# F. W. SMITH & F. EGGE.

## PADLOCKS.

No. 194,848. Patented Sept. 4, 1877.

*Fig 1*

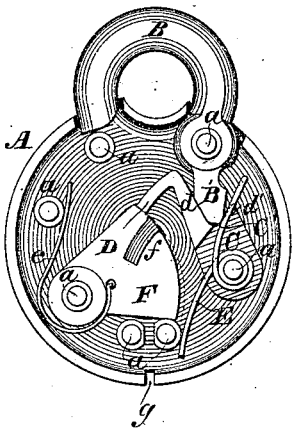



*Fig 2*

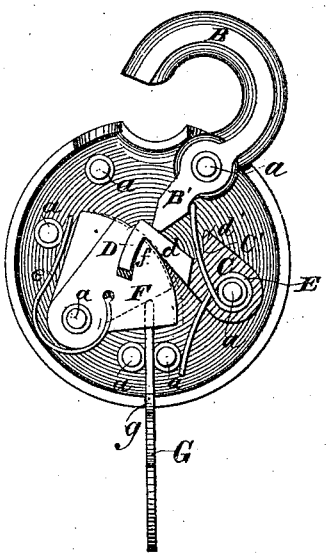



*Fig 3.*

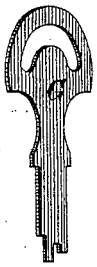



*Fig 4.*

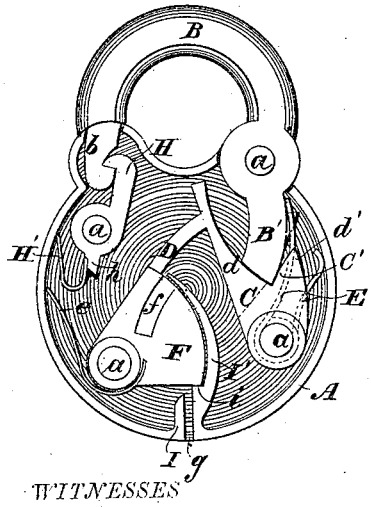
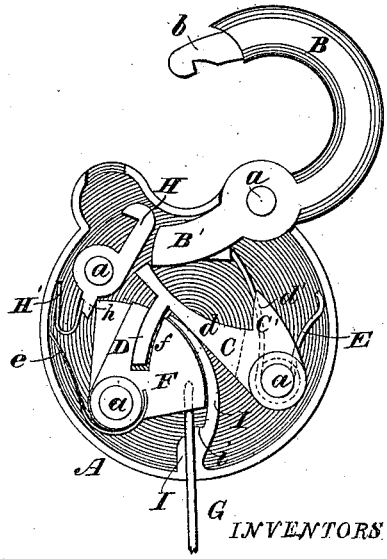



*Fig 5.*

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# UNITED STATES PATENT OFFICE.

FRIEND W. SMITH AND FREDRICK EGGE, OF BRIDGEPORT, CONNECTICUT.

## IMPROVEMENT IN PADLOCKS.

Specification forming part of Letters Patent No. **194,848**, dated September 4, 1877; application filed July 10, 1877.

*To all whom it may concern:*

Be it known that we, FRIEND W. SMITH and FREDRICK EGGE, both of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Padlocks, of which the following is a specification:

Our invention relates to a padlock of the class having slotted or notched oscillating spring-tumblers and a pivoted bow or shackle provided with a heel or extension projecting into the lock case or shell, and resembling in some respects the locks shown and described in Letters Patent of the United States issued to us December 23, 1873, and July 14, 1874, respectively numbered 145,853 and 153,058.

Our objects are to render more secure and to generally improve such locks; and our improvements consist in certain novel combinations of devices, and in peculiar constructions of parts, which will hereinafter be specifically designated.

In the accompanying drawings, Figure 1 is a plan or face view, with one section of the lock-case removed to show the works and interior construction, with the parts in the locked positions. Fig. 2 is a similar view, with the parts in the unlocked positions, and the shackle opened. Fig. 3 is a view in perspective of the key. Figs. 4 and 5 are views similar to Figs. 1 and 2, showing some modifications and additions.

The lock case or shell A may be made in sections, and united by rivets *a*, as described and represented in the before-mentioned Letters Patent, Nos. 145,853 and 153,058, and is provided with a shackle or bow, B, pivoted as shown in said patents. The shackle has a short arm or extension, B′, at its heel, beyond or below its pivot *a*, and projecting into the shell.

A cut-away, notched, or recessed oscillating dog, C, pivoted upon one of the rivets *a*, engages with the extension B′ of the shackle. When in the closed or locked position, the extension fits in the notch C′ of the dog.

A nose or hook, D, projecting downward or outward from the dog at or near its end, bears against the tumblers when locked, and engages with slots or notches in them when unlocked, as will hereinafter be described. The dog C is recessed or cut away at and near its pivot to admit of a spring, E, being secured upon the stud or rivet, and bear at its acting or free end upon the shackle-extension.

Oscillating spring-tumblers F, which may be such as shown and described in the before-mentioned Letters Patent, and be used in any desired number, are provided with slots *f*, and operated by a key, G, as in said Letters Patent.

