764,014. PATENTED JULY 5, 1904.

W. E. & O. F. SPARKS.

LOCK.

APPLICATION FILED APR. 5, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

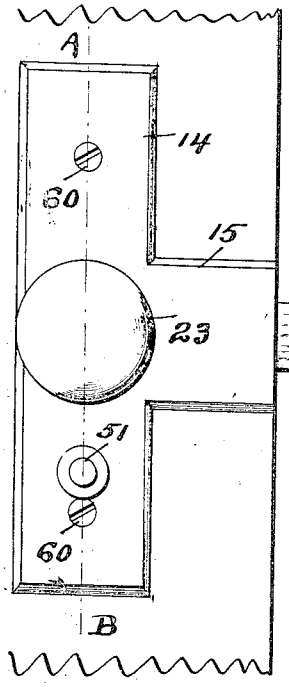


Fig. 1.

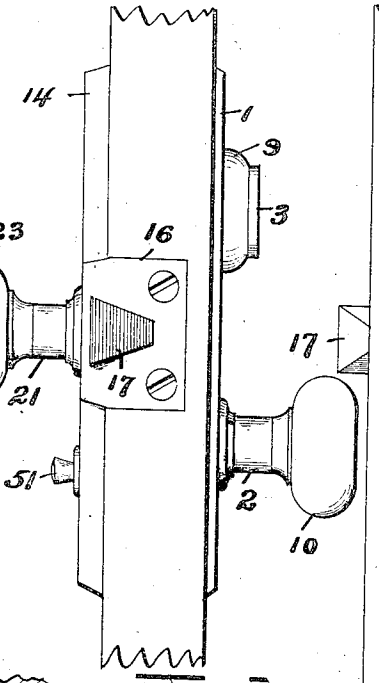


Fig. 2.

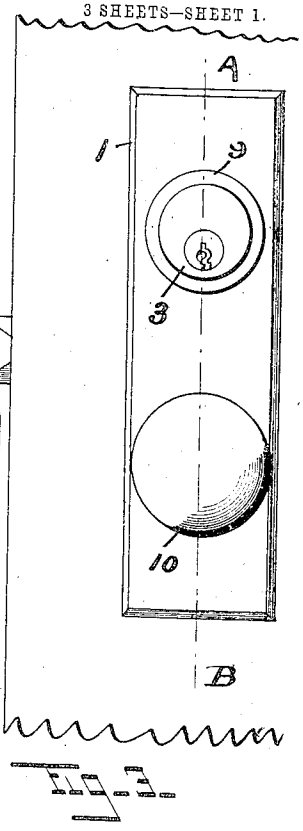


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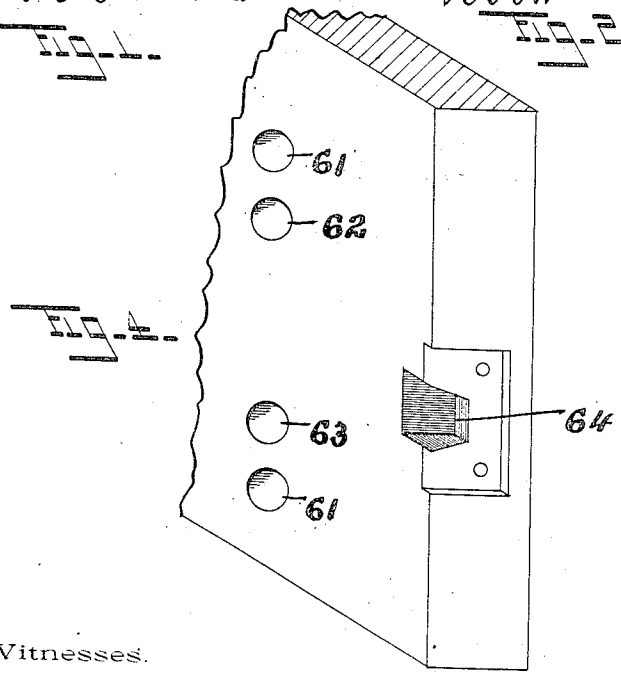


Fig. 4.

Witnesses.

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NO MODEL. 3 SHEETS—SHEET 2.

