Sheet 1- 2 Sheets.

J. Dillingham,

Door and Safe Lock,

No. 81,988. Patented Sep. 8, 1868.

Fig: 1.

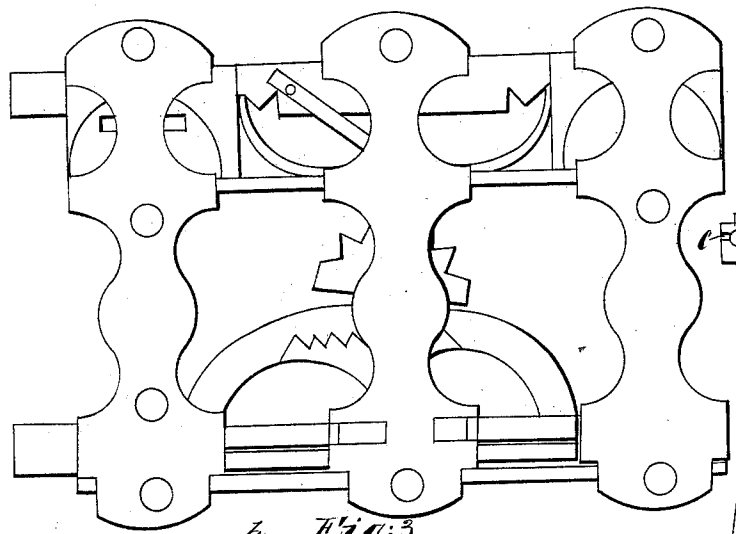
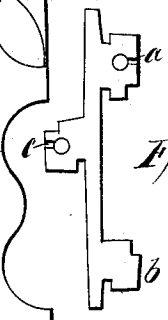


Fig: 2.



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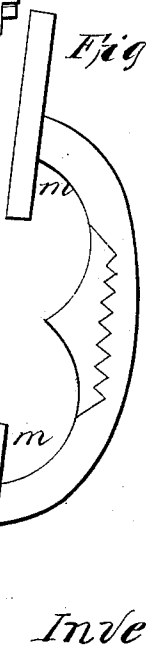

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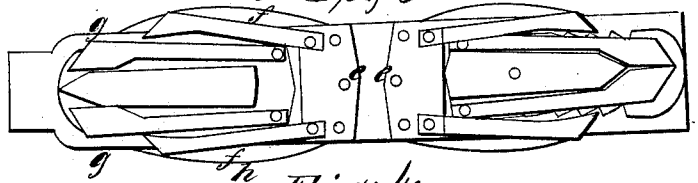
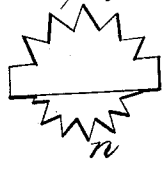
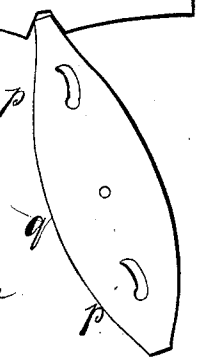


Fig: 4.

Fig: 6.





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Sheet 2 - 2 Sheets.

J. Dillingham,

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Fig: 7.

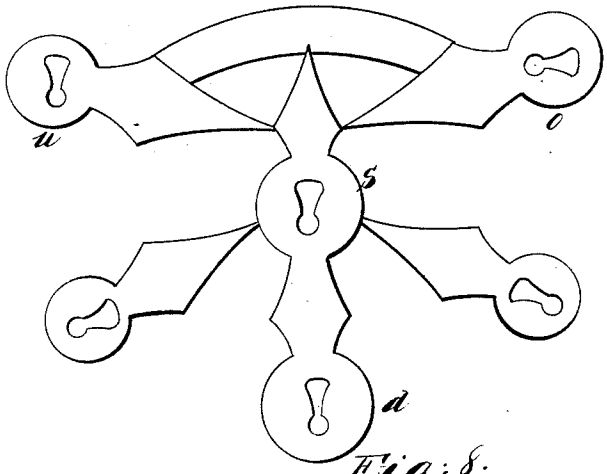
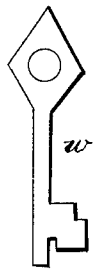


Fig: 10.



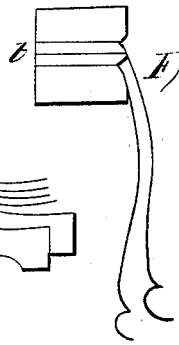


Fig: 11.

Fig: 8.

