H. G. VOIGHT.

LOCK.

APPLICATION FILED DEC. 7, 1916.

1,264,583.

Patented Apr. 30, 1918.

3 SHEETS—SHEET 1.

Fig. 1.

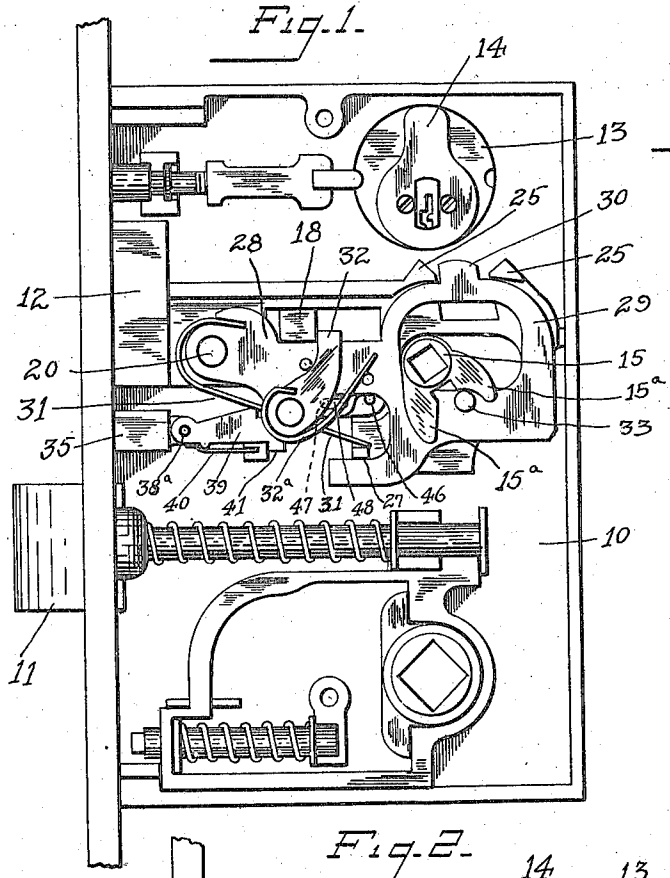


Fig. 10.

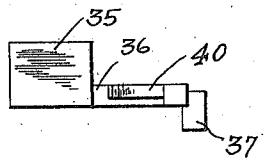


Fig. 11.

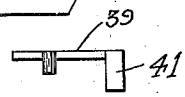


Fig. 2.

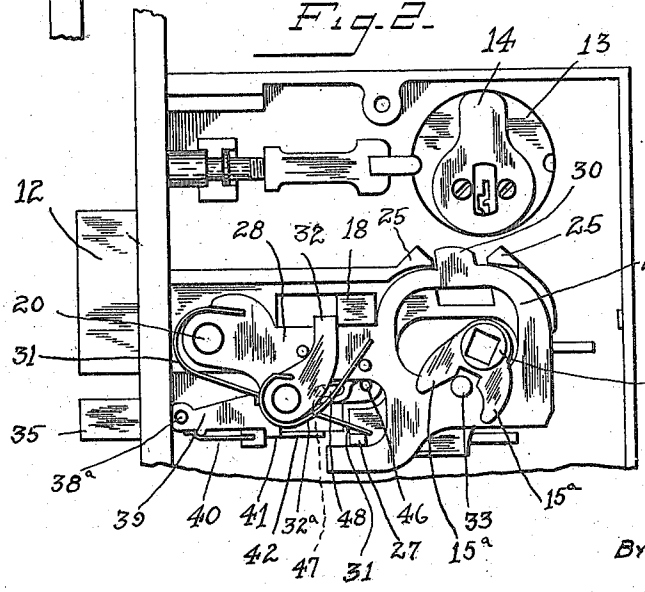


Fig. 2a.

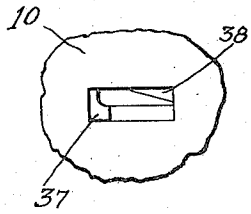
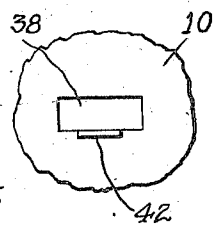


Fig. 2b.



