

A. PROSEUS.
Combined Lock and Latch.

No. 212,052.

Patented Feb. 4, 1879.

Fig.1.

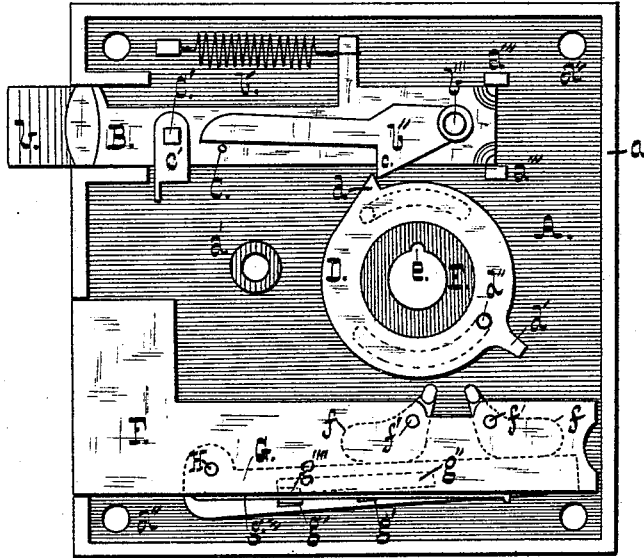
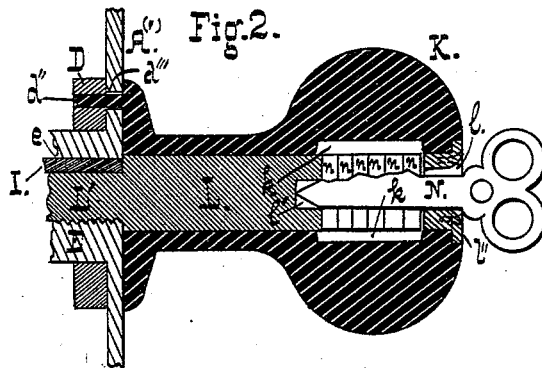


Fig.2.



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Fig. 3.

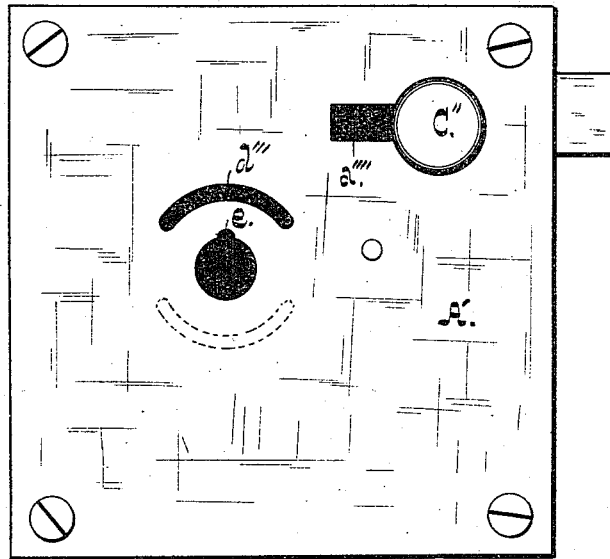


Fig. 4.

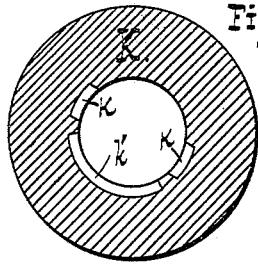


Fig. 5.

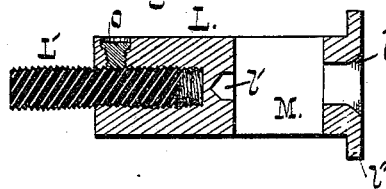


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALFRED PROSEUS, OF BALTIMORE, MARYLAND, ASSIGNOR TO GEORGE W. BURTON AND THOMAS W. MATTHEWS, OF SAME PLACE, ONE-THIRD TO EACH.

IMPROVEMENT IN COMBINED LOCK AND LATCH.

Specification forming part of Letters Patent No. **212,052**, dated February 4, 1879; application filed October 17, 1878.

To all whom it may concern:

Be it known that I, ALFRED PROSEUS, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Locks; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the lock, the cover being removed. Fig. 2 is a vertical sectional view of the knob and spindle and their attachments. Fig. 3 is a side elevation of the cover-plate, the knob and spindle being removed. Fig. 4 is a cross-sectional view of the knob. Fig. 5 is a vertical longitudinal sectional view of the spindle; and Fig. 6 is a perspective view of one of the tumblers.

While in the accompanying drawings I have illustrated my invention as applied to an ordinary outside lock, it will be evident from the following description of its construction and principle that it is equally applicable to mortise-locks or other varieties.

My invention consists in a lock constructed as hereinafter fully set forth, and possessing points of novelty not here necessary to enumerate, as they are made the subjects of claims based upon the following description.

