

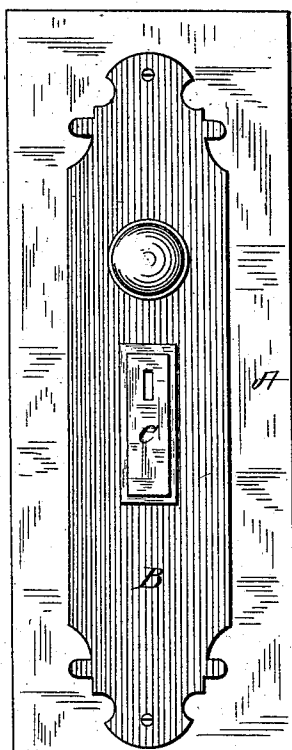


W. H. BRAMBLE  
Lock.

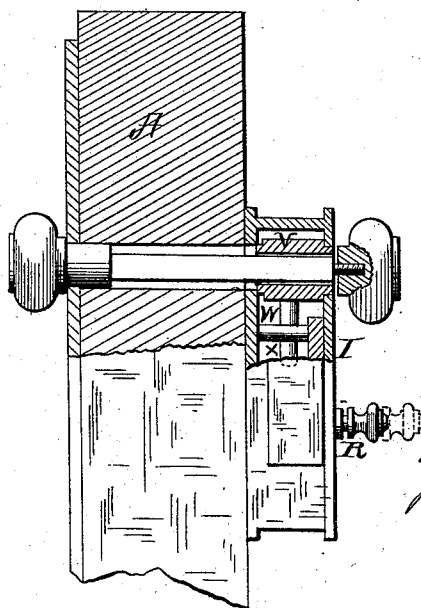
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*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. **211,374**, dated January 14, 1879; application filed March 23, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM H. BRAMBLE, of Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

These improvements are susceptible of extensive variation in modification, and are therefore useful under various circumstances, whether in connection with door and draw locks or padlocks; and while I have herein shown and specifically described but two modes of applying my improvements, it is believed to be sufficient to convey an approximate idea to persons skilled in lock-making of the extensive application to which they may be profitably applied.

Broadly stated, the principal feature of my invention consists in a lock containing an organization of tumblers with a sliding bar in such a manner that the partial introduction of its proper key will so adjust the several tumblers as to permit said sliding bar to be moved longitudinally by a further longitudinal movement of the key without further moving the tumblers. This sliding bar is usually relied upon as a means by which a separate true-bolt is actuated or released, as the case may be; but in many cases it can itself be made to operate as a bolt.

The keys for these locks, being relied upon for adjusting the tumblers by a longitudinal movement, and then further relied upon for moving the sliding bar through an additional similar movement, involve a novel peculiarity in construction, which consists in providing extended tumbler-seats, which not only adjust the tumblers with reference to their proper notches or gatings in the sliding bar, but also permit the key to advance while maintaining the tumblers at their proper adjustment.

Another important feature of my invention consists, broadly, in the combination, with a key-lock provided with a sliding bar controlled by tumblers, and which is moved longitudinally by the end-thrust of its key after adjustment of its tumblers, of a separate or-

ganization of bolting mechanism, embodying a true-bolt which is under the unlocking control of the sliding bar.

The key in my lock has no retractile power over the sliding bar, and therefore a spring-spindle or its equivalent is employed in connection with the bolting mechanism, which not only moves the sliding bar backward, but which in its forward movement, due to the end-thrust of the key, either trips the true-bolt and allows a spring to retract or unlock it, or, as with a latch-bolt, the spindle positively retracts it. When the sliding bar is in itself relied upon as a bolt, it is provided with a spring, which returns it to its normal position on the withdrawal of the key.

My invention consists in certain other minor features, hereinafter fully set forth and specified.

To more particularly describe my invention, I will refer to the accompanying two sheets of drawings, in which—

Figure 1, Sheet 1, is a sectional view of a lock embodying the several features of my invention. Fig. 2, Sheet 1, represents the bolting mechanism with the side plate of its casing removed. Fig. 3, Sheet 1, represents, in perspective, the interior of the key-lock with its sliding bar detached therefrom. Figs. 4 and 5, Sheet 2, represent, in front view and in section, as applied to a door, a lock provided with a knob for throwing the bolt into a locked position.

Similar letters of reference in the several figures indicate the same parts.

In the drawings, A, Fig. 1, represents, in section, a door, to the front or outer side of which is applied an escutcheon, B, carrying an ordinary handle and the key-lock C, which is mortised into the door. This key-lock is of peculiar construction, being composed of a metal block, D, slotted to receive a series of sliding tumblers arranged parallel to each other, and containing a key-chamber, *e*, at right angles to the tumblers. This block is also chambered to receive the sliding bar *e'* at one side of the key-chamber. This sliding bar is provided at its inner end with a head, as at *e''*, which closes the key way or chamber *e* at its inner end.

Each tumbler is normally held in place by a spring, *f*, and the whole are protected by a side plate.

