Dec. 21, 1926. 1,611,838

R. H. MALICKI

LOCK STRUCTURE

Filed April 18, 1925 2 Sheets-Sheet 1

Fig. 1.

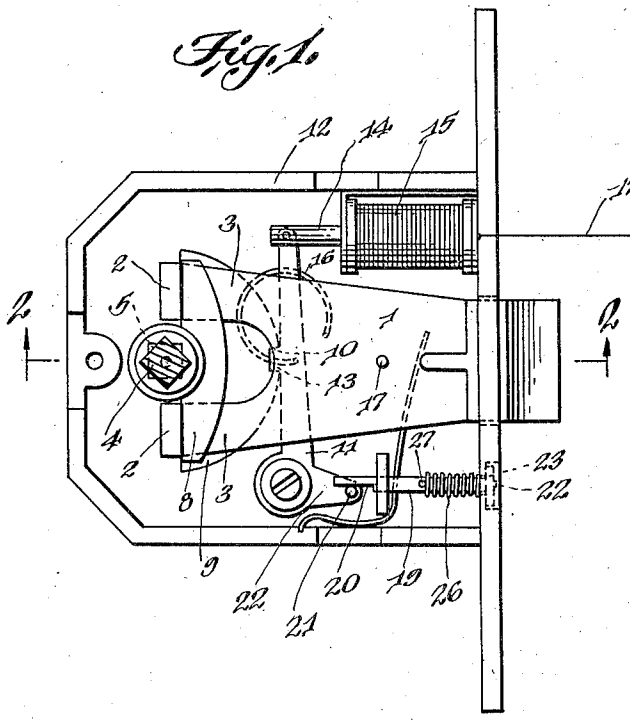


Fig. 3.

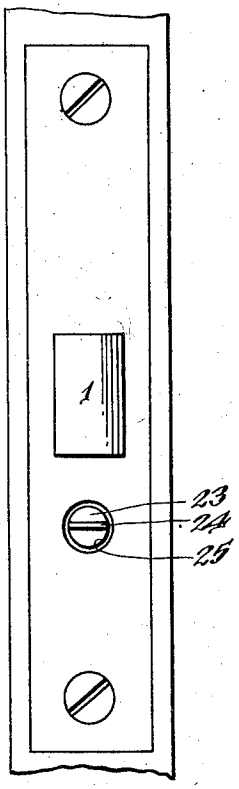
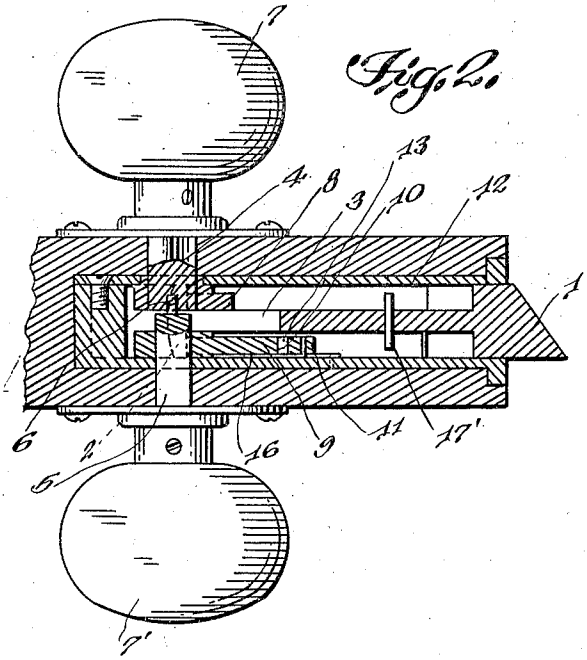


Fig. 2.



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Fig. 4.

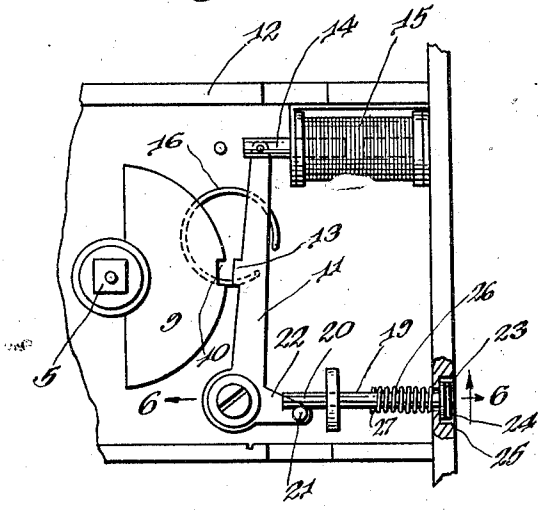


Fig. 5.

