J. W. CLEMMER, A. ROSENDAHL & A. N. HALVORSON.

DOOR LOCK.

APPLICATION FILED JUNE 15, 1914.

1,124,862. Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.

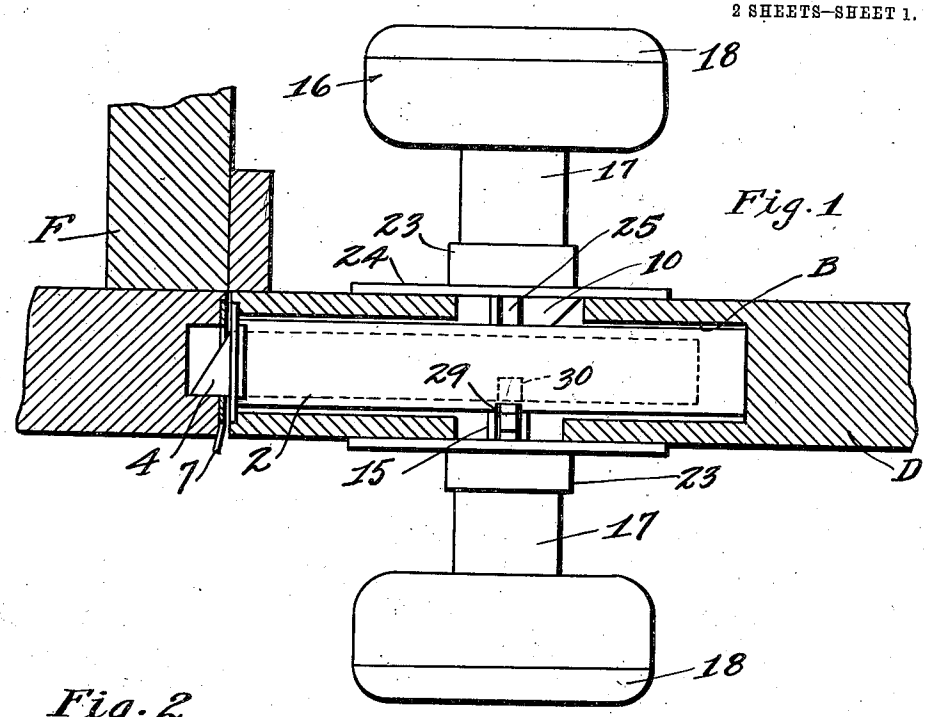


Fig. 1

Fig. 2

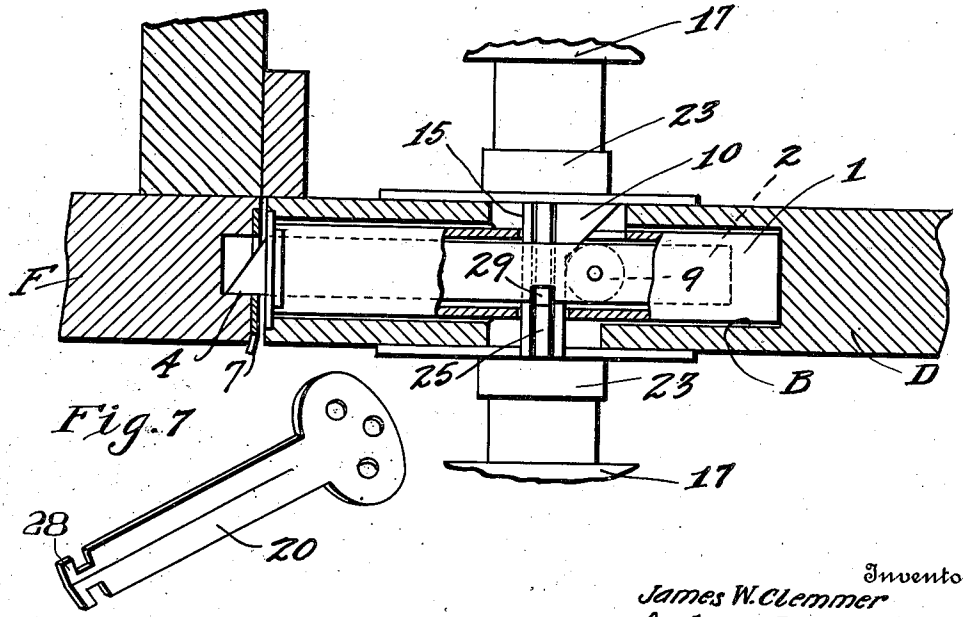


Fig. 7

Witnesses

Sidney W. Negrotto

E. Clemmer

Inventors

James W. Clemmer

Andrew Rosendahl

Albert N. Halvorson

By A. B. Williamson & Co.

Attorneys

J. W. CLEMMER, A. ROSENDAHL & A. N. HALVORSON.

DOOR LOCK.

APPLICATION FILED JUNE 15, 1914.

1,124,862. Patented Jan. 12, 1915.

