W. ORR.

COMBINATION PAD-LOCK.

No. 174,842. Patented March 14, 1876.

Fig. 1.

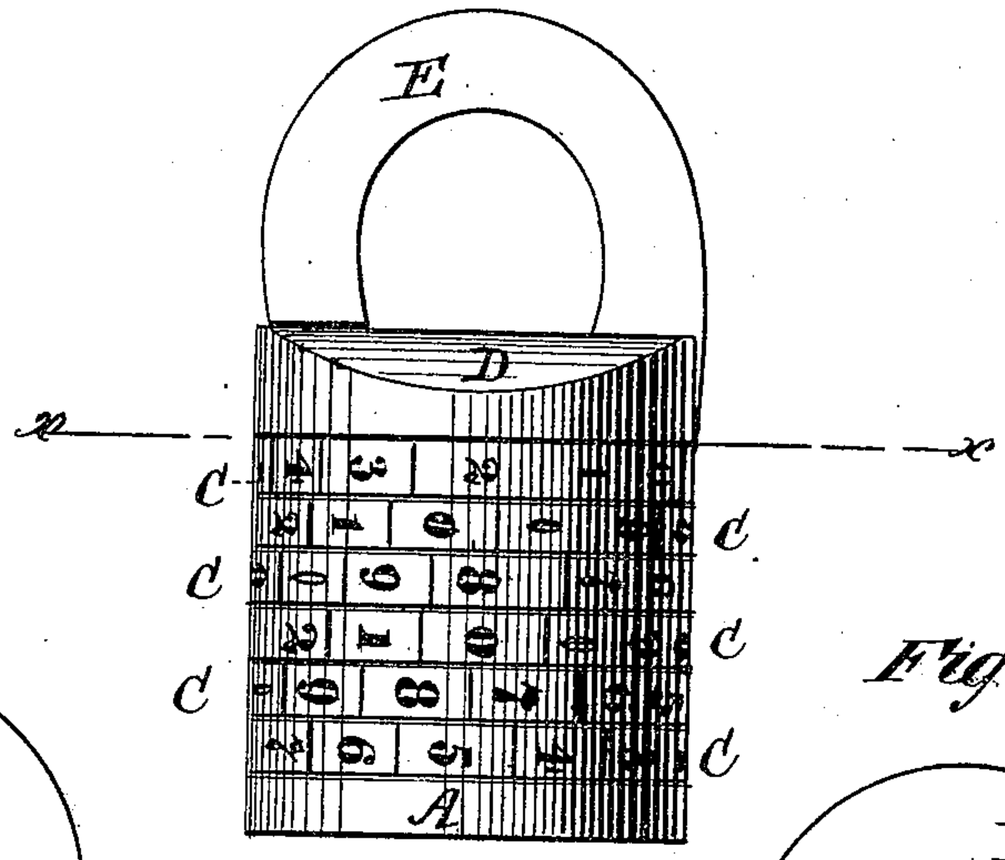


Fig. 3.

Fig. 5.

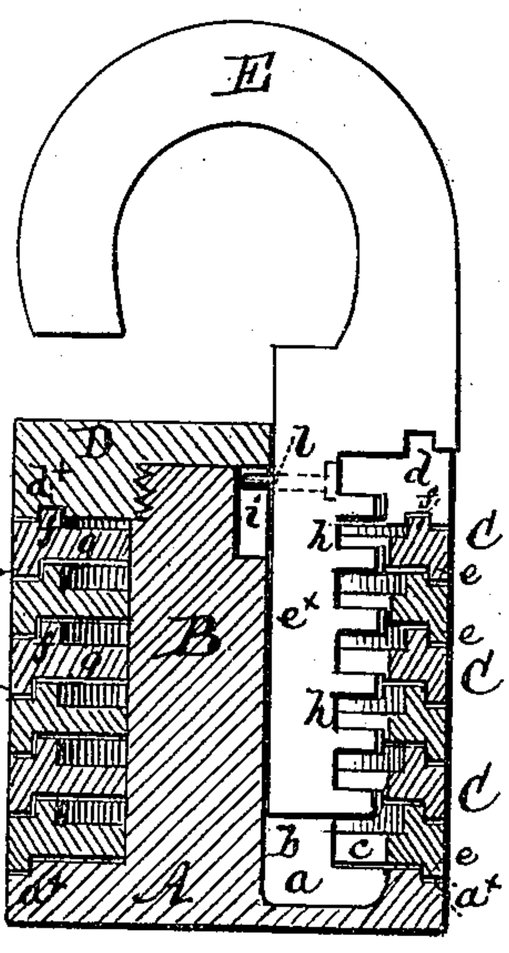


Fig. 4.

