Jan. 10, 1939. C. S. HAZARD 2,143,516

CONTROL DEVICE

Filed Feb. 25, 1936 3 Sheets-Sheet 1

Fig. 1

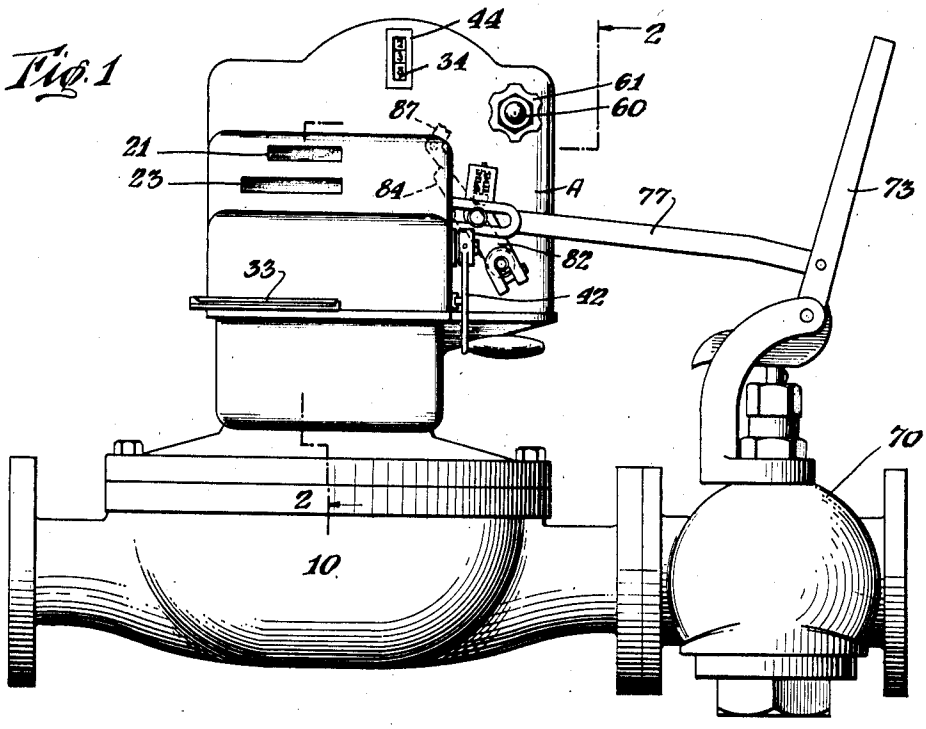
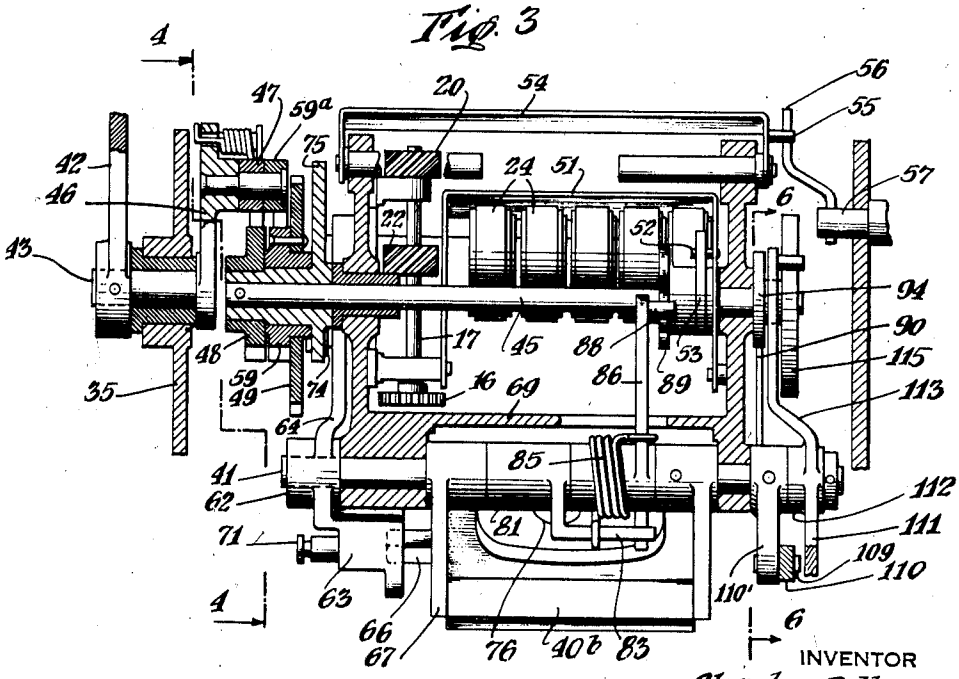


Fig. 3



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Jan. 10, 1939. C. S. HAZARD 2,143,516

