

H. G. VOIGHT.

LOCK.

APPLICATION FILED JULY 1, 1908.

938,921.

Patented Nov. 2, 1909.

2 SHEETS—SHEET 1.

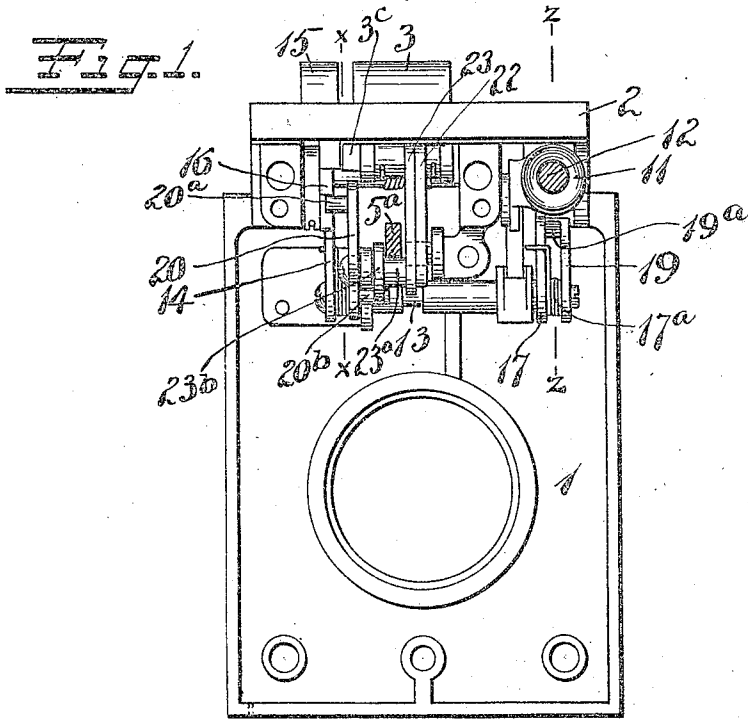
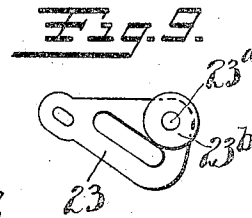
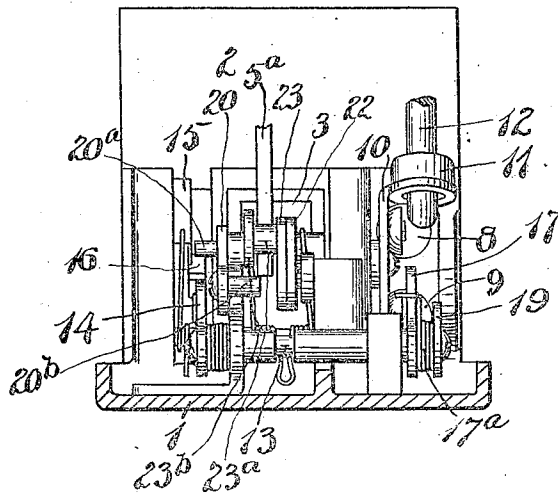


Fig. 2.



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Fig. 3.

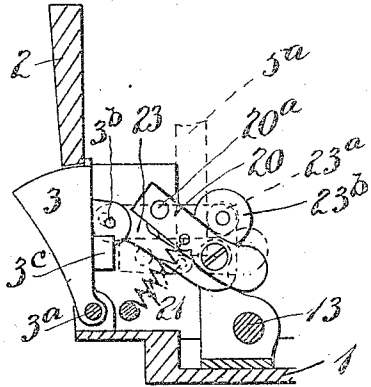


Fig. 4.

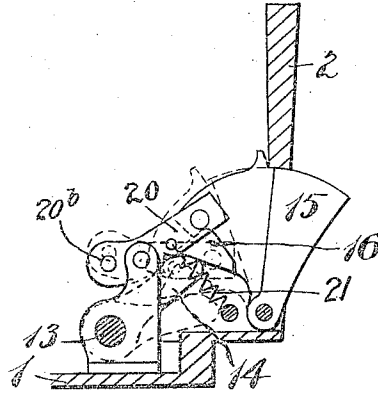


Fig. 5.

