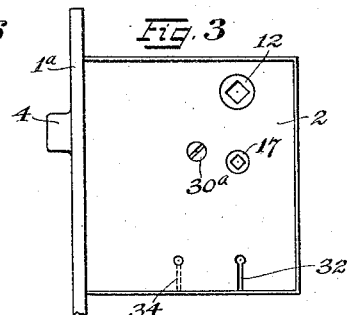
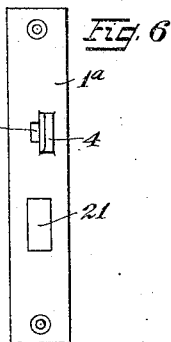
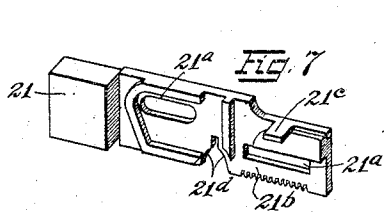
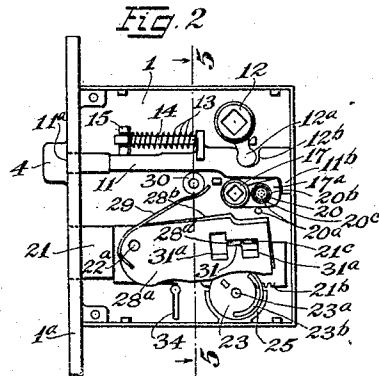
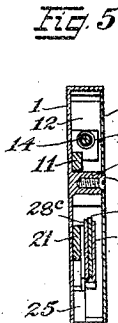
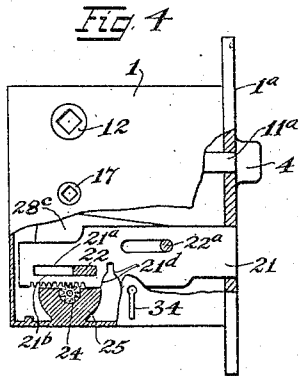
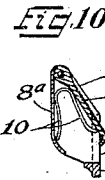
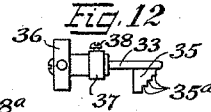
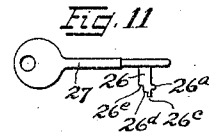
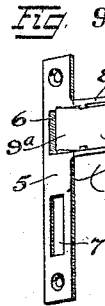
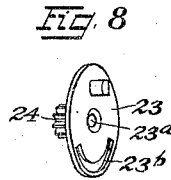
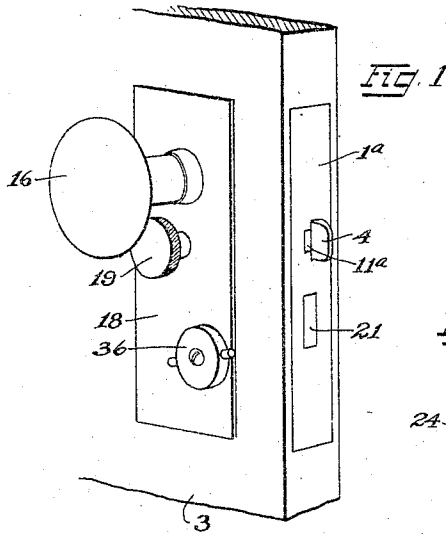


W. GERWIEN.
DOOR LOCK.
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1,007,859.

Patented Nov. 7, 1911.



Witnesses:
H. C. Valentin
E. P. Schlosser

Inventor:
William Gerwien,
by Obed C. Billman
Attorney.

UNITED STATES PATENT OFFICE

WILLIAM GERWIEN, OF SAN FRANCISCO, CALIFORNIA.

DOOR-LOCK.

1,007,859.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed December 20, 1910. Serial No. 598,273.

To all whom it may concern:

Be it known that I, WILLIAM GERWIEN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Door-Locks, of which the following is a specification.

My invention relates to improvements in door-locks, the primary object of the invention being to provide a generally improved lock of this class of exceedingly simple, cheap, and efficient construction better adapted to its intended purposes than any other device of the same class with which I am acquainted.

The invention relates more particularly to improved key controlling means for actuating the lock bolt as well as normally holding said bolt in its projected and retracted positions.

A further object of the invention is to provide a generally improved "lock strike" mechanism together with improved knob actuated latching mechanism adapted to cooperate with the improved "lock strike" mechanism.