In the accompanying drawings, A represents the lock-plate, having the usual edge-flange *a*, post *a'*, and holes *a'' a'''* for the securing-screws. Lugs *a''''* are formed upon the lock-plate, serving the purpose of guides for the latch B. The latter is provided with the usual beveled end *b* and spring *b'*. A gravity-catch, *b''*, is pivoted to a lug, *b''''*, upon the latch, and normally rests upon a pin, C, in which position its lip *c* is adapted to engage with the projections *d* upon the rings D when the latter are rotated, as hereinafter described.

Through the latch passes a pin, C', to which is attached a block, *c'*, which, upon being rotated, lifts the catch *b''* out of engagement with the rings D, and prevents the retraction of the latch. The pin C' passes through the cover-plate A', (see Fig. 3,) which is slotted, as shown at *a''''*, and a button, C'', is secured upon the end of the pin, by means of which the pin is rotated.

E is a post, made integral with the lock-plate A, and threaded internally for the attachment of the knob-spindles, a groove, *e*, being formed on one side of the central aperture for a purpose which will be presently explained.

Upon the post E revolve the rings D, two in number, each provided with a projection, *d*, for engagement with the gravity-catch of the latch, and with a lug, *d'*, for engagement with the pawls of the bolt. To each ring is secured a pin, *d''*, which projects through an aperture formed in the lock-plate and cover. These apertures (shown in dotted lines, Fig. 1, and at *d''''*, Fig. 3) are made in the lock-plate and cover, respectively, above and below or on opposite sides of the post E, the object of which is to prevent the weakening of the post.

F represents the bolt, which is slotted longitudinally, and in the slot are pivoted, at *f'* *f'* and H, the pawls *f f* and the locking-piece G, the shapes of these parts being indicated in dotted lines. The piece G has a slot, *g''*, from which lead lateral offsets *g' g'*, which engage with the lug *g''''* as the bolt is shot forward or back. A spring, *g'''*, serves to press the locking-piece G into the position shown in the drawings. The pawls *f f* normally rest upon the piece G, as shown.

The operation of the parts of the lock hereinbefore described may well be set forth just here, as the functions and operation of the parts of the lock situate in the knob are entirely distinct therefrom. Upon rotating either of the rings D to the right the projection *d* engages with the lip *c* and retracts the latch, this operation being, however, complete before the lug *d'* strikes the pawls *f*. Upon continuing the rotation of the ring the lug *d'* encounters the first pawl, which simply tips and allows it to pass. Upon striking the second pawl the latter is forced down, carrying with it the piece G until the lug *g''''* brings up against the upper side of the slot *g''*. Further motion on the part of the pawl being impossible, the bolt is shot forward, and the lug *g''''* engages with the proper offset from the slot *g''* and locks the bolt. Reverse rotation of the ring D retracts the bolt in a similar manner.

Figs. 2, 4, and 5 of the drawings illustrate the peculiar construction of the knob and spindle and their attachments.

The spindles L are cylindrical in form and terminate in threaded portions L' for insertion within the post E, which threaded portions are grooved on one side to correspond with the groove *e* in the post. In the spindle, which is upon the inside of the door to which the lock is attached, the threaded portion is made integral with the spindle, while in the outside spindle it is made adjustable to suit various thicknesses of door by being screwed into the spindle, and retained by means of a set-screw, *o*. (See Fig. 5.)

The terminal flange *l''* upon the end of the spindle for retaining the knob is made integral with the outside spindle, while it is made separate from the inside spindle and conveniently attached thereto by screws, as shown in dotted lines, Fig. 2.

The spindles are slotted transversely, as shown, and in the slots are placed a number of blocks, *n n n*, having each an opening for the key. The openings in these blocks or tumblers are at unequal or arbitrary distances from their ends, so that, when a properly-shaped key, *N*, is inserted they will all be lifted into line and be within the spindle.

The knob *K* is adapted to fit snugly upon the spindle, and is slotted internally at *k k k'*, the part which fits over the tumblers *n*. Two of these slots *k k* are of a width equal to that of the tumblers, and are diametrically opposite each other. The third slot, *k'*, is situated between them, and is of a much greater width than that of the tumblers.

I is a pin of a length equal to the thickness of the lock and of a thickness to fit loosely into the hole formed by the groove *e* in the post *E* and the grooves on the threaded ends of the spindle.

The operation of the lock is as follows: The knobs *K* are placed upon the spindles in the position, as regards the slots *k k k'*, shown in Fig. 4, the tumblers *n*, of course, dropping into the slot *k'*, the spindles themselves being secured to the lock in such position that the slots *M* are vertical, allowing free play to the tumblers.

It will be seen that the knobs are free to turn sufficiently far to operate the latch, but no farther, as the tumblers bring up against the side of the slot.

