J. H. KINSMAN.

DOOR-LOCK.

No. 185,759. Patented Dec. 26, 1876.

Fig 1

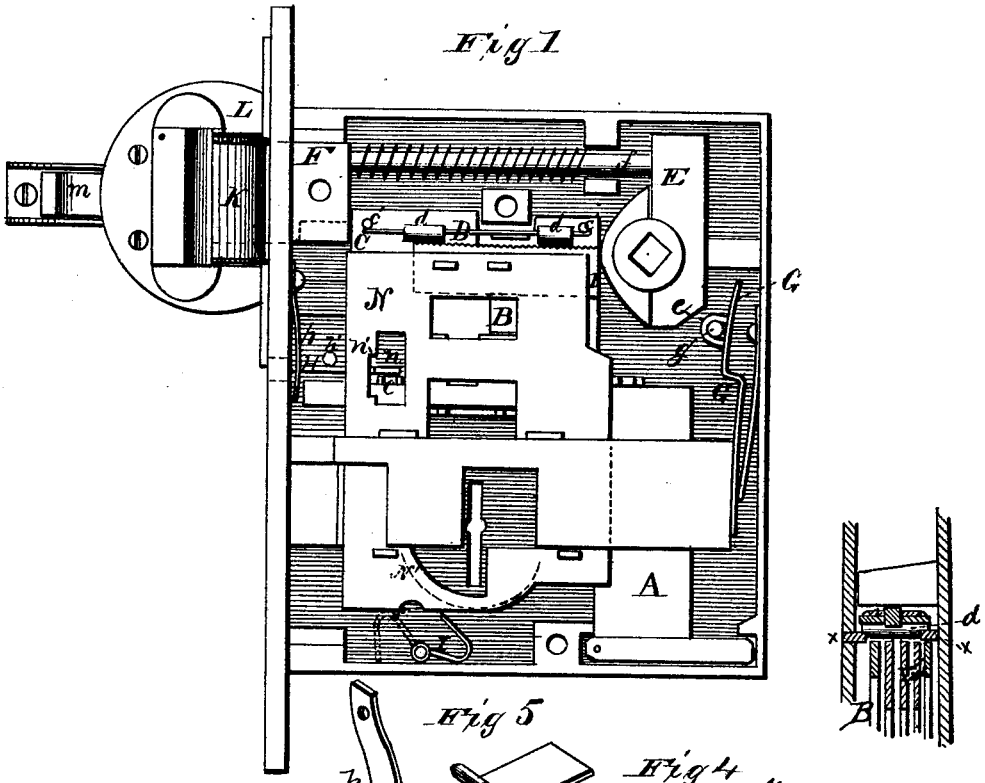


Fig 5

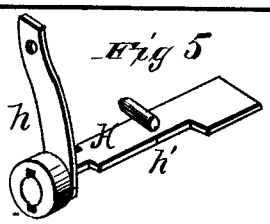


Fig 4

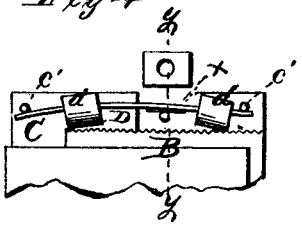


Fig 3.

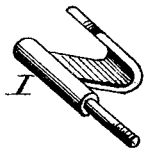


Fig 2

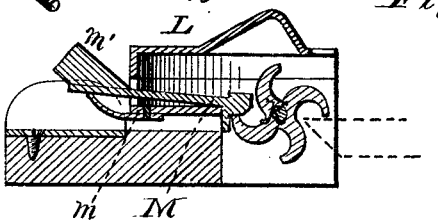
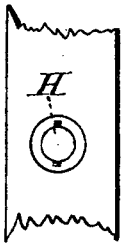


Fig 6



WITNESSES

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IMPROVEMENT IN DOOR-LOCKS.

Specification forming part of Letters Patent No. **185,759**, dated December 26, 1876; application filed July 20, 1876.

To all whom it may concern:

Be it known that I, JOHN H. KINSMAN, of Salem, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Locks, of which the following is a specification:

Figure 1 is a plan view of the lock with the top plate of case removed, the spring-catch in position adjacent the latch. Fig. 2 is a central longitudinal section of the spring-catch. Fig. 3 represents the stay, which, when in the position shown in Fig. 1, prevents any motion of the lock. Fig. 4 is a detail view, showing the position of the secondary tumblers when the lock is in position for the latch to be opened. Fig. 5 is a perspective view of the spring-slide which stays the secondary tumblers, &c., in a given relation to the primary tumblers as regards vertical motion. Fig. 6 is an edge view of the lock in detail, showing the front end of said slide.

The general purpose of the present invention is to adapt the device shown in my Patent No. 6,196, reissued December 29, 1874, to be used as a night-lock; and to this end it consists, more particularly, in the construction of the parts so that a shoulder of the latch-arm embracing the spindle is made to engage with the end of the lever adapted to operate on the primary tumblers, and will thus insure their return to their normal position on the first turn of the knob after the lock is unlocked; and, also, in attaching to and upon the sliding locking-plate which carries the tumblers, and above the top of the secondary tumblers, a spring, the outer surface of which is partly covered with rubber, and its ends held in place by pins in said plate, so that, when the lock is unlocked and the primary tumblers are down, the center portion of the spring shall rest at its edges upon pins or studs in the bottom and top plates of the lock-case, and the said spring shall be held a little above the serrated top edges of said secondary tumblers, allowing them to slide freely; but when the lock is locked, the said spring is freed from the said pins or studs and allowed to press upon the serrated upper edges of said tumblers, and retain them in place and prevent them from any accidental movement; and, also, in a spring-slide operated from the front face or edge of the lock, and adapted to stay the movement of the tumbler carrier-plate within a given range, or, upon being detached from the carrier-plate, allowing full and unobstructed vertical motion of the internal parts of the lock, all as will now be more in detail set out and explained.

