

No. 831,386.

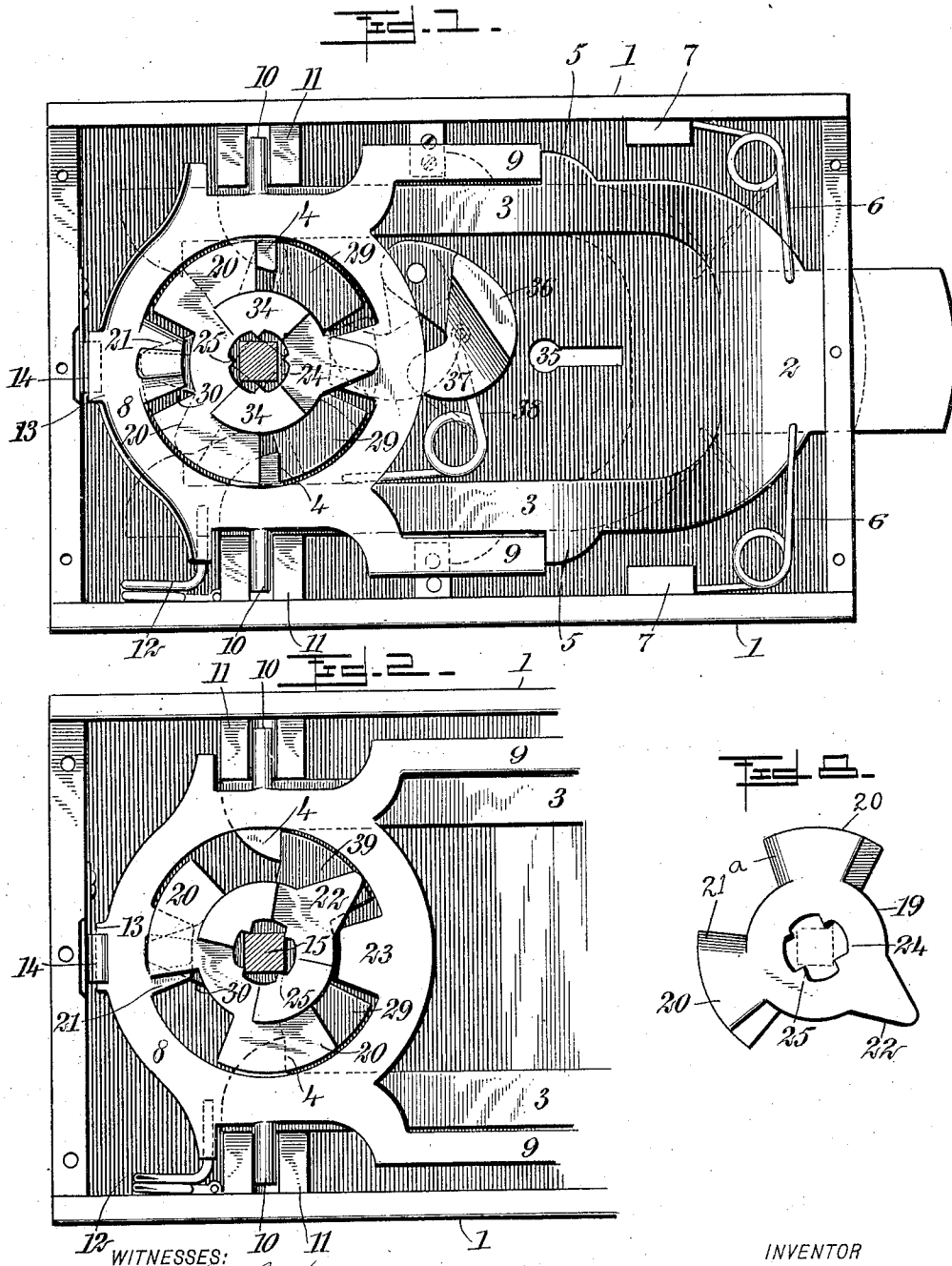
PATENTED SEPT. 18, 1906.

J. H. SIMMONS.

DOOR LOCK.

APPLICATION FILED SEPT. 28, 1905.