2 SHEETS—SHEET 2.

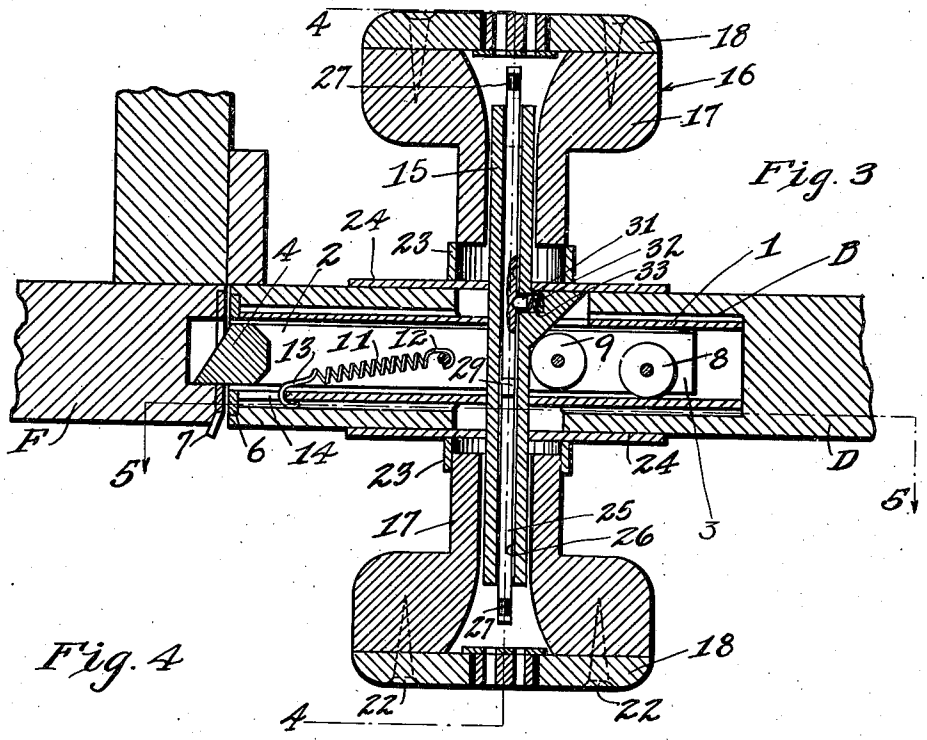


Fig. 3

Fig. 4

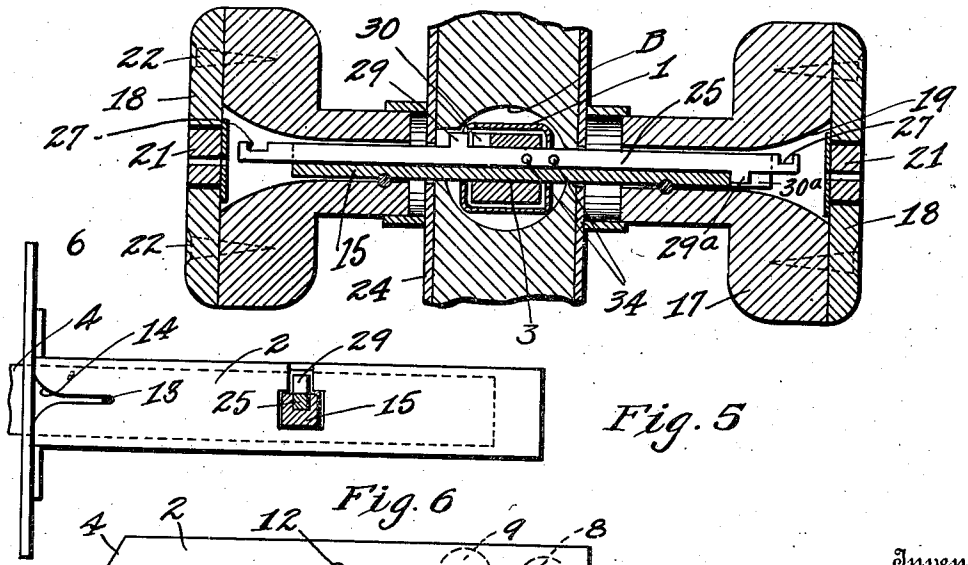


Fig. 5

Fig. 6

Witnesses

Sidney J. Negrotto

E. [illegible]

Inventors

James W. Clemmer

Andrew Rosendahl

Albert N. Halvorson

By A. B. Wilkinson & Co

Attorneys

UNITED STATES PATENT OFFICE.

JAMES W. CLEMMER, ANDREW ROSENDAHL, AND ALBERT N. HALVORSON, OF FARGO, NORTH DAKOTA.

DOOR-LOCK.

1,124,862. Specification of Letters Patent. Patented Jan. 12, 1915.

Application filed June 15, 1914. Serial No. 845,205.

To all whom it may concern:

Be it known that we, JAMES W. CLEMMER, ANDREW ROSENDAHL, and ALBERT N. HALVORSON, citizens of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented certain new and useful Improvements in Door-Locks; and we do 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.

Our invention relates to improvements in door locks and has for its primary object to provide a device of this character so constructed as to allow the latch bolt to be withdrawn by exerting longitudinal movement upon the rod carrying the knobs.

A secondary object of the invention is to provide simple and efficient means whereby the latch bolt may be locked against movement.

A still further object of the invention is to construct the device in the most simple manner consistent with its proper operation.

With these objects in view, the invention resides in certain novel features of construction and combination herein described and claimed and shown in the drawings wherein:—

Figure 1 is a horizontal sectional view through a portion of a door showing a plan view of our improved lock, the means for locking the latch bolt being in inoperative position; Fig. 2 is a similar view with parts broken away and in section and showing the bolt locked against movement; Fig. 3 is a horizontal section through the door and lock, showing more particularly the construction of the latter; Fig. 4 is a vertical transverse sectional view taken on the line 4—4 of Fig. 3; Fig. 5 is a vertical section taken on the line 5—5 of Fig. 3; Fig. 6 is a plan view of the bolt; and Fig. 7 is a perspective view of the form of key employed in connection with the lock.

In the accompanying drawings, we have shown our invention as applied to a door D in the outer edge of which a suitable bore B is formed for its reception. The bore B is provided to receive a rectangular sleeve 1 which incloses a latch bolt 2, said latch bolt being of rectangular formation in cross section and being provided with a lateral slot 3 which extends outwardly from its inner end and terminates adjacent a beveled head 4, the latter projecting beyond a face plate 6 to which the sleeve 1 is secured and being adapted to engage a keeper 7 carried by the door frame F.

