

(No Model.)

2 Sheets—Sheet 1.

J. J. LINK.
LATCH LOCK.

No. 549,143.

Patented Nov. 5, 1895.

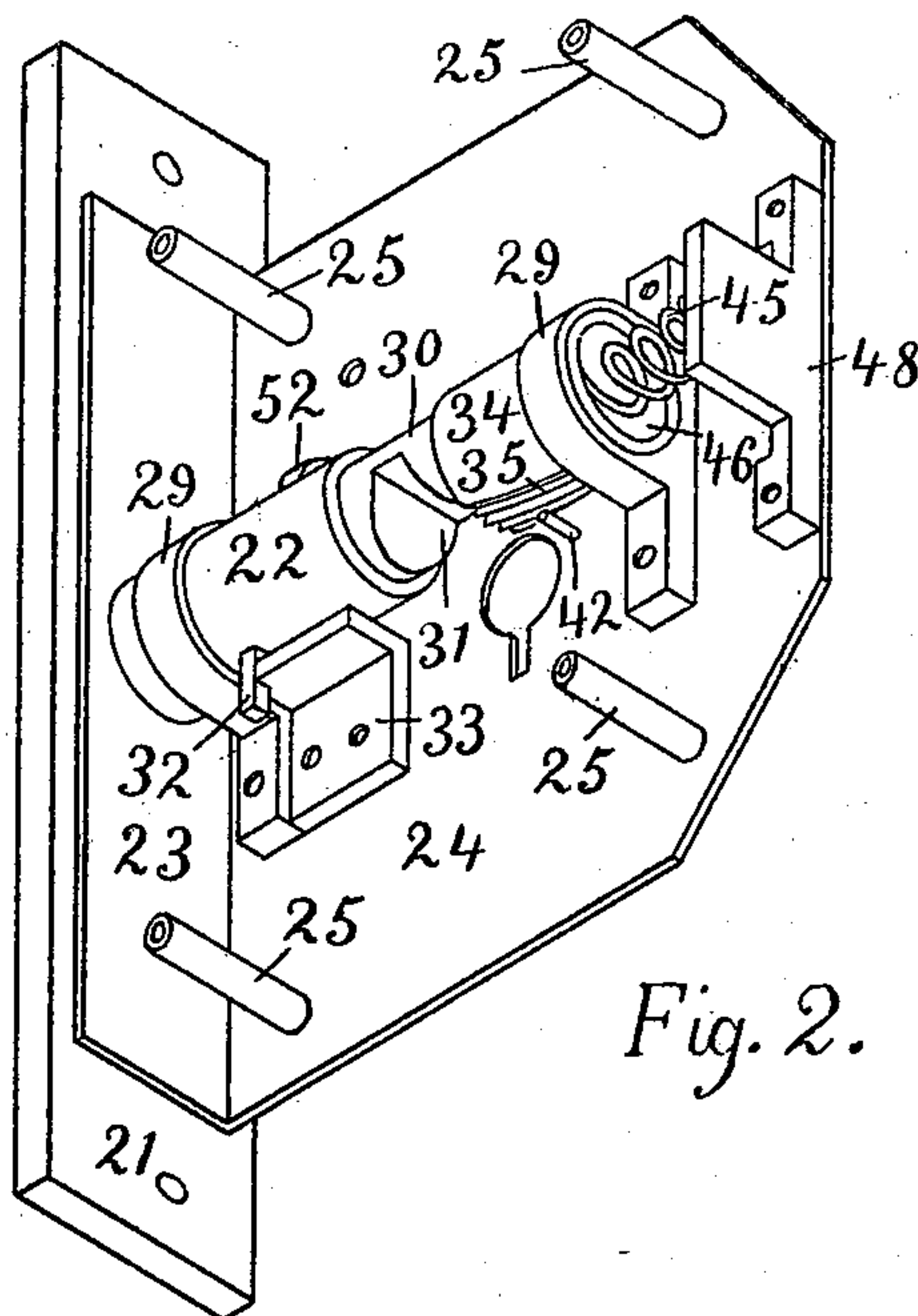
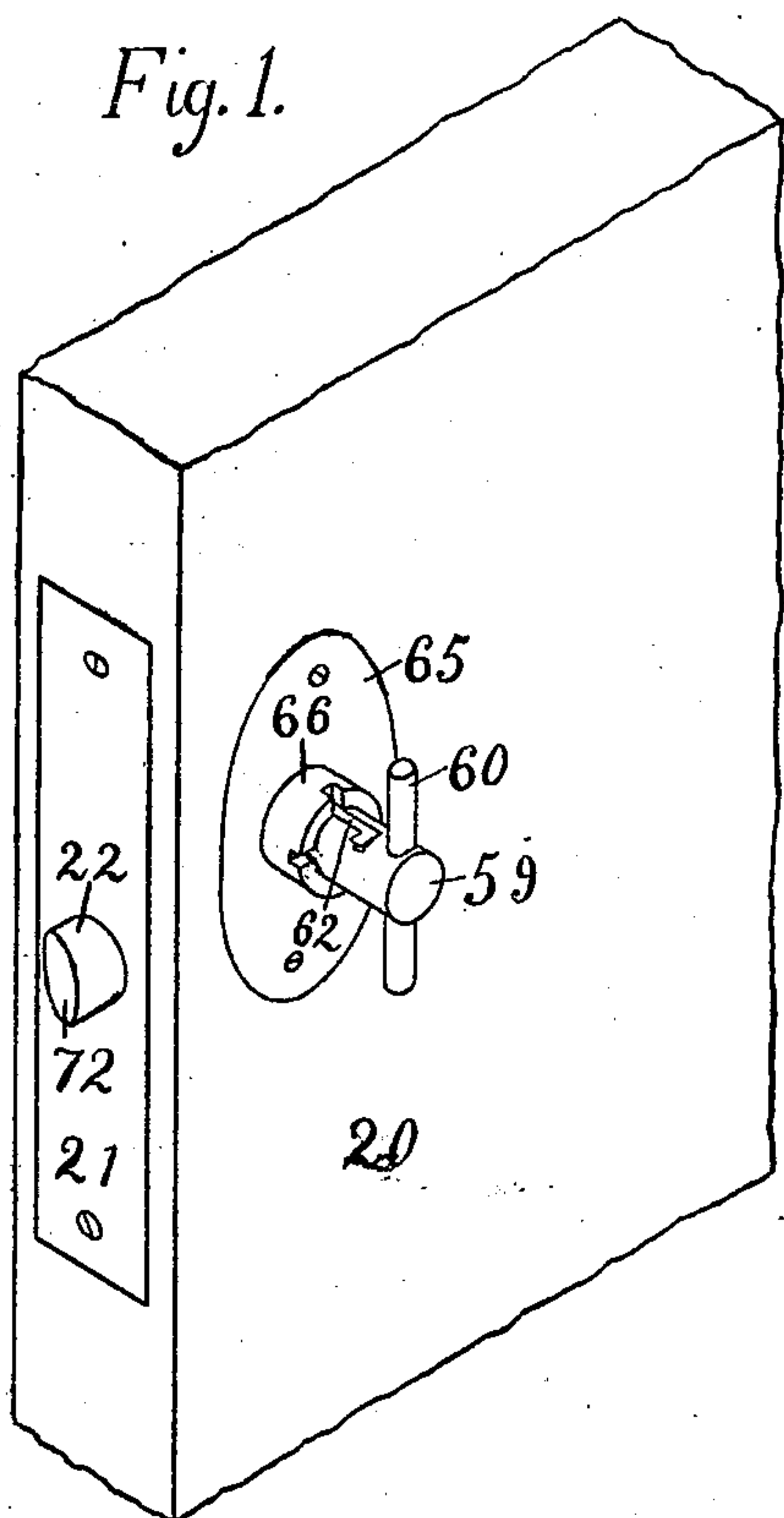


