

M. F. RICHARDSON.
DOOR LOCK.

APPLICATION FILED JULY 30, 1915.

Patented May 23, 1916.

2 SHEETS—SHEET 1.

1,184,489.

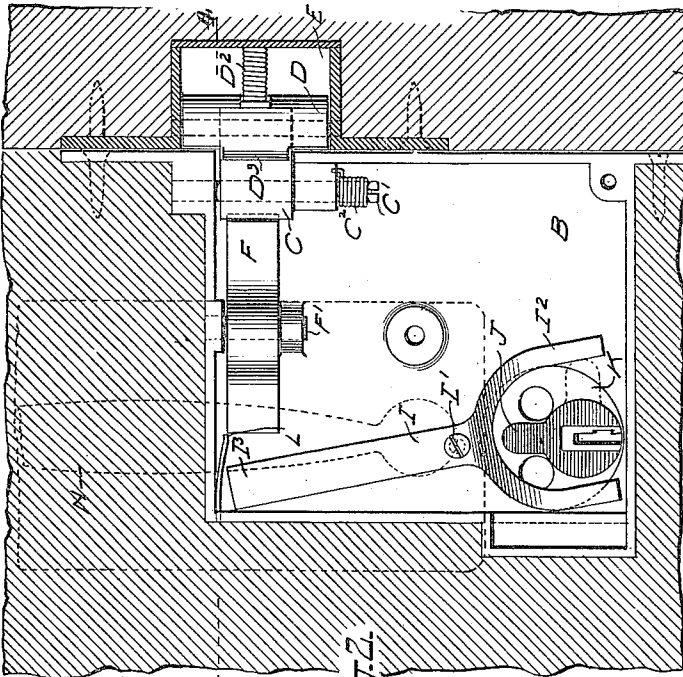


Fig. 1.

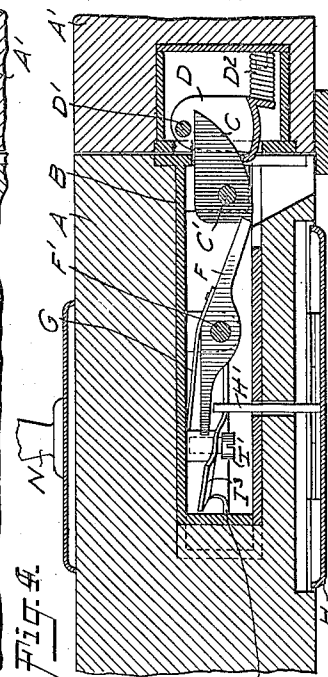


Fig. 2.

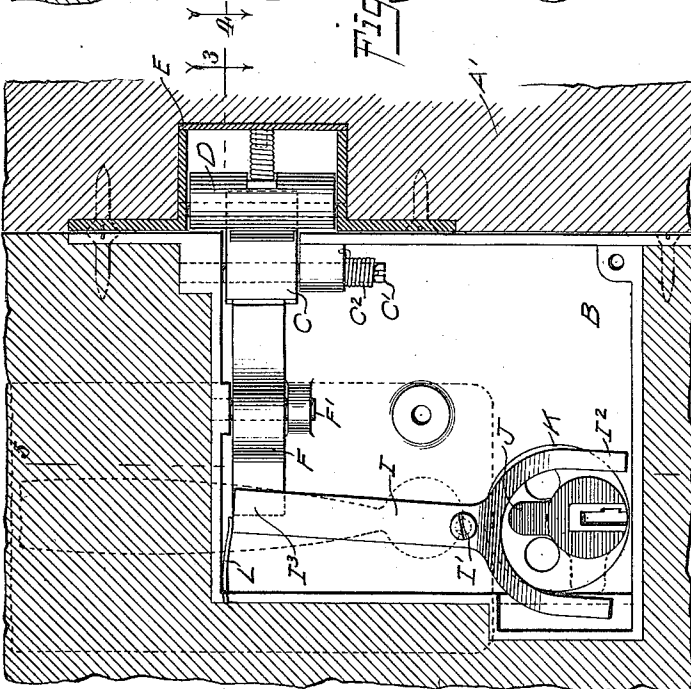


Fig. 3.

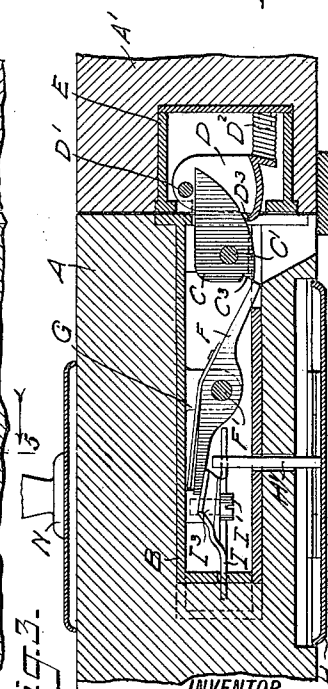


Fig. 4.

