(No Model.) 2 Sheets—Sheet 1.

J. H. & H. MORRIS.

COMBINATION LOCK.

No. 451,334. Patented Apr. 28, 1891.

Fig. 1.

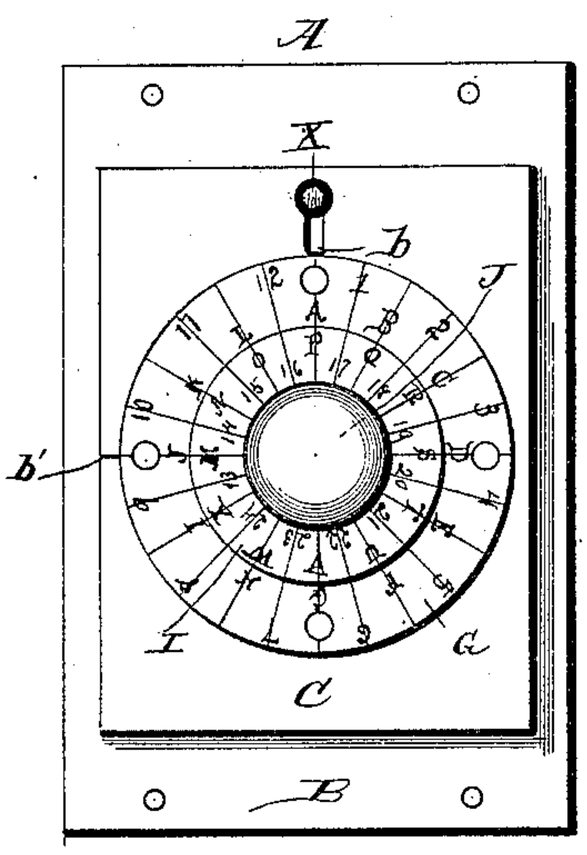
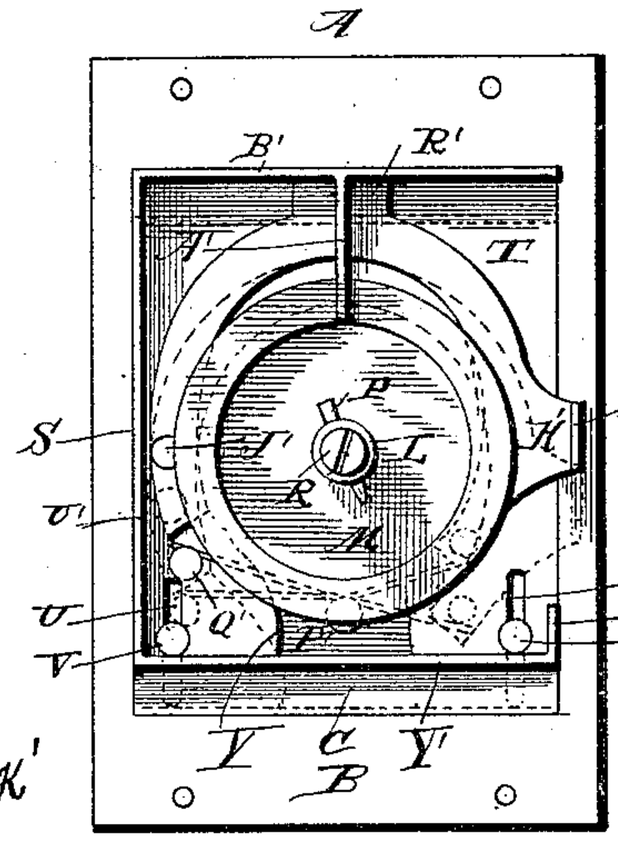


Fig. 2.



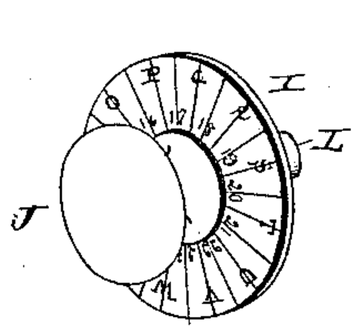


Fig. 13.