Fig. 3.

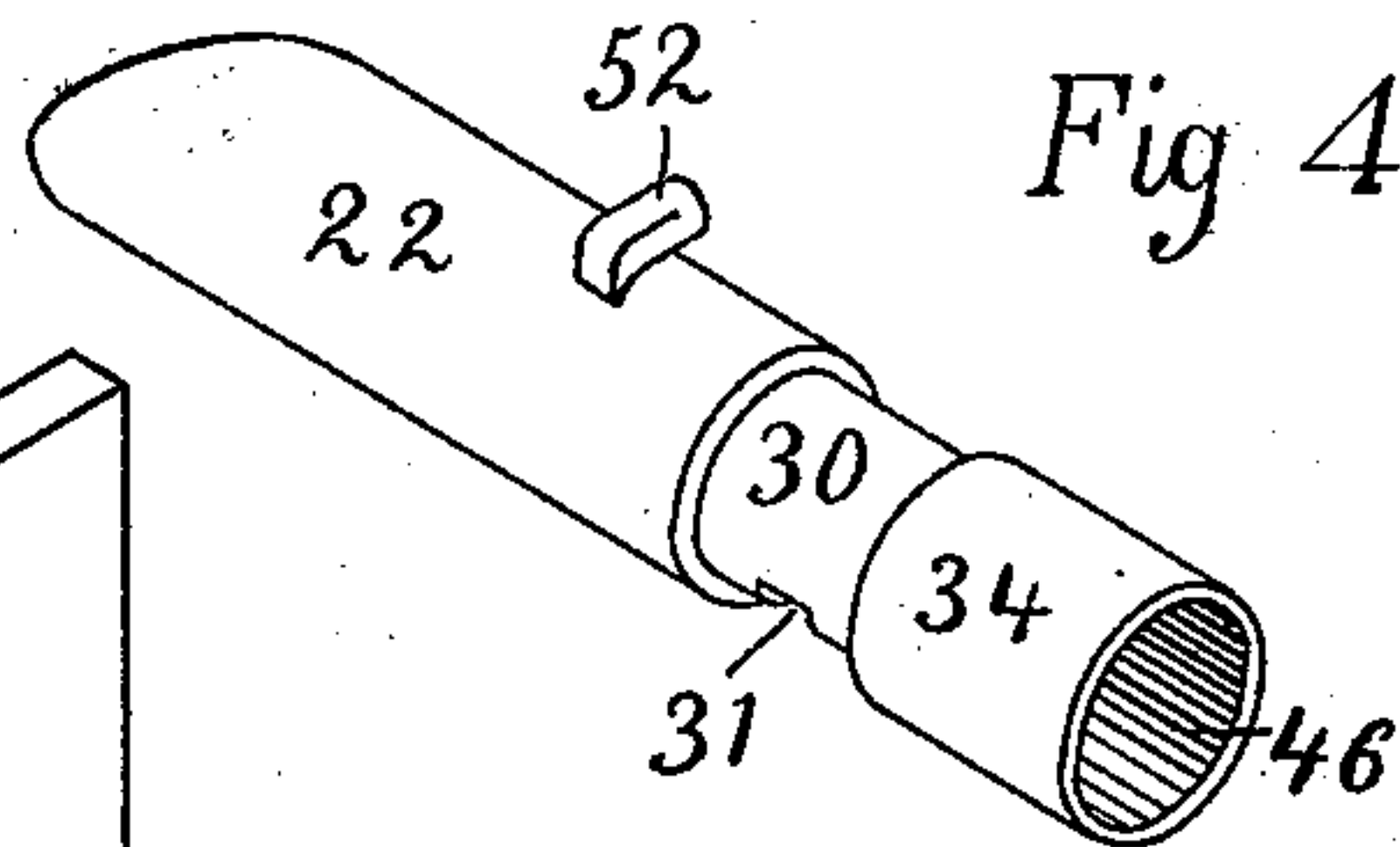
