

G. M. OPHEIM.
SLIDING DOOR LATCH.
APPLICATION FILED MAY 9, 1910.

988,806.

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Fig. 1

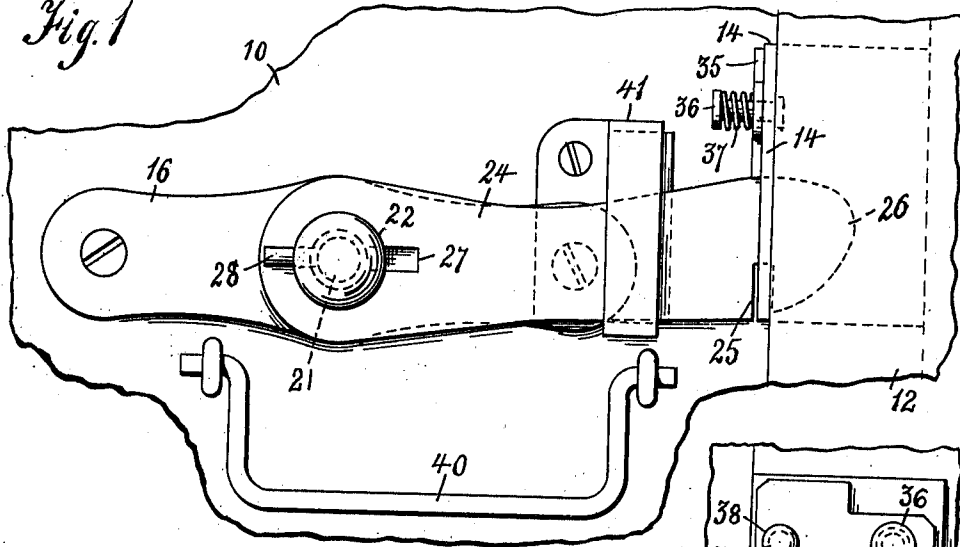


Fig. 2

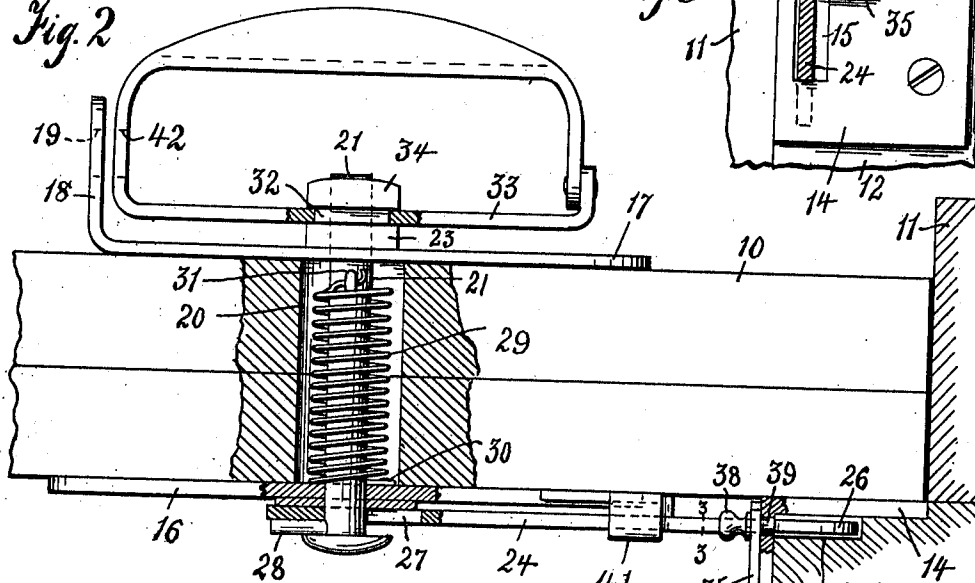


Fig. 3

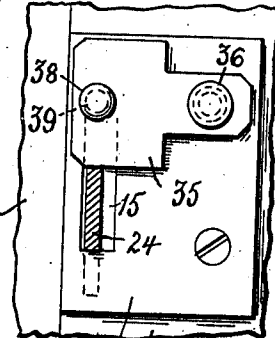
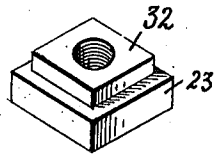


Fig. 4



Witnesses

W. H. Woodward
A. C. Foley

Gullick M. Opheim
Inventor,

By *[Signature]* *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

GULLICK M. OPHEIM, OF BEAVER CREEK, MINNESOTA.

SLIDING-DOOR LATCH.

988,806.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GULLICK M. OPHEIM, a citizen of the United States, residing at Beaver Creek, in the county of Rock, State of Minnesota, have invented certain new and useful Improvements in Sliding-Door Latches; 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.

This invention relates to door latches, more particularly to the class of latches adapted for use upon sliding barn doors and the like, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a simply constructed device of this character which may be operated from either or both sides of the door.

