No. 631,980. Patented Aug. 29, 1899.

M. BIRON.

COMBINATION LOCK.

(Application filed May 31, 1899.

(No Model.)

Fig. 1.

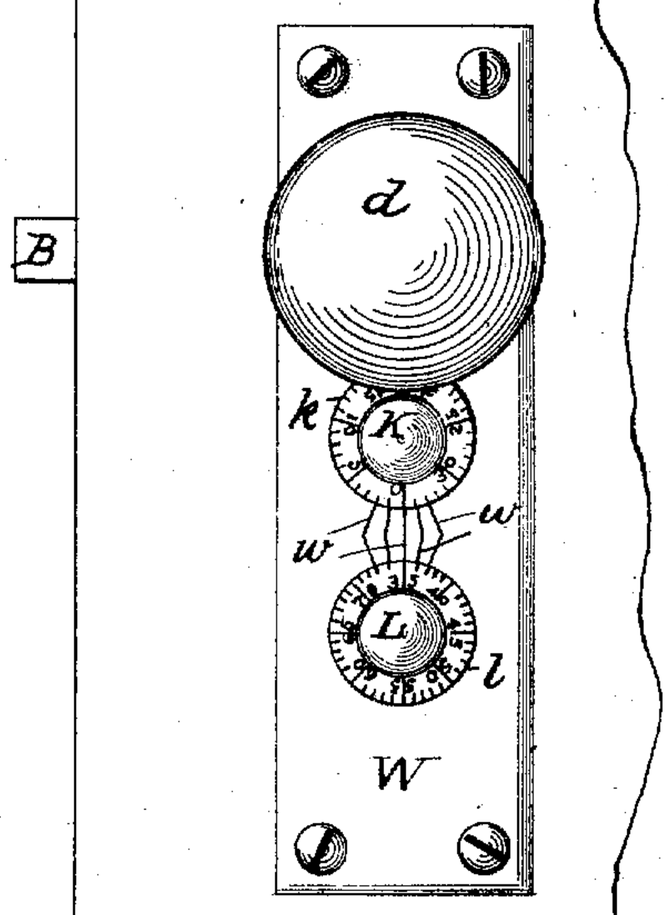


Fig. 2.

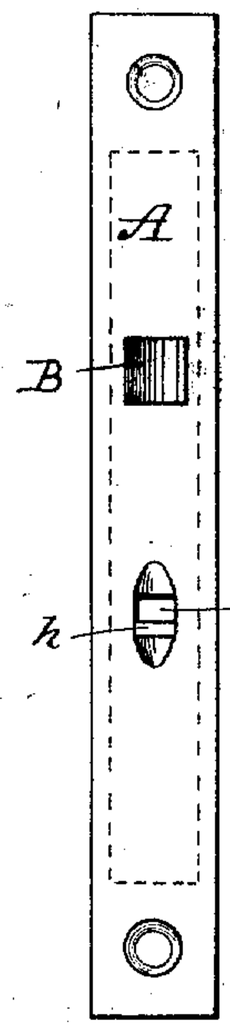


Fig. 3.

