L. Diss,

Lock.

No 17,139. Patented Apr. 28, 1857.

Fig 1

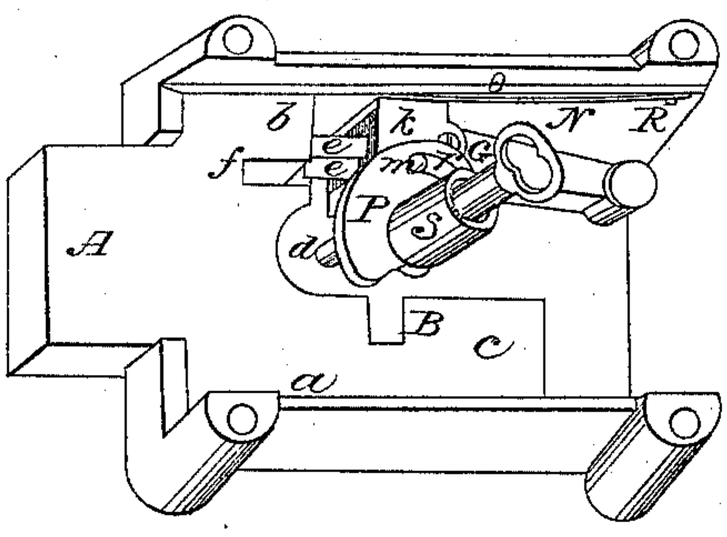


Fig 5

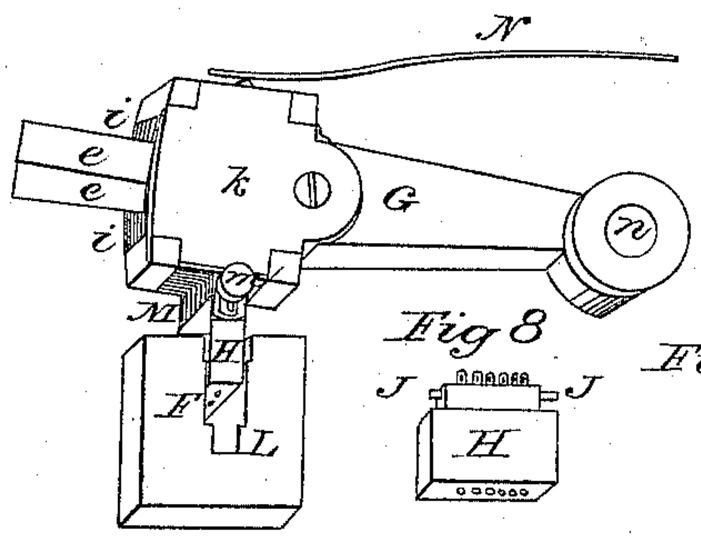
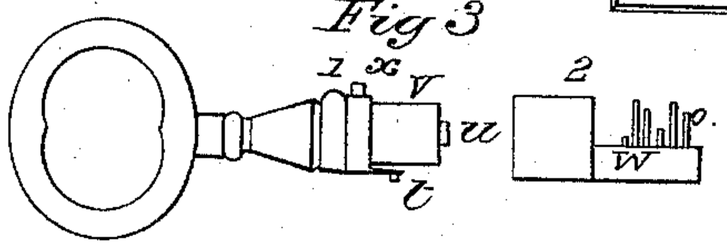