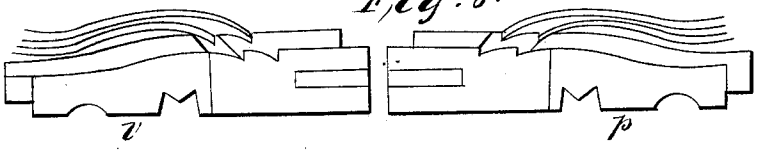
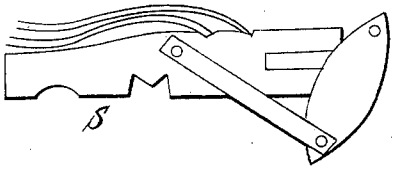


Fig: 9.



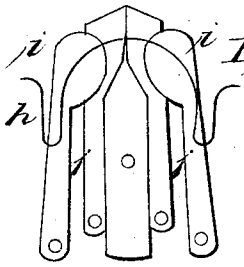


Fig: 12.

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United States Patent Office.

JOHN DILLINGHAM, OF TURNER, MAINE.

Letters Patent No. 81,988, *dated September* 8, 1868.

IMPROVEMENT IN DOOR AND SAFE-LOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN DILLINGHAM, of Turner, in the county of Androscoggin, in the State of Maine, have invented a new and improved Lock; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view.

Figure 2 is a view of the key or unlocking-instrument.

Figure 3 is a view of the main bolt with its appendages.

Figure 4 is a view of the sliding plates which close the several key-holes or openings.

Figure 5 is a view of the plunger.

Figure 6 is a view of the connection between the plunger and the locking-instrument or key.

Figure 7 is a view of the key-holes or openings, with an ornamental bit of brass fixed over the several key-holes.

Figure 8 is a view of two pairs of small bolts, situated in the upper division of said lock.

Figure 9 is a view of a third pair of bolts, also in the upper division, which makes fast and immovable the bolts which close the key-holes.

Figure 10 is a view of the small or day-key.

Figure 11 is a view of the follower.

Figure 12 is a view of the pawls, with their brass caps lapping over and staying the levers in their places, and also a peculiar-formed spring, which laps over, by crossing both pawls and levers.

The object of my invention consists in forming a lock, which, when once closed, will be able to retain with safety whatsoever is therein deposited.

One valuable, important, and novel feature of this new-formed key is, the use of both its ends to operate in the several divisions of this lock; and without a knowledge of the co-operation of these opposite ends, one might find himself baffled to operate, even with the use of this, its proper key, which is alone able to unloose the fastenings and move back these bolts. Such is the object and design of this invention.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation in a systematical order, and in the same order in which a mechanic would commence this work of making and using said invention.

I construct my key about three inches in length and about one-eighth of an inch in thickness. Said principal key has a flange, *a*, (see drawing, plate 1, fig. 2,) or a projecting edge, of some half inch in width, at or near one end, and also a second flange, marked *b*, at or near the other end. A third flange, marked *c*, is situated about midway between the other two, but on the opposite side. Said flanges are wrought into different forms, so as to accommodate themselves to the different wards situated in the several divisions of said lock. Said forms are all to be varied, shifted, and changed, so that no one of these keys will ever be able to operate in any two of these locks.

I also make an opening in the side of this lock, near the bottom, and about midway in its length, (see plate 2, fig. 7, letter *d*,) and in this opening I insert a metallic lining, which exactly conforms to the flange of the already-described key which is to pass through it.

When the flange *a* passes into the lock, a half turn puts it into a position to pass through another opening, formed like the first, into a second division of the lock, and at the same time the first flange, *a*, is passing the second opening, the second flange, *c*, is passing the first opening, *d*.

When in this position, the two flanges operate on a vibrating plate in both divisions of the lock, (see fig. 3, letters *e e*,) giving said plate an oscillating motion, by means of the flanges alternately pressing against the two uprights standing at the opposite corners, in the inner edge of said plate, which plate is also hinged at its centre. And to this vibrating plate are attached two hands, or detents, clicks, or pawls, (see fig. 3, letters *f f*.) Said pawls are hinged at their inner ends to the outer corners of said plate, which vibrate back and forward, and catch into angular teeth, which are provided there to receive the said pawls, and by this means the

main bolt is gradually thrown forward. And, in connection with this, there are two levers, *g g*, working within the two pawls. Said levers are hinged at their inner ends, and the other ends bear against the points of said pawls. In this way, when the plunger comes in between the heads of said levers, they are spread outward, the two springs, *h h*, on the back side of these said pawls yielding to the power of the plunger, carrying with them the two pawls, throwing out of gear the angular teeth, liberating the main bolt at this end, and making it ready for a movement in the opposite direction.

