

Padlock.

Patented July 29, 1879.



Henry Howson Jr.
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INVENTOR
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by his Attorneys
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UNITED STATES PATENT OFFICE

WILLIAM F. HOFMANN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF HIS RIGHT TO CHARLES M. GHRISKEY, OF SAME PLACE.

IMPROVEMENT IN PADLOCKS.

Specification forming part of Letters Patent No. **218,026**, dated July 29, 1879; application filed
May 7, 1879.

To all whom it may concern:

Be it known that I, WILLIAM F. HOFMANN, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Padlocks, of which the following is a specification.

My invention relates to an improvement in that class of padlocks in which a bolt works across a slot in the case; the main object of my invention being to provide such a lock with a simple device for retaining and releasing the bolt, and a further object being to provide compact mechanism for operating the bolt by means of a key.

In the accompanying drawings, Figure 1 is a general perspective view showing the exterior of the lock and a staple adapted to the same; Figs. 2 and 3, views of the lock from which the front plate has been removed, and showing the operating parts in different positions; Fig. 4, a transverse section of the lock on the line 1 2 of Fig. 2; Fig. 5, a view of a part of the case from which the works have been removed; and Fig. 6, a perspective view of detached portions of the works.

The case is, in the present instance, of hexagonal form and has opposite flat sides. A slot, *a*, extends entirely through the lock to admit a staple, *b*, and there is within the lock a bolt, *B*, which can be so operated that a portion of it will extend across the slot at right angles to the same and through the staple contained within the slot, or may be withdrawn into the case, according to the direction in which the key is turned, as explained hereinafter.

I may remark here that it is not essential to make the case hexagonal, although I prefer that form; nor is it necessary in all cases for the slot to extend entirely through the case, as the latter may be made so thick that a recess in place of the slot may be made deep enough in one side of the case to receive the staple and permit it to assume a proper position for receiving the bolt. In place of the staple a simple plate with a hole for the bolt may be admitted to the slot.

The case consists of two hexagonal plates, *A A'*, and intervening hexagonal rib; or, what is preferable, the case may consist of two plates, one of them being a plain flat piece of metal, and the other (marked *A'* in Fig. 5,) having a continuous edge, *e*, cast on it, ribs *f f' f''* being also cast on the plate on three sides of the slot *a*.

B is the bolt, the upper rounded portion, *h*, of which is arranged to slide in a hole in the lower rib, *f''*, of the case, and it can also pass into a corresponding hole in the upper rib, *f*, the bolt being further guided by a rib, *i*, in the case, which rib is adapted to a slot in the back of the bolt.

To a pin, *j*, projecting from the case is pivoted a curved arm, *D*, the end of which passes through a slot in the bolt.

E is a sliding trigger-plate, the upper portion, *k*, of which fits between and is guided by the ribs *f f''*, at the upper and lower edge of the slot *a*, the said portion *k* of the plate serving, in fact, to close one end of the slot *a*, and the lower portion of the plate being slotted at *y* to receive a guiding-stud projecting from the plate *A* of the case.

A spring, *p*, bears against the back of the plate and tends to force it toward the bolt, which is retained in depressed condition by the lower corner of the plate, as shown in Fig. 3.

After adjusting the lock to a staple so that the latter shall occupy a position in the slot, and then pushing the lock in the direction of the arrow, Fig. 3, the upper portion, *k*, of the plate will be brought into contact with the staple and will yield to the latter, thereby releasing the bolt *B*, which, owing to the spring *d*, will be shot upward, and its upper rounded portion will be projected across the slot *a* and into the hole in the rib *f''*.

F is the key, having two projections, *w* and *w'*, the latter having a lip, *v*. When this key is in the act of depressing the bolt, its end *x* occupies a position in a depression in the pin *j*, to which the arm *D* is pivoted, and the lip *v* of the projection *w'* bears against a projection, *t*, of the arm, while the other projection, *w*, of the key bears against the opposite projection, *t'*, so that on turning the key in the direction of the arrow, Fig. 2, the arm *D* will depress the bolt until the shoulder *u* on the same passes the lower corner of the plate *E*, when the latter will be projected forward by its spring and resume its duty of retaining the bolt in its depressed condition. But

before the key can reach a position which will enable it to turn the arm D, it must pass the tumbler H, and this tumbler must be moved back by the key before the bolt can be depressed.

The tumbler is so guided in the case that it can be moved to and fro at right angles, or thereabout, to the direction in which the bolt moves. When the bolt is raised, as in Fig. 2, the tumbler has been moved by its spring *g* toward the bolt, and a projection, 2, on the tumbler is beneath a shoulder on the bolt, so that the latter cannot be depressed by any forcing action on that portion of the bolt which is more or less exposed at the slot *a*; but the first action of the lip *r* of the key on turning the latter is to bear against the tumbler at the point 3, Fig. 2, and to move the tumbler back, thereby permitting the lip *r* of the key to pass between the tumbler and the hub of the arm D until it reaches the projection *t* of the said arm, when the latter can be turned by the key and the bolt can be depressed, for in turning the key the latter had moved back the tumbler to the position Fig. 3, thereby releasing the bolt and permitting it to be depressed.

The portion of the tumbler against which the key acts has a recess for admitting a projection on the lip *r* of the key, and there may be a number of these projections on the key to correspond with a recess on the tumbler; or

the latter may have a number of projections adapted to wards in the key, thereby increasing the difficulty of picking the lock; or there may be a series of thin tumblers, placed one against the other, in place of one thick tumbler.

I claim as my invention—

1. The combination of the lock-case having a slot, *a*, and bolt B, with a spring-trigger, E, part of which occupies a position in said slot, and which serves to retain and release the bolt, all substantially as set forth.

2. The combination of the slotted lock-case, the slotted sliding bolt B, adapted thereto, and the curved arm D, pivoted to the case, adapted to the slot in the bolt B, and having a projection or projections and a recess, *j*, adapted to a key, all as set forth.

3. The combination of the slotted lock-case, the slotted sliding bolt B, adapted thereto, the curved operating-arm D, constructed for operation by the key, and the sliding tumbler or tumblers H, arranged in respect to the arm D, as set forth.

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

WILLIAM F. HOFMANN.

Witnesses:

WILLIAM J. COOPER,
HARRY SMITH.