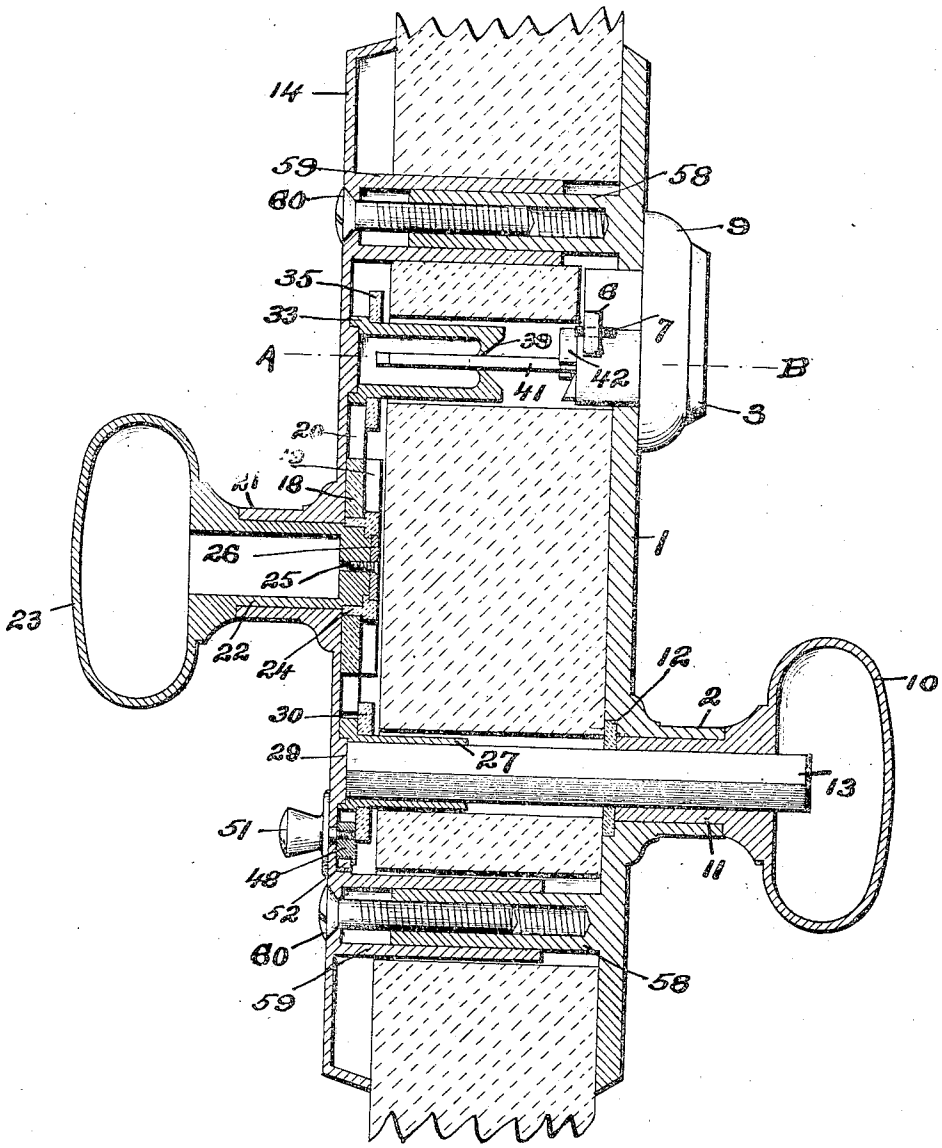


Fig. 5.

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.

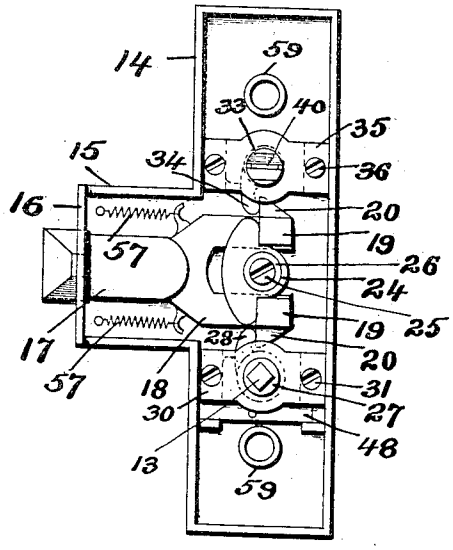


Fig. 1.

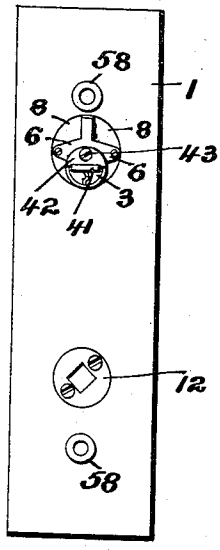


Fig. 10.

