

(No Model.)

J. E. KNOWLES.
COMBINATION LOCK.

No. 474,017.

Patented May 3, 1892.

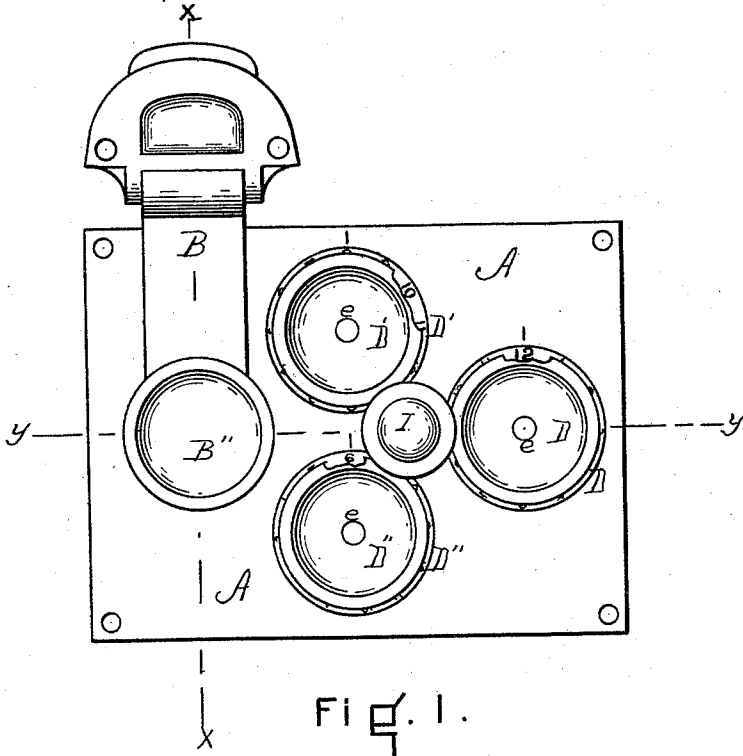


Fig. 1.

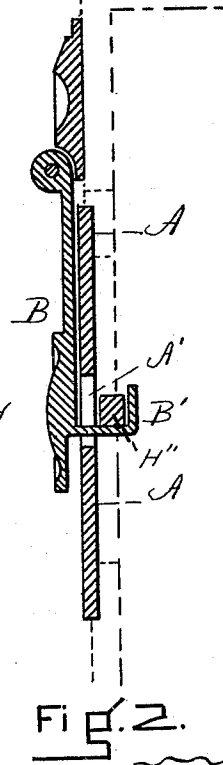


Fig. 2.

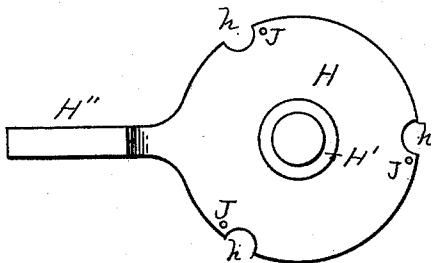


Fig. 3.

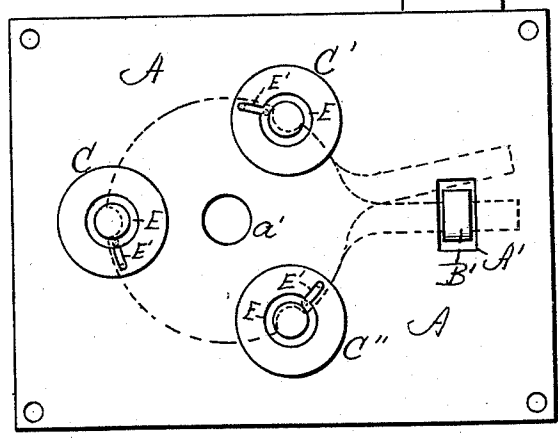


Fig. 4.