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3 SHEETS—SHEET 2.

Fig. 3.

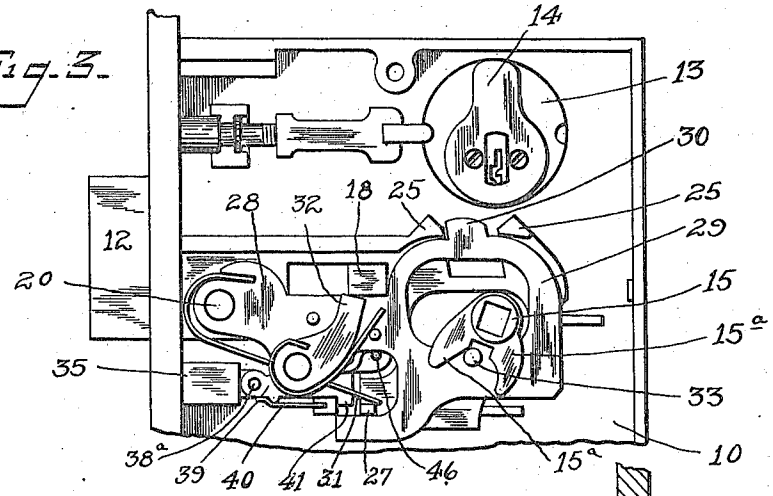


Fig. 4

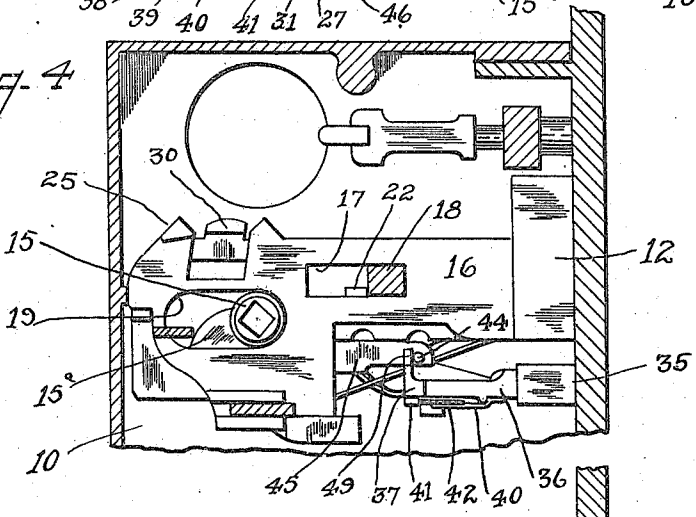
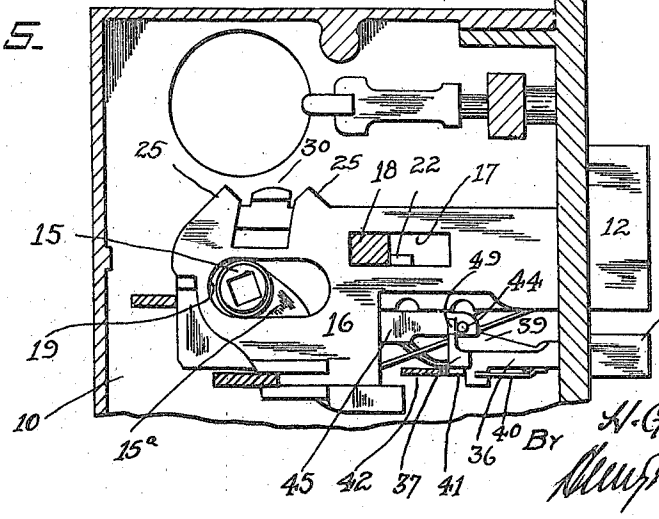


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

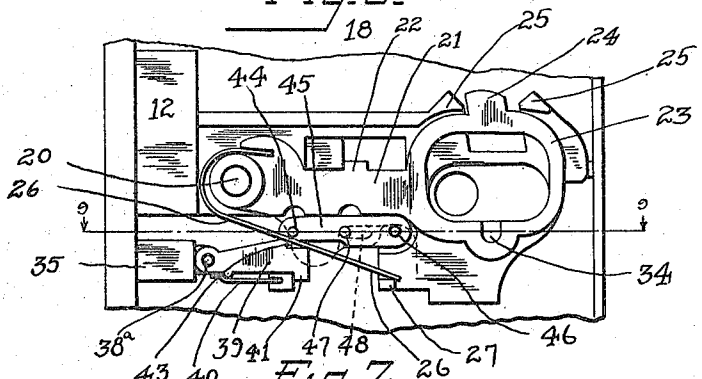


Fig. 7.