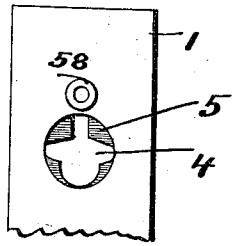


Fig. 11.

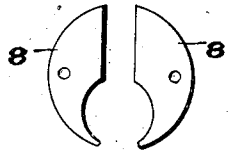


Fig. 8.

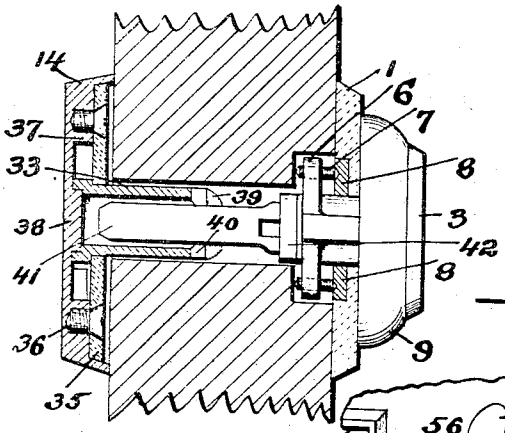


Fig. 12.

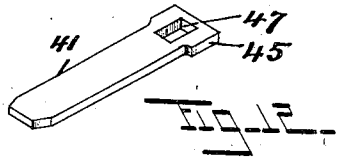


Fig. 9.

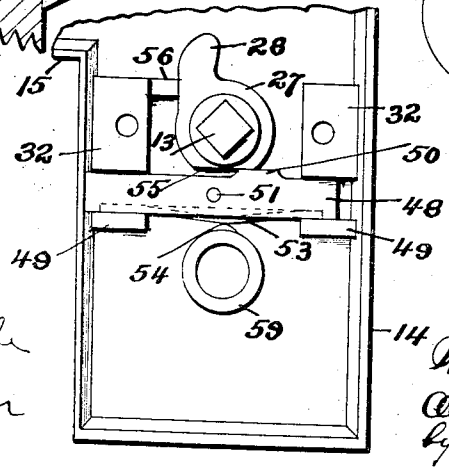
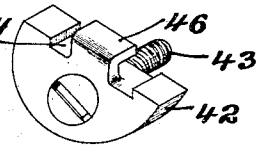


Fig. 13.



Witnesses

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No. 764,014. Patented July 5, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM E. SPARKS AND OLIVER F. SPARKS, OF NEW HAVEN, CONNECTICUT.

LOCK.

SPECIFICATION forming part of Letters Patent No. 764,014, dated July 5, 1904.

Application filed April 5, 1902. Serial No. 101,495. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM E. SPARKS and OLIVER F. SPARKS, citizens of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to improvements in locks, and has for its object, among other things, to provide a lock which can be attached to doors of varying thicknesses with the minimum amount of cutting of the stile thereof, to provide means whereby the parts of the lock upon either side of the door will aline with each other irrespective of the thickness of the door, to operatively connect the several parts of the lock in such a manner that the lock can be attached to the door without removing any of them, and, further, to so design the several parts that they may be economically constructed and readily assembled and when attached to the door the lock will be both neat and pleasing in appearance.

To these and other ends our invention consists in the lock having certain details of construction and combination of parts, as will be hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals designate like parts in the several figures, Figure 1 is a view of the inside of the door with our improved lock attached thereto. Fig. 2 is an edge view thereof, and Fig. 3 is a view of the outside of the door. Fig. 4 is a perspective view of the stile of a door ready to attach our lock thereto. Fig. 5 is a vertical section of our lock and the door upon line A B of Figs. 1 and 3. Fig. 6 is a view of the interior of the inside case. Fig. 7 is an elevation of the inside of the front plate. Fig. 8 is a transverse sectional view of the lock and door upon line A B of Fig. 5. Fig. 9 is a detailed view of the stop mechanism. Fig. 10 is an elevation of the inside of the upper part of the front plate. Fig. 11 is a detailed view of the cylinder-retaining plate. Fig. 12 is a perspective view of the key-bar, and Fig. 13 is a perspective view of the key-bar-retaining clip.