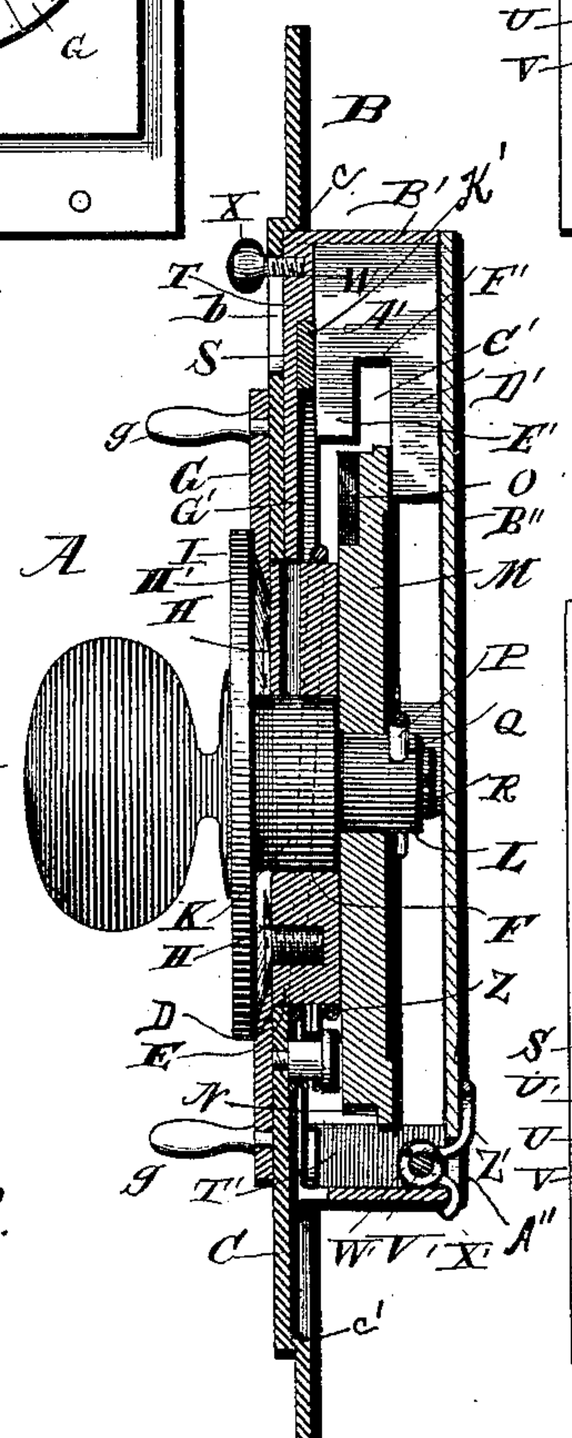
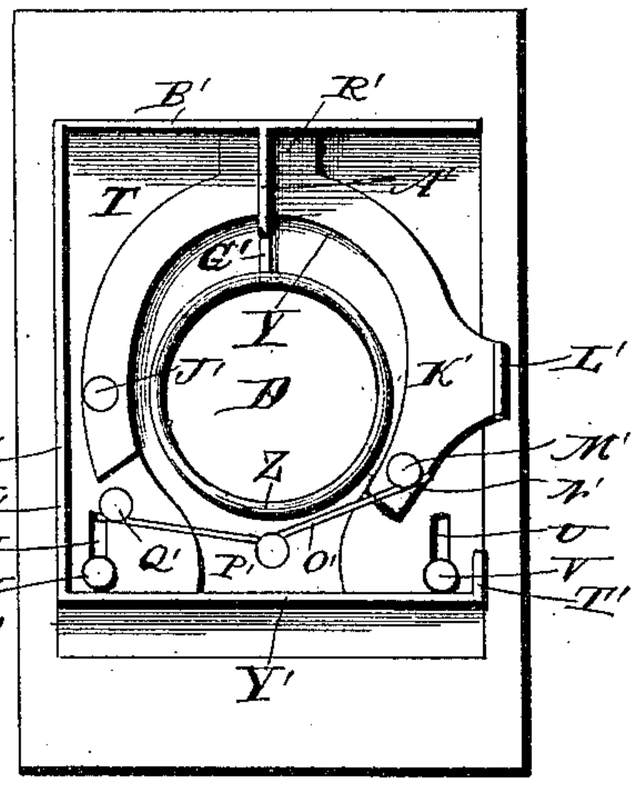


Fig. 3.

Fig. 4.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

J. H. & H. MORRIS.

COMBINATION LOCK.

No. 451,334. Patented Apr. 28, 1891.

Fig. 5.

