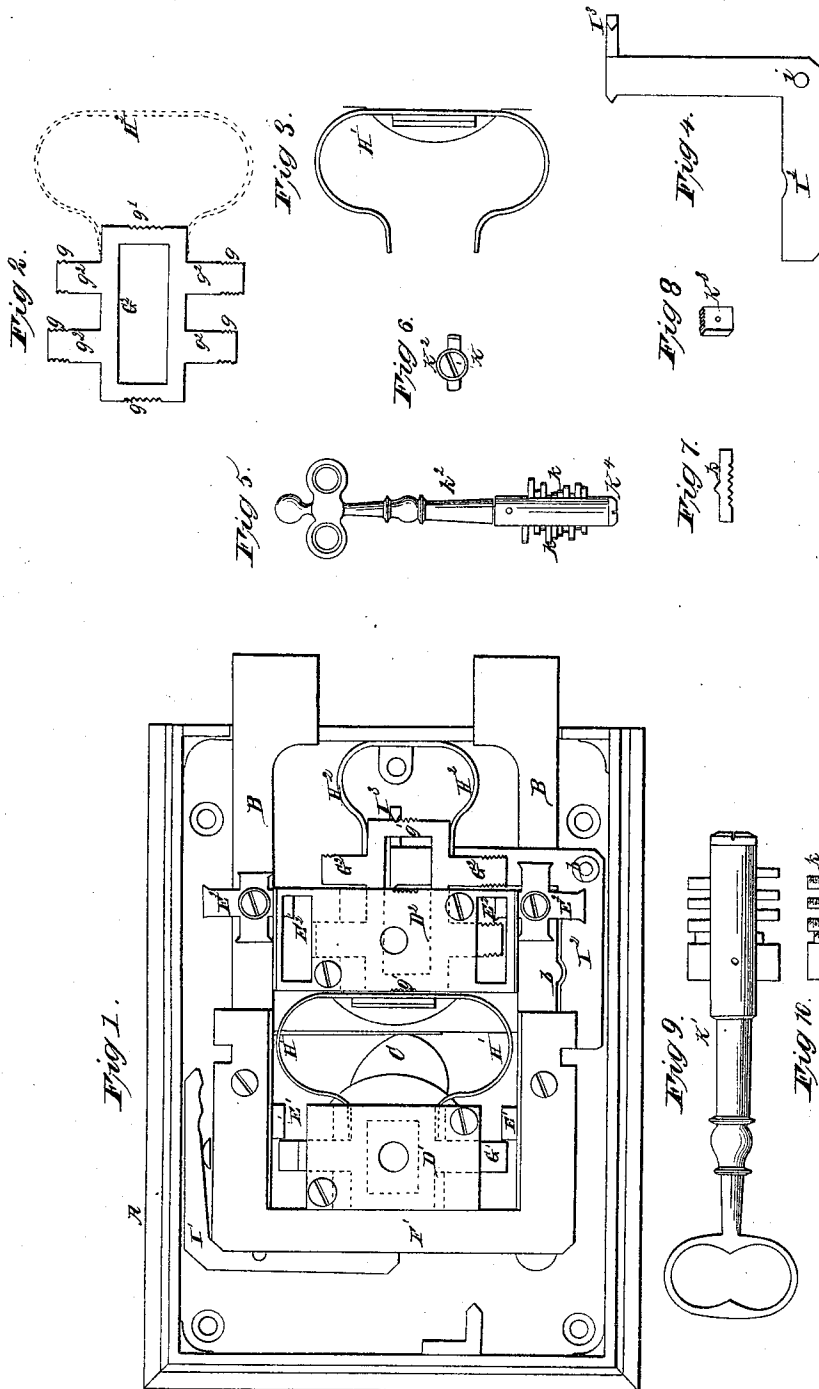


J. Kyle,
Lock.

N^o 5,708.

