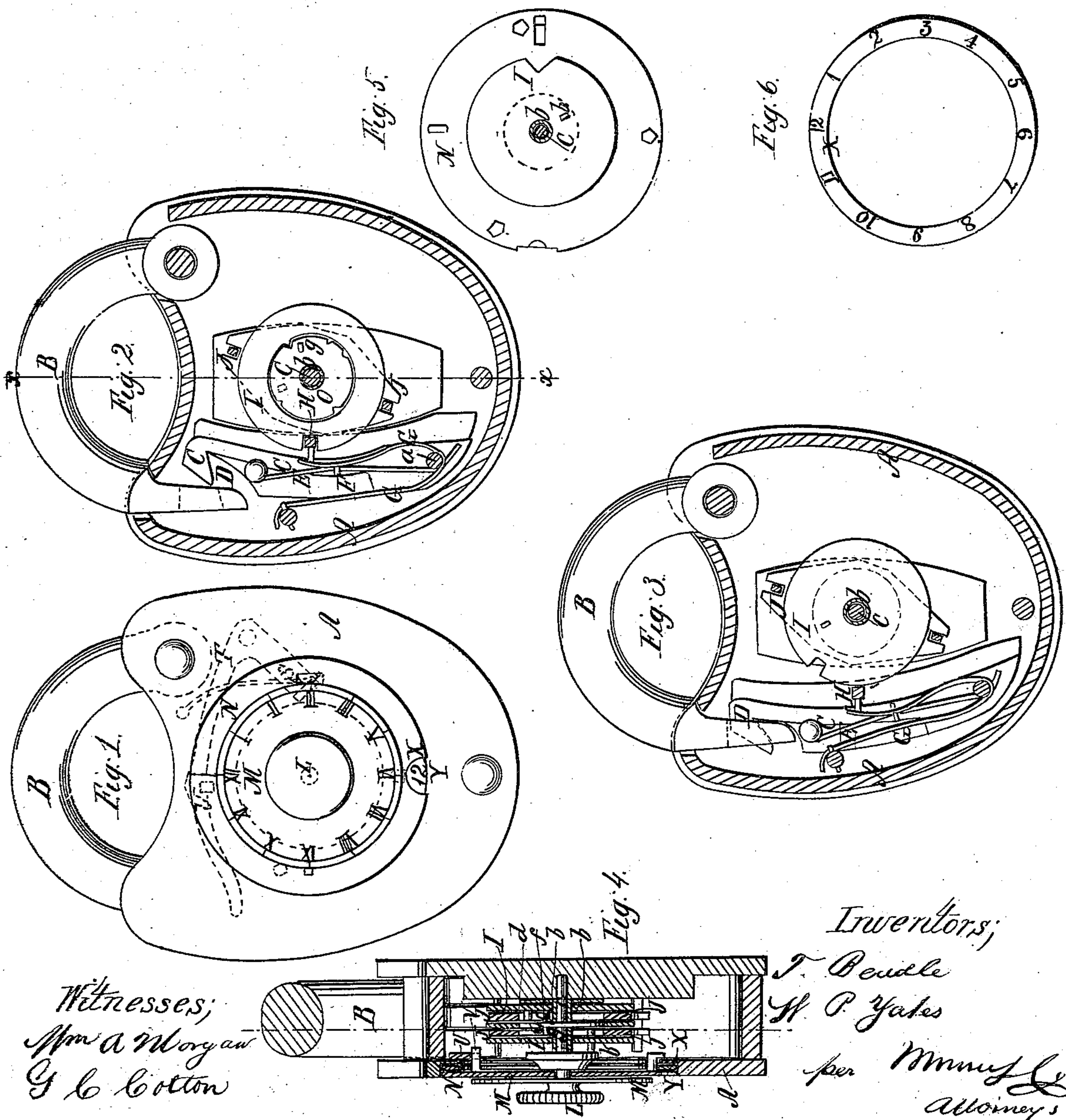


Beadle & Yates.

Permutation Padlock.

N^o 4,274.

Patented Aug. 31, 1869.



United States Patent Office.

TRACY BEADLE AND WILLIAM P. YATES, OF ELMIRA, NEW YORK.

Letters Patent No. 94,274, dated August 31, 1869.

IMPROVEMENT IN PERMUTATION-PADLOCK.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, TRACY BEADLE and WILLIAM P. YATES, of Elmira, in the county of Chemung, and State of New York, have invented new and useful Improvements in Locks; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates more particularly to that class of locks commonly known as or called combination or permutation-locks; and

The invention consists in a novel construction and arrangement of the various parts composing the lock, whereby many important advantages are secured, as will be obvious from the following detail description thereof, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a view of the front side of the lock;

Figure 2, a view of the interior of the lock-casing, with its front plate removed, showing the lock as unlocked; and

Figure 3, a similar view to fig. 2, but with the lock locked.

Figure 4, a transverse vertical section, taken in the plane of the line $x-x$, fig. 2, and

Figures 5 and 6, detail views of parts of the lock to be hereinafter referred to.

Similar letters of reference indicate like parts.

A, in the drawings, represents the casing to the lock, which is of the ordinary form of a padlock-casing.

