With Ticket Printing

When it is desired to record any dispensing transaction on a ticket, the ticket will be inserted in ticket chute 11 and crank 7 will be operated for one revolution. As described in the McMullen patent, the mechanism operated by the crank locks the ticket in the chute, moves the chute to the "B" position (FIGURE 1) and takes an impression of the type wheels.

As the ticket chute shifts to the "B" position, the core wire 199 of the "Bowden" cable is moved and moves the collar 223 to the dashed line position (FIG. 6). The spring 225 rotates the bell crank counterclockwise until the arm 215 rests on the hook 235 of pawl 227 but the tooth 217 is still held in a position in which it is unable to engage projection 219 of follower 95. Consequently the handle 82 (FIG. 4) is free to turn clockwise from its initial position to reset the registers, and thereafter to effect the shifting of cam 131 and to close the switch so that a delivery can be made.

When the cam 131 is operated as described above, shaft 29 is projected into engagement with the end 233 of pawl 227 and the latter is actuated thereby to withdraw the hook 235 from arm 215. The bell crank is then rotated counterclockwise (FIG. 7) by spring 225 until it is stopped in its effective position by contact of ear 221 with the collar 223. The arm 215 is thus effectively positioned in the path of cam follower projection 219.

Thereafter, when the handle 82 is rotated counterclockwise (FIG. 4) to its initial position to terminate dispensing, the projection 219 of the cam follower 95, which is rotated counterclockwise by spring 99, will engage and wipe along the bottom edge of the arm 215, rotating it clockwise against the action of spring 225 and, after the projection passes the tooth 217, the arm 215 will rotate oppositely to position the tooth in the path of the cam follower as shown in FIGURE 1 to effectively prevent clockwise rotation thereof.

It should be noted that upon the counterclockwise rotation of handle 82, shaft 29 is withdrawn from contact with the end of pawl 227 and the latter is rotated counterclockwise by spring 237 (FIG. 7) until the end of its hook 235 rests against the side of arm 215. However, this arm is not rotated clockwise by projection 219, when the latter returns to its initial position, sufficiently to allow the hook to enter beneath the lever.

Accordingly, no further dispensing operation can be carried out until the arm 215 has been rotated to clear the tooth from the path of the projection because rotation of cam 51 is blocked by follower 95 which is latched against clockwise rotation.

Movement of arm 215 from its effective position can be accomplished only by rotating the crank 7 of the ticket printer another revolution which, as described in the McMullen patent, causes the ticket chute to move from its "B" to its "A" position (FIG. 1), to take another impression from the gallonage type wheels and to unlock the ticket so that it may be taken out of the chute.

The described movement of the chute to the "A" position pulls on the "Bowden" cable wire 199 so that collar 223 engages ear 221 of the bell crank lever 211 and thereafter rotates this lever, clockwise out of its effective

position, against the action of spring 225. Such action raises arm 215 above the level of hook 235 which is then moved to latching position under the arm by spring 237.

Thus whenever a ticket has been inserted in the printer and the initial impression of the type wheels has been taken, the dispenser can be operated to perform only one dispensing operation. It cannot perform a second delivery until the ticket has been imprinted a second time to record the gallons reading of the type wheels at the end of the delivery.

While the printer disclosed by the McMullen patent contemplates printing the amount of the prior delivery first and the amount of the last deliver second so that the gallons dispensed can be ascertained by subtraction, later versions of this machine include a resetting mechanism which is operable during the first rotation of the crank 7, prior to taking the first impression, for zeroizing the type wheels. In both cases the two printing operations and the two ticket chute shifts are performed and whether the type wheels are zeroized or not is immaterial to the present invention.

It is obvious that various changes may be made in the form, structure and arrangement of parts of the specific embodiments of the invention disclosed herein for purposes of illustration, without departing from the spirit of the invention. Accordingly, applicants do not desire to be limited to such specific embodiments but desire protection falling fairly within the scope of the appended claims.

We claim:

1. A liquid dispenser comprising a ticket printer including manually operable first means having an initial condition, said manually operable first means being operable through a printing cycle to a second condition and being subsequently operable through another printing cycle to its initial condition, manually actuable second means, movable from an initial position in which it prevents dispensing to a second position in which it permits dispensing and back to said initial position, latching means having an effective position in which it coacts with said second means, in the initial position thereof, to prevent movement of said second means toward said second position, means responsive to said first means, in the initial condition thereof, for holding said latching means out of effective position, means responsive to the operation of said first means to its second condition and responsive to the actuation of said second means toward said second position, for moving said latching means to its effective position, said latching means coacting with said second means, after the return thereof to its initial position, for preventing a subsequent actuation of said second means toward its second position.

2. The structure defined by claim 1 which includes means responsive to the operation of said first means to its initial condition for withdrawing said latching means from its effective position.

3. The structure defined by claim 1 which includes means for urging said latching means toward its effective position, wherein said latching means, in its effective position is disposed by said urging means, in the path of said second means and wherein said second means includes an element disposed to displace said latching means from its effective means against the action of said urging means, during the return of said second means to its initial position, said urging means serving to restore latching means to its effective position when said second means reaches said initial position.

