March 17, 1931. C. HOFFMAN 1,796,891

DOORLOCK

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Fig. 1.

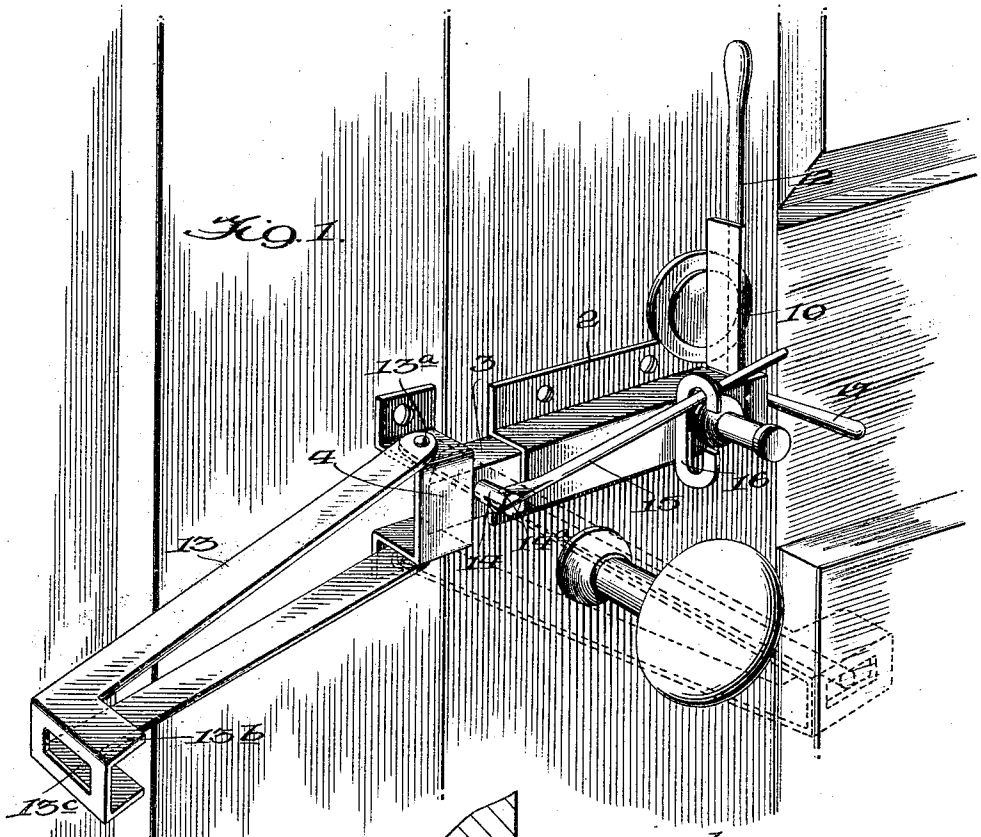


Fig. 2.

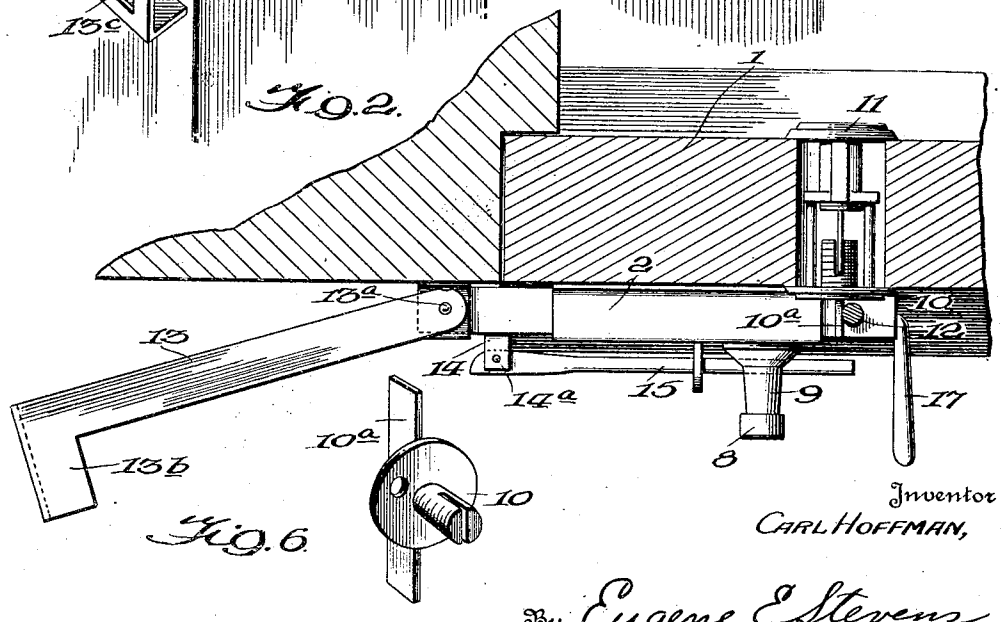


Fig. 6

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Fig. 3.

