(No Model.)

F. W. MIX.

PADLOCK.

No. 445,121. Patented Jan. 20, 1891.

Fig. 1.

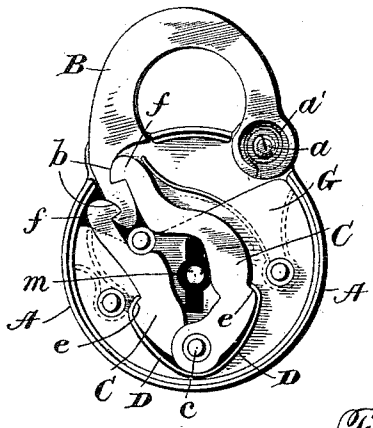


Fig. 2.

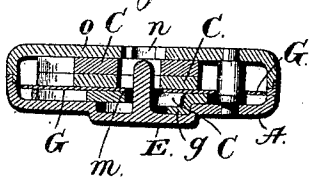


Fig. 3.

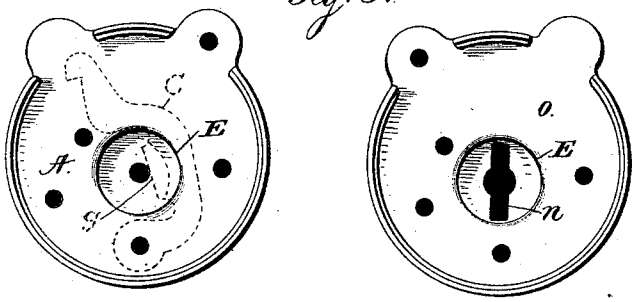


Fig. 4

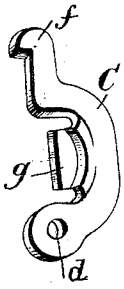
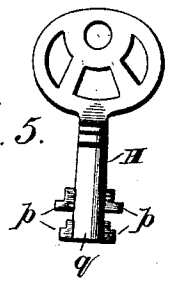


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK W. MIX, OF NEW BRITAIN, CONNECTICUT.

PADLOCK.

SPECIFICATION forming part of Letters Patent No. 445,121, dated January 20, 1891.

Application filed December 4, 1890. Serial No. 373,520. (No model.)

To all whom it may concern.

Be it known that I, FRANK W. MIX, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in locks, and more particularly to an improvement on the padlock disclosed in Patent No. 37,515, granted to James C. Mix, January 27, 1863.

The object of the invention is to construct a lock embodying all the desirable features of the lock disclosed in said patent, and at the same time so arranging the tumblers with relation to each other and to the lock-case that the lock cannot be opened by any of the series of keys at the present time used for opening the locks constructed in accordance with the construction disclosed in said Patent No. 37,515.

With these ends in view my invention consists in the parts and combinations of parts, as will be more fully explained and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a padlock embodying my invention, one face of the lock-case being removed. Fig. 2 is a view in cross-section of the lock, showing the recess or depression in one face. Fig. 3 is a plan view of the two parts of the lock-case, the locking mechanism being removed, a recess or depression being shown in each part. Fig. 4 is a view in perspective of the inner tumbler, and Fig 5 is a view of the key.

A represents the case of a padlock, and B is a bow or shackle, one end of which is secured in the top of the case by a pivot *a* and the opposite end notched at two opposite sides, as shown at *b b*. The pivoted end of the shackle B projects a short distance within the upper part of the case, and is provided on one side with a recess within which the coiled spring *a'* for throwing the shackle open rests. This spring is secured at one end to pivot *a* and at its opposite end to the shackle and tends to hold the shackle in open adjustment. Within the case there is permanently secured a pin *c*. This pin is at the lower part of the case and forms a fulcrum for a series of pairs of tumbler-catches C. Each pair of tumbler-catches are lapped at their lower ends, and a hold *d* drilled through the lapped ends, so that they may be fitted on the pin *c* and allowed to turn or work freely thereon toward and from each other, and each tumbler-catch has a shoulder *e* on its outer edge, and over the shoulders of each pair of tumbler-catches the ends of a spring D project. These springs D encompass the lower parts of the tumbler-catches and have a tendency to keep the upper parts toward each other. The upper ends of the tumbler-catches have each a projection *f* at their inner sides for engaging shoulders on the free ends of the shackle.

