(No Model.)

W. E. SPARKS.

PADLOCK.

No. 456,345. Patented July 21, 1891.

Fig. 1

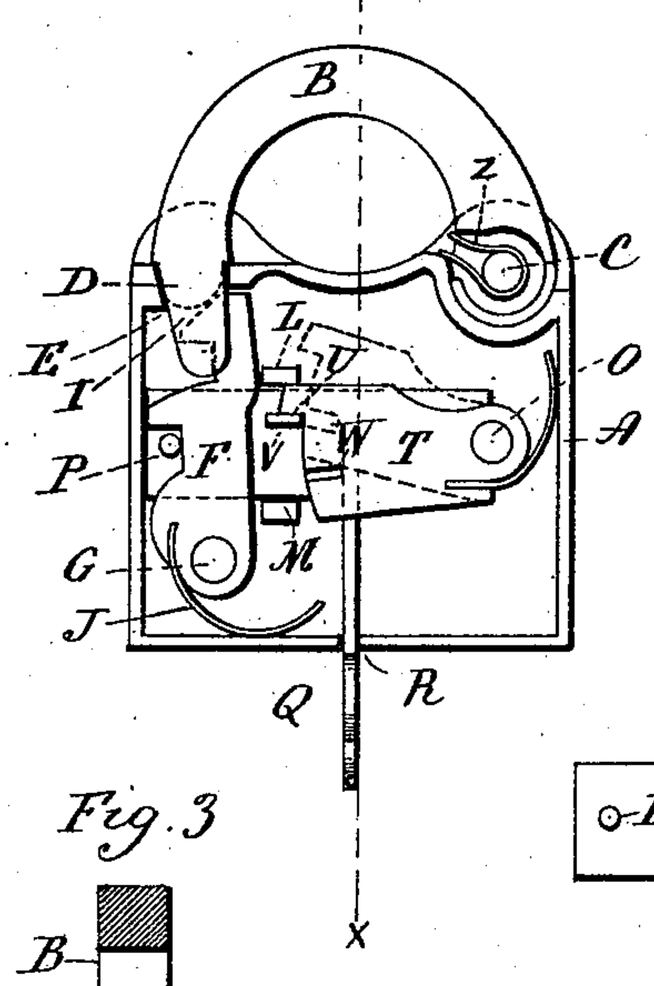


Fig. 2

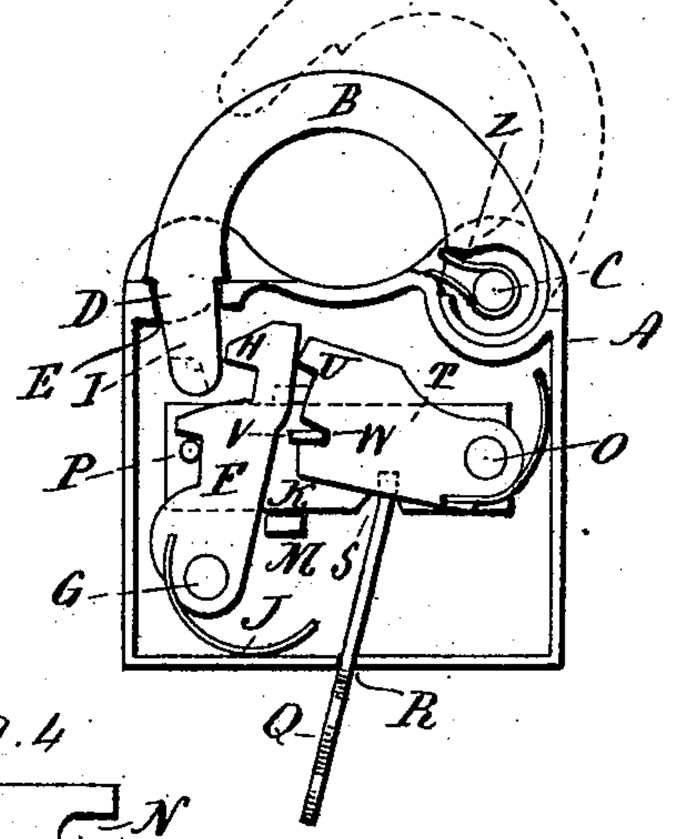


Fig. 3

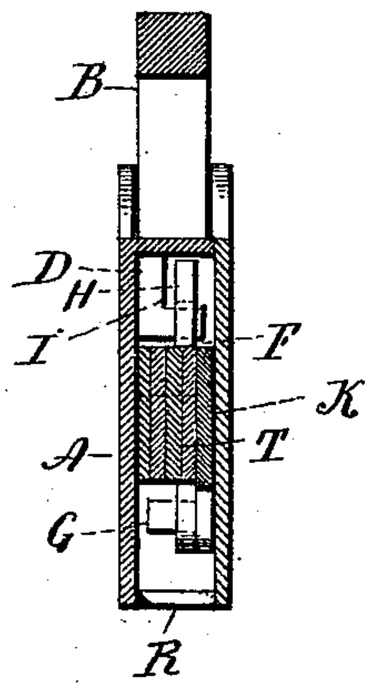


Fig. 4

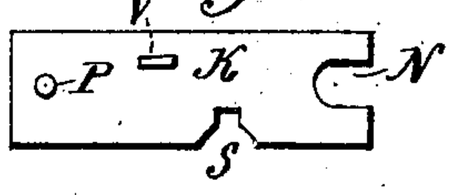


Fig. 5

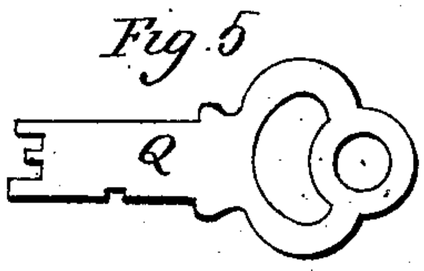


Fig. 6

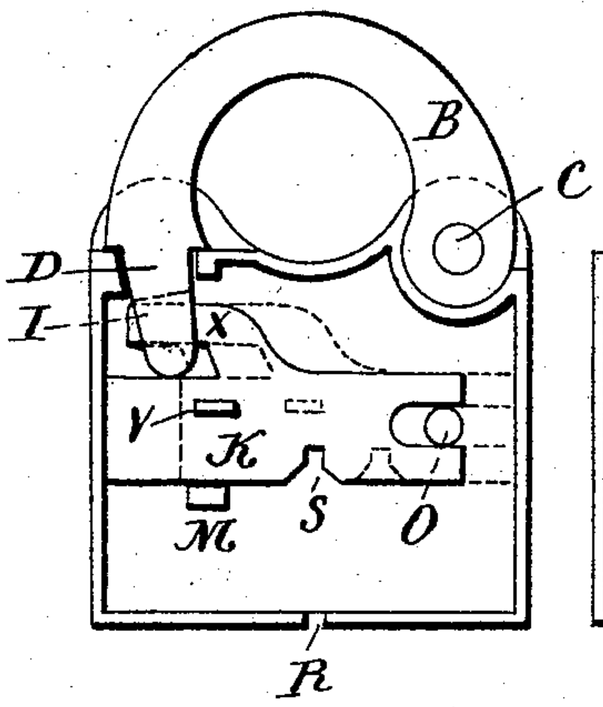
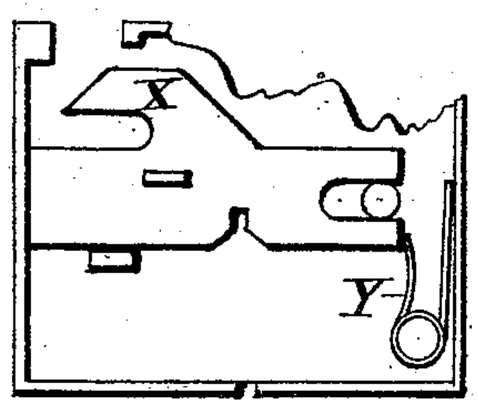


Fig. 7



Witnesses.
J. F. Shumway.
Lillian D. Kelley.

William E. Sparks.
Inventor.
By Attys.
Earle & Seymour

UNITED STATES PATENT OFFICE.

WILLIAM E. SPARKS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE SARGENT & COMPANY, OF SAME PLACE.

PADLOCK.

SPECIFICATION forming part of Letters Patent No. 456,345, dated July 21, 1891.

Application filed April 20, 1891. Serial No. 389,638. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SPARKS, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Padlocks; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a face view of the lock, one side of the case removed, the parts being in the normal or locked position; Fig. 2, the same as Fig. 1, the parts being represented in the unlocked position; Fig. 3, a vertical central section cutting on line *x x* of Fig. 1; Fig. 4, the slide detached; Fig. 5, the key; Figs. 6 and 7, modifications.

This invention relates to an improvement in that class of padlocks in which the shackle is hinged near one edge of the case, its other end adapted to pass into the opposite side of the case and engage the mechanism within the case, and particularly to that class in which the bolt-engaging device is combined with several tumblers adapted to be acted upon by a flat key introduced through the bottom of the case, the object being a simple construction, and in which the shackle will be released by a movement of the key different from that by which the tumblers are operated; and the invention consists in the construction as hereinafter described, and particularly recited in the claims.

A represents the case, which may be of any desirable shape; B, the shackle hung by one end upon a pivot C at one side of the case, the other or nose end D of the shackle being adapted to pass into a corresponding opening E through the case opposite the pivot, and as usual in this class of locks.

I first illustrate the invention as for a spring-lock—that is to say, a lock in which the shackle is engaged by simply forcing the free end of the shackle into the case without the aid of the key, the key being employed to release the shackle.

