E. A. JOHNSON.

SLIDING DOOR LOCK.

APPLICATION FILED FEB. 16, 1916.

1,208,565. Patented Dec. 12, 1916.

Fig. 1

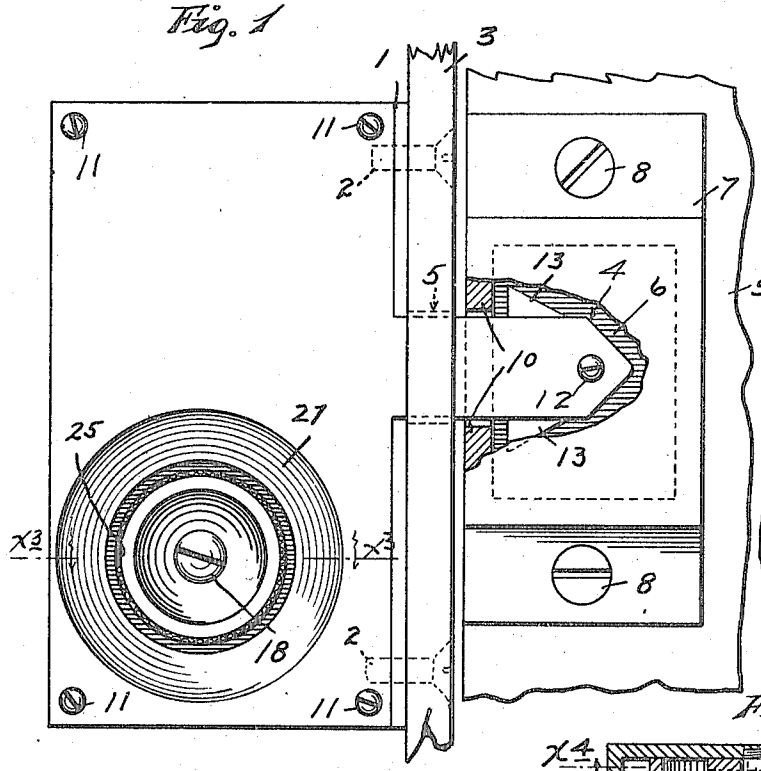


Fig. 4

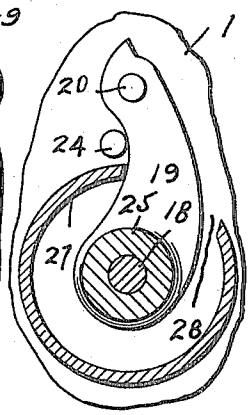


Fig. 3

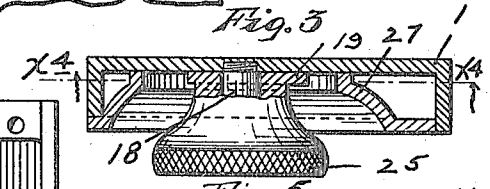


Fig. 2

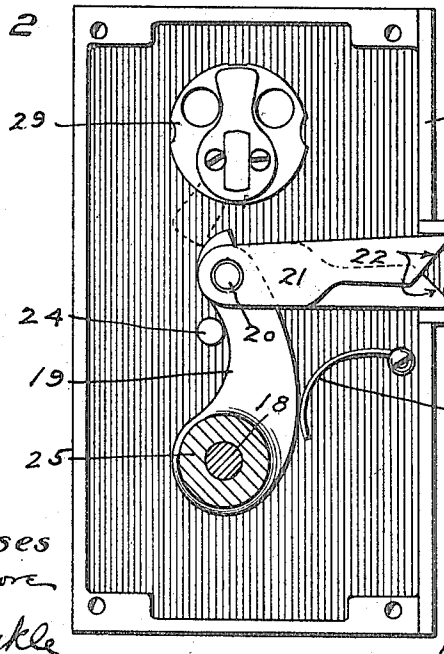
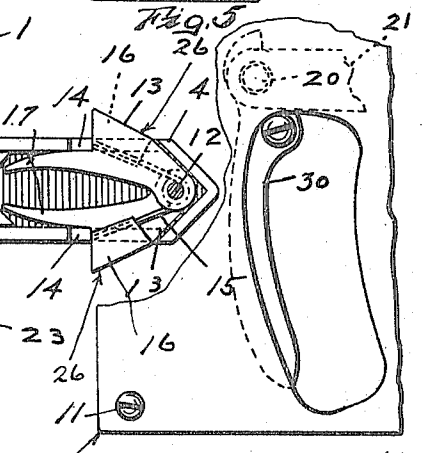


Fig. 5



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWIN A. JOHNSON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-FOURTH TO JOSEPH E. BERRY, ONE-FOURTH TO GEORGE E. JOHNSON, AND ONE-FOURTH TO OLIVER LASELLE, ALL OF MINNEAPOLIS, MINNESOTA.

SLIDING-DOOR LOCK.

1,208,565. Specification of Letters Patent. Patented Dec. 12, 1916.

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To all whom it may concern:

Be it known that I, EDWIN A. JOHNSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Sliding-Door Locks; and I do hereby 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.

My invention relates to improvements in locks, and particularly to locks for sliding doors, such as used in connection with elevators, cages and wire inclosures.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a fragmentary view in side elevation of the invention with some parts shown in section; Fig. 2 is a view, principally in side elevation with some parts removed and with some parts shown in section; Fig. 3 is a view, principally in horizontal section taken on the line x^3 x^3 of Fig. 1; Fig. 4 is a fragmentary detail view with some parts sectioned on the line x^4 x^4 of Fig. 3; and Fig. 5 is a modification of the plunger retracting means.