G is a plate having a series of holes therein, through which pins employed for locking the two sections of the case together and the key-post pass, and is consequently retained rigidly in position. The plate G has a key-hole *m* made in it, which is of the same form as the key-hole *n* in the plate *o* of the case A.

H represents the key, which is provided with bits *p*, projecting from opposite points of the tube *q*, the latter passing on or over a pin or post as it is entered in the case, and turning on said pin or post when acting against the tumbler-catches. The bits *p* of the key when in the lock are between the tumblers, and by turning the key the upper parts of the tumblers are forced apart and the notched end of the shackle B is thereby liberated, the projections *f* being forced out of the notches *b b*. The spring D forces the tumbler-catches back to their original position after they are relieved from the action of the key.

In consequence of having the tumbler-catches C C provided with springs D, as shown, there is no friction created by the spreading of the springs, as the tumbler-catches are forced apart by the key, for the reason that there is no sliding of the tumblers over the springs.

In the present instance I have disclosed three pairs of tumblers, the plate G separating one pair from the others.

I do not confine myself to any particular number of tumblers, as more or less than three pairs may be used, nor do I limit myself to the location of the plate G, as it can be placed between any two pairs of tumblers of the series, and when so placed perform the function of a ward, preventing the insertion of an improper key or pick into the lock.

The lock-case is provided on the inner face of its front or rear sides, or both, with a circular depression E. This depression is in a line with a key-post and is adapted to receive an offset *g* on the tumbler adjacent thereto. This offset is in the shape, preferably, of the segment of a circle, the curved side thereof adapted to engage the side wall or periphery of the depression and limit the outward movement of the tumbler and the flat side thereof adapted to form a bearing for a bit on the key. The main body of this tumbler rests against the inner face of the lock-case, while the offset *g* rests within the depression, and consequently separates the two tumblers constituting one pair, so far as the engagement of the key is concerned, the thickness of the depression, and consequently renders the employment of specially-constructed keys absolutely necessary. In the present instance I have shown three pairs of tumblers, but by providing one of the tumblers with an offset, as described, it will be seen that it necessitates the employment of a key having bits for four sets of tumblers, two of the bits each acting on two tumblers and the other two on one each. The depression or recess might be on the front face of the lock-case or they might be on both faces, as previously stated. By this change all the parts of the old lock, with the single exception of one tumbler and the key, can be employed in the construction of the improved lock, and the old locks now on hand can be converted into the improved form at a slight expense.

I do not confine myself to any particular shape of recess or depression in the lock-case, nor to a particular-shaped offset, as the shapes of these parts can be varied indefinitely without departing from the spirit of my invention.

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

1. In a lock, the combination, with a lock-case having a recess in one or both faces thereof, of a series of tumblers, one of the latter for each recess having an offset resting within said recess, substantially as set forth.

2. In a lock, the combination, with a lock-case having a depression or recess in one face thereof, of a series of tumblers arranged in pairs, one of said tumblers of the pair adjacent to the depression or recess having an offset resting in said depression or recess, substantially as set forth.

3. In a padlock, the combination, with a lock-case having a depression or recess in one face thereof and a spring-actuated hasp pivoted to the case and provided at its free end with shoulders, of a plate or ward rigidly secured within the case and provided with a key-slot, and tumblers arranged on opposite sides of said plate or ward, the tumbler adjacent to the depression or recess having an offset resting within said depression or recess, substantially as set forth.

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

FRANK W. MIX.

Witnesses:
A. N. ABBE,
C. A. BLAIR.