CONTROL DEVICE

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Fig. 5

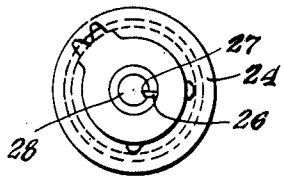


Fig. 2

Fig. 4

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CONTROL DEVICE

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Fig. 6

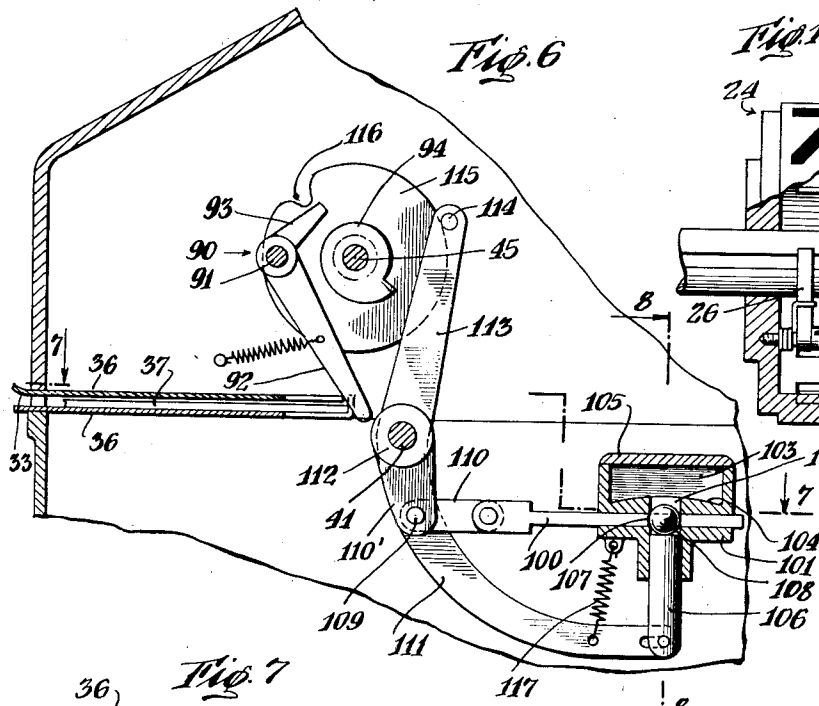


Fig. 10

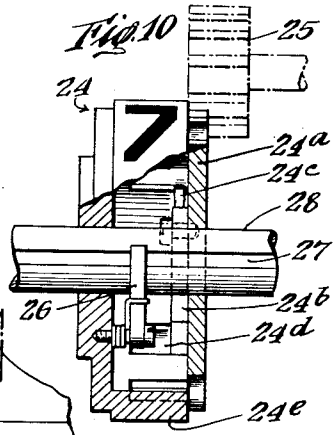


Fig. 8

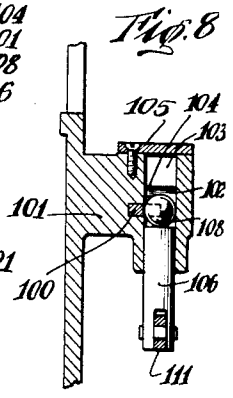


Fig. 7

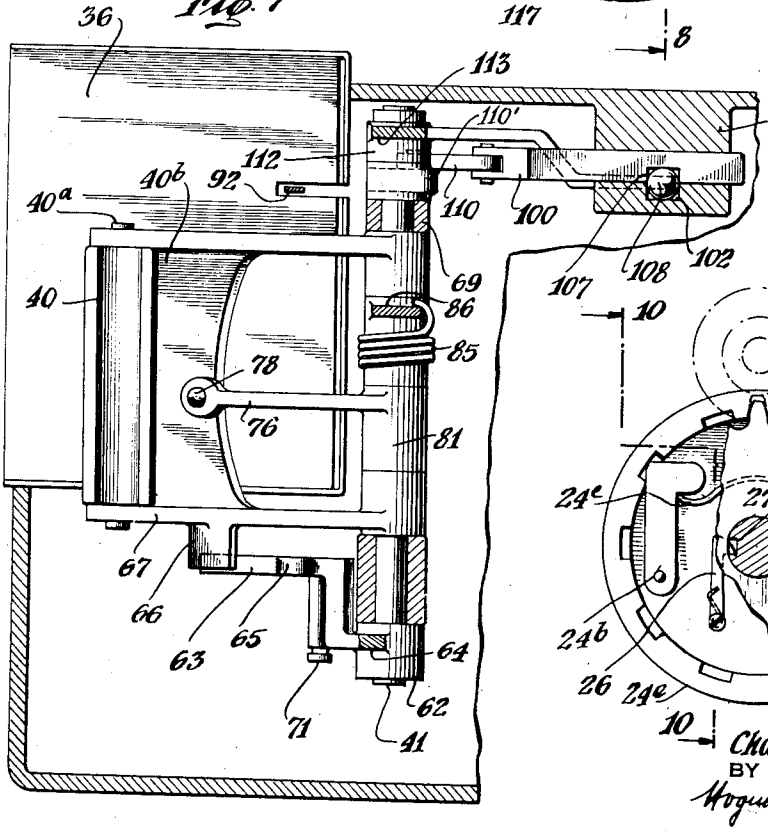
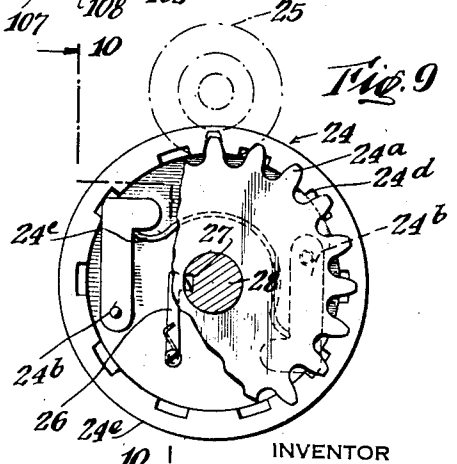


Fig. 9



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Patented Jan. 10, 1939

2,143,516

UNITED STATES PATENT OFFICE

2,143,516

CONTROL DEVICE

Charles S. Hazard, New York, N. Y., assignor to Neptune Meter Company, a corporation of New Jersey

Application February 25, 1936, Serial No. 65,552

20 Claims. (Cl. 234—2)

This invention relates to a control device, and more particularly relates to a control device adapted, when subjected to the motions incident to transportation, as when present on a moving truck or the like, or to other disturbance as a whole, to automatically assume control of the movement of a member subject to control by the device; and to a control device which is especially well suited for association with a delivery recorder on a fuel-oil or gasoline truck to control the movement of one or more of the parts of the delivery recorder in such a way as to guard against illegitimate deliveries from the truck and against false or misleading recording, registering, printing, or the like.

Another object of this invention is to provide a delivery recorder, including the improved control device referred to; and a further object of this invention is to provide a delivery recorder such as is disclosed in the pending application so entitled and filed jointly by myself and William L. Marden, August 15, 1934, Serial No. 739,876, with a control device of the character referred to, as supplemental protective means; and another object is to so incorporate said control device into said delivery recorder construction as to prevent printing of any ticket in the event some delivery has been made and the ticket then present has not been printed prior to the travel of the truck to another location.

