(Model.)

H. E. RUSSELL, Jr.

LOCK FOR SLIDING DOORS.

No. 340,620. Patented Apr. 27, 1886.

Fig. 1.

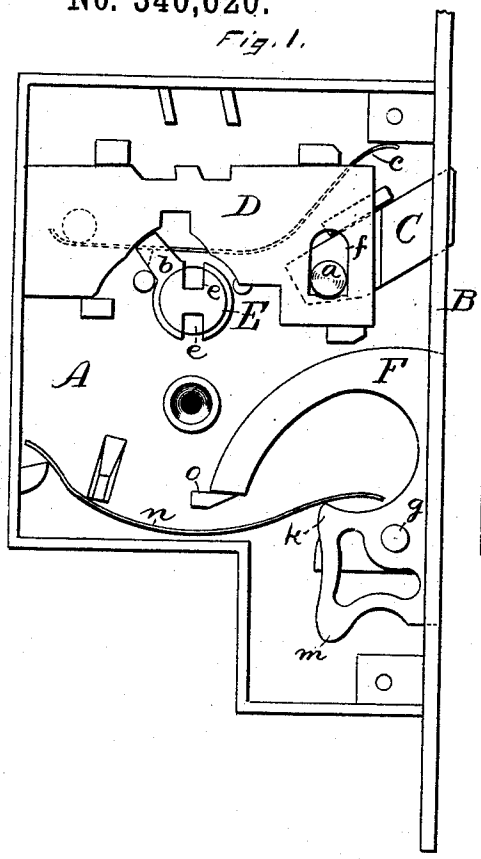


Fig. 2.

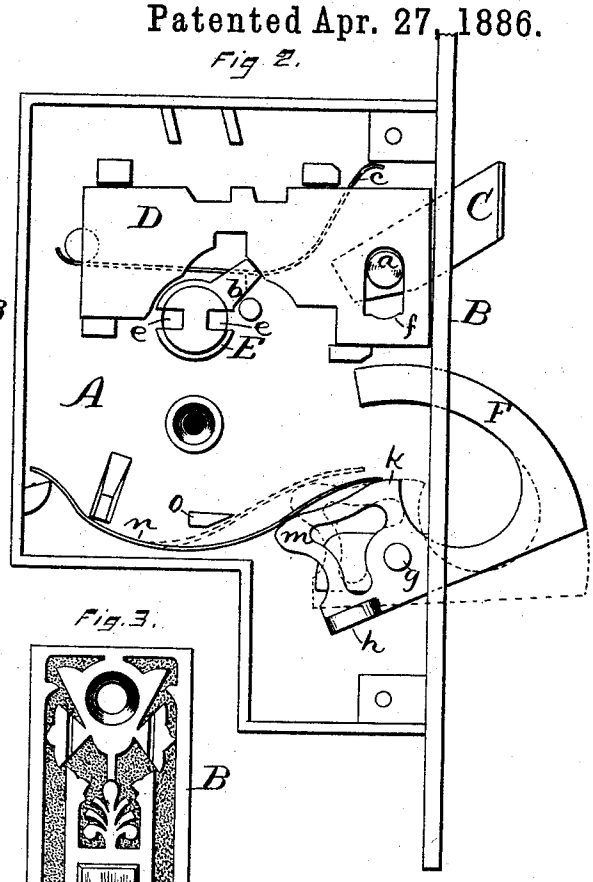


Fig. 3.

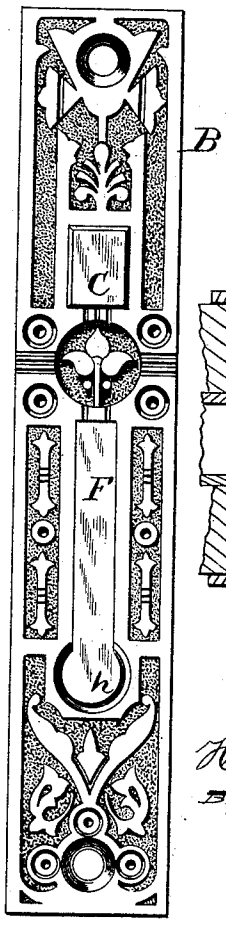


Fig. 4.

