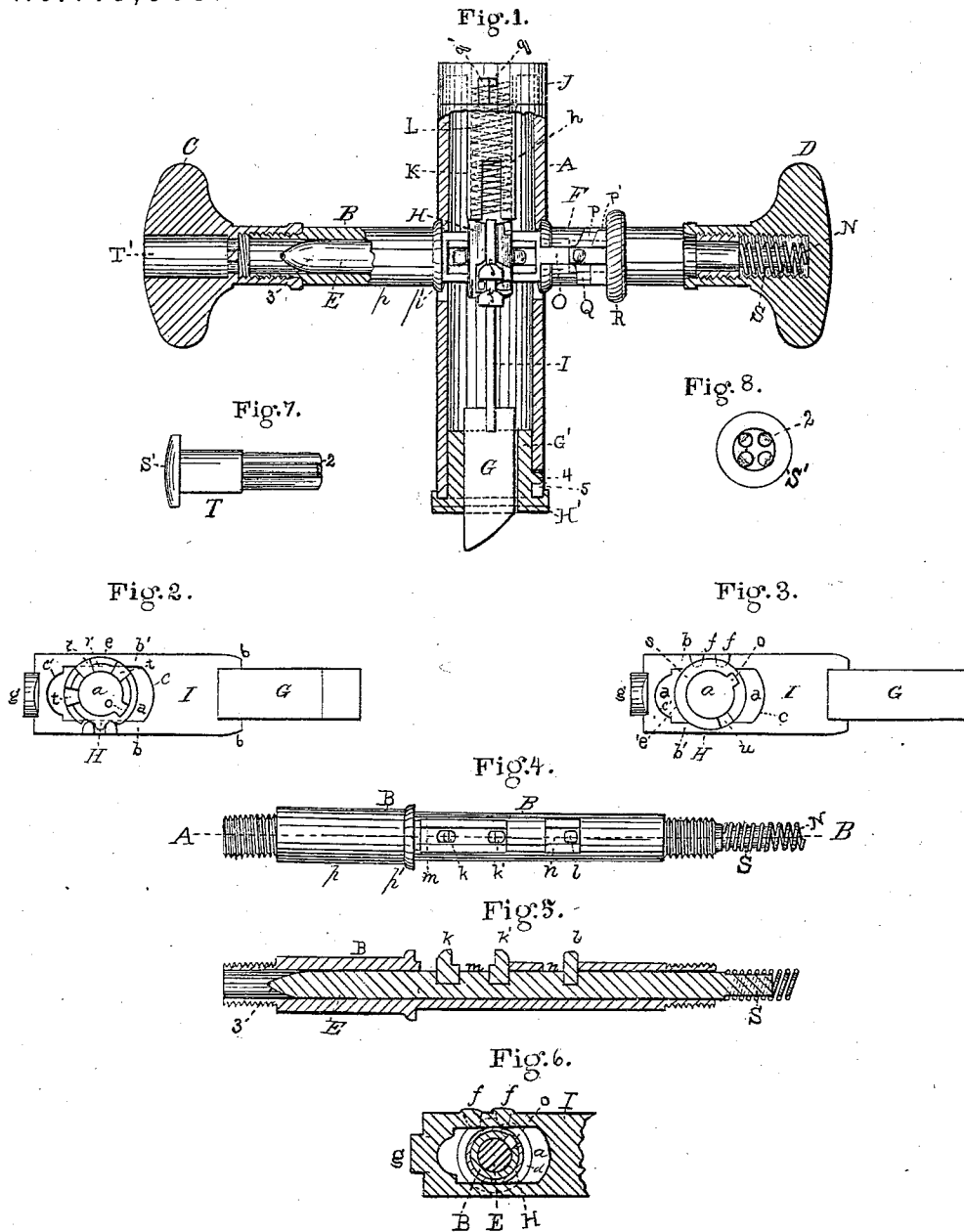


P. LAFLIN.
Locking Knob-Latches.

No. 148,963.

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WITNESSES:

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IMPROVEMENT IN LOCKING KNOB-LATCHES.

Specification forming part of Letters Patent No. 148,963, dated March 24, 1874; application filed February 28, 1874.

To all whom it may concern:

Be it known that I, PERLEY LAFLIN, of Warren, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Locks for Doors, or for other purposes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a top or plan view of the improved lock, with certain parts broken away and shown in section, as will be hereafter more fully described. Figs. 2 and 3 represent views of opposite sides of the lock-bolt and combined rack device. Fig. 4 represents a top view of the tubular knob-spindle and combined slide-rod. Fig. 5 represents a longitudinal central section of the same on line A B, Fig. 4. Fig. 6 represents a vertical central section of a portion of the rack-plate and ring, tubular knob-spindle, and slide-rod, showing their relative positions when placed together for operation. Fig. 7 represents a side view of the key for the improved lock, and Fig. 8 represents an end view of the same.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, A represents the cylindrical bolt-case, which case furnishes bearings for the rotating tubular spindle B, provided with knobs C D, (screwed upon its ends, as shown in Fig. 1,) and carrying the inner slide-rod E and slotted lock-adjusting ring F. Lock-bolt G is secured to a thin rectangular rack-plate, I, slotted out at *a*, so as to leave narrow portions *b b'* of said plate, and curved parts *c c'*, to admit the perfect working of the rack-ring H, in connection with said parts. This rack-ring H has a circular groove, *d*, in its exterior surface, so that when slipped into position, as shown in Figs. 2 and 3, the parts *b b'* of plate I fit into it, and the projecting flanges *e e'* of said rack-ring confine it in place; but in order that this ring H may have a partially-rotating motion when acted upon by the tubular spindle B, and thereby communicate a back-and-forth motion to the lock-bolt G, as

