

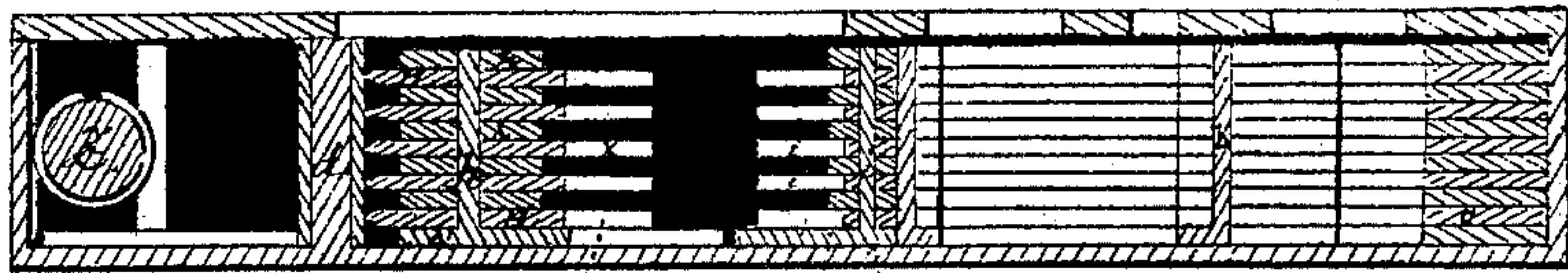
John H. Kinsman's

Lock.

PATENTED JUN 27 1871

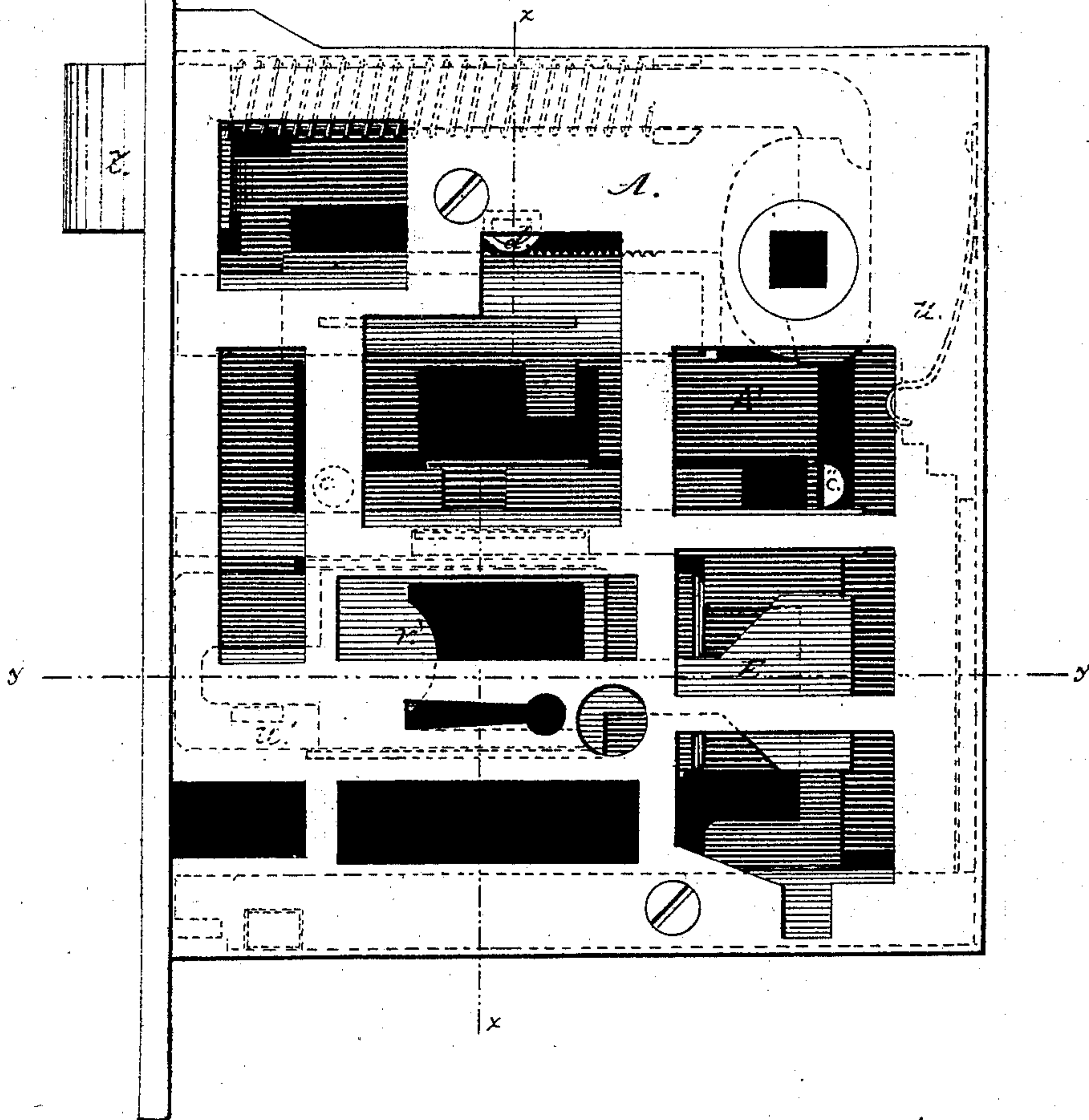
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Fig. 14.