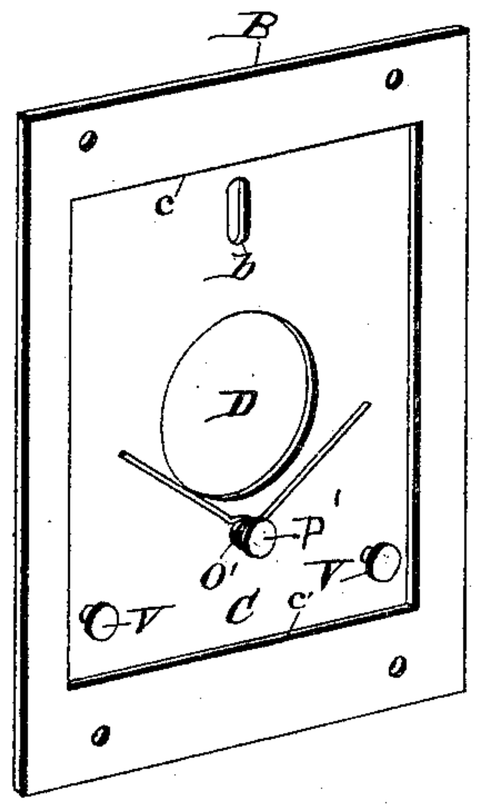


Fig. 7.

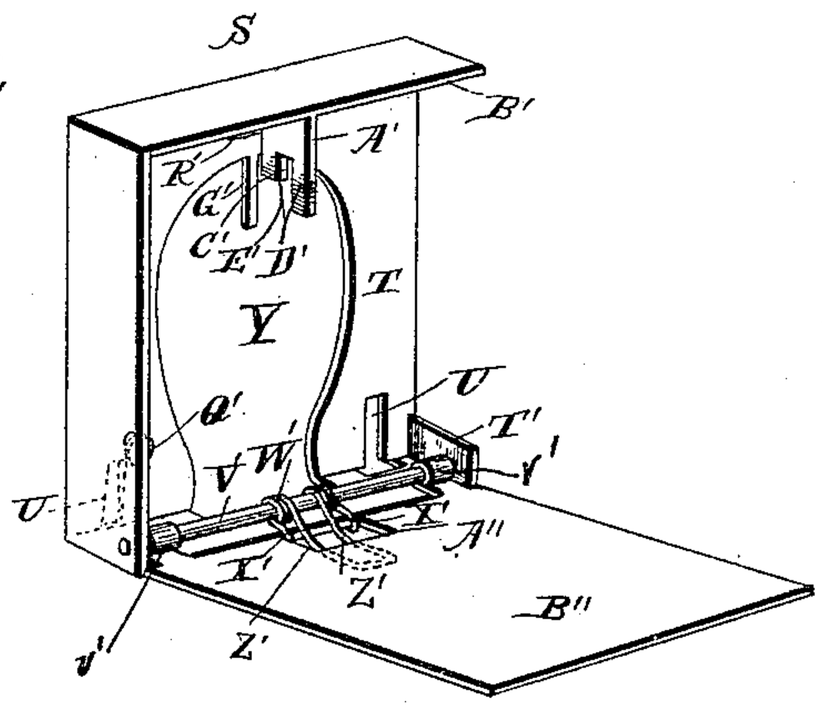


Fig. 6.

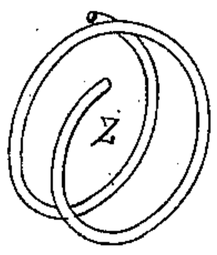


Fig. 8.

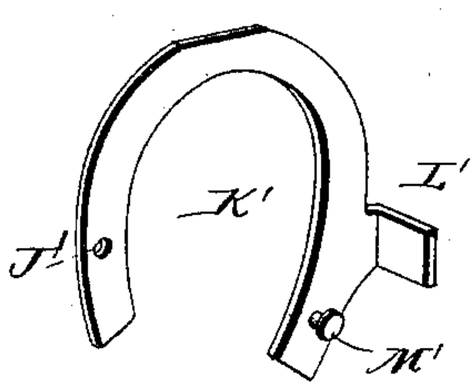


Fig. 9.

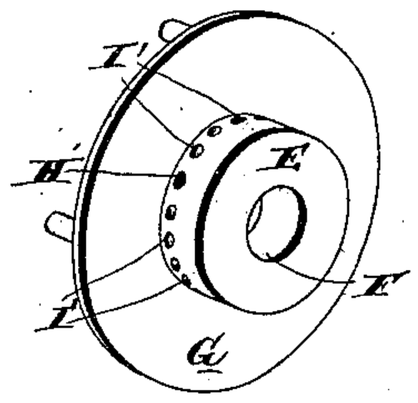


Fig. 10.

