C. HERRMAN.

LOCK.

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1,364,757. **Patented Jan. 4, 1921.**

Fig. 1.

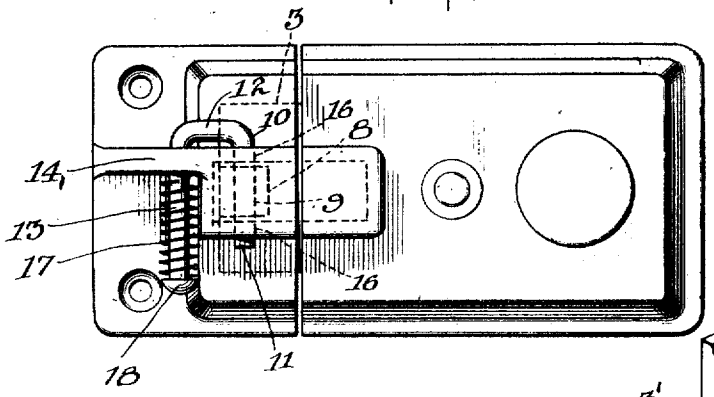


Fig. 4.

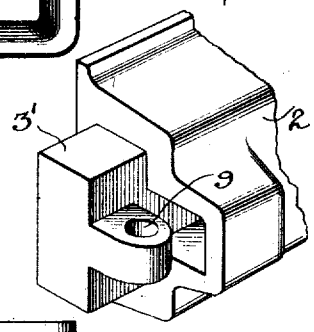


Fig. 2.

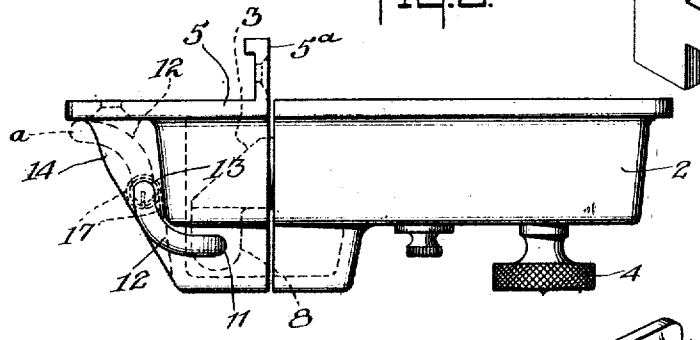
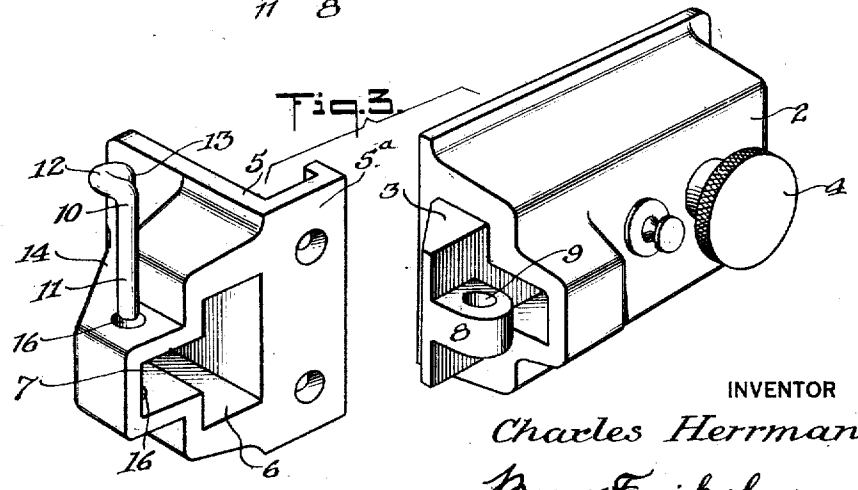


Fig. 3.



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LOCK.

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To all whom it may concern:

Be it known that I, CHARLES HERRMAN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to locks and particularly to reinforcements for safety locks. Various types of lock constructions, while extremely substantial and practicable, and serving all of the ordinary purposes of locking, do not afford a desirable degree of security against being surreptitiously tampered with or unlocked and thus do not provide for the safety which it is the object of the present invention to accomplish. My present invention is shown as in correlation with a type of bolt lock involving a spring actuated bolt, the mechanism of which lock obviously may be of any suitable type; but, preferably, I propose to improve locks of well-known design and construction so that these locks will be rendered safer by the provision of a reinforcement which serves the purpose of efficiently preventing the bolt of the lock from being withdrawn, and I therefore propose to provide means to coöperate with the bolt of the lock whereby the bolt is positively interlocked with the keeper into which the bolt is designed to slide or register.