H. X. C. A.

Fig. 1.



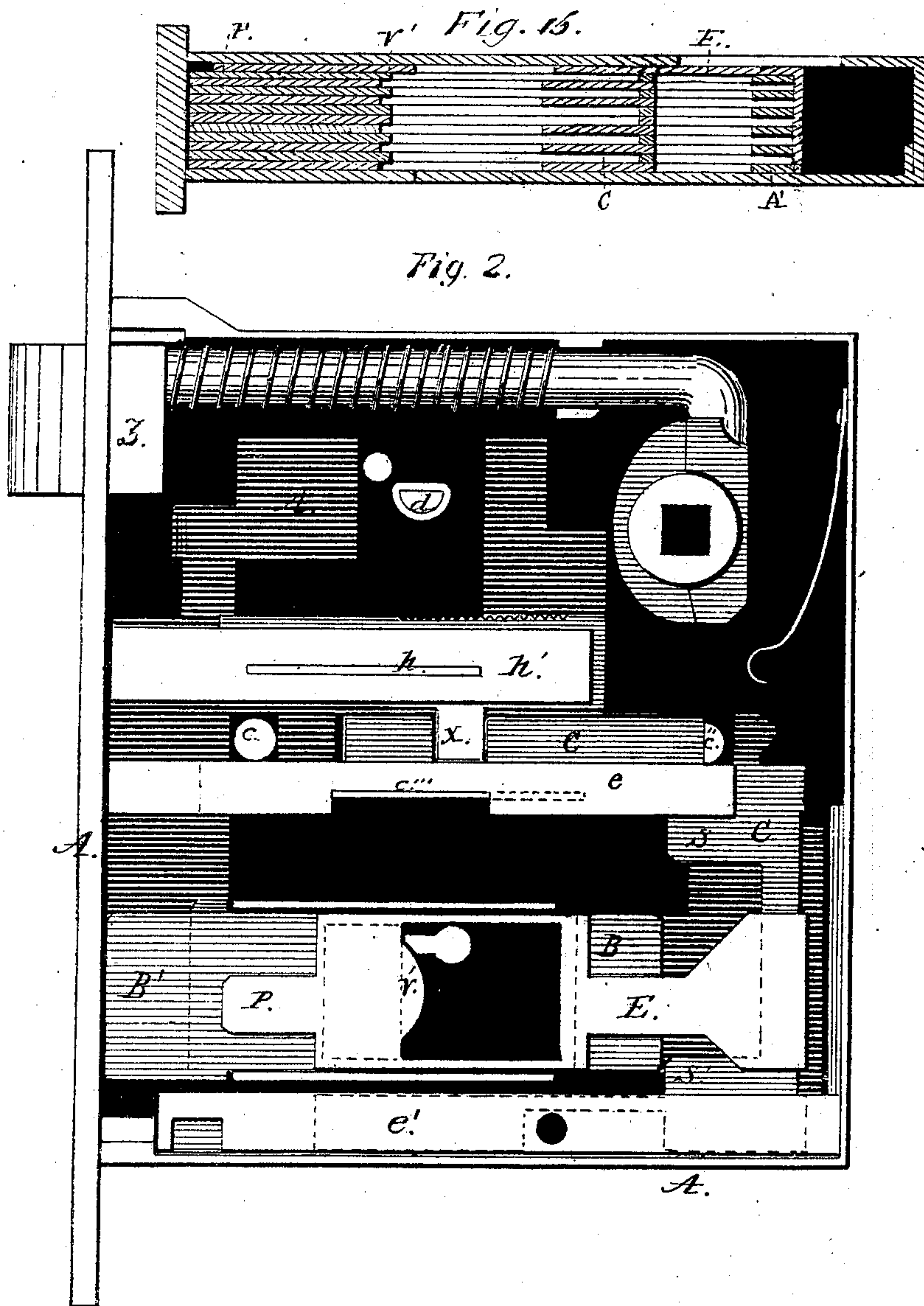
Witnesses.

Henry A. Hale
Joseph S. Hale

Inventor

John H. Kinsman

John H. Kinsman's
Lock.



Witnesses.
Harry A. Hale
Joseph S. Hale

Inventor.
John H. Kinsman

116452

3 Sheets, Sheet, 3.

John H. Kinsman's

PATENTED JUN 27 1871

LOCK.

Fig. 3.

