

No. 626,147.

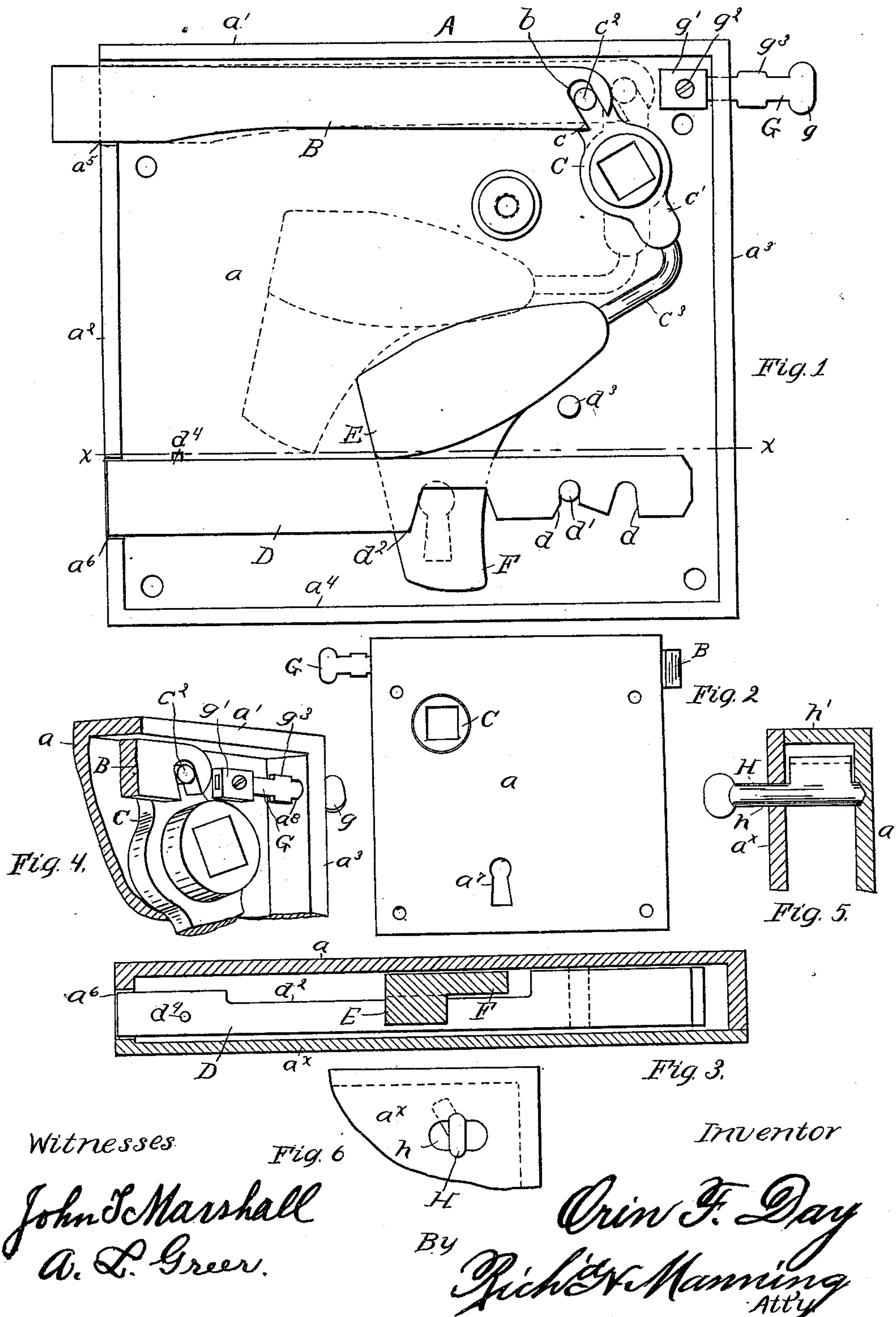
Patented May 30, 1899.

O. F. DAY.

COMBINED LOCK AND LATCH.

(Application filed Jan. 9, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

ORIN F. DAY, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF TO
PETER NORDWALL, OF SAME PLACE.

COMBINED LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 626,147, dated May 30, 1899.

Application filed January 9, 1899. Serial No. 701,663. (No model.)

To all whom it may concern:

Be it known that I, ORIN F. DAY, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in a Combined Lock and Latch; and I do hereby declare that the following is 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, reference being had to the accompanying drawings, forming a part of this specification.

