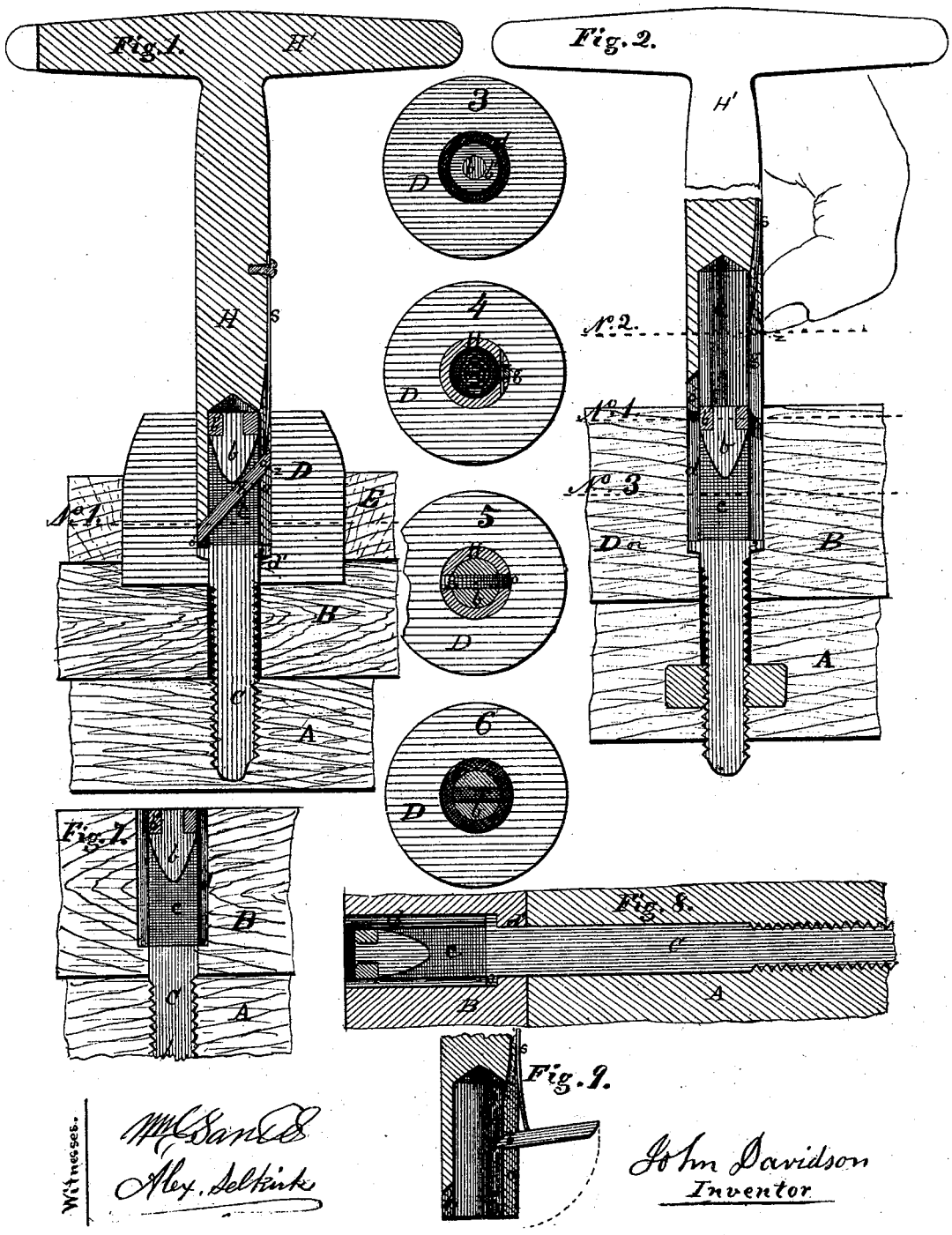
J. Davidson,

Lock.

No. 108767. Patented Nov. 1. 1870.



Witnesses.

Wm. Sanders

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Inventor

United States Patent Office.

JOHN DAVIDSON, OF ALBANY, NEW YORK.

Letters Patent No. 108,767, dated November 1, 1870.

IMPROVEMENT IN LOCKS FOR SLIDING-DOORS.