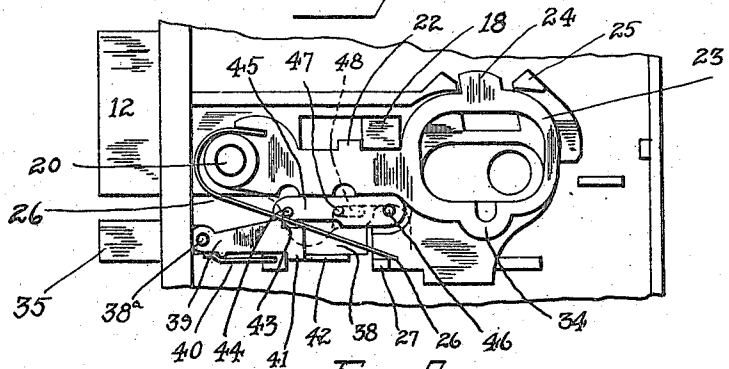


Fig. 8.

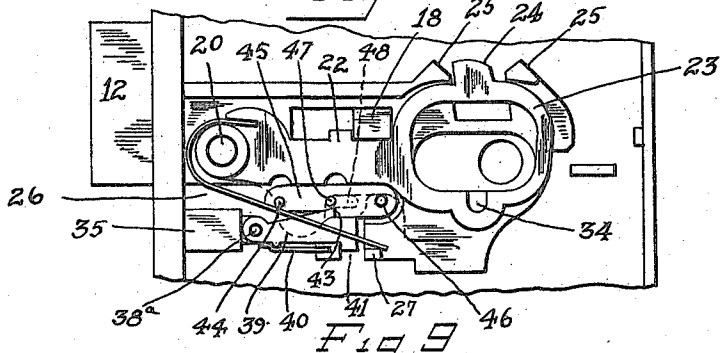
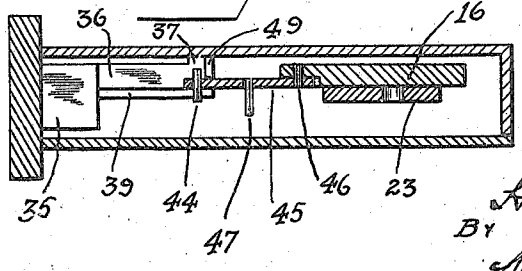


Fig. 9



H. G. Voight INVENTOR

By Allyn Peabody ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY G. VOIGHT, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO SARGENT & COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK.

1,264,583. Specification of Letters Patent. Patented Apr. 30, 1918.

Application filed December 7, 1916. Serial No. 135,614.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing in New Britain, county of Hartford, and 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 a mortise lock construction in which a deadbolt is employed, which can be protracted from either side of the door and wherein a special indicator bolt is used for actuating suitable indicator mechanism on the door jamb. When the main bolt is projected from one side of the room, for example, the outside, the indicator bolt is not actuated; but when said main bolt is projected from the opposite side, for example, the inside, the indicator bolt likewise is thrown, thereby operating the indicating mechanism and giving an indication that the room is occupied. Certain features of my improvements will, however, be found of advantage in locks of other kinds.

One of the primary objects of the invention is to provide efficient and reliable means for projecting one bolt, with, or independently of another bolt.

The invention also has in view the general improvement of devices of the class to which the invention relates.