F represents the dog hung upon a pivot G below the shackle, and extending upward, swings in a plane parallel with the plane of the shackle. At its upper end the dog is constructed with a nose H, which is constructed to engage a corresponding recess I in the nose D of the shackle. The dog is provided with a spring J, the tendency of which is to force the nose of the dog toward the recess in the shackle, and yieldingly hold it engaged with the shackle when in the normal position. The top of the nose of the dog is beveled, as shown, so that the dog may be forced backward as the shackle is introduced, and as usual in spring-locks.

To operate the dog so as to withdraw it from the locked position, a slide K is arranged in the case, so as to be moved in a plane parallel with the plane of the shackle, and is supported between suitable guides L M near the forward end, and at its rear end it is forked, as at N, so as to slide upon a stationary post O in the case. The slide extends upon one side of the dog, and at its forward end is provided with a stud or shoulder P, which takes a bearing upon the forward side of the dog, as seen in Figs. 1 and 2, and so that as the slide is moved from the normal position seen in Fig. 1 to that seen in Fig. 2 it will draw the dog from its locking or normal position, as seen in Fig. 1, to that seen in Fig. 2, and take the dog out of engagement with the shackle, so as to leave the shackle free, as seen in Fig. 2.

The key Q is flat, and the case is constructed with a key-hole R through the bottom below the slide K, and the slide K is constructed with a notch S upon its lower edge, (see Fig. 4,) with which the end of the key will engage as it is introduced through the key-hole, as seen in Fig. 1, and when so engaged, if the handle or bow end of the key be forced forward, it will act through the key-hole as a lever upon a fulcrum, and so that under such movement it will force the slide K from its forward or locked position to its rear or unlocked position, as seen in Fig. 2, and withdraw the dog from its engagement with the shackle, as before described. When the key is withdrawn or the force removed, the spring J or other suitable spring will force the slide and the dog to return to their normal or locked position.

To complicate the mechanism of the lock so that it may not be readily opened without

the proper key, tumblers T (more or less in number) are hung upon the post O at one side of the slide K and so as to swing in a vertical plane parallel with the plane of the slide. The tumblers are constructed with a locking-shoulder U, which when free engages with a stump V on the slide, as seen in Fig. 1, and so as to hold the slide in the locked position. The tumblers are each constructed with a gate or notch W, which at a predetermined point come into line with the stump V, as usual in tumbler-locks, the position of the notches in the several dogs differing the one from the other, so that a different extent of movement is required for the respective tumblers in order to bring the gates into line with the stump.

The lower edge of the tumblers is exposed to the end of the key, and the end of the key, as seen in Fig. 5, is constructed according to the different positions of the gates in the tumblers, and so that when the key is inserted, as in Fig. 1, it will raise the tumblers, so as to bring them into line with the stump as the key engages with the slide, thus leaving the slide free to be moved rearward under the swinging movement of the key, as seen in Fig. 2.

In Fig. 6 I illustrate the invention as applied to a bolt-lock—that is, one which requires a bolt to be withdrawn by the key in unlocking and advanced by the key for the locking movement. The same slide K is employed as in the first illustration; but instead of combining the dog with the slide a projecting finger X is formed on the slide, which serves as a bolt to enter the opening I in the end of the shackle. Otherwise the construction and operation of the lock are the same as that first described.

The slide and bolt of Fig. 6 may be constructed so as to operate as a spring-lock by beveling the nose of the bolt X, as seen in Fig. 7, and providing a suitable spring Y for throwing the slide.

When the lock is constructed as a spring-lock, it is desirable that a spring should be provided to throw the shackle to the open position as soon as it is free from the locking mechanism. This may be any of the usual constructions, here represented as a torsion-spring Z, (see Figs. 1 and 2,) arranged upon the pivot of the shackle.

I claim—

1. In a padlock, the combination of a case, a shackle hinged by one end at one side of the case, the nose of the shackle adapted to swing into an opening in the case, a slide within the case arranged to move in a plane parallel with the shackle, mechanism between the slide and nose of the shackle to engage the nose of the shackle within the case, the case constructed with a key-hole through its bottom and below said slide, and the key constructed to pass through the said key-hole and engage the said slide and adapted to operate upon the said key-hole as a fulcrum, substantially as described, and whereby a swinging movement of the said key upon the key-hole as a fulcrum will impart longitudinal movement to said slide.

2. In a padlock, the combination of a case, a shackle hinged by one end at one side of the case, the nose of the shackle adapted to enter the case through an opening at the opposite side, a slide arranged within the case, so as to move in a plane parallel with the plane of the shackle, a dog hung in the case below the said slide and so as to swing in a plane parallel therewith and extending above the slide, its upper end forming a nose to engage the end of the shackle within the case, the slide and dog connected, so that longitudinal movement of the said slide imparts swinging movement to said dog, the case constructed with a key-hole through its bottom, and a key to pass through said key-hole and engage the said slide, the said key adapted so operate as a lever in said key-hole as its fulcrum, substantially as described, and whereby the swinging movement imparted to said key will impart corresponding longitudinal movement to said slide and swinging movement to said dog.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM E. SPARKS.

Witnesses:
I. B. SARGENT,
CHAS. L. BALDWIN.