Fig 8

Fig 9

Fig 3



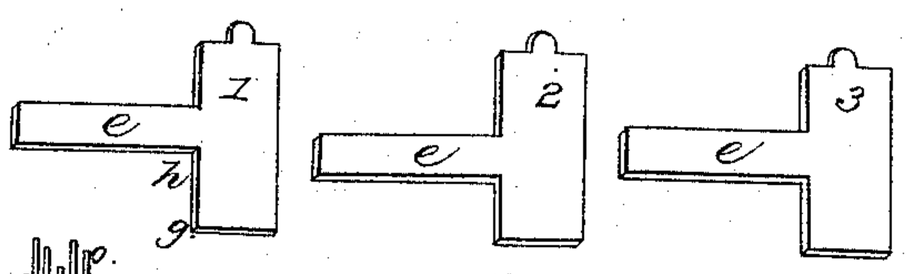


Fig 4

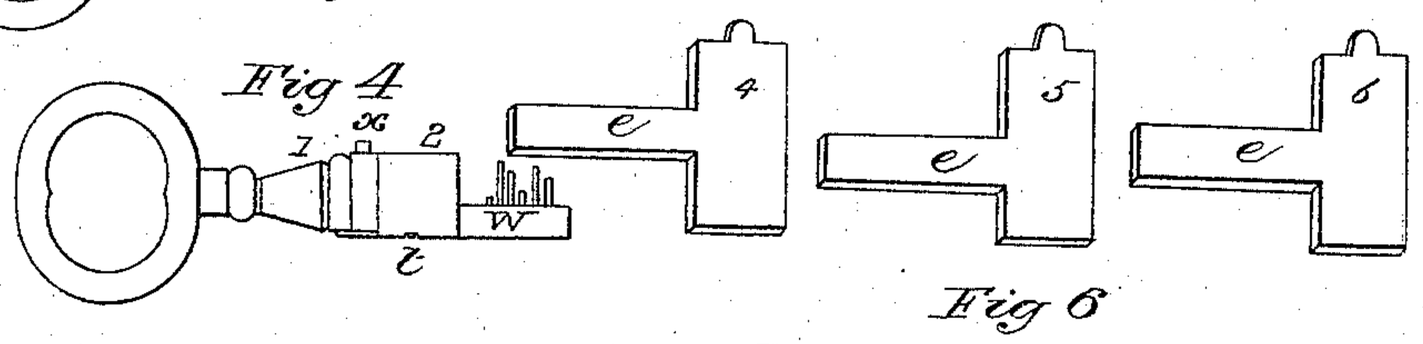


Fig 6

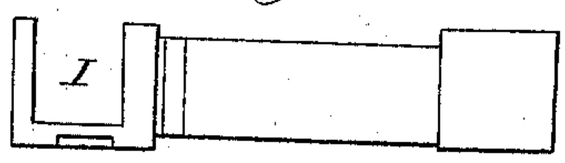


Fig 2

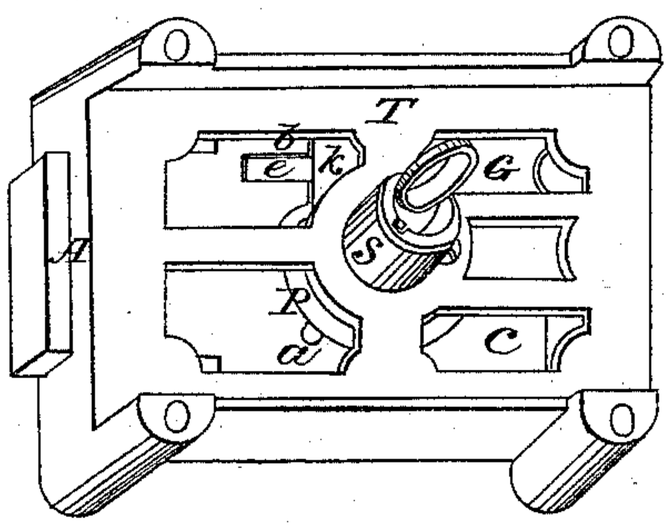
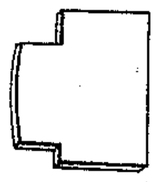


Fig 7



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

LÉGER DISS, OF ILION, NEW YORK.

LOCK.

Specification of Letters Patent No. 17,139, dated April 28, 1857.