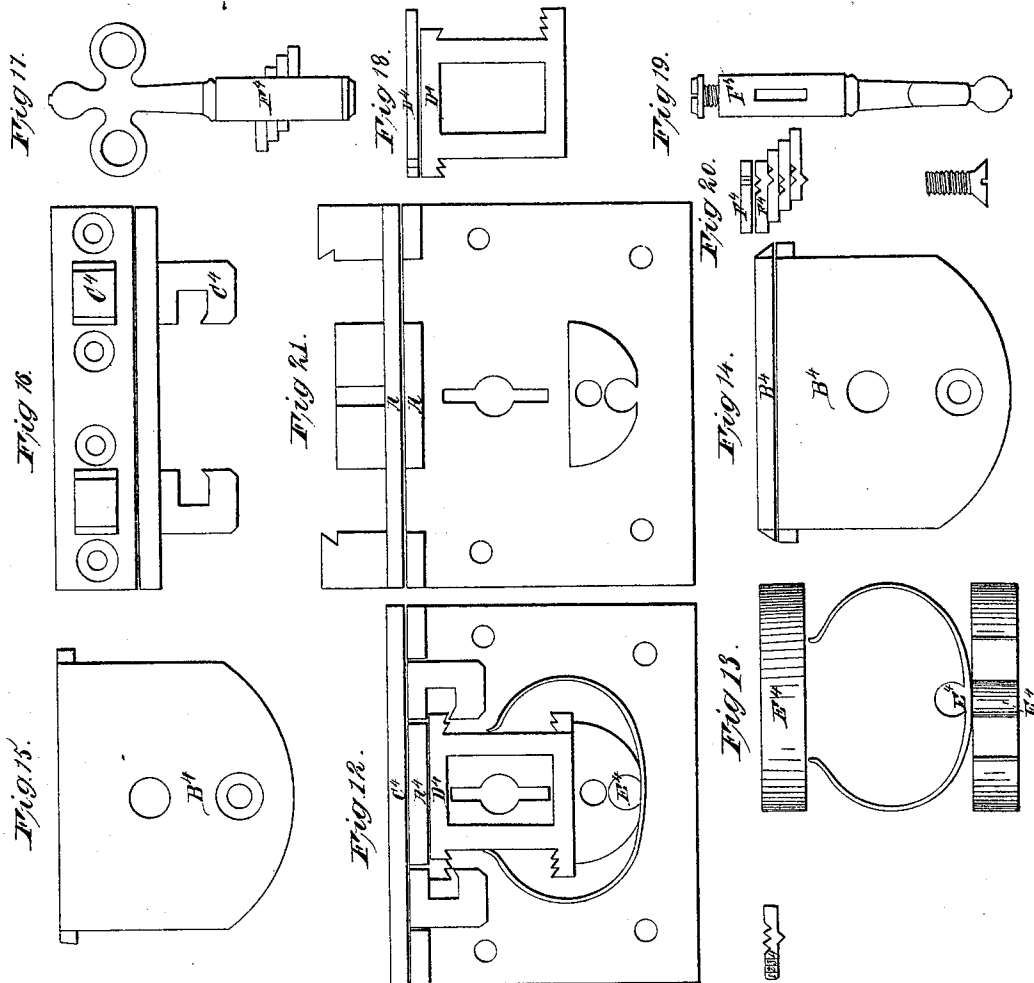
Patented Aug. 15, 1848.



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UNITED STATES PATENT OFFICE.

JAMES KYLE, OF NEW YORK, N. Y.

DIVIDED-BOLT DOOR-LOCK.

Specification of Letters Patent No. 5,708, dated August 15, 1848.

To all whom it may concern:

Be it known that I, JAMES KYLE, of the city, county, and State of New York, have invented a new and useful Improvement in

- 5 Changeable Locks and Keys for Fastening Doors, Drawers, Lids, &c., which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.
- 10 Figure 1 is a plan of the lock—the cap plate or cover being removed, in order to show the internal arrangement of the parts, and the bolt thrown out. Fig. 2 is one plate of the ward bolts, detached from the case, showing the unequal lengths of the bolts.
- 15 Fig. 3 is a plan of the balance spring, detached from the lock. Fig. 4 is a plan of the lever and tooth, for fastening the ward bolts. Fig. 5 is a plan of the key, for locking and unlocking the bolt. Fig. 6 is an end view of the key. Fig. 7 is a side elevation of the cam, detached from the stem or spindle. Fig. 8 is a perspective view of the notched block, inserted in the mortise in the stem.
- 20 Fig. 9 is a view of the key for throwing the bolt. Fig. 10 is a section of this key. Figs. from 11 to 21 inclusive, on Sheet No. 2, represent the several parts of a chest lock, constructed on the same principle as the door lock, represented in Fig. 1.
- 25 Fig. 9 is a view of the key for throwing the bolt. Fig. 10 is a section of this key. Figs. from 11 to 21 inclusive, on Sheet No. 2, represent the several parts of a chest lock, constructed on the same principle as the door lock, represented in Fig. 1.
- 30 Similar letters in the several figures refer to corresponding parts.

This lock, is in its essential particulars made like a lock invented by me several

- 35 years ago.
- The improvements that I now wish to secure by Letters Patent, relate to the peculiar form of the ward bolts—to the manner of constructing the key—to a novel mode of locking by balance springs, and to a new mode of fastening the wards, by a lever moved by the main bolt.
- 40 A is the case—B the main bolt—C the tumbler, for throwing the bolt.

- 45 D¹, D², are two cap plates, covering small frames, fastened inside of the case, which contain the ward-bolts. E¹ E² the check pieces, secured to the main bolt.