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

In the accompanying drawings,

Figure 1 is an elevation of a lock embodying my improvements, showing the main bolt and the indicator bolt retracted;

Fig. 2 is a view of the upper part of the lock, showing the main bolt and the indicator bolt protracted by the thumb turn hub;

Fig. 2^A is a fragmentary outside view of the case, showing the manner of guiding the indicator bolt;

Fig. 2^b is a fragmentary inside view of the case, showing the stump or fence for the indicator bolt;

Fig. 3 is a fragmentary view, showing the locking bolt protracted independently of the indicator bolt by the key mechanism;

Fig. 4 is a reverse view of certain parts shown in Fig. 1;

Fig. 5 is a reverse view of certain parts shown in Fig. 2;

Fig. 6 shows the main and indicator bolt mechanism with the emergency or auxiliary tumbler of the main bolt omitted, both bolts being in the retracted position;

Fig. 7 is a similar view, showing how the indicator bolt is protracted by the main bolt;

Fig. 8 is a similar view, showing how the main bolt is projected independently;

Fig. 9 is a section on line 9—9 of Fig. 6;

Fig. 10 is a detail of the indicator bolt; and

Fig. 11 is a detail of the tumbler of the indicator bolt.

Referring to the drawings, 10 is the usual lock case of the mortise type having the latch bolt 11 in the lower part thereof adapted to be retracted by the ordinary knob mechanism, which it is not necessary to describe. In the upper part of the lock case is a main locking bolt 12, adapted to be operated from the outside of the room by a pin tumbler cylinder lock 13 having a cam or rollback 14, and said main bolt may be operated from the inside of the room by a thumb turn or the like (not shown) adapted to actuate a thumb turn hub 15. The shank 16 of the bolt 12 is provided with a slot 17 by which it engages a post or fence 18 cast on the back of the case. The hub 15 is mounted between the cap and back wall of the case in the usual manner and extends through a clearance opening 19 in the bolt shank. The bolt shank carries at its forward part a post 20, on which is mounted a primary tumbler 21 (Fig. 6) having a lug 22 adapted to engage the fence 18 so as to lock the bolt in the retracted position (Fig. 6) or in the protracted position (Fig. 7). At its rear end, the tumbler 21 has a loop 23 extending around the thumb turn hub, and at the upper part of the loop is an operating projection 24 adapted to be engaged by the cam 14 of the cylinder, said projection 24 being located between the usual talons 25 at the upper rear part of the bolt shank. A spring 26 acts on the tumbler in the usual manner, said spring being held in position against a lug 27 on the lower part of the bolt shank. A secondary, emergency, or auxiliary tumbler 28 (Fig. 1) is also used in connection with the main locking bolt, said tumbler 28 being

pivoted on the post 20 above the tumbler 21. This secondary tumbler has a loop 29 extending around the thumb turn hub, and provided with an operating projection 30 adapted to aline with the operating projection 24 of the primary tumbler and normally occupying a position between the bolt talons 25 under the influence of the tumbler spring 31, which tumbler spring, like the spring 26, reacts against the lug 27.

In the particular form shown, the secondary or emergency tumbler 28 has a special movable abutment or lug 32 to coöperate with the fence 18. When the bolt is protracted by the thumb turn hub, as hereinafter described, the movable abutment 32 locks the bolt in the advanced position, as shown in Fig. 2, whereas when the bolt is protracted by the change key, the movable abutment does not lock the bolt in the advanced position, although in both cases the bolt is locked in the advanced position by the lug 22 of the primary tumbler. This particular feature is described in my application Serial No. 95,376 in connection with a certain master key system, and I lay no claim to it in the present case.

The thumb turn hub 15 has two wings 15^a straddling a pin or projection 33 on the secondary tumbler. When the thumb turn hub is actuated, it depresses the rear end of the secondary tumbler, and the secondary tumbler in turn depresses and actuates the primary tumbler by virtue of a small projection on the back of the secondary tumbler in line with the projection 33 engaging a small notch 34 at the lower part of the loop of the primary tumbler. This method of operating one tumbler from the other is quite customary and need not be described in further detail. It will be understood, however, that when the bolt is to be operated from the inside of the room by the thumb turn hub, the secondary tumbler is depressed, thereby depressing the primary tumbler and thus positively releasing both tumblers from the fence 18 by giving said tumblers a swinging movement. When, however, the bolt is to be operated from the outside of the room by the key mechanism, the rollback 14 of the cylinder lock when actuated by the change key will only engage the primary tumbler 21 without engaging the secondary tumbler, and the primary tumbler will be depressed or swung pivotally independently of the secondary tumbler. In protracting the bolt by the change key, the secondary tumbler is not depressed but remains in the normal position owing to the fact that the movable abutment 32 heretofore mentioned is enabled by its spring 32^a to yield and clear the fence 18 until, in the fully protracted position of the bolt, the movable abutment occupies the position shown in Fig. 3. When the bolt is retracted by the change key, the secondary tumbler is not depressed because the primary tumbler is actuated independently, and the secondary tumbler may be pulled back, without resistance, to the initial position.

