H. G. VOIGHT.

LOCK.

APPLICATION FILED APR. 4, 1917.

1,257,554. Patented Feb. 26, 1918.

Fig. 1.

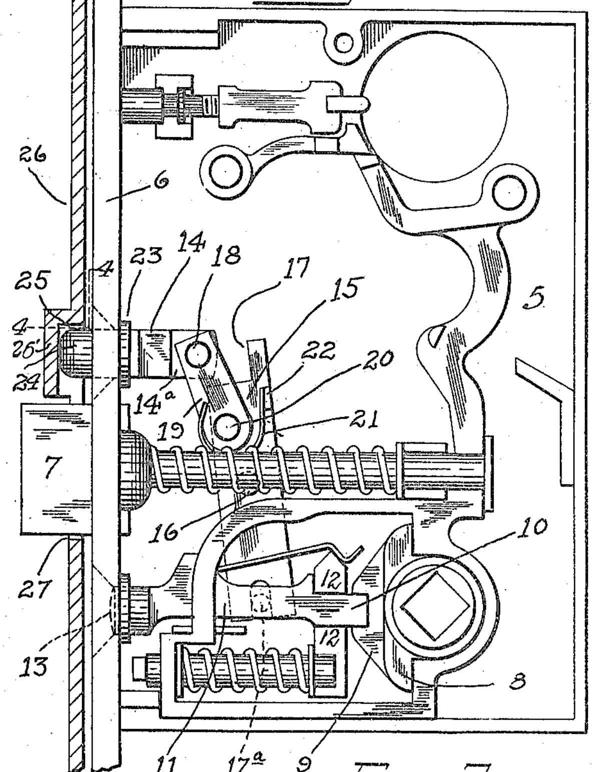


Fig. 3.

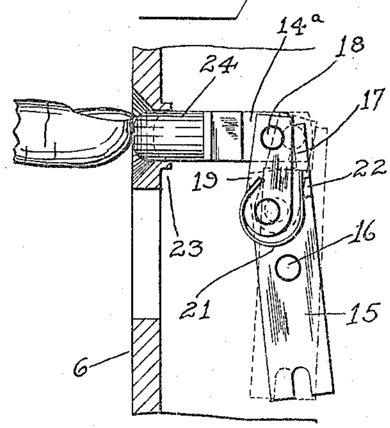


Fig. 4.

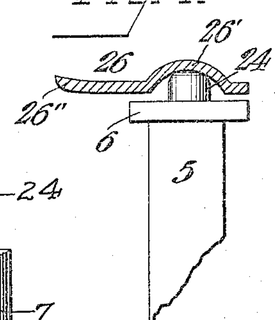
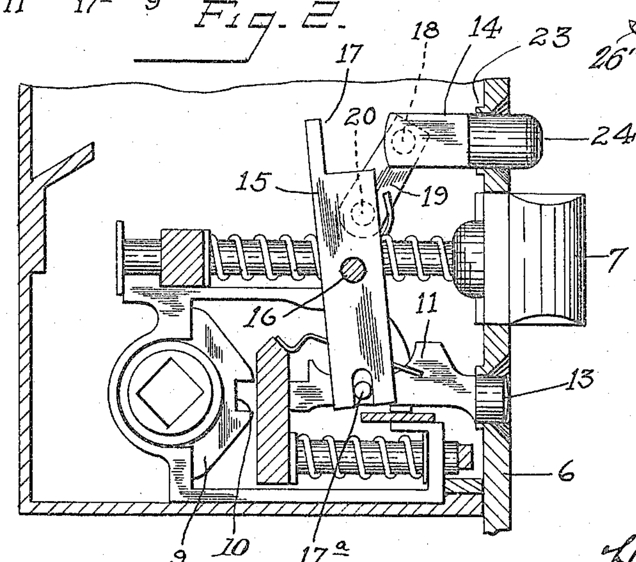


Fig. 2.



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LOCK.

1,257,554. Specification of Letters Patent. Patented Feb. 26, 1918.

Application filed April 4, 1917. Serial No. 159,697.

To all whom it may concern:

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

This invention relates to locks, and more particularly to those of the type in which a latch bolt is retractable by independent inner and outer knobs, there being suitable night latch mechanism or stopwork accessible at the face plate of the lock case for dogging and releasing the outer knob.