WITNESSES

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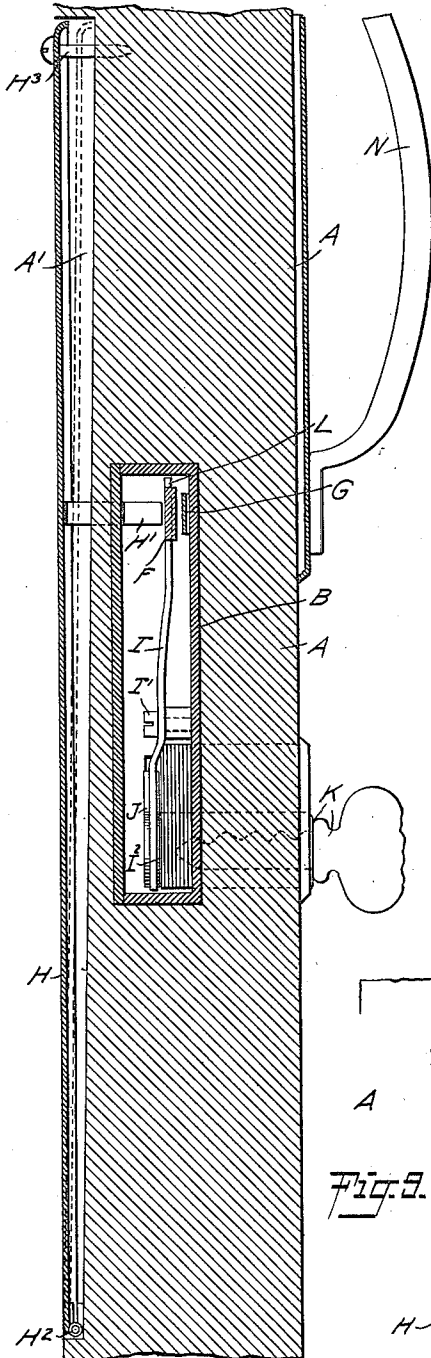


Fig. 5.

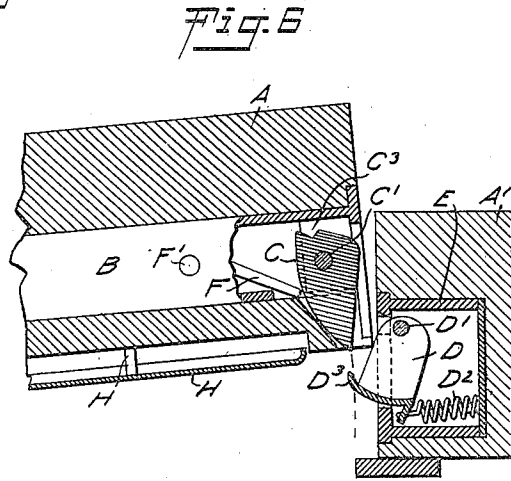


Fig. 6.

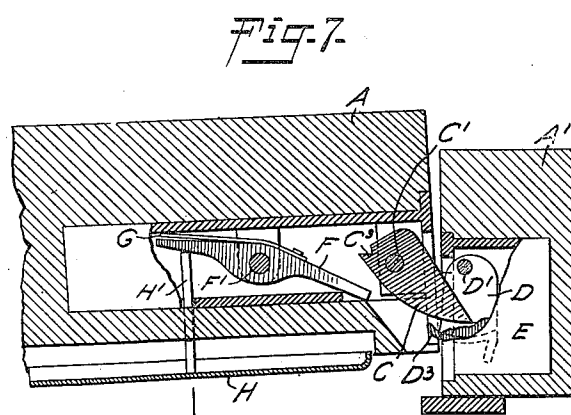


Fig. 7.

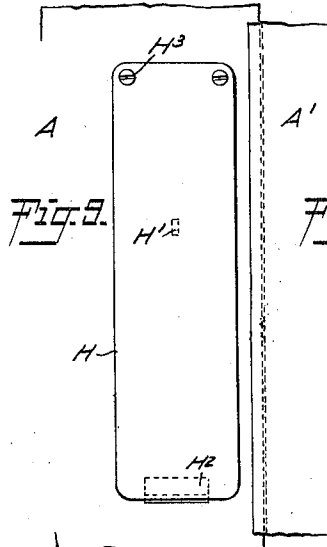


Fig. 8.

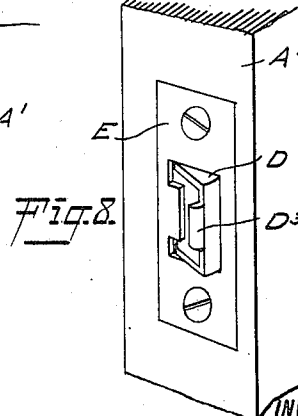


Fig. 9.

