W. R. NECKERMAN.

COIN CONTROLLED LOCK.

APPLICATION FILED AUG. 19, 1919.

1,341,433.

Patented May 25, 1920.

2 SHEETS—SHEET 1.

FIG. 1.

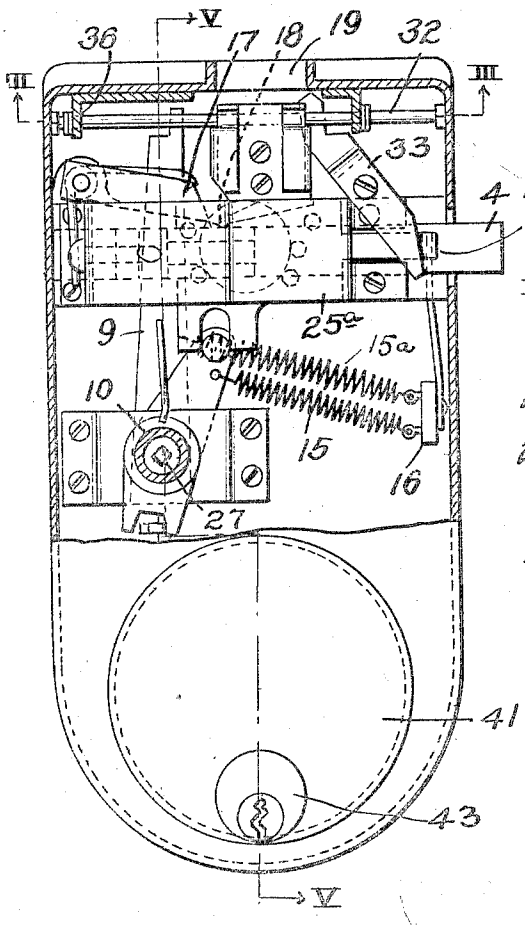


FIG. 2.

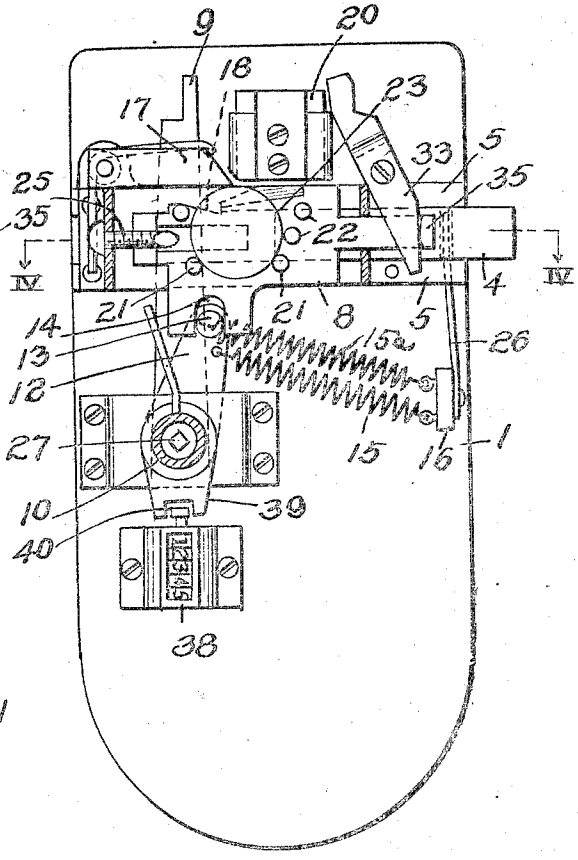


FIG. 3.