Ordinary locks of this kind have the disadvantage that the door can be opened by a burglar if he can insert a wire, buttonhook, or the like, between the face plate and the door jamb and manipulate it in such a manner as to push in the releasing slide or button of the stopwork. Under these conditions the stopwork can be thrown off and the door can then be opened merely by turning the outside knob.

The primary object of the present invention is to furnish an improved form of lock in which the stopwork for dogging the latch rollback is well protected against unauthorized manipulation of the kind above mentioned.

Another object of the invention is to provide a simple, inexpensive stopwork construction in which access to the releasing slide or button is rendered very difficult when the door is closed and wherein even if such access be had the releasing slide cannot be so fully actuated as to throw off the dogging slide and thereby release the outer knob.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing,

Figure 1 is an elevation of a mortise lock embodying my improvements with the cap plate removed, showing the stopwork "on" and the door closed.

Fig. 2 is a reverse view of the lower part of Fig. 1 with the stopwork "off," the door being in the open position.

Fig. 3 is a detail of part of the stopwork.

Fig. 4 is a transverse section through the strike plate taken on the line 4—4 of Fig. 1, showing also a portion of the coöperating lock in full lines.

The lock selected for illustration is of the usual mortise type having a case 5 with a face plate or front 6 and the ordinary latch-bolt 7 is adapted to be retracted independently by inner and outer hubs 8, 9, respectively, connected in the customary way with the usual knobs and spindles.

The outer hub 9 has a notch 10, adapted to receive the inner end of a dogging slide 11, mounted in the lower part of the case between lugs 12 and having an operating head or button 13 projecting out of the case through an opening in the face plate, in the usual manner. This slide 11 forms a part of the stopwork and the latter also includes a releasing slide 14 and a walking beam or connecting lever 15. The walking beam 15 is pivoted to the case at 16 and has a slotted lower end fitting over a pin 17^a on the dogging slide 11, as customary in locks of this type, so that by pressing in the upper end of the walking beam, by means of the releasing slide 14, the dogging slide may be shifted from its operative to its inoperative position.

The coöperation between the releasing slide and the walking beam is an important feature of my invention. In the form shown the upper end of the walking beam is cut away toward the face of the lock case, as shown at 17, so as to form a recess in which the rear extremity of the slide 14 is adapted to enter. The rear extremity of the slide 14 is indicated at 14^a and it is adapted to slide on the rear wall of the case into and out of the recess 17. On the portion 14^a a pin 18 is mounted, over which is fitted the perforated upper end of a small lever 19, the lower extremity of which is permanently pivoted at 20 to the front face of lever 15 and above the pivot 16. The springs 21 fixed to the lever 19 reacts against a lug 22, on the upper end portion of lever 15, and this spring tends to move lever 19 in a counterclockwise direction with respect to Fig. 1, thereby protracting the head of the releasing slide out of its opening in the face plate as shown in Fig. 1. The outward movement of the releasing slide is limited by a shoulder 23 at the base of the releasing slide head 24, and when the parts are in the position shown in Fig. 1 the

head 24, which is preferably rounded off at its outer end, extends forward from the face plate to a considerable distance and enters a socket 25 provided therefor in the strike plate 26, which strike plate has the usual latchbolt opening 27. The rear face of the strike plate 26 is provided opposite the socket 25 with the offset portion 26′. The inner face of this offset portion is curved to form an arc-like surface, as shown in Fig. 4, against which the end of the slide head 24 contacts. This curved inner surface with which the head 24 contacts forces the slide into its lock as the door is opened. The strike plate 26 is also provided upon its outer edge with a curved portion 26″, against which the end of the head 24 strikes when the door is being closed. It will therefore be seen that the curved portions 26′ and 26″ of the strike plate force the slide head 24 into its lock sufficiently to prevent the slide head from interfering with the opening or closing of the door.

