

T. W. MALONE.
GASOLINE SUPPLY TANK ATTACHMENT.
APPLICATION FILED JUNE 30, 1916.

1,233,094.

Patented July 10, 1917.

3 SHEETS—SHEET 1.

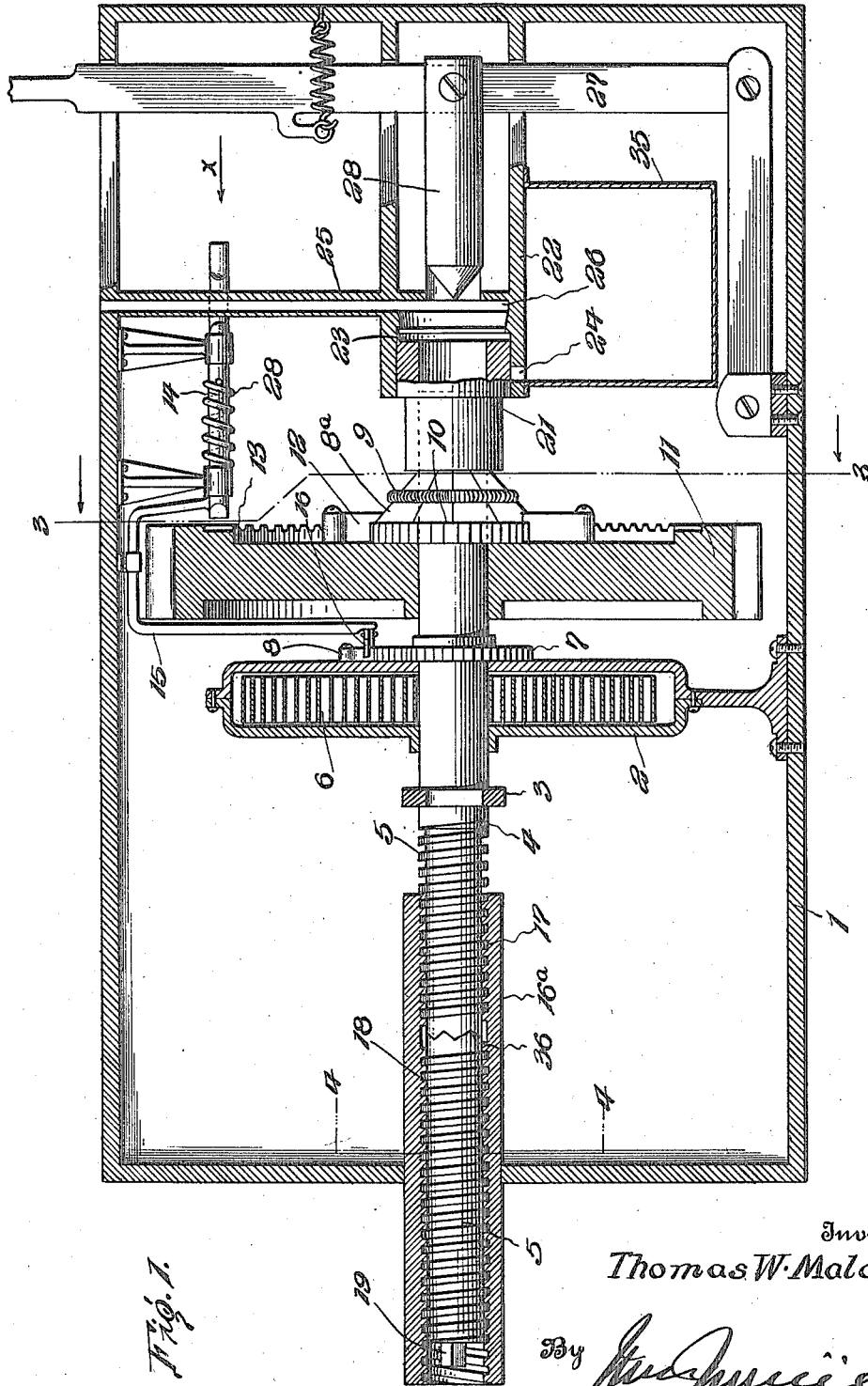


Fig. 1.