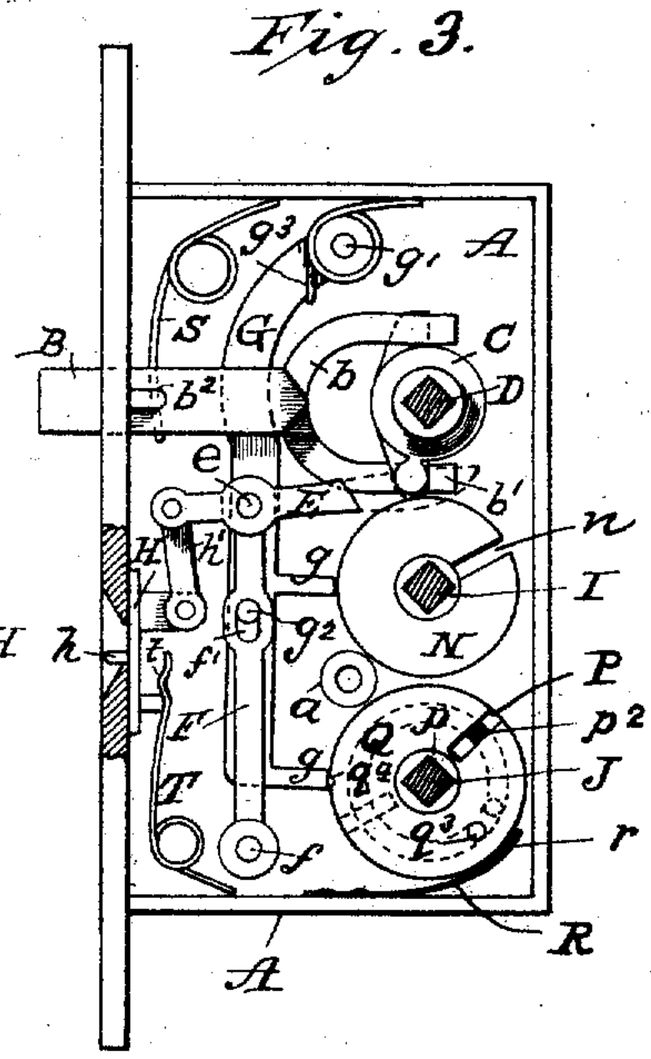


Fig. 4.

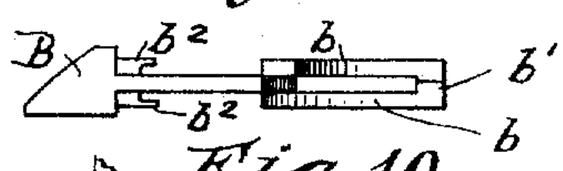


Fig. 5.

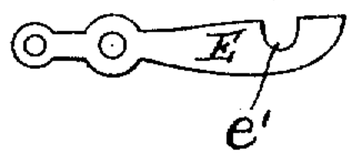


Fig. 6.

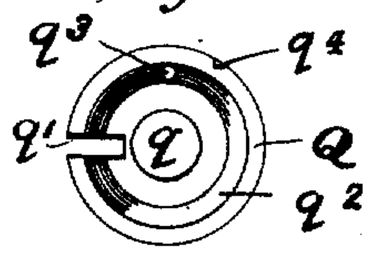


Fig. 7.

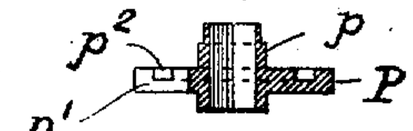


Fig. 8.

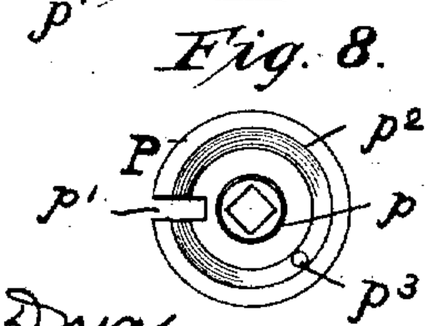


Fig. 10.

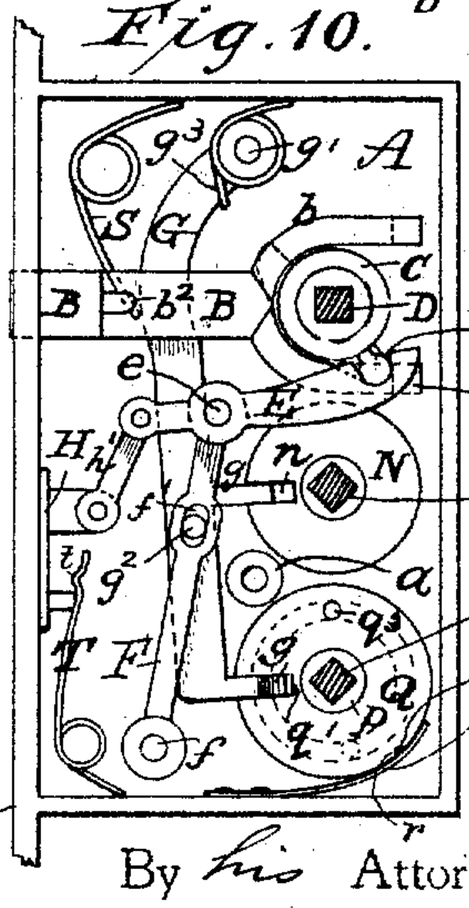
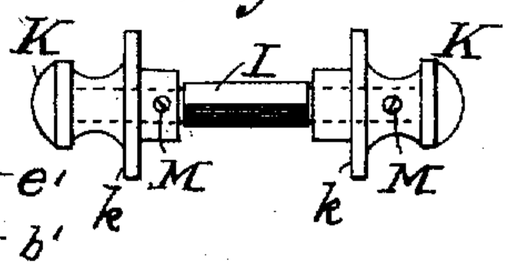