The operation of the lock is substantially as follows: The spring 21 acting on the releasing slide 14 normally holds it in the protracted position regardless of the position of the dogging slide 11. When the dogging slide is in the released position, and is pushed into the dogging position, the upper end of the walking beam, and the lever 19, are shifted to a slight extent toward the face of the case but without affecting the releasing slide in any way. In order to release the dogging slide again the head 24 of the releasing slide is pushed in by the finger or thumb as shown in Fig. 3. By the time its outer extremity is flush or nearly flush with the outer face of the lock front no shifting action on the walking beam has taken place, the inner end of the releasing slide being merely displaced in the recess 17 of the walking beam to take up the lost motion. However, at about the time that the outer extremity of the head is flush or nearly so with the lock front, the rear extremity of the slide abuts the inner edge of recess 17 and then as the slide is pushed from the position shown in full lines in Fig. 3, to the position shown in dotted lines, the upper end of the walking beam will be thrust rearwardly so as to move the dogging slide to the released position.

When the door is closed the head 24 takes into the recess 25 as shown in Figs. 1 and 4. Preferably the head 24 is round and the recess 25 is correspondingly shaped but slightly larger. The rounding of the head permits the slide 14 to act in the nature of a latchbolt, being pressed in by the curved portion of the strike as the door is closed and then shooting out into the opening or recess 25. The rounding of the head 24 not only acts in the nature of a bevel when the door closes but it also facilitates the centering of the head in the recess 25, as will be understood.

The head 24 extends into the recess 25 to such an extent that usually only the cylindrical part of the head will be exposed in the crack of the door. In other words, the rounded portion on the head will be confined within the lines of the strike plate. It has been found that in locks of the character described the releasing slide can be attacked, generally, in only two ways, viz: either by a bent wire or a buttonhook which is inserted in the crack of the door and then turned so as to exert pressure on the middle of the head of the releasing button or slide; or by a flat instrument, like a knife blade, which is moved in the general plane of the crack without any turning or twisting motion. The construction herein described is very secure for the reason that the head 24 is received in, and partly covered by the strike plate, so that it is impossible to exert a direct inward push on the head of the releasing slide by turning a buttonhook or bent wire in the crack, as previously described; and on the other hand, if it is possible to exert inward pressure on the head by the sliding movement in the crack of an instrument which pushes on the head by acting on the curved or beveled surface thereof, an instrument of the latter sort, obviously, cannot press in the head to a point beyond the outer surface of the face plate or front, and this is insufficient to release the stopwork, as previously pointed out, owing to the lost motion connection between the releasing slide and the connecting lever.

It will be understood therefore, that with my new lock, successful attack on the stopwork by the customary methods is practically impossible, and this advantage is obtained without complicating the lock construction to any appreciable extent, or appreciably increasing its cost.

Without limiting myself to the precise construction shown, I claim,

1. In a lock, stopwork for dogging the latch rollback having a part extending into the strike.

2. In a lock, stopwork for dogging the latch rollback including a releasing slide extending into an opening in the strike.

3. In a lock, stopwork including a dogging slide and a releasing slide, one of said slides normally protracted beyond the face of the lock, and a strike having a socket to receive said last named slide.

4. In a lock, a dogging slide, a releasing slide, a walking beam having a positive connection with one of said slides and a lost motion connection with the other slide, and means normally protracting the slide having the lost motion connection with said walking beam.

5. In a lock, a dogging slide, a releasing

slide, a walking beam having a lost motion connection with the releasing slide, and a spring tending to protract the releasing slide.

6. In a lock, a dogging slide, a releasing slide, a walking beam having a lost motion connection with the releasing slide, and a spring tending to protract the releasing slide, said releasing slide having a head extending out from the face of the lock.

7. In a lock, a dogging slide, a releasing slide, a walking beam having a positive connection with said dogging slide and a lost motion connection with said releasing slide, said releasing slide having a round head normally projected beyond the face plate of the lock, and a strike plate having a socket to receive said head when the door is closed.

8. In a lock, a dogging slide, a releasing slide, a walking beam having a lost motion connection with one of said slides, and a spring-pressed lever holding said last named slide in operative relation to said walking beam.

9. In a lock, a dogging slide, a releasing slide, a walking beam having a notch in which said releasing slide is adapted to move before it shifts the walking beam, and a spring-pressed lever on the walking beam pivotally connected with the inner end of said releasing slide.

10. In a lock, a stopwork mechanism including a walking beam having a notch therein, a releasing slide having a certain amount of free movement in said notch before it engages and shifts said walking beam, means for yieldingly protracting the releasing slide beyond the face of the lock, and a strike plate having a recess to receive the outer end of said releasing slide.

In witness whereof, I have hereunto set my hand on the 2nd day of April, 1917.

HENRY G. VOIGHT.