4. The structure defined by claim 1 which includes a resettable visual register, means for simultaneously advancing the count on said register and printer in accordance with the amount of liquid dispensed and means operable by said second means upon movement thereof toward its second position for resetting said register.

5. The structure defined by claim 1 which includes a second latch disposed to prevent said latching means from occupying its effective position after said first means is operated to its second condition, and means operable by said second means, during the movement of said second means beyond the point of its travel toward its second position at which resetting is completed, for disabling said second latch.

6. The structure defined by claim 5 wherein said latching means, in its effective position is disposed by said urging means, in the path of said second means and wherein said second means includes an element disposed to displace said latching means from its effective means against the action of said urging means during the return of said second means to its initial position, said urging means serving to restore latching means to its effective position when said second means reaches said initial position.

7. A liquid dispenser comprising a ticket printer including a movable ticket holder having a normal and a displaced position, manually operable first means for operating said printer in a printing cycle and for moving said holder to its displaced position and for subsequently again operating said ticket printer in a printing cycle and for moving said holder back to its normal position, manually operable second means, movable from an initial position in which it prevents dispensing to a second position in which it permits dispensing and back to said initial position, latching means having an effective position in which it coacts with said second means, in the initial position thereof, to prevent movement of said second means toward said second position, means for urging said latching means toward its effective position, means operable by said holder when it is moved to its normal position, for moving and holding said latching means out of its effective position, said last named means being rendered ineffective by said holder when it is moved to its displaced position, additional means for holding said latching means out of its effective position after movement of said holder to its displaced position and means responsive to the movement of said second means from its initial position toward its second position for disabling said additional holding means, to permit movement of said latching means to its effective position by said urging means.

8. The structure defined by claim 7 which includes means responsive to the operation of said first means to its initial condition for withdrawing said latching means from its effective position.

9. The structure defined by claim 7 which includes a resettable visual register, means for simultaneously advancing the count on said register and printer in accordance with the amount of liquid dispensed and means operable by said second means upon movement thereof toward its second position, for resetting said register.

10. A liquid dispenser comprising a ticket printer including a movable ticket holder having a normal and a displaced position, manually operable first means for operating said printer in a printing cycle and for moving said holder to its displaced position and for subsequently again operating said ticket printer in a printing cycle and for moving said holder back to its normal position, manually operable second means, movable from an initial position in which it prevents dispensing to a second position in which it permits dispensing and back to said initial position, latching means having an effective position in which it coacts with said second means, in the initial position thereof, to prevent subsequent movement of said second means toward said second position, means for urging said latching means toward its effective position, means operable by said holder, when it moves to its normal position, for moving and holding said latching means out of its effective position, said last named means being rendered ineffective by said holder when it moves to its displaced position, additional means for holding said latching means out of its effective position after movement of said holder to its displaced position and means responsive to the movement of said second means from its initial

position toward its second position for disabling said additional holding means to permit movement of said latching means to its effective position by said urging means, said responsive means serving to condition said additional holding means for movement to its effective position upon movement of said second means to its initial position.

11. The structure defined by claim 7 wherein said additional holding means comprises a pawl, yieldable means for urging said pawl into the path of said latching means, said latching means and pawl being relatively disposed so that said latching means, in its effective position, holds said pawl out of said path.

12. A liquid dispenser comprising a ticket printer including a movable ticket holder having a normal and a displaced position, manually operable first means for operating said printer in a printing cycle and for moving said holder to its displaced position, and for subsequently again operating said ticket printer in a printing cycle and for moving said holder back to its normal position, manually operable second means, including a lever, movable between an initial, dispensing preventing position to a second, dispensing permitting position, a latching arm, means mounting said arm for pivotal movement between an idle and an effective position, in which it coacts with said lever to prevent movement thereof from said initial position, first yieldable means for urging said arm toward its effective position, a pawl mounted for movement into the path of said arm when said arm is in its idle position, second yieldable means for urging said pawl into said path, means for holding said pawl out of said path when said arm occupies its effective position, means connecting said holder to move said arm to its idle position when said holder moves to its normal position, to enable said pawl to enter said path, said connecting means serving to free said arm for movement to its effective position when said holder moves to its displaced position, said first yieldable means serving thereupon to move said arm into engagement with said pawl, and means actuable in response to the movement of said second means toward its second position, for withdrawing the pawl from said path to free said arm for movement to its effective position.

13. The structure defined by claim 12 which includes a resettable visual register, means for simultaneously advancing the count on said register and printer in accordance with the amount of liquid dispensed and means operable by said second means upon movement thereof toward its second position for resetting said register.

14. The structure defined by claim 13 wherein said second means includes means for first actuating said resetting means and means for thereafter actuating said pawl withdrawing means.

15. The structure defined by claim 12 which includes a dispensing control switch, and means operable by said second means for closing and opening said switch as said second means moves toward its second and initial positions respectively.

16. The structure defined by claim 14 which includes a dispensing control switch, means operable by said second means to close said switch subsequent to actuation at said resetting means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,354,249	Eickmeyer et al.	July 25, 1944
2,554,296	Crews	May 22, 1951