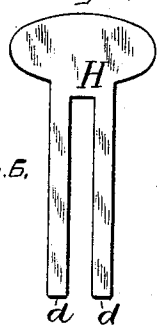


Fig. 5.

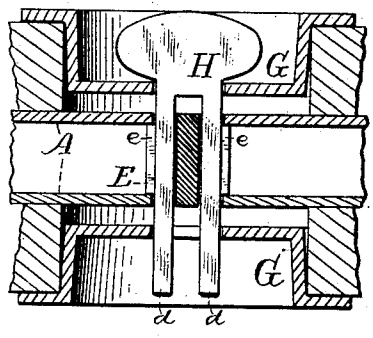
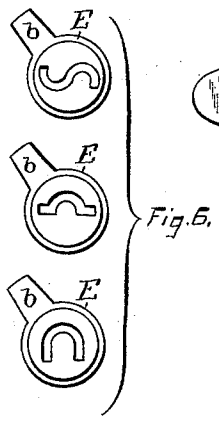


Fig. 6.



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UNITED STATES PATENT OFFICE.

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LOCK FOR SLIDING DOORS.

SPECIFICATION forming part of Letters Patent No. 340,620, dated April 27, 1886.

Application filed March 1, 1886. Serial No. 193,588. (Model.)

To all whom it may concern:

Be it known that I, HENRY E. RUSSELL, Jr., a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Locks for Sliding Doors, of which the following is a specification.

My invention relates to improvements in locks for sliding doors; and the objects of my improvement are to simplify the construction of the parts and to improve the efficiency of the operation of the lock and handle.

In the accompanying drawings, Figure 1 is a front elevation of my lock with one of the side plates removed. Fig. 2 is a like view of the same with the lock-bolt and handle projected from the case. Fig. 3 is a side elevation of the same, showing the face-plate. Fig. 4 is a side elevation of the key which accompanies my lock. Fig. 5 shows, in connection with said key, a sectional view of the hub, a part of the lock-case and door, and the key-hole sockets on opposite sides of the door; and Fig. 6 shows three hubs for my lock, having slots for three different forms of keys.

A designates the main portion of the lock-case, and B the face-plate thereof. This face-plate is represented as flat or straight across; but in lieu thereof a grooved face-plate of ordinary construction may be employed when the lock is to be fitted to sliding doors, which are tongued and grooved upon their meeting edges.

C designates the lock-bolt, having upon one side a pin or stud, *a*, and fitted by means of suitable ways or guides to slide in a right line at an oblique angle to the face-plate B, as shown.

D designates a slide, fitted in suitable guides to move in a right line at a right angle to the face-plate. This slide is operated by means of a winged hub, E, which is fitted to partially rotate in the case, while its wing *b* acts upon the under edge of the slide D, the edge of said slide being specially adapted for such action, something after the manner of an ordinary lock-bolt. This wing is provided with a shoulder, which is pressed upon by the spring *c* to hold the hub in either of the positions represented in Figs. 1 and 2, as is indicated by broken lines in said figures. The hub E is operated by means of the key, Figs. 4 and 5, which consists, essentially, of a handle, H, and a double stem, *d d*, which stem is fitted to engage the grooves *e e*. These grooves extend longitudinally through opposite sides of the hub. The slide D is provided with a vertical slot, *f*, within which slot the stud or projection *a* of the bolt C is fitted. By this connection of the slide D and bolt C a horizontal movement of said slide projects or withdraws the bolt C, which, as it slides upward and outward or downward and inward, will raise or lower the pin *a* within the vertical slot of the slide, all as shown by comparison of the lock when in the two different positions represented in Figs. 1 and 2.

Heretofore locks of this class have been provided with hooked bolts, which were moved out and in upon a curved line, the bolt being also curved. In my lock, when the bolt C is projected and is in engagement with the striker or keeper, it is practically hooked thereon so as to prevent the two parts from moving away from each other in a horizontal line; but I am enabled to produce this hooking action by means of a straight bolt, which is projected in a right line, and thereby I simplify the construction of the parts.

In Fig. 5 I have shown the key and parts of the lock as mounted in proper position on the door.