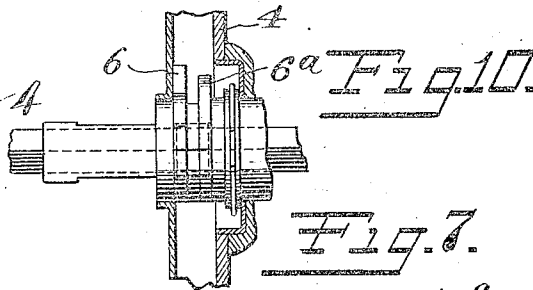
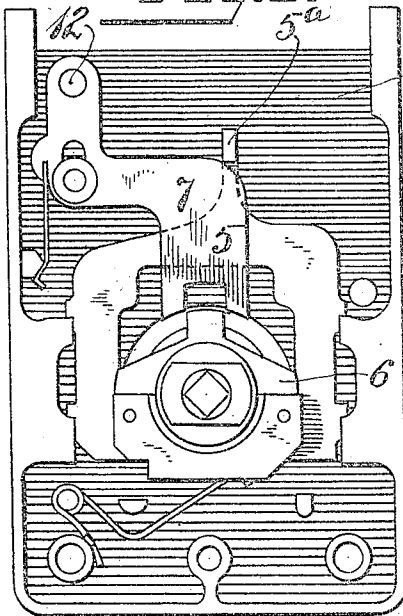


Fig. 7.

Fig. 5.

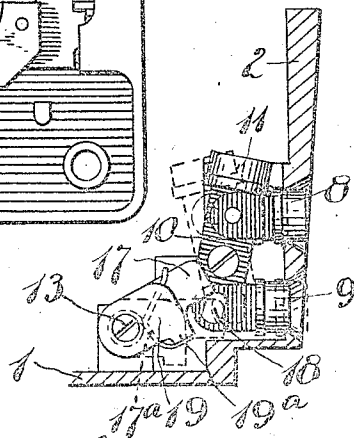
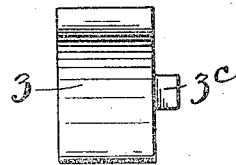


Fig. 8.



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UNITED STATES PATENT OFFICE.

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LOCK.

938,921.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed July 1, 1908. Serial No. 441,361.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a full, clear, and exact description.

My invention relates to improvements in locks, and has particular reference to an improvement in that type in which the various parts of the lock mechanism are carried by a pair of side plates, connected by a face-plate and adjustable to and fro, whereby the entire structure may be assembled by the manufacturer as a unitary mechanism, and may be readily applied to doors of different thicknesses without the necessity of forming the usual mortises.

The main object of this invention is to provide, in such a lock, a stop-work dogging mechanism whereby, when the door is closed, the latch bolt will be automatically dogged, so that it cannot be pushed back by means of a thin instrument inserted between the edge of the door and the door casing, a method sometimes resorted to by crooks.

This invention also contemplates using the ordinary latch bolt to perform the function of the usual dead-bolt (a separate and distinct device), thus eliminating this as a separate element. To that end, when it is desired to lock the door, certain "stop-work" or "night-latch" mechanism, so-called, is thrown on which operates to prevent the retraction of the latch bolt by one of the knobs. To prevent the unlawful operation of the "stop-work" mechanism by means of a thin instrument inserted between the edge of the door and door casing, I provide means which coöperates with the previously described dogging mechanism, to prevent releasing the knob that is "night-latched" by this method of attack. This second-mentioned dog is also automatically operated by the same device which operates the latch dog, it being thrown into action by the mere act of closing the door.

In the accompanying drawings, Figure 1 is a plan view of the inner side of one side plate of the lock, this view including the end plate and certain of the parts of the lock mechanism; Fig. 2 is a rear end elevation of the parts shown in Fig. 1; Fig. 3 is a section on the line $x-x$ of Fig. 1, looking from left

to right; Fig. 4 is a section on the line $x-x$ 55 of Fig. 1, looking from right to left; Fig. 5 is a section on the line $z-z$ of Fig. 1, certain parts being shown in elevation; Fig. 6 is an inside elevation of the side plate and certain parts, adapted to coöperative association 60 with the side plate, and parts shown in Fig. 1; Fig. 7 is an edge elevation of a detail of construction, detached; Fig. 8 is a front elevation of the latch bolt, detached; Fig. 9 is a view of another detail; Fig. 10 is a detail 65 view partly in section.

1 represents one side plate of the lock, for example, the outer one.

2 represents a face-plate, in this instance, rigidly connected with plate 1. 70

Plate 1 is adapted to rest against the side of the door, while plate 2 extends across the face or edge of the door and carries a spring latch bolt 3, pivoted at 3^a. Bolt 3 is provided with the usual beveled face to engage 75 the strike-plate (not shown) and be repressed thereby in the usual manner as the door closes.

4 is a side plate operating as a companion plate to the plate 1, and, in this instance, 80 adapted to the inner side of the door. In the particular form shown, plate 4 carries the latch-retracting mechanism. This latch-retracting mechanism includes a slide 5 mounted in suitable guideways in the plate 85 4, which slide is operated by independent knobs (not shown) on opposite sides of the lock and connected with the usual independent roll-backs 6-6^a.