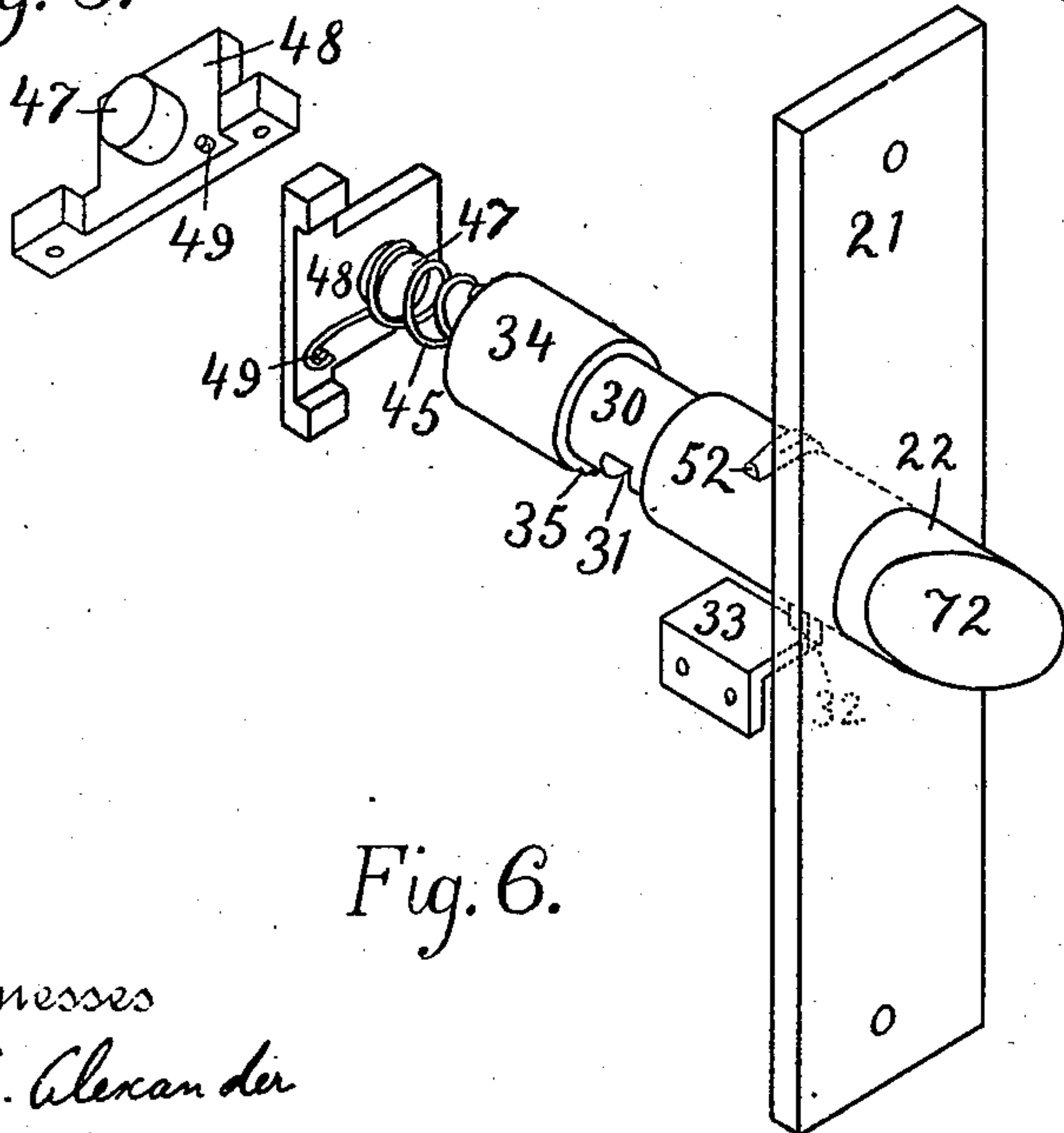