may be desired, two teeth, *f f*, projecting from both sides, are formed on part *b* of rack-plate I, and which teeth fit into corresponding notches cut or formed in each flange of the rack-ring, two notches being cut through the flange *e*, and only half-way through on flange *e'* of said ring. Rack-plate I has a circular head or projection, *g*, which part is in direct contact with a spiral spring, L, (shown in dotted and full lines, Fig. 1,) confined within a slotted tube, K, projecting from the inner surface of a cap, J, which latter fits upon one end of main case A. Tube K has two slots, *h h*, (one on top and bottom,) which, when cap J is fitted properly onto the bolt-case A, will be in a line with rack-plate I, thus allowing the spring to be compressed in operating the lock, the said projection *g* entering the tube K, while at the same time plate I enters the slots *h h*. The lock-bolt G is retained in the position shown in Fig. 1, unless retracted or withdrawn by turning one of the knobs, and as soon as the knobs are released, spring L, acting upon the rear part of plate I, forces the lock-bolt forward again into the same position. As before mentioned, the lock-bolt G is drawn in or forced out by the turning of a tubular slotted spindle, B, having combined with it an inner sliding rod, E, provided with two teeth, *k k'*, projecting through slot *m* in the spindle B, and a pin, *l*, projecting through slot *n* in the same spindle, as fully shown in Figs. 4 and 5, the two teeth *k k'* being at such a distance apart, as regards the length of slot *m*, as to admit a sliding movement of pin *l* in slot *n* for setting the teeth *k k'*, as that one or the other can be thrown into a recess in the rack-ring H for operating the lock-bolt, or so that they will be equal distances from the rack-ring H, and when in said last-named positions, rack-ring H will not be acted upon when teeth *k* are turned by the turning of the knob.

In combining the different parts together, the lock-bolt G and rack-ring are first fitted together, and then placed within the case A, in the position shown in Fig. 1, the rack-ring being introduced sufficiently far into the case, so that the tubular spindle B and its sliding rod E may be slipped through it when passed through the holes of the main case, slots being cut in the sides of case A, as also one, (slot,) *o*,

through the interior surface of rack-ring H, to permit the pin *l* and tooth *k'* of said sliding rod and spindle to pass through. The smaller end of spindle B is first inserted into the case A up to the flange *p'* of the thickened part *p* of said spindle B. The cap J, with its slotted tube K and spiral spring L, is then placed in position upon the end of case A, as shown in Fig. 1, where it may be held in position by any suitable fastening device. The one which I have adopted, and which serves a good purpose, consists in turning down the end of case A, so as to form a shoulder, against which the end of cap J abuts, and to keep said cap from working off it is provided with two right-angled slots, *q'*, one on each side, while two pins, *q*, are inserted upon opposite sides of case A, whereby, when cap J is slipped on, the pins *q* enter the straight parts of slots *q'*, and after the cap has been forced on as far as it will go, it is turned slightly, thereby bringing the pins *q* into the other portions of the slots *q'*, which prevents the cap from slipping or being forced off until it has been turned back. A slotted lock-adjusting sleeve, F, is then slipped onto the smaller end of spindle B, the pin *l* entering its central slot O, as the sleeve F is pushed up close to case A, as shown in Fig. 1, and after which knob D is screwed onto the smaller end of spindle B. The sleeve F has two other slots, P and Q, extending from the central slot O, and nearly at right angles to it, while the former one, P, has a second turn, P', extending back longitudinally to the ring R of the sleeve.

The position of the pin *l* in either of the three slots of this slotted sleeve F determines whether the door be locked or unlocked, and it is by the different adjustments of the slotted sleeve F, as respects said pin *l*, that the lock is set so that the door can be opened with or without a key, as will now be explained. The side *r* of rack-ring H is provided with three slots, *t*, and its side *s* with one slot, *u*, and when the parts are in position, as shown in Fig. 1, the pin *l* being in central slot O of the slotted sleeve F, spring N upon stem S of slide-rod E forces said rod to the left, so that tooth *k'* will catch into one of the notches *t* in rack-ring H when it is turned opposite thereto, and the door can be opened upon the outside or inside by simply turning knobs C or D, as the case may be. If it be desired to lock the door so that it cannot be opened either upon the outside or inside by turning the knobs, slotted sleeve F is turned so as to bring pin *l* into slot Q, and when in this position slide-rod E will be moved to the right, so that both teeth *k k'* will be moved equidistant from the rack-ring H, and in which position the knobs may be turned in either direction without the teeth *k k'* acting upon the rack-ring H, and the door remains locked; neither can the door be unlocked by a key from the outside so long as pin *l* remains in slot Q. When it is desired, however, to set the lock so that it can be unlocked by a key from the outside, the lock-adjusting

sleeve F is turned so as to bring pin *l* into a corresponding position in the opposite slot P, and when in this position either knob may be turned without unlocking the door.