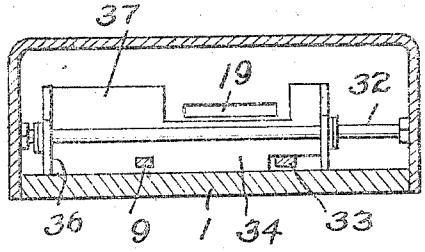
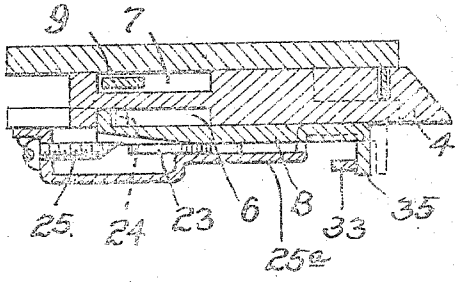


FIG. 4.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 5.

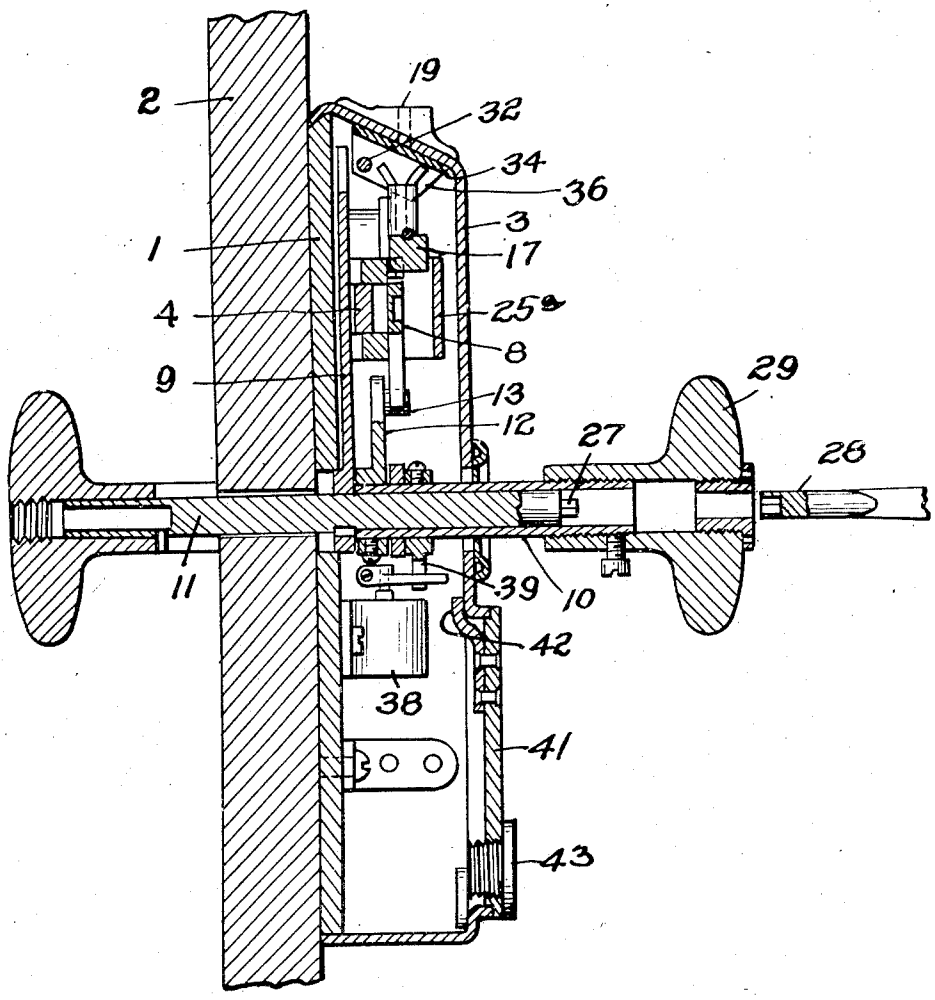


FIG. 6.