Another object of this invention is to provide a control device of the character described, and one which is simple in construction, comprises few and small parts, may be associated in or with delivery recording, or other mechanisms quite readily, and one which is efficient and positive in operation.

Other objects of this invention will be in part obvious and in part pointed out hereinafter.

In accordance with this invention the control device includes a latch adapted to so engage a movable control member as to prevent movement thereof, the latch being normally disengaged from said control member so as not to interfere with movement thereof, and is so carried that the motion incident to the travel of the truck carrying the device, or incident to other motion of the device as a whole, as may be intended, causes the latch to engage and lock the control member against movement; the control member being adapted to have a controlling connection with a part or parts of the mechanism to be controlled, such as the printing hammers of a delivery recorder, to prevent their normal operation or functioning; replacing means also being provided for moving and placing the latch out of locking engagement with the control member, said replacing means preferably being synchronously associated and operated with the other parts of the delivery recorder, or other mechanism with or in which the control device is associated, and not operable otherwise, so as to insure the proper maintenance of its protective effect.

In order that a clearer understanding of this invention may be had, attention is hereby directed to the accompanying drawings, forming a part of this application, and illustrating certain possible embodiments of this invention, and in which:

Fig. 1 is a front elevational view of a fluid meter provided with a delivery recorder in which the control device embodying this invention is incorporated;

Fig. 2 is a vertical sectional view along the line 2—2 of Fig. 1 illustrating details of the construction;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2;

Fig. 4 is a part sectional and a part elevational view on the line 4—4 of Fig. 3, certain parts being shown broken away;

Fig. 5 is a detail view showing a numeral wheel and resetting mechanism therefor;

Fig. 6 is a vertical sectional view showing the control device embodying this invention and adjacent parts and is taken on the line 6—6 of Fig. 3, certain parts being shown broken away;

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6;

Fig. 8 is a sectional view of a detail and is taken on the line 8—8 of Fig. 6;

Fig. 9 is a detail view, partly broken away, of a numeral wheel and resetting mechanism therefor; and

Fig. 10 is a sectional view thereof and is taken on the line 10—10 of Fig. 9.

Similar reference characters refer to similar parts throughout the several views of the drawings.

For the purpose of illustration, the embodiment of a control device embodying this invention is shown herein incorporated in a delivery recorder substantially the same as that illustrated and described in said prior application Serial No. 739,876. In said prior application the delivery recorder is as follows:

Referring to Figs. 1 and 2, the numeral 10 designates a meter having a shaft 11 operated in response to the flow of fluid for actuating the

delivery registering and recording device and the cut-off device associated therewith. The meter shaft 11 drives a stub shaft 12 through the intermediary of adjustable compensating mechanism 13 and speed reduction gearing 14.

The compensating mechanism 13 is adapted to calibrate the registering and recording devices to coordinate them with the particular measuring unit with which they are associated in order to accurately register and record the quantities of liquid flowing through the meter. This mechanism is also adapted to enable adjustments to be made to insure accurate registration when measuring the flow of fluids of different viscosity or to enable correction for changes in the viscosity and/or temperature of the particular fluid being measured. Compensating mechanism of the type shown in the drawings is more fully disclosed in the copending application of W. L. Marden, Serial No. 671,608, filed May 18, 1933. The speed reduction gearing 14 is provided for reducing the relatively high operating speed of the measuring unit to a rate suitable for operating registering, recording and cut-off mechanisms, the gears 14a thereof being removable, if desired, to substitute other gears for effecting a further compensation.

Stub shaft 12, driven in accordance with the flow of liquid through the meter as described above, is provided with a pinion 15 engaging a pinion 16 on a power take-off shaft 17 and operates through idler gears 16a to also drive a power take-off shaft 18. Power take-off shaft 18 actuates cut-off mechanism A, such as that disclosed in the copending application of Charles S. Hazard, Serial No. 729,852, filed June 8, 1934. The cut-off mechanism A is adapted to maintain an automatically closing valve 70 (Fig. 1) open until delivery of a predetermined quantity of fluid for which the dials 34, 44 thereof are adjusted by setting knobs 60, 61, whereupon the cut-off mechanism trips a detent 87 engaging a locking arm 84 connected by a linkage 82, 77 to the valve operating lever 73 for releasing the latter to permit valve 70 to close and shut off delivery of fluid through the meter 10, all as more fully described in said application.

As shown in Fig. 2, power take-off shaft 17 is provided with a worm 20 for operating a registering device 21 to indicate the total quantity of fluid passing through the meter. A spiral gear 22 on shaft 17 operates a delivery register 23 the numeral wheels 24 of which are interconnected by transfer pinions 25. Numeral wheels 24 are provided with pawls 26 (Figs. 5, 9 and 10) engageable with a spline 27 on the shaft 28 on which they are mounted for resetting all the numeral wheels to zero when shaft 28 is turned in the same direction as the numeral wheels are advanced by the shaft 17. As shown in Figs. 9 and 10, each numeral wheel unit 24 includes a gear 24a pivotally carrying opposite pawls 24b biased by a spring 24c into engagement with spaced notches in the interior surface of the numeral drum 24e. When gear 24a is rotated by transfer pinion 25 in a clockwise direction as seen in Fig. 9, the pawls 24b act to advance the numeral drum 24e in the same direction. Upon actuation of the resetting shaft 28 in a clockwise direction as seen in Fig. 9, the spline 27 picks up the pawl 26 on the numeral drum 24e and carries the latter to zero position. However, inasmuch as the notches 24d in drum 24e slip beneath the pawls 24b on the gear 24a during resetting, the latter may remain engaged with the transfer pinion 25. The registers 21 and 23 as well as the resetting device for the latter do not per se form any part of the present invention and it should be understood that other registering and reset devices that are of suitable construction may be substituted if desired.

