No. 642,671. Patented Feb. 6, 1900.

J. S. BOLSINGER.

LOCK.

(Application filed Sept. 11, 1899.)

(No Model.)

Fig. 1.

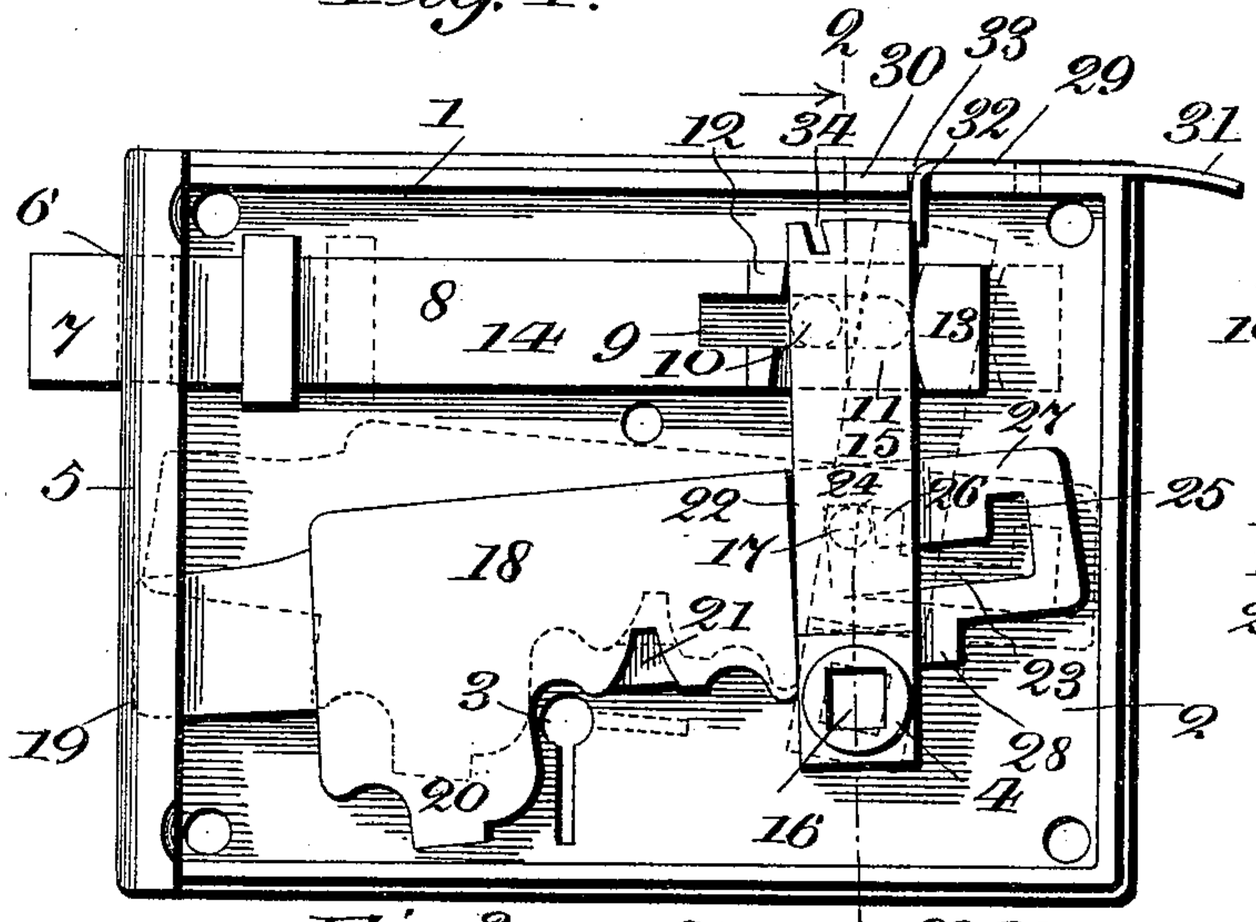


Fig. 2

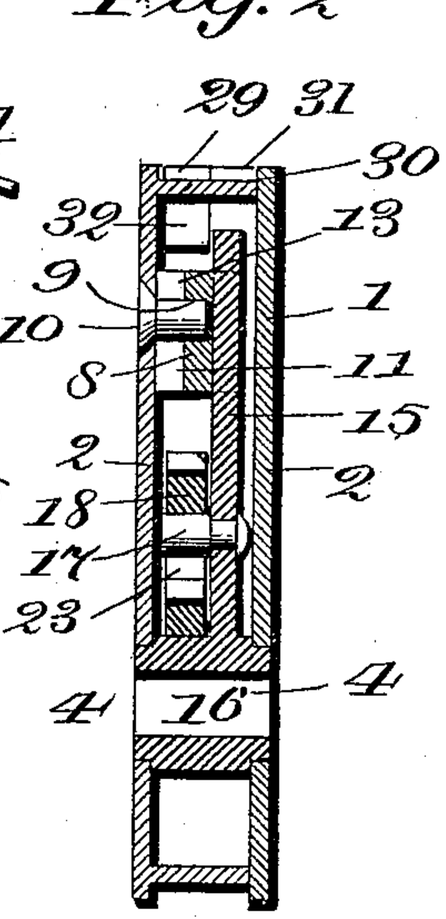


Fig. 3.