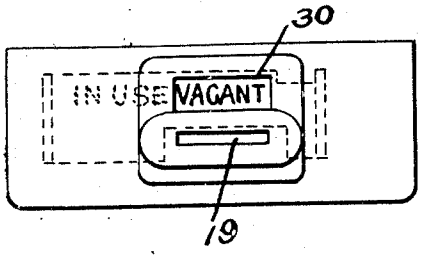
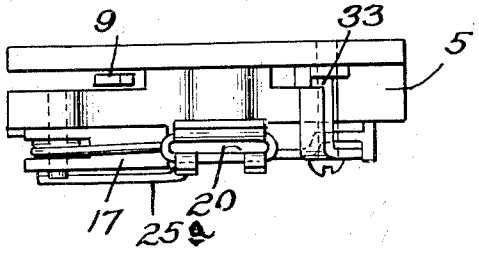


FIG. 7.



WITNESSES

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COIN-CONTROLLED LOCK.

1,341,433. Specification of Letters Patent. Patented May 25, 1920.

Application filed August 19, 1919. Serial No. 318,597.

To all whom it may concern:

Be it known that I, WILSON R. NECKERMAN, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Coin-Controlled Locks, of which improvements the following is a specification.

The object of my invention is to provide an improved coin controlled lock of the general type used to lock the doors of public toilet rooms and the like, to which access may be had from the outside only by depositing a coin in the lock.

In the accompanying sheets of drawings which form part of my specification I have illustrated the preferred embodiment of the invention. Figure 1 is a face view of the lock, a portion of the cover being broken away to show the locking mechanism; Fig. 2 a face view of the locking mechanism in a position different from that indicated in Fig. 1; Fig. 3 a sectional view taken on the line III—III, Fig. 1; Fig. 4 a sectional view taken on the line IV—IV, Fig. 2; Fig. 5 a sectional view taken on the line V—V, Fig. 1; Fig. 6 a plan view of the lock casing; and Fig. 7 a plan view of the locking mechanism with the casing-cover and legend plate removed.

In the lock which I provide, the locking mechanism is contained within a casing consisting of a mounting plate 1, adapted to be attached to a door 2, and a cover 3 attached to the mounting plate. The locking mechanism includes a locking bolt 4 mounted for transverse sliding movements between a pair of guides 5, which guides project laterally from, and may be formed integrally with, the mounting plate 1. As seen particularly in Fig. 4, the rear end of the locking bolt is provided with a pair of elongate recesses 6 and 7, within which there are arranged portions of lock-withdrawing members 8 and 9 for moving the locking bolt. Through coin controlled mechanism presently to be described, the lock-withdrawing member 8 may be moved by a knob shaft 10, and independently of the coin controlled mechanism, the member 9 may be moved to withdraw the locking bolt by the rotation of a second knob shaft 11 rotatable independently of the knob shaft 10,

Having reference first to the means which I provide for withdrawing the locking bolt through the coin controlled mechanism, there is securely attached to the knob shaft 10 a finger 12 provided with a pin 13 extending through a slot 14 formed on the lower edge of the lock-withdrawing member 8, the finger 12 being held yieldingly in the position indicated in Fig. 1 by means of a spring 15, one end of which spring is secured to a lug 16 projecting laterally from the mounting plate 1. The movement of the lock-withdrawing member 8 to withdraw the locking bolt is, until a coin of the proper size has been deposited in the lock, prevented by a spring-pressed pivoted lever or pawl 17, the free end of which normally lies in a recess 18 formed in the top of such member. To release the lever 17, a coin 23, placed in a casing slot 19, is guided by a guide 20 to its point of lodgment between pins 21 projecting laterally from the face of the member 8. The face of this member may be provided with additional pins 22 for thus guiding the coin and for holding it in lodged position.

Referring to Fig. 4, there is indicated in dotted lines the position in the recess 6 of a finger 24 projecting inwardly from the member 8 when such member is in the position which it normally occupies when at rest. By the initial rotation of the knob shaft 10, the member 8 presses the coin 23 against the lower edge of the lever 17 and raises such lever from the recess 18 in the member 8, so that the further rotation of this knob shaft will not be resisted by the locking lever. When the lever has thus been released, the member 8 will have been moved to the position indicated in Figs. 2 and 4, in which the finger 8 engages the left end of the locking bolt. It will readily be seen that the further rotation of the knob shaft 10 will completely withdraw the locking bolt.