My invention has for its object, primarily, the automatic control of the latch-bolt by mechanism, such as a weight, acting to control the movements of the latch-bolt from an unlatched to a latched position; second, the automatic closure of the opening in the lock-case for the key upon the outward throw of the latch; third, to prevent the retraction of the latch-bolt, and, fourth, to prevent the lateral movement of the keyhole guard-plate when in position opposite the keyhole.

My invention consists in the novel construction and combination of parts, such as will be first fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a view in elevation of the case for the combined lock and latch with the side removed, showing the novel latch and lock bolt controlling mechanism and the keyhole guard-plate. Fig. 2 is a reverse view of the case as seen in Fig. 1 upon a reduced scale. Fig. 3 is a horizontal sectional view of the case, taken upon the line xx in Fig. 1. Fig. 4 is a detail broken portion in perspective of the upper end of the lock-case, showing the armed hub, a portion of the reversible latch-bolt, and the removable key-bolt for the latch-bolt. Figs. 5 and 6 are views of an alternate key for locking the latch-bolt applied to a mortise-lock case.

Similar letters of reference indicate corresponding parts in all the figures.

Referring to the drawings, A represents the case for the combined lock and latch, which case is of the ordinary construction.

B represents the latch-bolt, which is located in the upper part of the case and near the top

portion a' of said case, one end of which bolt extends through the opening a^3 in the forward end a^2 of said case, the other end of which latch-bolt extends in the direction of and to a position a considerable distance from the rear end a^3 of case A.

C represents an armed hub of the usual construction and which is located a short distance from the end a^3 of the case A and pivoted or journaled in the respective sides of the case below the line of the under side of the latch-bolt B, said hub being adapted to receive a spindle of ordinary description.

D represents the lock-bolt, which is located in the lower part of the case A a short distance above the bottom portion a^4 of case A. Said bolt D consists of a straight bar, one end of which extends through an opening a^6 in the forward end a^2 of the case A and the other end extends to a position near the rear end a^3 of said case. In the under side and rear end portion of the bolt are notches $d\ d$, which receive alternately a pin d' on the side a of case A, and which pin supports the rear end of the bolt in a locked or unlocked position. On the side of the bolt D opposite the side of the case is a longitudinal groove or recess d^2 , extending from a point a considerable distance in rear of the forward end of the bolt to a point near the forward notch d in the rear end of the said bolt. Opposite the central portion of the bolt D, in the side a of the case, is the keyhole a^7 , which also extends through the side plate a^x opposite thereto in the usual manner. In the under side of bolt D, opposite the keyhole d^7 , is a notch d^2 of considerable width for the operation of the bolt by the wards of the key.

The arm c of the hub C extends between the rear end of the latch-bolt and the side of case A, and upon the side of the arm c adjacent to the latch is a pin c^2 , and in the under side portion and extreme rear end of the latch-bolt B is a notch b , receiving pin c^2 , the sides of which notch are parallel with each other and incline at an angle to the bolt B and in a rearwardly direction. With the outer end of arm c' of the hub C, which extends downwardly and in an opposite direction from hub C to that of arm c , is connected one end of a bar c^3 , which forms a continuation of said

arm c' and which is bent at right angles to said arm near the point of connection with said arm, the other end extending in the direction of the lock-bolt D, and upon said end is a weight E, which weight, as shown, is pear-shaped, the underside extending downwardly in a single outwardly-curved line to its lower end, and said end of said weight normally rests upon the upper side of the lock-bolt D and at a central point to the opposite ends of said bolt. With the under side portion of the weight E and in line with the side of said weight in the direction of the side a of case A is connected rigidly a keyhole guard-plate F of considerable width, consisting of an offset from the said plate, which extends within the recess d^2 in the side of the lock-bolt D and over the keyhole a^7 . Above the rear end of the lock-bolt D is a stationary guide-pin d^3 , which limits the elevation of the bolt, and upon the upper side and forward end of the bolt is a lug d^4 , which limits the outward throw of the bolt.

In the upper portion and rear end a^3 of the lock-case A is a narrow opening a^8 , in which is a key-bolt G. Said bolt consists of a flat bar, upon the outer end of which is a thumb-piece g , and on the inner end of said bar is a block g' larger than the opening a^5 in the end a^3 of the case A, and which block is secured to the bar by a screw g^2 , which block is adapted to bear against the inner end of the latch-bolt B. On the bar G, about an equal distance from the block g' and the thumb-piece g , are shoulders g^3 , which lie flatwise with the bar and pass through the opening a^8 , and when the bar is turned at right angles the shoulders prevent the retraction of the bar.

