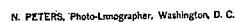


2 Sheets—Sheet 1.

No. 419,553.

Patented Jan. 14, 1890.



(Model.)

2 Sheets—Sheet 2.

J. A. PORTER.
PERMUTATION PADLOCK.

No. 419,553.

Patented Jan. 14, 1890.

Fig. 7.

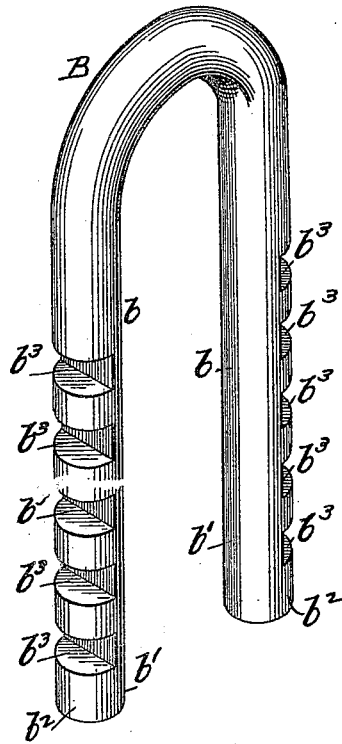


Fig. 8.

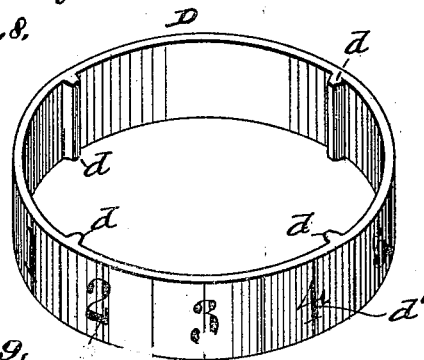
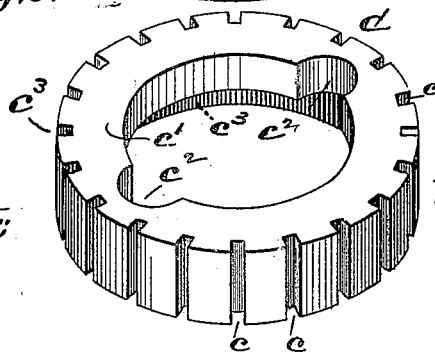


Fig. 9.



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Inventor,
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by C. P. Moody
his atty

UNITED STATES PATENT OFFICE.

JOHN A. PORTER, OF ST. LOUIS, MISSOURI.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 419,553, dated January 14, 1890.

Application filed June 6, 1889. Serial No. 313,355. (Model.)

To all whom it may concern:

Be it known that I, JOHN A. PORTER, of St. Louis, Missouri, have made a new and useful Improvement in Permutation-Locks, of which the following is a full, clear, and exact description.

The improvement consists substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation of the improved lock, a portion of the lowest band being broken away. Fig. 2 is a view showing a portion of the lock in section and the remainder in side elevation. Fig. 3 is a view in perspective showing a combined ring and band, a portion thereof being broken away. Fig. 4, a view in perspective of the body of the lock; Fig. 5, a cross-section on the line 5 6 of Fig. 2, the recesses in the rings being in coincidence with the bars of the link; Fig. 6, a similar cross-section, the recesses in the rings not being in coincidence with the bars of the link. Fig. 7 is a view in perspective of the link. Fig. 8 is a view in perspective of one of the bands, and Fig. 9 is a view in perspective of one of the rings.

The same letters of reference denote the same parts.