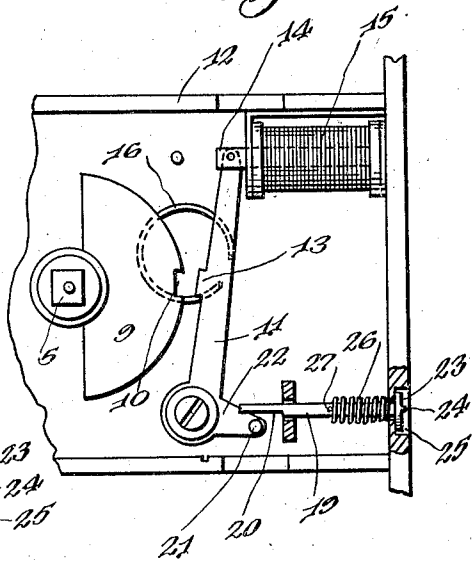
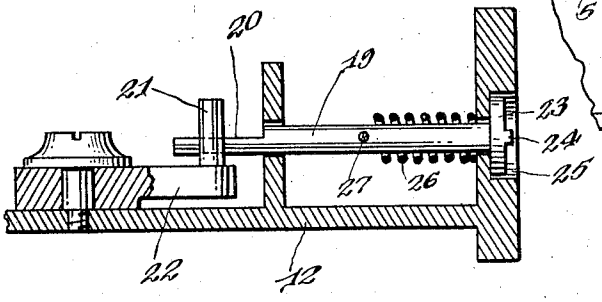


Fig. 6.



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Patented Dec. 21, 1926. 1,611,838

UNITED STATES PATENT OFFICE.

ROMAN H. MALICKI, OF CHICAGO, ILLINOIS.

LOCK STRUCTURE.

Application filed April 18, 1925. Serial No. 24,285.

This invention relates to new and useful improvements in locks and more particularly to a lock which is especially adapted for use in retaining the bolt actuating tumblers against movement, and the main object of my invention is the provision of a lock device for bolt actuating tumblers which may be electrically operated for releasing the tumblers and automatically returned to a locking position upon actuation of the bolt.

Another object of my invention is the provision of a locking device of the above character including means whereby to normally retain the locking device in an inoperative position so that the tumblers may be readily actuated for imparting movement to the bolt.

A further object of the present invention is the provision of a lock including a two-part shaft, each part having a knob upon its outer end and a tumbler on its inner end adapted to engage the usual bolt for reciprocating the same in the lock casing, together with improved means having cooperative engagement with one of the tumblers for locking the same against movement and electrically operated means for actuating the locking means to release the tumbler and means whereby the locking means will be returned to its locking position upon actuation of the bolt.

With the above and other objects in view, my invention consists in the novel features of construction and the combination and arrangement of parts to be hereinafter more fully described, pointed out in the claims and shown in the accompanying drawings, in which:

Fig. 1 is a side elevation of my improved locking device,

Fig. 2 is a transverse sectional view on the line 2—2 of Figure 1,

Fig. 3 is a front elevation,

Fig. 4 is a detail side view illustrating the locking member in a normally unlocked position,

Fig. 5 is a similar view showing the locking member moved out of locking engagement, and

Fig. 6 is a detail section on the line 6—6 of Figure 4.

In carrying out my invention, the improved locking device is applied to that type of lock using a reciprocating locking bolt 1 and oppositely disposed tongues 2 formed upon the outer ends of spaced arms 3 at the inner end of the bolt. The shaft for actuating the bolt 1 in the present instance, is formed of two parts 4 and 5, connected at their inner ends as shown at 6 while the outer ends thereof have mounted thereon the knobs 7'. The section 4 of the shaft carries a tumbler 8 adapted to engage with the tongues 2 upon one side of the bolt while the section 5 carries a tumbler 9 adapted to engage the tongues on the opposite side of the bolt as is clearly illustrated in Figure 2. The tumbler 9 is preferably semi-circular in shape, as shown in Figure 4, and is provided in its arcuate edge with a recess 10. A pivoted arm 11 extends transversely of the lock housing 12 and carries a lug 13 which is adapted to be normally positioned in the recess 10 of the tumbler 9 to retain this tumbler against rotative movement and consequently retaining the shaft 5 and knob 7' against movement so that the locking bolt 1 can not be actuated from the outside of the door as the knob 7' is preferably positioned upon the exterior of the door when in use.