Fig. 9.



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UNITED STATES PATENT OFFICE.

MOISE BIRON, OF MANCHESTER, NEW HAMPSHIRE.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 631,980, dated August 29, 1899.

Application filed May 31, 1899. Serial No. 718,830. (No model.)

To all whom it may concern:

Be it known that I, MOISE BIRON, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Combination Door-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to produce a combination-lock suitable for house or office doors in which the combination may be quickly changed.

The invention will be fully set forth in the following specification and claims, and clearly illustrated in the drawings accompanying and forming a part of the same, of which—

Figure 1 is a broken side elevation showing a portion of a door with my improved lock applied thereto. Fig. 2 is an edge view of my lock as when detached. Fig. 3 is a detached view of my lock in broken elevation and having its side cover removed. Fig. 4 is an edge or plan view of the latch belonging to my improved lock. Fig. 5 is a detail of my improved combination coupler-lever. Fig. 6 is an inverted elevation of one of the tumblers of the lock. Figs. 7 and 8 are respectively a cross-section and elevation of another of the tumblers of my lock. Fig. 9 represents one of the spindles upon which to mount the tumblers and having its knobs attached. Fig. 10 is another view of the interior of my improved lock.

Similar reference-letters designate corresponding parts throughout all the views.

A represents the case in which the mechanism of my improved lock is secured, and *a* is a boss having a threaded perforation to which a screw may be fitted for securing a cover upon said case A.

B is a snap-latch having a yoke *b*, the ends of which terminate in right-angled projections *b'* for engaging the rocker C, which is mounted on the knob-spindle D, carrying the knobs *d*.

E is a lever which couples the rocker to the combination mechanism, as seen in Figs. 3 and 10, the former showing the combination mechanism in a position to hold the knob-spindle stationary, and the latter showing it as when set to open, the latch B having been drawn by a rotation of the knob-spindle. The lever E is pivoted near one end to one end of an arm F, as at *e*, said lever being pivotally attached at its opposite end to the case A, as at *f*. Between its ends this arm F is provided with an elongated opening *f'*.

A bar G, having arms *g* for engaging the slots in the rotary disks or tumblers and which is pivotally attached at *g'* to the case A, has a pin g^2, which enters the elongated opening *f'* of the arm F and is held normally in the position seen in Fig. 3 by a spring g^3, and when the combination disks or tumblers have been rotated so that their slots are in proper position to receive the arms *g* of the bar G the knob-spindles may then be rotated and said arm F will assume the position seen in Fig. 10. This is accomplished by the action of the lever E, which connects the said rocker C and arm F. The lever E may, when desired, be disconnected from the said rocker by means of the slide H, located in the face of the case of the lock and provided with a finger-piece *h*, passing through an opening in said face, as shown in Figs. 2 and 3, said slide H being connected by an arm or link *h'* with one end of said lever E, as seen in Figs. 2, 3, and 10, and by this means of disconnecting the rocker C from the improved locking mechanism the latch B may be operated by the knob-spindle without regard to the position of the combination disks or tumblers, which may, for example, be in the position seen in Fig. 3.

