J. W. SCHOONMAKER.

LOCKS FOR SLIDING DOORS, &c.

No. 189,392. Patented April 10, 1877.

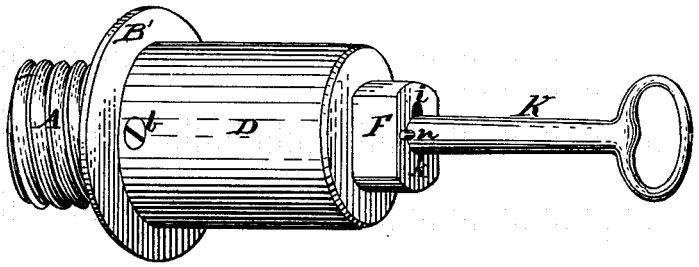

Fig. 1.

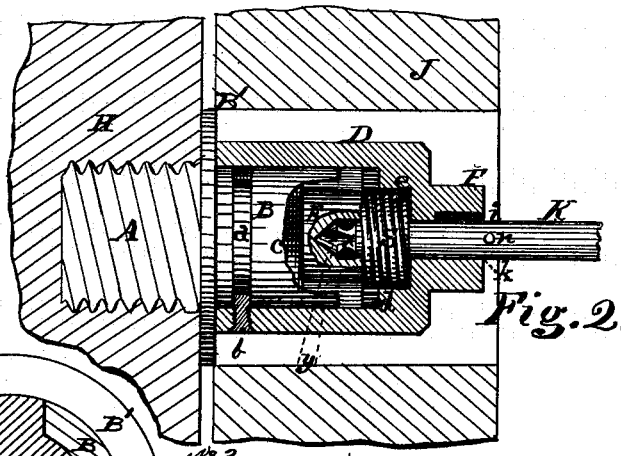

Fig. 2.

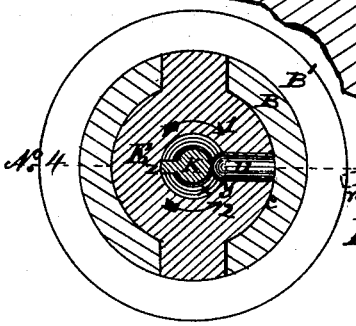

Fig. 3.

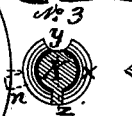

Fig. 4.

Fig. 5.

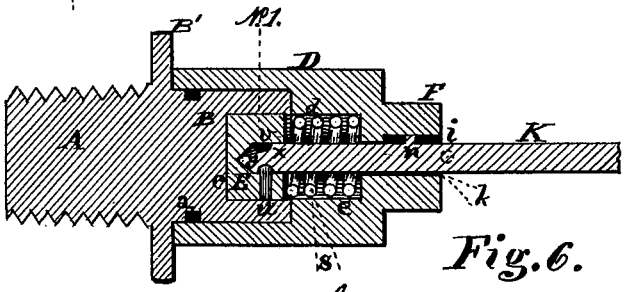

Fig. 6.

Witnesses { William F. Selkirk
Chas. J. Lucas }

James W. Schoonmaker
by his Attorney
Alex. Selkirk,
Inventor.

UNITED STATES PATENT OFFICE.

JAMES W. SCHOONMAKER, OF ALBANY, NEW YORK.

IMPROVEMENT IN LOCKS FOR SLIDING DOORS, &c.

Specification forming part of Letters Patent No. **189,392**, dated April 10, 1877; application filed February 3, 1877.

To all whom it may concern:

Be it known that I, JAMES W. SCHOONMAKER, of the city and county of Albany, State of New York, have invented certain new and useful Improvements in Sliding Door-Locks, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of the lock embodying my improvements. Fig. 2 is a sectional view of the lock. Fig. 3 is an enlarged cross-sectional view of the same, taken at line No. 1 in Fig. 6. Fig. 4 is a cross-sectional view of the key, taken at line No. 2 in Fig. 5. Fig. 5 is a longitudinal sectional view of the key, taken at line No. 3 in Fig. 4; and Fig. 6 is a sectional elevation, taken at line No. 4 in Fig. 3.

The object of my invention is to furnish a device that will operate to hold a sliding door firmly in place. This I accomplish by means of a screw-threaded bolt or stop, which cannot be operated without the aid of a key for bringing into position a clutch to operate with the said screw-threaded bolt or stop, and a revolving outer sleeve, to lock the former fast with the latter, so that when the latter is turned, the former may also be turned to screw the device into its place or out of the same, as may be required.

In the drawings, A represents the screw-threaded portion of the device intended to be screwed into a fixed post, H, of the car-door frame, when it is desired to secure the door J, or unscrewed therefrom, when the door is to be opened. B′ is a collar or flange, made solid with the screw portion A, and serves as a stop for the screw-bolt, when the latter is inserted into the stationary or fixed post H. It also acts as a support or bearing for the loose sleeve D. The shaft B, also made solid with the screw portion A, is provided with an annular groove, *a*, near the collar B′. D is a revolving sleeve, fitting nicely over the shaft B, and secured or held thereon by means of the screw *b*, which passes through the sleeve D into the annular groove *a*, as shown in Fig. 2.

