L. Beer,

Lock.

No. 98,545. Patented Jan. 4, 1870.

Witnesses.
Chas. Nida.
Geo. W. Mabee

Inventor:
L. Beer
per Munn & Co
Attorneys.

United States Patent Office.

LUDWIG BEER, OF NEW YORK, N. Y.

Letters Patent No. 98,545, *dated January* 4, 1870.

IMPROVEMENT IN LOCKS.

The Schedule referred to in these Letters Patent and making part or the same.

To all whom it may concern:

Be it known that I, LUDWIG BEER, of the city, county, and State of New York, have invented a new and improved Safe-Lock; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a face view of the lock.

Figure 2 is a transverse section of the same.

Figure 3 is a face view of the lower part of the same.

Figure 4 is a face view of the plate, which covers the locking-cylinder.

Figure 5 is an end view of the locking-cylinder.

Figure 6 is a face view, showing the inner end of the cylinder.

Figure 7 is an inner face view of the main bolt.

Figure 8 is a cross-section of the locking-cylinder, taken on the line *x x*, fig. 2.

Figure 9 is an end view of the same, with all its contents removed.

Figure 10 is a face view of the plate, which locks the slides.

Figure 11 is a side view of the key.

Figure 12 is an end view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to improvements on that kind of locks in which a slotted key is applied to shift a series of slides or plates, which serve as levers for turning a slotted locking-cylinder, by which the bolt is moved.

The invention consists in the application, to the locking-cylinder, of a primary lock, which, engaging a pin in a notch of said cylinder, prevents the same from being turned, even if the slides are properly set to unlock.

A, in the drawing, represents the main lock-case.

B is the outer plate of the same, containing an outward-projecting fixed cylinder, C, in which the loose locking-cylinder D is held.

The locking-cylinder is, on the inner surface, provided with six, or more or less longitudinal slots *a a*, into which the slides E E are placed.

These slides are narrow steel plates, which are, by small springs *b*, at their inner ends, thrown out separately, so that notches *c* in such slides are thrown out of line of a notched plate, F, held immovable in the cylinder C.

The key G has a slotted tubular stem, which, when fitted upon a central pin, H, of the cylinder D, receives the several slides in the slots, and by being pressed down, forces the slides inward, to bring their notches *c* in line with the plate F, liberating thereby the cylinder D from such plate F, and allowing the latter to be turned by the ward *d* of the key, which fits into a recess of the locking-cylinder.

A spring-slide, *e*, travelling on the centre-pin H, under the outer arms *f* of the slides, throws all the slides out to an equal height, after the key is withdrawn, while the small springs *b* adjust the several slides separately, and prevent their being thrown down, one by one, by burglars' tools, after the slide *e* is forced down.

The inner end of the cylinder D is closed by a plate, *g*, from which the pins *h* and *i* project into the lock-case.

The inner one of these pins *h* fits, when the main bolt I is locked, into a transverse notch, *j*, of the same, and the outer pin *h*, at the same time, is fitted into a recess, *k*, at the corner of the bolt.

Thereby, even if the tumblers J should be raised off the bolt by burglars' tools, the bolt will still be locked secure by such pins *h i*, and cannot be pushed back.

When the locking-cylinder is revolved by the key, to unlock, the pin *i* remains in its notch *j*, while the pin *h* is swung around into another recess, *l*, of the bolt.

While thus swung, the pin *i* throws the tumblers J, and slightly moves the bolt.

When the pin *h* is in *l*, the pin *i* leaves the notch *j*, and swings into a fourth notch, *m*, of the bolt, and at the same time the pin *h* in *l* keeps the tumblers out of the way, and also shifts the bolt, completely unlocking the same.

When the pin *i* arrives in the notch *m*, it is, by further turning the key, brought against a lever, L, which is pivoted to the bolt, and which operates the spring-latch bolt M, throwing the same open.

With the bolt may also be connected pivoted levers N N, which may be connected with upright bolts.

Upon the outer end of the cylinder C is secured a small lock-case, O, which contains a simple bolt, *n*, that is held in place by tumblers *p p*, of the ordinary or suitable kind.

From the bolt *n* projects, through a slot in the lower plate *r* of the lock O, a pin, *s*, which, when the bolt *n* is closed, fits into a recess cut into or against a shoulder or ear, *t*, on the cylinder D, locking the same, so that it cannot be turned.

The ward of the key will operate the bolt *n*, and when the pin *s* of the same is withdrawn from the cylinder D, the latter can be opened.

The key must, therefore, first be worked independently in the lock O, and after it has opened the same, it is inserted into the cylinder D, to move the slides and work the main bolt. The safety of the lock is thereby considerably increased.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

The sliding bolt *n*, having the projecting pin *s*, arranged in combination with the locking-cylinder D, to lock the same, and prevent the key from turning it, as set forth.

LUDWIG BEER.

Witnesses:

GEO. W. MABEE,

ALEX. F. ROBERTS.