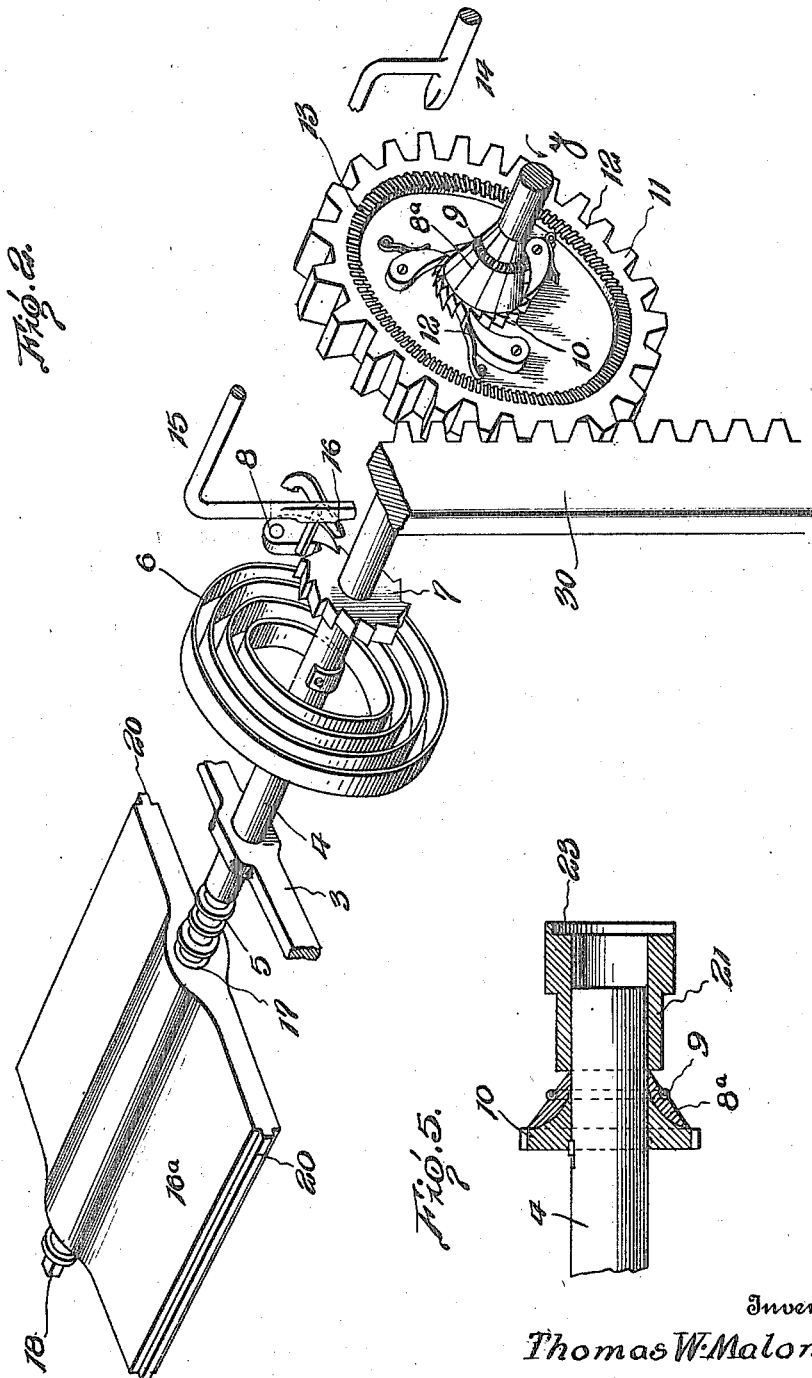
Inventor
Thomas W. Malone.

By *W. J. Sullivan*
Attorney

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3 SHEETS—SHEET 2.



Inventor
Thomas W. Malone.

By *W. W. Malone*
Attorney

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3 SHEETS—SHEET 3.

Fig. 3.