2 SHEETS—SHEET 1.



WITNESSES:
Geo. C. Kingstun
C. R. Ferguson

INVENTOR
James H. Simmons
BY *Munn*
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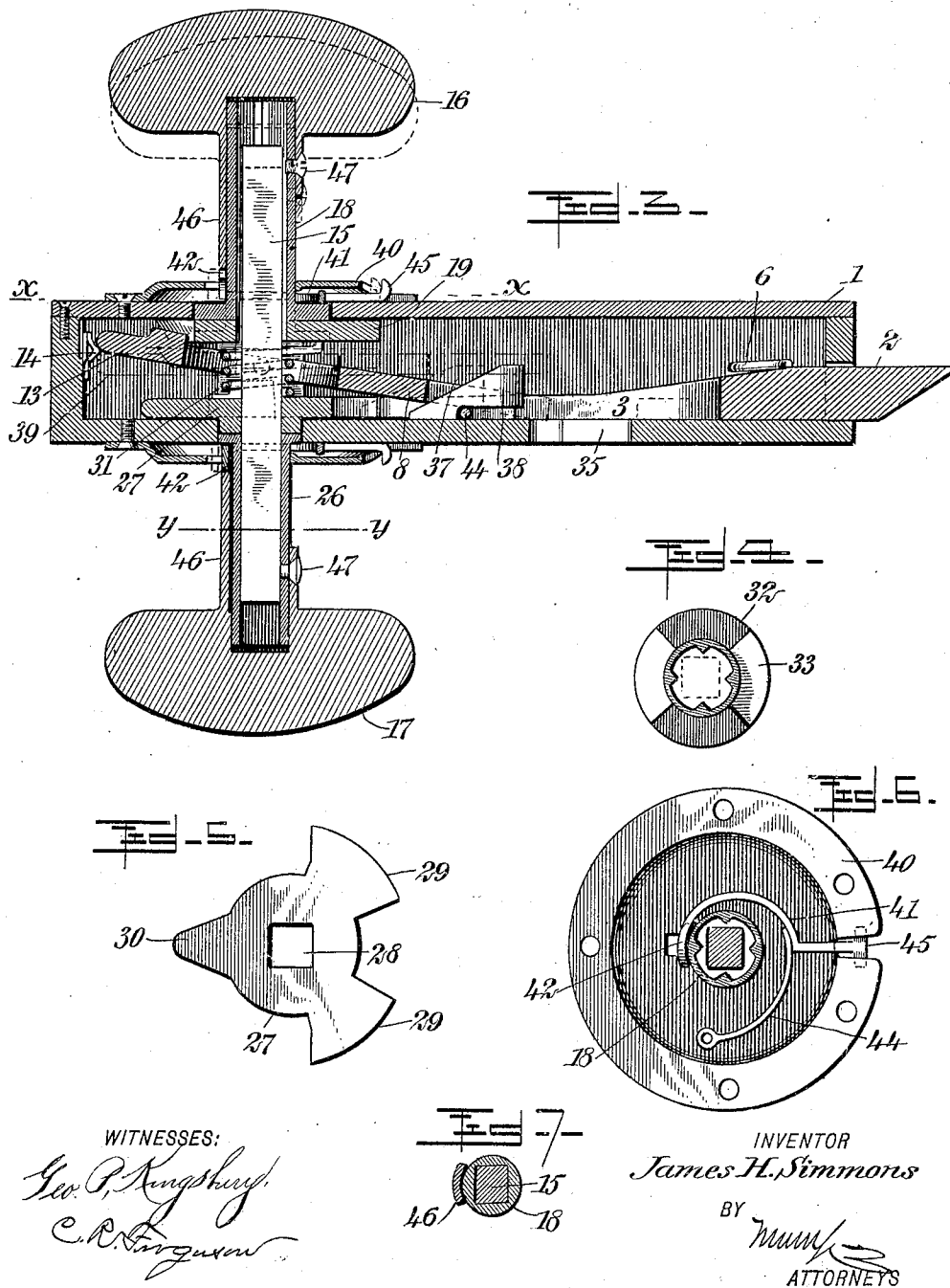
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UNITED STATES PATENT OFFICE.

JAMES HENRY SIMMONS, OF TALMO, GEORGIA.