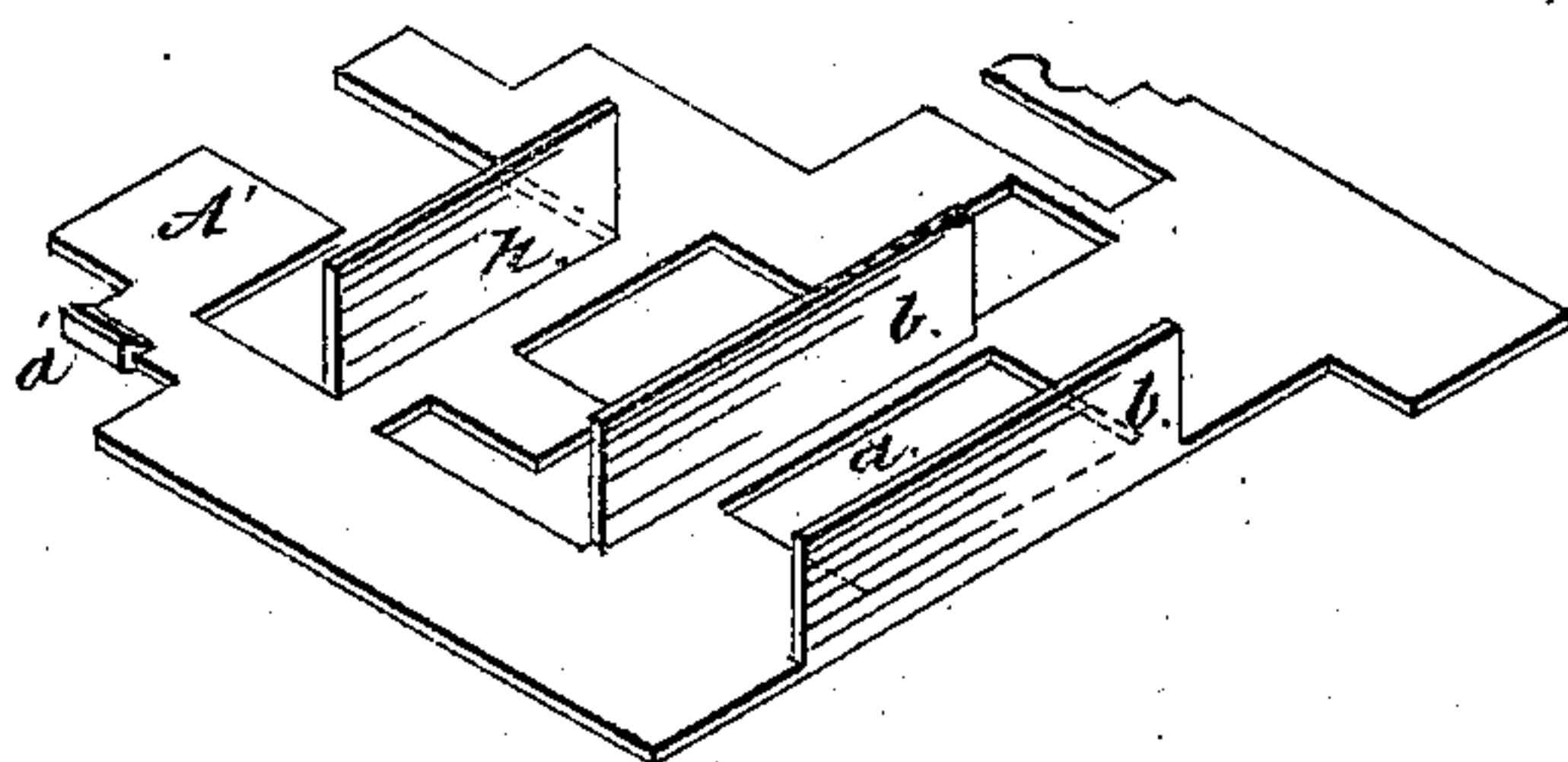


Fig. 4.

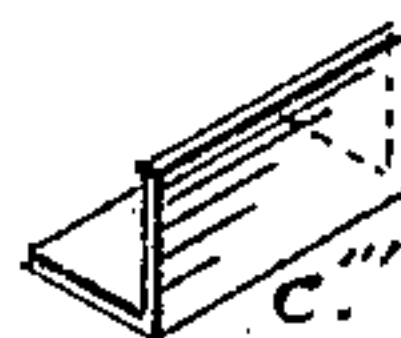


Fig. 5.