A person from the outside, by inserting the key T (shown in Fig. 7) into the aperture T' of the knob C, and pressing upon the head S' of the key, can force the forks 2 of the key through holes in the neck of the knob, and down against the rounded point 3 of slide-rod E, thereby forcing slide-rod E to the right, spring N yielding and allowing the pin *l* to recede or be forced into the longitudinal slot P', as tooth *k* slips into notch *u* of rack-ring H, thereby enabling a person upon the outside to withdraw the lock-bolt and open the door by turning knob C. As soon, however, as the key is removed, spring N forces slide-rod E to the left again, when teeth *k k'* will be set equidistant from the rack-ring H, and the door will be automatically locked again as soon as closed.

Lock-bolt G works through a rectangular hole in the tubular extension G' of the face-plate H', which is secured upon the edge of the door, it being secured to the front end of case A by a pin, 4, which enters the longitudinal part of a right-angled slot, 5, in the end of case A, when the tube G' is slipped into place in said case, after which the tube G' is turned slightly, which brings the pin 4 into the other part of the slot, thereby securely locking the tube G' to the case A. When locking-bolt G is forced forward, as shown in Fig. 1, the shoulders 66 of the slotted rack-plate I abut against the rear part of tube G'.

It will be noticed that the inner corners of slots P and Q are rounded off or made in cam shape, the object being to enable said rounded corners to act upon pin *l*, to draw it back when the slotted lock-adjusting sleeve F is turned in either direction.

The rack-ring H may be made in two parts, said parts being placed together so as to fit upon each side of rack-plate I, after which they may be fastened together in any suitable manner to occupy the relative position, as respects rack-plate I, as shown in the drawings; or the rack-ring may be made in one piece, and rear part of plate I made detachable, for the purpose of allowing the rack-ring to be slipped into position, after which said detachable part may be secured or fastened to the main part of plate I in any suitable manner, or any other proper mode of construction may be adopted whereby the parts can be secured together in a convenient and expeditious manner.

The object of making more than one notch on the sides of rack-ring H is simply to avoid the necessity of turning the spindle so far as it is necessary when only one notch is made on a side before one of the teeth *k k'* will catch into and act upon said rack-ring.

The ends of forks 2 of the key may be made in any desired form to fit corresponding holes in the neck of the knob, for the purpose of ren-

dering it more difficult for persons to duplicate the key.

As represented in the drawings, it will be noticed that the forks of the key are so made that they bear equally upon the rounded point of the slide-rod E, and this is important, since by making the end of slide-rod E rounded or pointed, as shown in the drawings, if it were attempted to run in a single wire, to operate the slide-rod, the point of the wire would be forced to one side of the slide-rod, while the latter would be forced laterally against its inclosing spindle, thereby causing it to bind, and prevent the door from being unlocked without the proper key.

My improved lock can be very conveniently applied to the door, since it only requires two holes to be bored in the door—one in the edge of the door to receive the main case A, and another at right angles thereto, to admit of the insertion of the sliding rod and its inclosing spindle.

The principle of my lock is such, too, that it can be constructed without any very great additional cost or expense, so that it can be used for a right or left hand lock, as the case may be.

Those skilled in the art to which my invention belongs, as well as landlords and householders, will readily appreciate the great advantage of my improved lock, especially the feature which enables a person upon the inside of the

door, by simply turning the lock-adjusting sleeve F, to set the lock so that it cannot be opened or picked from the outside.

Having described my improved lock, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with case A, locking-bolt G, and rack-plate I, of rack-ring H, spindle B, sliding-rod E, provided with teeth *k k'*, and pin *l*, substantially as and for the purposes set forth.

2. The combination, with spindle B and slide-rod E, of pin *l* and slotted lock-adjusting sleeve F, substantially as and for the purposes set forth.

3. The combination, with the rack-plate I and rack-ring H, of tubular spindle B, sliding rod E, and teeth *k k'*, substantially as and for the purposes set forth.

4. The combination, with rack-plate I and lock-bolt G, of the cap-piece J, provided with slotted cylindrical tube K, and spring L, substantially as and for the purposes set forth.

5. The combination with tubular spindle B and slide-rod E, provided with a rounded point, 3, of knob C, having an opening, T', and a perforated neck for the reception of the key T, substantially as and for the purposes set forth.

PERLEY LAFLIN.

Witnesses:

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G. H. BANCROFT.