

G. PEDERSON.

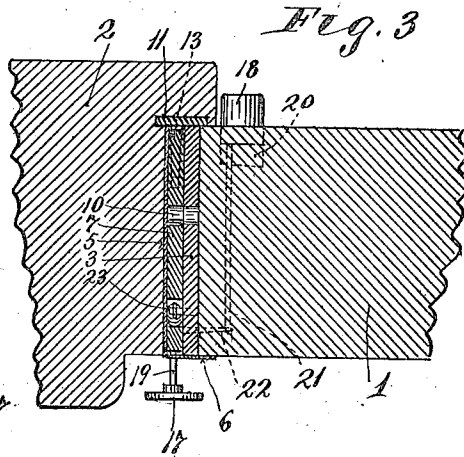
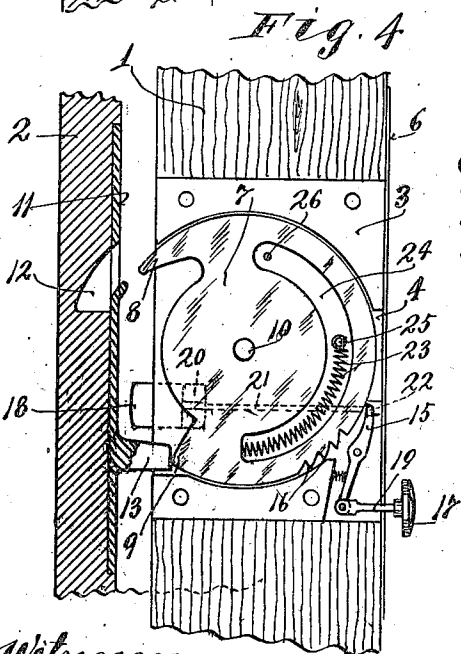
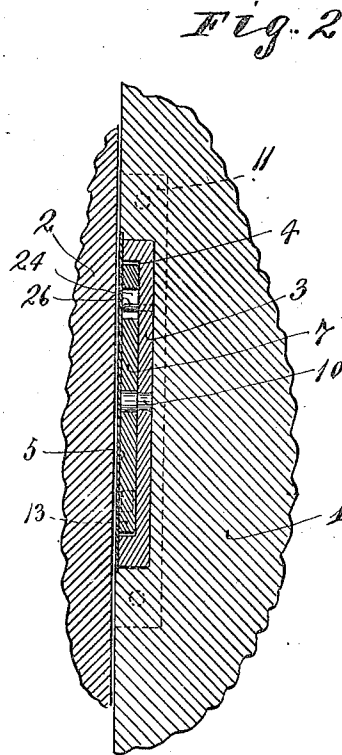
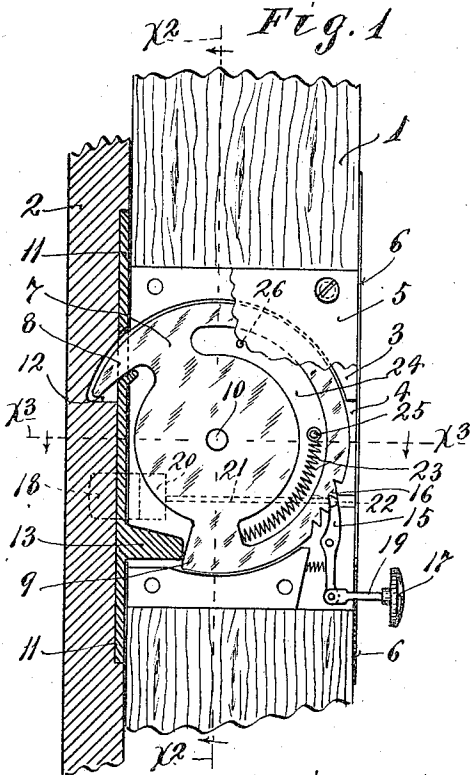
DOOR LOCK.

APPLICATION FILED JAN. 6, 1913.

1,060,019.

Patented Apr. 29, 1913.