DOOR-LOCK.

No. 831,386.

Specification of Letters Patent.

Patented Sept. 18, 1906.

Application filed September 28, 1905. Serial No. 280,469.

To all whom it may concern:

Be it known that I, JAMES HENRY SIMMONS, a citizen of the United States, and a resident of Talmo, in the county of Jackson and State of Georgia, have invented a new and Improved Door-Lock, of which the following is a full, clear, and exact description.

This invention relates to improvements in door-locks, the objects being to provide a lock of simple construction that may be adjusted for either the right or left hand side of a door, that may be used as an automatic latch which may be opened by either knob, and that may be used as a lock operated from the inside knob and locked from the outside of the door without a key, but which cannot be unlocked from the outer side excepting with a suitable key.

Other objects of the invention will appear in the general description.

I will describe a door-lock embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an inner face view of the working parts of a lock embodying my invention. Fig. 2 is a similar view, but showing the parts in different position. Fig. 3 is a central longitudinal section. Fig. 4 is an end view of one of the knob-sleeves employed. Fig. 5 shows one of the tumblers employed. Fig. 6 is a section on the line $x x$ of Fig. 3. Fig. 7 is a section on the line $y y$ of Fig. 3; and Fig. 8 shows another tumbler employed.

Referring to the drawings, 1 designates the casing of the lock, and 2 the bolt, mounted to slide therein, the said bolt having inward opposite extensions 3, which at their inner ends have inwardly-projected lugs 4, the purpose of which will be hereinafter described. At the outer side of the extensions 3, between their ends, are lugs or projections 5, designed to be engaged by a locking device, as will hereinafter appear. The bolt is moved outward by means of springs 6, which at one end engage with blocks 7 and at the other end with the head of the bolt. The locking member for the bolt consists of a yoke 8, having forward projections 9 for engaging with said lugs 5. At the opposite sides the yoke 8 has trunnions 10, which are

mounted in bearing-blocks 11, secured in the locking-casing.

At the inner side the yoke is engaged by one end of a spring 12, the other end of said spring being attached to the lock-casing, and at its inner side the yoke has a projection 13, designed to engage against either side of a spring-clip 14, attached to an end wall of the lock-casing. This spring-clip 14 is of slightly greater strength than the spring 12, and therefore the spring 12 cannot overcome the resistance of the spring 14 and swing the yoke, but this spring 12, however, will add to the easy movements of the yoke. A square or angular spindle 15 extends through the lock-casing, and mounted on the inner end thereof but having sliding movement with relation thereto is a knob 16, while a knob 17 on the outer side of the door also has sliding connection with the spindle. The knob 16 is rigidly connected to a sleeve 18, the interior of which conforms to the angular spindle, but is slightly larger than the same, as clearly indicated in Fig. 3, so that there can be a slight rotary movement of the knob and sleeve relatively to the spindle.

Arranged on the inner end of the sleeve and of course within the lock-casing is a tumbler 19, having wings 20, which are spaced apart, and either one is designed to engage with an inward extension-block 21 in the yoke 8. It will be noted that the wings 20 are slightly beveled at one side, as indicated at 21" in Fig. 8, which is an inside view of the tumbler, so that said inclines will form cam-surfaces to pass freely over the projection 21 in the yoke, this projection being also slightly rounded on its side, designed to be engaged by said wings to depress the yoke.

Opposite the space between the wings the tumbler has a finger 22, designed to engage a lug 23, extended inward from the yoke 8 opposite the extension 21. The opening 24 in the tumbler through which the spindle 15 passes is somewhat larger in its general outline than the spindle, but at the corners of the openings are inward projections 25, with which the edges of the spindle are designed to engage after having a slight lost rotary movement in the opening 24.

The outer knob 17 is connected to a sleeve 26, which passes through an opening in the lock-casing, and connected to the end of this sleeve is a bolt-actuating tumbler 27, said tumbler having a central opening 28, through

which the spindle 15 passes, and on the side of the tumbler toward the outlet end of the lock-casing are wings or lugs 29, one of which is designed to engage with the lug 4 on one of the bolt extensions and the other end being designed to engage with the lug 4 on the opposite member, depending upon which direction the knob and spindle are rotated. Opposite the space between the wings 29 the tumbler 27 is provided with a finger 30, the object of which is to move, as will be hereinafter described, the locking member for the bolt into locking position. The two tumblers are held yieldingly apart by means of a spring 31, which is coiled around the spindle and connects with the inner or adjacent surfaces of the tumblers.