The recording device comprises a series of printing wheels 31 connected to the corresponding numeral wheels 24 through idler gears 32 so that the printing wheels also are operated by shaft 17 and reset on actuation of shaft 28, in unison with the numeral wheels. Below the printing wheels and adjacent a slot 33 in the casing 35 that encloses the registers and recorder are a pair of plates 36 for supporting a ticket 37 on which an impression is made from the printing wheels through apertures 38 in plates 36 by means of an oscillatable printing platen. The platen comprises a series of printing hammers 40 loosely mounted on through rods 40a carried by a frame 40b which in turn is mounted on and rotates with a shaft 41. There is an individual hammer 40 opposite each printing wheel. An inking device for the printing wheels is indicated at 39. It will be understood, however, that the inking device may be dispensed with provided the ticket is associated with a sheet of carbon paper in known ways.

Referring also to Figs. 1 and 3, a depressible operating lever 42 having a determined cycle of operation for controlling the operation of the printing hammers 40 and other devices associated therewith is fixed to a stub shaft 43 extending through the wall of casing 35 in alignment with a cam shaft 45 disposed parallel to shaft 41. Stub shaft 43 has secured thereto an arm 46 carrying a pawl 47 engaging with a three-tooth ratchet 48 fixed to cam shaft 45 and adapted to turn the cam shaft one-third of a revolution each time lever 42 is depressed.

A gear 49 loosely mounted on cam shaft 45 meshes with a gear 50 fixed to resetting shaft 28 for operating the latter. Gear 49 has fixed thereto a ratchet 59 engaged by a second pawl 59a carried by arm 46. Pawl 59a is provided with a stud 59b resting on pawl 47. One of the notches of ratchet 48, as 48a, is of less depth than the other two. Therefore, during one-third of a revolution of cam shaft 49 as effected by lever 42, the pawl 47 acts to hold pawl 59a away from ratchet 59 so that gear 49 is not driven with cam shaft 45. Thus in proceeding through a cycle of operations and beginning after a printing operation has been completed, as will be usual at each delivery station, the operating lever 42 is depressed twice to turn cam shaft 45 through two-thirds of a revolution, whereby the resetting shaft 28 is turned through two complete revolutions, thus insuring complete resetting of the delivery register wheels 24 and printing wheels 31 to their zero positions. Thereafter when lever 42 is depressed a third time, cam shaft 45 is rotated through the final third of its revolution to actuate the printing mechanism, whereas the resetting shaft 28 remains at rest due to raising of pawl 59a, in which position it may be held by suitable means not shown.

A shutter 51 (Figs. 2 and 3) is pivotally mounted to be interposed between the numeral wheels 24 and the related sight opening in casing 35. Shutter 51 is provided with a stud 52 engaging a cam 53 fixed to cam shaft 45 and operable thereby to conceal the numeral wheels of register 23 during resetting thereof. A similar pivoted shutter 54 is normally interposed between

totalizer 21 and its sight opening, the shutter having a stud 55 engageable by the arm 56 operable by the cylinder of a key-controlled lock 57 when it is desired to read the totalizer.

Extending in offset relation from the hub 62 of a bell-crank journalled on shaft 41 are the two arms 63, 64 thereof. A lug 66 on one side member 67 of the printing hammer frame 40b overlies the end portion of bell-crank arm 63. Arm 63 on counter-clockwise movement permits the frame 40b to gravitate to a retracted position and on clockwise movement its end portion acts on lug 66 to move the printing hammer frame and cause the hammers 40 to strike the back of the ticket 37 interposed between the hammers and the printing wheels thereby pressing the ticket against the printing wheels to make a record on the ticket. The clockwise movement of arm 63 is effected by a spring 68 (Fig. 4) connected between a stud 71 thereon and an anchor post 72. Spring 68 also acts to maintain a roller 74 carried by the other arm 64 of the bell-crank in contact with a cam 75 fixed to cam shaft 45. During slightly more than two-thirds of a revolution of cam shaft 45, cam 75 acts through the bell-crank to cause retraction of the printing hammer frame and the hammers 40 and tensions the spring 68. In the final third of a revolution of cam shaft 45 the roller 74 rides off the high point of cam 75, and spring 68 then acts to pull the frame 40b clockwise causing the hammers 40 to strike the back of the ticket 37 and press it against the printing wheels 31 for making a record on the ticket. A lug 65 is provided on the arm 63 and strikes the frame 69 before the hammer 40 strikes the back of the ticket. The hammers travel the remaining distance by their own momentum, strike the ticket and then drop back by their own weight.

A lever 76 rotatably mounted on shaft 41 is provided with a pin 78 (Fig. 2) adapted to be projected through openings 80 in plates 36 and through a specially provided hole in the ticket 37 interposed between these plates for locking the ticket against withdrawal until completion of the delivery and recording operation. If desired, pin 78 may be sharpened at its end to penetrate and lock a ticket that is not specially perforated. The hub 81 of lever 76 has a lateral projection 83 (Fig. 3) to which one end of a coiled spring 85 is connected. The other end of spring 85 engages a lever 86 also rotatably mounted on shaft 41 so that the spring provides a resilient connection between levers 76 and 86, the body of the spring being mounted on the hub of lever 86. Lever 86 carries a roller 88 engaging a cam 89 on cam shaft 45, the cam being so proportioned and disposed that when shaft 45 is turned by operating lever 42 to reset the numeral and printing wheels the cam acts through levers 86, 76 to position pin 78 to lock the ticket 37 in place and prevent its withdrawal until a record has been made at the end of the delivery operation.

A spring 42a connected between arm 46 and anchor post 72 is provided for acting on operating lever 42 to aid in the movement of the latter downwardly and to assist the operator in effecting a complete stroke of the lever when it is actuated for resetting the registering and printing wheels or for effecting printing.

There is contemplated the use of a rigid or semi-rigid ticket consisting of several sheets of thin paper and a stiffer backing, such as cardboard, with sheets of carbon paper arranged to cause printing on the intermediate sheets and the backing. A lever 90 pivoted at 91 has one arm 92 (Fig. 6) thereof positioned to be engaged by the ticket 37 when the latter is inserted in slot 33 and positioned between plates 36 with its printing line in registration with the printing wheels. The other arm 93 of lever 90 is positioned in the path of movement of a cam 94 on cam shaft 45. Arm 93 thus acts to prevent revolution of shaft 45 by actuation of operating lever 42 to reset the register 23 and recorder 31 or to print, until the arm 93 is withdrawn upon actuation of lever 90 by a ticket properly positioned in slot 33.

