

UNITED STATES PATENT OFFICE.

WILLIAM C. LANGENAU, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN ADAM LANNERT, OF SAME PLACE.

IMPROVEMENT IN COMBINATION-PADLOCKS.

Specification forming part of Letters Patent No. 144,114, dated October 28, 1873; application filed September 22, 1873.

To all whom it may concern:

Be it known that I, WM. C. LANGENAU, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Combination-Padlock; 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 forming a part of this specification, in which—

Figure 1 is a plan view. Figs. 2 and 3 are vertical sections. Fig. 4 is a plan view of a modification.

The invention relates to permutation-locks; and consists in novel and useful means for enabling the combination of numbers to be readily and conveniently changed.

A represents the case, and B the bow, of a padlock having the recess *b*, in which is shot a vibratory bolt, C, by the raising of the tumbler D. The latter is elevated as soon as the disks E are turned, so as to throw the projections of the tumbler D out of the notches of the disks. To each of these notched disks E is fastened a spur-wheel, F, which is loose on the same shaft, and turned by a side stud, *g*, on knob-wheels G G G. These are all old in their combination and mode of operation. The disks and spur-wheels are journaled upon pins projecting from the upper side of a plate, H, which is interposed between the tumbler D and an oscillating plate, K. This plate H has a sliding movement upon the stud L, and is yieldingly held against the oscillating plate K by a spiral spring that encircles the stud L.

When it is desired to change any combination of numbers which has been in use, it is necessary to disconnect the wheels E F from the stud-wheels G, so that either or all of them can be freely rotated and changed in the number of spurs or relative distance of the studs

from the notches in which the projections of tumbler are received. In order to accomplish this easily, and at the same time by a device which will not be in the way on the outside or inside of lock, I provide the oscillating plate K, having on its subjacent side the curved projections *kkk*, which, when turned, slide on the plate H, and thus force it and the tumbler up against the spring I, so as to connect the notched disks E F and the stud-wheels, but which, when turned back but a short distance, enter notches *h h h* in plate H. The spring I then lowers the wheels E F so that the stud *g* is held out of the spurs of wheel F, when the wheels G may be set at any desired relative position. The plate K *k* has a central aperture, *k*¹, whereby it is fitted upon the stud L, and is also provided with an elongation, *k*², which rests in the throat *a* of the case. To admit of this position, the bow is recessed in front.

By simply vibrating the plate K, the lock may be placed in condition to allow of any desired change in the combination.

Instead of an oscillating, I may use a reciprocating, plate. In order to do this it is only necessary to elongate the aperture for the stud L, and make the bevels *k* to run in the same direction as the slot, as shown in Fig. 4.

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

The plate K, fitted to move on stud L, having the curved projections *kkk*, combined with subjacent plate H having notches *h h h*, as and for the purpose described.

WILLIAM CHRISTIAN LANGENAU.

Witnesses:

P. W. PAYNE,
C. R. HELLER.