In the drawing, the general detail of tumblers and other portions of my device is so like what is shown in my patent as aforesaid that I will not now go particularly into any explanation about them. The primary tumblers are indicated by A, the secondary tumblers by B, the sliding locking-plate by C. This plate carries the secondary tumblers and the slides which actuate the primary tumblers, and to its upper edge is suitably attached or applied a spring, D, shown in Fig. 4 as held by engaging its inside edge near its middle on a pin or projection, *x*, in the back plate of the case, while its outer ends brace against studs *c'* in the sliding locking or carrier plate. There is also another pin in the top plate of the case, corresponding to pin *x*. This spring is suitably provided with rubber cover or covers *d*. When the secondary tumblers are in the position shown in Fig. 1—that is, when the lock is locked—their serrated upper edges are pressed upon by this rubber on spring D, and are thus firmly held in place; but when the lock is unlocked, the said serrated edges are below said rubbers, as their carrying-plate C has been drawn downward by the movement of the key, and the spring coming in contact with the stationary pin *x*, the rubbers are freed from contact with the secondary tumblers, as shown in Fig. 4.

It sometimes happens, in locks of this construction, that for some cause the primary tumblers A are not always properly thrown by the action of the key in locking and unlocking. I remedy this by adapting the lower end *e* of arm E, to which, by means of rod *f*, is attached the latch F, and which arm is adapted, in the usual manner, to be operated by the spindle-hub, so that it may be caused to press upon the upper end of lever G, pivoted at *g*. This lever is adapted to operate by its lower and longer end upon the edges of the primary tumblers A. Thus, when the lock has been unlocked, the first turn of the

hub, operating on arm E, and thence through end *e* on the lever G, conduces to insure the return of said tumblers to their normal position.

In the front edge of the lock is placed a slide, H, (shown in Figs. 1, 5, and 6,) having spring *h*, and partly held in place by pin *h'* above and by post *c* below. This slide works in a slot, *n*, in the vertical sliding plate N, which plate is attached to the locking-plate C, and aids in carrying the tumblers. The outer or front end of the slide passes through the face-plate, and is adapted to be operated by the finger. The inner end of this slide abuts on a shoulder, *n'*, in the said slot *n*, so that the key used in moving the tumblers can only be turned the distance necessary to bring the projections on the secondary tumblers so far into the depressions in the primary tumblers as will allow the sliding locking-plate C to descend far enough to permit the latch to be turned back by the action of the knob or handle, thus saving a complete revolution of the key. But if for any purpose—as for rearranging the tumblers to fit a new key—it is desired to bring the carrier-plates C and N down their whole limit of movement, it will only be necessary to apply the finger to the head of the slide H, and then press it back while the key is being turned around. The inner end of the slide is thus removed from engagement with the shoulder *n'* in the slot *n* in the sliding plate N, and no obstacle is offered to the free and full movement of all of these parts.

To prevent any movement of the lock when the door is closed for the night, the pivoted stop I, placed on the bottom, is turned as shown in full lines, Fig. 1, so that its free leg comes directly under the curved plate N', (shown in dotted lines in Fig. 1,) that connects the ends of the upper and under carrier-plates C and N, and holds them fast. This stop can be turned by means of a spindle and knob on the inside of the door. When its leg is turned down upon the bottom plate of the case, as indicated in dotted lines in Fig. 1, the stop will not be in the way of the movements of any of the parts.

The lock being adapted to be unlocked from the outside, its latch will be held stiff when the door is opened and the key has been turned back and withdrawn. To adapt it, now, so that the door can be closed while carrying the lock with its extended and rigid latch, I have provided the keeper L with the armed wheel K, so that the rounded face of said latch will strike upon one of the arms of the wheel, said arms being preferably bent, so that a suitable surface will be offered for the latch-face to strike upon, and when the door is now shut the latch operates to turn the wheel, and thus passes into one of the spaces between the arms of the wheel. Its face rests on the face of one arm, and its back is firmly caught and held by the impinging edge of the next arm. Thus the door can be easily shut and fastened, for the wheel is stayed in its movement by the pawl M, acted upon by the spring *m*, the end of which pawl engages with the face of one of the arms opposite those before mentioned, and prevents any revolution of the wheel except in one direction.

The pawl may be released, when desired to open the door from the inside, by pressing down its arm *m'*. It will thus be seen that the key opens the door from the outside only, and being then released from the lock, the latch is fixed, and can only be locked or unlocked by the means just described.

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

1. The combination of lever G with the primary tumblers, and with the latch-arm E *e*, substantially as and for the purposes set forth.

2. The combination of spring D, suitably provided with rubber, with plate C and the secondary tumblers B and stationary pins *x*, substantially in the manner and for the purposes described.

3. The combination of spring-slide H, as described, with recessed plates N, carrying the tumblers, substantially as and for the purposes set forth.

4. The keeper provided with the revolving wheel, having a series of arms, in combination with the pawl M and fixed latch, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN H. KINSMAN.

Witnesses:

WILLIAM FITCH,

PHILIP MCNICKLE.