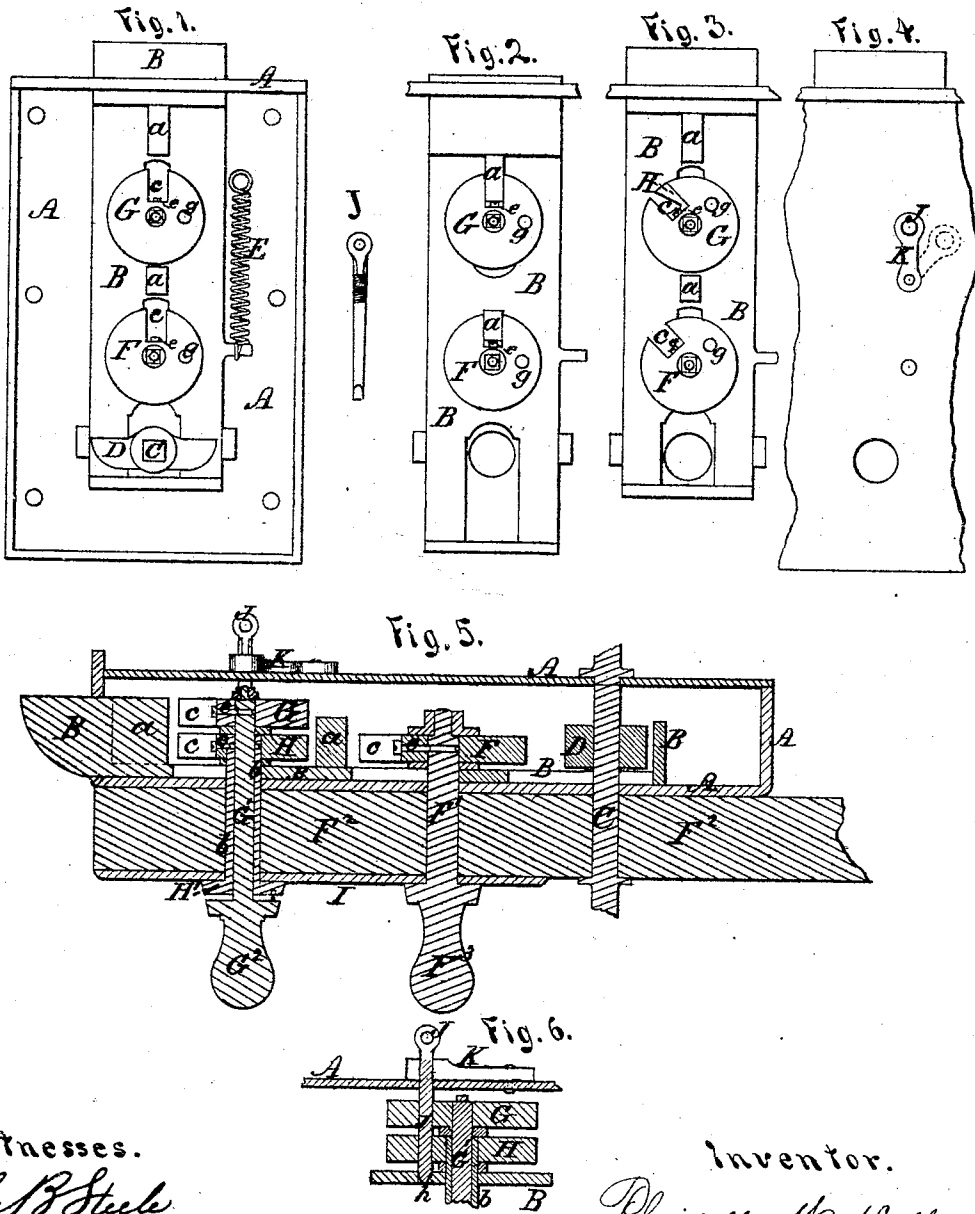


P. W. HALL.
Combination Locks.

No. 140,500.

Patented July 1, 1873.



Witnesses.
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UNITED STATES PATENT OFFICE.

PHIDELLO W. HALL, OF CALVERT, TEXAS.

IMPROVEMENT IN COMBINATION LOCKS.

Specification forming part of Letters Patent No. **140,500**, dated July 1, 1873; application filed June 20, 1873.

To all whom it may concern:

Be it known that I, PHIDELLO W. HALL, of Calvert, in the county of Robertson and State of Texas, have invented certain new and useful Improvements in a Combination and Permutation Latch-Lock; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 shows the several parts of the lock in a position to admit of the retraction of the bolt to unlock the door. Fig. 2 shows the bolt retracted. Fig. 3 shows the bolt as shot and the disks thrown out of position to prevent the retraction of the bolt. Fig. 4 represents a top view of the rear plate of the lock and the safety-pin in position. Fig. 5 is a longitudinal vertical section through the lock, and represents the pin in place for preventing the movement of the combination disks to admit of the bolt being used as a latch only. Fig. 6 represents the pin in position it assumes when it is desired to lock the bolt from the inside, whether the knobs be thrown off the combination or not.

My invention relates to combination latch-locks, wherein I employ certain devices and arrange them relatively to and with each other, in such manner as that the knob-latch, while performing its special function, will also serve as the lock upon any combination to which it may be adjusted, and the said latch can be operated from either the outside or inside of the door as a latch simply, or as a combination lock, which latter is further secured from the inside by the employment of a safety-pin, rendering the bolt in its locked position perfectly secure, while by its partial withdrawal it prevents the possible change of the combination from the outside, and admits of the free use of the latch independent of such combination, all as will be hereinafter more specifically described.