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

To all whom it may concern:

Be it known that I, JOHN DAVIDSON, of the city and county of Albany, State of New York, have invented certain useful and new Improvements for Securing or Locking Sliding or Swinging-Doors; and I do hereby declare that the following is a specification thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a longitudinal lateral section of the invention.

Figure 2 represents the same, and illustrating the mode of applying the key.

Figure 3 is a cross-section through line No. 1 in fig. 2.

Figure 4 is a cross-section through line No. 2 in fig. 2.

Figure 5 is a cross-section through line No. 1 in fig. 1.

Figure 6 is a cross-section through line No. 3 in fig. 2.

Figures 7 and 8 are illustrations of some modifications of one part of this invention in some of the many modifications in which this device may be applied.

The nature of my invention consists in the employment of a screw-bolt, made with or without a shoulder, and provided with a peculiarly-formed slotted hole in its head, which head and slotted hole is to receive a peculiarly-formed key, which will lock into the said head and enable the operator to screw the said bolt into its place, or the reverse.

In the drawing—

A represents a portion of the frame of a car, or vault, or safe.

B is a portion of the door (either sliding or swinging-door) to be secured.

To secure the door B to its place: when this invention is to be applied to freight or baggage-cars, I use a screw-bolt, C, figs. 1, 2, which screw-bolt is provided with a shoulder, *a*, if the door B be swinging; but if applied to sliding-doors, the shoulder *a* can be dispensed with, as in fig. 7, though I would prefer in all cases to use the said shoulder *a*.

The head *b* of the said screw-bolt C, above the shoulder, is made cylindrical, as shown in figs. 3, 5, and 6, and of suitable length to receive the slotted hole *c*, shown in figs. 1, 2, 5, 6, 7, and 8. This hole *c* I denominate the key-bar hole, which key-bar hole *c* terminates with an inclined groove on either side of the center of the said head, above the key-bar hole *c* proper, in the upper part of the said head *b*, as shown in figs. 1 and 2.

A loose thimble or sleeve, *b'*, is also provided on the terminating head *b*, figs. 1 and 3, which thimble *b'* is free to revolve, and is intended to prevent the bolt from being turned by means of nippers or other instruments, which might be applied at the end of the head.

I would also use with car-doors or other wooden doors the metal block D, figs. 1 and 2, which I denominate the bolt-block.

The said bolt-block D can be made of any suitable dimensions and form, and provided with a depth of bore, *d*, figs. 2, 3, and 8, of a diameter sufficient to receive the shoulder *a* of the screw-bolt C.

It is also provided with a bore, *d'*, which commences at the termination of the larger bore *d*, and continues through, and is of a diameter sufficient to receive the screw-bolt C freely without screwing.

This bolt-block is to pass through the usual sheathing E, or siding of the door or car, and rest against some portion of the hard wood frame B, which swings or slides over some other part of the frame-work A of the car or door, as the case may be, which frame-work A is to receive the screw-bolt C either directly into its wood, as in figs. 1 and 7, or in a nut let in the wood, as in fig. 2.

The object of the bolt-block D is to prevent the head *b* of the bolt C being made bare or exposed by cutting away the wood, which could be done were the use of the said block D dispensed with, as in figs. 2 and 7.

To operate the above-described screw-bolt C, and secure it in its place, or the reverse, I use a key of peculiar construction. The said key consists of a shank, H, of suitable length, provided with any proper handle, H', by which the key can be operated.

The outer diameter of the shank H is made to correspond in size with the largest bore *b* of the block D.

The said shank H is also provided with a bore, *e*, of a diameter to correspond with the diameter of the head *b* of the bolt C, and of sufficient depth to receive the full length of the said head, as shown in figs. 1 and 2.

One side of the said shank H is slotted to receive a spring, *s*, figs. 1, 2, and 9, which spring *s* can work from the outer side of the said shank H, as shown in fig. 9, to the inner side of the bore *e*, as shown in figs. 1 and 2.

The spring *s* terminates at a proper distance from the bored end of the shank H, and is to operate against an end of the key-bar *g*.

The said key-bar *g* is a small metal piece, (preferred to be steel,) pivoted in the slot *o* made in the shank H, just forward of the terminating end of the spring *s*, and can be made to take the position shown in figs.

1, 2, and 9. The ends of the said bar *g* are beveled, as shown, so that when the said bar *g* is thrown in position across the bore *e*, they will form a line with the outside lines of the sides of the shank H, as in fig. 1.