For the purposes of this invention, it is 90 unnecessary to describe the particular construction of the slide or roll-back mechanism, it being sufficient to state that one of the roll-backs at least is controlled by an outer knob (not shown) and may be stopped 95 by means of a stop-slide 7, whenever desired. This stop-slide 7 may be operated in any well-known manner, for example, by means of the well-known "night-latch" buttons, such as shown at 8-9 in Fig. 5. 100 These buttons 8-9 usually project through apertures in the face-plate 2 and are connected by means of a pivoted walking beam 10. 11 is a socket on the end of said beam.

12 represents a pin on the stop-slide 7 105 ranged to stand in the socket 11 when the lock is assembled. By pushing in on the button 8, the stop-slide 7 will be advanced to

lock roll-back 6, so that the latch-slide cannot be retracted by the outer knob. If the button 8 is projected (as by pushing in the button 9), the stop-slide 7 is retracted, freeing roll-back 6 so that the slide 5 may be readily retracted from both knobs.

In a lock of the type shown herein, it is intended that the latch-bolt 3 shall operate both as a latch-bolt and as a dead-bolt, but, since it is a common method adopted by crooks to force back such bolt by means of a thin instrument inserted between the edge of the door and the door casing, it is essential to have mechanism designed to prevent this method of unlawful attack. To that end, I provide dogging mechanism which is automatically actuated upon the mere closing of the door, so that when, and while, the door is closed, it is impossible to force back the latch-bolt by this aforesaid method of attack. Further, in a lock of this type, where the latch-bolt is relied upon as the dead-bolt, it is only available as such when the night-latch is "on"; in other words, when the door cannot be opened by rotating the outer knob. But, since the crook may, in the ordinary case, insert a thin instrument between the edge of the door and the door casing and throw off the "night-latch", I also provide means which is automatically operated by the closing of the door to prevent this method of tampering with the "night-latch". As it is to the dogging mechanism that this invention primarily relates, I will describe particularly those features of improvement which safe-guard the lock at such times as it is intended to dead-lock the door.

13 is a shaft suitably mounted at the rear of plate 1. This shaft carries a crank-arm 14.

15 is an actuator, having a beveled face, and mounted in the front plate 2 of the lock, and preferably hinged in the same manner as the latch-bolt 3. When the door is closed, this actuator 15 is pressed back and held back by engaging the strike-plate (not shown). That part of the strike-plate engaged by the actuator 15 is imperforate and hence so long as the door is closed this actuator will be held repressed.

16 is a cam on the actuator 15. This cam bears against the end of the crank 14, so that when the actuator 15 is pressed back, it will shift the crank from the position indicated in solid lines (Fig. 4) to the position indicated in dotted lines in said figure. This gives a partial turn to the shaft 13. Loosely mounted on the shaft 13 is a stop-arm 17 in the form of a crank-arm, arranged, when in one position, to stand behind a stud 18 on the night-latch mechanism. At other times the stop-arm 17 stands in the position indicated in Fig. 5, on top of said stud 18.

19 is a crank fixed on the shaft 13 and having an offset arm 19^a arranged to support the stop-arm 17.

17^a is a spring arranged to coact with the stop-arm to cause it to normally rest upon the offset arm 19^a of the crank 19 (see Figs. 1, 2 and 5). If the shaft 13 is rotated by the actuator 15, so as to move it in a direction to depress the crank 19 from the position shown in Fig. 5, if it so happens that at any time the button 9 is pressed in, the stop-arm 17 will continue to rest upon the stud 18. If, however, the position of the buttons 8—9 is reversed from that shown in Fig. 5, it is apparent that said movement of the shaft 13 would cause the stop-arm 17 to move down with the crank 19, so that the end of said arm would stand to the rear of the stud 18. Since this represents the "on" position of the night-latch, it follows that if the night-latch is set in such position and the door is closed, the mere act of closing the door will cause the stop-arm 17 to move into a position to prevent the unlawful manipulation of the stop-work or night-latch mechanism, so long as the door remains closed. By this means, the lock is safe-guarded in that no unlawful entry can be effected by the employment of a thin instrument inserted between the edge of the door and the door casing, for the purpose of shifting the "night-latch" from the position indicated in dotted lines (Fig. 5) to that indicated in solid lines in the same figure.