With the above and other objects in view, the invention consists in the novel construction, arrangement, and combination of parts hereinafter described, illustrated in one of its embodiments in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a perspective view of the improved lock applied to a door. Fig. 2, a side elevation of the improved lock detached, the parts being shown in their normal or retracted position with the removable side plate of the lock casing removed for the purpose of clearer illustration of the parts. Fig. 3, a similar view with the side plate inserted and attached preparatory to being mortised in the free side of the door as illustrated in Fig. 1. Fig. 4, a side elevation of the opposite side of the improved lock, a portion of the lock casing being broken away for the purpose of clearer illustration of the parts. Fig. 5, a sectional view taken through line 5-5 of Fig. 2. Fig. 6, an end view of the improved lock casing. Fig. 7, a perspective view of the improved locking bolt member. Fig. 8,

a perspective view of the improved key operated rotary member for actuating the slide lock bolt. Fig. 9, a perspective view of the improved lock strike mechanism. Fig. 10, a cross sectional view of the improved lock strike mechanism shown in Fig. 9. Fig. 11, a view of a key for cooperating with the key controlled means for cooperating with and actuating the lock bolt. Fig. 12, a similar view of a key member for operating the lock bolt from the inner side of the door.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved door-lock comprises a lock casing 1, and removable side plate 2, preferably mortised in the free side of a door 3, as illustrated in Fig. 1, of the drawings. The casing edge plate 1^a, is provided with a stationary latch bolt or projection 4, preferably formed integral therewith or permanently attached thereto.

The improved lock strike comprises a strike plate 5, provided with a latch receiving recess 6, adapted to receive and contain the stationary latch bolt or projection 4, and the usual bolt receiving opening 7 below as shown most clearly in Fig. 9 of the drawings. The strike plate 5, is provided with a casing inset from the recess 6, said casing comprising upper and lower lug members or walls 8, extending or projecting on the latch receiving side of the strike plate, said lug members or upper and lower members 8, being preferably provided at their rear with the plate or wall 8^a. The face sides of the lug members 8, preferably extend outwardly at an angle to the face side of the strike plate and are provided at their outer ends with a pivotally mounted spring resisted strike latch 9, pivoted between the lugs or on the open or face side of the casing, said strike latch having its free end 9^a, disposed within or at the receiving side of the latch receiving recess, a spring 10, being interposed between the rear wall 8^a, and the free end of the strike latch as shown most clearly in Fig. 10 of the drawings.

When the door is closed the stationary latch member or projection 4, is received on the face side of the strike latch whereby the latter is depressed against the resistance of the spring 10, and when the door is moved to its closed position the free end 9^a

will snap into engagement with the projection 4, and immediately in front of the latter.

As a means for disengaging the free end 9^a, of the strike latch 9, from the latch projection 4, when it is desired to open the door, a sliding latch member or bolt 11, is slidably mounted in the lock casing, said slide latch bolt or strike lock disengaging member 11, having its outer end 11^a, disposed in close proximity to the latch bolt or projection 4, so that when the latch member is projected it will come into engagement with the free end 9^a, of the strike latch and move the latter away from in front of or in engagement with the latch projection 4, whereby to clear the latter when the door is opened.

As a means for operating the sliding member or bolt 11, a spindle hub 12, is mounted in suitable bearings in the casing, said spindle hub being provided with a hub projection or lug 12^a, taking into engagement with a recess 12^b, at the rear of the sliding bolt or member 11, and being adapted to project the latter against the resistance of a spring 13, carried upon a guide arm 14, said guide arm being carried by the member 11, and passing through a guide opening in a guide lug 15. The spindle hub 12, is operated by the usual angular knob spindle passing therethrough and the usual door knob 16.

As a means for locking the sliding latch member 11, in its retracted position from the inner side of the door so that the latch cannot be released by turning the knob on the outer side of the door, a spindle hub 17, is mounted in the casing, said spindle hub being provided with an integral pawl 17^a adapted while the sliding member, 11, is in its retracted position as shown in Fig. 2, to be thrown into engagement with the shoulder portion 11^b, whereby the member 11, is held or locked in its retracted position as shown. The spindle hub 17, is adapted to be rotated by means of an angular spindle member extending through the lock casing and through the face plate 18, on the inner side of the door and provided with an operating knob 19. As a means for normally holding the pawl member 17, in the positions indicated a movable pin member 20, may be loosely mounted in a suitable opening in the pawl 17^a, said pin member being provided with a pointed or conical portion adapted to be resiliently pressed into and held in engagement with a pair of depressed or countersunk openings 20^a, in the adjacent casing wall, the pin 20 having a shoulder portion 20^b, a coiled spring 20^c, surrounding the pin, being interposed between said shoulder portion 20^b, and the removable plate 2 of the lock casing and operating in an obvious manner.