The end of the shaft B is provided with the clutch-holding recess *c*, of a form corresponding with the clutch E, Fig. 3, and of a depth equal to the thickness of the said clutch, as shown in Fig. 6. The clutch E and corresponding clutch-holding recess *c* may be made square, oval, angular, or of the form shown, so that the said clutch may not be capable of being turned in the said recess, but, when turned, will carry with it the screw-bolt, which is composed of the shaft B and screw-stem A. Within the sleeve D is also a clutch-holding recess, *d*, having the form of clutch E, and capable of readily receiving the same, or a portion of the same, as shown in Fig. 2. Back of the clutch-holding recess *d* is formed another recess, *e*, in which is placed the spring S, which spring, when not compressed, has a length sufficient to hold the clutch E in recess *c* in the shaft B, as shown in Fig. 6, and when compressed so that the several coils are brought together the clutch may not be permitted to entirely leave the recess *c*, but occupy the contiguous portions of the recesses *c* and *d*, as shown in Fig. 2.

In the center of the outer end of the sleeve D is a key-hole, *k*, for receiving the key K, and at the side of the key-hole *k* is a slot or ward, *i*, extending a short distance within and terminating before reaching the recess *e*, as shown in Figs. 2 and 6. Upon the outer end of the sleeve D is the angular head F, to which a wrench may be applied. In the center of the clutch-piece E, and opposite the spring S, is the recess *v*, adapted to receive the pointed end of the key K, as shown in Figs. 2 and 6. Projecting into the recess *v* is the pin *u*. The end of the key is made with a conical point, as shown, and is provided with an annular groove, *x*, as shown in Figs. 2, 3, 4, 5, and 6, into which the pin *u* fits when the key is properly entered. The key is also provided with a longitudinal way or groove, *y*, extending from the point of the same to intersect with the annular groove *x*, which groove *y* permits the pin *u* to pass up into the groove *x* when the end of the key is inserted into the recess *v* in the clutch. Within the groove *x*, at a point about opposite the way *y*, is the bit or stop *z*, to prevent the key from being turned completely around, and serves as a guide or guard for the proper adjustment of the key for subsequent operations. Fixed in the stem

of the key is the pin or projection *n*, Figs. 1, 2, 4, 5, and 6, intended to work into the slot or ward *i*, in the side of the key-hole *k*, and operate as a bit or feather, to turn the sleeve D a proper distance, to permit of an adjustment of the way *y* at the end of the key, with the pin *u*, for the entrance of the key in the clutch.

The fixed or stationary part H may consist of the door-post, or the side of a car. J represents the sliding door, which is pierced with a hole of a sufficient diameter to permit the free passage of the collar B′, and of a depth sufficient to inclose the entire length of the sleeve and its angular head F, as shown in Fig. 2, so that the said head may not project beyond the outer face of the door.

The manner in which this device is operated to lock or unlock the door is as follows:

The key K is inserted in the key-hole *k*, so that the pin *n* enters the slot or ward *i*, when the key is turned around until the operator feels that the key has reached the bottom of the recess *v* in the clutch E, and the pin *u* has passed through the way *y* into the groove *x*. The key is then turned in the direction indicated by arrow 1 in Fig. 3 until the bit or stop *z* in the groove *x* of the key is brought into contact with the pin *u*. The key is then locked with the clutch E. The operator will then pull the key outward, and draw the clutch E partially out from its recess *c* in the shaft B into the recess *d*, so that the said clutch may be made to leave its former situation, as shown in Fig. 6, and be brought into the situation shown in Fig. 2, in which position the said clutch will engage with both the shaft B and the sleeve D, and lock the said parts together in such a manner that when the sleeve is turned in either direction the screw-bolt will also be turned. When the key is thus drawn out, and turned a short distance in the reverse direction, the pin *n* will rest against the face of the angular head F. A wrench may then be applied to the said head to turn the screw-bolt into its place, or out from the same, the key being in its place during the operation of screwing in the said bolt, after which the wrench may be slipped off the head and the key turned in the direction of arrow 2, a distance that will bring the groove *y* in range with pin *u*, when the spring S will throw the clutch from the position shown in Fig. 2 to that shown in Fig. 6. The key can then be removed, and the sleeve freely revolved in either direction. Any person not having a properly-fitting key to lock back the clutch will be incapable of turning the device out.

When it is desired to remove the device for opening the door, the operator will employ the key, as above described, to lock the clutch in an engagement with both the shaft B and the sleeve D, when the wrench may be applied, and, by turning in the reverse direction, the screw-bolt will be turned out from its nut and free the device from the stationary post of the doorway.

It is evident that this device may be applied through the door post or jamb into the frame of the sliding door with substantially the same results, and may also be applied to hold swinging doors closed.

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

1. The combination, with the screw-threaded bolt A B, provided with a clutch-holding recess, and the revolving sleeve D, also provided with a corresponding clutch-recess, and secured in a loose manner to said bolt, of the clutch E and spring S, as and for the purpose set forth.

2. The combination, with clutch E and pin *u* projecting in the central recess of said clutch, of the key K, having an annular groove, *x*, and groove *y*, leading to said annular groove, in the manner and for the purpose set forth.

3. The combination, with the clutch E, having an opening or recess, provided with pin *u*, the screw-threaded bolt A B, having a clutch-holding recess, and the loose sleeve D, having a corresponding clutch-holding recess occupied by a coiled spring, and a key-hole, having ward *i*, of the key K, provided with annular groove *x*, way *y*, bit or stop *z*, and pin *n*, as and for the purpose set forth.

4. The within-described lock, composed of a screw-threaded stem, having a shaft solid with the same, a revolving sleeve, having an angular head, and working over said shaft, and a spring-clutch capable of engaging with clutch-holding recesses in the shaft and sleeve, and adapted to be operated by a key to effect such engagement, all combined to adapt the lock to be screwed in place or unscrewed, and subsequently rendered inoperative for said operations, as and for the purpose set forth.

JAMES W. SCHOONMAKER.

Witnesses:
WILLIAM F. SELKIRK,
CHAS. J. SELKIRK.