Inasmuch as the functions of the various parts have been set forth in the above description, it is believed that a résumé will suffice to give a complete understanding of the operation. On arrival to make a delivery the register 23 shows a reading corresponding to the last previous delivery and the printing wheels 31 are positioned correspondingly. When the sales ticket 37 is placed in slot 33 it engages lever 90 and rocks the end 93 thereof out of the path of cam 94, unlocking shaft 45 to permit its operation by operating lever 42. When lever 42 is depressed the registering and recording devices are reset in unison; the customer may see that the reading of register 23 is zero by inspecting the latter. In the construction illustrated, the lever 42 is depressed twice and the shaft 28 rotated through two complete revolutions to insure resetting of all of the numeral wheels to zero, one complete rotation of shaft 28 being sufficient to normally reset the numeral wheels to zero. The cam shaft 45 is thus rotated through two-thirds of a complete revolution by the two operations of lever 42. During the resetting operation shutter 51 was interposed by cam 53 between the register and its sight opening, thus concealing the numerals so that the truck attendant could not select a fraudulent reading from which to start delivery in the event the customer was not watching the operation. During the resetting operation the cam 89 acted to position pin 78 for locking the ticket in place and cam 75 retracted the printing hammer frame 40b and conditioned it for the printing operation.

The indicating dials 34, 44 of the cut-off mechanism A are adjusted by knobs 60, 61 to a figure corresponding to the volume of fluid to be delivered, thus conditioning the cut-off mechanism A to cause automatic closing of valve 70 when the exact required quantity has been delivered, as described in the above mentioned Hazard application. Delivery of fluid is started and upon its termination operating lever 42 is again depressed. The pawl 47 engages the shallow notch 48a during this movement of the lever 42, so that pawl 59a does not engage the ratchet 59 and the resetting shaft 28 is not rotated. However, cam shaft 45 is rotated by pawl 47, moving the shaft through the final third of its revolution and actuating cam 75 to cause printing of the delivery figure on all of the copies of ticket 37, and retraction of pin 78 to permit withdrawal of the ticket. The customer may then again inspect the reading of register 23, which retains the delivery figure, and compare it with the figure printed on the copy of the sales ticket which he receives. In this way he may assure himself that the device is in working order and that he has received the quantity of fuel-oil or gasoline which he ordered. In the event the customer's tank will not receive the entire quantity ordered,

delivery may be stopped as soon as the tank is filled and the register 23 and sales ticket 37 will both indicate the actual delivery.

It should be noted that until the sales ticket is positioned in registration with the printing wheels the latter and the register 23 can not be reset. Thus, the ticket itself acts as a control element for releasing the lever 90 which locks shaft 45 and, through the latter, operating lever 42.

The sequential operation of the various parts affords further protection against fraud. The ticket must be inserted to unlock the device by actuating the lever 90; operating lever 42 is then depressed to reset the register 23 and printing wheels 31 and to also lock the ticket in place. An actual delivery must then be made, for to operate lever 42 again before delivery of fluid would result in printing a series of zeros. After delivery is made lever 42 must again be depressed to print on the ticket and to release the latter. A second printing cannot be effected without resetting the register, etc., since depression of lever 42 after printing has once taken place results in immediately resetting the register and printing wheels. As a consequence it is impossible to use a prior delivery reading of the register and printing wheels to defraud a customer.

It should also be noted that as soon as the resetting operation is initiated the ticket is locked in place by pin 78. As a result, withdrawal of the ticket is prevented so that the attendant may not substitute others in an attempt to produce fraudulent sales tickets.

So far the detailed description has been confined to mechanism specifically illustrated and disclosed in said prior application, Serial No. 739,876.

The delivery recorder, however, includes, in addition, supplemental protective means associated with the mechanism and parts previously referred to. As shown, these means serve to prevent the printing of a ticket when, after a delivery, the ticket then present has not been printed prior to movement of the truck to another location. Thus when an attempt is made to divert a quantity of oil from a customer by making an authorized delivery of a part of the order at one location and then without printing or removing the ticket, driving to the authorized location and delivering the short balance of the amount of the order, it is impossible to print a ticket showing any record other than zero; and thus the customer and the driver's employers are advised of the fraud. To this end the supplemental protective means may comprise a device which controls and prevents printing operation of the printing hammers or platen under certain conditions such, for instance, as under the condition stated.

As shown, the control device includes a control member 100 consisting of a bar mounted to reciprocate in a slot provided therefor in a bracket or a boss 101 formed on or secured to the meter casing 10. Boss 101 has also a vertical aperture 102 intersecting the slot in which the bar 100 is mounted. The upper end of aperture 102 opens into a chamber 103 in boss 101 approximately of the same width as the diameter of aperture 102 and having bottom surfaces 104 inclining downwardly away from opposite sides of the aperture. A suitable cover plate 105 is applied to boss 101 to cover this compartment. A plunger 106 extends into aperture 102 from below, and bar 100 has a notch 107 adapted to align with aperture 102 to allow the upper end of plunger 106 to pass upwardly therethrough. A latch consisting of a free ball 108 is normally located in chamber 103, and due to the inclining bottom surfaces 104 rests at either end of the chamber. The motion of the truck when traveling, however, causes this ball to move about in chamber 103 and to fall into aperture 102 and in which it is adapted to come to rest either upon the upper surface of bar 100 when aperture 102 and notch 107 are out of alignment or upon the top of plunger 106 when the aperture 102 and notch 107 are in alignment, the latter position of the ball operating to latch the bar 100 against movement relatively to the boss 101 and aperture 102. The notch 107 is slightly larger than aperture 102 so that a small movement of bar 100 by means of roller 74 engaging the high portion on cam 75 prior to actuation of plunger 106 relieves the latching tension on the ball 108, thereby permitting easy dislodgement thereof by the plunger 106. When the printing register is reset and the printing hammer has completed a printing operation, the shaft 41 is rotated clockwise from the position shown in Fig. 6, displacing arm 110' and bar 100 to the left clearing aperture 102. Bodily movement of the register will then cause ball 108 to fall into aperture 102 and abut the end of bar 100.