Mounted beneath the main locking bolt 12 is a special auxiliary bolt 35 which may be used as an indicator bolt for example. In the particular form shown, this bolt is quite small as compared to the main locking bolt, and is intended to operate a suitable indicator associated with the lock strike. This indicator bolt is automatically projected out of the face plate of the lock and into the strike when the main bolt is protracted from the inside, but remains in the retracted position when the main locking bolt is projected by the change key from the outside. Thus, in one case, the indicator is actuated, and in the other case the indicator is not actuted, so that a reliable indication may be given as to whether the lock has been locked from the outside or from the inside.

It has been explained above that when the main locking bolt is projected by the thumb turn, the secondary tumbler is depressed, and that when said bolt is projected by the change key, said tumbler is not depressed. This fact is taken advantage of in the present construction to obtain the required operation of the indicator bolt, the construction being such that the indicator bolt is projected by the main bolt when the secondary tumbler is depressed, but not when said secondary tumbler remains in its normal position.

In the particular form shown, the indicator bolt 35 has a short shank 36, at the rear end of which is a post 37 extending through a rectangular opening 38 in the wall of the lock case. The post 37 engaging the opening 38 constitutes a means for guiding the bolt in its forward and rearward movement. At the forward end of the bolt shank, the same carries by means of a pin 38^a a small pivoted tumbler 39 normally pressed in an upward direction by a spring 40 secured to the lower edge of the bolt shank. At its lower edge, the tumbler 39 has an inwardly projecting lug 41 to coöperate with a fence 42 on the back of the lock case. This fence 42 is constituted by a fin located alongside of the lower edge of the guide opening 38, as shown in Fig. 2^b. When the indicator bolt is in the retracted position, the lug 41 is behind the fin or fence 42, whereas when the bolt is in the projected position said lug is in front of the fence. At its upper rear part, the tumbler 39 is provided with a notch 43 adapted to be engaged by an outwardly and laterally projecting pin 44 on a small arm 45, pivoted at 46, to the lower part of the bolt shank at the rear part of such shank beneath the tumbler 21 and extending in a forward direction. The pin 44 for engaging the notch 43 of the tumbler 39

is located at the forward end of the arm 45, and the pivotal connection 46 is at the rear end of said arm. The intermediate part of the arm is provided with a laterally projecting pin 47, engaging a slot 48 formed in and directed lengthwise of the secondary tumbler 28 at the lower part thereof. When the secondary tumbler is depressed, the upper edge of the slot 48 carries the pin 47 downward, thereby swinging the arm 45 downwardly on its pivot, so that the pin 44 engages the notch 43. When the locking bolt is actuated by the thumb turn, *i. e.*, from the inside of the room, the depression of the secondary tumbler causes the depression of the arm 45, and the engagement of the pin 44 against the edge of the notch 43 causes the tumbler 39 of the indicator bolt to be actuated to release said bolt. Then, as the locking bolt is projected, the arm 45 is carried forward with the secondary tumbler, and it pushes the indicator bolt forwardly to the protracted position by virtue of the continued engagement of the pin 44 in the notch 43. When the indicator bolt reaches the protracted position, the tumbler snaps into locking position in front of the fence 42, as will be understood. When the locking bolt is retracted again, it pulls back with it the indicator bolt owing to the fact that the pin 44 at the forward end of the arm 45 is located back of an upward projection 49 on the rear end of the shank of the indicator bolt, as shown more particularly in Figs. 4, 5 and 9. When the main bolt is projected from the outside of the room by the change key, the tumbler 28 is not actuated, and therefore the pin 44 is not depressed into engagement with the notch in the tumbler of the indicator bolt. Consequently, when the locking bolt is projected, the arm 45 occupies its normal position vertically with respect to the case, and it clears the indicator bolt mechanism and passes freely above the same, as shown in Fig. 8. Thus, under these circumstances, the indicator bolt is not projected.