Fig. 5.

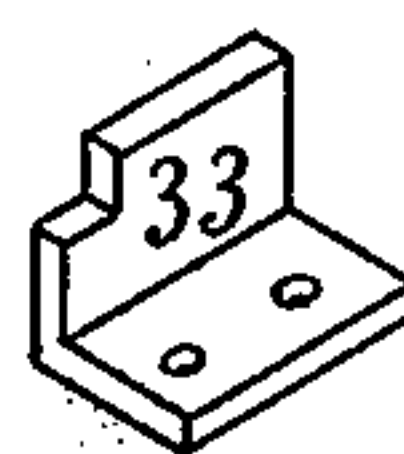


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN JOSEPH LINK, OF ST. LOUIS, MISSOURI.

LATCH-LOCK.

SPECIFICATION forming part of Letters Patent No. 549,143, dated November 5, 1895.

Application filed May 31, 1895. Serial No. 551,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH LINK, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Latch-Lock, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a new and useful door-lock, and more particularly to a latch-lock, or one which is opened from one side by a key and from the other side by a handle or knob.

The object of my invention is to produce a lock which cannot be picked like those of the ordinary construction or the bolt thrown by a skeleton key.

My invention consists in providing the lock with a projection abutting against a suitable stop, so that the bolt cannot be slid until it is first rotated for some distance by the rotary motion of the key to free the projection from the stop, and in other novel features and details, all of which are described in the following specification, and pointed out in the claims affixed hereto.

In the accompanying drawings, which illustrate a lock embodying one form of my invention, Figure 1 is an isometric projection showing the lock in position; Fig. 2, an isometric projection of the lock with one of the side plates removed. Figs. 3, 4, and 5 are isometric projections of details. Fig. 6 is a detached isometric projection of part of the mechanism of the lock. Fig. 7 is a vertical longitudinal section. Fig. 8 is an isometric projection showing both of the side plates of the lock in position. Figs. 9, 10, 11, 12, and 13 are isometric projections of details.

Like marks of reference indicate the same parts throughout the different views of the drawings.

20, Fig. 1, is a door in which I have shown the lock mortised, as this is the manner in which I prefer to secure the lock to the door.

21, Figs. 1, 2, 6, 7, and 8 is a selvage or edge plate through which passes a cylindrical bolt 22, Figs. 1, 2, 4, 6, and 7. To the back

of the selvage 21 is brazed, riveted, or otherwise suitably secured a plate 23, Figs. 2, 7, and 8, which is bent at right angles so as to form a side plate 24. Screwed into the side plate 24, or otherwise suitably secured to it, are four pins 25, Figs. 2, 7, and 8, to which is attached by screws or in any other suitable manner a side plate 26, Fig. 8. Between the two side plates 24 and 26, and preferably secured to the plate 24, is situated the mechanism of the lock.

The bolt 22 is secured to the plate 24 by means of guides 29, Figs. 2 and 7, through which said bolt passes, and which are screwed or otherwise suitably secured to the plate 24. The bolt 22 has a reduced portion 30, Figs. 2, 4, 6, and 7, near its central portion, in which is cut a V-shaped notch 31, with which the web or bit of the key engages when the bolt is thrown by that means. Set into the bolt 22, preferably near the end passing through the selvage 21, is a pin or projection 32, Figs. 2, 6, and 7, which normally engages with a stop 33, Figs. 2, 5, 6, and 7, to prevent the bolt from being picked. This stop 33 is preferably screwed or otherwise suitably secured to the side plate 24. The projection 32 slides on the edge of the stop 33, and said stop extends as far to the rear as the projection is carried when the bolt is moved back to its greatest extent. This is in order that the projection cannot be caught behind the stop and thus prevent the return of the bolt to its normal position. The rear end 34 of the bolt 22 is provided, preferably on its lower side, with longitudinally-extending threads or grooves 35, Figs. 2 and 6. By means of these threads or grooves a rotary motion is imparted to the bolt by the key and the pin 32 thus disengaged from the stop 33. The key 36, Fig. 12, has threads 37, corresponding to the threads 35 cut upon the pin or portion to which the web 38 is secured. These threads 37 need only be formed on one side of said bolt, as the key is only used from one side of the lock. A flattened portion 39 is formed on the top of the pin of the key 36, so that the key can be inserted in the lock without striking against the threads 35 on the bolt 22. The pin upon which the threads are cut has a projecting point or boss 40, which projects

into a circular opening 41, Fig. 8, in the side plate 26 when the key is inserted in the lock, and thus forms a bearing for said key. A stop pin or projection 42, Figs. 2 and 7, is secured to the side plate 24 near the keyhole to prevent the key from being turned completely around and thus releasing the bolt without giving time to open the door.