In the accompanying drawing, A represents the case of an ordinary door-lock, having therein the sliding bolt B, as fully shown in the several figures of the drawings, which bolt is provided with studs or projections *a a*, extending outwardly therefrom and at right angles thereto, for a purpose to be hereinafter

described. C represents the spindle of the knob for operating the bolt, and D the armed hub for retracting said bolt, which latter is thrown forward or shot by the spiral spring E, the ends of which are attached, respectively, to a stud on said bolt and to the inner face of the lock-case. The several parts thus far referred to constitute the devices employed in an ordinary door-lock. To utilize the bolt B, as a lock upon certain combinations, I employ the devices now referred to. It may be here stated that one, two, or more knobs may be used, or the number of combination disks may be increased, at the option of the manufacturer. F represents the rear and G H the forward combination disks, which serve to hold the latch in a locked position. The disk F is connected to a spindle, F¹, which passes through the door F², and on the outside is secured the knob F³, which is provided with certain figures and marks, and corresponding figures and marks are made on a plate, I, attached to the outside of the door. The disk G is attached to a spindle, G¹, which has its knob G², and the disk H is connected to an annular plate, H', by means of a hollow sleeve, *b*, through which hollow sleeve passes the spindle G¹, whereby the said disks can be moved together or separately, as may be desired, the knob G² being provided with a pin on its face contiguous to the annular plate H' which fits into depressions or holes in said annular plate; or the surface of one or the other may be roughened or notched, so that when pressed together they are moved in unison, and when relieved can be separately adjusted to make any desired combination. The knob G² and the annular plate H' have also figures and marks which, with the marks on the plate I, enable different combinations to be made on the forward disks. The several disks F G H are provided with slots *c c* of a size sufficient to admit the studs or projections *a a* of the bolt B, as clearly shown in the drawings. These disks are attached and held to their respective spindles by small set-screws *e e*, which also serve to enable them to be moved circumferentially thereon to change the combination, as desired. This change is effected when the bolt is retracted, and the studs or projections thereof are within their

respective slots, and hence the set-screws *e e* exert sufficient pressure on the spindles to hold the disks securely when the knobs are turned with them; but when the combination is to be altered to allow the knobs to move while the disks are held in one position by the projections on the bolt, if deemed expedient, taps and washers on the upper faces of the disks may be used to properly hold the disks to their spindles.

I will now proceed to describe the means I employ for using the bolt as a latch simply, or when used as a lock, to secure it in its locked position from the inside, and without any reference to the combination to which it has been set.

The disks F G H are provided with holes *g* to receive a pin, J, which passes through the rear plate of the lock-case into said holes, and, when required, into a hole, *h*, in the bolt B, for a purpose to be presently described. Pivoted to the outer rear face of the lock-case is a plate, K, of about the thickness of the bolt B. If it be desired to use said bolt as a latch simply the two disks should be held together and in such a position relatively to the bolt as that the projections thereon shall always be in line with and have free entrance into the slots in the disks to insure its retraction, and whereby any tampering with the combination knobs on the outside of the door is prevented. The pin J is, in this case, passed through the plate K, which is provided with a female screw-thread to receive the thread on said pin, and thereby prevent its displacement or loss, and into and through the two disks G H. The thickness of the plate K is such that the pin J does not come in contact with the bolt B, leaving it free to be moved as a latch, while the combination cannot be disturbed. If, on the other hand, it be desired to lock the bolt from the inside, while the door is secured by said bolt on a certain combination from the outside, the plate K is swung around on its pivot, the pin J inserted through the rear plate of the lock-case, passed through the two disks G H, and into and through the bolt B. It will thus be seen that the disks and bolt are all secured together and with the front and rear of the lock-case, so that by no possibility can

the combination be disturbed or tampered with, as all the parts of the lock are immovable. It is to be remarked that the rear disk is also to be provided with a safety-pin of this description, though only one is shown in the drawing. This device, therefore, serves to secure the door against entry by a person from the outside, even though the combination be known.

The pin J, while it serves the important function herein detailed, is also employed as the means for adjusting the set-screws on the several disks, its lower end being constructed for that purpose, as shown in the drawing.

I contemplate duplicating the combination knobs and other mechanism on the inside of the lock, so that the device can be used either from the outside or inside as a combination lock, or as a latch, with equal facility by any person knowing the combination to which it has been set to operate.

Instead of the bolt being shot by the tension of the spiral spring it will be seen that a key can be employed to operate it without departing from the spirit and intent of my invention.

The lock is a substantial, durable, and effective one, and combines all the elements of a door-latch and lock, with the characteristic advantage of facility of change of combination at a cost even below or certainly not exceeding that of the door-lock in common use.

Having described my invention, I claim—

1. The combination of the bolt B, disks G H, pin J, and plate K, whereby the disks may be secured when the bolt is used as a latch, or the disks and bolt secured when desired to lock the bolt, substantially as described.

2. The combination of the bolt B having lugs or projections *a a*, disks F G H, constructed as described, and secured to their respective spindles by set-screws *e e*, safety-pin J, plate K, spindles F¹ G¹, and knobs F² G², the whole constructed, arranged, and operating as described, and for the purposes set forth.

In testimony whereof I have hereunto signed my name.

PHIDELLO W. HALL.

Witnesses:

EDM. F. BROWN,
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