Jan. 31, 1933. G. E. STRANDT 1,895,594

LOCKING DEVICE FOR DOORS

Filed Jan. 22, 1931

FIG. 1.

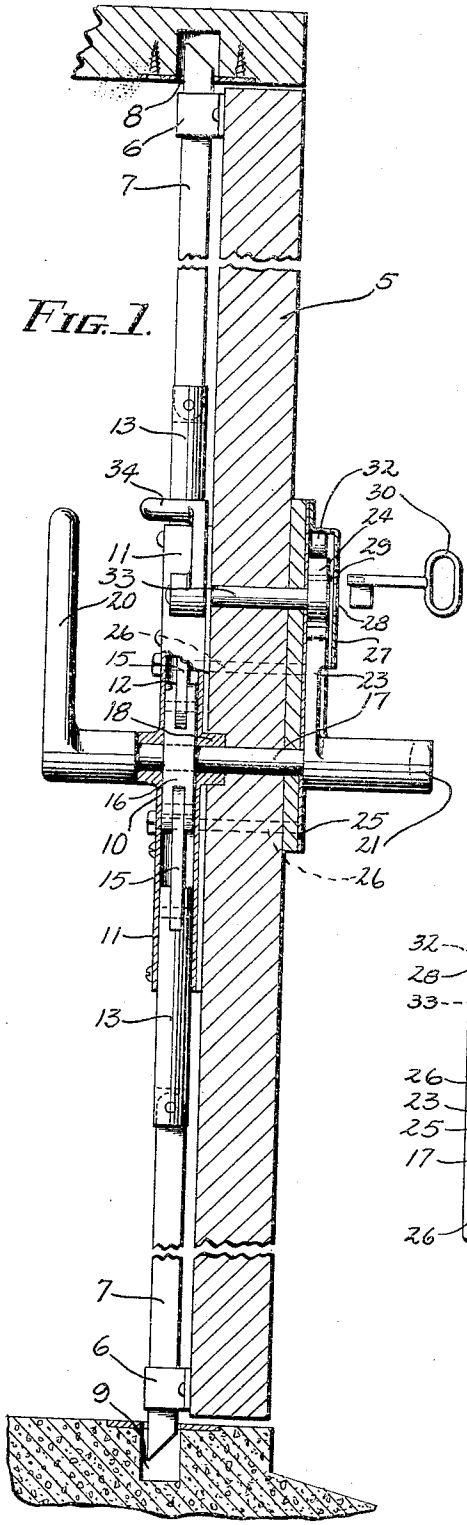


FIG. 2.

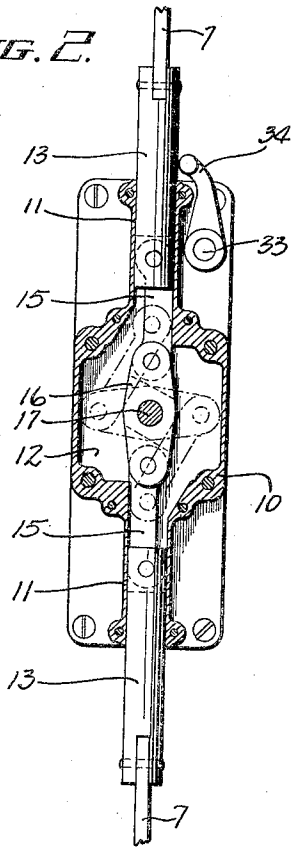
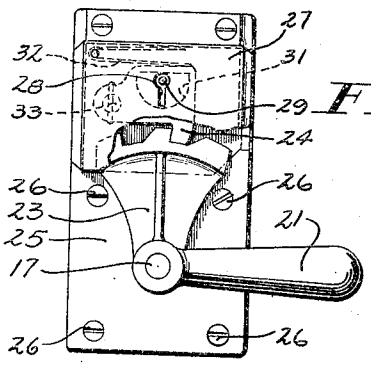


FIG. 3.



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UNITED STATES PATENT OFFICE

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LOCKING DEVICE FOR DOORS

Application filed January 22, 1931. Serial No. 510,408.

This invention relates to improvements in locking devices for doors. The invention is particularly intended for use upon garage doors, but may also be used elsewhere.

It is the primary object of the invention to provide a novel and simple arrangement of bolts for securing the door at its top and bottom, together with means for facilitating the manipulation and the locking of said bolts.

In the drawing:

Figure 1 is a fragmentary vertical section through a door and adjacent portions of the casing and floor, the mechanism applied to said door in accordance with this invention being shown partially in section and partially in side elevation.

Figure 2 is a vertical section through a portion of the casing which encloses the bolt actuating mechanism on the interior of the door.

Figure 3 is a front elevation of the lock mechanism on the exterior of the door, a portion of its casing being broken away to expose the locking pawl.

