Feb. 14, 1928. 1,658,854

G. NOBILE

LOCK

Filed March 9, 1927

Fig. 1

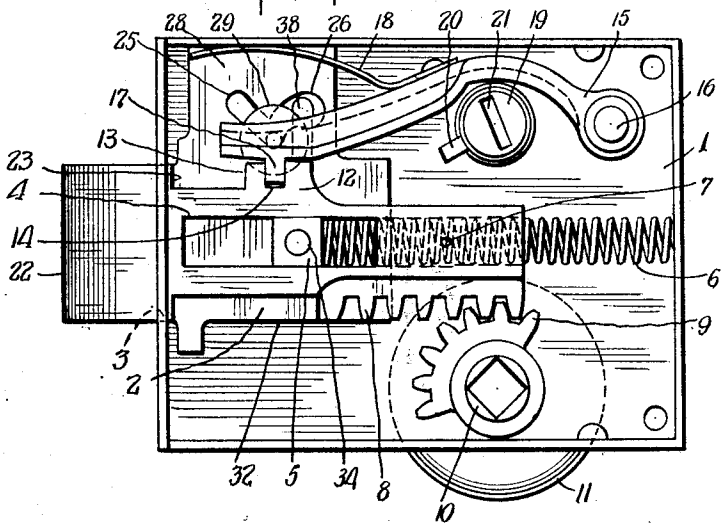


Fig. 2

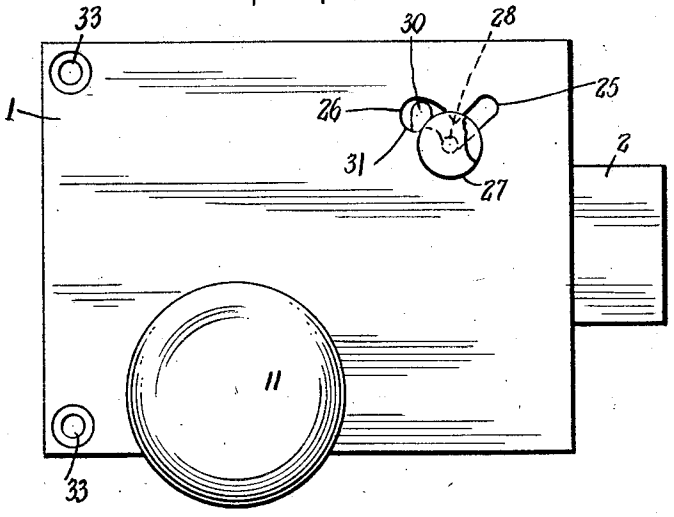
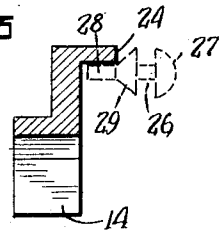


Fig. 3



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Patented Feb. 14, 1928. 1,658,854

UNITED STATES PATENT OFFICE.

GIUSEPPE NOBILE, OF NEW YORK, N. Y.

LOCK.

Application filed March 9, 1927. Serial No. 173,924.

My invention relates to improvements in locks, especially locks having bolts for holding doors or the like, in closed position.

An object of the invention is to provide a lock comprising parts to be adjusted to enable the bolt to be retracted either with a key, or without a key, by the turning of a knob; with the bolt adapted to be moved to full projected position and securely held so that it cannot be withdrawn except by means of a key; or to partly projected position so that it can be withdrawn simply by turning a knob, from within or without.

The nature of the invention is set forth in the following description, taken with the accompanying drawings; but I reserve the right to make changes falling within the scope and spirit of the appended claims.

On the drawings:—

Figure 1 is a view of the inside of a casing containing the mechanism of a lock according to my invention;

Figure 2 is an outside view thereof; and

Figure 3 is a section on the line 3—3 of Figure 1.

The same numerals identify the same parts throughout.

At 1 is indicated a casing closed at the back and on all four sides, but open in front to enable it to be laid against a door on the side or surface which is turned to the inside of the enclosure or room to which it leads. In this casing is a slidable bolt 2, projecting through an aperture 3, and having a slot 4, to receive a square guiding stud 5 in the casing. A spring 6 abuts at one end against this stud, extends through an open bore in the inner end of the bolt, and rests at its opposite end against the far side of the casing; and a pin 7 in the bolt connects the bolt and spring, engaging the spring at a point such that the spring normally acts to project this bolt not quite its full distance through the aperture 3.

