

R. A. LEE.

Permutation Pad-Locks.

No. 148,471.

Patented March 10, 1874.

Fig. 1.

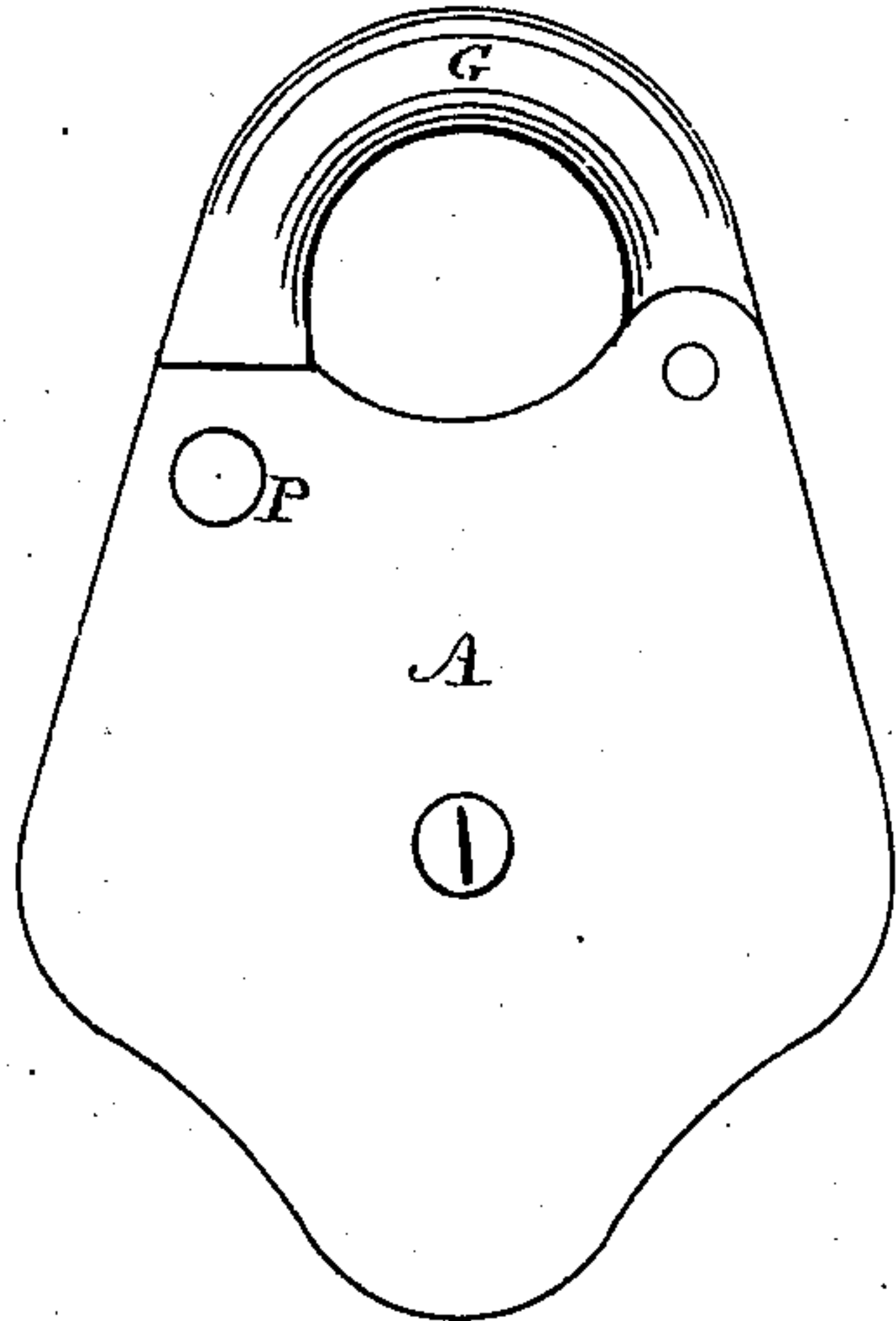


Fig. 2.