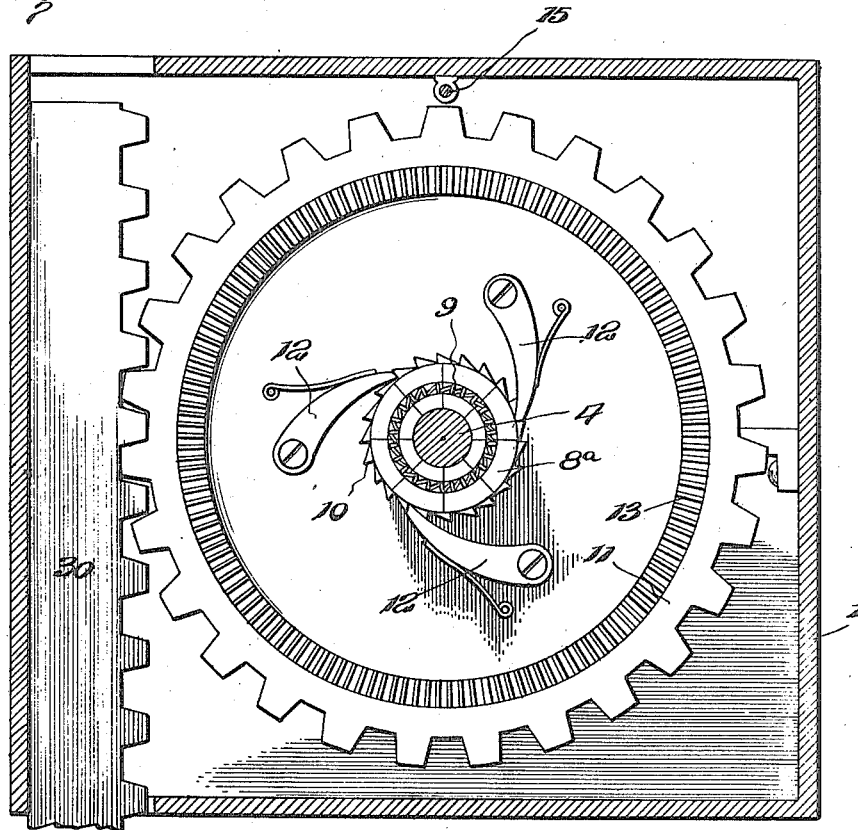
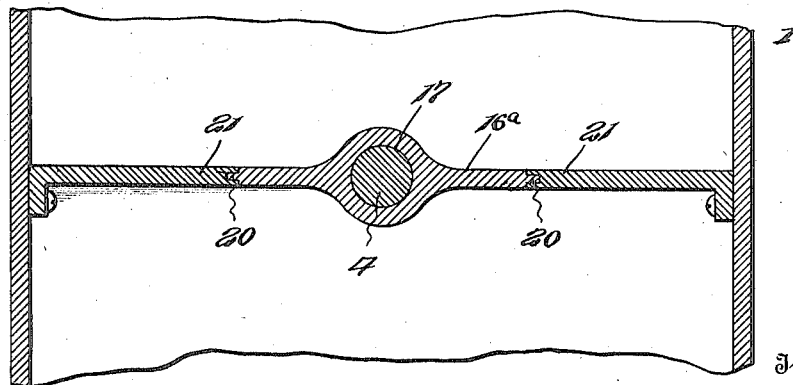


Fig. 4.



Inventor
Thomas W. Malone.

By *James H. McNeill*
Attorney

UNITED STATES PATENT OFFICE.

THOMAS W. MALONE, OF MADISONVILLE, TEXAS.

GASOLENE-SUPPLY-TANK ATTACHMENT.

1,233,094.

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To all whom it may concern:

Be it known that I, THOMAS W. MALONE, citizen of the United States of America, residing at Madisonville, in the county of Madison and State of Texas, have invented certain new and useful Improvements in Gasolene-Supply-Tank Attachments, of which the following is a specification.

In well known gasolene stations, now located at various points along the highways, mechanical measuring means are employed for supplying motorists with a given amount of gasolene, the mechanism being in charge of an attendant, and is operated by a crank. In this form of apparatus, the amount of gasolene delivered is gaged by the number of turns of the crank.

The purpose of my invention is to provide means adapted to control the usual gasolene stations in such manner that by depositing a check or coin in the machine, only a predetermined amount of gasolene will be delivered, and then the machine is automatically locked and cannot be operated until another coin is deposited.

A further object of the invention is to provide means for regulating the quantity of gasolene delivered, according to the value of the coin deposited.

A still further object of the invention is to provide means for automatically locking a gasolene station, the unlock being effected by depositing a coin, hence dispensing with the service of an attendant, the mechanism being so arranged that the customer once a coin is deposited can operate the pump, and can only obtain a supply equal in value to the coin deposited.

The invention also comprehends improvements in the details of construction and arrangement of parts which will be hereinafter described and particularly pointed out in the claims.

In the drawings:—

Figure 1 is a central longitudinal section of a machine constructed in accordance with my invention.