Means are provided for dislodging the coin upon the movement of the member 8 subsequent to the release of the locking lever 17 by the coin. For this purpose there is preferably provided a pin 25 having a beveled end lying in the path of the coin as it is moved by the member 8, as seen particularly in Fig. 4. A cover 25^a, which is secured to the guides 5, and which

coöperates with the pins 21 and 22 to retain the coin in lodged position, is bent outwardly at its left end to permit of the dislodgment of the coin. The coin may thus drop into the bottom of the casing 1, 3, and hence will not interfere with the further operation of the locking mechanism.

The locking bolt being thus withdrawn, the door may be opened, and, as soon as the knob on the shaft 10 is released, the locking bolt will be thrown to its outward position by the action of a spring 15ª, which is anchored to the bolt and tends to hold the bolt in locking position. A supplemental leaf spring 26 may be provided for yieldingly holding the bolt 4 in locking position, and particularly for holding it in its fully extended position during the initial movement of the bolt-withdrawing member 8.

As previously stated, the bolt 4 may be withdrawn through the rotation of the knob shaft 11, by a person in the toilet room. For this purpose the bolt-withdrawing member 9 may consist of a finger, keyed directly to the knob shaft 11, and projecting into and through the bolt recess 7. That the bolt may thus be freely withdrawn, is readily seen from the fact that the movement of the bolt by the rotation of the shaft 10 is resisted by the locking lever which engages the member 8, rather than the bolt 4, and also by the fact that the bolt 4 is provided with an elongate recess 6, in which the finger 24 of the member 8 lies so that the bolt may be moved by the member 9 without moving the member 8.

That the locking bolt may be withdrawn by a person on the outside of the door, as for example by a janitor who desires to clean a toilet room, the knob shafts 10 and 11 are placed in alinement with each other, the knob shaft 10 being tubular, and the end of the knob 11 being provided with a key-engaging detent 27. Preferably the knob shaft 11 projects within the tubular knob shaft 10, so that a wrench-socket key 28 may be inserted through the tubular center portion of the knob 29 and into engagement with the detent 27. By turning the key 28 the shaft 11 may be rotated independently of the shaft 10, and through the rotation of the shaft 11, and the consequent swinging of the lock-withdrawing finger 9, the locking bolt 4 may be withdrawn.

For indicating whether a toilet room is vacant or is in use, the top of the casing cover 3 is provided with an opening 30 adjacent to the coin receiving slot 19, and adjacent to such opening there is mounted for lateral sliding movement upon a rod 32 a legend plate 34. As seen in Fig. 6, the upper face of this plate may be provided with two legends, "Vacant" and "In use". For moving the legend plate from its vacant-indicating position to its opposite position, there is preferably provided a lever 33 pivoted to the mounting plate 1, one end of which lever is adapted to engage the legend plate 34, and the other end to engage an outwardly-extending projection 35 formed upon the lock-withdrawing member 8. Thus, when such member is moved to withdraw the bolt 4, the lever 33 will move the legend plate to the right, or to the position indicating that the toilet room is in use. For moving the legend plate to its opposite position, the upper end of the finger 9 engages a downwardly extending flange 36 formed at the end of the legend plate, so that the movement of such finger causes the plate to move. The legend plate may also be provided with a portion 37 adapted to close the coin slot 19 when the plate is in the position indicating that the toilet room is in use.

A suitable register 38 is provided for registering the number of times the lock has been operated by the rotation of the knob shaft 10 operating through the coin controlled mechanism. For advancing the register, the knob shaft 10 has secured to it a finger 39 adapted to engage the operating lever 40 of the register. It will thus be seen that the knob shaft 11 may be operated or turned without advancing the register, and this for the reason that the knob shaft 11 always turns independently of the knob shaft 10.

