April 9, 1929. D. C. MORGAN 1,708,319

COIN CONTROLLED LOCK

Filed Dec. 13, 1923 2 Sheets-Sheet 1

FIG. 1.

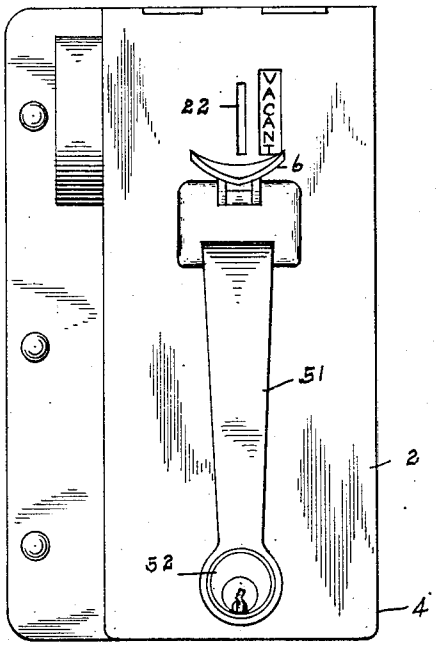


FIG. 2.

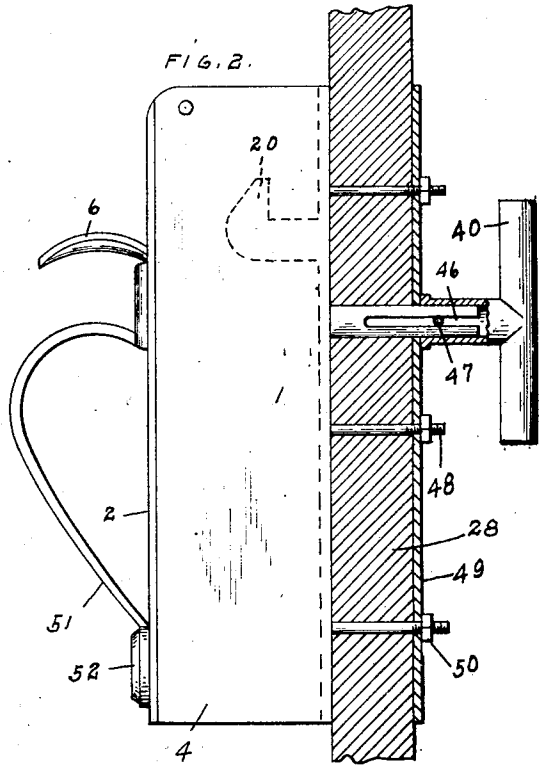


FIG. 3.

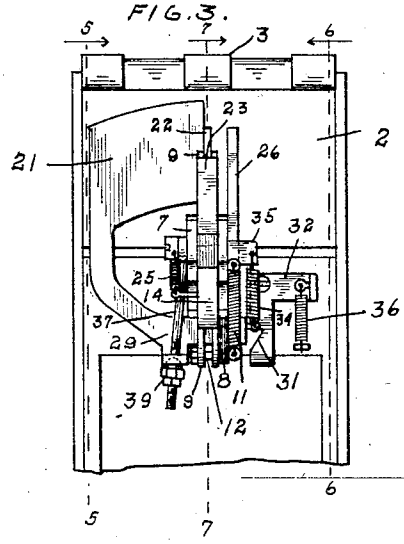
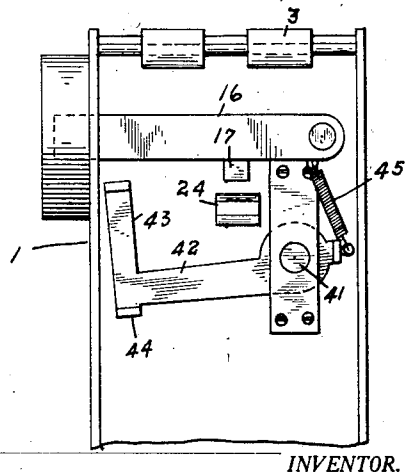


FIG. 4.



INVENTOR.
DONALD C. MORGAN

BY Carey S. Frye

ATTORNEY.