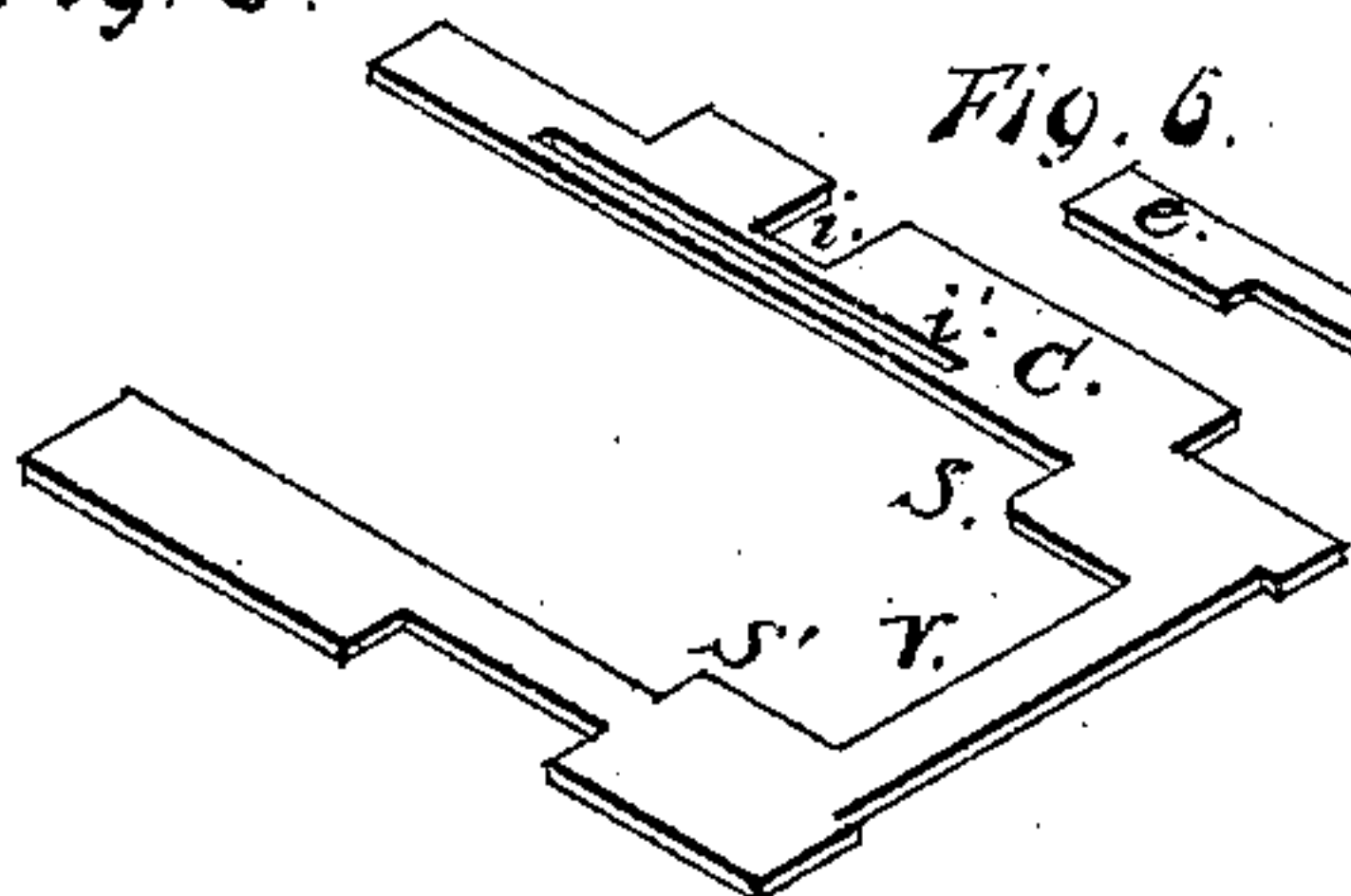


Fig. 6.



Fig. 7.

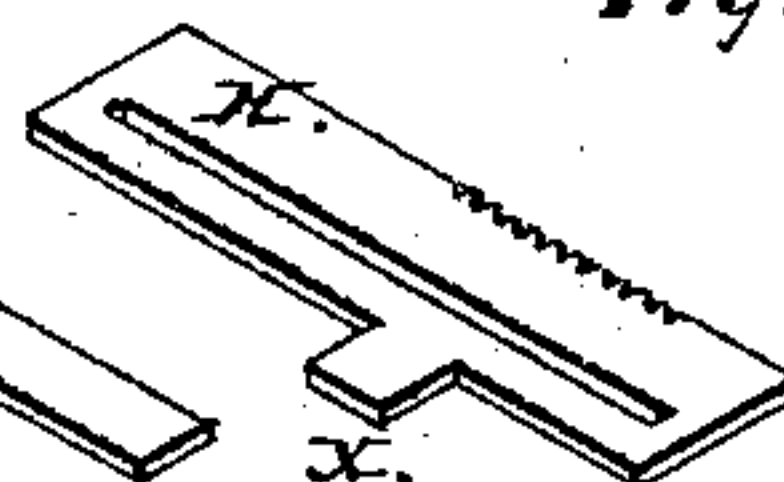


Fig. 8.