Said pawls are capped with a plate of brass, or its equivalent, (see plate 2, fig. 12, letters *i i*,) having a projection at the outer end sufficient to lap over and stay the levers in their places, (see *j j*.) And, in addition to this, there is a peculiar-formed spring, letter *k*, which laps over, by crossing both the pawls and both of the levers, for the purpose of retaining them in their proper places.

The description here given, on this end of the main bolt, is also a description of the form and construction of the other end of this same bolt.

I also make a second opening in the side of said lock, (see plate 2, fig. 7, letter L,) and directly over the first opening, and at such a distance as the peculiar construction may require. This second opening is in construction and peculiarity precisely like the first, and the description already given of the first opening is a full description of the second.

This instrument or key, which has already been described, passes into said lock through this second opening or key-hole, and there operates on what has been denominated a plunger, (see fig. 5, letters *m m*.) Said plunger works back and forward, as the case requires. When it is thrown one way, it throws the pawls out of gear at one end of said main bolt, and throws the pawls into gear at the opposite end of this same bolt, and all with the same motion.

Fig. 6, letter *n*, forms the connection between the plunger and the key. Said key operates on the angular teeth on the upper side, and the teeth on the under side operate with the corresponding teeth on the side of the curved lever of said plunger.

And again, I make a third opening in the side of the lock, (fig. 7, letter *o*,) near the top, at either the right or left-hand corner, entirely depending whether the lock is to be a right or a left-hand lock; this said opening to be formed and constructed the same as those which are already described. The key, as described above, will be used in this case by changing ends; it enters this third opening, and turns a pair of bolts, (see fig. 4, letter *p*.) This movement slides a plate (see fig. 4, letter *q*) over every opening, and effectually closes every other opening or key-hole in said lock. When the key-holes marked *r r r* in sliding plates come over and match the local key-holes in the side of the lock, then there is entrance, but when the key-holes in the sliding plates pass by the local key-holes in the side of the lock, there is no admittance.

And again, this same key continues, and enters a second department, and there operates on another pair of bolts, (fig. 9, letter *s*,) and by this means the last-mentioned pair of bolts are made fast and immovable. And in connection with this second department there is provided a follower, (see fig. 11, letter *t*,) which is carried back while the said key is operating in this second division, and, when withdrawn, said follower pursues and effectually closes the entrance into this last-mentioned division.

And also, near the top and at the opposite corner from the opening last described, I make a fourth opening, in the side of this same lock, (see fig. 7, letter *u*.) This fourth opening is constructed the same as those above described, and in this connection I use the same key, which has been already fully described, and is the principal and most important instrument, even for this fourth division of the lock. This key enters the lock through the opening at letter *u*, and can operate and throw back and forward a pair of bolts, (fig. 8, letter *u*.) This division of said lock is intended for day use, without bringing into requisition the other divisions. This will be found very convenient in dispatch of business, but when greater safety is required, the other divisions may be made use of.

And, in addition to the utility and convenience, as described above, there are other points of value and convenience. And in this fourth connection I use an instrument which nearly resembles keys which are in use, (see fig. 10, letter *w*,) but I fix no claim on this key or any part of this fourth division. This small key, or day-key, or clerks' key, also enters the lock through the opening *u*, and can operate and throw back and forward a pair of bolts, letter *v*. And, as this division is intended for day use, and if the clerks are provided with the small keys, they may operate on this fourth division, but cannot on any other part of the lock; but the proprietor, with his principal key, can render this small key entirely nugatory.

Having thus set forth the principles of my invention, and the manner of constructing and using the same, and more especially the parts, improvements, or combinations which I am to claim as my invention or discovery, I wish it to be understood that I do not limit myself to the special construction and arrangements of parts herein specified, as they may be varied without changing the principle or mode of operation; but

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

1. The peculiar-constructed key, having projections or bits *a b c*, substantially as and for the purpose set forth and described.

2. The arrangement of the main bolt, in combination with the plunger *m* and levers *g g*, substantially as described and for the purposes set forth.

3. The form and arrangement of the plunger, in combination with the levers *g g*, acting on the pawls *f f*, substantially as described.

4. The arrangement of the sliding plates, which effectually close the several key-holes, as and for the purposes substantially as described.

JOHN DILLINGHAM.

Witnesses:

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C. N. LITTLEFIELD.