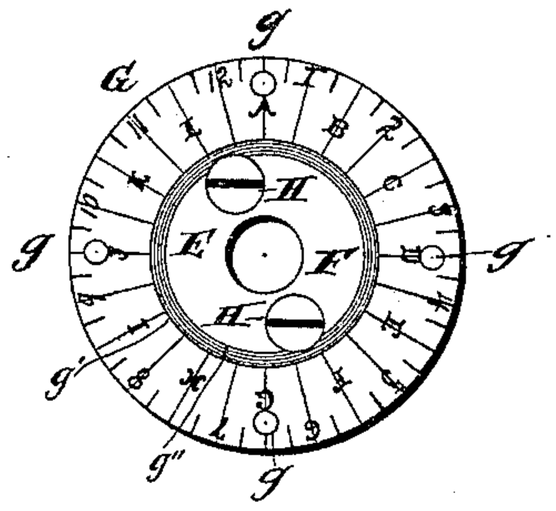


Fig. 11.

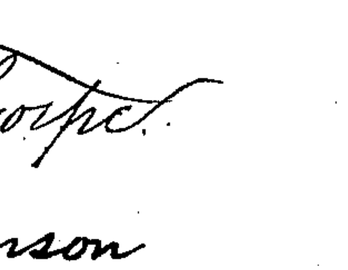
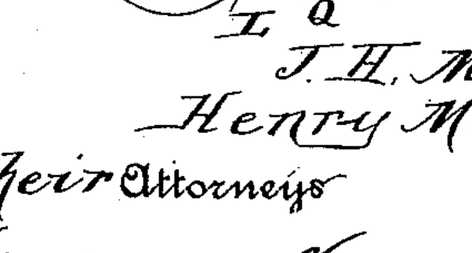


Fig. 12.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN H. MORRIS AND HENRY MORRIS, OF SEWARD, NEBRASKA.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 451,334, dated April 28, 1891.

Application filed November 15, 1890. Serial No. 371,579. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. MORRIS and HENRY MORRIS, of Seward, Seward county, Nebraska, have invented certain new and useful Improvements in Combination Spring-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to improvements in combination spring-locks; and it consists in the peculiar construction and arrangement of its parts, as will be fully set forth hereinafter, and particularly pointed out in the claims.

Our object is to provide a lock cheap and durable of construction, which may be applied to post-office boxes, trunks, &c., in which the combination may be changed at will without the necessity of removing the lock from the place where it is secured.

Referring to the drawings which illustrate this invention, Figure 1 represents a face view of our invention in position to be unlocked. Fig. 2 represents a rear view of the same. Fig. 3 is a vertical central sectional view of Fig. 1. Fig. 4 is a rear view showing the arrangement therein of the locking-lever. Figs. 5, 6, 7, 8, 9, 11, and 12 are detail perspective views of the several parts of the invention. Figs. 10 and 13 are views showing the opposite side of Figs. 9 and 12.

Similar letters refer to similar parts in all the figures, in which—

A represents a lock consisting of the base-plate B, having the rectangular offset C, provided with the circular perforation D, in which is journaled horizontally the cylinder or barrel E, having the central opening or bore F therethrough. A circular band G, provided with radially-arranged marks or lines suitably lettered or numbered on its face, and also with the outstanding pins or projections, the object of which will be hereinafter specified, is secured on the forward end of the hub E, the inner edge of the band G being beveled from the concentric line g' to the inner concentric edge g'', the flanged head of screw-bolts H, screwed into the forward end of the hub E, bearing against said beveled rear surface in such manner that the rear surface of the disk I, concentric to and bearing against the face of the band G, is out of contact with said screw-bolts H, as will be readily understood.

The disk I, having radial marks or lines suitably lettered or numbered, has projecting forwardly the knob or handle J, by which said disk is revolubly operated, and rearwardly through the box or cylindrical passage F of hub E the cylindrical spindle K, which is then preferably decreased in size, forming the spindle L, provided with interior screw-threads, the object of which will be presently explained. Keyed or otherwise rigidly secured on the spindle is the disk M, provided with the notches or recesses N at intervals around its periphery, one of these notches or recesses being extended radially inward, forming the groove or notch O. This disk M is held securely in place and on the shaft or spindle by the pin P, which passes through aligned openings Q in said spindle, and is held securely in place by the inner end of screw-bolt R, which engages the interior threads of spindle L.

