A. HEILBRUN.
Permutation-Lock.

No. 207,354. Patented Aug. 27, 1878.

Fig. 1

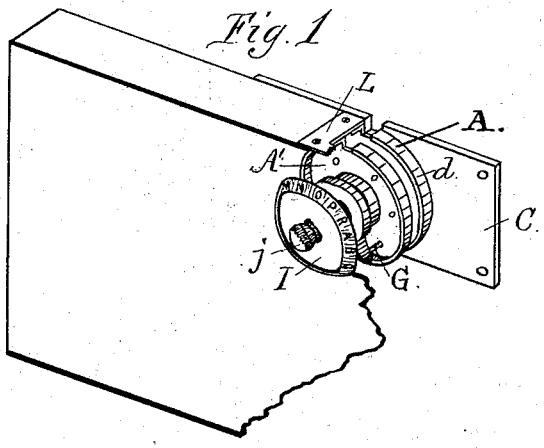


Fig. 2.

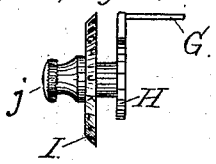


Fig. 3.

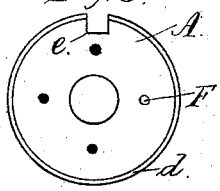


Fig. 4.

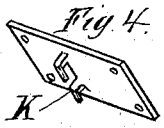


Fig. 3*

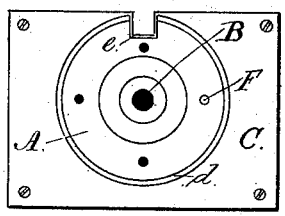


Fig. 6.

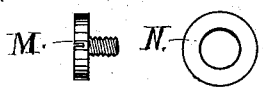


Fig. 7.

Fig. 5.

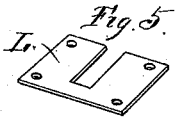
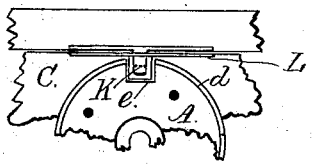


Fig. 8.



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By John J. Halsted
Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER HEILBRUN, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY CLOSTERMAN, JR., OF SAME PLACE.

IMPROVEMENT IN PERMUTATION-LOCKS.

Specification forming part of Letters Patent No. **207,354**, dated August 27, 1878; application filed December 10, 1877.

To all whom it may concern:

Be it known that I, ALEXANDER HEILBRUN, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Permutation or 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, and to letters of reference marked thereon, which form a part of this specification.

My invention has for its object the production of a simple and cheap keyless combination-lock, admitting of as many permutations or changes of combination as may be needed, and adapted to perform all the requisite functions of a more complicated lock, and yet entirely free of springs or bolts, the tumblers themselves being made to perform the duties of a bolt.

The invention consists, mainly, in combining two flanged disks with a driving-pin on the arbor of the dial, one of the disks having a hole or series of holes to admit such pin through such hole or holes, and the other disk having a projection or pin on its face, to be actuated at a proper period by the driving-pin on the arbor; and in a double-hooked hasp, serving to lock both such disks, all as hereinafter more particularly set forth.

Figure 1 is a perspective view of my improved lock applied to a drawer; Fig. 2, an edge view of the dial and its connected parts; Fig. 3, the rear tumbler detached, and Fig. 3* the same in its relation to the back-plate; Figs. 4, 5, 6, 7, separate parts in detail; and Fig. 8 shows the relative positions of the catch or hasp and of the tumblers when unlocked.

A A′ are the disks or tumblers, (two only being required,) each being made with a rim. They are supported or pivoted on the pin B, which projects from the plate or frame C. The rim *d* of each tumbler has an opening or slot, *e*, and these slots are cut a little way into the disk or tumbler itself, if desired. The rear tumbler has a circular series of holes to receive the pin or screw F. The front tumbler, A′, has a series of holes, two or more, as may be desired, arranged in circular series, each adapted for the reception of the pin G, which projects from the nut H, which latter holds to its place the dial I, by means of the arbor *j* passing through and secured to said dial.

Upon the face of the disk or tumbler A is a pin, F.

Upon the frame or body of the piece of furniture, trunk, or other article having the door or drawer to which my improved lock is applied, is a hooked pin or hasp, K, adapted to be engaged with and locked by the revolving disks or tumblers above described.

The hooked pin or pins K, when the slots *e* of the two disks or tumblers are in line with each other and the lock open or unlocked, project into these slots, and then, when the tumblers are turned upon their centers, the hooked parts of either or both pins K, as the case may be, are caused to pass under the rim of the tumblers, thereby locking the drawer, trunk, or safe, and preventing the locked lid from being raised or the fastened drawer from being drawn out.

L is an ordinary slotted plate, through which the hooks or catches K project to engage with the tumblers. M is a screw, and N a washer, for connecting the tumblers to the back-plate C.

The combinations for opening the lock are obtained by means of the screw or pin F, placed in any desired one of the holes in the rear tumbler. When the pin G is passed through the hole in the front tumbler, A′, and made to revolve by turning the arbor, it carries the front tumbler around until the pin G comes in contact with the screw F, and the rear tumbler will then be revolved by it. To change the combination, it is only necessary to change the screw F from one hole to another.

To ascertain the combination for opening the lock, revolve the tumblers to the right until the slot *e* of the front one is immediately beneath the hooked pin K. The letter or figure on the dial-plate directly under the slot *e* and rim K will be the combination letter or figure for opening the front tumbler. Now, reverse the arbor by turning slowly to the left until the slot of the rear tumbler shall be on a line with the slot in the front one, and also directly under the pin K. The letter or figure

on the dial-plate directly under the slot *e*, as before, will be the letter or figure for opening the rear tumbler. Revolve the tumblers either to the right or left, and the lock is closed. To open it, make one or more revolutions to the right, stopping with the letter or figure first observed directly under the pin K; reverse the tumblers, stopping at the letter or figure next observed, and the lock will be opened.

I claim—

1. The combination of the two flanged disks A A′ with the pin G of the arbor, the disk A being furnished with a pin on its inner face, and the disk A′ being provided with a hole or series of holes through it, and through which the pin G passes, said pin serving at the proper period to actuate the disk A by coming in contact with its pin or projection F, substantially as shown and described.

2. In combination with the flanged disks A A′ and their respective holes and pin F and the pin G of the arbor and dial, the double-hooked hasp, as described, and shown in Fig. 4.

ALEXANDER HEILBRUN.

Witnesses:

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E. GILLIGAN.