2 SHEETS—SHEET 1.



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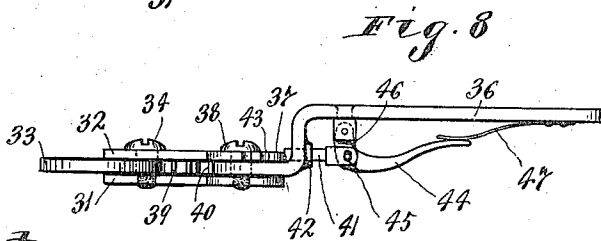
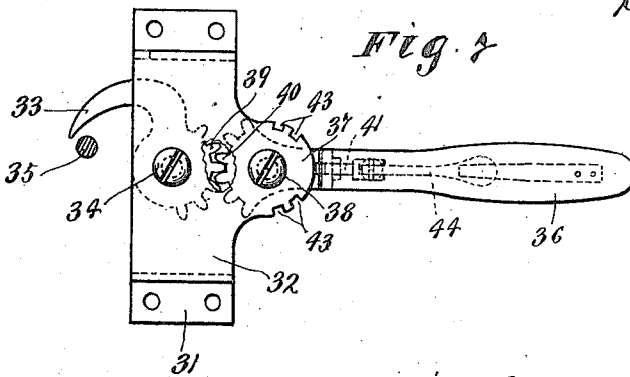
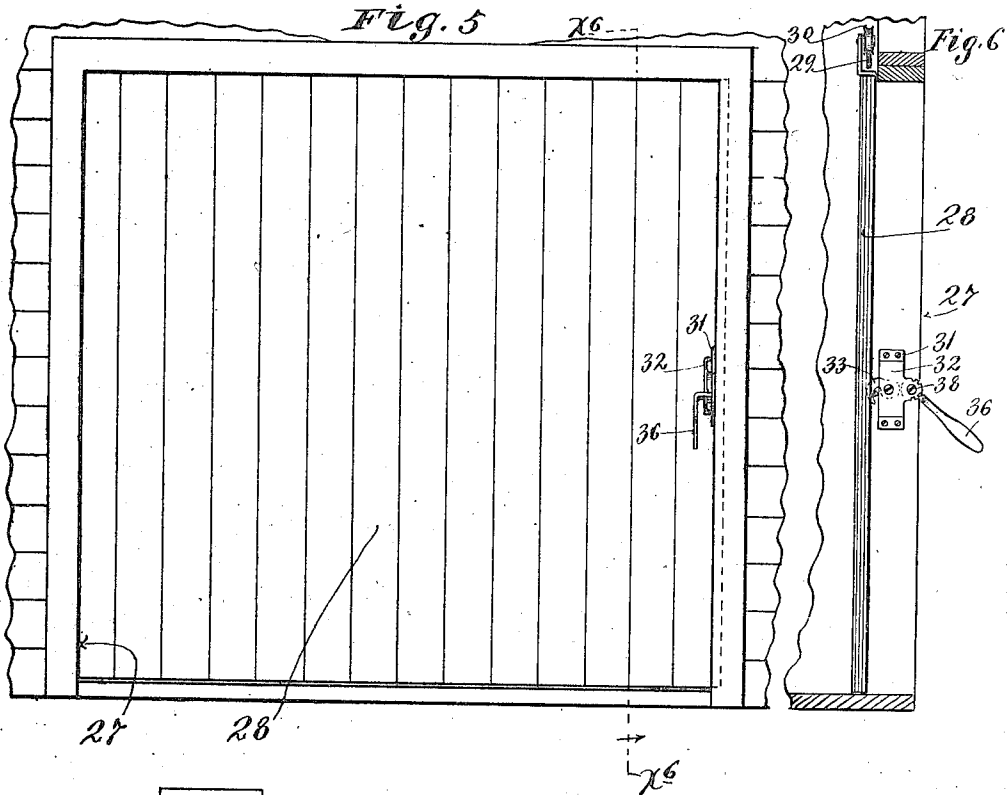
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UNITED STATES PATENT OFFICE.

GUNDER PEDERSON, OF GREENBUSH, MINNESOTA

DOOR-LOCK.

1,060,019.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed January 6, 1913. Serial No. 740,292.

To all whom it may concern:

Be it known that I, GUNDER PEDERSON, a citizen of the United States, residing at Greenbush, in the county of Roseau and State of Minnesota, have invented certain new and useful Improvements in 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 door locks, and, to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view partly in elevation and partly in vertical section, some parts broken away, showing one form of my improved lock applied in working position to a swinging door; Fig. 2 is a vertical section taken on the line $x^2 x^2$ on Fig. 1; Fig. 3 is a transverse section taken on the line $x^3 x^3$ on Fig. 1; Fig. 4 is a view corresponding to Fig. 1, with the exception that some of the parts are shown in different positions; Fig. 5 is a view in elevation showing another form of my improved lock applied in working position to a sliding door; Fig. 6 is a vertical section taken on the line $x^6 x^6$ on Fig. 5; Fig. 7 is a side elevation of the lock shown in Figs. 5 and 6 on an enlarged scale; and Fig. 8 is an edge elevation of the same.