April 9, 1929. D. C. MORGAN 1,708,319

COIN CONTROLLED LOCK

Filed Dec. 13, 1923 2 Sheets-Sheet 2

FIG. 5.

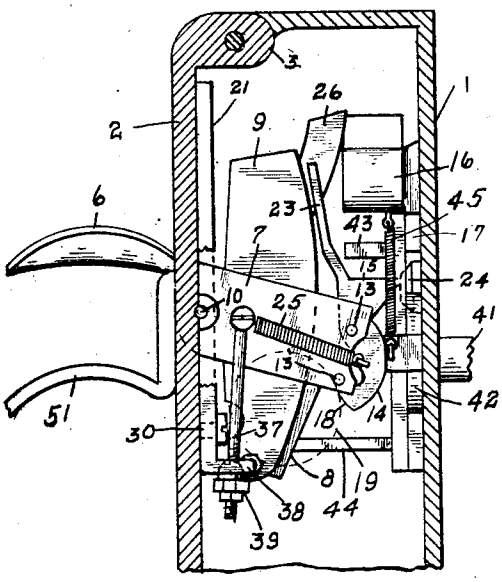


FIG. 6.

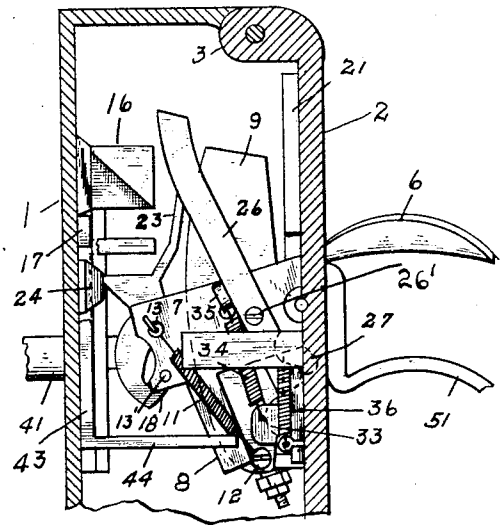


FIG. 7.

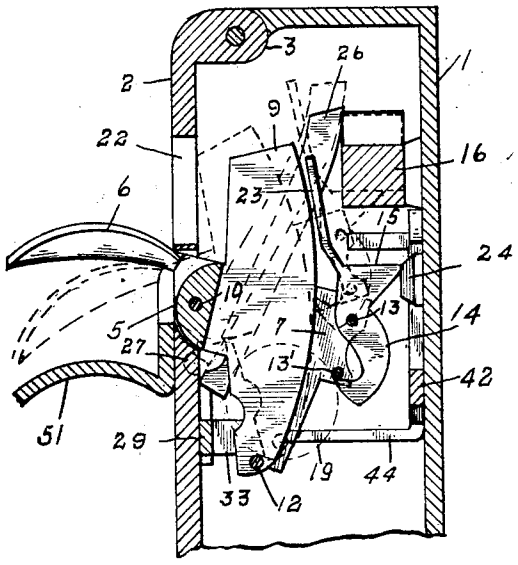
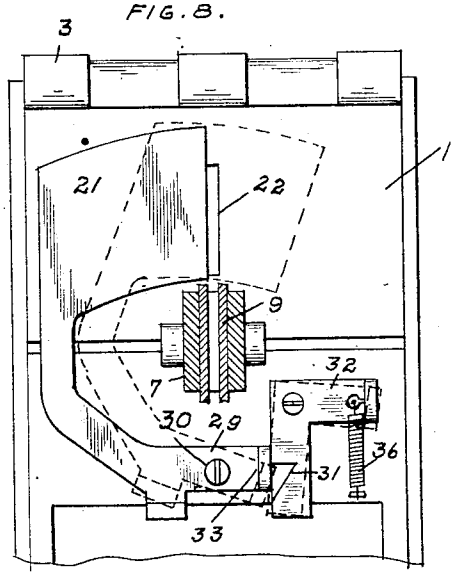


FIG. 8.



INVENTOR.
DONALD C. MORGAN

BY Carey S. Frye

ATTORNEY.

Patented Apr. 9, 1929. 1,708,319

UNITED STATES PATENT OFFICE.