WITNESSES

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MARK F. RICHARDSON, OF LEONIA, NEW JERSEY.

DOOR-LOCK.

1,184,489.

Specification of Letters Patent.

Patented May 23, 1916.

Application filed July 30, 1915. Serial No. 42,748.

To all whom it may concern:

Be it known that I, MARK F. RICHARDSON, a citizen of the United States, and a resident of Leonia, in the county of Bergen and State of New Jersey, have invented a new and Improved Door-Lock, of which the following is a full, clear, and exact description.

The invention relates to door locks, such as shown and described in the Letters Patent of the United States, No. 1,120,538, granted to me on December 8, 1914.

The object of the present invention is to provide a new and improved door lock of the type referred to, and in which the bolt automatically swings back into folded position within the door casing on opening the door, thus forming no undesirable projection when the door is open.

Another object is to permit of unlocking the lock and opening the door on pressure from the inside whether the lock is in locked position from the outside or not, and to permit of locking the door from the outside or unlocking it by key-controlled means.

In order to accomplish the desired result, use is made of a bolt mounted to swing, and a spring pressing the bolt to swing the latter into retracted folded position on opening the door and holding it in the folded position during the time the door is open. Use is also made of a keeper mounted to swing on the door casing and pressed by a spring to hold the keeper in the path of the bolt at the time the door is open, the said keeper being adapted to engage the folded bolt and swing the same into coacting locking position with the keeper on closing the door.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the door lock as applied and with the bolt held in locked position by key-controlled means; Fig. 2 is a similar view of the same with the key-controlled means in unlocking position; Fig. 3 is a sectional plan view of the same on the line 3—3 of Fig. 1; Fig. 4 is a similar view of the same on the line 4—4 of Fig. 2; Fig. 5 is a cross section of the same on the line 5—5 of Fig. 1; Fig. 6 is a sectional plan view of the same with the door partly open and the bolt in folded position; Fig. 7 is a similar view of the same

with the door in nearly closed position and the bolt engaged by the keeper to swing the bolt into locking position; Fig. 8 is a perspective view of the keeper in position on the door casing; and Fig. 9 is a side elevation of the inner face of the lock applied to the door and door casing.

The door A is provided with a mortise for the reception of the lock casing B in which is mounted a vertically disposed pivot C' carrying a bolt C adapted to engage with its free end a keeper D having a vertically disposed pivot D' journaled in a keeper casing E mortised in the door casing A. The pivot C' of the bolt C is pressed on by a torsion spring C² to normally hold the bolt C in folded inactive position within the lock casing B, as plainly indicated in Fig. 6. The keeper D is pressed in an outward direction by a spring D² and the free end of the keeper D is provided with a hook D³ adapted to project into the path of the free end of the bolt C at the time the door is open (see Fig. 6), so that when the door is closed the free end of the bolt C engages the hook D³, which latter imparts an outward swinging motion to the bolt C to swing the latter into coacting locking position with the keeper D, which latter is swung inward against the tension of the spring D² by the inner edge of the casing B.

The heel of the bolt C is provided with a notch C³ adapted to be engaged by one end of a lever F pressed on by a spring G fulcrumed at F' in the casing B. The other end of the lever F is adapted to be engaged by a pin H' held on a plate H pivoted at its lower end at H² on the inner face of the door A, as plainly illustrated in Fig. 5. The upper free end of the plate H engages guide pins H³ held on the door A, and the plate H is adapted to swing into a recess A' formed in the inner face of the door A. When the door A is in closed and locked position (see Figs. 2 and 4) and pressure is exerted on the plate H then the latter swings toward the door and its pin H' imparts a swinging motion to the lever F to disengage the free end thereof from the notch C³ to release the bolt C. The pressure exerted against the plate H causes an outward opening movement of the door A, and as the bolt C is released it is swung into folded position by the action of its spring C². Thus while the door is open the bolt

C is held in retracted bolted position, as indicated in Fig. 6. It will be noticed that by the arrangement described the bolt C forms no undesirable projection on the free edge of the door A during the time the latter is open. When the pressure on the plate H is released then the spring G returns the lever F to its normal position so that the lever reengages the notch C^s when the door is closed and the bolt C is swung outward into locking position by the keeper D, as previously explained.