In order to lock the door it is only necessary to insert the key, which raises the tumblers to a position within the spindle and admits of the turning of the knob to a distance measured by the length of the slot *d'''* in the lock-plate or cover. This motion causes the lug *d'* upon the ring *D* to operate the bolt *F* through the medium of the pawl *f*. Upon withdrawing the key the tumblers fall into the slot *k*, and the knob is securely locked upon the spindle. In the locked position the opposite slot *K* is, of course, exactly above the tumblers, so that a key having an outline

differing in the least degree from that of the key properly belonging to the lock will either fail to raise the tumblers clear of the lower slot, or else cause them to enter the upper one. In either case a failure to release the knob obviously results.

While I have hereinbefore described the pins *d''*, which connect the rings *D* with the knobs, as formed upon the rings, I have in Fig. 2 of the drawings illustrated an obvious alternative for this construction, the pin *d''* being shown as integral with the knob and entering a hole in the ring *D*.

To place the lock in position upon a door, the outside spindle and both knobs are removed from the lock, and the latter is screwed in the usual manner to the door, the post *E* being made to register with the hole for the outside spindle. This latter is then adjusted to the door by means of the screw-tip *L'*, Fig. 5, and the spindle, being passed through the knob, is screwed home by means of the lock-key inserted in the key-hole, care being taken that the pin *d''* is caused to enter the hole in the knob or ring *D*, as the case may be, and that the groove in the threaded end of the spindle truly registers with the groove *e* in the post *E*. The inside spindle is then screwed home, and a pin, *I*, is passed into the hole formed by the registering-grooves in both spindles and the post. The tumblers are next placed in the spindle, the knob passed over them, pressing the pin *I* home, and the terminal flange *l''* is screwed upon the end of the spindle. It is clear that the pin *I* effectually prevents the unscrewing of the spindles from the lock, which can only be removed from the door by removing the inside knob and extracting the pin *I*.

A salient feature of the lock is that no strain can by any possibility be brought upon the internal mechanism without first breaking the spindle or tumblers—a result which is certainly not likely to occur, owing to the great strength of these parts.

No relation exists between the size of the bolt and that of the key, as the latter is simply called upon to raise the tumblers clear of the slots in the knob. This feature, as well as that of the obvious difficulty of picking the lock, renders the latter especially applicable to the front doors of dwellings. These features are not, however, peculiar to my lock.

It will be seen that the operations of the knobs upon the latch and bolt are perfectly independent of each other, and the door to which the lock is affixed may be locked from within or without, in such manner as to necessitate the use of a key for opening it from either side, and may be so operated as to prevent the entrance of one from without even if provided with a key. This result is attained by rotating the button *C''*, carrying the gravity-catch *b''* clear of the rings *D*.

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

1. In a door-lock, a knob combined with

and mounted upon a spindle rigidly secured to or integral with the lock-plate, the said spindle having a longitudinal vertical slot containing a series of gravity-tumblers adapted to engage with slots on the interior of the knob and lock the same, substantially as described.

2. In a door-lock, the combination of two knobs mounted upon stationary spindles, on opposite sides thereof, and mechanism, substantially as described, whereby either knob may operate either latch or bolt independently of the other, substantially as set forth.

3. In a door-lock, the combination of a longitudinally-slotted spindle containing one or more tumblers, of a length equal to the thickness of the spindle, and a knob adapted to engage with the tumblers and be released by the insertion of a key into the spindle, as set forth.

4. In a door-lock, the combination of a spindle containing tumblers, as set forth, and a knob having internal slots for engagement therewith, two of the slots being diametrically opposite each other, substantially as and for the purpose described.

5. In a door-lock, the combination of a pair of knobs and stationary spindles, each knob being locked upon its spindle by means of tumblers, as set forth, and mechanism whereby each knob operates both latch and bolt, or either independently of the other, substantially as described.

6. In combination with the spindle L, slot-

ted as described, and containing one or more tumblers, the knob K, having internal slots *k k'*, as set forth.

7. In combination with the post E, spindles, and knobs, the pin I and removable flange *l''*, as described.

8. In combination with the spindle and knob, the ring D, pin *d''*, and latch B, as described.

9. In combination with the ring D, the latch B, gravity-catch *b''*, and block *c'*, adapted to be operated from without by a button, *C''*, as set forth.

10. In combination with the latch B and bolt F, the ring D, having lip *d* and lug *d'*, as set forth.

11. In combination with the bolt F, having pawls *f f*, the ring D and lug *d'*, as described.

12. In combination with the bolt and ring D, the slotted piece G and pawls *f f*, as set forth.

13. In combination with the spindles rigidly secured to the lock-plate, and having tumblers *n*, the knobs K, slotted as described, and operating the internal mechanism of the lock by means of pins *d''*, as set forth.

14. In combination with the post E, the lock-plate and cover having slots *d'''* on diametrically-opposite sides of the post, as set forth.

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