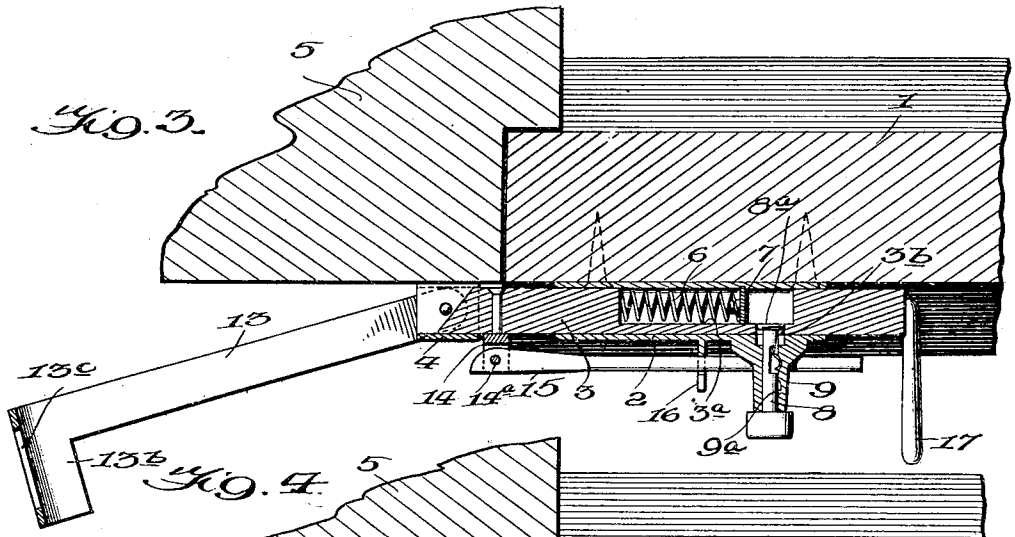
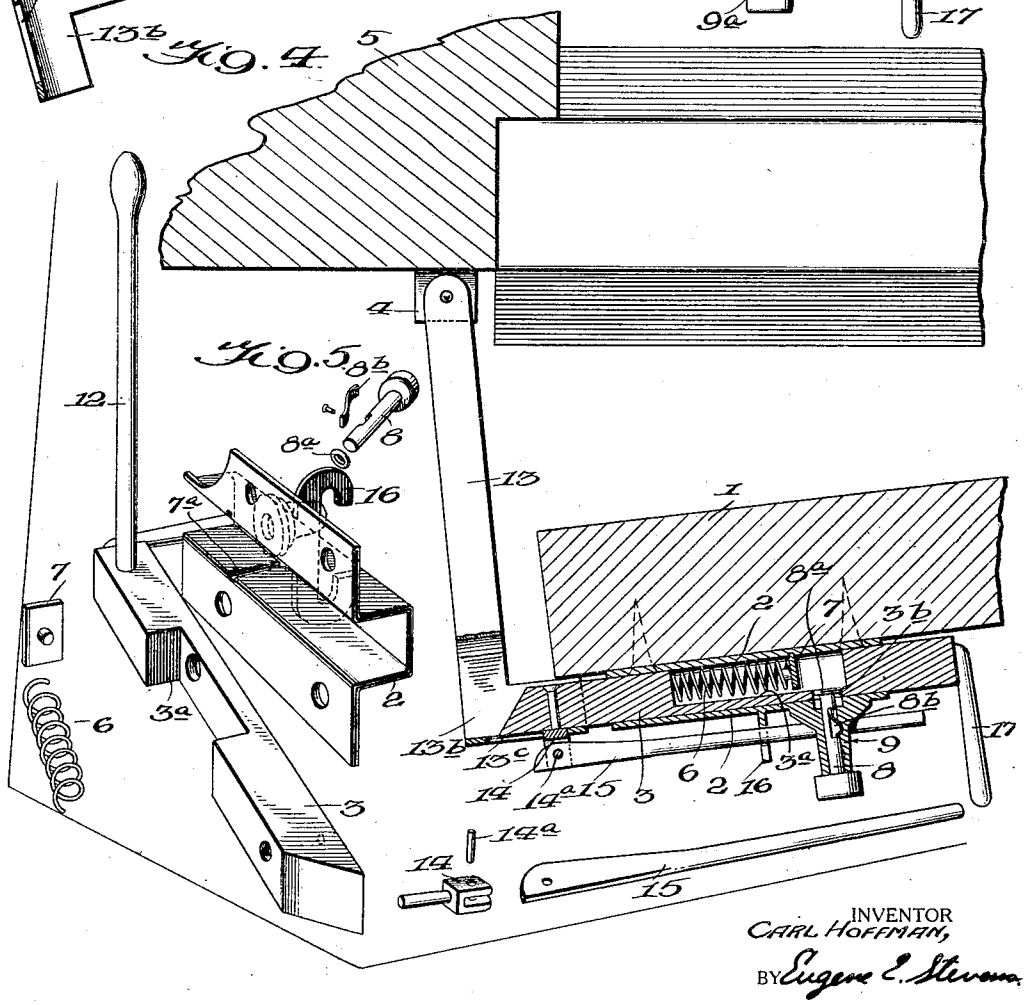


Fig. 4.