Bar 100 is joined to a link 110 which is connected, as at 109, to an arm 110' pinned or otherwise affixed to shaft 41 for rotation therewith, so that when bar 100 is locked by ball 108 against movement, shaft 41 is held against rotation and the printing hammer frame or platen 40*b*, which is also rotatable with shaft 41, is prevented from undergoing printing movement.

Plunger 106 is pivotally supported by the slotted end of an arm 111 which is rotatably pivoted intermediate its ends, as at 112, on shaft 41, and has an opposite arm 113 provided at its end with a roller 114, or other rider, engaging the periphery of a circular cam 115 having a notch 116 and mounted on shaft 45 for rotation therewith. Spring 117 extended between arm 111 and boss 101 tends to move plunger 106 upwardly and presses roller 114 against cam 115.

Cam 115 is so coordinated and synchronized with the other parts and mechanism of the delivery recorder that the rider 114 will enter notch 116 and quickly emerge therefrom, whereupon spring 117 will give the plunger 106 an upward stroke and cam 115 will quickly lower the plunger again, each time the shaft 45 has made a complete revolution and at a suitable point in that two-thirds of the rotation of shaft 45 which takes place when the registering mechanism and the recording printing wheels are being reset to zero, and a ticket is locked in slot 33 in position to be printed.

The operation of the control mechanism described is as follows:

Upon the completion of a delivery operation at one station, the mechanism is actuated by depressing the operating handle 42 to cause the printing platen 40 to be actuated to print a ticket within the slot 33. During the upward movement of the printing platen, the shaft 41 and the arm 110' are rotated clockwise from the position shown in Figure 6, moving the bar 100 to the left and notch 107 out of alignment with aperture 102. Thereafter, if the truck is moved, the latch ball 108 will roll off the surface 104 and enter the aperture 102 and there rest upon the upper surface of the bar 100, permitting bar

100 to move until notch 107 comes into alignment with aperture 102.

This realignment of notch 107 and aperture 102 is brought about by rotation of cam 75 during the resetting operation. The shape of cam 75 is such that the roller 74 will reach substantially its extreme outward position on the high portion of the cam near the end of the first resetting stroke of lever 42, that is, at approximately the end of one third rotation of shaft 45 and cam 75 after a new ticket has been inserted in slot 33. The movement of roller 74 to its outermost position on cam 75 operates by means of bell-crank arm 64, shaft 41, arm 110' and link 110 to move bar 100 to its extreme right hand position, as viewed in Figure 6, where notch 107 is in alignment with aperture 102. As the bar 100 reaches its extreme right hand position, the ball 108, if it should be in aperture 102, will then drop into notch 107, latching bar 100 against movement relative to boss 101 and aperture 102.

The notch 116 is so located in cam 115 that at the beginning of the second resetting stroke of lever 42, which operates to rotate shaft 45 through the last half of the resetting operation, the rider 114 will move into and out of notch 116, permitting spring 117 to whip plunger 106 upwardly in aperture 102 and through notch 107, displacing ball 108, should it be in latching position, to a resting position on the inclined surface 104. The completion of the last half of the resetting movement of shaft 45 operates to insure complete resetting of the register and numeral wheels and at the same time maintains notch 107 and aperture 102 in alignment.

Upon completion of the resetting operation the mechanism, except for the ball 108, is in the position indicated in Figures 4, 6 and 8 ready to register and record a normal dispensing operation. If after dispensing a quantity of fluid lever 42 is depressed, thereby moving cam shaft 45 through one third of a rotation, roller 74 will drop suddenly into the low portion on cam 75, causing the printing platen, due to tension of spring 68, to move upwardly and perform a printing operation impressing the quantity of fluid dispensed on the ticket in slot 33. As previously described, the truck would then be moved to a new delivery station, a new ticket inserted in slot 33 and the register and numeral wheels reset to zero by means of actuating lever 42 through two resetting strokes.

If, however, fraudulent deliveries and/or false and misleading recordings were attempted, the safety features of this invention would operate to prevent the printing of any ticket with a quantity indication including any quantity fraudulently delivered from the truck. For example, if the person operating the truck should with fraudulent intentions, or otherwise, dispense a part of an order at a place other than the station for which the order was intended, by placing a ticket in the slot 33 and either completely resetting the recording mechanism or partially so, delivers part of the order and then proceeds on to the proper delivery station, ball 108 will be disturbed by motion of the truck causing it to fall into aperture 102 where it is operable to engage notch 107 and latch bar 100 against movement, as illustrated in Figures 6 to 8.

If the recording mechanism were completely reset to zero, the ball, upon falling into aperture 102 would immediately engage bar 100 in latched position so that after delivery of the short balance of the order, the printing platen would be retained in lowered position and would not stamp the ticket upon actuation of lever 42 intended for the normal printing operation. Further actuation of the lever 42 would operate to reset the register and numeral wheels and disengage the latch so that the person operating the dispensing device would be unable to produce a ticket stamped with the amount of liquid dispensed. The customer and the employer of the person operating the dispensing device would each know that the operation of the dispensing device had been misused and the person operating same would be held accountable.

If in resetting the register and numeral wheels after insertion of a ticket, lever 42 is actuated only one stroke or just an additional amount sufficient to leave rider 114 resting in notch 116 and plunger 106 in aperture 102, such position would not permit the printing of a fraudulent delivery for the reason that the second resetting stroke of lever 42 must be completed before a printing operation can be performed. The completion of the second resetting stroke would then operate to reset the register and numeral wheels thereby preventing printing of any indication of the quantity of any fraudulent delivery attempted while the resetting mechanism was in the position stated.