In order to make the lock more difficult to operate, two or more disks may be mounted upon as many spindles; but for the purpose of illustrating my invention in as simple a manner as possible I show but two spindles I J, both being square at their center portion, the former carrying one tumbler and the latter carrying two. The ends of said spindles are preferably cylindrical and fitted with knobs K and L, respectively, the knobs being secured thereon by set-screws M, as seen in Fig. 9. These knobs pass through the escutcheon W and each is provided with a graduated flange, respectively, *k l*, as shown in Fig. 1, which rests against said escutcheon,

the latter having one or more marks leading from one to the other graduated flange, as seen at *w*, which serve to increase the operative combinations of the lock.

In order that no one upon the outside of a door may take out the screws M and remove the knobs or otherwise tamper with the combination mechanism, said screw is passed through that portion of the knob which is within the escutcheon upon the outside of a door, while the screws M, fastening the inside knobs to their spindles, are passed through the small part of a knob between the knob proper and its flange, as plainly shown in Fig. 9.

Upon the spindle I is mounted a single disk or tumbler N, having a slot *n* in its periphery of proper width to receive the arm *g* of the bar G adjacent to said tumbler N, and upon the spindle J is mounted a pair of disks or tumblers P Q, the former having a hub *p* and the latter being provided with a central perforation *q* to fit said hub. Each of these disks has in its periphery a slot, respectively, *p'* *q'*, and in their adjacent surfaces an annular groove p^2 q^2, provided each with a stop-pin p^3 q^3, as shown best in Figs. 6, 7, and 8, and in the periphery of the disk Q is also provided a notch q^4 for engaging the spring-stop R, when the slot *q'* of said disk shall register with the adjacent arm *g* of the bar G for the purpose of holding said disk in such position while the disk P is being rotated to bring its slot *p* in line with the said arm *g*.

In the drawings the flanges are graduated from "0" to "70," inclusive, the flange *k* being graduated from "0" to "30" and the flange 1 from "35" to "70," both inclusive; but these figures are not at all essential to my improved lock, the setting of the combination of which is very simple. With the tumblers N P Q in the position shown in Fig. 10 the knobs K L are rotated on their spindle after first loosening their screws M, so as to bring any desired figure—for example, "0," of the flange *k* and "35" of the flange 1 in line with either of the lines *w* upon the escutcheon W, this being in the present instance the center line, as shown in Fig. 1. It should be mentioned that these rotations of the knob, especially the knob L, should have been made to the right. Then by reversing the knob L, which in the present case would bring the figure "50" on the flange 1 in line with the center line on the escutcheon W, the door could be opened by turning the knob *d*.

To hold the latch normally in the position shown in Figs. 1 and 3, I employ a suitable spring S, which bears against a stop b^2, formed for the purpose on said latch B, one of these stops being formed upon each side of said latch, so that it may be reversed and adapted for the opposite side of a door.

The slide H is adapted to be held up sufficiently to disengage the lever E from the rocker C, when desired, by reason of the offset *t*, formed for this purpose in the spring T. (Shown in Figs. 3 and 10.)

R represents a spring having an offset or projection *r* for engaging the notch q^4 of the disk *q*, said spring being shown in Figs. 3 and 10.

Having described my improvements, what I claim is—

1. The combination with the lock-casing, a spring-actuated bolt therein, and a rocker and knob-spindle in operative connection with said bolt, of a series of slotted disks or tumblers, a pair of independently-pivoted bars pivotally connected to each other, one of said bars having arms adapted to engage the slots of said tumblers, and means for connecting the other of said pivoted bars with the said rocker.

2. The combination with the lock-casing, a spring-actuated bolt therein, and a rocker and knob-spindle in operative connection with said bolt, of one or more spindles and one or more disks or tumblers thereon each having a slot in its periphery, knobs attached to said disk-spindles provided each with a graduated flange, a pair of bars resting one upon the other and having their opposite ends pivotally connected to said casing and pivotally connected at an intermediate point one to the other, one of said bars having lateral arms adapted to engage the slots of said tumblers, a lever connecting the free end of one of said bars with said rocker, and means for disconnecting said lever from the rocker upon the exterior of a lock.

In testimony whereof I affix my signature in presence of two witnesses.

MOISE BIRON.

Witnesses:
J. B. THURSTON,
EMILE H. TARDIVEL.