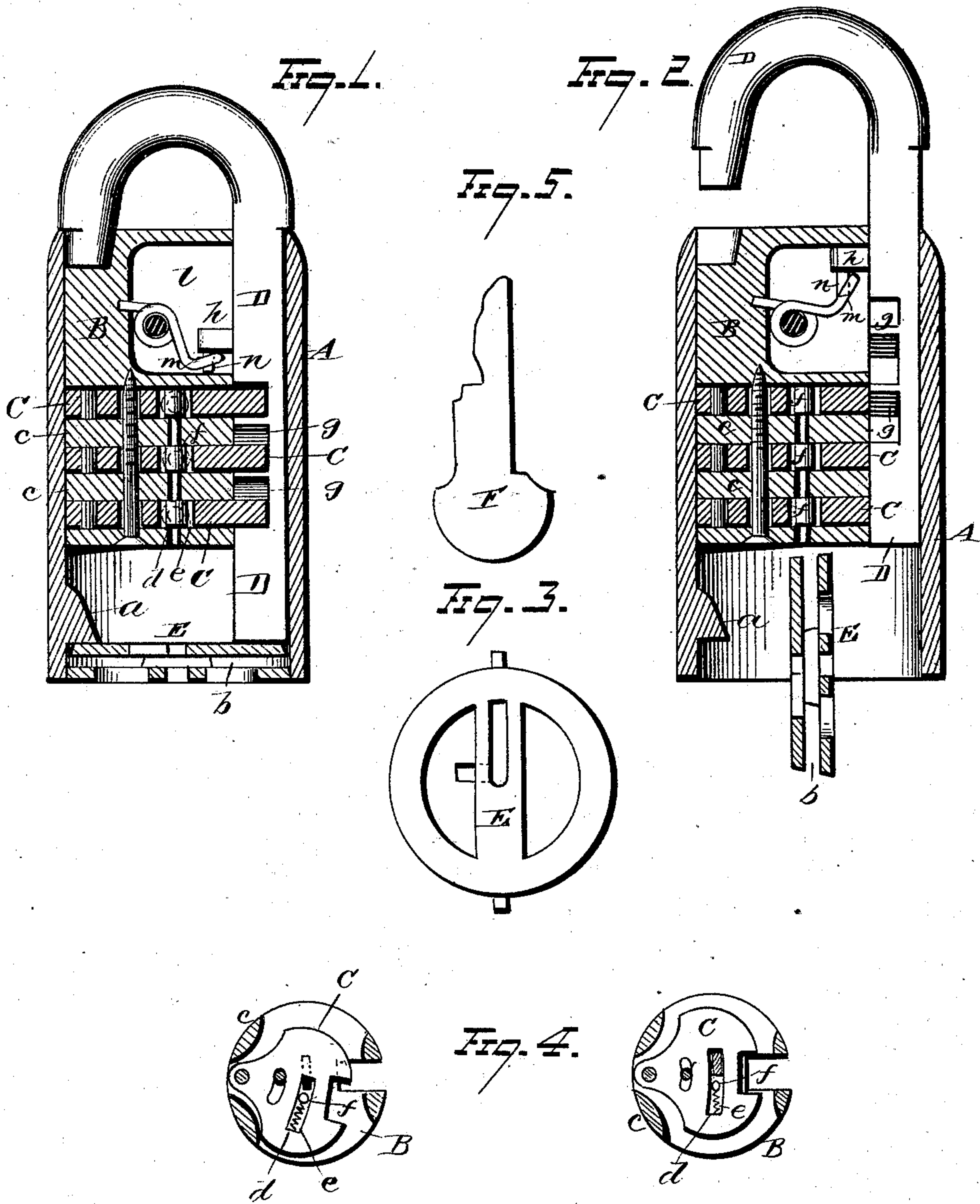


N. W. PALMER.
Seal-Locks.

No. 216,445.

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WITNESSES
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IMPROVEMENT IN SEAL-LOCKS.

Specification forming part of Letters Patent No. **216,445**, dated June 10, 1879; application filed
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To all whom it may concern:

Be it known that I, NORMAN W. PALMER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Padlocks; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention is designed to provide certain improvements in ordinary padlocks, and also in seal-locks; and consists, first, in the combination, with a notched shackle-leg, of pivotal tumblers, which operate in transverse recesses formed in the interior casing of a padlock, and are spring-pressed to engage with the notches of said shackle-leg; second, in the combination, with a notched shackle-leg, of transverse pivotal tumblers, the upper engaging surfaces of said tumblers and shackle-leg notches being respectively formed with counterpart inclines; third, in the combination, with a shackle-leg having a lateral lug which projects within a recess made in the interior casing of a padlock, of a spring secured within said recess, and engaging with said lug to throw the shackle out when the tumblers release the shackle-leg; fourth, in the combination, with an interior casing of a padlock formed in transverse sections, of pivotal tumblers fitting between the latter, each of said sections being recessed to permit of the operation of its respective tumbler; fifth, in the combination, with an interior casing of a padlock, of pivotal tumblers which work transversely therein, and springs which fit in slots formed respectively in the tumblers, said slots also being adapted to provide engagement for the key as the latter operates the lock; sixth, in the combination, with a seal-holder which has tilting movement within an opening formed in the outer casing of a seal-lock, of a shackle adapted when the lock is closed to have its foot bear against said seal-holder and prevent the latter from being opened; seventh, in the combination, with a tubular outer casing of a seal-lock having a seal-holder pivoted within its lower end, of a shackle whose foot is

adapted to bear against the seal-holder and suitable tumblers, said parts being constructed to operate, whereby, when the lock is closed, the shackle-foot prevents the seal-holder from being tilted in open position.