Made over or nearly over its pivot in the said bar *g* is a small or slight notch, *z*, into which notch *z* the operator places his thumb-nail when he is to set the bar *g* in position to apply the key to the bolt-head *b*, as shown in fig. 2.

To operate with this invention, the screw-bolt C, formed and provided with a head, *b*, as described, is supposed to have been previously located and fitted in the place desired, either from the door into the body, or from the body into the door, as the case may be, and circumstances might require in cars, store-doors, vaults, safes, or whatever this invention should be applied to. Having been fitted, the bolt C is inserted in the bore or hole *d* of the block D, or its equivalent, and screwed down with the fingers, as far as can be, when the operator grasps the key, and by pressing with his thumb-nail on the notch *z*, made in the bar *g*, and drawing back at the same time, throws the said bar *g* up from its normal position in fig. 1, up to the position shown in fig. 2, so that the bar *g* will be on a plane with the outside of the shank H. He will then insert the open end of the shank into the bore *d*, and thrusting it down toward the bottom of the said bore *d*, will gently turn the said shank of the key in either direction until the key-bar *g* comes over the slotted hole *c*, figs. 1 and 6, in the head *b* of the bolt. The bar *g* being previously released by the thumb, now falls, or is thrown by the force of the spring *s*, through the said slotted hole *c*, and across to the outside *c'* of the hollow shank, as shown in figs. 1 and 5, when the handle may be turned to screw the bolt tightly into its place. When screwed tight, the shank of the key is withdrawn.

When the bolt is to be withdrawn, so as to enable the door being opened, the operator sets the bar *g* in the manner shown in fig. 2, and before described, and inserts the open end of the shank D into the bore *d*, around the head *b* of the bolt C, and turns it around until the bar *g* is thrown through the slot *c* of the head of the bolt and to the outside of the shank, which can be known either by feeling, or by the noise of the click made by the throw of the spring *s*; being thus thrown, the bar *g* is supported at its both ends by the barrel of the shank, as shown in figs. 1 and 5, and the bolt C can be turned out from its place and the door slid or swung, as the case may be.

When by accident the bar *g* is thrown out, as shown in fig. 9, the said bar can be made to resume its proper position, as in fig. 1, by pressing the spring *s* down below to the inside of the bore *e*, and casting the bar *g* in the direction of the dotted lines.

This invention can be applied to any class of sliding-doors as are now used in freight, baggage, and express-cars, or can be applied to store-doors, vault, or safe-doors, required to be secured.

In safes, the body of the bolt C can be made long to reach to near the back of the body of the safe A, and screw into the same, while the head *b*, with its shoulder *a*, would be sunk into the door B, as represented in fig. 8.

It is not necessary in all cases to use the metal block D, especially where the door is made of metal, and in some cases even where it is applied to wood a flat metal plate, provided with a hole corresponding with the bore *d*, would be made to act as a substitute to the said metal block D.

If desired, several sizes of screw-bolts could be made all having the same diameter of head *b*, so that one key would fit all; or several sizes of diameters of heads *b* could be made, each of which would require varying diameters of the bore *d*, and would necessitate a corresponding diameter of shank and bore *e* in the shank.

The length of the bars *g* could also be varied so as to throw more or less oblique through the hole *c* made in the head of the bolt, which hole *c* would also be made to correspond with such bar *g* and its throw; thus with these several variations a person could not open a door to which this invention was applied without having a key made and fitted expressly for its counterpart, and by the turning-thimble *b'* on the end of the head *b*, the bolt would be secure from effective manipulation by nippers, which burglars apply to operate in the absence of the needed key.

Having described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. In the shank H of a key, the bar *g*, when constructed and arranged to throw across the bore of the said shank H from side to side in the manner described, for the purpose set forth.

2. The combination of the spring *s* and key-bar *g*, when constructed and arranged to throw across the shank H, as described, for the purpose set forth.

3. Operating the screw C by means of a key-bar, *g*, pivoted to a shank, H, of a key, and throwing through a slot, *c*, made in the head of the said screw-bolt C, and having its bearings or supports at their ends, substantially in the manner described, for the purpose set forth.

JOHN DAVIDSON.

Witnesses:

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ALEX. SELKIRK.