The bolt has rack teeth 8 on its lower edge to mesh with circular teeth 9 on a shaft 10, carrying a knob 11, and being hollow to receive the stem or another knob on the outside face of the door in the usual way. On the upper edge of the bolt is a lateral extension 12, forming a shoulder 13, and having a recess 14. At 15 is a lever or latch pivoted upon a pin 16, and having a bit 17 to engage the recess 14, and dog the bolt in full outer position. A spring 18 fixed to the lever and pressing against the top of the casing, urges the lever 15 downward, so that when the bit 17 enters the recess 14, the bolt cannot be drawn back without the lifting of the lever 15.

The numeral 19 indicates the key plug, with a projection 20, to engage the lever 15, and lift it, and this plug has a key slot 21.

The bolt has its end bevelled or rounded, as shown at 22, and a wide notch or recess 23 on top, in front of the shoulder 14. Along the top the lever 15 has an edge 24 extending towards the closed back of the casing 1. Adjacent the extension 12, in the position of the bolt shown in Figure 1, the closed back of the casing has a pair of slots 25 and 26, running together downward at an angle, and 27 is a small knob or head on a pin 28 projecting through the slots and under the edge 24 of the lever, a collar 29 fixed on the pin inside the casing preventing the removal of this head and pin. On the end of the extension 12 is a finger 30 passing up beyond the rim 24, of the lever, and in position to push upon the inner end of the pin 28 and move the head 27. The upper extremity of the slot 26 has a notch or recess 31; and the casing may be thickened or reinforced at 32 to enable the slots 25 and 26 to be cut therein, and support the stud 5. Holes 33 enable the casing to be screwed or bolted on the door, and 34 is a fastening device for the stud 5.

When the latch engages the notch 14 with its bit 17, the bolt is held in full projected position. To withdraw the bolt from without, one must use a key to turn the plug 19, and cause the projection 20 to lift the lever 15. Then by turning the knob, the gear 9 moves back the bolt 2. The bolt can be retracted from within the room or enclosure by using the head 27, pushing it into the slot 25 to make the pin 28 lift the latch 15, so that the bolt can be shot back by the knob 11.

When the latch 15 is lifted the spring 6 acts to move back the bolt just enough to carry the shoulder 13 past the bit 17; the spring being set for this purpose. Then when the latch is released, the bit drops in front of shoulder 13. Now the bolt can be fully retracted by merely turning the knob on the inside or outside of the room, and the lock can be set to permit this mode of operation at any time by moving the head 27 up along the slot 25 and then releasing the head; so that one leaving the room can close the door, and re-open it without a key.

If, with the bolt in the position shown, or

partly withdrawn and with the bit 17 engaging the shoulder 13, one wishes to set the lock, upon leaving the room, so that the door cannot be opened from the outside except by a key, he first retracts the bolt fully and opens the door and moves the head along the slot 26 till the pin reaches recess 31, thus lifting the latch 15; holding back the bolt with the outside knob. When the door is closed, the knob is turned to push the bolt out far enough to bring the notch 14 under the bit 17. As the bolt moves out the finger 30 moves the pin 28 down in the slot 26, lowering the latch till the bit 17 enters the recess 14. Hence a key is needed when the bolt is to be moved back again.

Having described my invention what I believe to be new and desire to secure and protect by Letters Patent of the United States is:—

1. A lock comprising a bolt, rack teeth on the bolt, a gear meshing with said teeth, a spring tending to urge the bolt to partly projected position, a latch, a shoulder on the bolt to be engaged by the latch when the bolt is in partly projected position, a head to disengage the latch from the bolt, a casing having V-shaped slots running together to guide the head, the bolt having a recess adjacent the shoulder, so that, when the latch is disengaged from the bolt, the bolt can be moved to full projected position to be engaged and secured against withdrawal by said latch, and a finger on the bolt to move the head along one of said slots, to enable the latch to be released from the head when the bolt is moved to full projected position.

2. A lock comprising a bolt, rack teeth on said bolt, a gear meshing with said teeth, a spring tending to move the bolt to partly projected position, a latch, a key-operated part to control the latch, a shoulder on the bolt to be engaged by the latch when the bolt is in partly projected position, and a head to disengage the latch from the bolt, the bolt having a recess adjacent said shoulder, so that when the latch is disengaged from the bolt, the bolt can be moved to full projected position to be again engaged and secured against withdrawal by said latch.

In testimony whereof I affix my signature.

GIUSEPPE NOBILE.