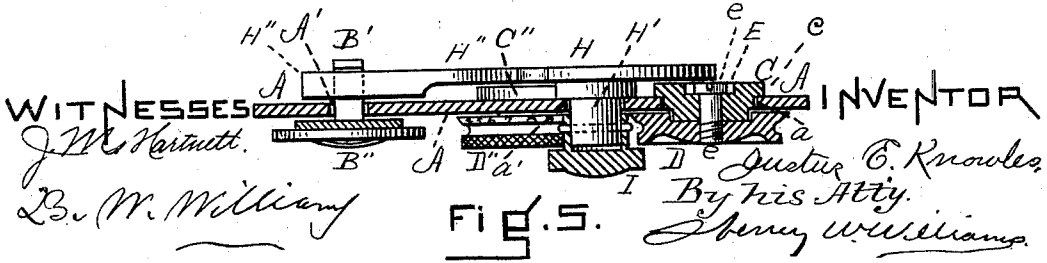


Fig. 5.

WITNESSES
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JUSTUS E. KNOWLES, OF LYNN, MASSACHUSETTS.

COMBINATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 474,017, dated May 3, 1892.

Application filed July 22, 1891. Serial No. 400,316. (No model.)

To all whom it may concern:

Be it known that I, JUSTUS E. KNOWLES, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Combination-Locks, of which the following is a specification.

This invention consists in an improved combination-lock, which is especially adapted for trunks, desks, doors, &c.

The nature of the improvement is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a plate provided with my improved lock, with a trunk-hasps in a locked position. Fig. 2 is a section taken on line *x*, Fig. 1. Fig. 3 is a view of the front or inner side of the bolt. Fig. 4 is a rear view of the device in position to be unlocked, with the bolt shown in broken lines. Fig. 5 is a section on line *y*, Fig. 1.

Similar letters of reference indicate like parts.

A is a plate secured in any desired manner to a trunk, desk, or door. Its position on a trunk is shown in broken lines, as indicated in Fig. 2.

B is a trunk-hasps, whose locking portion B' is angle-shaped or turned up, as shown, and is adapted to swing into the opening A' in the plate A. The handle portion B'' of this hasp is preferably made to correspond in shape and appearance with the numbered disks below described.

C C' C'' are three disks lying against the rear side of the plate A, rotating in corresponding holes *a* therein and provided with annular flanges *c*, Fig. 5, which overlap the plate around the edges of the holes. Each of these disks is provided with a central round chamber or depression E, from which extends a radial groove E'.

D D' D'' are three disks on the front side of the plate, secured, respectively, to the three disks C C' C'' by screws *e* or equivalent means. The heads of these screws are somewhat smaller in diameter than the recesses E, so that the spaces between them and the edges of the recesses constitute practically annular grooves or tracks. The disks D D' D'' overlap the edges of the holes *a* and are provided on their peripheries with a series of numerical figures, Figs. 1 and 5.

The bolt consists of a plate H, placed on

the back of the plate A, preferably circular, and provided with a hub H', which extends through the hole *a'* in the plate A, and is provided rigidly with a thumb-piece or handle I on the front side of said plate A. The bolt extends at H'' into an arm, as shown, and is provided on its inner surface with three pins J. These pins are so placed that they extend into the recesses or grooves E in the rear disks C. The edges of the plate H are preferably recessed, as shown at *h*, to secure access to the heads of the screws *e*.

The operation is as follows: When the pins J lie in the grooves or recesses E, the plate H cannot turn or the arm H'' vibrate, as no play is possible except within the width of the grooves. Hence the bolt lies within the locking portion B' of the hasp, as shown in Fig. 2; but if the disks C C' C'' be so turned as to bring the radial grooves E' next the pins J, then if the plate H be rotated by means of the handle I the pins will enter the grooves E' with the effect of allowing the arm H'' of the bolt to swing out from the locking portion B' of the hasp. Therefore, if the proper combination be known, the numbered disks D D' D'' are turned, thus rotating the rear disks C C' C'' and releasing the bolt, as above described. By loosening the screws *e* the relative positions of the numbered disks and rear disks can be altered and a new combination adopted.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a combination-lock, the combination, with the bolt H, provided with the pins J and the numbered disks D D' D'', of the rear disks C C' C'', secured to said numbered disks, respectively, and provided with the central recesses E, formed into annular grooves by the insertion centrally therein of the heads of the screws *e*, which secure the numbered disks and rear disks together, and said rear disks being further provided with the radial grooves or slots E', extending from and connecting with said recesses E, substantially as set forth.

JUSTUS E. KNOWLES.

Witnesses:

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