DONALD C. MORGAN, OF INDIANAPOLIS, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FRED W. SOMMERS.

COIN-CONTROLLED LOCK.

Application filed December 13, 1923. Serial No. 680,493.

This invention relates to coin controlled locks and is primarily adapted for use on doors or the like whereby it will be necessary to deposit a coin in the lock before the door may be opened by the public.

One feature of the invention is the provision of means in connection with the thumb latch of the lock for elevating the locking bolt of the lock for releasing it from its keeper, when a coin is properly inserted in the lock.

A further feature of the invention is the provision of means for preventing the operation of the locking bolt until such time as a coin is inserted in the lock.

A further feature of the invention is the provision of means for holding the thumb latch in depressed position, after the same has been operated to release the locking bolt, until such time as the door has again been closed, the elevation of the bolt through contact with its keeper, engaging and releasing the locking mechanism on the thumb latch.

A further feature of the invention is the provision of means for closing the coin slot to prevent the insertion of an additional coin while the compartment to which the door it attached is in use, means being provided for holding the closing means in position over the coin slot until such time as the lock is manually operated from the interior of the enclosure for releasing the locking bolt from its keeper in the act of opening the door.

A further feature of the invention is the provision of means for holding the coin in engagement with the parts of the locking mechanism until such time as the locking bolt has been elevated for releasing from its keeper, means being provided for releasing the coin after the thumb latch has been operated for elevating the locking bolt.

Other objects and advantages will be hereinafter more fully set forth and pointed out in the accompanying specification.

In the accompanying drawings which are made a part of this application:

Figure 1 is a front elevation of the lock as applied to use.

Fig. 2 is a side elevation thereof showing the door in section.

Fig. 3 is an inside elevation of the door portion of the lock case showing the parts carried thereby.

Fig. 4 is a similar view of the interior of the lock case.

Fig. 5 is an enlarged detail sectional view as seen on line 5—5, Fig. 3.

Fig. 6 is a sectional view as seen on line 6—6, Fig. 3.

Fig. 7 is a sectional view as seen on line 7—7, Fig. 3, and,

Fig. 8 is a plan view of the interior of the door portion of the lock case, showing the closing means for the coin slot, parts of the locking mechanism being shown in section.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the body portion of the lock case and 2 indicates the door portion thereof, said parts being preferably secured together by means of a hinge structure 3 so that the door portion may be swung open for gaining access to the interior of the case, the length of these parts being such as to form a coin compartment 4 in the lower portion of the case.

Pivotally mounted in an opening 5 through the door portion 2 is a thumb latch 6 integral with which are formed paralleling arms 7, one of said arms having a depending shank 8 for a purpose to be hereinafter set forth.

Positioned between the arms 7 is a pair of spaced oblong guides 9, which are pivoted to the same pivot pin 10 as is used for pivoting the latch 6, the guides 9 being held in cooperative relation with said arms by means of a spring 11, one end of the spring being connected with a pin 12 passing transversely through the lower ends of the guides 9, while the upper end thereof is connected to a pin 13 extending transversely through the free ends of the arms 7. In this manner the guides will normally move with the arms 7, but at certain points in the operation of the lock mechanism, the guides 9 will be held against further movement while the arms 7 may have additional movement as will be later disclosed.

Pivotally mounted on the pin 13 between the arms 7 is a latch 14, having a shoulder 15 thereon adapted to engage and elevate the locking bolt 16 when a coin is properly positioned between the guides 9 and engages a stud 17 on the inner face of the body 1 to prevent the operation of the lock when no coin is entered therein. The lower end

of the latch 14 is provided with an extension 18, which travels in proximity to a pin 13′ and in position to engage one edge of a coin 19, as best shown in Fig. 7 of the drawings and when so engaged, is prevented from swinging inwardly and thus holding the shoulder 15 out of the path of the stud 17, so that when the thumb latch 6 is depressed and the arms 7 elevated, the shoulder 15 will engage and elevate the locking bolt 16 and release it from its keeper 20, when the door may be opened.