To hold the bolt 22 in its normal position, a spiral spring 45, Figs. 2, 6, and 7, is provided. One end of this spring 45 passes into a cylindrical opening 46, Figs. 2, 4, and 7, in the end 34 of the bolt 22 and is secured in any suitable manner, such as by inserting the end of the wire forming the spring into a small hole in the bottom of the cylindrical opening 46, as shown in Fig. 7. The other end of the spring 45 passes around a cylindrical projection 47 on an end plate or brace 48, Figs. 2, 3, 6, 7, and 8, preferably screwed or otherwise suitably secured to the side plate 24. The free end of the wire forming the spring is bent around a small pin or projection 49 on the end plate 48, as shown in Figs. 6 and 7. The spring 45 thus serves to hold the bolt 22 forward and tends to impart a rotary motion to it and thus insures the engagement of the projecting-pin 32, on the bolt 22, with the stop 33. In order to provide means for operating the lock from the inside of the door by a knob or handle, the bolt 22 is provided, preferably at its top, with a lateral projection 52, Figs. 2, 6 and 7, which engages with a substantially triangular piece 53, Figs. 7 and 13, carried on a spindle 54, Figs. 7 and 9. Said triangular piece 53 is provided with two downward extensions 51 and 55 and a square hole 56, Fig. 13, adapted to receive the square end 57 of the spindle 54, Fig. 9. Said triangular piece 53 by its engagement with the projection 52 operates to throw the bolt in the manner hereinafter described. The spindle 54 is provided with an enlarged part or head 59, Figs. 1 and 9, through which passes a cross-bar or handle-bar 60. In the head 59 is formed a slot 61, Fig. 9, in which is pivoted a detent 62, having a lateral projection 63. The detent 62 is made to fit the slot 61 snugly, except that the lateral projection 63 protrudes slightly from the head and thus affords means for swinging said detent outwardly into the position shown in Fig. 9. To the bottom of the slot 61 is secured a spring 64 to hold the detent 62 in whatever position it is placed. Secured to the side of the door 20 is a plate 65, Figs. 1 and 10, having a cylindrical projection or collar 66, provided with an opening 67, through which the spindle 54 passes. Said projection 66 is also provided with a circular flange or rim 68, into which the inner end of the head 59 fits. The flange 68 is provided with two slots 69, adapted to engage with the detent 62. Said slots 69 are so arranged that when the parts are in their normal position the detent 62 can be engaged with one of them by swing-

ing it outwardly, and when the handle-bar 60 is turned sufficiently to throw back the bolt 22, said detent can be engaged with the other one. The spindle 54 is secured in position in the projection 66 by a collar 70, Fig. 11, placed around said spindle 54 at the back of the plate 65 and secured in position by a set-screw 71.

The beveled face 72 of the bolt 22, Figs. 1 and 6, is turned so that its plane will be slightly out of the vertical, as best shown in Fig. 6, so that when it strikes the plate in the door-frame, in which the bolt engages, only the lower edge thereof will impinge against said plate, and thus the bolt will be turned sufficiently to release the pin 32 from the stop 33. The bolt will then be forced back in the usual manner.

The operation of my lock is as follows: When the key 36 is turned in the lock, the threads 37, Fig. 12, in the pin of said key engage with the threads 35, Fig. 2, on the bolt 22 and thus turn said bolt. The pin 32 is thereby disengaged from the stop 33. The web 38 of the key then engages with the V-shaped slot 31 in the reduced portion 30 of the bolt 22 and this draws back said bolt. The pin 42 prevents the key from being turned completely around and thus releasing the bolt after it is withdrawn from the striking-plate. As soon as the key is turned back, the spring 45 returns the bolt to its normal position. In withdrawing the bolt by the handle the upper end of the handle-bar 60, Figs. 1 and 9, is turned down to the left, thus rotating the triangular piece 53 in the same direction. The part of the triangular piece 53 between the downward extensions 51 and 55 first presses down on the projection 52, thus rotating the bolt and releasing the pin 32 from the stop 33. The downward projection 55 then engages with the projection 62 and thus throws back the bolt. When it is desired to secure the lock so that it cannot be operated by the key, the detent 62, Fig. 9, in the head 59 is thrown outward and into engagement with the slot 69, Fig. 10, in the flange 68, which it is opposite when the bolt is in its normal position. This will prevent the spindle 54 and triangular piece 53, Figs. 7 and 13, from turning, and thus the extension 51 of said triangular piece 53 prevents the bolt 22 from being drawn back by its engagement with the lateral projection 52 on said bolt 22. When it is desired to throw the lock out of use, the handle 60 is turned until the bolt 22 is drawn back and the detent 62 thrown outward and into engagement with slot 69 in the flange 68, which it is then opposite. The spindle 54 and triangular piece 53 will then be locked in this position and the extension 55 of said triangular piece 53 will prevent the bolt from being thrown forward.