From the above description it will be seen that when the key is inserted through the opening *g* and pressed against the tumblers, they are moved to cause their slots to register and come in line with the dog-nose D, curved to fit them, and, when so brought into the proper positions, the spring E acts upon the dog through the shackle-heel extension, and quickly forces the nose into the slots, and at the same time throws open the shackle, the single spring thus serving to operate both the shackle and the dog, and hold the shackle open.

In unlocking, the short extension of the shackle moves against the arm or inwardly-projecting portion *d* of the dog, and remains above or behind the dog when unlocked, thus preventing accidental derangement of the parts, and failure of the lock to work, which would take place were the shackle-extension to get in front of the dog.

To lock, it is only necessary to press down the nose or free end of the shackle, which causes the extension B′ to come in contact with the shoulder or short projection *d′* at the termination of the recess or notch C′ of the dog, pressure against which, sufficient to overcome the force of the spring E, rocks the dog, and disengages its nose from the tumbler-notches. The tumblers are then forced into their normal positions by their springs *e*, and the dog-nose rests against their peripheries or edges, and holds the shackle securely in the locked position.

In Figs. 4 and 5 the shackle-nose *b* is formed with a notch or shoulder to engage with, and be securely held by, a rocking locking hook or catch, H, isolated from or unconnected with the tumblers when locked. This hook is shown as pivoted upon one of the rivets *a*, and has a short lower arm or heel, *h*,

pressed upon by a spring, H′, the tendency of the spring being to keep the hook engaged with the shackle.

In unlocking, the shackle is released from the catch by one of the tumblers, which comes in contact with the heel *h* at the same time, or just previous to the time, that the dog-nose engages the tumbler-slots.

The dog C in Figs. 4 and 5 is centrally recessed or bifurcated, as represented by the dotted lines, to receive the spring E; but its construction is essentially similar to that of the dog represented by Figs. 1 and 2, and the spring acts upon the shackle-extension and through it upon the dog in a corresponding manner. A guideway for the key, as well as a stop and guard or protector for the tumblers F, are formed by ribs or flanges I I′ upon the shell A. By extending the rib I′ inward and curving it to correspond with and lie close to the peripheries or curved edges of the tumblers, it will be seen that should the tumblers not fit snugly upon their pivot, or should wear between the tumblers and their pivot take place, the displacement or injurious endwise movement of the tumblers will be prevented. The rib I′ also forms a stop to limit the inward movement of the dog, and prevent it from forcibly striking against the tumblers, and the shoulder *i* limits the downward movement of the tumblers.

In the lock shown by Figs. 4 and 5, the shackle, it will be noticed, is locked at both ends by devices which are caused simultaneously to release it by the action of the tumblers; and the four rivets *a* serve to mount the shackle, the dog, the tumblers, and the locking-catch. A very strong and simple lock and a compact arrangement of the works result from such construction.

We claim as of our invention—

1. The combination, substantially as hereinbefore set forth, of the lock-case, the pivoted shackle, having a heel or extension projecting into the case, and an oscillating dog to engage with the lock-tumblers, operated by the shackle both in locking and unlocking.

2. The oscillating tumbler-engaging dog, constructed substantially as described, having a top notch or recess to engage the shackle-extension and cut away or recessed to admit of the shackle-operating spring being secured upon its pivot, whereby the dog is adapted to be moved by the shackle both in locking and unlocking, and a single spring serves to operate upon both the shackle and dog.

3. The combination, substantially as hereinbefore set forth, of the shackle having an extension, the oscillating slotted spring-tumblers, the dog operated by the shackle, having a nose to engage the tumblers and located between the shackle-extension and said tumblers, and the spring acting upon the shackle-extension.

4. The combination, substantially as hereinbefore set forth, of the pivoted shackle having a notched or hooked nose, the isolated spring-catch engaging therewith, and the tumblers unconnected with said catch, one of which acts directly upon the catch to release the shackle-nose.

5. The combination of the pivoted shackle, the pivoted catch, isolated from and wholly unconnected with the tumblers of the lock, acting directly upon the shackle-nose, and provided with a heel, *h*, and the spring H′, bearing against one side of the catch, while it is adapted to be operated upon at the opposite side by one of the tumblers as it is advanced by the key to release the shackle-nose, as specified.

6. The combination of the pivoted shackle, having a notched or hooked nose and a heel-extension, the spring-catch engaging with said nose, the dog, and the oscillating tumblers, these members being constructed and operating substantially as hereinbefore set forth, whereby the shackle, when locked, is held at both ends, and is unlocked at both ends simultaneously by the action of the tumblers.

7. The combination, substantially as hereinbefore set forth, of the lock-case, having the long curved rib or flange I′, and the pivoted tumblers, having edges or peripheries of a curvature corresponding with that of said rib, whereby the tumblers are protected and endwise movement thereof prevented, as set forth.

8. The lock-case, constructed as described, with the long and short ribs or flanges I I′, the latter extending into the case around the tumblers, and provided with the shoulder *i*, for the purposes specified.

In testimony whereof we have hereunto subscribed our names.

FRIEND W. SMITH.
FREDRICK EGGE.

Witnesses:
ISAAC L. FERRIS,
WM. E. DISBROW.