The key H is provided with tumbler-seats *g*, which are so located with reference to the rear or opposite edge of the key that the several tumblers will be so adjusted that they will be disengaged from or moved out of the notches or gatings in the sliding bar; and said seats are longitudinally extended, as shown, so that after the key has so adjusted the tumblers it may be then longitudinally advanced, with its inner end abutting against the head *e''* of the sliding bar, and thereby impart to said bar a corresponding movement.

The broadly novel feature in this key-lock consists in this or an equivalent construction, by which, when the key H is inserted partially, it will properly adjust all the tumblers, and then, when fully inserted, it will push the sliding bar in the same direction without disturbing the adjusted tumblers.

The sliding bar may itself be arranged to operate as a bolt; but in most cases I prefer to use it as a medium by which a separate bolt may be either moved or released from its locked position.

I will now describe one practical method of so applying it to a separate bolt that when said bolt has been thrown forward by hand by means of a knob or lever, it will be held in its locked condition until the sliding bar has been thrust inward by its key, whereupon the bolt will be released and thrown backward by a spring.

I denotes a rim-lock, secured to the inner side of a door, which is provided with a pivoted latch-bolt, J, controlled, in the usual manner, by the thumb-lever N.

Within the case is a sliding bolt, K, provided with a retractile spring, *m*, which maintains the bolt within the case. Guides L on the case occupy longitudinal slots in the bolt.

The bolt K is placed within the control of the thumb-lever N by means of a pivoted dog or lever, *o*, the lower end of which has a bearing against a shoulder, *h*, on the bolt.

The lever *o*, at its upper end, is located beneath the thumb-lever, so that when the outer end thereof is elevated or the inner end thereof depressed the dog will be vibrated on its pivot, and thereby made to force the bolt K outward against the force of its spring until the spring spindle-catch R engages with recesses or shoulders *t* on the bolt, after which the thumb-lever has no control over said bolt until released from the catch R.

The outer end of the spindle-catch R is provided with a knob or equivalent device. Its inner end extends through the case, occupies a recess, S, in the door, and is provided with a spiral spring, *u*. Its inner end is also placed in line with the end of the sliding bar *e'* of the key-lock, and in such relation therewith that when the bolt is locked and the sliding bar is thrust inward by its key the catch will be moved longitudinally by the bar, and so

release the bolt that its spring may draw it into the case.

In order that the coincident ends of the sliding bar *e'* and spring spindle-catch R may be accurately adjusted and arranged for doors of different thicknesses, the spindle is provided with a screw-tip, T, which permits of the practical extension of the spindle, and this feature constitutes one portion of my invention.

With this construction, it will be seen that the latch may be used without locking the door; also that the door can be locked from the inside by depressing the inner end of the thumb-lever N, and unlocked by pulling outward the spring-catch R; also that the door may be locked from the outside by elevating the outer end of the thumb-lever N, and unlocked by the key which moves the sliding bar and spring-catch, so as to release the bolt. This peculiar combination of the spring-bolt with thumb-lever or knob and the spring-catch constitutes another portion of my invention.

In Figs. 4 and 5 knobs are employed instead of the thumb-lever of a latch. A hub, V, on the knob-spindle is provided with a toe, W, which engages with the bolt at a recess, X, provided therein, so that when either of the knobs is turned the bolt will be thrown forward, and secured in that position by the spring-catch R, as before described, until said catch is either tripped by the sliding bar and key from the outside, or by pulling it inward from the inside, of the door. With this construction the catch R is preferably arranged so that when it is pulled from the inside it may be also slightly turned, and thereby retained out of catching relation with the bolt.

It is obvious that the sliding bar, with slight adaptation, may be arranged to lock an ordinary straight bolt, a latch-faced bolt which recedes upon closing the door, or a latching-lever which vibrates to and from a notched keeper, and that such bolting mechanism may be embodied in the same casing with the sliding bar, or in a separate case, as preferred. These improvements are also especially applicable to padlocks of the self-locking variety.

Having thus described my invention, I claim as new—

1. The combination, with tumblers arranged transversely of the keyway and a movable bar, of a key which adjusts the tumblers when partially inserted into the lock, and moves the bar without moving the tumblers when fully entered, substantially as described.

2. A key provided with longitudinally-extended tumbler-seats arranged on its lateral edges, substantially as described, whereby after the adjustment of the tumblers the key may be moved freely inward and maintain the tumblers of a lock at adjusted positions, as set forth.

3. The combination of the following elements, to wit: tumblers which move transversely to the keyway, a bar which, when liberated from the tumblers, can slide longitudinally in the

keyway independently of the tumblers, and bolting mechanism embodying a bolt which is under the unlocking control of the sliding bar when the latter is moved by the key, substantially as described.

4. The combination of the sliding bar and its tumblers with a spring-bolt and spring spindle or catch which is longitudinally extensible, substantially as described, whereby the coincident ends of the sliding bar and

spring-spindle may be adjusted with relation to each other, as set forth.

5. The combination, with the sliding bar and its tumblers, of the spring-catch, the spring-bolt, and a lever or knob for projecting the bolt, substantially as described.

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