Referring to the drawings, wherein is shown my preferable form of constructing the invention, Figure 1 is a longitudinal section of the lock as closed. Fig. 2 is a similar view of the lock opened and the seal-holder swung into open position. Fig. 3 is a detail view of the seal-holder. Fig. 4 is a detail view of one of the tumblers. Fig. 5 represents the key.

The outer lock casing, A, is made in the form of a tube, within which are located the inner casing, B, the tumblers C, and the shackle-leg D. Within the open lower end of the lock-casing is pivoted the seal-holder E, one tilting side of the latter being prevented from opening inwardly by means of the stop *a*, which projects laterally from the interior of the outer casing; the opposite tilting side of said seal-holder being adapted to be swung inwardly when the lock is opened, and to be prevented against said movement when the lock is closed by reason of the bearing of the shackle-foot against said tilting side.

In substitution for this particular form of carrying out the principle of this part of the invention, I may dispense with the lateral stop secured to the outer lock-casing, and form a right-angular extension on the shackle-foot, said right-angular extension being adapted to have bearing against the seal-holder on both sides of its pivotal line, so as to prevent either of its tilting sides from being swung inwardly while the lock is closed.

The seal-holder may be made, as herein shown, with a slot or hole, *b*, formed in its edge, whereby the seal may be readily placed in position or removed therefrom; or, instead of thus being in solid piece, it may be in two parallel parts adapted to be separated from each other when the seal-holder is swung in open position.

The recess or seat for the seal may be of any suitable form to correspond with the seal, and the latter may be paper, lead, glass, sealing-wax, or other desired substance.

The operation of the seal-lock is readily un-

derstood, and consists, simply, in swinging open the seal-holder, closing the latter when the seal is inserted therein, and then closing the lock. The seal-holder is thus secured against all attempts to open it, and any tampering with the lock or seal would be rendered apparent.

Turning now to that part of the invention which relates, broadly, to any kind of a pad-lock, whether the latter be a seal-lock or not, it will be observed that the interior locking-casing, B, is made of a series of transverse sections, *c*, suitably fastened together. Each section is recessed to permit of the movement within said recess of the tumbler which is pivoted thereto. Each tumbler is formed with a recess, *d*, within which the spring *e* is fitted, one end of the latter having bearing against a stud, *f*. A portion of each of said slots constitutes the hole in which the key fits, and in engagement with the wall of which the tumbler is turned upon its pivot, so as to release it from the shackle-leg.

The several tumblers C and the notches in the shackle-leg, respectively, have their upper engaging surfaces formed in counterpart incline, as shown at *g*, so that as the shackle-leg is forced down against said tumblers in closing the lock, the incline on the notches of the leg may have bearing against the inclines on the tumblers, and press the latter against their springs, so as to turn on their pivots, thereby permitting the passage of the shackle-leg. A lateral stud, *h*, is formed on the upper portion of the shackle-leg, and projects within a recess, *l*, which is made in the interior locking-casing. A spiral spring secured within said recess is formed with a loop, *m*, projecting outwardly, so as to engage with the lower surface of the stud, and thereby force the shackle in outward direction as soon as the tumblers are freed from engagement with the shackle-leg.

A downwardly-projecting pin, *n*, is formed on the under side of the lug and fits within the spring-loop, so that said spring and stud are secured against liability to become disengaged.

It is apparent that the tumblers may be in any desired number, more or less than represented in the drawings; also, that the key F and the shackle-leg may be correspondingly changed.

To operate these tumblers, it is only necessary to insert the key, so as to be passed up through the several slotted key-holes of the tumblers. The latter are thereby forced in pivotal movement against their springs, so as to leave the shackle-leg free from engagement therewith, when the shackle is shot outward by means of the compressed spring, with which it is engaged, and the lock is open.

It will be observed that the construction of the tumblers is such as to require perfect ac-

curacy in the fitting of the key which unlocks them, inasmuch as too slight a movement of any one tumbler upon its pivot would not disengage the same from its notch in the shackle-leg, and too great a movement would only engage the opposite side of the gating of said tumbler with the notch. Hence the lock is rendered very difficult to be picked.

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

1. The combination, with the notched shackle-leg, of the pivotal tumblers, which operate in transverse recesses formed in the interior locking-casing, and are spring-pressed to engage with the notches of said shackle-leg, substantially as set forth.

2. The combination, with the notched shackle-leg, of the pivotal transverse tumblers, the upper engaging surfaces of said tumblers and shackle-leg notches being respectively formed with counterpart inclines, substantially as set forth.

3. The combination, with the shackle-leg having a lateral lug which projects within a recess made in the upper portion of the interior locking-casing, of the spring, which is secured within said recess, and engages with said lug to force the shackle out when the tumblers release the shackle-leg, substantially as set forth.

4. The combination, with the interior locking-casing formed in transverse sections, of the pivotal tumblers fitting between the latter, each of said sections being recessed to permit the operation of its respective tumbler, substantially as set forth.

5. The combination, with the interior locking-casing, of the tumblers which work transversely therein, and the springs which fit in slots formed respectively in the tumblers, said slots also being adapted to provide engagement for the key as the latter operates the lock, substantially as set forth.

6. The combination, with the seal-holder, which has tilting movement within the opening formed in the outer lock-casing, of the shackle, adapted, when the lock is closed, to have its foot bear against said seal-holder and prevent the latter from being opened, substantially as set forth.

7. The combination, with the tubular outer casing, having the seal-holder pivoted within its lower end, of the shackle and the tumblers, said parts being adapted, when the lock is closed, to prevent the seal-holder from being opened, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of April, 1879.

NORMAN W. PALMER.

Witnesses:

HULBERT PECK,
THOMAS MACGUIRE.