The web 38, Fig. 12, of the key, which is shown plain, may be provided with suitable clefts or notches and the interior of the lock

with corresponding guards, as in ordinary locks; also, the size and direction of the threads on the key and bolt may be varied to prevent the lock from being operated by any
5 but its own key.

Many changes may be made in the construction without departing from the spirit of my invention. Therefore I do not wish to limit myself to the exact construction shown.

10 Having fully described my invention, what I desire to claim and secure by Letters Patent of the United States is—

1. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, and a key provided with means
15 for rotating said bolt by the rotary motion of said key to disengage said dogging devices therefrom, so that said bolt may be thrown back by said key.

20 2. In a lock, a sliding bolt, threads formed on said bolt, dogging devices normally locking said bolt against longitudinal movement, and a key having formed on it threads corresponding to the threads on said bolt, whereby
25 said bolt may be rotated by the rotary motion of said key to disengage said dogging devices therefrom.

3. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, and a spindle adapted to rotate about its axis and provided with a suitable handle for rotating and throwing said
30 bolt, said spindle engaging with said bolt, whereby the rotation of said spindle will rotate said bolt to disengage said dogging devices therefrom and throw said bolt.

4. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a spindle provided with a suitable handle for rotating and throwing said
40 bolt, actuating means carried on said spindle and engaging with said bolt, whereby the movement of said spindle will operate said bolt, a fixed collar in which said spindle is carried, and interlocking means between said
45 collar and spindle, whereby said spindle and thereby said bolt is secured in the desired position.

5. In a lock, a sliding bolt, dogging devices
50 normally locking said bolt against longitudinal movement, a beveled face on said bolt, said face being so inclined that its contact with the striking plate will rotate said bolt to disengage said dogging devices therefrom,
55 and a spring returning said bolt to its normal position.

6. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a key provided with means for rotating said bolt by the rotary motion of
60 said key to disengage said dogging devices therefrom, and a spring returning said bolt to its normal position.

7. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a spindle provided with a suitable handle for rotating and throwing said
65 bolt, said spindle engaging with said bolt, whereby the movement of said spindle will rotate said bolt to disengage said dogging devices therefrom, a key provided with means
70 for rotating said bolt to disengage said dogging devices therefrom, a spring returning said bolt to its normal position, and a stop for preventing the complete rotation of said
75 key and thereby the premature return of said bolt to its normal position.

8. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a beveled face on said bolt,
80 said face being so inclined that its contact with the striking plate will rotate said bolt to disengage said dogging devices therefrom, a key provided with means for rotating said
85 bolt to disengage said dogging devices therefrom, and a spring returning said bolt to its normal position.

9. In a lock, a sliding bolt, dogging devices normally locking said bolt against longitudinal movement, a spindle provided with a suitable handle for rotating and throwing said
90 bolt, said spindle engaging with said bolt, whereby the movement of said spindle will rotate said bolt to disengage said dogging devices therefrom, a beveled face on said bolt,
95 said face being so inclined that its contact with the striking plate will rotate said bolt to disengage said dogging devices therefrom, a spring returning said bolt to its normal position, and a stop for preventing the complete rotation of said key, and thereby the
100 premature return of said bolt to its normal position.

In testimony whereof I have hereunto set my hand and affixed my seal in the presence
105 of the two subscribing witnesses.

J. JOSEPH LINK. [L. S.]

Witnesses:

W. A. ALEXANDER,
E. E. VERNELL.