Referring to the drawings, the numeral 1 designates the front plate, having a boss 2 thereon, 3 the key-cylinder, and 9 the rose common to cylinder-locks. The cylinder 3 projects through the said front plate and is securely fastened thereto, said means comprising an aperture 4 through the plate 1 and corresponding in shape to that of the contour of a transverse section of the cylinder, and concentric with said aperture upon the inner side of said plate is a circular recess 5, ears 6, having the screws 7 threaded therethrough integral with said cylinder, and the retaining-plates 8. After the cylinder has been passed through the aperture 4 from the front the retaining-plates 8 are placed within the recess 5 upon either side of the cylinder, covering said aperture, and thereby prevent the withdrawal of said cylinder, and by the engagement of the points of screws 7 with the exposed face of the retaining-plates said plates are held against displacement and the cylinder is firmly and rigidly secured against movement. The outside knob 10 is provided with a shank 11, which passes through and is rotatable within the boss 2 and is held against endwise movement therein by the disk 12, secured to the end of said shank within a recess in the front plate. Extending axially through the disk 12 and shank 11 is a rectangular hole for the knob-spindle 13.

The detailed construction of the key-cylinder is not herein shown and described, because it is immaterial to our invention, as any of the common and well-known forms of cylinders for pin-locks can be used equally as well as the one shown.

Upon the inside of the door is the case or inside plate 14, having inwardly-turned edges, with an offset 15 projecting laterally therefrom, which is designed to reach to the edge of the door, and on the end of said offset is an inwardly-turned lip or flange 16. A shallow mortise of less width than the thickness of the door is cut in the edge thereof, Fig. 4, for this lip or flange 16 and is the only part connected with the lock that requires mortising.

Movably mounted within the case 14 and offset 15 is the latch-bolt 17, the head of which projects through the lip 16 and is normally held in such position by the springs 57. The rear end of the latch-bolt terminates in the yoke 18, and integral therewith are the upwardly-projecting follower-lugs 19 and the laterally-projecting socket-lugs 20.

Rotatably mounted within the hub 21 upon the case 14 is the shank 22 of the inside knob 23, and attached to the inner end of said shank by the screw 25 and washer 26, Fig. 5, is the follower 24, of the usual construction and having two radial arms, each of which engages with one of the follower-lugs 19.

Fixed upon the end of the spindle 13 is the socket 27, having a radial arm 28 thereon, which projects into the path of one of the socket-lugs 20. This socket is rotatably mounted on the lug 29 and within the cap 30, fastened to lugs 32 by the screws 31. The key-socket 33 is also provided with a radial arm 34, which projects into the path of one of the socket-lugs 20 and is rotatably mounted on the lug 38 and within the cap 35, fastened by the screws 36 to lugs 37. A lateral movement of the sockets 27 and 33 is prevented by the caps 30 and 35, respectively. The key-socket has a V-notch 39 in the outer end thereof, which opens into the interior of said socket through the slot 40. Passing through the slot 40 and connecting the key-socket 33 with the cylinder 3 is the key-bar 41, which is rigidly secured to the inner end of said cylinder and is slidable within the slot 40. The special means for attaching the key-bar to the cylinder is immaterial to our invention, but, as herein shown, consists of a retaining-clip 42, fastened to the end of the cylinder by a screw 43 and having a recess 44 in one edge thereof of the same width as the head 45 of the key-bar 41 and a lug 46 projecting from the bottom of the recess 44, which lug passes through a hole 47 in the key-bar and is then turned over, as shown in Fig. 13, and thus holds said key-bar rigid upon said cylinder.

The stop mechanism for preventing the operation of the latch-bolt by the outside knob 10 consists of the stop-bar 48, movable between the lugs 32 and 49 and having a stop-shoulder 50 thereon, a finger-button 51, which passes through a transverse slot in the case 14 and threaded into the stop-bar, Fig. 5, and a flat spring 53 within the recess 52, which engages a lug 54 on the case 14 and prevents the accidental movement of said stop-shoulder.

One side of the spindle-socket 27 is flattened at 55, and when the knob is in its normal position, with the edge of the radial arm 28 engaging the stop 56, the face of the stop-shoulder 50 and the face 55 are in the same plane, and by shifting the stop-bar transversely the said stop-shoulder is moved under the face 55 and holds the socket-spindle and outside knob against rotation. The latch-bolt can only be operated now from the outside by means of a key placed in the cylinder 3. The rotation of the cylinder by a key, as is usual, also rotates the key-socket 33 through the key-bar 41 and actuates the latch-bolt through the engagement of the radial arm 34 and one of the socket-lugs 20. The latch-bolt can always be operated from the inside by rotating the knob 23, the engagement of the radial arms upon the follower 24 with the follower-lugs 19 actuating the latch-bolt.