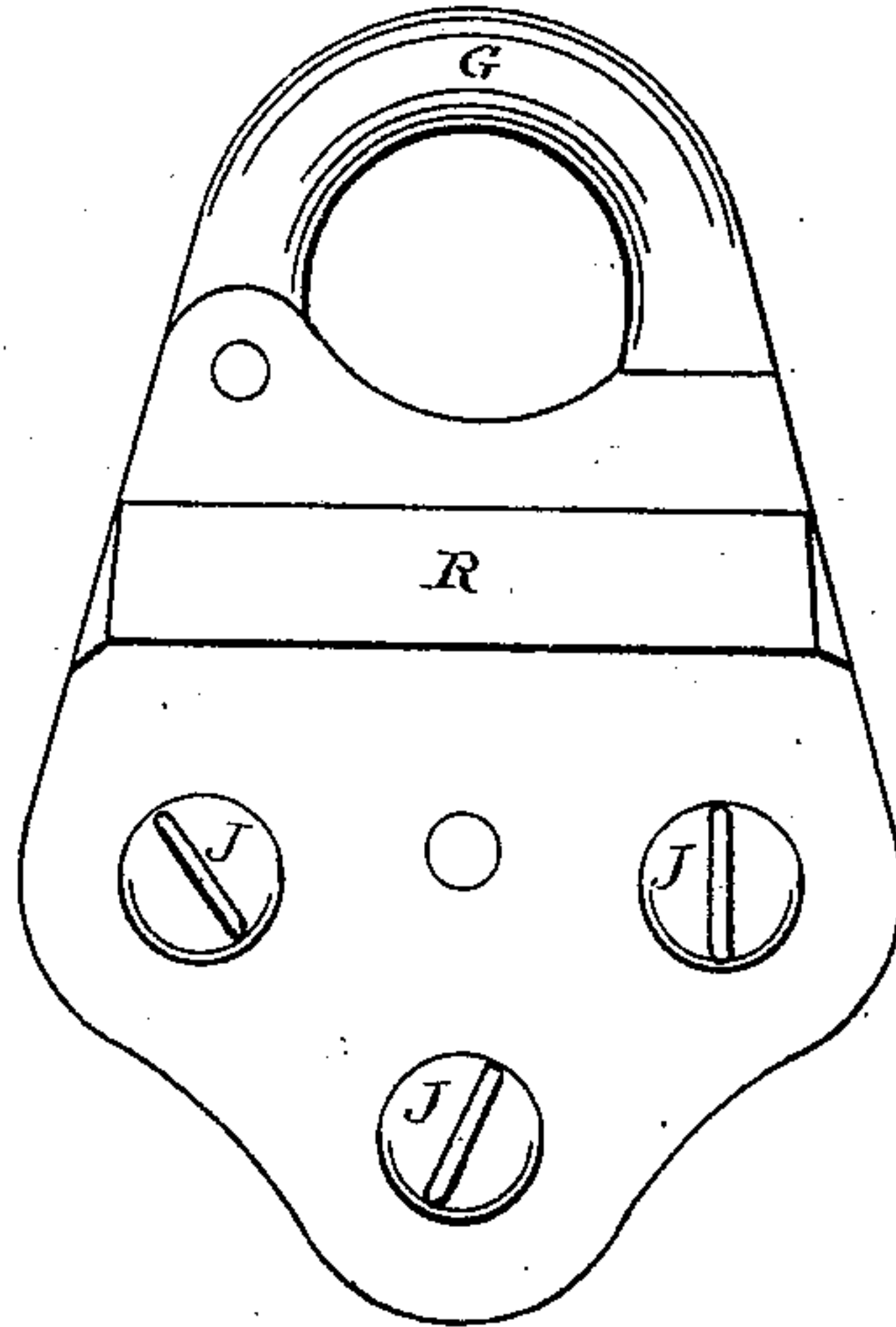


Fig. 3.