The improved construction consists, mainly, of the body A, the link B, a series of rings C C' C² C³ C⁴, and a series of bands D D' D² D³ D⁴. The body has a shoulder *a* at its lower end, and it is grooved longitudinally at *a'* *a'*. The grooves, as shown in Figs. 2 and 4, extend throughout the length of the body, and they may extend into the shoulder *a*, as shown, and to drain the grooves perforations *a*² may extend through the shoulder. At its upper end the body has a threaded projection *a*³, onto which a cap *a*⁴ is screwed, as shown, and as presently described. The link B is a U-shaped part adapted to be connected with the remaining portion of the device by slipping its bars *b* into the grooves *a'* *a'*, as shown in Figs. 2, 5, and 6. The inner portion *b'* only of the bar enters the groove. The outer portion *b*² of the bar is designed to coact with the rings C C', &c., to which end a series of notches *b*³ are formed in the portion *b*². The rings at the periphery thereof are notched, the notches *c* extending vertically in the ring, substan-

tially as shown, and, as a series around the ring, they also have an inwardly-projecting flange *c'*, and such flange is notched at *c*² *c*³. The rings C, &c., are fitted to be passed, one after the other, onto the body, as shown. The bands D, &c., belong, respectively, to the rings C, &c., and they are fitted to be slipped vertically onto the rings, as shown in Fig. 3, and on the inner side thereof the bands, as shown in Fig. 8, have inwardly-extending projections *d*, which, when the band is applied to the ring, engage in the notches *c*, as shown in Figs. 3, 5, and 6. Upon the outer side thereof the bands bear a series of numerals or other characters *d'*, said numerals or characters corresponding in number to the notches *c* and respectively opposite the notches *c*.

The parts of the lock are assembled and the lock operated as follows: The rings, bearing their respective bands, are slipped successively onto the body A, and then secured in place thereon by means of the cap *a*⁴, as shown. The link B is then attached by slipping its bars *b b* into the openings formed partly out of the grooves *a'* *a'* and partly out of the notches *c*² *c*² in the rings, and the link is locked in that position by simply rotating one or more of the rings (and bands) sufficiently to cause the notches *c*² *c*² to be out of line with the link-bars *b b*. The notches *b*³ in the link-bars permit the rings to be thus rotated, for as the ring is turned around its flange *c'* moves in that one of the notches *b*³ which is opposite said flange, and the main portion *c*³ of the ring moves around the round or full portion *b*² of the link-bar. The link, now being locked, cannot be unlocked and withdrawn from its position in the lock without first rotating the rings (and bands) back again in that position in which their notches *c*² *c*² are in line with the link-bars, whereupon the link can be withdrawn. If more than one ring is misplaced—say two or three rings, or even the entire series—then all those misplaced rings must be brought into line. It is the numerals *d'* on the bands D which enable the operator to adjust the rings as described—that is, in applying the bands to the rings they are adjusted upon the rings according to a predetermined combination of numerals—say the combination 0 5½ 3 7, presented in Fig. 1. That is, the upper band has its 0-mark

opposite the notch c^2 in the ring, the next lower band has its 5 $\frac{1}{2}$ -mark opposite the notch c^2 , the next lower band has its 3-mark opposite the notch c^2 , and so on. The operator, knowing the combination, turns the rings around by means of their respective bands and according to said combination, and the link is thereby released. To change the combination, the rings and bands are removed from the lock-body and the bands changed upon their respective rings to suit the new combination desired.

I claim—

1. In a permutation-padlock, the combination of the rings having the vertical equidistant grooves in their outer surfaces and provided with the inwardly-standing flanges c' , having the opposite semicircular notches c^2 , and the corresponding bands having equally-distant numbers or marks on their outer surfaces and the projections a on their inner surfaces, which projections may be fitted into various grooves c , for the purpose of bringing various numbers or marks opposite the notches c^2 , substantially as specified.

2. In a permutation-padlock, the combination, with the body having the vertical grooves a' , and the link having the transverse notches b^3 , of the rings having the outer vertical grooves c and the flanges c' , provided with the opposite notches c^2 , and the bands having numbers or marks on their outer surfaces and the projections a on their inner surfaces, substantially as specified.

3. The herein-described permutation-padlock, composed of the body Δ , having the grooves a' , shoulder a , and threaded stem a^3 , the cap screwing on said stem, the link having the notches b^3 , the rings having the grooves c and flanges c' , provided with the opposite notches c^2 , and the bands numbered on their outer surfaces and provided on their inner surfaces with the projections a , substantially as specified.

Witness my hand this 27th day of May, 1889.

JOHN A. PORTER.

Witnesses:

C. D. MOODY,

D. W. A. SANFORD.