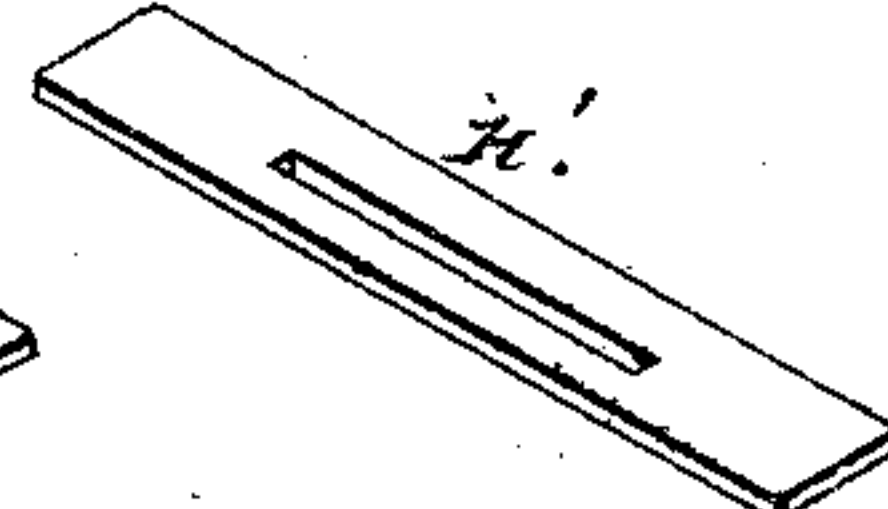


Fig. 9.

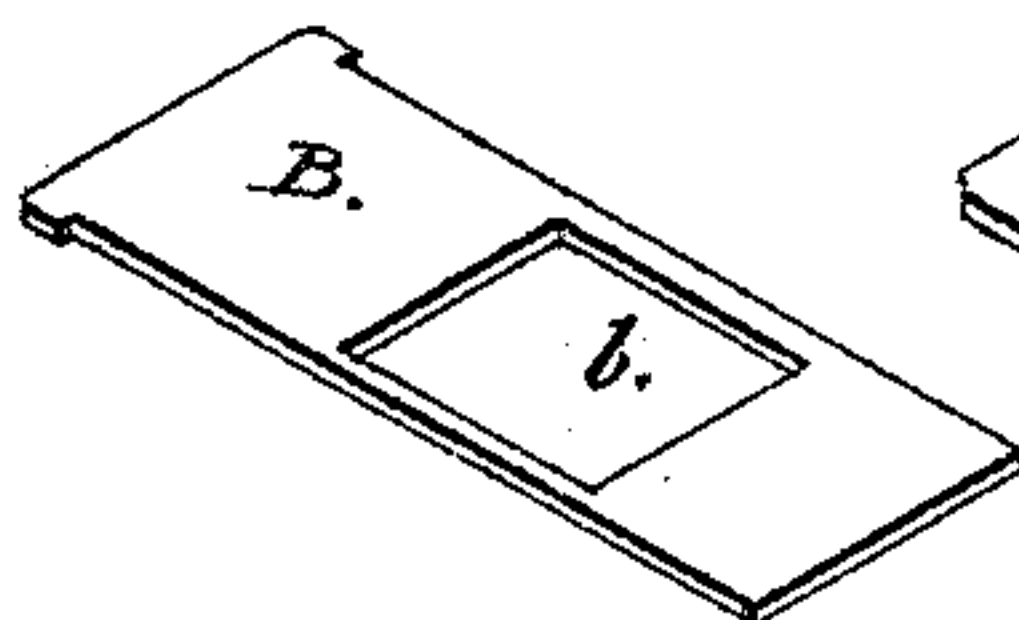


Fig. 10.

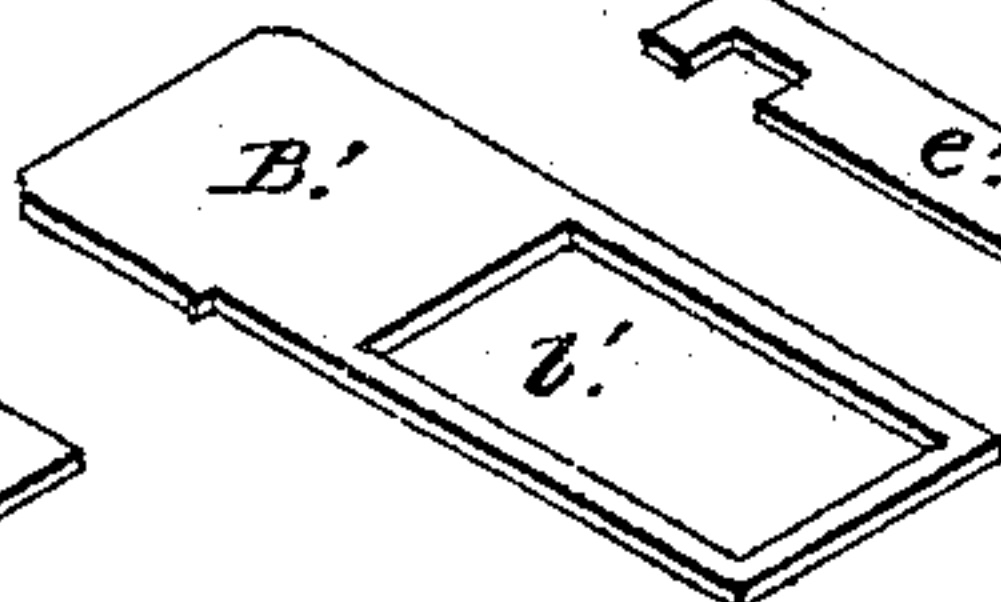


Fig. 17.