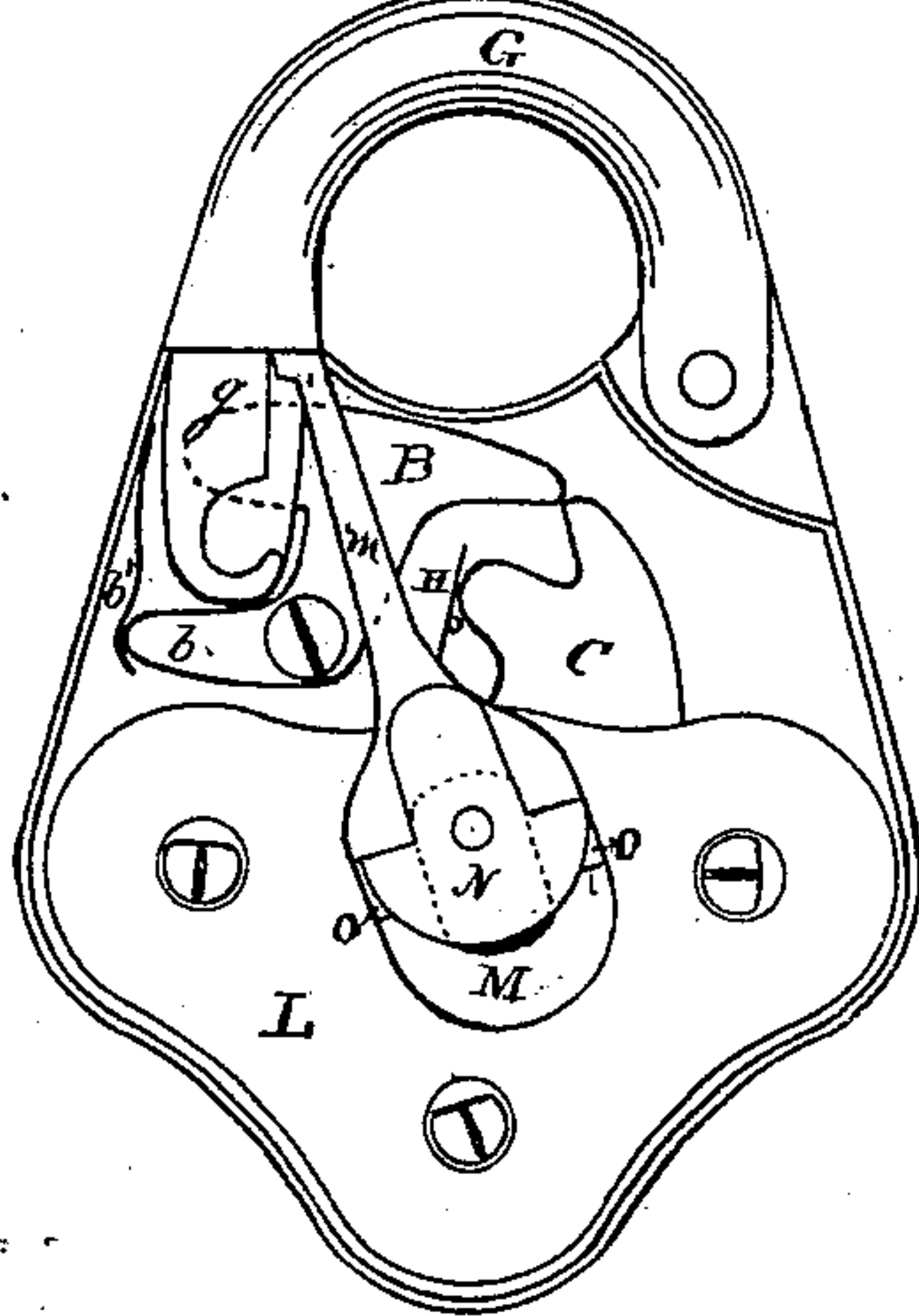


Fig. 4.