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Patented Mar. 17, 1931 1,796,891

UNITED STATES PATENT OFFICE

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DOORLOCK

Application filed June 12, 1929. Serial No. 370,434.

My invention relates to locking devices for doors and more particularly to door bolts, an important object of the invention being to provide a simple and efficient bolt for locking the door in a partly opened position as well as when fully closed, the improved device including means whereby it is impossible to tamper with the mechanism and free the same from the outside when the door is locked in partially opened position.

Various other objects and advantages of the invention will be developed as the description proceeds. The various features of novelty which characterize the invention are pointed out with particularity in the claims which are annexed to and form a part of this specification. However, in order that the invention may be better understood reference should be had to the accompanying drawings illustrating the now preferred form of the invention. It is to be understood, however, that I am in nowise restricted to the detailed structure which I have illustrated and that I reserve the right to make such changes and modifications therein as fairly fall within the spirit and scope of the subject matter as claimed.

In the drawings,

Figure 1 is a perspective view showing the application of my invention to a door and illustrating the bolt in a position to lock the door fully closed;

Figure 2 is a side view, the door and jamb being shown in section;

Figure 3 is a longitudinal sectional view through the device;

Figure 4 is a view partly in plan and partly in longitudinal section showing the parts in a position to lock the door partly opened;

Figure 5 is a group perspective view illustrating the various parts of the latch mechanism in disassembled relationship, and

Figure 6 is a perspective view of the key controlled element for manipulating the latch bolt.

Referring specifically to the drawings wherein like reference characters have been used to designate similar parts throughout, numeral 1 denotes the door to which has been applied the slideway 2 which receives the latch bolt 3. The door jamb is provided with a keeper 4 for receiving the latch bolt, the door jamb being indicated by numeral 5. Figures 4 and 6 clearly illustrate that the latch bolt is provided with a rectangular inner surface recess 3*a* for the reception of a spring 6 which functions to normally maintain the latch bolt 3 in protracted position. The forward end of the spring 6 bears against the latch bolt while the rear end bears against a plate 7 which is fixedly retained in grooves 7*a* of the guide 2. As will be appreciated the spring is entirely concealed from view and is protected by reason of its enclosed position.

To hold the latch bolt 3 in protracted position I employ a stop 8 which is carried in a boss 9 of the slideway 2. The enlarged head 8*a* of the stop 8 works in an end enlargement of the bore of the boss 9 which is in registry with a recess in the latch bolt 3 when the bolt is protracted. As indicated in Figure 4 a small curved spring 8*b* engages in a recess in the boss 9 to prevent the head 8*a* from accidentally slipping out of engagement with the hole in the latch bolt. By engaging the spring 8*b* in a recess 9*a* it is possible to hold the head 8*a* of the stop out of engagement with the bolt. The detailed construction of the stop and spring is shown in Figure 5.

The latch bolt 3 may be actuated from the outside of the door by means of a lock 11 which is preferably of the cylinder type, as illustrated in Figure 2. Suitable coupling means is provided between the lock and base plate 10 which is rotatably mounted at the inside of the door and carries a wing 10*a*. A lever 12 rising from the upper longitudinal edge of the lock normally bears against the wing 10*a*. When the base plate 10 is rotated by the action of the lock the wing 10*a* will cam against the pin 12 and retract the latch bolt 3.

The construction whereby the device is adapted to lock a door in partly opened positioned will now be described. The keeper 4 is provided with an auxiliary keeper 13 which takes the form of an elongated tapering yoke whose diverging legs are pivoted by means of

rivets as indicated at 13*a* to the keeper 4. The head 13*b* of the auxiliary keeper 13 is offset, as indicated in Figure 1 and is U-shaped in cross section to receive the end of the bolt 3. It is also provided with an opening 13*c* for the reception of a stud 44 which is rotatably carried by the bolt. The stud 14 pivotally carries as indicated at 14*a* an elongated lever member 15. When it is desired to lock the door in partly opened position the lever 15 and the auxiliary keeper 13 are moved to the dotted line position indicated in Figure 1. When the door is fully closed as illustrated the outer end of the lever 15 will just slide into the U-shaped head 13*b* of the keeper. Now when the door is opened the lever 15 will pass outwardly through the opening 13*c* until the stud 14 is projected through said opening. Now the lever is swung inwardly to the position shown in Figure 5 and is engaged in one of the arms of a double hook 16.