The end of the arm 11 opposite the pivot point is connected to the pole 14 of a solenoid 15 and the lug 13 is normally retained in engagement with the recess 10 by means of a spring 16 and the solenoid may be connected to any electrical circuit thru the line wires 17 which has a switch 18 therein which, when closed, completes a circuit to the solenoid 15 for exciting the same and moving the pole 14 into the solenoid to rock the arm 11 on its pivot and disengage the lug 13 from the recess 10. It will be noted that this movement will move the spring 16 beyond the dead center so as to retain the arm 11 in an unlocked position. This position is maintained until after the knob 7' has been turned to rotate the shaft 5 and actuate the tumbler 9 and will move the locking bolt 1 inwardly and bring the pin 17 carried by the bolt into engagement with the arm 11 and move the same toward the tumbler 9 beyond the dead center of the spring, causing the lug 13 to engage the perimeter of the arcuate portion of the tumbler so that the same will ride thereon until the recess 10 is again in its normal position to receive the lug 13.

In order to retain the arm 11 in a normally unlocked position regardless of the action of the spring 16, a pin 19 is mounted in the casing 12 and has a flattened end portion 20 which is positioned in alignment with the lug 21 carried by the extension arm 22 of

the arm 11, thus when the flat faces of the end 20 of the pin are positioned in alignment with the lug 21, the extension arm 22 is permitted to be moved so as to permit the arm 11 to be moved toward the tumbler 9 for seating the lug 13 in the recess 10, but, however, when the pin 19 is rotated so as to bring the round side of the end 20 of the pin in alignment with the lug 21, the swinging movement of the arm 11 toward the tumbler 9 is limited to the position illustrated in Figure 4 so as to prevent the lug 13 from seating in the recess 10.

The rotation of the pin 19 to position the flat face of the edge portion in alignment with the lug 21 is carried out from the front edge of the door wherein the pin is provided with a disc 23 having a transverse ridge 24 thereon and this disc 23 is normally retained seated in the recess 25 by means of a coil spring 26 which is mounted upon the pin 19 and disposed between the transverse pin 27 and the inner face of the front of the casing 12. From this it will be apparent that when the ridge 24 is positioned transversely of the front of the casing, as shown in Figure 3, the arm 11 is free to be moved to a locking or unlocked position but when the ridge portion is disposed vertically relative to the front of the casing, as shown in Figure 4, the movement of the arm 11 toward the tumbler 9 is limited so as to prevent the lug 13 from seating in the recess 10 to lock the tumbler against movement.

It will be apparent from the foregoing that I have provided an improved lock device wherein the actuating bolt may be readily reciprocated for opening the door from the interior thereof but can only be actuated from the exterior thereof when the switch 18 is closed for exciting the solenoid 15 and moving the arm 11 laterally in the casing 12 so that the lug 13 will be disengaged from the recess 10, when the arm 11 is rocked upon its pivot to release the tumbler 9 and upon turning movement of the knob 7' the bolt 1 will be reciprocated in the casing 12 bringing the pin 17 carried thereby into engagement with one edge of the arm 11 and moving the same toward the tumbler 9 so that the arm may be readily placed in a locking position upon actuation of the bolt. It will be apparent that this improved locking device may be used on various types of locks which include the reciprocating type of locking bolt and is comparatively simple and inexpensive to install.

While I have shown and described the preferred form of my invention, it will be obvious that various changes in the details of construction and in the proportions may be resorted to for successfully carrying my invention into practice without sacrificing any of the novel features or departing from the scope of the appended claims.

Having thus described my invention, what I claim is:

1. The combination with a latch bolt, means for operating the latch bolt, and a disc shaped tumbler operable with the latch bolt operating means and defining a recess in its edge portion, of a pivotally supported locking member defining at one end portion an extension and intermediate its end portions a lug adapted for engagement in the recess, an electrically operated device having operative connection with the opposite end portion of the locking member for pivoting the locking member in a direction to dispose the lug from engagement in the recess, means operable by movement of the latch bolt for pivoting the locking member in an opposite direction when said device is inoperative to engage the lug in the recess, and means operable on the extension for optionally limiting pivotal movement of the locking member in a direction to engage the lug in the recess.

2. The combination with a latch bolt, means for operating the latch bolt, and a disc shaped tumbler operable with the latch bolt operating means and defining a recess in its edge portion, of a pivotally supported locking member defining at one end portion an extension and intermediate its end portions a lug adapted for engagement in the recess, an electrically operated device having operative connection with the opposite end portion of the locking member for pivoting the locking member in a direction to dispose the lug from engagement in the recess, means operable by movement of the latch bolt for pivoting the locking member in an opposite direction when said device is inoperative to engage the lug in the recess, and means operable on the extension for optionally limiting pivotal movement of the locking member in a direction to engage the lug in the recess, said means including a lateral pin carried by the extension, and a rotatable member having an end portion defining a flattened side and a rounded side opposite the flattened side adapted optionally for engagement with the pin.

In testimony whereof I affix my signature.

ROMAN H. MALICKI.