R. THOMPSON.

PAD-LOCK.

No. 180,504. Patented Aug. 1, 1876.

Fig. 1.

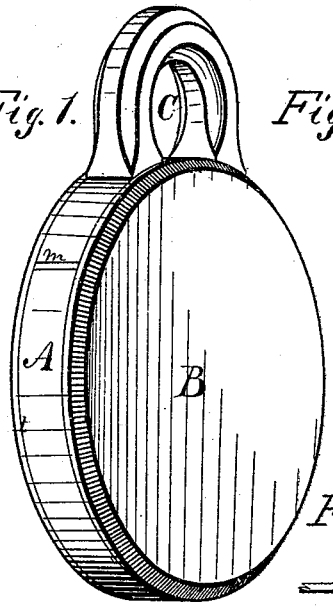


Fig. 2.

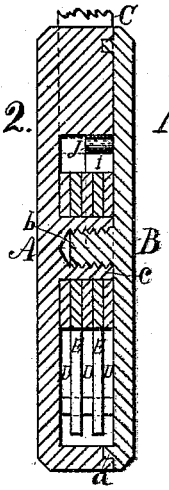


Fig. 3.

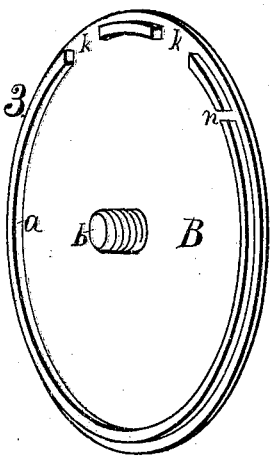


Fig. 6.

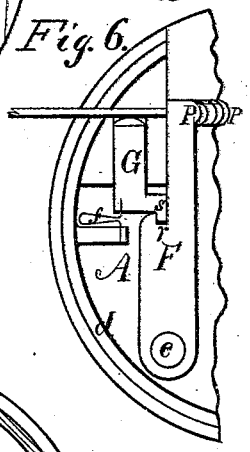


Fig. 4.

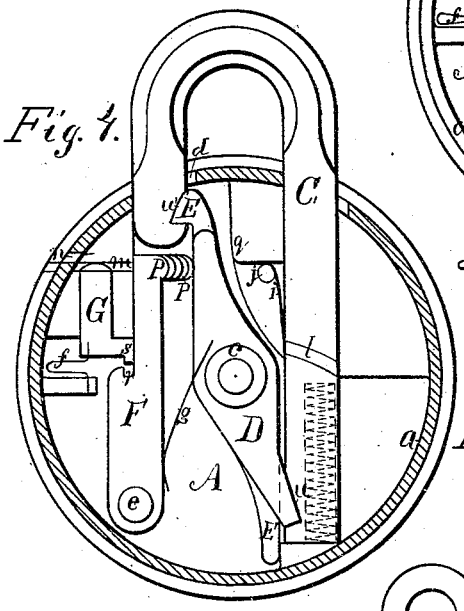


Fig. 5.

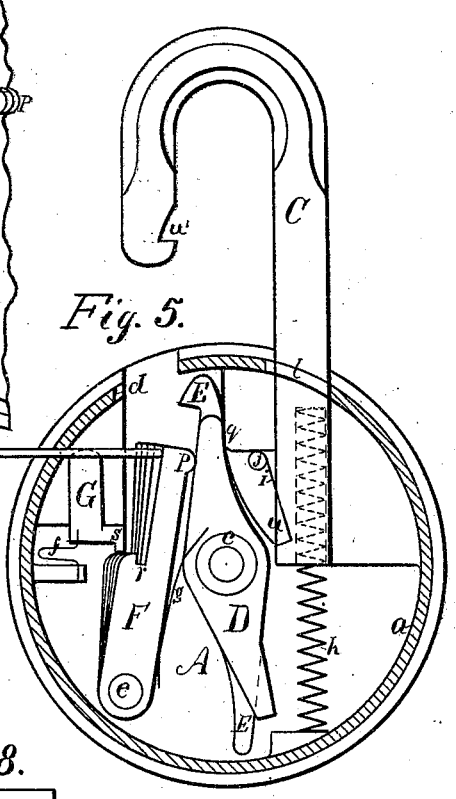
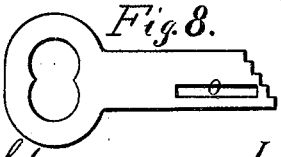


Fig. 7.

Fig. 8.



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UNITED STATES PATENT OFFICE.

ROSEWELL THOMPSON, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN PADLOCKS.

Specification forming part of Letters Patent No. **180,504**, dated August 1, 1876; application filed June 15, 1876.

To all whom it may concern:

Be it known that I, ROSEWELL THOMPSON, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and valuable Improvements in Self-Locking Padlocks; 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, making a part of this specification.