In the operation of the lock as so far described the parts as shown in Figs. 1 and 3 are in position to lock the bolt 2 in its keeper, and at this time the locking member cannot be shifted from its locking position by any manipulation of the outer knob. It may, however, be released by the inner knob as follows: On the inner end of the sleeve 18 is a disk 32, having lugs 33 designed to engage between lugs 34 on the adjacent surfaces of the tumbler 19, the lugs on one part being of slightly less width than the space between the lugs on the other part, so as to permit for a slight lost motion of the sleeve 18—that is, the motion between the disk 32 and the tumbler 19 must necessarily be slightly less than between the knob 16 and spindle 15, so as to allow the yoke 8 to be disengaged before the tumbler 27 is operated. Now by rotating the knob 16 one of the wings 20, depending upon the direction of rotation, will engage with the inner extension 21 on the yoke 8, forcing the said yoke to swing downward to bring the projection 13 underneath the clip 14, as indicated in Fig. 2. At this time the arms 9 on the yoke will be out of engagement with the lugs 5, and upon a further rotary movement of the inner knob 16, it being understood that at this time the wings 20 are free to move over the extension 21, the spindle 15 will be rotated, causing one of the wings 29 on the tumbler 27 to engage with an inner projection or lug 4 on a bolt member, so that by further rotary movement both the inner and outer knobs will be turned and the bolt drawn out of its keeper. At this time it is obvious that the bolt may be manipulated from either the inner or outer side of the door. When it is desired to relock the bolt from the inner side, the inner knob is to be forced inward, so that the finger 22 will engage with the lug or projection 23 in the forward portion of the lug 8. By a continued inward movement the arms 9 will be moved downward into engagement with the lugs 5 and the projection 13 will move to the opposite side of the latch 14, as indicated in Figs. 1 and 3, and thus the locking device will

be held in engagement with said lugs or projections 5.

As before stated, the bolt-locking device cannot be released from the bolt by any manipulation of the outer knob. It may be moved to locking position, however, as follows: By pressing the outer knob inward the tumbler 27 will also be moved inward, so that the finger 30 on the tumbler will engage with the projection 21 of the yoke 8, and by a continued inward movement of the tumbler against the resistance of the spring 31 the locking member will be rocked to locking position. The said member may, however, be moved out of its bolt-locking position by means of a suitable key passed through a keyhole 35 and engaged with a block 36, pivoted within the casing and having a cam-surface 37 for engaging with the yoke 8 at its front side. This cam-block is held yieldingly outward by means of a spring 38.

The device above described serves as both a latch and lock; but in some instances it may be desirable to employ it as a latch alone, so that when a door is swung closed it will automatically latch into the keeper. To change it from a lock to a latch, the inner knob is manipulated as first described—that is, to move the locking member out of engagement with the bolt so that the parts stand in position as indicated by dotted lines 39 in Fig. 3 and by full lines in Fig. 2. At this time the latch may be moved readily out of its keeper by turning the spindle by means of either one of the knobs, and as an inner sliding movement of the sleeves is not at this time desirable, as the same might accidentally release the locking member to engage it with the bolt, I provide means to prevent such contingency. As this means is of similar construction for the two knobs and sleeves as shown in Fig. 3, a description of one will answer for both.