Various changes may be made in the details of the construction without departing from the scope of the invention as defined in the claims.

What I claim is:

1. In a lock, a locking bolt, two tumblers pivoted on said bolt, a thumb turn hub for protracting said bolt through the actuation of both tumblers, key mechanism for protracting said bolt through the actuation of one tumbler, and a second bolt protractable by said first bolt when the latter is actuated by said thumb turn mechanism; substantially as described.

2. In a lock, a locking bolt, two tumblers pivoted on said bolt, an auxiliary bolt, means whereby said auxiliary bolt may be projected by said locking bolt, means for protracting said locking bolt from one side of the door by actuating both of said tumblers, means for protracting said locking bolt from the opposite side of the door by actuation of one tumbler, said auxiliary bolt protracting means controlled by the other tumbler; substantially as described.

3. In a lock, a locking bolt, a primary tumbler pivoted thereon, a secondary tumbler pivoted on said bolt, thumb turn mechanism for protracting said bolt by the actuation of both of said tumblers, key mechanism for protracting said bolt by the actuation of said primary tumbler independently of said secondary tumbler, and an indicator bolt controlled in its operation by said secondary tumbler; substantially as described.

4. In a lock, a locking bolt, primary and secondary tumblers pivoted thereto, an auxiliary bolt adapted to be protracted by said locking bolt, and means for controlling said auxiliary bolt by said secondary tumbler; substantially as described.

5. In a lock, a locking bolt, primary and secondary tumblers pivoted thereto, means for protracting the bolt from one side of the door by the actuation of both tumblers, means for protracting the bolt from the opposite side of the door by the actuation of the primary tumbler, an auxiliary bolt adapted to be protracted by said locking bolt, and means for controlling the actuation of said auxiliary bolt by said secondary tumbler; substantially as described.

6. In a lock, a locking bolt, primary and secondary tumblers pivoted thereto, an auxiliary bolt, and an operator for said auxiliary bolt, mounted on said locking bolt and controlled by the secondary tumbler thereof; substantially as described.

7. In a lock, a locking bolt, primary and secondary tumblers therefor, a second bolt, a pivoted operator for said second bolt mounted on said locking bolt, and means for controlling said operator by the swinging movement of the secondary tumbler; substantially as described.

8. In a lock, a locking bolt, primary and secondary tumblers therefor, a second bolt, a pivoted operator for said second bolt mounted on said locking bolt, and means for controlling said operator by the swinging movement of the secondary tumbler, said operator adapted to protract and retract the second bolt when the secondary tumbler is depressed; substantially as described.

9. In a lock, a locking bolt, primary and secondary tumblers pivoted thereto, key mechanism for protracting said bolt by the actuation of said primary tumbler, thumb turn mechanism for protracting said bolt by the actuation of both tumblers, a second bolt, an operator for said second bolt pivoted on the locking bolt and controlled by said secondary tumbler, said operator adapt-

ed to retract the second bolt when the locking bolt is retracted; substantially as described.

10. In a lock, a bolt, two tumblers therefor, means for operating said bolt through the actuation of both tumblers, means for operating said bolt through the actuation of one tumbler, and a second bolt protractable by the first bolt when both tumblers are actuated; substantially as described.

11. In a lock, a bolt, a second bolt, an operator for the second bolt carried by the first bolt, two tumblers for the first bolt, one of which controls the operation of said operator, means for operating said first bolt through the actuation of both tumblers, and means for operating said first bolt through the actuation of one tumbler; substantially as described.

12. In a lock, a bolt, a second bolt, a tumbler, and a tumbler controlled operator for the second bolt mounted on the first bolt, said tumbler constructed to move said operator into position to operate said second bolt, substantially as described.

13. In a lock, a bolt, a second bolt, a tumbler, and a tumbler controlled operator for the second bolt pivotally mounted on the first bolt, said tumbler constructed to move said operator into position to operate said second bolt, substantially as described.

In witness whereof, I have hereunto set my hand on the 5th day of December, 1916.

HENRY G. VOIGHT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."