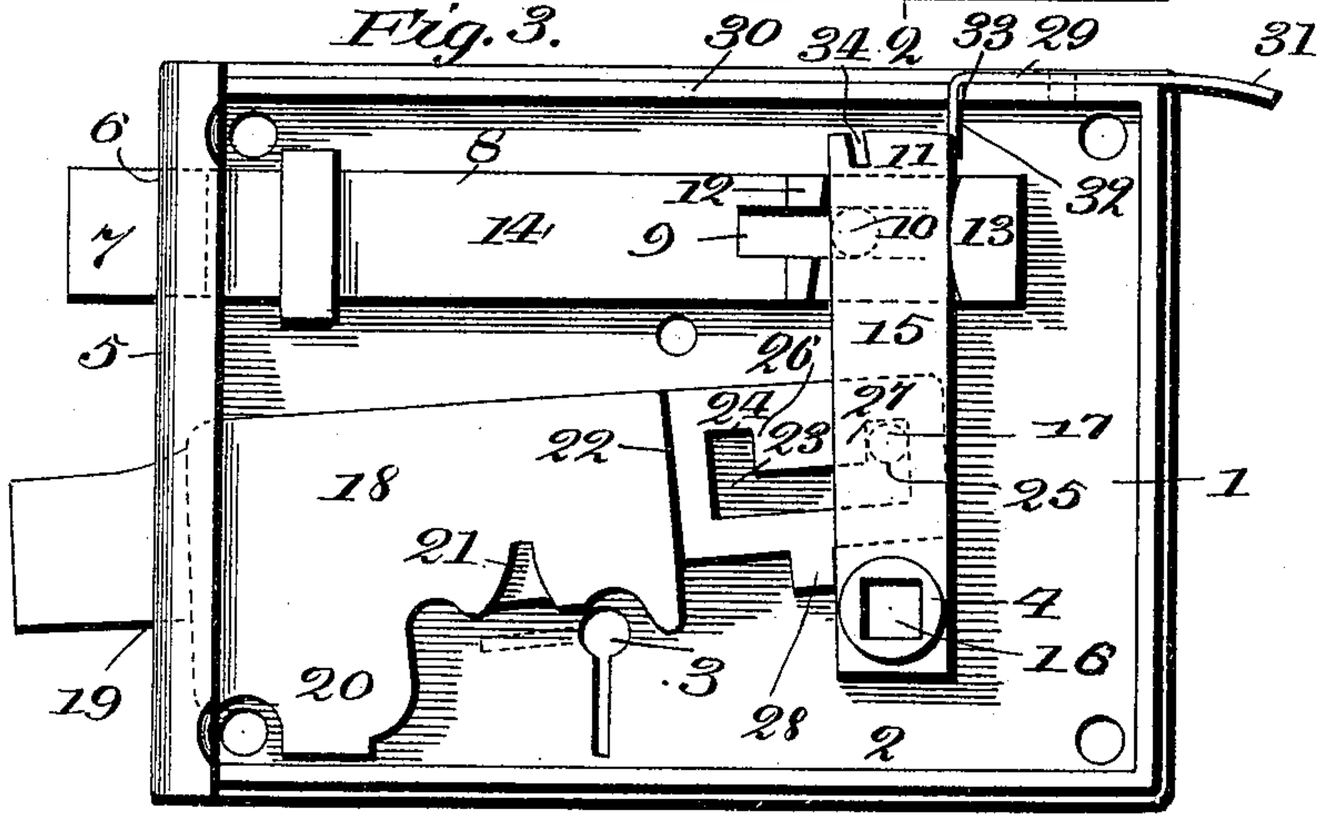


Fig. 5

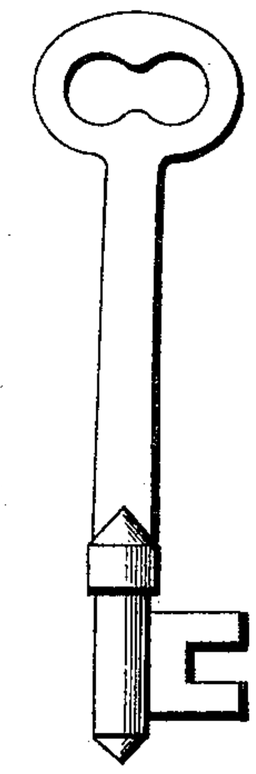
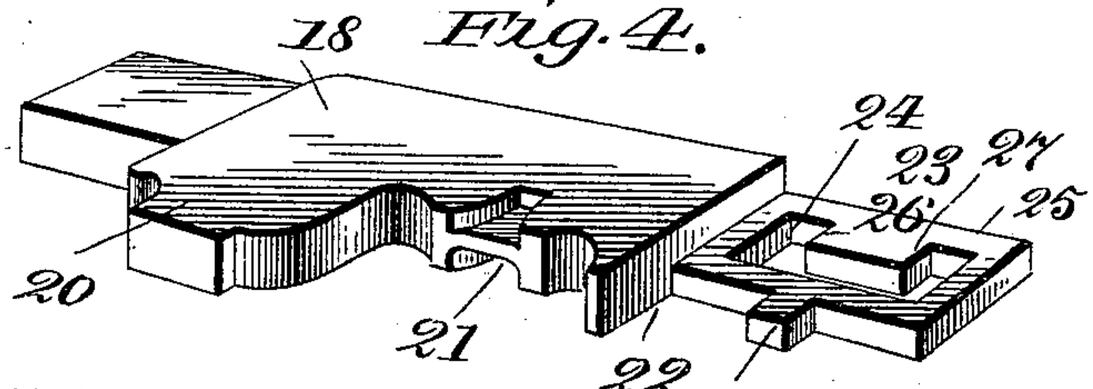


Fig. 4.



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UNITED STATES PATENT OFFICE.

JESSE S. BOLSINGER, OF EBENSBURG, PENNSYLVANIA.

LOCK.

SPECIFICATION forming part of Letters Patent No. 642,671, dated February 6, 1900.

Application filed September 11, 1899. Serial No. 730,121. (No model.)

To all whom it may concern:

Be it known that I, JESSE S. BOLSINGER, a citizen of the United States, and a resident of Ebensburg, in the county of Cambria, in the State of Pennsylvania, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to locks for doors and the like, the object of the same being to simplify and otherwise improve the construction of locks of this character by dispensing with all springs and constructing the same of few parts, utilizing the weight of the locking-bolt to maintain the latch-bar normally in its operative position.

The invention consists of a longitudinally-movable latch-bar, a pivotally-mounted lever or bar for operating the same, having a pin or projection thereon, and a locking-bolt having a slot in its rear end provided with upwardly-extending offsets in which said pin lies.

The invention also consists in certain details of construction and combinations of parts, which will be hereinafter more fully described and claimed.

In the drawings forming a part of this specification, Figure 1 is an elevation of the lock with one of the sides of the casing removed, showing the parts of the device in full lines in normal inoperative position and in dotted lines in the position which they assume when the latch-bar is retracted. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1, showing the device in locking position. Fig. 4 is a detail perspective view of the locking-bolt, and Fig. 5 is an elevation of the key.