Secured on the casing is a disk 40, that is chambered on the inner side and has an opening through which the sleeve 18 passes. Movable in the chambered disk is a latch-arm 41, which at the inner portion is curved to extend around the sleeve, and at the inner end of this latch is a lug 42, designed to engage the inner end of a sleeve 46, rigidly secured to the knob, as shown in Fig. 3, and it is held in such engagement by means of a spring 44. The free end of the latch device 41 extends outward from the disk and has a finger-piece 45 projected outward through a slot in the rim of the chambered disk, this slot being of sufficient depth to permit the latch device to be moved sufficiently inward to disengage its lug 42 from the sleeve 46, as indicated by dotted lines in Fig. 3. By pushing the lug 42 outward from the sleeve the knob may be moved inward, as the lug will be held out of its latching engagement by bearing on the outer side of the sleeve.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A door-lock comprising a casing, a bolt mounted to slide therein, a locking member mounted on trunnions in the casing and designed to engage with said bolt to hold it in locking position, a spindle extended through the casing, sleeves mounted to slide on the spindle at opposite sides of the casing, means carried on one of said sleeves for moving the locking device into engagement with the bolt and also to move the device out of engagement with the bolt, and a device carried by the other sleeve for swinging the locking member into engagement with the bolt.

2. A door-lock comprising a casing, a bolt mounted to slide therein, the said bolt having opposite inward extensions, inwardly-turned lugs on the inner ends of the extensions, lugs on the extensions between their ends, a locking member mounted to swing in the casing and having arms for engaging with said last-named lugs, a spindle extended through the casing, sleeves movable on opposite ends of said spindle, a tumbler mounted loosely on the spindle and engaged by one of said sleeves, wings on said tumbler for engaging with the lugs on the ends of said extensions of the bolt, a finger on said tumbler for moving the locking device into engagement with the bolt when the said tumbler is moved inward, a tumbler having lost motion connecting with the other of said sleeves, the other of said sleeves also having a lost rotary motion relatively of said spindle but movable lengthwise of the spindle, wings on said last-named tumbler for engaging with a portion of the locking member to release it from the bolt, and a finger on said last-named tumbler for engaging with the locking member to engage it with the bolt.

3. A lock comprising a casing, a bolt slidable therein, a yoke mounted to swing on trunnions in the casing, a device carried by the yoke for engaging with a portion of the bolt to hold it in locked position, devices actuated by movements of the lock-knobs for swinging said yoke in opposite directions, and a key-actuated swinging cam-block for releasing the locking member from the outer side of the door.

4. A lock comprising a casing, a bolt slidable therein, a member having swinging connection with the casing, a portion on said member designed for locking engagement with the bolt, devices operated by inward movements of the lock-knobs for releasing the locking member or device from the bolt and also for placing the said member in locking engagement with the bolt, the said casing having a keyhole at one side, and a cam-block

adapted to be moved into engagement with the locking member to release it by means of a key passed through the keyhole.

5. A lock comprising a casing, a bolt slidable therein, a member having swinging connection with the casing, a portion on said member being designed for locking engagement with the bolt, devices operated by inward movements of the lock-knobs for releasing the locking member or device from the bolt and also the placing of said member in locking engagement with the bolt, a projection on said locking member, a spring-clip on an end wall of the lock-casing with the opposite sides of which said projection is designed to engage, and a spring having connection with the locking device, the said spring having less strength than the spring of the clip.

6. A lock comprising a casing, a spindle extended through the casing, sleeves mounted to slide on opposite ends of said spindle but to rotate therewith, a bolt-moving device carried by the spindle, a swinging locking member for the bolt, a tumbler at the inner end of the opposite sleeve and arranged for swinging said locking member, and a spring arranged between the said tumbler and the bolt-moving device.

7. A lock comprising a casing, a bolt slidable therein, a swinging member for locking the bolt, a spindle extended through the casing, means carried by said spindle for actuating said swinging member, a disk secured to the outer side of the lock-casing and chambered at the inner side, a spring-pressed latch in said chamber and having a portion extended outward to one side thereof, a lug on the inner end of said latch, and a sleeve extended from the knob of the lock and adapted to engage a portion with said lug.

8. In a lock, a casing, a bolt slidable therein, a swinging member for locking said bolt, an angular spindle passing through the casing, sleeves on opposite ends of said spindle and movable lengthwise thereof, a tumbler carried by one of the sleeves for moving the bolt in one direction, and also serving to move the swinging member in one direction, a tumbler at the inner end of the other of said sleeves operating to swing said member in either direction, and means for preventing inward sliding movement of the sleeves when the swinging member is in intermediate position to permit the bolt to serve as a latch.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES HENRY SIMMONS.

Witnesses:

W. J. MORGAN,
C. C. SIMMONS.