With the ordinary construction of spring bolt locks, for example, the so-called night-latch, the inmates of an institution are not absolutely secured by the locking so had. As these swingable-door locks can be controlled by the insertion of a key from the exterior side of the door, it follows that these locks do not afford the full protection desired. Obviously such places as stores having rooms associated therewith in which occupants may live, can be entered by the picking or unlocking of the usual form of lock, and the same applies to homes where there may be unprotected women or children. While the locks are built for strength and security they are not sufficiently protective as above pointed out.

My invention provides a means of positive security, applicable from the interior side of the door, coöperating with the locking elements, and while reinforcive thereto it is entirely independent of the lock's key action and therefore wholly beyond exterior control.

Other advantages will be apparent as hereinafter disclosed.

Therefore my invention consists in the construction, the combination, and in details and arrangements of the parts as more particularly described hereinafter relative to an embodiment of my invention illustrated in the accompanying drawings wherein:

Figure 1 is a side or front elevation of a lock involving my present improvements.

Fig. 2 is a plan view of the construction shown in Fig. 1.

Fig. 3 shows the lock casing with the projected bolt and the keeper in disassembled relation and in perspective, and

Fig. 4 shows a perspective of a part of a dead latch, as distinguished from the spring latch.

The lock shown is representative of a well-known and standard form of lock, involving a casing 2 in which there is slidably mounted a bolt 3 actuated to and fro by suitable mechanism not necessary to be shown other than that there is provided a knob 4 which, when turned to the right-hand direction, will act to withdraw the bolt 3 from its keeper 5, which, in the present instance, is shown as in the form of a housing having a chamber 6 to receive the main body portion of the adjacent end of the bolt 3, the housing also being provided with a smaller lateral extension 7 of the chamber 6 which is designed to receive a lug 8 on the face of the bolt 3. The lug 8 is provided with a vertical or otherwise suitably located aperture 9 which will, when the bolt 3 is projected into the housing 5 or keeper as in Figs. 1 and 2, register with the path of movement of a positive locking fastener member generally indicated at 10. The fastener I prefer to make in the form of a letter U having one arm 11 and a curved, upper, bow portion 12 from which extends downwardly the long arm 13 which is vertically slidable and turnable in a lug or bracket 14 forming a bearing for the arm 13 of the fastener 10.

The fastener is normally projected downwardly either when it is in the fastening position shown in Figs. 1 and 2 when its arm

11 passes through the lug 8 of the bolt 3 to fasten the latter, or when it, after having been lifted to releasing position, is swung outwardly to the dotted line position *a* in Fig. 2 where it occupies a position of rest and is not only inconspicuous but out of the way. The fastener 10 is normally projected downwardly through the action of a spring 17 arranged between the head 18 on the arm 13 and the lower surface of the bracket and bearing portion 14. The operation of the device is believed to be fully apparent with the above description and disclosures of the drawing; it being obvious, that after the bolt 3 has been projected into the chamber 6 of the keeper 5 the occupant of the chamber having a door upon which the lock is mounted has but to lift the fastening device 10 from the position shown in Fig. 2 in dotted lines at *a* and swing it about the axis of its arm 13 to bring the short and bolt engaging arm 11 around above the upper aperture 16 of the lateral recess 7 and then release the fastener 10 when it will automatically project downwardly through the reaction of spring 13, and pass through the aperture 9 of the lug 8 of the bolt thus positively locking the bolt against withdrawal from the keeper until it has again been released from the fastener 10. From the above it will be seen that access can only be gained to the chamber by actually forcing open the door or other closure and tearing the keeper 5 with the lug from the construction upon which the keeper may be fastened. I prefer to increase the strength of the fastening of the keeper 5 to the part on which it may be mounted, and this I accomplish by forming an L-shaped flange 5^a on one edge of the body of the keeper; the lip of the flange 5^a being countersunk into the wood or other material of the support on which the keeper is mounted.

As shown in Fig. 1, one end of the spring 17 can be suitably connected to the arm 13 of the fastening member and the upper end of the spring can be positioned to abut against any adjoining surface of the keeper to prevent rotation of that portion of the spring and therefore when the locking arm 11 of the fastener is swung to the engaging position in Figs. 1 and 2, the spring 17 will be placed under torsional strain which may be, and preferably is, just sufficient to automatically swing the fastening member to the dotted line position *a* as soon as it is disengaged from the bolt and apertures 16 of the recess walls.