This invention relates to that class of locks known as "self-locking padlocks;" and my improvement consists in providing the circular case of a padlock with a removable cover-plate, having a screw projecting from the center of its inner face for engaging with a hollow central stud or nut in the lock-case, whereby the cover-plate is secured to the case without the aid of rivets; also, in pivoting the two sets of dogs to the same stud in the lock-case, one set of which dogs are arranged to engage with and secure the long arm of the hasp, and the other set to engage with and secure the short arm of said hasp, thereby securely fastening both ends of the hasp at the same time; also, in the novel construction and arrangement of the series of tumblers which operate the dogs, whereby a key of peculiar form is required to detach the said dogs from the hasp, all of which will be hereinafter more fully described, and particularly pointed out in the claims.

I will now describe the construction and operation of my improved lock with reference to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

Figure 1 is a perspective view of the lock, showing the external appearance of the same. Fig. 2 is a vertical section through the center of the case. Fig. 3 is a perspective view of the outer plate removed from the case, to show the construction of the inner face of the same. Fig. 4 is a view of the lock with the outer plate removed, to show the form, arrangement, and position of the dogs and tumblers and other devices when the hasp is locked by said dogs, and with the flange of the outer plate shown in section in its groove in the case. Fig. 5 is also a view of the lock with the outer plate removed, and flange of the same shown in section in its groove in the case, but with the parts in position as when a properly-fitted key has detached the dogs from the hasp, and allowed the short arm of the same to spring from the case. Fig. 6 is a view of a portion of the lock with the outer plate removed, showing the manner in which the sliding bolt locks the tumblers, and prevents the movement of the same when an improperly-fitted key is thrust against said tumblers. Fig. 7 is a detached perspective view of the sliding bolt which locks the tumblers. Fig. 8 is a view of a properly-fitted key.

In the accompanying drawings, A is the lock-case. B is the outer plate. *a* is a flange upon the inner surface of said plate. *b* is a screw attached to the center of the plate. *c* is a stud in the center of the lock case, and is drilled and tapped in the center, to receive the screw *b* on the outer plate. *d* is a groove made in the rim of the lock-case, to receive the flange *a* on the outer plate. C is the hasp, fitted to slide freely in openings made in the rim of the case. At D are the dogs, pivoted to the stud *c*, the lower ends of which enter the notch made in the end of the long arm of the hasp. At E are dogs, also pivoted to the stud *c*, the upper ends of which enter the notch made in the short arm of the hasp. At F are the tumblers, pivoted to the stud *e* in the case. G is the sliding bolt, fitted to slide freely in a groove made in the case. *f* is a spring, inserted between the sliding bolt and lock-case. At *g* are springs, secured at one end to the dogs D and E, the free ends of which press against the tumblers F. *h* is a spiral spring, one end of which is inserted into a hole made in the long arm of the hasp, the opposite end pressing against the lock-case. *i* is a spring, passing over the pin *j* in the lock-case, the free end of the same pressing against the long arm of the hasp, and limiting the upward movement of the latter by entering the notch at the lower end when raised, as shown in Fig. 5.

k k are openings made in the flange of the outer plate, in such a position as to coincide with the openings in the rim of the case, to receive the hasp C. *l* is a groove made in the long arm of the hasp, in such a position as to coincide with the groove *d* in the rim of the case when said latch is raised to its highest point, as shown in Fig. 5, to allow the

flange of the outer plate to pass the hasp when it is desired to unscrew said plate and remove it from the case. *m* is an aperture made in the rim of the case opposite the free ends of the tumblers, to receive the key. *n* is an opening made in the flange of the outer plate, in such a position as to coincide with the aperture *m* in the rim of the case. *o* is a slot made in the key, to allow the end of the sliding bolt G to enter when said key is inserted into the aperture *m*, for the purpose of unlocking the hasp, as shown in Fig. 5.

I will now describe the operation and advantages of my improvements in this lock, with reference to the accompanying drawings.

The case and removable plate are circular in form, and the latter is secured to the case by means of the screw *b* at the center of the inner face of said plate, said screw being screwed into the stud *c* at the center of the case, as shown in Fig. 2. The plate has a flange, *a*, near the outer edge of the inner face, which fits into the groove *d* in the rim of the case when screwed on, as shown in Figs. 2, 4, and 5; and as both arms of the hasp C pass into the openings *k k* in said flange, the plate is securely locked to the case when said hasp is pushed down and locked by the dogs D and E, as shown in Fig. 4. Therefore, the hasp must first be unlocked by a properly-fitted key, and the groove *l* in the long arm of said hasp raised to coincide with the groove in the rim of the case, as shown in Fig. 5, before the outer plate can be unscrewed and removed from the case. The opening *n* in the flange is made the same width of the aperture *m* in the rim of the case; but the openings *k k* are made wider than the arms of the hasp, and in such a position, with respect to the opening *n*, as to cause the latter to pass by the aperture *m* when the outer plate is screwed on and turned to its extreme point to the right, as shown in Fig. 4, thus partially closing the aperture with the flange, and preventing the insertion of a properly-fitted key into said aperture far enough to reach the tumblers; but when said plate is slightly unscrewed and turned to the left as far as the openings *k k* will allow, the opening *n* will then coincide with the aperture *m*, and allow a properly-fitted key to pass in and unlock the hasp, as shown in Fig. 5.