Bearing normally against the upper shoulder c of base-plate B, and extending downward within a suitable distance of the opposite shoulder c', is a box or casing S. Said casing is provided in its base-plate T with the vertical and parallel slots U near its lower opposite corners, which engage suitable guide and retaining pins V, projecting rearwardly from the base-plate. Projecting forward from the upper central portion of said box or casing through a vertical slot b in the base-plate is a bolt or pin W, provided on its outer end with a button or head X. The said casing is also provided with the enlarged central opening Y, which straddles or surrounds the hub portion E of the band G.

Soldered or otherwise secured at one end to the base-plate B is a spring Z, which is coiled round the hub E and has its opposite end bearing against the adjacent face of disk M. The box or casing is also provided with the tongue or projection A′, depending vertically from its upper walls B′ and bifurcated at its lower end, forming the recess C′ and the outer and inner tongues D′ and E′, the tongue E′ being adapted, when the device is unlocked, to engage the recess or groove O of the disk M, the tongue D′ traveling radially on the rear face of the disk M until the rear

end F′ of the recess bears or abuts against the periphery of the disk M, the inner end of the tongue E′ bearing also against the inner end of the groove O. The tongue D′ projects beyond the periphery of the disk M and has a tendency to guide said disk in its revoluble movement. The box or casing is also provided with the vertically-depending and radially extending tongue or projection G′, engaging the radial groove or passage H′ of the hub E simultaneously with the engagement of the groove O by tongues E′. Said hub is also provided around its periphery with the aligned notches or recesses I′, the object of which will be presently specified.

Pivoted on the bolt J′ is one end of the locking-lever K′, which is provided at a point of the box or casing horizontally opposite the pivotal bolt J′ with the rearwardly-extending catch L′, which, when the device is locked, is adapted to engage a suitable catch on the door or trunk frame. The lower free end of this locking-lever is provided with the rearwardly-extending pin M′, having a shoulder N′, under which one end of a spring O′ is adapted to bear. The central portion of this spring is coiled round a pin or bolt P′, extending rearwardly from the base-plate B, and the opposite end of the spring bears under and against the rearwardly-projecting pin or bolt Q′ of the sliding casing S. The upper central portion of this locking-lever K′ is flattened and rests normally, and is adapted to operate between the tongues D′ and E′ and against the lower edge of the enlargement T of the box or casing. The side wall of this box or casing adjacent to the locking portion L′ of the lever K′ is dispensed with, having only at its lower outer corner the upwardly-projecting shoulder or flange T′, between which and the opposite wall U′ is journaled the shaft or rod V′, around which is coiled a spring W′, having its opposite end X′ permanently secured to the lower transverse wall Y′ of the box or casing and the loop Z′ of said spring W extending through an opening A″ and bearing against the outer or rear surface of a lid or cover B″ and holding it normally closed, as will be readily understood. This lid or cover is provided with the inwardly-extending ears *c*′, suitably engaging the rod V′ near opposite sides of the casing.

To operate our lock when the combination is J—M, revolve the band G and disk I in either direction until the marks or lines J and M of the respective disks are in alignment with each other and with the radial groove *b* in the face of the plate B, causing the radial grooves or slots H′ and O of the hub E, secured to the rear side of the band-dial G, and the disk M, secured to the spindle L of the disk I, to pause directly opposite and in radial alignment with the lower end of the tongues or projections G′ and E′ of the sliding box or casing. The button X on the outer end of bolt Y is now depressed, causing the said pin Y to travel or move toward the lower end of the slot *b* of the base-plate B, the box or casing rigidly secured to the opposite end of the said pin or bolt Y moving downward at the same time and the vertical slots U U at its lower corners traveling upon the rearwardly-extending pins V V of the base-plate B, said slots being prevented from displacement by the flanged heads of said pins V. The locking-lever K′, being secured to the box or casing, is carried with it during its downward passage. The spring O′, coiled at its middle around the stationary pin or projection P′, extending from the rear face of the base-plate B and having its opposite ends extending laterally and bearing loosely against the under side of pins or bolts M′ and Q′, is thus depressed, as shown in dotted lines, Fig. 2, while the device is in its unlocked position. Removing the pressure upon the button X causes the box or casing, and therefore the locking-lever, to resume the locked or normal position, and either one or both of the dials being turned the combination is lost.