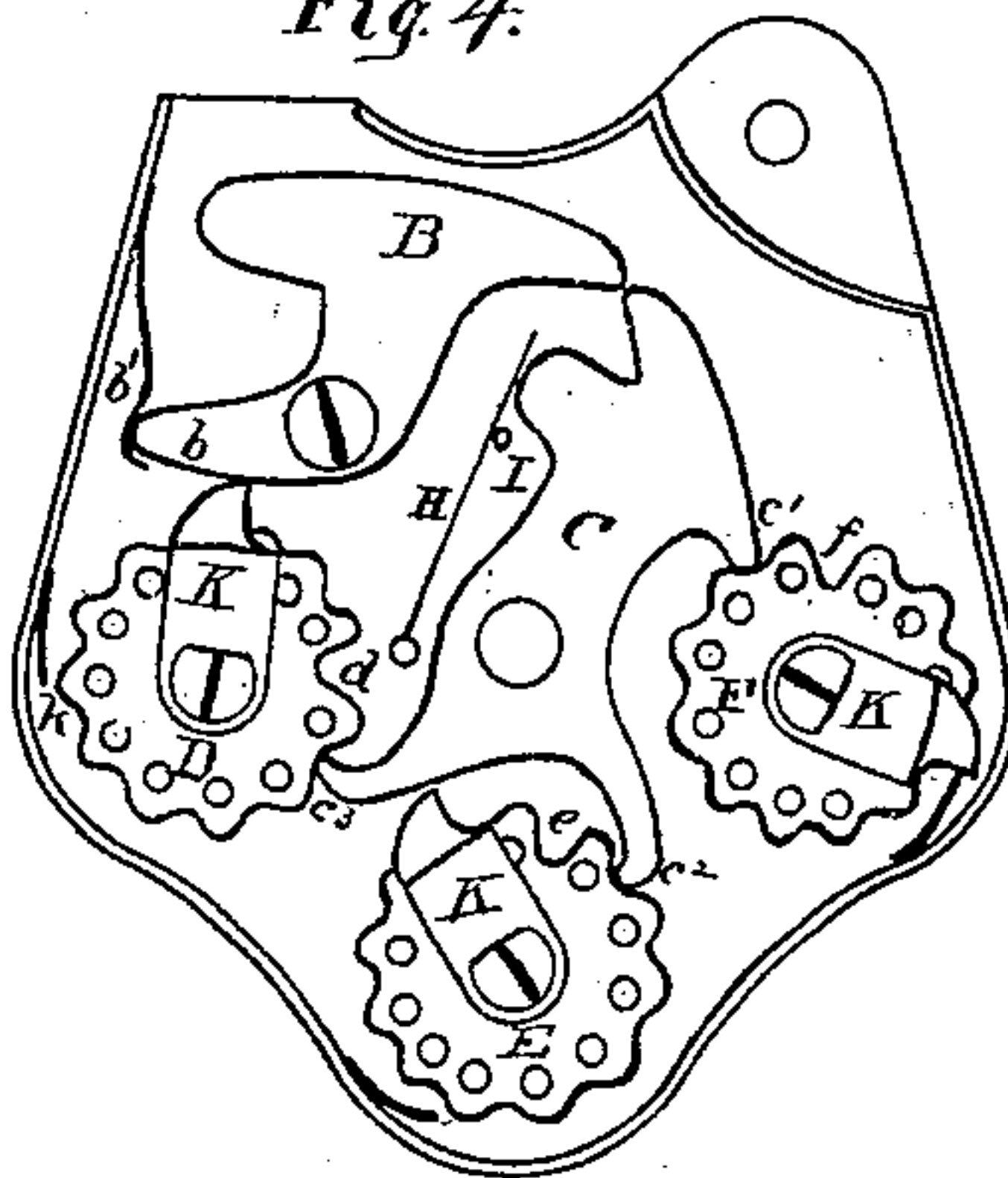
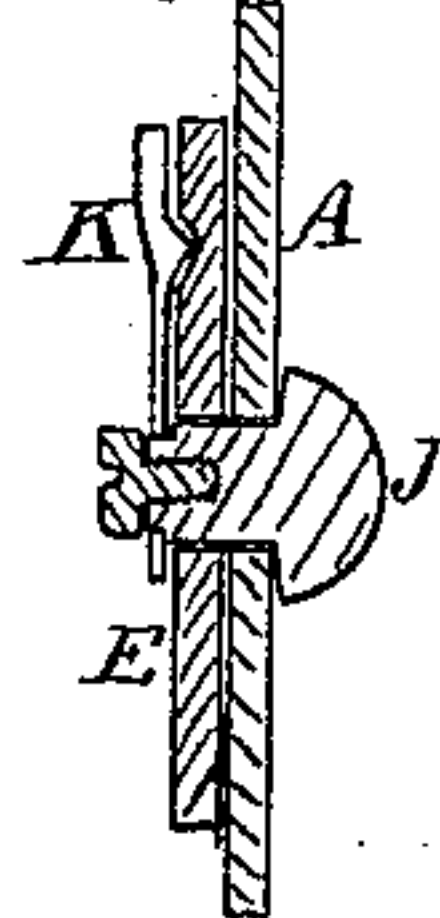