No limitations are implied by the drawings herewith, which are for illustrative purposes only. Obviously considerable range may be had within the spirit and scope of this invention and the appended claims.

In Fig. 4, I have shown a type of bolt 3' such as may be used in a dead latch to which my safety reinforcement may be applied.

What I claim is:

1. In a lock, a movable bolt in combination with a keeper adapted to be engaged by said bolt; said bolt having means in its end adapted to interlock with a fastener, a fastener movably secured to the keeper, means tending to force said fastener yieldably into engagement with the interlocking means on the bolt, and means whereby the fastener may be held in disengaging position.

2. In combination, a lock structure comprising a bolt and its housing with means for throwing the bolt, a keeper to receive the projected end of the bolt, and means mounted on the keeper to be interlocked with the projected bolt to prevent its retraction, the bolt having a lug on its outer face to be engaged by said means when the bolt is in the keeper.

3. In a lock structure, a bolt having a lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a fastener on the keeper to interlock with the lug.

4. In a lock structure, a bolt having a lateral perforated lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a fastener on the keeper to interlock with the lug by passing through the aperture of the lug.

5. In a lock structure, a spring actuated bolt having a lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a manually operable fastener on the keeper to interlock with the lug.

6. In a lock structure, a bolt having a lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a fastener on the keeper to interlock with the lug, the fastener comprising a sliding and spring controlled swinging pin member.

7. In a lock structure, a bolt having a lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a fastener on the keeper to interlock

with the lug, and means for projecting the fastener to locking position when registered with the bolt lug.

8. In a lock structure, a bolt having a lug on one face, and a housing, for the bolt, having a recess to take the lug when the bolt is retracted; a keeper to receive the projected end of the bolt and having a recess to take the lug when the bolt is projected; and a fastener on the keeper to interlock with the lug, and means for swinging and depressing the fastener to position of rest when disengaged from the bolt.

9. In a lock, a movable bolt in combination with a keeper adapted to be engaged by the bolt; said bolt having fastener engaging means on the end that engages the keeper, and said keeper having holes in registration with said means on said bolt when the latter is in engagement with the keeper, a fastener mounted on said keeper so as to move in directions at right angles to each other, said fastener being adapted to pass through said holes in the keeper and engage said means on the bolt, when the bolt is engaged with the keeper, means having a yielding tendency to force said fastener into engagement with said bolt, and means rendered effective by a movement of the fastener in the other direction when disengaged from said bolt for holding said fastener disengaged.

10. In a lock, a movable bolt, in combination with a keeper adapted to be engaged by said bolt; said bolt having a transverse opening in the end that engages the keeper, said keeper having spaced holes one of which is in registration with the opening in the bolt when the latter is in engagement with the keeper, a fastener having substantially parallel arms spaced a distance equal to the spacing of said holes in the keeper, one of said arms being adapted to engage the registering holes and openings in said keeper and bolt, respectively, the other arm slidably and rotatably mounted in the other hole of the keeper, and a spring acting on the last mentioned arm tending to force said fastener into interlocking engagement with said bolt.

11. In a lock, a movable bolt, a casing with respect to which the bolt is adapted to move, a fastener adapted to secure the bolt in locking position, said fastener comprising a member having spaced parallel arms, one of which is pivotally and slidably mounted in said casing, said casing having an opening in position to receive the other arm, said opening being arranged to register with a part of the bolt adapted to be engaged by said other arm to hold the bolt in locking position, and a spring surrounding the pivoted arm, and tending to force the fastener into position to engage with the bolt.

12. In combination, a lock structure comprising a bolt and its housing with means for throwing the bolt, a keeper to receive the projected end of the bolt, and a device to interlock with the bolt to keep it from being retracted from the keeper, the device including a fastener slidably and rotatively mounted on the keeper and a spring for automatically projecting the fastener in one direction of its sliding movement and also for swinging it to an ineffective position.

13. In a lock, a striking plate or keeper comprising a main front body with a plate extending at a right angle from the rear thereof and applicable to a structural part, and a lip or flange extending along the longitudinal edge of the plate and at right angles thereto, to be countersunk in the said part, in order to increase the securing of the mounting.

CHARLES HERRMAN.