Now, turning to the dogging mechanism for the latch-bolt. Obviously, unless equally effective means is provided to prevent the repressing of the latch-bolt by a similar method of attack, the employment of a dogging mechanism of the stop-work, such as described, would be to no good purpose. To that end, therefore, I provide a dogging mechanism for the latch-bolt 3, which operates simultaneously with the dogging mechanism for the night-latch. This dog for the latch-bolt comprises a pivoted latch dogging lever 20, preferably drawn by a small spring 21 in a direction to stand to the rear of the latch-bolt 3, as indicated in dotted lines (Fig. 3). This lever 20 is provided with an offset shoulder or stud 20^a, which is engaged by cam 16, previously described. When the actuator 15 is pressed back this cam 16 moves away from the stud 20^a so that the lever 20 will shift to the position indicated in dotted lines (Fig. 3), in which position the end of said lever 20 stands directly to the rear of the abutment 3^a on the latch-bolt 3, so that the said latch-bolt cannot be pressed back by any force exerted against the outer side thereof. Pivoted to the rear of the latch-bolt 3 are two links or tails 22 and 23. These tails are slotted, the slotted portion of each tail projecting rearwardly, a

suitable guide-stud on a stationary part guaranteeing the proper support of said tails.

The function of the tail 22 is simply to limit the forward excursion of the latch-bolt 3, while the tail 23 acts as a coupler between the latch-slide 5 (Fig. 6) and the latch-bolt 3. The latch-slide 5 carries a stem 5^a, which stands forward of a bearing-pin 23^a (Fig. 1) on the tail link 23.

As shown in Fig. 9, the tail link 23 is slotted so as to have a limited amount of play upon the bearing-pin 3^b at the rear of the latch-bolt 3, (Fig. 3) the purpose of which will now be explained. 20^b is a pin on the lever 20. This pin stands to the rear of a roller 23^b on the pivot 23^a. When the door is closed and the actuator 15 is pressed back, the lever 20 assumes the position indicated in dotted lines (Fig. 3). In this position the pin 20^b engages the roller 23^b and moves the tail section 23 forward so that it will stand in the position indicated in said Fig. 3. If any effort is now made to press the latch-bolt 3 back, by means of an instrument inserted at the edge of the door, such an effort will be unsuccessful, because the part 20 stands as a fixed abutment to the rear of said latch. If desirable, however, the latch-slide 5 may be retracted in a proper manner by one of the disengaged roll-backs. The first backward movement of slide 5 will retract the tail section 23. By this movement the roller 23^b will, by engagement with the pin 20^b, tilt the top lever 20 up into the latch-freeing position, indicated in solid lines (Fig. 3). A continuation of the retraction of the latch-slide 5 will then cause the retraction of the latch-bolt 3, this occurring through the medium of the extension 5^a, stud 23^a, and the tail 23.

From the foregoing, it will be seen that when the night-latch is applied or thrown "on", the closing of the door will result in the dogging of both the latch-bolt 3, as well as the "night-latch", so that no unlawful tampering with the lock can be successfully practiced. Obviously, if the outer knob is held against movement, no entry can be effected from the outside, unless suitable key-actuated mechanism is provided. Such mechanism is customary, but, since it constitutes no part of this invention, it is unnecessary to describe it herein.

By the use of my safety devices, the lock is rendered precisely as secure as though the usual dead-bolt were employed, since the

latch-bolt, when safe-guarded as herein described, performs with ideal effect the dual function of a "latch-bolt" and a "dead-bolt".

What I claim is:

1. In a lock, a spring latch, means for retracting the same, a manually operable stop for dogging the latch retracting means, a swinging dog for said stop, a swinging dog for said latch, an exposed actuating device for controlling the last two mentioned dogs, said actuating device being arranged to be repressed by engaging with a portion of a door casing when a door to which the lock is fitted is closed, and means between the latch retracting device and the last mentioned dog to actuate the latter when said latch is to be retracted by said retracting means.

2. In a lock, a spring latch, means for retracting the same, a manually operable stop for dogging the latch actuating means, a shaft, an exposed spring-projected actuator therefor arranged to be repressed by engaging with a portion of a door casing when a door to which the lock is applied is closed, a dog controlled by said shaft for blocking said stop, another dog for blocking said latch.

3. In a lock, a spring latch, means for retracting the same, a manually operable stop for dogging the latch actuating means, a shaft, an exposed spring-projected actuator therefor arranged to be repressed by engaging with a portion of a door casing when a door to which the lock is applied is closed, a dog controlled by said shaft for blocking said stop, another dog for blocking said latch, said last mentioned dog being retracted by the same means for retracting said latch bolt, but in advance of the retraction of the latter.

4. In a lock, a spring latch, means for retracting the same, a manually operable stop for dogging the latch actuating means, a shaft, an exposed spring-projected actuator therefor arranged to be repressed by engaging with a portion of a door casing when a door to which the lock is applied is closed, a dog controlled by said shaft for blocking said stop, another dog for blocking said latch, each of said dogs being spring-actuated in both directions.

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Witnesses:

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