Another object of the invention is to provide a device of this character which may be readily dismembered for repairs or renewal of broken or impaired parts.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims; and, in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a view of a portion of a door and a portion of the frame viewed from the inside with the improvement applied. Fig. 2 is a plan view of the improved device with the door and its frame and a portion of the improved device in section, Fig. 3 is a face view of the latch post with the lock bolt in section on the line 3—3 of Fig. 2, Fig. 4 is a perspective view of one of the locking nuts detached.

The improved device may be applied to any of the various forms of sliding doors, but is designed more particularly for the larger doors employed in connection with barns and like structures, and in the drawings a portion of a conventional door is represented at 10, a portion of a frame or door post at 11, and a portion of a casing at 12, the post serving as a stop to the door, these parts being of the usual construction. Formed in one corner of the casing 12 next

to the post 11 is a recess 13, and fitting over this recess is an L-shaped plate 14, the latter being provided with an aperture 15 which is located opposite the recess 13. The plate 14 and its aperture 15 thus form a keeper for receiving the latch bolt, as hereinafter explained.

Connected to the inner face of the door is a bearing plate 16, and likewise connected to the outer face of the door is a similar bearing plate 17, the bearing plates being preferably secured by screws or other fastening means. The plate 17 is out-turned at one end as shown at 18 and the out-turned portion provided with a transverse aperture 19, the object to be hereinafter explained.

The plates 16—17 are provided with transverse apertures while the door structure 10 is provided with corresponding but larger aperture represented at 20, the apertures of the plates communicating with the aperture of the door as shown in Fig. 2.

Fitting through the communicating apertures in the plates and door is a bolt 21, the bolt being threaded at one end, and with a head 22 at the other end, as shown, and provided with a holding nut 23 upon the threaded end and bearing upon the plate 17. Mounted to swing upon the bolt 21 rearwardly of the head 22 and externally of the plate 16 is another plate 24 which forms the latch bolt of the improved device and is provided with a notch 25 near its free end and with the portion of the plate in advance of the latch rounded as shown at 26. The latch bolt 24 is also provided with a longitudinal slot 27 communicating with the aperture which fits over the bolt 21. A pin 28 is connected to the bolt 21 next to the head 22 and enters the slot 27 when the bolt 21 is disposed in one position, as hereinafter explained. Surrounding the bolt 21 within the aperture 20 is a coiled spring 29, the spring being connected at one end at 30 to the plate 16 and connected at 31 at its other end to the bolt 21. By this means the spring exerts its force to maintain the latch bolt 24 yieldably in its downward position with the notch 25 yieldably in engagement with the lower edge of the aperture 15 of the keeper 14, as hereinafter more fully explained.

The outer face of the nut 23 is formed with a square shoulder 32, and fitting over this shoulder is a handle 33, the latter having a square aperture to engage the shoulder, and retained in place by a jam nut 34. The handle 33 is in the form of an endless loop as shown in Fig. 2.

The threaded portion of the bolt 21 is of sufficient length to enable the handle member 30 to be adjusted thereon to a considerable extent so that the bolt may be attached to doors of different thicknesses without any change of the structure of the improved device. The handle 30 is provided at one end with an aperture 42 corresponding to the aperture 19 of the out-turned portion 18 of the plate 17, the two apertures designed to receive a padlock, not shown, when it is desired to lock the latch device.

Secured to the inner face of the door 10 is a guide keeper 41 through which the latch bolt 24 extends and by means of which its vertical movements are limited, as will be obvious. The force of the spring 29 maintains the latch bolt 24 yieldably in its downward position and in engagement with the lower end of the keeper 41, and the keeper will be so located upon the door that when the latch is in its downward position the notch 25 of the latch member will engage the plate 14, as before described, and the keeper 41 will be of sufficient length to permit the latch member to be elevated to a sufficient extent to release the notch from the plate 14 when the door is to be opened. The pin 28 extends from the head 22 at the same side as the apertured end of the handle 33, so that when the handle is set in position to receive a pad-lock through the apertured portion 18, the pin 28 will be maintained out of engagement with the aperture 27. By this arrangement it will be seen that a simply constructed and efficient latch device is produced, which will automatically engage in the plate when the door is closed by reason of the rounded form of the free end 26 of the latch bolt, and which may be readily released from the outside by simply rotating the handle 33 to a sufficient extent to enable the pin 28 to enter the recess 27, as before described. The handle 33 enables the door to be moved away from the post 11, while a drop handle 40 is attached to the interior of the door to assist in opening the door from the inside.

With the device thus constructed the operation is as follows. When the improved device is to be used as an ordinary spring latch the handle member 33 is rotated to bring the pin 28 opposite the slot 27, when the force of the spring 29 will withdraw the pin 28 into the slot and thus couple the bolt 21 to the latch bolt 24. By this means the latch bolt may be operated by merely actuating the handle 33 to elevate the notch

25 of the bolt 24 to free it from the recess 15 of the plate 14. When the handle 33 is to be locked in position by a pad-lock applied to the apertures 19—42, the handle lever is forced inwardly to release the pin 28 from the slot 27 and then rotated one-half a revolution to bring the apertures 19—42 in opposite relations as shown in Figs. 1 and 2, thus releasing the latch bolt 24. If the latch bolt is to be secured from the inside the member 35 is retained in the position shown in Fig. 3. When the door is to be again actuated the pad-lock is removed and the handle 33 rotated one-half a revolution to bring the pin 28 again into position to be withdrawn by the pin 27 by the action of the spring 29, as before described. Thus the pin 28 on the bolt 21 will always be engaged in the recess of the slot 27 when the door is in use, and it is only when it is desired to lock the door from the outside that the handle 33 is pushed inwardly and rotated one-half a revolution to bring the aperture 42 of the handle opposite the aperture 19 of the outwardly directed terminal 18 of the plate 17.