The numeral 1 indicates the casing of the improved lock, which is rigidly secured by screws 2 to the inner face of the front upright member 3 of a sliding door.

Integrally formed with the casing 1, is a nose-like extension 4 which extends through an aperture 5 in the door member 3, and when the door is closed, projects into a pocket 6 formed in a lock plate 7. This lock plate 7 is rigidly secured by screws 8 to a door post 9 and is provided with upper and lower detents 10, between which the extension 4 moves during the opening and closing movements of the door. The inner side of the casing 1 and its extension 4 are made removable and are detachably secured by screws 11 to the casing 1 and by a screw 12 to the extension 4, said screw 12 also acts as a pivot, as will presently appear.

A pair of reversely acting dogs 13 laterally spaced are independently mounted on the pivot 12, within the extension 4, and work through upper and lower openings 14 formed in said extension, as shown in Fig. 2. The lock dogs 13 are normally separated and yieldingly held projected through the openings 14 by a sear spring 15 anchored at its intermediate portion to the pivot 12 and with its ends reacting against lugs 16 integrally formed with the lock dogs. Also integrally formed with each dog, is a curved tail-like extension 17 and which extensions normally bear against the upper and lower sides of the extension 4 and act as stops to limit the outward movement of the dogs 13 through the openings 14.

Secured within the casing 1, is a shouldered screw stud 18 on which is pivotally mounted an upwardly extended arm 19, having at its free end a laterally projecting stud 20. One end of a releasing plunger 21 is pivotally mounted on the stud 20 and the other end thereof has formed thereon a pair of reversely formed and laterally offset cam surfaces 22, each arranged to engage one of the extensions 17 of the lock dogs 13. The free end of the releasing plunger 21 works within the extension 4 and is supported at all times thereby. A leaf spring 23 anchored to the casing 4, bears against the arm 19 and holds the releasing plunger 21 retracted with its cam surfaces out of engagement with the extensions 17 of the lock dogs. A stop 24, on the casing 1, is normally engaged by the arm 19 and limits the rearward movement of the releasing plunger 21. Integrally formed with the hub end of the arm 19 and surrounding the screw stud 18, is a knurled knob 25 by which the arm 19 is swung against the tension of the spring 23 for moving the releasing plunger 21 into engagement with the extensions 17 of the lock dogs for drawing the same together and retracting the lock dogs 13 entirely within the extension 4.

During the closing movement of the door, the extension 4 enters the pocket 6 and the cam surfaces 26 of the lock dogs 13 engage the detents 10 and thereby force said lock

dog into retracted positions against the tension of the spring 16. A continued movement of the door will carry the lock dogs entirely within the pocket 6 in which position the spring 16 will force the lock dogs outward into overlapping position with the detents 10, and thereby hold the casing extension 4 interlocked with the lock plate 7. To release the door, the knob 25 is turned toward the right, thereby moving the cam surfaces 22 of the releasing plunger 21 into contact with the extensions 17 of the lock dogs 13, which, as previously described, will retract said lock dogs and allow the same to pass the detents 10. The knob 25 works through an opening in the removable side plate of the casing and which opening is surrounded by an annular flange 27 integrally formed with said side plate, and bears against the opposite side of the casing 1. A notch 28 is formed in the inner edge of the flange 27 in which the arm 19 works. The purpose of the flange 27 is to close the casing surrounding the knob 25, give the same a neat appearance and to prevent anyone from tampering with the mechanism of the lock within the casing 1.

In Fig. 2 is illustrated the inner end of a cylinder lock 29, the key-actuated lever of which may be turned into engagement with the free end of the arm 19, as shown by broken lines, for the purpose of moving the releasing plunger 21 into a position to retract the lock dogs 13. This lock cylinder is on the opposite side of the casing 1 from the knob 25.

In Fig. 5, the arm 19 is shown provided with a lever extension 30 in place of the knob 25.

A lock, constructed in accordance with the above described invention, cannot be picked in the ordinary way. To release the lock, it is necessary to retract both of the lock dogs 13 at the same time, and this is extremely difficult to do, for the reason that said lock dogs are independently movable and spring projected.

What I claim is:—

1. A sliding door lock comprising a casing having an extension, a lock dog pivotally mounted in said extension and engageable with the detent of a lock plate, a normally retracted releasing plunger mounted in said casing and guided by the extension thereof, and means for projecting said releasing plunger for releasing the lock dog from the detent of the lock plate.

2. A sliding door lock comprising a casing having an extension, a pair of independently movable lock dogs pivotally mounted in said extension and engageable with the detents of a lock plate, a spring normally holding said lock dogs in an operative position, a normally retracted releasing plunger mounted in said casing and guided by the extension thereof, and means for projecting said releasing plunger for releasing the lock dogs from the detents of the lock plate.

3. A sliding door lock comprising a casing having an extension, a pair of independently movable lock dogs pivotally mounted in said casing and engageable with the detents of a lock plate, said lock dogs having laterally offset tail-like extensions, a spring normally holding said lock dogs in operative positions, a normally retracted releasing plunger mounted in the casing and having laterally offset cam surfaces, and means for projecting said releasing plunger for carrying its cam surfaces into engagement with the tail-like extensions of the lock dogs to release the same from the detents of the lock plate.

In testimony whereof I affix my signature in presence of two witnesses.

EDWIN A. JOHNSON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."