

Oliver E. Pillard,

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IMPROVEMENT IN

LOCKS.

No. 120,396.

Patented Oct. 31, 1871.

Fig. 1.

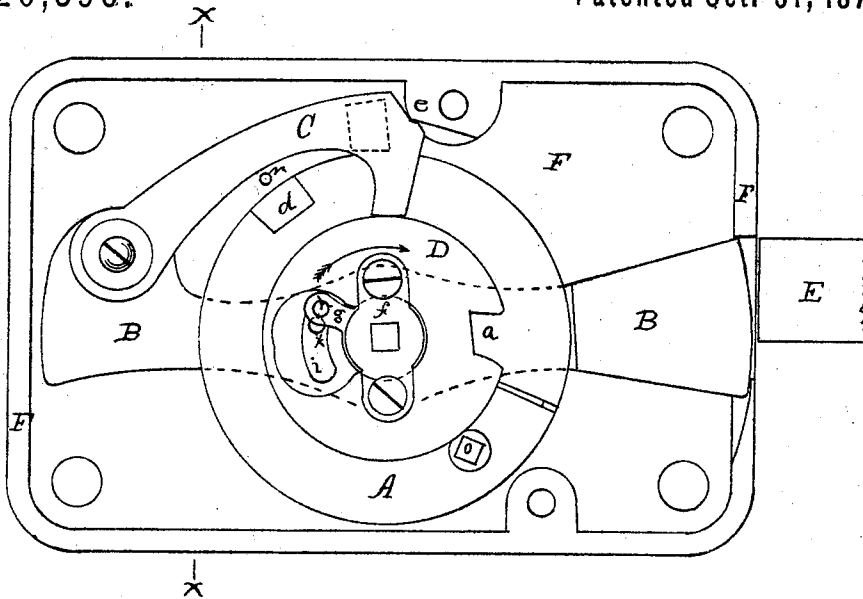
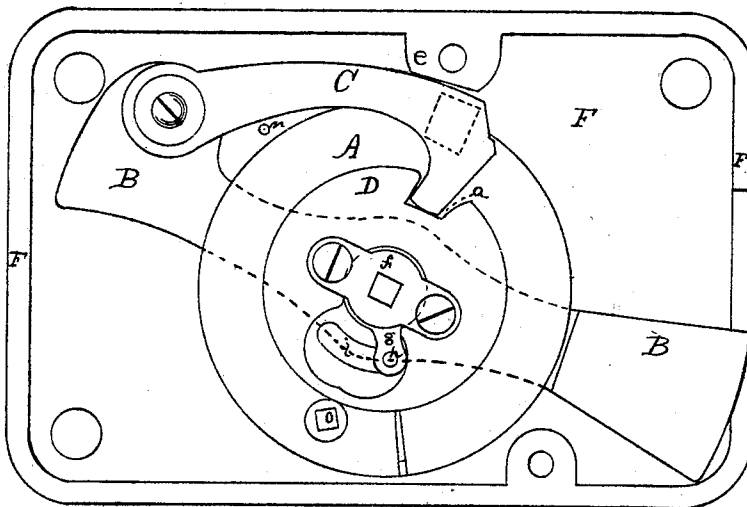


Fig. 2.



Witnesses.

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James Shepard

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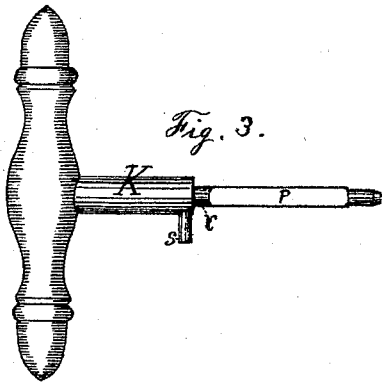


Fig. 3.