To all whom it may concern:

Be it known that I, LÉGER DISS, of Ilion, in the county of Herkimer, in the State of New York, have invented a new and useful Improvement in Locks for Iron Safes and for other Purposes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view of the lock with the front plate or cover left off. Fig. 2, is a like view with the front plate T, put on. Figs. 3 and 4, are different views of the key, Fig. 3, showing the two separate parts of which it is composed, and Fig. 4 showing the finished key when those parts are put together. Fig. 5, is a perspective view of the stop holder G in connection with the key block F, these two agents being here connected as when in use, by the needle block H, Fig. 6, is a side view of the frame G, of the stop holders, (Fig. 5,) showing the recess within which the six stops 1, 2, 3, 4, 5, 6, lie. Fig. 7, is a specimen of the thin brass plates which are used as parting, or friction plates, and laid between the stops as they are placed in the stop holder. Fig. 8, is the needle block, holding a series of needles, or wire pins, the heads of which are seen projecting above the top of the block in this figure. They extend downward through smooth perforations, terminating even with the bottom of the block, and lie loosely in their places. They are prevented from falling downward through the block by having heads at the upper end. Fig. 9 shows a specimen of these needles. Figs. 1 and 2, are drawn on a scale of one half the usual size of a safe lock; all the other figures are drawn of full size, exhibiting the several parts composing the interior machinery of the lock of the dimensions ordinarily used.

Like letters refer to the same parts in all the figures.

The connection of the different parts as when in use, is shown in Fig. 1. A, is the bolt. Its projection for the sake of strength, is large, and within the case it fills the interior by its width from side to side, from *a* to *b*, as is seen. B, is a slot in the arm C, of the bolt; into which the short pin *d*, projecting from the under side of the tumbler P, catches when the tumbler is turned by the key, and withdraws the bolt to unlock, and by the reverse movement again to project the bolt and lock, the latter being the position of the bolt as shown in the figure. The bolt is fastened and kept in its projected state when locked, by the stops *e*, *e*, bracing against the shoulder *b*, of the bolt as here shown. These stops are six in number; they may be more, or less. And when the bolt is thrust out they are all elevated so as to present themselves endwise against the shoulder *b* of the bolt. Only two of these stops are here seen, the others being behind these; but they are all elevated to different heights, no two of them being on the same level; and yet all brace against the shoulder *b*, of the bolt. When the turning of the key is reversed, these stops are first brought down on a range with each other horizontally, and in range with the slot *f*. By this time the pin *d*, reaches the slot B, and the bolt is withdrawn, to unlock, the stops *e*, passing into the slot *f*. This raising of the stops *e*, irregularly, and again lowering them, and bringing them to a uniform range opposite the slot *f*, is occasioned by the use of the arrangement lying in this figure mostly behind the tumbler P; but which is shown separately in Figs. 5 and 8. Fig. 5, shows the whole of this arrangement put together, and on a larger scale. G, is called the stop holder, as containing the stops C, F, (Fig. 5,) is the key block, and H, (shown more distinctly in Fig. 8,) is the needle block. A side view of the case G, of the stop holder, is shown in Fig. 6, the recess I, for containing the body plates of these stops being here seen. The figures marked 1, 2, 3, 4, 5, 6, show these stops, the numbers being placed on the main body plates and *e*, denoting the projecting stops.

It will be seen that the depth of shoulder is different in the different stops. This circumstance allows of their being raised to different heights when lying in the holder G, (Fig. 5). The case of the stop holder presents an opening also at the outer end, as is seen from *i* to *i*, allowing the stops *e*, room to move up and down. These stops are laid into the case, with thin brass plates, laid between them to prevent their rubbing together. A specimen of these brazen plates is shown in Fig. 7. The stops *e*, projecting in front as seen in Fig. 5, the cover *k*, is then screwed down on the top, leaving the stops sufficiently loose to move easily. Attached to the lower edge of the cover *k*, and

also to the lower edge of the corresponding plate on the back side of this stop holder, is a projecting ear, each having a pin hole which is elongated horizontally as shown at 1, and in front is also here attached the short tumbler pin *m*.