- 50 F¹ is a cap plate, that covers the check plate E¹.

G¹ G² are the ward bolts.

H¹ and H² are the springs to act upon the ward bolts and make them more certain in their operation.

- 55 I¹, I², are the levers to fasten the check

pieces, and ward bolts, by the motion of the main bolt B.

K² is the key for unlocking the ward bolts G².

K¹, is the key for unlocking ward bolts G¹, 60 and throwing the main bolt B— $\frac{1}{2}$ the cams.

The ward bolts G¹ G², are composed of thin plates of metal, of different lengths, on each side of the square or rectangular portion of the ward, to allow of a greater number of changes, by simply changing the position of the said ward bolts in the frame. The notches *g*, represented on the sides of the ward bolts G² are to admit teeth on the sides of projections E² of the bolt B, for fastening the wards. The notches *g*¹, are to admit the tooth I³ of the lever I¹.

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The balance spring H², is designed to render the action of the ward bolts G², more certain and positive, and to lock the main bolt on the two opposite sides, and is fastened at the center to the frame, or case, in such a position, that its two ends shall bear against the two opposite sides of the wards, as represented at H² in Fig. 1 and by the dotted lines, in Fig. 2.

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The lever I², for fastening the wards, is made to turn in a stud *i*, as its fulcrum, fastened to the case, having a tooth I³ on its vertical arm, which enters corresponding notches *g*¹, in the wards, when the horizontal arm of the lever is depressed, by a projection *b*, on the main bolt B, which bears down the horizontal arm of the lever.

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The key K², Figs. 5, 6, for operating the ward bolts G², is made with an oblong mortise, through its stem, into which are inserted a number of rectangular notched cams $\frac{1}{2}$, or lifters, for moving the ward bolts, and a notched block K³ Fig. 8 secured therein by a pin—the cams being held securely in said mortise, by means of a screw K⁴, inserted into the end of the stem, with its point bearing against the outer cam. Each cam has six notches on one side, and one tooth on the opposite side. The permanent block, must also have six notches in its side next the cam, to admit the tooth of the cam.

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In changing the cams of the key, to correspond with the changes of the ward-bolts, the screw K⁴ must be partly withdrawn, and the teeth shifted to the notches of the cams, until the cams correspond with the ward-bolts—the screw, must then be screwed up, which will hold them fast in the stem—the

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point of the screw, which is made conical, entering one of the notches of the outer cam.

The cap plate or cover, which is the same size as the inside of the rim of the case, and which has been removed, in order to show the material arrangement of the lock, as before stated, is arranged and secured, in the same manner as described in my patented lock, and need not, therefore, be described here.

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Operation.

Modes of operating the locks, supposing them to be locked.—Insert the keys K^1 K^2 in their proper places in the lock, and turn the key K^2 , one quarter of a revolution, and let it stand at that point. Then turn the key K^1 , a half revolution, and in the act of turning the key, you will unlock, and throw the main bolt.

Modes of changing the locks.—With key K^1 throw the main bolt B out, about $\frac{1}{2}$ of an inch, so as to bring the ends of the ward bolts G^1 , to rest on the check pieces E^1 , and let them stand at that point, while in the act of changing the key. Then take out the key K^1 , and slack the screw that holds the pieces, or cams, in the stem, and move the pieces from notch, to notch. Then fasten them again. Then insert the key K^1 , in the lock, and turn it a quarter of a revolution, and in the act of turning it, you will alter the check pieces E^1 , making them to correspond with the key K^1 , through the agency of the ward bolts G^1 . Then turn the key K^1 , another quarter revolution, which will throw the bolt out.

Second mode of changing the lock.—

Insert the keys—unlock, and throw the main bolt half way. Take out the key K^2 . Then change the shape of it, in the same manner as key K^1 . Then unscrew, and take off the cap plate D^2 . Then take out the ward bolts G^2 , and change them, either by turning some of them over, or otherwise change their relative position, in order to make the bolt end of the wards, correspond with the key, when the inner edges of the wards are all even. Then put them in their proper places, and secure them as before.

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

1. The peculiar form of the ward bolts G^2 as described in the specification and represented in the drawings Fig. 2, such form being given to them in order to admit of the changes as described.

2. I claim constructing a key, with notched and toothed sliding cams so as to admit of numerous changes by shifting the teeth of the cams from notch to notch for varying the length of the cam from the center of the stem by which more permanent changes can be effected by a given number of pieces than has heretofore been accomplished without altering the relative position of the cams.

3. I claim the peculiar manner of holding the ward bolts in proper position by balance springs constructed arranged and operated in the manner described when applied to act upon a split or double bolt as described.

JAMES KYLE.

Witnesses:

WM. P. ELLIOT,
A. E. H. JOHNSON.