Coincident with the elevation of the arm 7, the guides 9 will swing on the pivot pin 10 and move upwardly with the arms 7 until the upper ends thereof strike against a shutter 21 provided for closing the coin slot 22, when the movement of the guides is stopped. The arms 7, however, continue to swing upwardly carrying with them the pin 13′ and thereby moving the pin 13′ and extension 18 away from the coin 19 and permitting the coin to descend into the coin compartment 4. Extending upwardly from the shoulder 15 is a finger 23, which will limit the swinging movement of the latch 14 in one direction after the coin has been released from the guides, or when no coin has been inserted into the lock, while the swinging movement of the lower end of the latch 14 is limited in the opposite direction by striking against the pin 13′. The latch 14 is normally held in such position that the coin will readily pass downwardly between the guides 9 and strike the pins 12 and 13′. By means of a block 24, the edges of which are so tapered that when an attempt is made to release the locking bolt without first inserting a coin in the lock, the shoulder 15 will travel inwardly along the tapered upper edge of the block and pass beneath the stud 17 and prevent the shoulder striking the locking bolt. The shoulder of the latch 14 is held in engagement with and caused to adhere to the tapered face of the block 24 by means of a spring 25, one end of which is attached to the latch at a point below the pin 13, while the opposite end thereof is attached to parts of one of the arms 7.

When the parts of the locking mechanism have moved to the positions shown by dotted lines in Fig. 7 of the drawings, one end of a lever 26 mounted near its lower end on a suitable pivot 26′ will enter a recess 27 in the inner face of the door portion 2, when pressure is released from the thumb latch 6, thereby holding the locking parts in unlocked position until the door 28, to which the lock is attached is again swung to closed position, the elevation of the free end of the locking bolt striking the upper end of the lever 26 and causing the lower end thereof to be released from the recess 27, thus permitting the thumb latch and parts associated therewith to assume their normal positions.

Coincident to the vertical movement of the arms 7 and parts carried thereby, the shutter 21 is swung laterally and over the coin slot 22 to prevent the introduction of a coin until the enclosure is vacated, the lower end of the shutter having a laterally extending arm 29, through which passes a pivot pin 30. When the shutter is swung laterally over the coin slot, the free end of the arm 29 enters a notch 31 in one arm of a locking dog 32 and the shutter is held in position over the coin slot until the occupant of the enclosure manually releases the locking bolt 16, consequently an additional coin can not be introduced into the lock during the occupancy of the enclosure. The free end of the arm 29 has an ear 33 thereon to which is attached one end of a spring 34, the opposite end of the spring being attached to an ear 35 on the lever 26 and when the end of the arm 29 is swung downwardly the spring will be tensed, thereby causing the end of the arm 29 to enter the notch 31 of the locking dog and the lower end of the lever to enter the recess 27. The locking dog is pivoted to the cover portion 2 and is swung into position to permit the end of the arm 29 to enter the notch 31 by means of a spring 36, but when the arm 29 is in its normal position it passes above the notch 31 and rests against the edge of one arm of the locking dog.

The shutter 21 is swung laterally from its initial position by a rod 37, one end of which is pivoted to one of the arms 7, while the opposite end thereof passes through an ear 38 on the arm 29, nuts 39 being threaded onto the end of the rod for adjusting the throw of the shutter.

When the occupant of the enclosure turns the knob 40, which is connected to a shank 41, a lever 42 fixed at one end to the shank will be swung upwardly until a cross head 43 at the free end of the lever 42 engages and lifts the locking bolt 16 out of engagement with its keeper. Simultaneously with the raising of the locking bolt by the cross head 43, an extension 44 on the lower end of the cross head will engage one arm of the locking dog 32 and swing the arm thereof having the notch away from the end of the arm 29, whereupon the spring 34 will return the shutter to its initial position and uncover the coin slot 22. The locking bolt 16 and lever 42 are returned to their initial positions by means of a spring 45 one end of which is attached to the pivoted end of the locking bolt and the other to the pivoted end of the lever.

The shank 41 is provided with an elongated slot 46, through which is extended a pin 47 carried by the knob 40 so that the knob may be adjusted lengthwise of the shank for the accommodation of doors of different thicknesses. Any suitable means may be provided for securing the lock to the

door, but in the present instance bolts 48 are extended through the rear wall of the body 1, through the door proper 28 and through a plate 49 on the opposite side of the door from the lock, these parts being secured together by threading nuts 50 onto said bolts and as the heads of the bolts are concealed within the lock and the nuts on the inner face of the door it will be impossible to remove the lock from the exterior of the inclosure.