The outer dial I may be revolved without affecting the position of the dial G; but when the dial G is operated the outer dial revolves also, because of the frictional contact between disk M and hub E, as will be readily understood. The advantage of this is that the device may be unlocked with little complication by turning either one of the disks. To effect a complicated locking both dials may be revolved.

The combination may be changed by engaging the radial grooves or slots in the hub E and disk M by the lugs G′ and E′ and then revolving the dial I until the desired number of the new combination is opposite or in alignment with the groove of the base-plate and combination number of inner dial G. The combination may also be changed by removing the dial I from the lock, engaging groove or slot H′ and tongue G′ of box or casing, loosening the screws H, which secure the band G to the forward end of the hub E, revolving the said band until the said number is opposite the groove of base-plate, tightening the screws, and the combination is changed, as will be readily understood. The dial and hub E may be constructed integral, but the advantage of having them removably secured together is obvious.

The object of the serrations or notches in the peripheries of the hub and disk M is to engage the lower ends of the tongues or projections G′ and E′ of casing S and prevent the revoluble movement of the disks should a person not knowing the combination depress the button X and try to find thereby the radial grooves or slots H′ and O of said hub and disk.

Should the lock be applied to a post-office box or in other position where the rear side of the lock is accessible, the hinged door B″ may be raised and the disks unlocked by depressing the free end of the lever K′, which,

as will be understood, when released is immediately returned to its former position by the arm of the spring O′, which bears against and under the projection M′ of said lever at its free end, as will be readily understood.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a combination spring-lock, the plate B, the sliding box or casing S, the locking-lever K′, the spring O′, the dial-band and hub G and E, the outer dial I, the cylindrical portion K, the decreased spindle L, the serrated or roughened disk M, and the pin and screw P and R for holding the several parts of the lock together, substantially as described.

2. The combination and arrangement of a base-plate B, having the projecting portion C, with a box or casing S, adapted to operate or slide in the recess on the inner side of said plate, substantially as described.

3. The combination and connection of a dial-band G with a hub E by a plural number of screws H, substantially as and for the purpose set forth.

4. The combination, with a base-plate B, of a dial-band G, the hub E, secured thereto and having a cylindrical passage F through said hub, the dial I against the outer face of dial-band G, the cylindrical portion K and decreased portion L, the serrated or roughened disk M thereon, having the radial groove or slot therein, and the pin and screw-bolt P and R, substantially as and for the purpose set forth.

5. In a lock, the combination, with a central spindle carrying a grooved disk upon its end, of a barrel surrounding a portion of the said cylinder and having a slot therein, and a movable casing inclosing the said disk and barrel and having tongues G′ and E′ thereon, adapted to enter the said slot and groove in the barrel and disk, respectively, as described.

6. In a lock, the combination, with a face-plate, of a barrel rotating therein, the said barrel having a notched periphery and a radial slot therein in lieu of one of the said notches, a spindle rotating within the said barrel, a disk upon the end of the said spindle, having a serrated periphery and a radial groove therein, and sliding casing upon the rear of the said face-plate, having tongues G′ and E′, adapted to enter the slot in the barrel and in the groove in the disk, respectively, as described.

7. In a lock, the combination, with a face-plate, of a barrel rotating therein, the said barrel having a notched periphery and a radial slot therein in lieu of one of the said notches, a spindle rotating within the said barrel, a disk upon the end of the said spindle, having a serrated periphery and a radial groove therein, a sliding casing upon the rear of the said face-plate, having a tongue thereon adapted to enter the slot in the said barrel, a block in the said casing, having a tongue thereon adapted to enter the said groove in the said disk, and a locking-lever pivoted in the said casing and passing between the said tongues, as described.

8. In a lock, the combination, with a face-plate, of a barrel rotating therein, the said barrel having a notched periphery and a radial slot therein in lieu of one of the said notches, a spindle rotating within the said barrel, a disk upon the end of the said spindle, having a serrated periphery and a radial groove therein, a spring encircling the said barrel and bearing upon the said disk, a sliding casing upon the rear of the said face-plate, having a tongue thereon adapted to enter the slot in the said barrel, a block in the said casing, having a tongue thereon adapted to enter the said groove in the disk, and a locking-lever pivoted in the said casing and passing between the said tongues, as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN H. MORRIS.
HENRY MORRIS.

Witnesses:
H. C. JOHNSON,
L. J. HIGDON.