Referring first to the form of the improved lock shown in Figs. 1 to 4, inclusive, which is a mortise lock, the numeral 1 indicates a swinging door and the numeral 2 indicates the door jamb. Of the parts of this form of the improved lock, the lock casing comprises a bottom plate 3 having a recess 4 extending transversely therethrough and a top plate 5 detachably secured to the bottom plate 3 by screws. This bottom plate 3 is provided at one of its vertical edges with a transversely extended face plate 6 that covers the adjacent portion of the recess 4. The entire bottom plate 3 and top plate 4 are set into a notch cut transversely across the vertical free edge of the door 1 and are secured therein by

screws passed through the face plate 6 and into the door 1.

Mounted in the recess 4 of the bottom plate 3 is a spring rotated segmental plate 7 having a latch hook 8 and a shoulder 9 located, respectively, above and below the axis of said plate. At its axis, the segmental plate 7 is removably mounted for oscillatory movement on a short trunnion 10 anchored to the bottom plate 3 and projecting into the recess 4. This segmental plate 7 is held against removal from the trunnion 10 by the plate 5 of the casing. Obviously, the lock casing can be turned end for end to permit the latch hook 8 to be operative on either side of the door.

A mortised latch plate 11 is secured to the door stop of the door jamb 2 and is provided with a latch seat 12 adapted to receive the latch hook 8 and lock the door 1 to the door jamb 2. To move the latch hook 8 into the latch seat 12, the latch plate 11 is provided with a projecting latch actuating plug 13 arranged to enter the recess 4 between the bottom and top plates of the casing during the final closing movement of the door 1. Upon entering the recess 4, this lug 13 engages the shoulder 9 and rotates the segmental plate on the trunnion 10, thereby moving the latch hook 8 out of the casing and into the recess 12 of the latch plate 11. The latch hook 8 is held interlocked with the latch plate 11 by a spring pressed lock dog 15 pivotally mounted in the recess 4 and normally engages ratchet-like teeth 16 cut in the peripheral edge of the segmental plate 7.

For moving the lock dog 15 out of engagement with the ratchet like teeth 16 to release the latch hook 8 from the latch plate 11, a pair of reversely acting push buttons 17 and 18 are provided and located one on each side of the door 1. The push button 17 is provided with a stem 19, slidably mounted in a perforation in the face plate 6 and pivotally connected at its inner end to the lower end of the lock dog 15. The push button 18 is mounted in a seat 20 formed in the door 1 and is provided with a long stem 21 engaged with a laterally projecting finger 22 rigidly secured to the upper end of the lock dog 15.

To yieldingly hold the latch hook 8 in a retracted position entirely within the lock casing, a coiled spring 23 is mounted in a

segmental slot 24 cut in the segmental plate 7, concentric with the trunnion 10 and compressed between one end of the slot 24 and a post 25 anchored to the bottom plate 3 and extended into the slot 24. Also, anchored to the bottom plate 3 and extending into the slot 24 is a stop pin 26 arranged to be engaged by the segmental plates 7 to limit the oscillatory movement thereof.

At the time the door 1 is closed, the lock actuating lug engages the shoulder 9, rotates the segmental plate 7 on the trunnion 10, thereby carrying the latch hook 8 into the latch seat 12, and compresses the coiled spring 23 in a manner previously described. The latch hook 8, upon entering the latch seat 12, engages the latch plate 11 and draws the door 1 onto the door jamb under a cam-like action. To open the door 1 either one of the push buttons 17 and 18 is pressed inward, thereby moving the lock dogs 15 out of engagement with the ratchet-like teeth 16, thus releasing the segmental plate 7 and, at this same time, the compressed spring 23 rotates the segmental plate 7 on the trunnion 10 until the same is stopped by the pin 26. During this rotation of the segmental plate 7, the ratchet 8 is withdrawn from the latch seat 12 and the shoulder 9 reacting against the lug 13 as a base of resistance, starts the initial opening movement of the door 1, and moves the same away from the door jamb 2, a distance sufficient to permit the door 1 to be completely opened by taking hold of the exposed portion of the free vertical edge thereof. Various other means in place of the push buttons may be provided for releasing the segmental plate, 7. For instance, ordinary door knobs and suitable connections may be provided.