In operation and during the time the latch-bolt only is required to be used the key-bolt G is drawn outwardly with the shoulders g^3 on the outside of the case, thus permitting the full retraction of the latch-bolt, the lock-bolt D being within the case A in an unlocked position, the weight E acting by gravity to throw the upper arm c of the hub C forward, and thus extends the forward end of the latch-bolt beyond the outer side of the end d^2 of the case A into its normal position for automatically engaging with the usual keeper on the door-jamb and latching therewith, the said weight E normally resting upon the upper side of the lock-bolt D. The contact of the latch-bolt B with the keeper or any obstruction will, as usual, throw the latch-bolt rearwardly, and in this movement the weight E is elevated into the dotted position, as seen in Fig. 1, and when the obstruction has passed the latch-bolt it again moves outward from the force of the weight E, applied to the hub C. When it is desired to throw the bolt D, the key is introduced within the keyhole d^7 , and the wards of the key raise the bolt from the pin d^7 , the weight E serving to control the forward and rearward movement of the bolt, it being observed that the keyhole during the operation of the bolt from the in-

ner side of the door is kept closed by the plate F, which plate may be raised, so as to expose the keyhole over which it slides, by simply turning the spindle in the hub C and retracting the latch-bolt B. When the bolt D is thrown outward in a locked position, the stop-bolt G is forced inwardly, so as to carry the shoulders g^3 on the inner side of the end a^3 of the case A, which forces the block g' against the rear end of the latch-bolt, and the key turned, so as to prevent a rearward movement of said latch. In this position of the key-bolt the weight E simultaneously is forced with sufficient pressure upon the upper side of the lock-bolt D as to prevent the movement of said lock-bolt. In this manner both the latch-bolt and lock-bolt are prevented from being moved and effecting, practically, a double lock.

The latch-bolt may be utilized as a bolt when acting as a latch by the employment of the key-bolt G, as before described, the lock-bolt D, however, being first drawn within the lock-case in an unlocked position.

In my invention I obviate the employment of springs to control either the latch-bolt or the lock-bolt, and thus add increased efficiency to the wear of the lock and latch.

In ordinary mortise lock and latch cases I employ instead of the key-bolt G a key H, which is inserted through the opening h in the side of the lock-case at a point near the rear end of the latch-bolt and at right angles thereto, the ward h' being a blank which may be turned so as to meet the rear end of the latch-bolt, as seen in Figs. 5 and 6, and prevent the retraction of the latch-bolt.

During the upward movement of the lock-bolt D to place the same in a locked position the raising of the weight E accommodates the movement of the lock-bolt without retracting the latch-bolt, the weight instantly returning by gravity to its normal position.

The few parts required in the lock and their novel coaction affords a lock of great strength, it being observed that an attempt to enter the keyhole while the keyhole-plate is over the keyhole with any instrument will be resisted by the lock-bolt, while a lateral movement is counteracted by the weight E.

The latch-bolt B may be reversed in position for the change from a right to a left hand lock-case, the end of the latch-bolt resting upon the hub C in this instance, with the notch b extending in an upward direction, and in this position the pin c^2 in the side of the arm is enabled to move upwardly in the notch and at the same time, acting upon the parallel inclined sides of the notch, causes a full retraction of the latch-bolt in the elevation of the weight.

Having fully described my invention, what I now claim as new, and desire to secure by Letters Patent, is—

1. In a case for a combined lock and latch, a latch-bolt, and a lock-bolt having a recess in one side thereof, and a keyhole in the side of

said case below the level of the lock-bolt, a
pivoted hub having arms extending in oppo-
site directions one of said arms being pivot-
ally connected with the rear end of said latch-
5 bolt and an extension of the other arm at
right angles thereto, and a weight upon said
extended end having its under side extend-
ing downwardly in a single outwardly-curved
line and adapted to bear normally upon the
10 said lock-bolt and permit of the rise and fall
of said bolt when operated by the key, an off-
set from said weight forming a guard-plate
extending within the recess of the said lock-
bolt, and over one of the keyholes whereby
15 the lock-bolt may be thrown to lock the door
from a position on the inner side of the door,

without exposing the keyhole on the outer
side of the door, and without moving the latch
from a latched position.

2. The combination with the latch-case hav- 20
ing an opening in the rear end of said case
of a latch-bolt and a key consisting of a flat
bar having shoulders adapted to enter said
opening in said case and a block having an
opening for the inner end of said key adapted 25
to contact with the rear end of said latch-
bolt and a fastening device upon said block.

ORIN F. DAY.

Witnesses:

JOHN T. MARSHALL,
C. F. MEAD.