By the construction above described all of the lock parts are so secured to either the front or inside plates that it is not necessary to remove any of them to attach the lock to the door.

To insure the positive alinement of the two plates in relation to each other and also to prevent rotary movement of the plates with relation to each other, we have provided the posts 58 upon the plate 2 and the sockets 59 upon the case 14, preferably arranged at or near both ends of the plates, the posts being fitted telescopically within the sockets and the plates being rigidly secured together by means of screws 60, which pass through the case 14 and are threaded into the sockets 59. As the posts 58 are slidable within the sockets 59, the spindle 13 movable endwise within the shank of the knob 10, and the bit 41 movable within the key-socket 33, the lock can be used upon any door irrespective of its thickness.

We do not desire to be limited to the construction herein shown for positively alining the two plates, because a variety of other means can be used equally as well. For example, a rectangular post could be used and fitted into a socket having a rectangular hole.

To prepare the door for our lock, it is simply necessary to bore two round holes 61 through the stile thereof for the sockets 59 and posts 58 and a similar hole 62 for socket 33, key-bar 41, and the inner end of the cylinder 3 and a hole 63 for the spindle 13. The size of these holes is immaterial, provided they are sufficiently large to permit of the entrance of the several parts. In the edge of the door upon the inner side a recess 64 is cut to permit of the operation of the latch-bolt.

Our improved lock can be secured to a door with the minimum amount of cutting and without weakening the stile in the slightest degree, and the old methods of mortising or cutting a notch through the edge of the door are not resorted to.

The plates 1 and 14 take the place of the ordinary escutcheon and can be embellished by any suitable design, if desired.

There are minor changes and alterations that can be made within our invention, and we would therefore have it understood that we do not limit ourselves to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of our invention.

What we claim as new, and desire to secure by Letters Patent, is –

1. In a lock, the combination with a plate having inturned flanges adapted to engage the face of the door, and lock mechanism secured to said plate and confined between said plate and the face of the door, of a flat plate secured to the opposite face of the door and provided with lock-operating means passing through openings in the door and engaging said lock mechanism, the said plates being provided with inwardly-projecting telescoping lugs and sockets arranged at or near both ends of the plates and passing through openings in the door, whereby the plates are positively alined in relation to each other upon the faces of the door irrespective of the thickness of the door and secured against rotary movement with relation to each other.

2. In a lock, the combination with a plate having an offset, the said plate and offset being provided with inturned flanges adapted to engage the face of the door to form in conjunction with the face of the door a lock-case, the said offset extending to the edge of the door and provided with a lip engaging the edge of the door and having a bolt-opening, of a flat plate adapted to be secured to the opposite face of the door and provided with lock-operating means, the said plates being provided with inwardly-projecting telescoping lugs and sockets arranged at or near both ends of the plates and passing through openings in the door, whereby the plates are positively alined in relation to each other upon the faces of the door irrespective of the thickness of the door and secured against rotary movement with relation to each other.

3. The combination with a lock part; of a key-cylinder; and means for securing said cylinder to said part, said means comprising an aperture through said part having substantially the shape of the contour of the end of said cylinder, a recess concentric with said aperture in the back of said part, retaining-plates within said recess, and screws threaded in said cylinder bearing upon said retaining-plates.

4. In a lock having two independent plates adapted to be placed upon either side of a door, the combination with a latch-bolt within one of said plates; a key-socket and a spindle-socket within the same plate for operating said latch-bolt; a knob rotatably secured and a key-cylinder rigidly secured to the other of said plates; means for operatively connecting said key-cylinder with said key-socket and said knob with said spindle-socket, said means being fixed to one of said parts and having an endwise-slidable engagement with the other of said parts.

5. In a lock, the combination with two independent plates adapted to be placed upon the opposite faces of a door, of a knob and a knob-spindle rotatably connected with one of said plates in different horizontal planes, a latch-bolt carried by said plate and adapted to be independently operated by said knob and knob-spindle, and a knob rotatably connected with the other plate and having a sliding connection with said knob-spindle, whereby said parts may be operatively connected irrespective of the distance between said plates.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM E. SPARKS.
OLIVER F. SPARKS.

Witnesses:
GEORGE E. HALL,
WALLACE S. MOYLE.