Thus, when a delivery is made after the truck has moved so as to cause the ball 108 to be in aperture 102, it is impossible to print a ticket for such delivery unless after the truck has come to a stop at the place where the delivery is made, the registering mechanism and the recording printing wheels have been reset to zero. In this way protection is secured against the diversion of a part of an order at one location and then without removing the ticket, driving to another location and delivering the remaining quantity of the order and stamping the ticket for either the entire quantity of the order which has been discharged from the truck, or for any part thereof.

It is understood that these protective means are supplemental to and combined with all the protective means and devices and other mechanisms embodied in the construction illustrated and disclosed in said prior application, Serial No. 739,876.

Although an illustrative embodiment of our invention has been described in detail there are many changes and variations which may be made without departing from the spirit of the invention and, therefore, I desire and intend to include all such changes and variations within the scope of the appended claims.

What I claim is:

1. A control device of the character described, including, in combination, a control element, a latch member for said element, a keeper member for said latch member, means so supporting and positioning said members as to hold them normally out of interlatching engagement, and one of said members to be free to move into interlatching engagement with the other member consequential to movement of the support for said members to hold said control element against movement, and means for moving the free member, when interlatching with the other member, out of said interlatching engagement and back to non-latching, supported position to release said control element.

2. A control device of the character described, including, in combination, a control element, a latch for said element, a keeper member for said

latch having means for latching engagement by said latch, means for normally so supporting said latch as to be out of latching engagement with said keeper member and as to be free to become displaced and to assume latching engagement with said keeper member to hold said control element against movement consequential to movement of the latch supporting means, and means for returning said latch from the position of latching engagement with the keeper member to the normal non-latching supported position to release said control element.

3. A control device of the character described, including, in combination, a housing having a compartment for a latch element and a cavity extending downwardly from said compartment, a control member having a portion thereof which is exposed in said cavity and is movable relatively thereto, and a latch element in said compartment free to move into said cavity and into latching engagement with said control member, as a result of movement of the latch compartment, to latch said control member against movement relative to said cavity.

4. A control device of the character described, including, in combination, a housing having a compartment and a cavity extending downwardly from said compartment, a control member having a portion thereof which is exposed in said cavity and is movable relatively thereto, and a latch element in said compartment free to move into said cavity and into latching engagement with said control member, as a result of movement of the latch compartment, to latch said control member against movement relative to said cavity, the bottom of said compartment sloping downwardly in opposite directions from opposite sides of said cavity.

5. A control device of the character described, including, in combination, a housing having a compartment and a cavity extending downwardly from said compartment, a control member having a portion thereof which is exposed in said cavity and is movable relatively thereto, a latch element in said compartment free to move into said cavity and into latching engagement with said control member, as a result of movement of the latch compartment, to latch said control member against movement relative to said cavity, and means for displacing said latch element from said control member and cavity and returning said latch element into said compartment.

6. A control device of the character described, including, in combination, a housing having a compartment for a latch ball and a cavity for the ball extending downwardly from said compartment, a control member having a keeper notch for said ball exposed in said cavity and movable relatively thereto, and a latch ball in said compartment free to move into said cavity and keeper notch, as a result of movement of the latch compartment, to latch the control member against movement relative to said cavity.

7. A control device of the character described, including, in combination, a housing having a compartment for a latch ball and a cavity for the ball extending downwardly from said compartment, a control member having a keeper notch for said ball exposed in said cavity and movable relatively thereto, a latch ball in said compartment free to move into said cavity and keeper notch, as a result of movement of the latch compartment, to latch the control member against movement relative to said cavity, a support member in said cavity in position to support said ball in latching position in said keeper notch, and mounted for movement upwardly through said keeper notch and cavity to return said ball into said compartment in the housing.

8. A control device of the character described, including, in combination, a housing having a compartment for a latch ball and a cavity for the ball extending downwardly from said compartment, a control member having a keeper notch for said ball exposed in said cavity and movable relatively thereto, a latch ball in said compartment free to move into said cavity and keeper notch, as a result of movement of the latch compartment, to latch the control member against movement relative to said cavity, a support member in said cavity in position to support said ball in latching position in said keeper notch, mounted for movement upwardly through said keeper notch and cavity to return said ball into said compartment in the housing, and means for reciprocating said support member in said cavity.

9. A control device of the character described, including, in combination, a housing having a compartment for a latch ball and a cavity for the ball extending downwardly from said compartment, a control member having a keeper notch for said ball exposed in said cavity and movable relatively thereto, a latch ball in said compartment free to move into said cavity and keeper notch, as a result of movement of the latch compartment, to latch the control member against movement relative to said cavity, a support member in said cavity in position to support said ball in latching position in said keeper notch, mounted for movement upwardly through said keeper notch and cavity to return said ball into said compartment in the housing, and means for reciprocating said support member in said cavity, said means including a pivoted lever connected to said support member and cam mechanism for rocking said lever.

10. The combination with mechanism having a movable element and operating means for moving said element, of a control device for said element including complementary interengageable latch members, means for supporting said latch members so that said members are normally out of latching interengagement, and free to move relatively into interlatching engagement consequential to movement of the latch supporting means to hold said movable element against movement by said operating means.

11. The combination with mechanism having a movable element and operating means for moving said element, of a control device including a latch, a movable control member for and engaged with said movable element and having means for latching engagement by said latch, and means for normally so supporting said latch as to be out of latching engagement with said control member and as to be free to move into latching engagement with the control member, as a result of movement of the latch supporting means, to latch said control member against movement, whereby said movable element is held against being moved by said operating means.

12. The combination with mechanism having a movable element and operating means for moving said element, of a control device including a latch, a movable control member for and engaged with said movable element and having means for latching engagement by said latch, means for normally so supporting said latch as to be out of latching engagement with said control member and as to be free to move into latching engage-

ment with the control member, as a result of movement of the latch supporting means, to latch said control member against movement, whereby said movable element is held against being moved by said operating means, and unlatching means, engageable with said latch when in latching engagement with the control member, for returning said latch to normal non-latching position to free the control member to move, whereby said movable element is released for movement by said operating means.