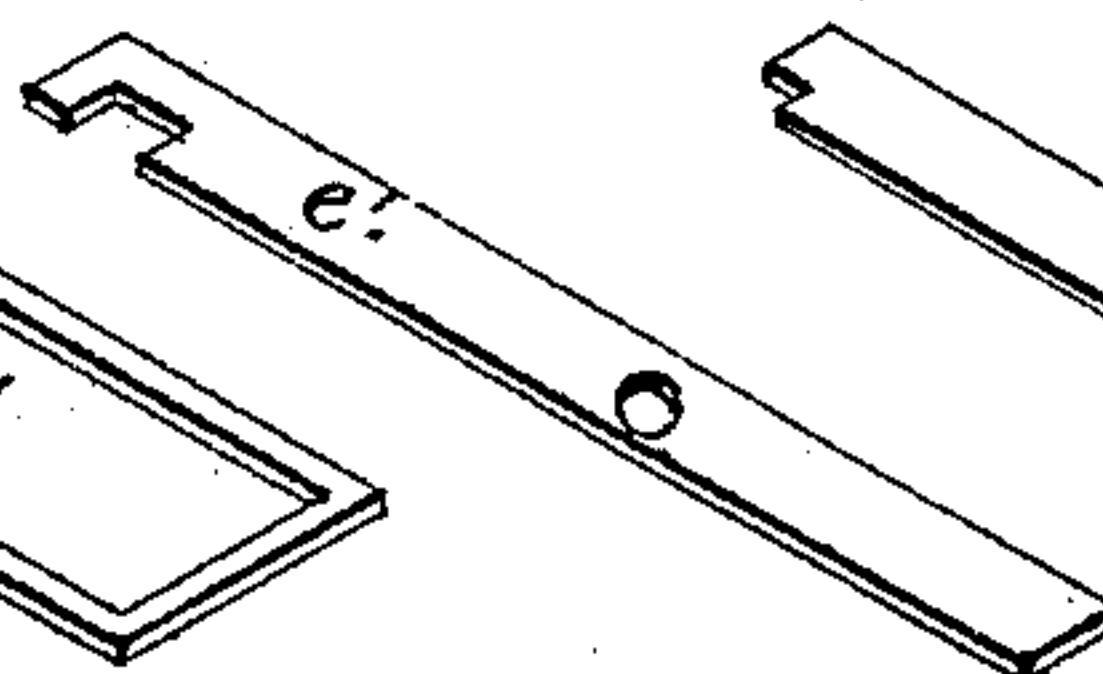


Fig. 72.