Means are provided for locking the bolt 24 in its downward position from the inside of the door, and this locking means is represented more fully in Fig. 3, and consists of a plate 35 pivotally connected at 36 to the plate 14, the pivot being in the form of a relatively long bolt and surrounded by a spring 37 which operates to maintain the plate 35 yieldably in engagement with the face of the plate 14. The plate 35 is of sufficient length to extend over the upper edge of the lock bolt 24 when in one position, as shown in Fig. 3. The plate 35 is provided with an operating knob 38 which extends through the plate 35 and into the recess 15 above the latch bolt 24, as shown in Fig. 2, and thus lock the plate 35 from vertical movement and correspondingly locking the latch bolt in its downward position. By this simple means the bolt is firmly locked in its closed position from inside of the door. To release the plate 35 it is only necessary to draw the plate 35 outwardly by pressure applied to the knob 38 which withdraws the projection 39 from the slot 15 and permits the plate to be swung inwardly upon its pivot 36 and out of the path of the latch bolt 24.

What is claimed is:—

1. A door latch comprising a bolt adapted to be mounted for oscillation through a door, a keeper adapted to be connected to the frame of a door and provided with a transverse aperture, a latch bolt mounted to swing upon said bolt to enter the aperture of the keeper and with a notch engaging the same, said latch bolt having a longitudinal slot adjacent to the bolt, and a pin connected to the bolt and entering said

slot when the bolt is disposed in one position, and operating means connected to the bolt externally of the door.

2. A sliding door latch comprising two
5 plates adapted to be attached to a door at opposite sides, one of said plates having an out-turned perforated portion at one end, a bolt extending through said door and mounted for oscillation through said plates,
10 a keeper adapted to be connected to a door frame and provided with a transverse aperture, a latch bolt mounted to swing upon said bolt and extending into the aperture of the keeper and with a notch engaging
15 the same, said latch bolt being provided with a longitudinal slot adjacent to the bolt, a pin connected to the bolt and operating in said slot when the bolt is disposed in one position, a handle connected to said
20 bolt externally of the door and provided with an aperture to register with the aperture of the out-turned plate portion, said registering apertures being adapted to receive a locking device.

25 3. A sliding door latch comprising a bolt adapted to be mounted for oscillation through a door, a keeper adapted to be connected to the frame of a door and provided with a transverse aperture, a latch bolt
30 mounted to swing upon said bolt and extending into the aperture of the keeper and with a notch engaging the same, said latch bolt being provided with a longitudinal slot adjacent to the bolt, a pin connected
35 to the bolt and operating in said slot when the bolt is disposed in one position, a locking plate swinging upon said keeper and movable into the path of said latch bolt, means for yieldably maintaining said locking
40 plate, and a pin carried by the locking plate for entering the aperture of the keeper, and operating means connected to the bolt externally of the door.

4. In combination, a door, a frame in
45 which the said door is mounted, a latch bolt carried by the door, a handle mounted for rotation, means connected with the handle for establishing an operative connection between the same and the latch bolt, said
50 handle being movable in an axial direction

to render the same inoperative with respect to the latch bolt, and a keeper coacting with said latch bolt and carried by the frame.

5. In combination, a door, a latch bolt carried thereon, a pivot member, means where-
55 by said pivot member may be connected or disconnected so as to be operative or inoperative with respect to moving the latch bolt, and a handle connected with said pivot member and movable therewith to connect
60 or disconnect the pivot member for operation of the latch bolt.

6. In combination, with a door, a latch bolt mounted thereon, a pivot member for
65 said latch bolt and mounted for longitudinal movement on the door, projection extending from said pivot member and arranged to interlock with the latch bolt but movable out of interlocking connection by the longitudinal movement of the pivot member,
70 and a handle connected with said pivot member for effecting longitudinal movement thereof.

7. In combination, a door, a latch bolt mounted on said door, a handle, means for
75 establishing operative or inoperative connection between said handle and the latch bolt, and means coacting with the handle to receive a locking device when said handle has been thrown out of operative connection
80 with the latch bolt.

8. In combination, a door, a latch bolt mounted thereon, a pivot for said latch bolt, a projection for said pivot adapted to be
85 interlocked and disconnected from the latch bolt, a handle for actuating said member to operate the latch bolt when the projection aforesaid interlocks therewith, an extension projecting from the door, the handle and extension having means to receive a
90 lock whereby the handle may be locked from movement after being rendered inoperative with respect to the latch bolt.

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

GULLICK M. OPHEIM.

Witnesses:

MARTIN H. SUNDEM,
HENRY OPHEIM.