Fig. 2 is a detail perspective view of the operating parts removed from the casing; the said parts being distorted somewhat to better illustrate the invention.

Fig. 3 is a transverse section on the line 3—3 of Fig. 1.

Fig. 4 is a similar view on the line 4—4, of Fig. 1.

Fig. 5 is a detail section of the sectional cone.

1 indicates a casing, and mounted therein is a spring housing 2, and a bearing 3. Rotatably supported in and extending beyond the spring housing, and in the bearing is a shaft 4. The end of the shaft beyond the bearing is threaded at 5, and secured to the shaft and inclosed within the housing is a spring 6, the opposite end of the spring being secured to a wall of the housing. Fixed on the shaft 4 is a ratchet wheel 7, and engaging therewith is a spring actuated pawl 8, pivoted to the side of the housing, the pawl preventing rotation of the shaft under the influence of the spring 6, as will be presently explained.

Mounted on the opposite end of the shaft 4, is a sectional cone shaped wedge 8^a, and encircling same is a spring 9, which normally holds the sections together. In rear of the sectional cone is a ratchet wheel 10, which is fast on the shaft, and loosely mounted on the shaft in rear of the ratchet wheel 10 is a gear wheel 11. On the face of the gear wheel 11, are several spring pressed pawls 12, designed to engage the ratchet wheel 10, in the operation of the apparatus. Also on the face of the gear wheel are teeth 13, with which a latch 14 is designed to engage. The latch is provided with an extension 15, the end of which contacts with a latch 16, one arm of which engages the inner face of the pawl 8.

The threaded end of the shaft 4, engages an elongated nut 16^a, provided with a central threaded opening 17. Fitting in the opposite end of the threaded opening 17, is a threaded plug 18, having a boss 19, for a wrench to adjust its position in the nut with reference to the shaft.

The elongated nut is provided on its edges with gibbs 20, which fit in guides 21, supported in the casing 1.

On the free end of the shaft 4, adjacent the sectional cone is a sleeve 21, which slides in a tubular guide 22. The front face of the sleeve 21, is formed with a coin seat 23, which, at the proper time, registers with an opening 24, in the bottom of the tubular guide. Communicating with the tubular

guide is a coin chute 25, and at the bottom thereof is a coin seat 26.

Pivoted in the casing 1, is an operating lever 27, which extends through the tubular guide 22, and the top of the casing, and secured to this lever, and centrally disposed in the tubular housing is a plunger 28.

The free end of the latch 14, is disposed in the path of movement of the lever 27, and between a guide, and a pin is coiled a spring 28^a, which serves to hold the dog in its normal inoperative position.

My invention, as previously stated, is designed to operate in connection with a gasoline pump, the numeral 30 indicating the rack which extends from the pump and meshes with the gear wheel 11. In view of the fact that such pumps are well known, it is not thought necessary to describe or show the parts in detail.

Normally, the parts are in the position shown in Fig. 1, that is, the end of the shaft 4 abuts against the inner end of the nut 18. When in this position the parts are locked, and the pump rack 30 cannot be raised, hence the pump cannot be operated.

When gasoline is desired, a check or coin is dropped into the chute 25, and it falls to the seat 26, just in line with the plunger 28. The handle 27, is now moved in the direction of the arrow *x*, whereupon the end of the plunger engages the coin and advances same into seat 23 in the sleeve 21. A continued movement of lever 27, advances the sleeve, and the end thereof impinges the reduced ends of the cone sections and forces their rear ends outwardly and disengages the pawls 12 from the ratchet wheel 10, thereby freeing the gear wheel 11 on shaft 4. At the time the pawls 12, are disengaged from the ratchet wheel 10, the hand lever 27, contacts with the end of the latch 14, and the latter engages the teeth 13, on the face of the gear wheel 11, which holds the same against rotation. Movement of the latch 14, also moves the extension 15 which contacts with the L-shaped latch 16, and one arm of the latter engages pawl 8 and disengages it from the ratchet wheel 7. The spring 6, is under tension when the parts are in locked position, consequently when the pawls 12 and 8 are thrown out of engagement with their respective ratchet wheels the spring quickly rotates the shaft in the direction of the arrow *Y*. This movement causes the threads on the shaft 4, to feed the nut 16^a, away from the end of the screw, the nut sliding in the guides 21.

About the time these operations are performed, and upon a slight release of the handle 27, the coin in seat 23, registers with the opening 24, and falls into a receptacle 35.