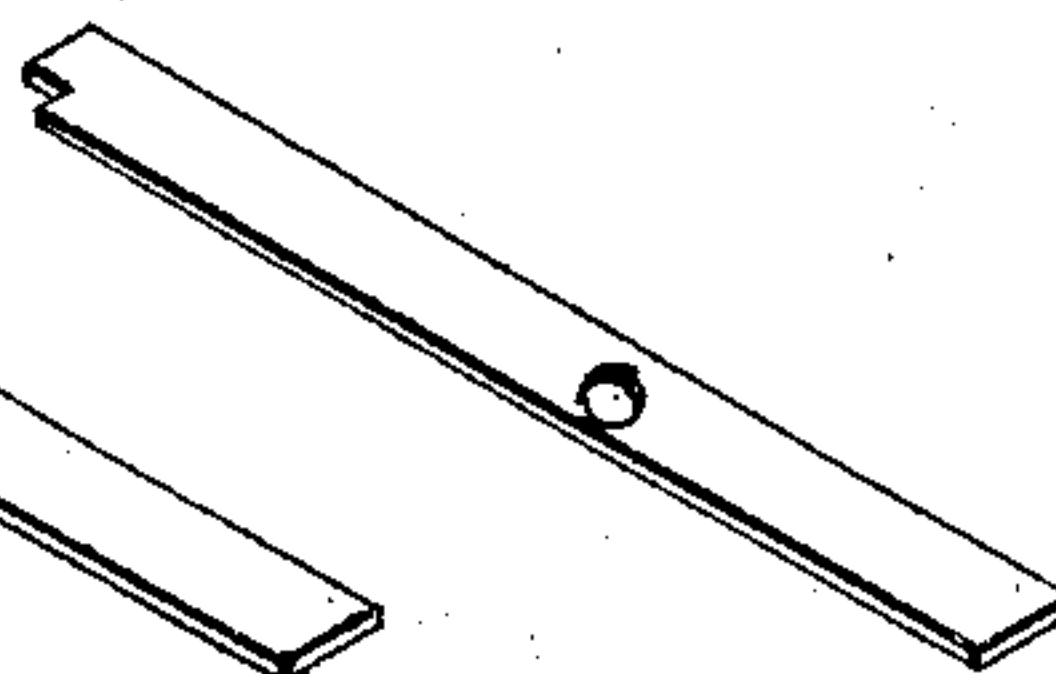
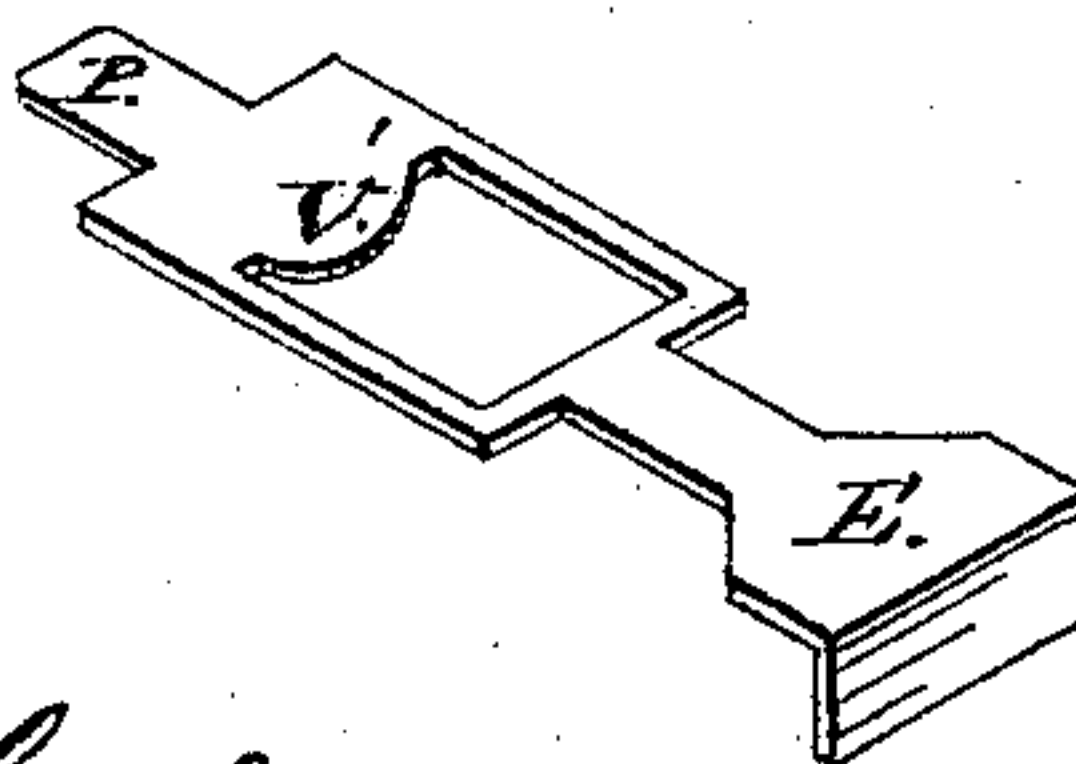


Fig. 13.



Witnesses.

Henry A. Hale
Joseph S. Hale

Inventor.

John H. Newman

UNITED STATES PATENT OFFICE.

JOHN H. KINSMAN, OF SALEM, MASSACHUSETTS.

IMPROVEMENT IN DOOR-LOCKS.

Specification forming part of Letters Patent No. 116,452, dated June 27, 1871.

To all whom it may concern:

Be it known that I, JOHN H. KINSMAN, of Salem, in the State of Massachusetts, have invented certain important Improvements in Permutation Locks for Doors, Safes, &c., of which the following is a specification:

My invention consists of certain improvements in the construction of the slides used to operate upon the primary tumblers, and a device to govern the action of the bent slide used in these locks to draw the primary tumblers in position.

Figure 1, elevation of lock as seen through open casing; Fig. 2, elevation of lock with cap-plate removed; Fig. 3, isometric view of locking-plate. Fig. 4 is a detailed view of the guide for the primary tumblers. Fig. 5 is a detailed view of one of the primary tumblers. Fig. 7 is a detailed view of one of the secondary tumblers. Fig. 8 is a detailed view of one of the stationary plates used to separate the secondary tumblers. Fig. 9 is a detailed view of one of the slides. Fig. 10 is a detailed view of one of the stationary plates used to separate the slides. Figs. 6, 11, and 12 are detailed views of the stationary plates used to separate the primary tumblers. Fig. 13 is a detailed view of the bent slide; Fig. 14, section of lock on line *x x*; Fig. 15, section of lock on line *y y*.