The locking bolt 21, is provided with a pair of guide slots 21^a, containing cross

guide members 22 and 22^a, adapted to guide and limit the movements of the locking bolt 21, in its projecting and retracting movements. The key controlled means for actuating the locking bolt 21, as well as for normally locking or holding the latter in its projected and retracted positions comprises a key operated rotary member 23, provided with a pinion 24, meshing with a rack portion 21^b, of the locking bolt 21, said rotary member 23, being preferably of disk form as shown with its outer periphery resting or bearing in a stationary bearing shell portion 25, and provided at its center with a key shank receiving opening 23^a, and near its outer periphery with a guide slot 23^b, to receive a lug 26^a, on the bit 26, of the key 27, illustrated in Fig. 11 of the drawings.

The key controlled means for normally holding or locking the bolt 21, in its projected and retracted positions comprises a plurality of pivotally mounted tumbler members 28^a, 28^b, and 28^c, said tumbler members being pivotally mounted at one end on the guide pin 22^a, and normally held downwardly at their free ends toward the key operated rotary member 23, by means of individual springs 29, bearing against the stud member 30, of the casing which receives the screw 30^a, for fastening the removable plate 2. Each tumbler member is provided at its free end with an opening comprising an intermediate guide slot 31, terminating at its ends in transversely extending enlarged portions 31^a, said enlarged portions being adapted to contain a guide lug 21^c, of the locking bolt 21, when the latter is in its retracted or projected position, the intermediate lug or shoulder portion 28^d, of the tumbler member 28^c, dropping in front of the guide lug 21^c, as shown in Fig. 2, of the drawings, whereby the locking bolt 21, is locked or held in its retracted position until operated upon by the key 27, as now described.

When it is desired to project the lock bolt 21, through the medium of the key controlled means, the key 27 is inserted through the key hole 32, of the casing the shank portion thereof entering into the opening 23^a, and the lug 26^a on the bit 26, entering into the guide slot 23^b, of the key operated rotary member 23, and when the bit is turned, the steps 26^c, 26^d, and 26^e, will engage and elevate the tumbler members 28^c, 28^b, and 28^a, respectively, whereby the guide slot portions 31, of said tumbler members, will be brought substantially in alignment with each other just prior to the initial movement of the key operating rotary member as the lug 26^a, reaches the end of the guide slot 23^b, and thus permitting the locking bolt 21, to be projected through the instrumentality of the pinion 24, and rack 21^b. As the guide lug 21^c, passes to its outer position as the bolt 21,

is moved to its extreme projected position the enlarged portion 31^a, of the tumbler members will drop down over the lug 21^c, thus normally holding or locking the locking bolt 21, in its projected position until retracted through the key controlled means as above described.

As a means for providing for the operation of the locking bolt 21, from the inner side of the door a key 33, such as shown in Fig. 12, may be provided, said key being adapted to be passed through the key hole 34, of the casing, said key having a bit 35, adapted to swing in a recess 21^d, of the bolt and actuate the latter after the tumbler members are initially acting upon by the steps 35^a, of the bit, in a manner similar to the operation of the key 27, above described. The key 33, may be secured within the door by means of an operating knob 36, extending through the face plate 18, and retained by means of an adjustable spacing sleeve 37, and clamping screw 38, said sleeve 37, and clamping screw 38, being adjustable in accordance with the distance between the lock casing and the face plate 18.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described an embodiment of

my invention what I claim and desire to secure by Letters Patent is,—

1. In a door-lock, a casing provided with a stationary latch-bolt, a strike-plate provided with a latch receiving recess and a pivotally mounted strike-latch adapted to receive and engage said stationary latch-bolt, a sliding latch-bolt within said casing adapted to be projected in front of said stationary latch bolt and to disengage said strike-latch from said stationary latch-bolt, and means for operating said sliding latch-bolt.

2. In a door-lock, a casing provided with a stationary latch projection, a strike-plate provided with a recess adapted to receive and contain said latch projection and a pivotally mounted strike-latch adapted to receive and engage said latch projection, a sliding latch member adapted to be projected in front of said latch projection and within said recess whereby to disengage said strike-latch from the latter, and a knob spindle and hub operatively connected to said sliding latch member.

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

WILLIAM GERWIEN.

Witnesses:

JAMES F. JENSEN,
L. J. WELCH.