Like reference-numerals indicate like parts in the different views.

The casing 1, in which the operative parts of the device are mounted, may be of any suitable form and construction. The sides 2 2 thereof are provided with registering keyholes 3 3 and circular openings 4 4. The front 5 of the casing is formed near its upper end with a rectangular slot or opening 6, through which projects the beveled forward end 7 of a latch-bar 8. The said latch-bar is provided with an elongated slot 9 adjacent to its rear end, which receives a stud or pin 10, projecting inwardly from one of the sides 2 of the casing. The said slot and pin constitute the guiding means for the latch-bar in its longitudinal movements and also serve to limit the extent of said movements in opposite directions. The latch-bar 8 is recessed on opposite sides adjacent to its rear end, as shown at 11, forming shoulders 12 13, and is also recessed, as shown at 14, intermediate its ends. In the recess 11 fits the free end of an actuating lever or bar 15, trunnioned at its opposite end in the openings 4 in the sides of the casing, so that it is adapted to be rocked back and forth for the purpose of retracting the latch-bar for the purpose of unlatching the door or other device on which the lock is placed. By reason of the fact that recesses 11 are formed on opposite sides of the latch-bar 8 the said latch-bar may be reversed in position, so as to adapt it for use upon doors opening in opposite directions. In the trunnioned end of the lever 15 is formed a polygonal opening 16, through which extends the knob-shaft of the door. Said lever is further provided at a point intermediate its ends with an inwardly-extending pin or projection 17. The locking-bolt 18 is constructed of a solid heavy block of metal, and the nose end or engaging portion of the same is adapted to be projected through a rectangular opening 19 in the front 5 of the casing. At the rear of the engaging end of said locking-bolt the same is formed with a downwardly-extending projection or lug 20, which tends to increase the weight of the bolt at this point. Adjacent to the keyholes 3 in the sides 2 of the casing the locking-bolt 18 is formed with recesses and shoulders 21, provided for the reception and engagement of a key, which recesses and shoulders may be of any suitable form and may be varied according to the kind and shape of the key employed. The extreme rear end of the locking-bolt 18 is cut away on one side, as shown at 22, and is formed with a substantially U-shaped slot 23, the same being provided with upwardly-extending offsets 24 25 at its opposite ends, forming shoulders or abutments 26 27. The under side of the locking-bolt beneath the central portion of the slot 23 is formed with a lug or tooth 28, for a purpose which will presently appear. In the slot 23 the pin 17 on the lever 15 lies, and the tooth or lug 28

on the under side of the locking-bolt is adapted to engage one side or the other of the trunnion on said lever.

With the parts of the device in the positions in which they are shown in Fig. 1 of the drawings—that is, with the locking-bolt 18 retracted—it will be observed that the pin 17 lies within the offset 24 of the slot 23 and that the latch-bar 8 is free to be moved rearwardly by the turning of the door-knob, the movement of which is transmitted through the lever 15 to said latch-bar. As the latch-bar 8 is retracted, however, the free or outer end of the locking-bolt 18 will be elevated against the action of gravity, and the weight of said locking-bolt will serve to return the latch-bar to its normal position, projecting beyond the front 5 of the casing, the connection between these two parts being effected by the engagement of the shoulders 12 and 13 with the free end of the lever 15 and the engagement of the pin 17 on said lever with the shoulder 26 formed by the offset 24 of the slot 23. In order to throw the locking-bolt 18, it is necessary to insert a key of proper shape and dimensions through one or the other of the keyholes 3 in the casing and turn the same in the proper direction, as is the ordinary practice. The first action of the key upon the locking-bolt 18 will be to elevate the rear end thereof, so that the offset 24 of the slot 23 will pass beyond the pin 17 on the lever 15. The further movement of the key will project the bolt 18 outwardly from the casing until its movement is arrested by the opposite end of the slot 23 coming in contact with the pin or projection 17. The key has now passed from the bolt 18, the nose end thereof projects from the casing 1, and the rear end thereof drops so as to cause the pin 17 to be seated in the offset 25 at the opposite end of the slot 23. It will now be seen that rearward movement of the locking-bolt 18 is prevented by the engagement of the shoulder 27 with the pin 17 and the engagement of the lug or tooth 28 with the trunnioned end of said lever. When the parts are in this position, the latch-bar 8 is also held in its outward or locking position, the lever 15 being immovable. The outward movement of the latch-bar is of course prevented by the engagement of the rear end of the slot 9 with the pin 10, and the inward movement of said latch-bar is prevented by the engagement of the shoulder 12 with the lever 15, which, as above stated, is held immovable in this direction by the engagement of the pin 17 with the outer wall of the offset 25 of the slot 23 and the engagement of the tooth or lug 28 with the trunnioned end of said lever. It will be seen, therefore, that the latch-bar is free to be moved when the locking-bolt is in its retracted position; but when said locking-bolt has been thrown into its locking position the latch-bar augments the locking action of said bolt by being itself held immovable in locking position. It will also have been observed that all springs connected with the locking mechanism have been dispensed with and that the latch-bar is held normally in its operative position by the weight of said locking-bolt.