A is the lock-case, made in the usual form. A' is a locking-plate that is placed in the back of the lock-case, and is moved freely up and down by the outside wards of the key pressing against the horizontal edge of the plate at *a*. This plate is so formed as to move freely up and down in the case without the liability of being stopped by the pins *c c''* and the projection *c'''*, which are attached to the back of the lock-case. The plate A' has a shoulder, *a'*, which, when the locking-plate is thrown up by the key, rests immediately back of the latch or catch Z, and thus prevents it from being drawn back by the knob or other means. B are slides, with square openings *b b* in them to admit of the passage of the key. These slides are placed upon the locking-plate A' and between the projections *b b* attached to the locking-plate—one above the key-hole and one below it. These slides are moved freely backward and forward between the projections *b b* by the wards of the key pressing against them when the lock is operated. The stationary plates B' are placed alternately between the slides B so as to give the

proper distances between the slides, so that the wards of the key may act upon them independently. The primary tumblers C are placed upon the locking-plate in such a manner as to move freely backward and forward, but have no vertical movement. The primary tumblers have a slot, *i*, and an opening, *i'*, to fit over the stationary projection or guide *c'''*. S and S' are shoulders of the primary tumblers. The slot *i* must correspond in size with the projection on the secondary tumblers H. The secondary tumblers have openings in them which fit over the projection *h* attached to the locking-plate, and move horizontally upon it. They are separated from each other by the stationary plates *h'*, which fit closely over the projection *h*, and are arranged alternately between the secondary tumblers, and serve as guides for them to move in. The secondary tumblers have a vertical as well as a horizontal motion. The vertical motion is derived from the locking-plate, and the horizontal motion is communicated by the slots *i* in the primary tumblers acting upon the projection *x* on the secondary tumblers. The bent slide E fits over the slide B between the projections *b b*, and serves to draw the primary tumblers forward after being driven back by the slides B. The bent slide E is moved back by the primary tumblers, and is drawn forward by one of the wards of the key acting upon the curved edge *x'*. The upper edges of the secondary tumblers are serrated, so that when, by the action of the locking-plate, they are driven up, the serrated edges will rest against the pin *d*, which is covered with gutta-percha. By this device the secondary tumblers are held firmly in the places in which they are left by the slots *i*. The stationary plates *e* are arranged alternately between, and serve to separate the primary tumblers above the key-hole. They are held firmly in place by the pins *c* and *c''* and the projection *c'''*, attached to the lock-case. The pieces *e'* serve the same purpose, and are arranged in a similar manner below the key-hole.

I believe this lock to be unpickable for the following reasons: The peculiar form of the slides B and the plates which separate them prevents the insertion of any instrument into the body of the lock. From their position also upon the locking-plate any pressure that might be brought to bear upon the locking-plate through the bolt cannot affect them. The distance between the

secondary tumblers and the primary tumblers is such that when the secondary tumblers have so far descended that their projections can enter the slots *i* in the primary tumblers, the slides B are clear of the shoulders S and S' of the primary tumblers and opposite the recess V, which should be of such a depth that when the slides B are pushed as far as possible they cannot touch the primary tumblers. The bent slide E, which serves, when the lock is either locked or unlocked, to draw in place the slide B and primary tumblers, is at this stage prevented from acting on account of the projection P, which strikes against the pin *w'*, which projects inward from the cap-plate of the lock. As the primary tumblers are open at the front end, no backward pressure can be brought to bear upon them by means of the slides B; from all which it results that no tentative process will show the position of the secondary tumblers or cause them to pass into the slots *i*. The relative positions of the shoulders S S' to the slide B is such that, whether the slide B acts upon S or S', the slots *i* will be placed in the same position, and to open the lock B, pressing upon S, must slide the same distance as it slid to lock it when acting upon S'.

The different parts of this lock are of simple construction, and they can all be stamped from sheet-brass or other metal, and require no filing.

Any piece will fit into its place in any lock of the same size. The keys can be made independent of the lock, the only thing requisite being to have the two outer wards of the proper length, and the number of wards to correspond with the number of slides in the lock, which, of course, depends upon the thickness of the lock, and may be carried to any extent. The number of different keys that can be used—either of which will lock and unlock it to the exclusion of all the rest—is only limited by the number of permutations that can be made upon any given number of primary tumblers that may be used.

I claim—

1. The slides B with the openings *b*, acting directly upon the primary tumblers by means of the key, in combination with the pieces B' with the openings *b'*, used to separate the slides B, substantially as and for the purpose hereinbefore described and set forth.

2. The bent slide E with its curved edge V', in combination with the primary tumblers and pin *w'* attached to the cap-plate, as and for the purpose hereinbefore described and set forth.

JOHN H. KINSMAN.

Witnesses:

HENRY A. HALE,
JOSEPH S. HALE.