For the better manipulation of the thumb latch, a conventional form of hand grip 51 is attached to the member 2 of the body 1 and any suitable form of lock 52 for locking the closure member 2 in closed position may be provided.

In operation, to gain access to the enclosure, a coin is introduced into the coin slot 22 from whence it descends between the guides 9 until its descent is stopped by the pins 12 and 13'. Downward pressure is then applied to the thumb latch 6 which will result in swinging upwardly the arms 7 and moving the shoulder 15 into contact with the locking bolt 16, a continued pressure on the thumb latch swinging the free end of the locking bolt out of engagement with the keeper 20, when the door 28 may be swung to open position.

During the upward swinging movement of the arms 7, the upper ends of the guides 9 will strike against the shutter 21 which has been moved laterally incident to the upward movement of the arms 7 and cause the lower ends of the guides to remain stationary while the free ends of the arms continue their upward movement, thereby separating the pins 12 and 13' and releasing the coin therebetween.

The lower end of the lever 26 will have moved above the recess 27 so that when pressure is released from the thumb latch 6, the end of the lever will enter the recess and prevent the return of the locking parts until such time as the door 28 has been opened and again closed, thus preventing the loss of the coin in case the door is not opened before the coin is released. When the arms 7 are elevated for releasing the locking bolt, the shutter 21 is rocked on its pivot and the body portion thereof disposed over the coin slot 22, while the free end of the arm 29 will be lowered and engaged with the notch 31 in the locking dog 32. In leaving the enclosure, the occupant turns the knob 40 which swings the lever 42 upwardly, the upper end of the cross head 43 engaging and elevating the locking bolt from its keeper while the extension 44 engages and releases the locking dog from the arm of the shutter.

After the lever 26 has been released from the recess 27, the inner ends of the arms 7 and the guides 9 will descend until the shank 8 strikes the pin 12, the tension of the several springs on the locking unit serving in conjunction with the pin 12 and shank 8, to render the said parts more or less rigid and maintain them in cooperative relation with each other.

The lock mechanism is now again in position to receive a coin, which is necessary for again opening the lock, as any attempt to operate the thumb latch will result in the shoulder 15 engaging the stud 17 and preventing the depression of the thumb latch 6 to such an extent as to release the locking bolt from its keeper, consequently the lock can not be operated to release the locking bolt without first inserting a coin.

With this form of locking mechanism it will be noted that the entire coin controlled portion whereof is mounted in a single unit on a thumb latch, the parts of the coin controlled mechanism being operated by the ordinary swinging movement of the latch, thus enabling me to produce a very cheap, durable and efficient locking mechanism and one that may be easily operated.

What I claim is:

1. In a coin controlled lock, a tilting latch having arms, guides pivoted with said latch, yielding means connecting said latch and guides, a locking bolt, and means carried by said arms and controlled by a coin for operating said locking bolt when the latch is depressed.

2. In a coin controlled lock, a tilting latch, arms thereon, guides pivoted between said arms and tiltable therewith, yielding means connecting said arms and guides, means pivoted to said arms for controlling the operation of said latch and parts carried thereby, and means operable by said latch for controlling the introduction of a coin into the lock.

3. In a coin controlled lock, a lock case, a latch extending through one wall of the casing and pivoted thereto, a pair of arms on said latch, guides pivotally mounted between said arms, yielding means for causing said guides to swing with said arms, means carried by said arms and guides for temporarily retaining a coin, means operable by the swinging movement of said arms for controlling the admission of a coin into the guides, a locking bolt and means pivoted to said arms adapted to operate said locking bolt when a coin is positioned between said arms and guides and the latch is tilted.

4. In a coin controlled lock, a pivoted thumb latch, a coin controlled unit carried by said latch, a locking bolt adapted to be operated by said coin controlled unit when a coin is introduced thereinto, and means for temporarily holding the coin controlled unit in the bolt operated and coin associated position after the coin is released therefrom.

In testimony whereof I hereto affix my signature.

DONALD C. MORGAN.