In order to lock the door A against opening from the outside, use is made of a locking lever I held in an upright position and fulcrumed at I' within the casing B. The lower end of the lever I is in the form of a fork I^s adapted to be engaged by the rollback J of a key-controlled lock K of any approved construction, and extending to the outer face of the door A. By the use of this key-controlled lock K the rollback J can be turned to impart a swinging motion to the lever I to engage the upper cam end I^s of the lever I with the inner end of the lever F, or to move it out of engagement with the same, as will be readily understood by reference to Figs. 1, 3 and 2, 4. When the lever I is swung to engage the cam end I^s with the inner end of the lever F, then the latter is swung into inactive position relative to the bolt C, that is, is moved out of engagement with the notch C^s to allow the bolt C to swing into folded position on the opening of the door by a pull from the outside or a push from the inside. When the lever I is swung out of engagement with the lever F then the latter moves to normal active position by the action of its spring G to engage the notch C^s of the bolt C and thus hold the latter in active outer position so that the door cannot be opened on a pull from the outside but it can be opened on a push against the plate H from the inside, as previously explained. The top of the lever I is adapted to be pressed by the free end of a spring L held in the casing B to prevent accidental shifting of the lever I at the time the cam end I^s is in engagement with the inner end of the lever F, as shown in Figs. 1 and 3.

When the several parts are in the position shown in Figs. 2 and 4, then the lever F is free to be actuated by either the pin H' of the plate H or by the key-controlled lever I. When a pressure is exerted against the plate H, the pin H' swings the lever F out of engagement with the notch C^s to release the bolt C and at the same time the door A is pushed open to allow the bolt C to swing into folded position by the action of its spring C^s. In a like manner when the parts are in the position shown in Figs. 2 and 4 and the key-controlled lock K is actuated then the lever I is swung into en-

gagement with the lever F to actuate the latter to release the bolt C to allow of opening the door by a pressure from the inside or by a pull on the outside of the door by a key or a knob or a similar device.

It is understood that when the parts are in the position shown in Figs. 2 and 4, the door cannot be opened from the outside unless the key-controlled lever I is first swung into engagement with the lever F, as previously explained.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a door lock, the combination with a bolt mounted to swing, a spring pressing the said bolt to swing the latter into retracted position on opening the door and holding it in the retracted position during the time the door is open, and a pivoted and spring pressed keeper having a hook at its free end adapted to engage the free end of said retracted bolt on closing the door to swing the bolt into active position relative to the keeper.

2. In a door lock, the combination with a spring-actuated keeper mounted to swing in the door casing and having a hook at its free end, a spring-actuated bolt mounted to swing in the door and held in closed position by its spring when the door is open, the said keeper having its free hook end extending into the path of the free end of the bolt at the time the door is open to engage the bolt and swing the latter into open coactive locking position with the keeper on closing the door.

3. A door lock, comprising a bolt mounted to swing, a spring pressing the said bolt to swing it into folded position relative to the door and the door casing, a lever adapted to engage the said bolt to hold it in active position, a second lever adapted to engage the first lever to swing the said lever out of engagement with the said bolt to allow the latter to swing into folded position by the action of its spring on opening the door, and key controlled means on the outer side of the door and controlling the said second lever.

4. A door lock, comprising a bolt mounted to swing, a spring pressing the said bolt to swing it into folded position relative to the door and the door casing, a lever adapted to engage the said bolt to hold it in active position, a rocking lever having a fork at one end and a cam at the other end, the said cam being adapted to engage the said lever to swing the lever out of engagement with the said bolt to allow the latter to swing into folded position by the action of its spring on opening the door, and key-controlled means controlling the said lever.

5. A door lock, comprising a bolt mounted to swing, a spring pressing the said bolt to

swing it into folded position relative to the door and the door casing, a lever adapted to engage the said bolt to hold it in active position, a rocking lever having a fork at one end and a cam at the other end, the said cam being adapted to engage the said lever to swing the lever out of engagement with the said bolt to allow the latter to swing into folded position by the action of its spring on opening the door, key-controlled means controlling the said lever, and a spring pressing the cam end of the lever to hold the latter against accidental movement at the time the lever engages the bolt.

6. A door lock provided with a keeper mounted to swing and having a hook at its free end, a spring pressing the said keeper to project its free end beyond the door casing during the time the door is open, and a spring-actuated bolt mounted to swing in the door and held in folded position by the action of its spring when the door is open, the said keeper hook being in the path of the free end of the folded bolt and adapted to engage the face of the bolt at its free end

portion to swing the bolt into engagement with the keeper on closing the door.

7. A door lock, comprising a bolt mounted to swing, a spring pressing the said bolt to swing it into folded position relative to the door and the door casing, a spring-pressed lever adapted to engage the said bolt to hold it in active position, a rocking lever having means at its upper end adapted to engage the said first-mentioned lever to swing the same out of engagement with the bolt to allow the latter to swing into folded position by the action of its spring on opening the door, means on the inner face of the door for moving the first-mentioned lever out of engagement with the bolt, and key-controlled means on the outer face of the door and controlling the said rocking lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARK F. RICHARDSON.

Witnesses:

M. BROUGHTON,
S. I. BULLACE.