As lever 27 is returned to normal position

and leaves the end of the latch 14, spring 28^a returns the latch to its normal position, and the spring 9, acts on the cone sections and draws them together and forces the sleeve into tubular bearing 22. The withdrawing of the latch and its extension and the closing up of the cone sections permits the pawls 8 and 12 to again engage the respective ratchet wheels. The pump may now be operated and as the rack thereof is elevated it rotates the gear wheel 11, and the pawls 12, mounted thereon engage the ratchet wheel 10, and shaft 4 is rotated. Rotation of the shaft winds the spring in the housing for a subsequent operation, and at the same time the threaded end engaging in the threaded opening in the nut will slide the latter inwardly until the end of the threaded plug contacts with the end of the shaft. When these two ends meet the mechanism is locked, consequently the pump cannot be operated to further draw the gasoline. The pump rack bar 30, is now lowered, which will of course rotate the gear wheel 11, the pawls 12, riding freely over the teeth of the ratchet 10, the shaft 4 at this time being held against rotation by the pawls and ratchets.

The meeting ends of the screw plug 18, and the shaft 4, are provided with intermeshing projections 36, to prevent binding of the threads on the shaft 4 and the nut.

The sole object in making the screw plug 18 adjustable is to be able to regulate the delivery of a certain amount of gasoline for the value of a certain coin. Let it be assumed that a twenty-five cent piece be used in the chute, and the price of gasoline is twenty-five cents per gallon. The screw plug is adjusted in the nut so that when a gallon of gasoline has been pumped, the rack bar will have moved the parts until the end of the shaft abuts against the screw plug, whereupon the pump is locked against further use. Now suppose the price of gasoline goes up,—say to thirty cents per gallon. The screw plug will be screwed farther into the nut, and while a twenty-five cent piece (for example) will be dropped into the chute, the upward movement of the rack bar 30 will be less than the previous illustration given, consequently less than a gallon of gasoline will be delivered. In other words, the motorist will receive but twenty-five cents' worth of gasoline, rather than a gallon as in the first instance described.

As the price of gasoline goes up or down, the screw plug 18 is adjusted in the nut, and the same character of coin may be used in operating the machine, the motorist receiving a supply of gasoline for the value of the coin, the supply of course depending on the market price.

While I have specifically described the invention as being used in connection with

the sale of gasoline, it is evident the improvement may be employed in connection with the sale of other products.

What I claim is:—

5 1. The combination of check control mechanism, lock mechanism, comprising a shaft provided with threads, a spring for rotating the shaft in one direction, a slid-
10 able nut having a threaded opening engaged by the threads on the shaft, an adjustable plug for limiting the sliding movement of the nut in one direction, and means operated
15 by the check control mechanism for unlocking the shaft to permit the spring to rotate said shaft and slide the nut away from the stop.

2. The combination of check control mechanism, of a threaded shaft, means on the shaft for rotating same in one direction,
20 pawl and ratchet mechanism between said means and the shaft, a spring on the shaft for rotating the latter in the opposite direction, a sliding nut having means for limiting its movement, the threaded portion of
25 the shaft engaging the nut, a pawl and ratchet for holding the shaft against rotation of the spring, and means operated by the check control mechanism for releasing the pawls to permit the spring to rotate the
30 shaft to set position.

3. The combination of check control mechanism, of a threaded shaft, a slidable nut with which the threaded portion of the shaft engages, a threaded plug engaging the
35 nut and adapted to act as a stop for the end of the shaft, a gear wheel loosely mounted on the shaft, a pawl and ratchet between the gear wheel and the shaft, means for rotating the shaft to cause the nut to back off the
40 threaded portion of said shaft when the pawl and ratchet are disengaged, and means operated by the check control mechanism for disengaging the pawl from the ratchet, whereby when the disengaging means is
45 withdrawn movement of the gear wheel will be limited.

4. The combination of check control mechanism, of measuring means including a rack bar, a shaft, a gear wheel loosely
50 mounted on the shaft and with which the rack bar meshes, means between the gear wheel and the shaft to cause the former to rotate the latter in one direction, means for rotating the shaft in the opposite direction,
55 a sliding element operated by the shaft, an adjustable device carried by the sliding element and cooperating with the shaft to limit its rotary motion when operated by the gear wheel, and means operated by the check control means for freeing the shaft and permit-
60 ting of its being rotated to space the adjustable device, whereby to limit the movement of the rack bar in its subsequent operation.