Fig. 5.



Witnesses.

L. A. Tibbitts  
Geo. Hymes

Inventor.

Rollin A. Lee  
Per Geo. W. Tibbitts Atty.

# UNITED STATES PATENT OFFICE.

ROLLIN A. LEE, OF CLEVELAND, OHIO, ASSIGNOR TO LUCIUS T. TALBOT,  
OF SAME PLACE.

## IMPROVEMENT IN PERMUTATION-PADLOCKS.

Specification forming part of Letters Patent No. 148,471, dated March 10, 1874; application filed  
January 3, 1874.

*To all whom it may concern:*

Be it known that I, ROLLIN A. LEE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented an Improved Permutation-Padlock, of which the following is a specification:

This invention relates to that class of padlocks in which the bolt is secured by a tumbler engaging with disks which are set in a given position, determined by a certain combination of numbers. The invention consists of a permutation-lock mechanism, more especially adapted to padlocks composed of a combined tumbler and dogs, notched counting-wheels or disks, having spring shifting-plates, a bolt and spring-seat therefor, and a retaining-plate, slide, and pivot, combined, arranged, and operating as hereinafter more fully set forth and claimed.

To enable others to fully understand my invention, I will proceed to describe the same in detail, with reference to the accompanying drawings.

Figure 1 is the obverse, and Fig. 2 is the reverse, side of my improved lock. Fig. 3 is a view of the interior of the lock, the outside plate being removed. Fig. 4 is a similar view with the shifting slide and plate removed, exposing the counting-wheels or disks, and the shifting-plate for operating said disks. Fig. 5 is a detached sectional view of one of the disks, showing the relation of the shifting-plate therewith.

The lock-case A may be made in the form shown, or of any other suitable construction. The bolt B is made in the form of a letter T, pivoted to the back plate of the lock, and has an arm, *b*, extending to the left, and engages with a bent spring, *b'*, secured to the side of the lock, the object of which is to hold the bolt steadily in place, and prevent rattling and consequent wear of the point of said bolt where it comes in contact with the tumbler C. The tumbler C is pivoted at the center of the lock, and has three arms or projections,  $c^1$   $c^2$   $c^3$ , which engage with the notched disks or counting-wheels D E F, which also constitutes the tumbler a counting pawl or dog, the top end of said tumbler engaging with the bolt B. The