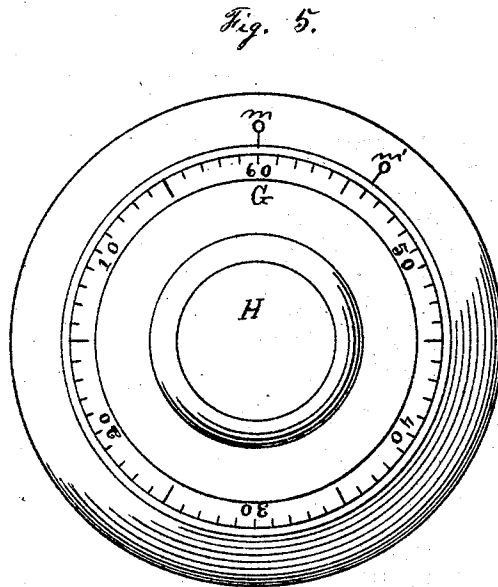


Fig. 5.

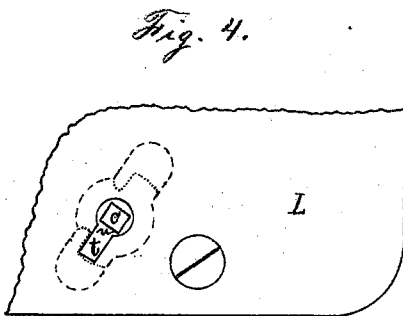


Fig. 4.

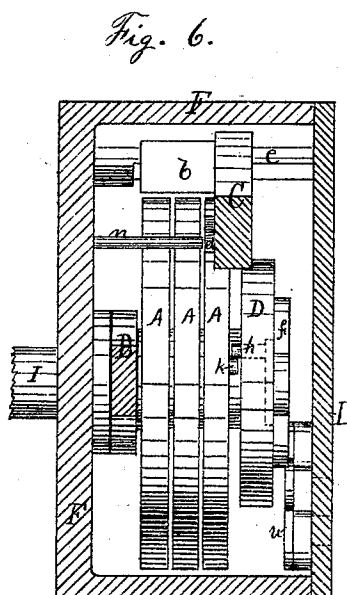


Fig. 6.

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UNITED STATES PATENT OFFICE.

OLIVER E. PILLARD, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO FREDERICK H. NORTH, OF SAME PLACE.

IMPROVEMENT IN PERMUTATION LOCKS.

Specification forming part of Letters Patent No. 120,396, dated October 31, 1871.

To all whom it may concern:

Be it known that I, OLIVER E. PILLARD, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification:

My invention relates to a pin for setting the tumblers, and the key by which they are locked; and consists in the peculiar construction and combination of the several parts, as hereinafter more fully described.

In the accompanying drawing, Figure 1 is a side elevation of a lock embodying my improvement, in which the cap or plate is removed to better show the parts. Fig. 2 is a similar view, showing the position of the parts when unlocked. Fig. 3 is a side elevation of the key used for locking the tumblers in said lock; Fig. 4, a front view of a portion of the cap; Fig. 5, a front view of the dial and shaft-knob; and Fig. 6, a vertical section on line *x x*, Fig. 1.

The invention, as shown, is intended to be secured immediately in front of the end of the ordinary sliding bolt which secures a door in place, so that, in order to unlock the door, the end of the ordinary bolt E, Fig. 1, must slide into the lock-case F through an opening in the same.

A designates a set of permutation tumblers of the class known as friction tumblers; but, for the purpose of the general combination, may be of any other class. B is a lever or dog, which is hung on the base of the tumbler-stud and swings or moves with the tumblers. On the end of the lever B is a latch, C, the end of which latch engages with the dead tumbler or wheel D by falling into the notch *a*. An arm, *b*, Fig. 6, extends from the latch C transversely over the edge of the tumblers A, its position on the latch C being indicated in Figs. 1 and 2 by broken lines. After moving the tumblers A, as in ordinary permutation locks, until the notch *d* of each tumbler is directly under the arm *b*, the dead-wheel D is rotated in the direction indicated by the dart in Fig. 1, when the end of the latch C will fall into the notch *a* and the arm *b* will fall into the notches *d*, and thus the further movement of the wheel D causes the lever B and tumblers A to move together into the position shown in Fig. 2, when the end of the ordinary bolt E can pass into the lock-case F and allow the door to be unlocked. By reversing the movement of the dead-wheel D