Like parts are identified by the same reference characters throughout the several views.

The door 5 is provided adjacent its upper and lower margins with guides 6 for the bolts 7 which are adapted to be projected in opposite directions into suitable sockets provided at 8 in the top of the door casing and at 9 in the floor.

Secured to the inner face of the door at the proper height for a handle, is a casting 10 which includes integral cylinders 11 and a central chamber 12 which encloses the actuating linkage. Pistons 13 reciprocable in the cylinders 11 are pivotally connected with the respective bolts 7 and are connected by means of link 15 with the rocking lever 16 which is carried by a rock shaft 17 extending through the door. The casting 10 integrally provides at 18 suitable bearings for this shaft. It will be obvious that by oscillating the shaft the bolts 7 may be engaged and disengaged with their respective sockets 8 and 9.

At its inner end the bolt 7 carries a handle 20. At its outer end the bolt carries a handle 21 with the hub of which a toothed segment 23 is integral. As shown, the segment has two teeth, each of which is abruptly shouldered in one direction and has an inclined face in the other for interaction in each of a plurality of positions with the key operated detent pawl 24.

The mounting plate 25 in the outer face of the door not only supports the lock mechanism but is complementary to the casting 10 on the inner face of the door in providing anchorage for four bolts 26 which pass completely through the door. The upper end of the plate, together with the upper end of segment 23 and all of the pawl 24, are enclosed by a housing 27 provided with a key slot 28. A stud 29 registering with the larger portion of the keyhole forms a boss with which an opening in the end of key 30 is engageable. When the key enters the slot 28 it is received into a semi-circular recess 31 in the pawl 24, and may be turned in either direction to engage the flat upper side of said recess to lift said pawl out of engagement with segment 23 against the pressure of the spring 32.

The pawl 24 is preferably secured by a cross pin and a shaft 33 which extends through the door and carries a handle 34 by means of which the pawl may be manipulated from the inside of the door without a key.

It will be understood that for garage purposes a simple key such as that illustrated will be sufficient, but that a more complex lock structure may be designed in accordance with this invention for special installations requiring more adequate protection.

One of the desirable features of the present invention resides in the fact that the device cannot be left unlocked. Manipulation of the key is essential to the opening of the garage door from the outside, and it is also

essential to manipulate the handle 21 for operating the locking bolts 7 simultaneously with manipulation of the key by means of which the locking pawl 24 is lifted to release segment 23. The same simultaneous operation of the parts is required to open the door from the inside, but the provision of handle 34 eliminates any necessity for a key.

The pawl will ordinarily engage in the second tooth of segment 23 as shown, but if snow or dirt partially fills one of the sockets 9 the pawl may engage a different tooth to ensure the locking of the door even under these abnormal conditions.

I claim:

1. In a door lock, the combination with a locking bolt, of a rock shaft provided with crank and linking connections to said bolt and a handle exteriorly of the door, a toothed segment on said handle, a housing enclosing a portion of said segment, and key controlled means within said housing including parts projecting through the door and operable from either side of said door for locking said segment, said rock shaft having a second handle interiorly of said door.

2. In a door lock, the combination with a locking bolt, of a rock shaft provided with crank and linking connections to said bolt and a handle exteriorly of the door, a toothed segment on said handle, a housing enclosing a portion of said segment, and key controlled means within said housing for locking said segment, said means comprising a pawl adapted for interlocking engagement with the enclosed portion of the segment, a spring pressing said pawl toward a position of engagement with the segment, a key engageable portion of said pawl, and means for actuating said pawl independently of a key, whereby said pawl may be manipulated to segment-releasing position, said rock shaft having a second handle interiorly of said door.

3. A door latch comprising interior and exterior fittings, interior bolts, bolt operating means mounted within the interior fitting, key operated means mounted within the exterior fitting, a rock shaft extending through said fittings and provided with connections for the operation of said bolt operating means, handles at the ends of said rock shaft, the exterior handle including a part releasably engaged by said key operated means, a second rock shaft extending through said fittings and connected with said key operated means and provided with a handle adjacent the inner fitting of said door for the manual release of said key operated means from the interior of said door independently of any key.

4. A door controlling device comprising a reciprocable bolt receivable into a socket disposed on one side of said door, a rock shaft extending through said door and provided with a crank and link connected with said bolt for the reciprocation thereof, a segment carried by said rock shaft and provided with a plurality of teeth, said rock shaft extending through said segment, a handle on said segment and a key operated pawl engageable alternatively with said teeth and adapted when engaged with either tooth to maintain said bolt in its socket, said teeth being adapted to permit said bolt to remain locked at differing depths in said socket, and means adapted to disengage said pawl independently of a key.

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