Referring now to the form of the improved lock shown in Figs. 5 to 8, inclusive, the numeral 27 indicates a door opening in a building and the numeral 28 indicates a sliding door therefor, suspended from an overhead track 29 by means of truck wheels 30. To the vertical face of one of the door posts is secured a lock casing comprising a base plate 31 and a top plate 32. The base plate 31 is secured to the door post by means of screws and the top plate 32 is provided with laterally extended flanged ends resting on said base plate 31 and rigidly secured thereto. A latch hook 33 is pivotally mounted between the plates 31 and 32 of the casing by means of a set screw 34 seated therein and arranged for cooperation with a staple 35 anchored to the door 28. One end of a hand lever 36 is extended between segmental extensions 37 on the plates 31 and 32 of the casing and is pivotally secured thereto by a set screw 38. The latch hook 32 and lever 36 are connected by intermeshing segmental gears 39 and 40 formed concentric with their

pivotal connections 34 and 37, respectively. A lock plunger 41 is slidably mounted in a boss 42 formed on the lever 36 and cooperates with a plurality of spaced lock notches 43 cut in the peripheral edge of the segmental extensions 37 of the upper plate 32 to hold the latch hook 33 interlocked with the staple 35 or in a retracted position within the lock casing. The outer ends of the plunger 41 are bifurcated and the prongs thereof embrace a bent lever 44 and are pivotally secured thereto at 45. At its short end, the lever 44 is pivotally secured to a bearing lug 46 on the lever 36 and its long end is yieldingly pressed, by a leaf spring 47 anchored to the lever 36, in a direction to carry the lock plunger 41 into engagement with the lock notches 43. Obviously, the lock hook 33 may be reversed in the casing in order to make the improved lock applicable for either a left or a right hand lock.

When the lever 36 is in its uppermost position, the latch hook 33 is turned upward into an inoperative position and completely within the lock casing. The lock hook 33 is of such size as to engage the staple 35 when the door 28 stands in a position to leave quite an opening between the door and door frame. As the lever 36 is moved downward, the latch hook 33 engages the staple 35 under a cam-like action and draws the door 28 into tight engagement with the door frame. The above described locks, while very simple, are thought to be highly efficient for the purposes had in view.

What I claim is:

1. The combination with a door and door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a pivoted cam acting latch hook arranged for interlocking engagement with the other of said lock elements, to draw said door onto said door casing under a varying pressure, means for operating said latch hook, and means for locking said latch hook in different adjustments.

2. The combination with a door and door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a latch seat and a latch actuating lug, and the other of said lock elements being pivotally mounted and having a latch hook and a shoulder, said shoulder arranged to be engaged by said lug, during the closing movement of said door, for moving said latch hook into interlocking engagement with said latch seat, means for holding said latch hook interlocked with said latch seat, and means for releasing said latch hook from either side of said door.

3. The combination with a door and door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a latch seat and a

latch actuating lug, and the other of said lock elements being pivotally mounted spring retracted and having a latch hook and a shoulder, the said shoulder arranged
 5 to be engaged by said lug, during the closing movement of said door, for moving said latch hook into interlocking engagement with said latch seat, means for holding said latch hook interlocked with said latch seat,
 10 and means for releasing said latch hook from either side of said door, substantially as described.

4. The combination with a door and door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a latch seat and a latch actuating lug, and the other of said lock elements being pivotally mounted spring retracted and having a latch hook and a shoulder, said shoulder arranged to be engaged by
 15 said lug, during the closing movement of said door, for moving said latch hook into interlocking engagement with said latch seat, cooperating lock dog and ratchet-like teeth for holding said latch hook interlocked with said latch seat, and means for releasing said lock dog from said ratchet-like
 20 teeth from either side of the door, substantially as described.

5. The combination with a door and a door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a latch seat and a latch actuating lug, and the other of
 25 said lock elements comprising a segmental plate pivotally mounted and having a latch hook and a shoulder, said shoulder arranged

to be engaged by said lug, during the closing movement of said door, for moving said latch hook into interlocking engagement
 40 with said latch seat, ratchet-like teeth on said segmental plate, a lock dog cooperating with said ratchet-like teeth to hold said latch hook interlocked with said latch seat, and means for releasing said lock dog from said
 45 ratchet-like teeth, substantially as described.

6. The combination with a door and a door casing, of cooperating lock elements secured to said door and door casing, one of said lock elements comprising a latch seat
 50 and a latch actuating lug, and the other of said lock elements comprising a segmental plate, pivotally mounted at its axis and having a latch hook and a shoulder, said shoulder arranged to be engaged by said lug, during the closing movement of said door, for
 55 moving said latch hook into interlocking engagement with said latch seat, a spring tending to rotate said segmental plate in a direction to withdraw said latch hook from said
 60 latch seat, ratchet-like teeth on the peripheral edge of said segmental plate, a lock dog cooperating with said ratchet-like teeth to hold said lock hook interlocked with said
 65 latch seat, and push buttons and connections to said lock dog for moving the same out of engagement with said ratchet-like teeth, substantially as described.

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

GUNDER PEDERSON.

Witnesses:

MIKE SEISEN,
 NELS N. BOLSTAD.