G. WINTER.

COMBINATION LOCK.

No. 186,393. Patented Jan. 16, 1877.

Fig. 1.

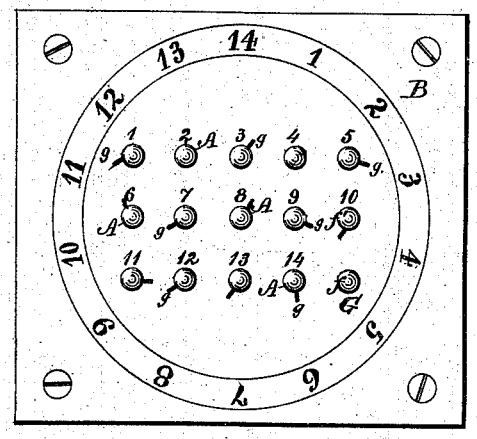


Fig. 2.

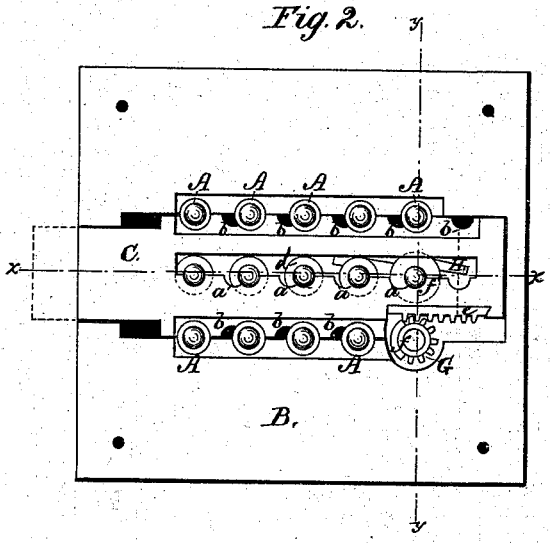


Fig. 3.

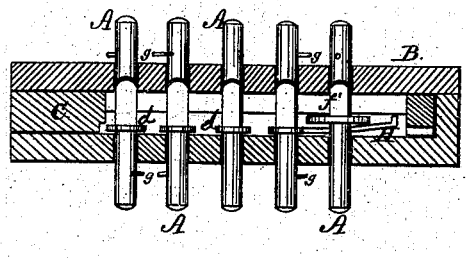
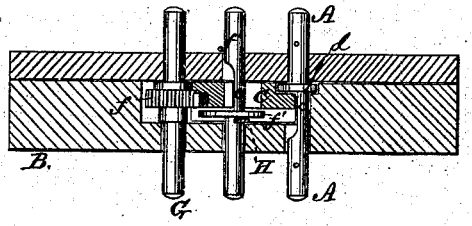


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE WINTER, OF JACKSONSVILLE, VIRGINIA.

IMPROVEMENT IN COMBINATION-LOCKS.

Specification forming part of Letters Patent No. **186,393**, dated January 16, 1877; application filed November 16, 1876.

To all whom it may concern:

Be it known that I, GEORGE WINTER, of Jacksonsville, in the county of Floyd and State of Virginia, have invented a new and useful Improvement in Combination-Locks; and I do hereby declare that the following is a full, clear, and exact description of the same.

My present invention is an improvement upon that for which I have received Letters Patent No. 181,756, dated August 29, 1876, and to which said patent reference is made for the purpose of explaining the operation and advantages of this invention more fully than may be apparent from the following description.

The invention relates to the construction and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawing, forming part of this specification, Figure 1 is a side elevation of the lock. Fig. 2 is a sectional elevation of the lock. Fig. 3 is a longitudinal section on line *x x*, Fig. 2; Fig. 4, a cross-section on line *y y*, Fig. 2.

As in my previous invention, the rotary notched pins A, for locking the bolt, project on both sides of the lock-case B, so that they may be operated from either side thereof. But in this instance the pins A are arranged in three parallel rows, and engage or lock directly with the bolt C, in place of engaging with the sliding dogs, and thus with the bolt intermediately, as in my previous invention.

The bolt is placed in an elongated recess in the lock-case B, and provided with a lengthwise horizontal slot. One side of this slot has half-round notches *a*, and similar notches *b* are also formed in the upper and under sides of the bolt. A row of pins, A, is arranged to engage with a row of notches, *a* or *b*. Each of the pins is cut away on one side, thus leaving a semi-cylindrical portion, *c*, and also provided with a circular flange or collar, *d*, for preventing the withdrawal of the pins from the lock-case. The bolt C is operated by a rack, *e*, and pinion *f*, the latter fixed on a transverse knob-spindle, G, as shown. A flat spring, H, is secured to the rear side or wall of the recess in which the bolt works, and its free end is bent or curved inward, to engage the contiguous end of the latter, and thus prevent it being withdrawn from the keeper until the spring is depressed. The spring bears against the circular flange of the pin *f'* at the end of the middle row, and the said pin is adapted to slide in its bearing sufficiently to press the spring back out of engagement with the bolt, as will be readily understood.

When the bolt C is withdrawn into the case B the semi-cylindrical portions *c* of the pins are held out of engagement with the half-round notches *a b* of the bolt, the flat side of the parts *c* lying in contact with the flat or straight portions of the bolt, which intervene or lie between every two of the notches *a a* and *b b*. But when the bolt is shot (by depressing the spring and turning the knob-spindle) the notches of the bolt are brought directly opposite the pins A, and the latter may then be turned or adjusted to cause their semi-cylindrical portions *c* to enter the notches *a b*. The free end of the spring also catches over the end of the bolt when the bolt has been shot. The bolt is thus held locked, and cannot be withdrawn, except the spring be depressed and the pins readjusted to bring their semi-cylindrical portions *c* out of the notches in the bolt.

The means of determining when all the pins have been so adjusted are fingers *g*, which are inserted in, and project radially from, the pins on both sides of the case B, so that the fingers point to the proper numerals in the inscribed circles on the faces of the lock-case.

In this instance the pins are set on the following combination: $\frac{1}{11}$ $\frac{2}{13}$ $\frac{3}{1}$ $\frac{4}{2}$ $\frac{5}{3}$ $\frac{6}{12}$ $\frac{7}{10}$ $\frac{8}{14}$ $\frac{9}{4}$ $\frac{10}{7}$ $\frac{11}{4}$ $\frac{12}{6}$ $\frac{13}{8}$ $\frac{14}{6}$—that is to say, when the fingers of pins marked 1, 2, 3, 4, 5, &c., point, respectively, to the numbers 11, 13, 1, 2, 3, &c., it is known that the pins are adjusted properly to allow the free movement of the bolt.

The combination may, of course, be varied almost indefinitely by setting one or more of the fingers to point to a different numeral in the circle.

I do not claim, broadly, the arrangement of locking-pins with a door-bolt, having semi-circular notches to receive the same; but

What I claim is—

The combination, with the slotted bolt, provided with notches *a b*, of the pins A, the sliding pin *f'*, and spring H, substantially as and for the purpose specified.

GEORGE WINTER.

Witnesses:

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