said projections  $c^1$ ,  $c^2$ , and  $c^3$  are designed to enter deep notches *d e f* in the said disks, by which the tumbler is moved aside, and allows the bolt to move out of the catch-hook *g* of the shackle-bow G. A spring, H, is placed by the side of the tumbler C, for keeping the projections  $c^1$   $c^2$   $c^3$  in contact with the disks; but it does not force them into the deep notches, a pin, I, placed by the side of the spring limiting its play. The disks or counting-wheels are placed loosely on short spindles or arbors set in the bottom plate, which have thumb-nuts J J J attached and lying on the outside of the lock for turning them. To the arbors are secured spring shifting-plates K K K, having a lug on the side next the disks, which engage with serrations or corrugations in the faces of the said disks, the said corrugations radiating from their centers. In the drawing, holes are shown in the disks, these being more convenient to make. Above the disks and shifting-plates is placed a plate, L, and over which is placed a shifting-slide, M, consisting of an open frame, embracing the large pivot N, which passes through the tumbler, and is screwed into the back plate of the lock. The said pivot N has a broad head, under which the slide M plays, the slide having two inclined lugs, *o o*, on its upper side, which are designed, when the slide is pushed in, to hold the plate L down onto the shifting-plates K K K, and keep them in contact with the disks, so that the disks may be turned with the arbors. The slide M has an arm, *m*, reaching up to the opening where the shackle-bow enters the lock. This is for the purpose of drawing the slide outward, so as to release the pressure of the plate L on the shifting-plates K K K, which, by turning the thumb-nuts J, enables them to be sprung up, withdrawing their wedge-shaped lugs from the corrugations in the disks. In this manner the combinations of numbers are changed, which when the change is made, the slide being again pushed in, the plate L bears on the plates K K K, and the lock is ready to be operated on the new combination. On the side of the lock, and above the thumb-nuts J, is secured a plate, R, set in an inclined position, and is designed for a weather-shield, as,



this being the side of the lock which lies against the door or house, the lowest end of the lock is held off by the said plate R, and causes water to run off from the lock onto the door, and run down away from it. When the disks are in position shown in Fig. 4, the bolt is locked on combination 771. Now, in order to unlock it, the disks must all be turned to the right, until the points of the plates K K K rest against the projections or springs  $k$  on the lock-case, when, the disks now being turned to the left, and counting the clicks which the tumbler-dogs make in riding over the notches of the said disks, counting seven for the disk D, seven for the disk E, and one for the disk F, the deep notches  $d e f$  are brought next to the projections  $c^1 c^2 c^3$ ; (the said projections do not, however, drop into the said deep notches.) The shackle-bow can now be withdrawn, the said projections being pushed into said deep notches by the tilting of the bolt D, which pushes against the tumbler, which can now be moved aside. It will be observed that there is no difference in the sound of the clicks on the disks between the shallow notches and the deep ones, so that the deep ones are not betrayed by sound.

In order to change the combination of numbers, the lock must be unlocked, and, the projections  $c^1 c^2 c^3$  resting in the deep notches, which hold the disks from being turned, then the arm  $m$  of the slide M is drawn outward, relieving the pressure of the plate L on the

plates K K K which will now allow the said plates K K K, to be turned, and thus change their position in their relation to the disks; and the plate L again pressed down, by pushing in the slide M, the lock is ready to operate on new combination.

Having described my invention, I claim—

1. In a permutation-lock, the tumbler C, constructed with projections  $c^1 c^2 c^3$ , combined with the bolt B and disks D E F, the operation of which is controlled by spring H and pin I, in such manner as to hold the tumbler projections out of the notches  $d e f$  in the disks, and thus prevent the detection of the combination and opening of the lock, substantially as described.

2. In a permutation-lock, the notched disks or counting-wheels D E F, arranged to operate independently of one another, and combined with spring shifting-plates K, having wedge-shaped lugs or projections on their undersides, operating in notches in the face of said disks, for the purpose of providing a starting-point for counting and setting the combination, substantially as described.

3. In a permutation-lock, the notched disks and shifting-plates, in combination with a holding-plate, L, slide M, and pivot N, as and for the purpose specified.

ROLLIN A. LEE.

Witnesses:

GEO. H. TIBBITTS,  
L. T. TALBOT.