By this method of constructing the lock-case and securing the outer plate to the same, the unsightly appearance of rivets and screws upon the exterior of the lock is avoided, and at the same time the security of the lock is increased.

The dogs D and E, three and two in number, respectively, being pivoted at the center to the central stud *c* in the case, and one of the free ends of the same entering the notches in the long and short arms of the hasp C when pushed down, as shown in Fig. 4, securely lock said hasp to the case, and must be moved in unison by the tumblers from said notches, to allow the hasp to spring from the case, in the manner shown in Fig. 5, as will hereinafter appear. The tumblers F, five in number, are pivoted at one end to the stud *e* in the case, and the free ends of the same, which actuate the dogs, have projections P of various lengths; consequently the end of the key for forcing said projections against the dogs must correspond in form to said projections to cause said dogs to move in unison from the hasp, in the manner shown in Fig. 5, no margin of space being allowed behind the dogs for an imperfectly-fitted key, the portion *q* of the case limiting the motion of said dogs, which is just sufficient to allow the short arm of the hasp to pass the hooked ends of the dogs E, and spring from the case, as shown in Fig. 5; but if the form of the end of the key does not coincide with the projections on the tumblers, it is evident that as there is no surplus space behind the dogs some of the latter would still engage with the hasp, and retain both arms of the same within the case.

To prevent the unlocking of the hasp with a key which is simply correct in form at the end, I apply the sliding bolt G to the lock-case in such a manner and position as to cause one end of the same to be forced into the notches *r* in the tumblers when said key is thrust into the aperture *m*, and prevent the movement of said tumblers by the key, as shown in Fig. 6. It is evident, therefore, that the body of the key must be slotted in a proper position to receive the end of the sliding bolt, which enters the aperture to allow the tumblers to pass the projection *s* on the sliding bolt and be forced against the dogs by said key, in the manner shown in Fig. 5.

The line *t*, made on the rim of the lock-case, as shown in Fig. 1, is designed to imitate the seam between the outer plate and rim. The back of the case is also milled on the chamfered edge of the same, to imitate the milled chamfered edge of the removable plate, thus making a uniformity in the external appearance of the lock-case. When said plate is screwed on the milled edges also facilitate the turning of the outer plate, for purposes hereinbefore specified.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a self-locking padlock, the circular lock-case A and circular removable plate B, secured together by means of the screw *b* at the center of the inner face of said plate, screwed into the central stud *c* in the lock-case, for the object set forth.

2. In combination with the circular removable plate B, the flange *a*, located near the outer edge of the inner face of said plate, substantially as shown, and provided with the openings *k k* for the reception of the hasp C, and with the opening *n* for the reception of a properly-fitted key, and fitting into the groove *d* in the rim of the lock-case, when said plate is screwed onto said case, for the purposes set forth.

3. In combination with the circular lock-case

A, circular removable plate B, and hasp C, the series of two or more dogs, D and E, pivoted to the central stud *e* in said lock-case, one of the free ends of the dogs D engaging with and securing the long arm of said hasp, and one of the free ends of the dogs E engaging with and securing the short arm of said hasp, substantially as shown, and for the object set forth.

4. In combination with the circular lock-case A, circular removable plate B, and dogs D and E, the series of two or more tumblers, F, pivoted at one end to the stud *e* in said lock-case, and provided with the notches *r* at the sides of the same for the reception of one end of the sliding bolt G, and the free ends which actuate said dogs with projections P of various lengths, substantially as shown, and for the object set forth.

5. In combination with the circular lock-case A, circular removable plate B, and series of tumblers F, the sliding bolt G, fitted to slide freely in a groove in said lock-case, one end of the same entering the aperture *m* in the case, the opposite end in position to be forced into the notches *r* in said tumblers, and preventing the movement of the same, when an unslotted key is thrust into said aperture against the tumblers, substantially as shown, and for the object set forth.

6. In combination with the circular lock-case A, circular removable plate B, hasp C, flange *a*, openings *k k*, and aperture *m*, the opening *n*, made in such a position in the flange with respect to the openings *k k* as to cause said flange to partially close the aperture *m*, when the plate is turned to its extreme right, substantially as shown, and for the object set forth.

7. In combination with the circular lock-case A, circular removable plate B, dogs D and E, and flange *a*, the hasp C, constructed with notches *u u'* in the long and short arms of the same, for the reception of one of the free ends of the dogs when pushed down, and provided with the groove *l* in the long arm of the same, in such a position as to allow said flange to pass through when said latch is raised to its highest point, substantially as shown, and for the object set forth.

8. The combination of the circular lock-case A, circular removable plate B, flange *a*, hasp C, series of two or more dogs, D and E, series of tumblers F, sliding bolt G, all constructed and arranged to operate substantially as shown and specified, and for the object set forth.

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Witnesses:

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GEORGE E. CHRISTIE.