The needle block H, (Figs. 5 and 8,) with its six needles before described, is hung by its gudgeons J, J, in the elongated holes in the projecting ears before described; the upper ends of the needles resting uniformly against the under edges of the stops: so that when the needles are raised, or either of them, the stops are respectively raised in a corresponding degree. In Fig. 5, this needle block is shown to be partially raised; but as the key is not inserted the needles are still all on a level, the different elevation of the stops *e*, being occasioned by the different position which each stop occupies in reference to the length of the body plates numbered 1, 2, 3, &c.

The key block F, is stationary; the stop holder, and the needle block being movable; the stop holder gyrating slightly on the pin *n*. When the tumbler P, (Fig. 11) is put on, its eccentric slot *r*, inclosing the tumbler pin *m*, as here seen, and the front plate added to steady the tumbler by inclosing the perpendicular cylinder *s*, and the key (Fig. 4,) inserted, the lock is ready for operation.

The key (Fig. 4) is composed of two parts 1 and 2, (Fig. 3). The cylinder 2, is hollow, with an internal circular slot, within the hollow, to allow the small pin *t*, to move around in it and prevent the head 2, from coming off: this pin being located on a spring which is pressed down when the head 2, is slipped on. When the head 2 is on, the projecting pin *u*, is riveted down also to assist in holding the head on: the head when the key is complete, being allowed to turn freely on the cylinder *v*.

Fig. 4, exhibits the finished key. The projecting bar *w*, with its upright needles, corresponding in the variation in their length to the variation in the length of shoulder in the stops *e*, is fixed solid to the movable head 2. Back of the movable head 2, is the short pin or stud *x*. This as the key is inserted, enters a perpendicular slot inside of the key barrel *s*, of the tumbler (Fig. 1,) which gives the key the command of the tumbler.

The key can only be inserted and withdrawn while the bolt A, is projected, as when locked. When in this state the key is inserted as shown in this figure: the needles *o*, upon the key (Figs. 3 and 4) standing perpendicular as it enters, and the bar *w*, of the key entering the diminished part L, of the slot in the solid key block F, (Fig. 5) the head 2 acquires its stationary position; the needles *o*, standing immediately under the ends of the needles M, in the needle block H; so that when this block is let down, the needles *o*, of the key, will successively enter the needle holes of the block H, and sustaining the needles M, at different heights, according to the different lengths of the pins O, on the key head, will by means of the variant position of the stops *e*, with respect to the length of the body plates 1, 2, 3, &c., allow the stops *e*, to settle to a level with each other, and to a position opposite to the slot *f*, in the bolt, (Fig. 1.) This settling of the stops *e*, to a uniform level is made secure by the use of the plate spring N; which being fixed at one end, as at R, (Fig. 1,) the other end presses on a small projection at the upper end of each stop. This spring being wide enough to cover all the stops, all are kept down to the same level. Thus the lock is free to operate, and to lock and unlock by the ordinary turning of the key.

The raising and lowering of the stops *e*, and the needle block H, (Fig. 5), which is attached to it, is governed by the eccentric slot *r*, (Fig. 1) working upon the pin *m*. The needle block H, (Fig. 5), moving perpendicularly in the corresponding slot seen in the stationary key block F. The elongated bearings in which the journals J, of the needle block move, allowing of this perpendicular movement, notwithstanding the arc of a circle is described by the movement of the stop holder. When this needle block is raised, as when locked, the needles *o*, on the key (Fig. 4) are withdrawn, and the key is free to be taken out; but when the needle block is let down, as when unlocked, the needles *o*, are in the needle holes in the needle block, and the key cannot be withdrawn.

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of the stop holder G, self spreading stops *e* and the spring N, with the tumbler moving the stop holder and needle block; the arrangement and operation being as described.

2. I claim the needle block H, as attached to the stopholder, with its series of needles, or pins, operating on the stops as described.

3. I claim the key block F, constructed as described; and also the needle key as shown in Figs. 3 and 4, fitted to its position and operating as described.

LÉGER DISS.

Witnesses:
WM. BAKER,
LEGER DISS, Jr.