In connection with the foregoing parts I have provided a detent for the latch-bar which is designed for preventing the movement thereof even when the locking-bolt is in inoperative position. The same consists of a lever 29, pivoted to the top 30 of the lock-casing, having a handle 31 at one end, by means of which its position may be shifted, and provided with a flange or engaging portion 32 at its opposite end, which projects through a slot 33 in the top 30 and is adapted to engage the rear side of the lever 15 when the latch-bar 8 is in its forward position and a shoulder 34, formed by a recess in said lever, when the latch-bar is in its rearward position. By this means the latch-bar may be locked independently of the locking-bolt at the end of its stroke in either direction.

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

1. In a lock, a latch-bar, a locking-bolt connected to said latch-bar and acting by gravity, when retracted, to maintain said latch-bar in operative position, and locking means for said latch-bar, thrown into operation by said bolt when the latter is projected, substantially as set forth.

2. In a lock, a latch-bar, an operating-lever therefor, a locking-bolt connected with said lever and acting by gravity therethrough, when retracted, to maintain said latch-bar in operative position, and means, thrown into operation by said bolt, when the latter is projected, for locking said lever and latch-bar, substantially as set forth.

3. In a lock, a longitudinally-movable latch-bar, an operating-lever therefor having a pin or projection thereon, and a locking-bolt having a slot in its rear end formed with upwardly-extending offsets in which said pin fits, the said bolt acting by gravity to maintain said latch-bar normally in its operative position.

4. In a lock, a longitudinally-movable latch-bar, an operating-lever therefor having a pin or projection thereon, a locking-bolt having a slot in the rear end thereof provided with upwardly-extending offsets in which said pin lies, and a tooth or projection beneath said slot adapted to engage the pivot of said lever.

5. In a lock, a longitudinally-movable latch-bar having a recess at one end forming shoulders, an operating-lever therefor whose free end lies within said recess, a locking-bolt having a slot in its rear end formed with upwardly-extending offsets, and a tooth or projection beneath said slot adapted to engage the pivot of said lever, and a pin or projection on said lever lying within said slot.

6. In a lock, the combination with the casing thereof having a stud or projection on one of the sides thereof, and circular openings therein, of a latch-bar having an elongated

slot therein which receives said stud, and a recess in one side forming shoulders, a lever whose free end lies within said recess and whose opposite end is trunnioned in said circular openings, a locking-bolt having a slot in its rear end formed with upwardly-extending offsets, and a tooth or projection beneath said slot adapted to engage the trunnions on said lever, and a pin or projection on said lever lying within the slot in said bolt.

7. In a lock, the combination with the casing thereof, having a slot therein, of a longitudinally-movable latch-bar in said casing, an operating-lever therefor, and a detent pivoted to said casing movable transversely thereof and provided with a flange projecting through said slot and adapted to engage said lever at two points for locking said latch-bar at both ends of its stroke.

In testimony whereof I have hereunto set my hand this 24th day of August, 1899.

JESSE S. BOLSINGER.

Witnesses:
S. W. DAVIS,
J. W. LEECH.