

(Model.)

S. H. LEIKVOL.  
PERMUTATION PADLOCK.

No. 265,107.

Patented Sept. 26, 1882.

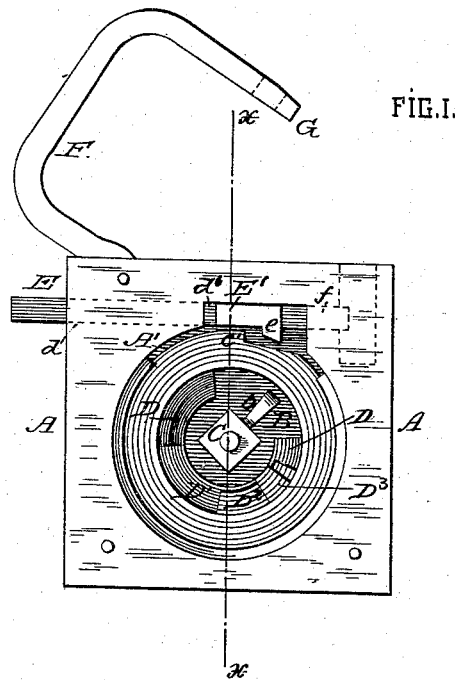


FIG. I.

FIG. II.

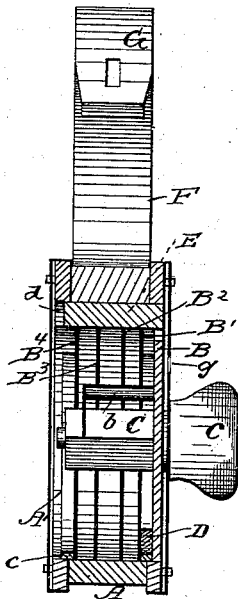
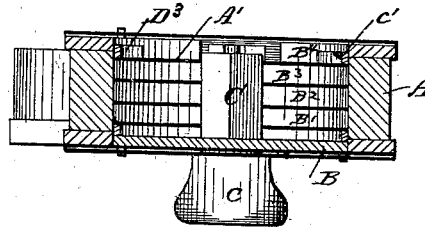


FIG. III.



WITNESSES:

*Wm. L. Dieterich*  
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*Sander H. Leikvol* INVENTOR,  
by *Louis Bagger & Co.* ATTORNEYS.

# UNITED STATES PATENT OFFICE.

SANDER H. LEIKVOL, OF APPLETON, MINNESOTA.

## PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 265,107, dated September 26, 1882.

Application filed July 7, 1882. (Model.)

*To all whom it may concern:*

Be it known that I, SANDER H. LEIKVOL, of Appleton, in the county of Swift and State of Minnesota, have invented certain new and useful Improvements in Combination-Locks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure I is a view, with one side of the case removed, of my improved permutation-lock. Fig. II is a cross-section thereof through line *x x*, and Fig. III is a section taken at right angles to the aforesaid section.

This invention relates to an improvement in permutation, otherwise termed "combination," locks, which is simple in construction, cheap, and easy of operation; and it consists in the combination and arrangement of parts substantially as hereinafter more fully set forth and claimed.

To carry out my invention I construct the case A with a circular chamber, A'.

B is the dial or disk, having a series of circularly-arranged numerals thereon, and disposed upon a spindle, C, next to the front plate of the case A. The shaft or spindle C, with which the dial turns, bears in the front plate of the case A and passes through the chamber A', its opposite end resting in the back plate of the case A.

B<sup>1</sup> B<sup>2</sup> B<sup>3</sup> B<sup>4</sup> are circular or annular tumblers, which consist each of a ring of suitable metal. The spindle C has a tongue or projection, *b*, within the chamber A', preferably made in the form of a bail or staple, and a knob, *c*, on its outer end, beyond the case A. Each of the ring-formed tumblers, which move in grooves in the circumference of the chamber A', has a projection upon its inner circumference. The projection D of the ring B' traverses about two-thirds of its inner circumference, the projection D' of the ring B<sup>2</sup> about one-half of its same surface, the projection D<sup>2</sup> about one-fourth of the inner circumference of the ring B<sup>3</sup>, and the projection D<sup>3</sup> about one-sixteenth of the same circumference of the ring B<sup>4</sup>. This

arrangement of the projections upon said rings or tumblers permits the latter to be acted upon separately and at different intervals by the projection or tongue *b* of the spindle C. In the outer circumference or periphery of each tumbler, including the disk B, is a notch, *c'*, to receive and permit the sliding backward of the staple or bolt securing bar when the operation of unlocking is being performed. When the notches *c'* are in line with each other no one of the projections of the tumblers is in line with the others, and each tumbler has an independent movement. Therefore, as said projections are acted upon by the tongue or projection of the spindle, said notches will be moved out of line with each other and with the shoulder or projection of the staple or bolt securing bar, and thus effect the locking operation.

E is the bolt or staple securing bar or slide, arranged to slide in a passage, *d*, in the case A, at one side of the pivotal or hinged point of the staple or bolt F. This bar has beyond this point a laterally-extended portion, E', having movement in a recess, *d'*, opening into the chamber A'. The extension E' has a downward-projecting tooth or lip, *e*, which bears upon the peripheries of the tumblers when the bolt is in a locked position, but drops into the peripheral notches *c'* thereof when performing the unlocking operation. The forward end of the bar or slide E projects into a socket, *f*, in the case A, which receives the apertured end G of the bolt or staple F of the lock, and enters the aperture of said staple or bolt to effect the locking operation.

To perform the locking operation according to the combination as adopted at this time, it being capable of being changed by adjusting or changing the position of the tumblers with relation to one another, the following directions are observed: Turn the knobbed spindle to the right until the numeral 4 of a series of numbers marked on one side of the disk or dial B can be viewed through an aperture, *g*, in the front plate of the case A. Then turn it to the left until the ordinal 2 comes into view. Next again reverse its movement to bring to view the numeral 8. Then turn in an opposite direction until the ordinal 1 comes into view,

and, finally, turn back until the number 12 can  
be seen. Now pull outward upon the slide or  
bar E, when the staple or bolt can be with-  
drawn. It is obvious that by inserting the  
5 free end of the staple or bolt and pushing in-  
ward the slide or bar E and turning the knobbed  
spindle in either direction the locking opera-  
tion can be readily performed.

I claim and desire to secure by Letters Patent  
10 of the United States—

In a permutation lock, the combination, with  
the circularly-chambered case having the ap-  
ertured front plate and the apertured staple  
or bolt, of the circular notched tumblers hav-

ing the varying-sized projections upon their  
inner circumferences, the tongued spindle, the  
15 slide or bar having the tooth or projection  
bearing upon the peripheries of the tumblers  
and adapted to connect with the staple and  
the dial B, substantially as specified. 20

In testimony that I claim the foregoing as  
my own I have hereunto affixed my signature  
in presence of two witnesses.

SANDER H. LEIKVOL.

Witnesses:

NORMAN K. OLSON,  
JAKOB H. KOLODRIK.