5. The combination of check control means, of a threaded shaft, a gear wheel

loosely mounted on the shaft, a ratchet wheel on the shaft, a pawl on the gear wheel to engage the ratchet wheel, a spring connected with the shaft, a second ratchet wheel on the shaft, a pawl engaging the second
70 mentioned ratchet wheel, a slidable nut with which the threaded portion of the shaft engages, an adjustable stop carried by the nut and adapted to engage the end of the shaft to limit the movement of the latter in
75 one direction, and means including a sectional cone operated by the check control means for disengaging the pawls to free the shaft and permit the spring to rotate said shaft to set position for subsequent op-
80 eration of the gear wheel.

6. The combination of check control means, of a movable element, locking mechanism between the movable element and the check control means including a threaded
85 shaft, a sliding nut engaged by the threaded portion of the shaft, an adjustable stop to limit the movement of the sliding nut with reference to the shaft whereby to limit the movement of the movable element, and
90 means released by the check control means for releasing the shaft which causes the nut to slide to set the locking mechanism for operation of the movable element.

7. The combination of check control means, of locking mechanism comprising a threaded shaft, a nut having a threaded opening in which the threaded shaft oper-
95 ates, a screw threaded plug in the threaded opening to be engaged by the end of the threaded shaft, a spring for rotating the shaft in one direction, a pawl and ratchet for holding the shaft against rotation by the spring, a gear wheel loosely mounted on
100 the shaft, a pawl and ratchet between the gear wheel and the shaft, a sectional cone on the shaft and adjacent the pawl on the gear wheel, teeth on the gear wheel, a latch adjacent the teeth, a latch adjacent the pawl which holds the spring, the latches and cone
105 being operated by the check control means whereby to lock the gear wheel against rotation and for freeing the shaft to permit the spring to rotate same to release the lock mechanism for subsequent operation of the
110 gear wheel.

8. The combination of check control means, of locking mechanism, comprising a threaded shaft, a nut having an adjust-
120 able stop against which the shaft abuts, means for rotating the shaft in one direction, mechanical means for rotating the shaft in the opposite direction to bring the end of said shaft against the stop, means operated by the check control, for freeing
125 the means which rotates the shaft in the opposite direction to bring the end of the shaft against the stop including a sectional cone, and a spring for holding the cone sections together.

9. The combination of check control mechanism, lock mechanism comprising a rotary element, means operated by the rotary element to limit the period of rotation of the latter, a spring for rotating the rotary element in one direction, means for holding the spring under tension, a wheel mounted on the rotary element to transmit motion to said rotary element in one direction, means for locking the wheel to the shaft, and means operated by the check control mechanism for releasing the spring holding means and the means for locking the wheel to the rotary element, whereby to cause the rotary element to operate the limiting means.

10. The combination of check control mechanism, locking mechanism therefor comprising a threaded rotary element, a device engaged by the threaded rotary element to limit the movement of the latter in one direction, means including a spring for rotating the rotary element in one direction, a locking device therefor, means on the rotary element to rotate the same in the opposite direction, a locking device for locking the last mentioned means to the rotary element, and means operated by the check control mechanism for releasing the locking device holding the spring and to release the locking device between the rotary element and the second mentioned rotating means.

11. The combination of check control mechanism, locking mechanism therefor comprising

a threaded rotary element, a threaded member engaged by the threaded element and operated by the latter, an adjustable stop in said member to engage the threaded element to limit the movement of the latter in one direction, a spring for rotating the rotary element in one direction, a device for holding the spring under tension, means for rotating the rotary element in the opposite direction, a pawl and ratchet between the latter means and the rotary element, and means operated by the check control mechanism for releasing the spring locking means and disengaging the pawl from the ratchet and holding the second mentioned rotating means against rotation during the time the pawl is disengaged from the ratchet.

12. A locking device for check control mechanism comprising a rotary element, means for rotating the rotary element in one direction, a device operated by the rotary element to limit the movement of the latter in one direction, a device for locking the rotating means, means for rotating the rotary element in the opposite direction, a locking device therefor, and means for releasing the locking devices to cause the rotary element to operate the limiting device.

In testimony whereof I affix my signature in the presence of two witnesses.

THOMAS W. MALONE.

Witnesses:

J. M. BROWNLEE,
F. T. DEAN.