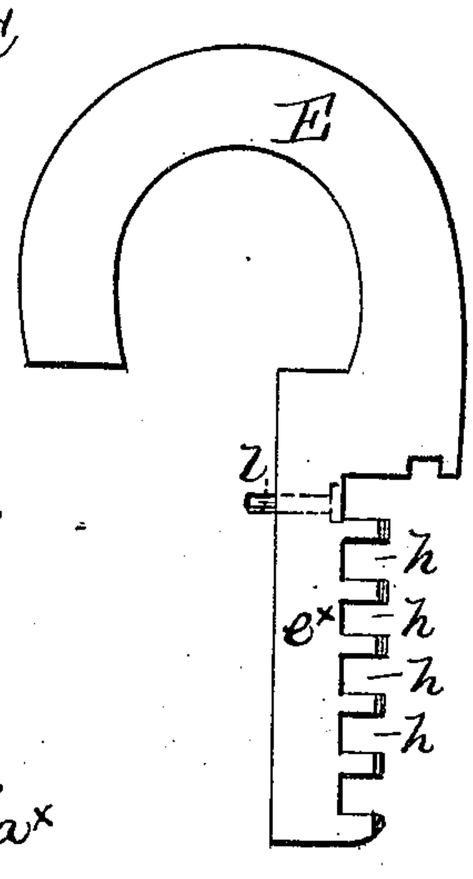
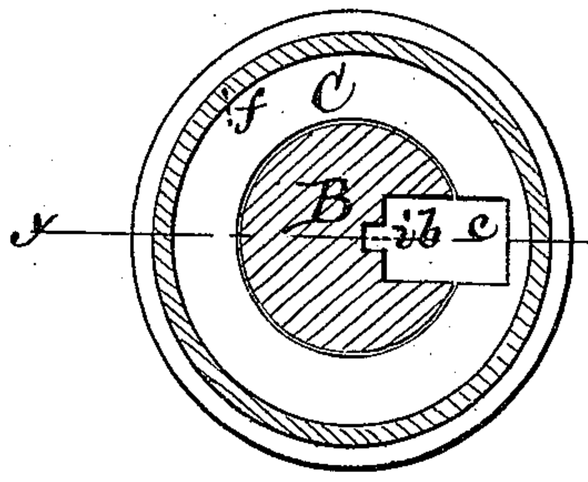


Fig. 2.



Witnesses
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Wm Orr
by his Attorneys
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UNITED STATES PATENT OFFICE.

WILLIAM ORR, OF NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN S. BANCROFT, OF BROOKLYN, N. Y.

IMPROVEMENT IN COMBINATION-PADLOCKS.

Specification forming part of Letters Patent No. **174,842**, dated March 14, 1876; application filed August 30, 1875.

To all whom it may concern:

Be it known that I, WILLIAM ORR, of New York, in the county and State of New York, have invented certain Improvements in Combination-Padlocks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making part of this specification.

My invention consists in a novel construction, arrangement, and combination of a bow or shackle, a base-plate, a spindle, a cap, and a series of rings, whereby the parts are securely held in place, and the entrance of dirt and water is prevented, and provision is made for transposing the rings in order to change the combination; and whereby, also, provision is made for limiting the motion of the bow or shackle, when desired, in order to prevent its entire withdrawal.

In the accompanying drawing, Figure 1 is a side view of a lock constructed according to my invention. Fig. 2 is a horizontal transverse section of the same, taken in the line *x x* of Fig. 1, with the bow removed. Fig. 3 is a central longitudinal section, taken in the line *y y* of Fig. 2, also with the bow removed. Fig. 4 is a separate view of the bow. Fig. 5 is a central longitudinal section with the bow in place in the body of the lock, but partly withdrawn, as hereinafter particularly described.

The body of the lock is composed of a base-plate, A, a series of rings, C, and a cap, D. From the base A rises a central spindle, B, on the upper portion of which is a screw-thread, which engages with an internal thread in the cap D, by which means the parts are secured together, and form a cylindrical body, the spindle passing through the centers of the rings. On one side of the spindle B is a longitudinal groove, *b*, the lower end of which terminates in a recess, *a*, in the base-plate A. In the cap D is a notch, *d*, corresponding in width and depth with the groove *b*, and, when the cap is screwed home, the notch *d* is in line with said groove.