The coins used for operating the lock fall to the bottom of the casing 1, 3. To remove them from the casing, and also to read the register 38, the cover 3 of the casing is provided with an opening adapted to be closed by a plate 41, the upper edge of which is provided with a tongue 42 and the lower edge with a suitable key operated lock 43, adapted to attach the plate to the cover.

In operation a coin is first inserted through the slot 19, and, falling downwardly through the guide 20, is lodged between the pins 21 of the lock-withdrawing member 8 and the forward end of the locking lever 17. The initial turning of the knob shaft 10 moves the member 8 and the coin lodged thereon, so that the coin raises the lever from locking position. The further movement of the locking member 8 being then unresisted, the tongue 24 thereof engages the locking bolt and withdraws such bolt. During this final movement of the locking member 8 the coin is dislodged by striking against the beveled end of the pin 25.

From the inside of the door the locking bolt may be withdrawn by the rotation of the knob shaft 11. This is effected through the finger 9 which engages the locking bolt in the recess 7 thereof.

According to the provisions of the patent

statutes, I have described the principle and operation of my invention together with the construction which I now consider to represent the best embodiment thereof. However, I desire to have it understood that, within the scope of the appended claims, my invention may be practised by other forms of construction than that specifically shown and described herein.

I claim as my invention:

1. A coin controlled lock including in combination, a locking bolt, a rotatable knob shaft, a bolt-withdrawing member movable by said shaft and adapted to engage said bolt after an initial movement of the shaft, a locking pawl adapted to engage said member, and means for guiding and lodging a coin between said member and pawl whereby the initial turning of said shaft will swing said pawl so as to permit the further turning of the shaft to move said member to withdraw the locking bolt.

2. A coin controlled lock including in combination, a locking bolt, a rotatable knob shaft, a bolt withdrawing member movable by said shaft and adapted to engage said bolt after an initial movement of the shaft, a locking pawl adapted to engage said member, means for guiding and lodging a coin between said member and pawl whereby the initial turning of said shaft will swing said pawl so as to permit the further turning of the shaft to move said member to withdraw the locking bolt, and means for dislodging the coin during the lock-withdrawing movement of said shaft.

3. A coin controlled lock including in combination, a locking bolt, a rotatable knob shaft, a bolt-withdrawing member movable by said shaft and adapted to engage said bolt after an initial movement of the shaft, a locking pawl adapted to engage said member, and means for guiding and lodging a coin between said member and pawl whereby the initial turning of said shaft will swing said pawl so as to permit the further turning of the shaft to move said member to withdraw the locking bolt, a register, and means operable solely by the rotation of said shaft for advancing said register.

4. A coin-controlled lock including in combination a locking bolt, a rotatable knob shaft, a slide movable in response to shaft turning and after a preliminary traverse engaging and carrying with it in its further traverse said locking bolt, a locking pawl normally limiting the movement of said slide to its preliminary traverse, said slide being adapted to receive a coin and when carrying a coin engaging and removing in its preliminary traverse said pawl from normal position, substantially as described.

5. A coin-controlled lock including in combination a locking bolt, a rotatable knob shaft, a slide movable in response to shaft turning and after a preliminary traverse engaging and carrying with it in its further traverse said locking bolt, a locking pawl normally limiting the movement of said slide to its preliminary traverse, said slide being adapted to receive a coin and when carrying a coin engaging and removing in its preliminary traverse said pawl from normal position, and an abutment with a face inclined with respect to the direction of slide movement and adapted in the further traverse of said slide to engage a coin borne thereby.

In testimony whereof I have hereunto set my hand.

WILSON R. NECKERMAN.

Witnesses:
PAUL N. CRITCHLOW,
FRANCIS J. TOMASSON.