As most clearly seen in Fig. 3, an anti-friction roller 8 is revolubly mounted within the slot 3 near the inner end of the bolt 2, said roller contacting with the inner walls of the sleeve 1 and therefore facilitating the inward and outward movement of the bolt. Spaced a suitable distance from the roller 8 and inclosed entirely within the slot 3, is an anti-friction roller 9 with which a cam 10 is adapted to contact for the purpose of retracting the bolt, said bolt being normally projected by means of a coil spring 11 which has its inner end secured to a pin 12 which projects across the slot 3 near its outer end, said pin also acting as a stop in a manner to appear. The outer end of the spring 11 is provided with a hook 13 which is received by a substantially V-shaped slot 14 formed in the outer end of the sleeve 1. It will therefore be seen, more clearly by reference to Fig. 3, that the tension of the spring normally projects the bolt 2 until its roller 9 contacts with the cam 10.

The cam 10 is formed integrally with a rectangular operating rod 15, said rod passing slidably through registering openings in the sleeve 1 and the adjacent portions of the door D and carrying, on its opposite ends, operating knobs 16, each of said knobs comprising an inner section 17 and an outer section 18, the sections 17 including cylindrical portions in which the opposite ends of the rod 15 are rigidly keyed, the outer ends of the bores receiving said rod being enlarged as at 19 for the purpose of receiving the inner end of a key 20, the latter being adapted to be passed through a revolubly mounted member 21 which is carried by the outer section 18, said outer section being secured to the inner section by means of fastening screws 22 which are preferably hidden from view by counter sinking their heads and providing suitable plugs which lie flush with the outer surface of the knob. As clearly shown in the drawings, the inner ends of the cylindrical portions of the knobs are slidably mounted in guard sleeves 23

which, through the instrumentality of attaching plates 24, are rigidly secured to the door.

With the parts arranged as heretofore described, it will be seen that when lateral movement is imparted to the operating rod 15, in the proper direction, the angularly disposed face of the cam 10, contacting with the roller 9, will cause the latch bolt 2 to be retracted against the tension of its spring 11. This inward movement of the latch bolt is now limited by the pin 12 which, when the proper amount of inward movement has been imparted to said bolt, contacts with the rod 15.

As is usual with devices of this character, it is essential to provide means whereby the latch bolt may be locked against movement, said means being here shown in the form of a rectangular locking rod 25, said rod being slidably mounted in a rectangular guideway 26 which is formed in the upper side of the rod 15. The locking rod 25 is provided, at each end, with a recess 27 in which a suitable projection 28, formed on the key 20, is adapted to be forced, thereby allowing said operating rod to be shifted within the guideway 26, this shifting movement causing a stop 29, rising rigidly from the rod 25 to engage or disengage a notch 30 which is formed in one of the upper edges of the bolt 2. It will thus be seen that when said stop 29 is engaged with the notch 30, the bolt 2 will be locked against inward movement. It will be further seen that when said locking bar 25 is shifted to disengage the stop 29 from the notch 30, the bolt 2 is free to move inwardly when the rod 15 is moved in the proper direction.

By coming in contact with the inner wall of the notch 30, the stop 29 is limited against movement in one direction and thereby the locking rod is limited in its movement. In order to prevent excessive movement of said rod in the opposite direction, we provide means now to be described. The opposite end portion of the rod 25 from that having the stop 29, is provided with a depending stop 29^a which is adapted to slide inwardly in a notch 30^a which is formed in the lower side of the bar 15 and which communicates with the groove or guideway 26. It will thus be seen that excessive movement of the rod in the opposite direction, is limited.

For the purpose of preventing casual shifting of the locking bar 25, we provide a stud 31 which is slidably mounted in a recess 32, formed in the cam 10 and communicating with the guideway 26, said stud being normally projected by a coil spring 33 interposed between its inner end and the inner wall of said opening. As most clearly seen in Fig. 3, the stud 31 is adapted to engage either one of a pair of sockets 34 which are formed in the adjacent side of the locking bar, thereby holding the latter in either one of its adjusted positions.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that we have produced an extremely simple lock and have provided efficient and inexpensive means whereby the latch bolt may be locked against movement and that the positioning of the pin 12, performing the double function of anchoring the spring 11 and forming a stop for limiting the inward movement of the latch bolt 2, simplifies the structure and is a salient feature.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In a device of the character described, a latch bolt and a bolt operating rod slidable in intersecting planes, means whereby reciprocation of the latter will be imparted to the former, a stop on said bolt, a stop movably supported by the operating rod and means whereby the last mentioned stop may be moved into and out of the path of the first mentioned stop, to lock the bolt against inward movement.