Instead of being in one piece with the spindle B, the base-plate A may be a separate piece, attached to the spindle by a screw-thread, in which case the recess *a* is located so as to be in line with the groove *b* when the base-plate is screwed home.

In each ring C is a radial notch, *c*, equal in width to the groove *b*, and nearly equal in depth. When the rings are placed one above another, resting on the base-plate, and surrounding the spindle, with the cap D in place above them, so as to form the cylindrical body of the lock, and with the notches *c* in line with each other, and with the groove *b* and notch *d*, a recess is formed by said groove and notches for the reception of the shank $e^{\times}$ of the bow or shackle E. Each of the rings C is formed with a rim, *e*, on its under side, extending downward like the rim of a box-cover, the outer surface of the rim being flush with, and part of, the periphery of the ring itself. On the upper side of the ring is an annular bead or rib, *f*, the outer edge of which is about in line with, or slightly nearer the center than, the inner surface of the rim *e*. On the upper side of the base-plate A, around the periphery thereof, is a rabbet or shoulder, $a^{\times}$, for the reception of the rim *e* of the lowermost ring; and on the under side of the cap D is an annular groove, $d^{\times}$, for the reception of the bead or rib *f* of the uppermost ring. By this construction the parts are held securely in place, and the engagement of the ridges and grooves prevents the insertion of a chisel or other tool for the purpose of forcing the parts asunder, and also excludes water and dirt from the interior. By this construction, also, the rings may be transposed, so as to occupy different positions on the spindle with relation to each other, and the proper engagement of the lowermost ring with the base, and the uppermost ring with the cap, is always insured.

The construction of the ring with the lower rim *e* and the upper rib *f* leaves a thin, flange-like, annular portion, *g*, about midway between the upper and lower sides of the ring. The shank $e^{\times}$ of the bow or shackle E is provided with notches *h*, corresponding in position with the flange-like portions *g* when the rings are in place one upon another, and of sufficient width to allow said portions to work freely in the notches when the rings are turned. On the periphery of each ring is a series of figures or letters, and, when the same figures are used

on all the rings they are located at different points with relation to the notches *c*—that is to say, the notches have different figures opposite to them on the different rings. The notches *c* being in line with each other and with the notch *d*, groove *b*, and recess *a*, the shank $e^{\times}$ of the bow or shackle is inserted therein until its lower end enters the recess *a* in the base. The parts being in this position, a certain combination of figures appears on the outside of the cylinder in a line corresponding with the line of notches *c*. By turning one or more of the rings around the spindle B as an axis this combination is destroyed, and, at the same time, the flange-like portion *g* of each ring engages with one of the notches *h*, and prevents the withdrawal of the bow until said combination is restored.

When the shank is in place, as described, the engagement of the notch *d* therewith prevents the possibility of the cap D being unscrewed, by reason of the shank being held in place by the groove *b*. When the base A is made in a separate piece from the spindle the engagement of the lower end of the shank with the recess *a* prevents the base from being unscrewed and removed.

The bow or shackle E may be provided with two shanks like the one shown herein, in which case the rings are provided with notches opposite to each other. When only one notched shank is used the other end of the bow may be arranged to enter a recess or countersink in the cap D, by which means it will be secure against any attempt to wrench it out of place.

Instead of being screwed directly on the spindle B the cap D may be attached to the spindle by a separate screw, which may be covered by a cap-plate held in place by the shank passing through it; or it may be attached by any other means which will answer the same purpose.

In the bottom of the groove *b* in the spindle is a supplemental groove, *i*, for the reception of the point of a screw, *l*, passing through the shank $e^{\times}$ from toward the outside of the cylinder. By this means the motion of the shank is limited, so that it can be only partially withdrawn, by reason of the contact of the screw *l* with the cap D, (see Fig. 5,) which thus arrests the outward movement of the bow. It is not absolutely necessary, however, to insert the screw *l* in the precise manner shown herein, as it may be inserted through the cap D in an inclined direction, or in any other suitable manner.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the base A, the fixed grooved center spindle B, the notched cap D, the rings C C, and the shank $e^{\times}$ of the bow or shackle E passing into the notch of the cap and groove of the spindle, substantially as herein described.

2. The combination, with the shank $e^{\times}$ of the shackle and the grooved center spindle B, of the screw *l* in the said shank $e^{\times}$, the inner groove *i* in the said spindle, and the cap D overlapping said inner groove, substantially as herein described.

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Witnesses:

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