G G designate the key-hole sockets, which are secured on opposite sides of the door with their central hole in axial alignment with the hub E. The key-handle H occupies a portion of the length of the key no greater than the depth of the sockets G, so that when the key is inserted therein it may not project beyond the face of the sockets. The hub is slotted and the key-stem made double in order to give a degree of security to the lock. Other forms of slotted hubs and key-stems may be employed for the same purpose. Three of such different forms are shown in Fig. 6. In either form the key-stem is what may be termed a "spindle-key," and is slipped endwise into the hub. When once properly inserted therein, it may be stopped at any point, according to the

varying thicknesses of doors to which the lock may be applied, and it will operate to rotate the hub and throw the lock-bolt. With a door of the thickness shown in Fig. 5 the key would be operative with a stem of only about half the relative length of that shown. If the stem is longer than is necessary, (which is the case as shown in Fig. 5,) it will extend through into the other socket, and if it does not project beyond the face of said socket the door can be slid into its housing when the key is within the lock. If the whole length of the key is longer than the distance between the outer faces of the sockets G, it is an easy matter to cut off the ends of the stem to a proper length. By my construction of the key, in connection with the other parts, a key of a given length will operate properly on doors of various thicknesses and without projecting beyond the face of the sockets on either side of the door.

F designates the pull or handle of my lock, which is in the form of a lever having a curved or hooked upper end, which forms the eye or ring of the pull, which lever-handle is pivoted to the case at *g*. Its front or outer face is straight, and when the handle is wholly within the case it lies within a longitudinal slot within the face-plate, as shown most clearly in Fig. 3. The lower end of the handle extends below the pivot-pin *g* and terminates in a finger-piece *h*. The heel of this lever-handle, at a point inside the case, is provided with two corners, *k m*, against which the spring *n*, within the case, is made to bear.

When the handle is within the case, as shown in Fig. 1, the inner end of its hooked part comes in contact with the stop *o* on the case, and prevents the upper end of the handle from being pushed inward beyond the proper point. The spring *n* bears against the corner *k*, and exerts a constant tendency to hold the handle in this position.

In order to project the handle the thumb-piece *h* at its lower end is pressed inward, thereby swinging the handle on its fulcrum and projecting the upper end, so that it may be pulled outward. If the handle is then left free, the spring *n* bears against the face of the heel, which is between the corners *k m*, and holds the handle in the position represented by the full lines in Fig. 2. The handle is then in a convenient position to be pulled upon in sliding the door. In thus pulling upon the handle it will turn farther upon its axis into the position indicated by broken lines in Fig. 2. The spring *n* is then bearing upon the corner *m* with a tendency to throw the upper end of the handle into the case. If the handle is quickly released, the pressure of the spring upon the corner *m* is sufficient to throw the handle inward with sufficient momentum to carry that face which is between the corners *k m* by the end of the spring, and the spring will then bear only upon the corner *k* and force the handle wholly into the case. Thus it will be seen that the spring, which at one time serves to hold the handle in a projected position, will at other times act to carry the handle the whole extent of its movement—viz., from its extreme outer position to its position wholly within the case. If, however, the handle is left in its projected position, with the spring bearing upon the face between the corners *k m*, said spring will hold the handle with its most projecting point or corner a little above the axis *g* of the handle, so that when said point or corner is pressed inward—as, for instance, in bringing the doors together—the handle will be pushed into the case.

I claim as my invention—

1. In a lock for sliding doors, the combination of the case and face-plate having suitable inclined guides, the straight lock-bolt C, arranged to move within said guides in a right line at an oblique angle to the face-plate, and the slide D, for operating said bolt, substantially as described, and for the purpose specified.

2. The combination, with the lock of a sliding door, of the key-hole sockets and the key having a handle adapted to be received within said sockets, and a stem adapted to operate the lock when inserted therein at different points, according to the varying thicknesses of different doors, substantially as described, and for the purpose specified.

3. The combination of the case having a longitudinal slot in its face-plate, the handle F, having the pull or eye at its upper end, with its lower end provided with the finger-piece *h* and corners *m k*, said handle being pivoted to the case, as at *g*, and the spring *n*, for acting upon said lower end of the handle, substantially as described, and for the purpose specified.

HENRY E. RUSSELL, JR.

Witnesses:
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THOS. S. BISHOP.