13. The combination with mechanism having a movable element and operating means for moving said element, of a control device including a latch, a movable control member for and engaged with said movable element and having means for latching engagement by said latch, means for normally so supporting said latch as to be out of latching engagement with said control member and as to be free to move into latching engagement with the control member, as a result of movement of the latch supporting means, to latch said control member against movement, whereby said movable element is held against being moved by said operating means, unlatching means, engageable with said latch when in latching engagement with the control member, for returning said latch to normal non-latching position to free the control member to move, whereby said movable element is released for movement by said operating means, and means connecting said unlatching means to said operating means for synchronous operation therewith.

14. In a delivery recorder having printing mechanism including a printing platen and operating means for effecting printing movement of the platen; a control device for said platen operating means including, in combination, a latch member, a keeper member therefor, means so supporting and positioning said latch member as to maintain said latch member out of latching engagement with said keeper member and so as to be free to move into interlocking engagement therewith in consequence of movement of the latch supporting means, and means connecting said keeper member and platen operating means together, whereby when said keeper member is latched by said latch member said platen is held against printing movement by said operating means.

15. In a delivery recorder having registering and printing mechanism, including a printing platen, resetting mechanism for zeroizing the registering mechanism, and operating means for effecting printing movement of the printing platen and for operating the resetting mechanism to zeroize the registering mechanism in predetermined sequence; a control device for said printing platen, including, a control member, a latch member therefor, means so supporting and positioning said latch member so as to be normally out of latching engagement with said control member and as to be free to move into latching engagement therewith, in consequence of movement of the latch supporting means, for latching said control member against movement, means connecting said control member to said printing platen whereby said printing platen is held against record printing movement by said operating means when the control member is latched against movement by said latch, and replacing means actuated by said operating means while said platen operating means is inactive for restoring said latch member to said non-latching and supporting position out of latching engagement with the control member.

16. In a delivery recorder having registering and printing mechanism, including a printing platen, resetting mechanism for zeroizing the registering mechanism, and operating means for effecting printing movement of the printing platen and for operating the resetting mechanism to zeroize the registering mechanism in predetermined sequence; a control device for said printing platen, including, a control member, a latch member therefor, means so supporting and positioning said latch member so as to be normally out of latching engagement with said control member and as to be free to move into latching engagement therewith, in consequence of movement of the latch supporting means, for latching said control member against movement, means connecting said control member to said printing platen whereby said printing platen is held against record printing movement by said operating means when the control member is latched against movement by said latch, replacing means for restoring said latch member to said normal position and mounting out of latching engagement with the control member, and means connecting said replacing means to said operating means to be operated thereby during operation of the resetting mechanism.

17. In a delivery recorder having registering and printing mechanism, including a printing platen, resetting mechanism for zeroizing the registering mechanism, and operating means for effecting printing movement of the printing platen and for operating the resetting mechanism to zeroize the registering mechanism in predetermined sequence; a control device for said printing platen, including, a control member, a latch member therefor, means so supporting and positioning said latch member so as to be normally out of latching engagement with said control member and as to be free to move into latching engagement therewith, in consequence of movement of the latch supporting means, for latching said control member against movement, means connecting said control member to said printing platen whereby said printing platen is held against record printing movement by said operating means when the control member is latched against movement by said latch, replacing means for restoring said latch member to said normal position and mounting out of latching engagement with the control member, and means connecting said replacing means to said operating means to be operated thereby during the latter portion of the resetting movement of the resetting mechanism by said operating means.

18. In a delivery recorder having registering and printing mechanism, including a printing platen, resetting mechanism for zeroizing the registering mechanism, and a plural stage operating means for effecting printing movement of the printing platen in one stage of operation and for insuring resetting of the register to zero by moving the resetting mechanism through two stages of operation; a control device for said printing platen including a control member, a latch member therefor, means for normally supporting said latch member out of latching engagement with said control member, said latch member being adapted to move into latching engagement with said control member in response to movement of said latch supporting means, means connecting said control member to said printing platen whereby the printing platen is held against record

printing movement by said operating means when the control member is latched against movement by said latch, and replacing means for restoring said latch member to said normally supported position out of latching engagement with the control member, and means connecting said replacing means to said operating means for actuation during the first part of the second resetting stage of operation.

19. In a recorder provided with registering and printing mechanism for use with delivery trucks and the like, including a printing platen, resetting mechanism for zeroizing the registering mechanism, and a plural stage operating means for effecting printing movement of the printing platen in one stage of operation and for insuring resetting of the register to zero by moving the resetting mechanism through a plurality of stages of operation; the combination of control means operably connected to said printing platen including means movable in response to a jarring or tilting movement of the recorder for latching said printing platen against normal printing operation should the recorder be jarred or tilted after the register has been reset to zero, and means operable during a resetting stage of operation for disengaging said latch means.

20. In a recorder for use with delivery trucks or the like, comprising a register, a printing device, resetting mechanism for said register and operating means for actuating said printing device and thereafter for actuating said resetting mechanism to reset the register to zero; the combination of control means operably connected to said printing device including means movable in response to a jarring or tilting movement of the recorder for holding said printing device against normal printing operation should the recorder be jarred or tilted after the registering has been reset and no printing operation performed, and means operable during a part of the resetting operation for disengaging said holding means.

CHARLES S. HAZARD.

CERTIFICATE OF CORRECTION.

Patent No. 2,143,516. January 10, 1939.

CHARLES S. HAZARD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 49, for the reference numeral "49" read 45; page 4, first column, line 47, for "authorized" read unauthorized; and second column, lines 21 to 28 inclusive, strike out the words and period "When the printing register is reset and the printing hammer has completed a printing operation, the shaft 41 is rotated clockwise from the position shown in Fig. 6, displacing arm 110' and bar 100 to the left clearing aperature 102. Bodily movement of the register will then cause ball 108 to fall into aperature 102 and abut the end of bar 100."; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of March, A. D. 1939.

Henry Van Arsdale.

(Seal)

Acting Commissioner of Patents.