2. In a device of the character described, a latch bolt and a bolt operating rod slidable in intersecting planes, means whereby reciprocation of the latter will be imparted to the former, a stop on the bolt, a locking rod slidably supported by the operating rod and having a stop, and means whereby the locking rod may be moved to position its stop in or out of the path of the stop on the bolt, to lock the bolt against inward movement.

3. In a device of the character described, a latch bolt and an operating rod slidable in intersecting planes, means whereby reciprocation of the latter will be imparted to the former, a stop on the bolt, a locking rod slidable within the operating rod and having a stop, and means whereby the locking rod may be moved to position its stop in or out of the path of the stop on the bolt, to lock the bolt against inward movement.

4. In a device of the character described, a latch bolt and an operating rod slidable in intersecting planes, means whereby reciprocation of the latter will be imparted to the former, a stop on the bolt, a guideway on the operating rod, a locking rod slidable in the guideway and having a stop, and means whereby the locking rod may be moved to position its stop in or out of the path of the stop on the bolt, to lock the bolt against inward movement.

5. In a device of the character described, a latch bolt and a longitudinally grooved operating rod slidable in intersecting planes, means whereby reciprocation of the latter will be imparted to the former, a stop on the bolt, a locking rod slidable in the groove of the operating rod and having a stop,

and means whereby the locking rod may be moved to position its stop in or out of the path of the stop on the bolt, to lock the bolt against inward movement.

6. In a device of the character described, a longitudinally slotted locking bolt, a longitudinally grooved operating rod slidable transversely through the slot therein, a stop on the bolt, a locking rod slidable in the groove and contacting with one of the walls of the slot, a stop on the locking rod and means whereby the locking rod may be moved to position its stop in or out of the path of the stop on the bolt, to lock the bolt against inward movement.

7. In a device of the character described, a latch bolt and an operating rod therefor slidable in intersecting planes, a double acting stop on the bolt, a locking rod slidably mounted on the operating rod and having a stop, and means whereby the locking rod may be moved to cause its stop to contact with said double acting stop whereby movement of the bolt and the locking rod is limited.

8. In a device of the character described, a latch bolt and an operating rod therefor slidable in intersecting planes, a double acting stop on the bolt, a guideway on the operating rod, a locking rod slidable in the guideway and having a stop coacting with the double acting stop, a second stop on one end of the locking rod and adapted to limit the movement thereof in one direction, and means whereby the locking rod may be moved to cause its first mentioned stop to contact with the double acting stop thereby locking the bar against movement and limiting the movement of the locking rod in the opposite direction.

9. In a device of the character described, a latch bolt and a longitudinally grooved operating rod slidable in intersecting planes, said operating rod having a notch in one end and extending outwardly from its groove, a locking rod slidable in the groove and having a stop projecting into the notch, and means whereby the locking rod may be moved in the groove.

10. The combination with a latch bolt and an operating rod slidable in intersecting planes and means whereby reciprocation of the latter will be imparted to the former, of a stop carried by said bolt and movable inwardly and outwardly therewith, a guide carried by the operating rod, a locking rod slidably and non-rotatably mounted in said guide, and a stop on said locking rod to be positioned in the inward path of the stop on the bolt to prevent the retraction of the latter.

11. The combination with a bolt and an operating rod slidable in intersecting planes and means whereby reciprocation of the latter will be imparted to the former, said operating rod having a longitudinal groove, of a stop on the bolt and movable inwardly and outwardly therewith, a locking rod slidably and non-rotatably mounted in said groove, and a stop on said rod to be positioned in the inward path of the stop on the bolt whereby to prevent retraction of the latter.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JAMES W. CLEMMER.
ANDREW ROSENDAHL.
ALBERT N. HALVORSON.

Witnesses:
A. T. COLE,
BERTHA OLSON.