It will be readily appreciated that inasmuch as the lever 15 cannot be disengaged from the opening 13*c* until the door is fully closed it will be impossible for anyone to surreptitiously reach around the edge of the door and manipulate the mechanism to disengage the latch bolt 3 from the kept 13. Of course when the door is fully closed the latch 3 will be in engagement with the keeper 4 and can only be manipulated by a key from the outside. Further, if the stud 8 is in the position shown in Figure 4 the latch cannot be retracted and as a consequence the door will not be permitted to fully close.

The pin or lever 12 which is acted upon by the key operated wing 10*a* to retract the bolt may also be used as a manual means for retracting the bolt. In the drawings I have also illustrated a handle 17 which is carried at the end of the bolt and which serves as a manual means for actuating the same from the inside of the door.

The dotted line showing in Figure 1 clearly indicates that the lever 15 cannot be swung outwardly beyond a position perpendicular to the door. The heel 15*a* engages the stud 14 for this purpose. It will be obvious that if the lever 15 could be swung from the full line position of Figure 1 past a position perpendicular to the door it would be possible after disengaging the lever 15 from the arm of hook 16 to disengage elements 15 and 13 by swinging the door inwardly.

I claim as my invention:

1. In a latch and lock mechanism for doors the combination with a spring actuated latch bolt and its keeper of a pivoted lever carried by said latch bolt, an elongated auxiliary keeper pivoted to said keeper, said auxiliary keeper having an opening in its ends to receive said pivoted lever, and means for holding the pivoted lever in a position to maintain the door in open position.

2. In a door fastening device, the combination with a latch and its keeper; of a stud carried by said latch bolt, an elongated lever pivoted to said stud, an auxiliary keeper swingingly mounted upon said keeper, said auxiliary keeper having an opening in its end to receive said lever, said auxiliary keeper and lever being movable when the door is closed to a position to engage the lever in said keeper opening, the relative length of said auxiliary keeper and said lever being such as to prevent removal of the lever from the opening when the door is partially opened, and means for retaining said lever in a position when the door is opened and the lever and keeper in cooperative engagement to prevent the door from being closed.

3. A latch mechanism for doors comprising a latch bolt having a recess therein, a carrier for said latch bolt having a slideway for receiving the same, a stop positioned in said slideway and located within the recess of said latch bolt, a spring interposed between said stop and one end of said recess whereby to normally maintain said bolt projected, said latch bolt carrier when applied to a door serving to completely encase said bolt and its spring in said slideway, an adjustable stop operable to lock said bolt in protracted position, a keeper with which the latch bolt engages to maintain the door in closed position, a supplementary keeper of elongated form carried by said first mentioned keeper and with which said latch bolt is designed to be engaged to maintain the door in partially opened position, and means carried by said latch bolt and engageable with said supplemental keeper for preventing said door from being opened and for maintaining said latch bolt in cooperative engagement with said supplementary keeper.

4. A latch mechanism for doors comprising a latch bolt having a recess therein, a carrier for said latch bolt having a slideway for receiving the same, a stop positioned in said slideway and located within the recess of said latch bolt, a spring interposed between said stop and one end of said recess whereby to normally maintain said bolt projected, said latch bolt carrier when applied to a door serving to completely encase said bolt and its spring in said slideway, an adjustable stop operable to lock said bolt in protracted position, a keeper with which the latch bolt engages to hold the door in closed position, a supplementary keeper of elongated form carried by said first mentioned keeper and with which said latch bolt is designed to be engaged to maintain the door in partially opened position, a stud carried by said latch bolt, a lever pivoted to said stud, said supplementary keeper having an opening in its end to receive said lever and stud, and means carried by said latch bolt carrier for retaining

said lever in its position to hold the door partially opened.

5. In combination, a casing, a bolt slidable in the casing, a member rotatable in the bolt, a rod pivoted to the member, a frame adapted to be hingedly mounted on a door frame and having an opening for receiving the rod, all in the manner and for the purpose specified.

6. In a lock mechanism wherein a keeper is mounted on a door frame, and a slidable bolt is mounted on a door; a member rotatable in the bolt, a rod pivoted to the member, a U-shaped frame having its extremity pivotally engaged with the keeper and its intermediate portion provided with an opening for receiving the rod.

7. In a lock mechanism wherein a keeper is mounted on a door frame, and a slidable bolt is mounted on a door, a member rotatable in the bolt, a rod pivoted to the member, a U-shaped frame having its extremity pivotally engaged with the keeper and its intermediate portion provided with an opening for receiving the rod, and a plate on the door having a seat therein for holding the rod substantially parallel with the bolt.

In testimony whereof I affix my signature.

CARL HOFFMAN.