B, the shackle or link-bar, hung at one end to the casing A, so that its free end can be swung into and out of the same.

C, a hook-lever, hung by its lower end upon a fulcrum-pin, a , of the lock-casing, in suitable position for its upper or hook-end D to engage with and fasten in the shackle or link-bar B, as it is thrown forward by the action of the spring E, suitably hung to it therefor.

F, a plate, placed below the hook-lever C, and on the fulcrum-pin a ; this plate being provided with a bent spring, G, suitably attached or connected therewith, to act or to throw, and to hold its upright stud or pin H against the periphery, or edge of a series of flat circular plates or disks, I, placed one above the other, but separated and held from each other, in parallel planes, by means of plates J, fixed between them.

These disks are concentric with each other, and, in the present instance, consist of three, the two under or lower ones of which loosely turn upon the hollow centre-pin b of the series, while the upper one is fixed to a centre spindle, c , turning in said hollow pin b . This centre spindle c extends through the front plate

of the lock-casing, upon the outside of which it is provided with a knob, L, suitable for turning it, and with a circular concentric plate, M, that, around its edge, is marked off into equal divisions or graduations, that, in the present instance, are twelve in number, marked in regular succession, from 1 to 12 inclusive.

The graduated plate M moves upon another plate, N, below, by which it is secured and locked in the front plate of the lock-casing, as will be hereinafter particularly described.

In the upper side of the lower disk is secured a pin, d , and to the under side of the central detachable portion O of the next disk above, another pin, f , which pin f and the pin d are at equal distances from the centre of the disks.

g , a pin in the upper side of the middle disk, and b , a pin in the under side of disk attached to centre spindle c , both at corresponding distances from the centre of the disk.

Each disk I, at its edge, is notched at one point, as shown in the drawings, the notches in the two lower or under disks being square, and that in the upper, triangular shape.

By turning the upper disk around, when its pin has abutted against the pin of the disk next below, such disk will be carried around with it, and thus, through the pin, upon its under side, the disk next below, when the whole series will then be moving together and as one.

When a lock, of the above construction and arrangement of parts, is locked, the pin H, of the swinging latch-plate F, is against the edge of the disks I, out of the notches of such disks, as plainly shown in fig. 3, of the drawing, when, to unlock the lock, it is only necessary to bring the notches in the same line or plane with each other, as well as opposite to the pin H of the swinging latch-plate, so as to allow it to pass into the same, and thus relieve or unlock the spring-catch from the shackle or link-bar.

The above-stated movement or relative adjustment of the disks I is produced by turning the graduated disk, either to the right or left, according as may be required or be found necessary, to bring the notches of the disk to the relative position described, the graduations of the plate enabling such movements to be recorded or indicated in each case, one example of which combination of movements may be here cited, as follows, viz:

Bring 10 of the graduated disk to the index-mark of the plate three times, by turning such disk to the right each time, this movement of the disk properly setting the notch of the lower notched disk or plate I; then bring $7\frac{1}{2}$ of the graduated disk to the index-mark of the plate two times, by turning such disk to the left each time, thus setting the notch of the middle or intermediate notched disk or plate I. After the above,

turn the graduated disk to the right until its first graduation corresponds to the index-mark, which properly sets the notch of the upper and the last of the series of notched plates, when the pin, then springing into such notches, the shackle or link-bar of the lock is released or unfastened, as before stated.

By removing the detachable central portion of any one of the disks of the series of disks I, and then reinserting, with its pin in a different position, the combination of movements for the rings can be changed accordingly, and therefore, in order to facilitate the taking apart of the lock, to enable the said disk to be reached, the graduated disk of the lock, as hereinbefore stated, is locked to the front plate of the casing.

The locking and unlocking of the graduated disk is accomplished when the lock is unlocked, by bringing the notches of the several disks I in line, for the end S of the spring-lever catch T to enter them, which movement of the said catch sets its other end, U, free from the notched lug V, upon the under side of the plate N, to and on which the graduated disk M turns, thus leaving the said disk free to be removed from the lock-casing.

In fig. 6, a circular ring, X, is shown, which is marked with the figures from 1 to 12, in regular order and succession; this ring being arranged under the plate N, on which the graduated disk moves, so as to be turned or revolved, to bring any one of the series of numbers to the opening Y on the disk-plate, as is shown in fig. 1, where 12 is used as the number. By this means, the locks can be numbered, as it were,

and made of any number embraced by the numbered ring, so that by the use of lists having indicated upon them a certain combination of movements for each number corresponding to the numbers upon the ring X, it is plainly obvious that to those entitled to know, and having such lists in their possession, by performing the combination of movements set against the number of the list corresponding to that shown by the numbered ring, the locks can be locked and unlocked at pleasure, the particular and especial object of this numbered ring being to more fully adapt the lock for use upon railway freight-cars.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the revolving notched disks I, with the swinging plate F, carrying spring-latch O, when arranged to operate together, and respectively constructed, substantially as described.

2. The spring-lever T, in combination with the notched disks I, graduated disk M, and notched lug V, to change the combination, substantially as herein shown and described.

3. The numbered ring X, attached to the lock in the manner described, for the purpose of numbering the same, as herein set forth and shown.

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Witnesses:

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