the parts are again thrown into their former position. In the backward movement of the wheel D the bevel on the side of the notch *a* has a tendency to throw the latch C out of said notch, but the projection *e* on the case F prevents the latch from disengaging with the wheel D until the lever is thrown up into its proper position, as shown in Fig. 1. On the side of the case F is secured a pin, *n*, which extends transversely over the edge of all but one of the tumblers A and nearly or quite reaching the plane of that one. This pin *n* is placed directly opposite the index-mark *m*, Fig. 5, by which mark the combination is set in the usual manner. The index-mark *m* is directly opposite the arm *b*, and, therefore, to operate the tumblers the number or numbers on the dial by which the lock is set are brought to the mark *m*. In case any mistake is made in setting the tumblers A, the cap or plate is removed and the notch *d* in each tumbler brought central under the pin *n*, when the tumblers are again set on any combination or number desired. By referring to Fig. 6 it will be seen that the pin *n* extends so far over the edge of the tumblers that the notch in any of the tumblers, either front or rear, may be readily set thereby. *o* designates the key-hole of the tumblers, in which the locking device is that patented to myself January 28, 1868; but, so far as the following device is concerned, the lock for the tumblers may be of any other kind which is operated by turning a key passed through the same. K, Fig. 3, is the key for locking the tumblers A, the shaft P of which key must correspond in shape to the key-hole *o* and be long enough to reach through all of the tumblers A. Above the square part of the shaft P the corners are removed so as to leave a round neck, *r*, and immediately above the neck is a pin or bit, *s*. The plate or cap L of the lock, Fig. 4, is provided with a key-hole, *t*, of a size to admit the shaft P and its bit *s*. In front of or under the key-hole *t* is a bridge, *u*, the outlines of which are indicated by broken lines, Fig. 4. The said bridge is at a distance from the plate L a little more than equal to the thickness of the bit *s*, (see Fig. 6,) so that the bit may pass between the bridge and the plate. The outlines of the studs or supports for the bridge *u* are indicated by the dotted lines in Fig. 4. The bridge *u* is provided with a key-hole, *o'*, of the same form and size as the key-hole *o* in the tumblers A. To unlock the tumblers A,

they are brought with their key-holes *o* directly under the hole *o'* in the bridge *u*, when the key-shaft *P* is inserted therein until the bit *s* comes in contact with the bridge *u*, when the round neck *r* will be in the hole *o'* of the bridge *u*, which will allow the shaft *P* to be turned a half turn, when the bit *s* strikes the support of the bridge and prevents the key from being turned further. The half turn of the key unlocks the tumblers *A*, which may be set on another number or combination. Reverse the movement of the key *K*, and the tumblers are locked and the key may be withdrawn; but, as the hole *o'* in the bridge *u* corresponds in shape and size to the angular shaft *P*, the key cannot be turned in either direction, only when it is either in all of the tumblers *A* with the round neck *r* in the bridge *u*, or when it is entirely withdrawn. Thus by no possibility,

when the cap *L* is in place, can a part of the tumblers *A* less than the whole be unlocked or locked.

I claim as my invention—

1. The pin *n*, extending from the case *F* transversely over the edge of the tumblers *A* to the plane of the outside tumbler, in combination with the index-marks *m m'* and dial *G*, substantially as described.

2. The key *K*, provided with shaft *P* and round neck *r*, in combination with the bridge *u*, substantially as described, whereby the whole of the set of tumblers *A* is necessarily unlocked and locked simultaneously with each other.

OLIVER E. PILLARD.

Witnesses:

HORACE K. JONES,
JAMES SHEPARD.

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