2 Sheets—Sheet 1.

H. WADSWORTH.
Master-Key Lock.

No. 203,222. Patented April 30, 1878.

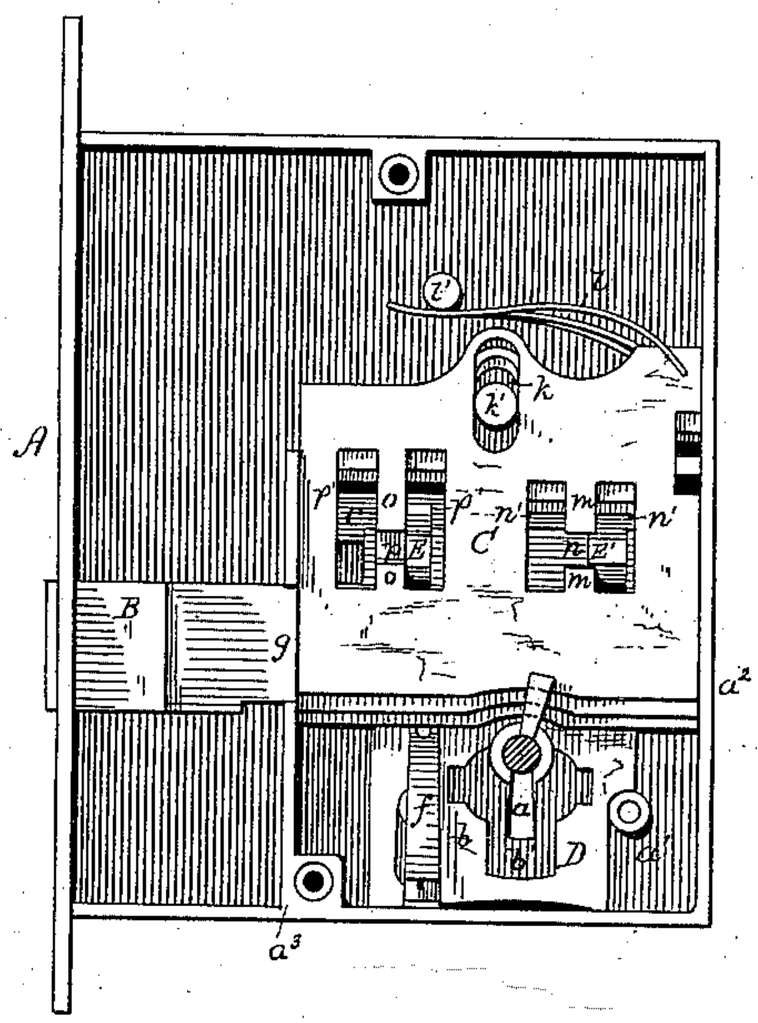


Fig. 1.

Fig. 2.

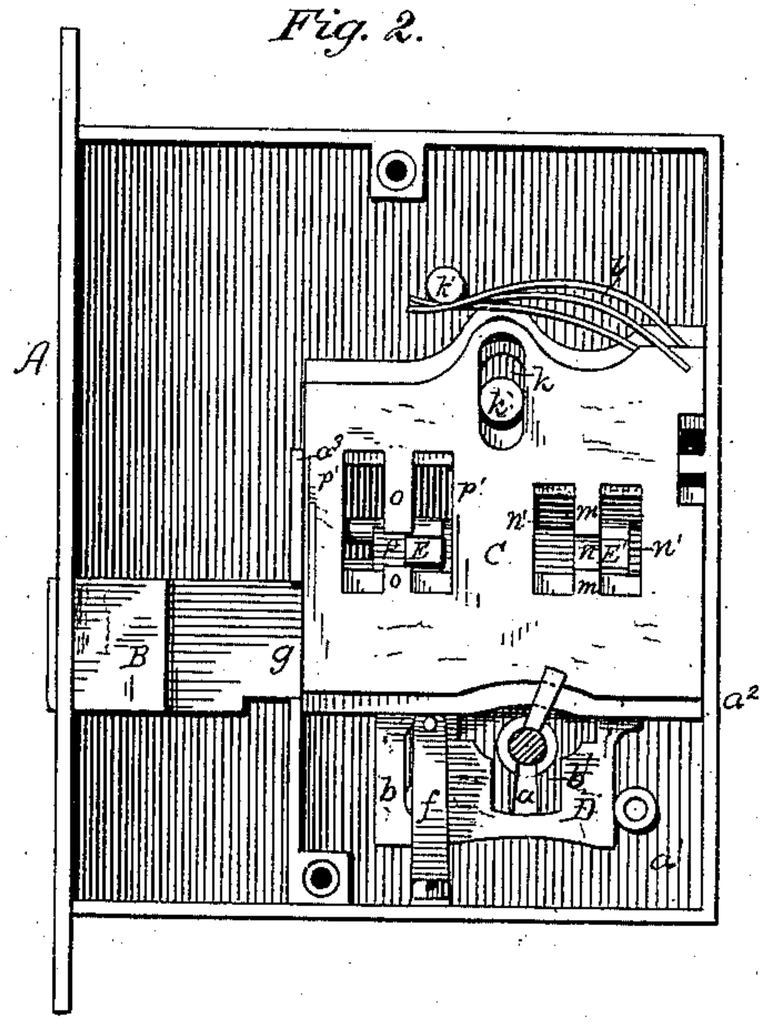
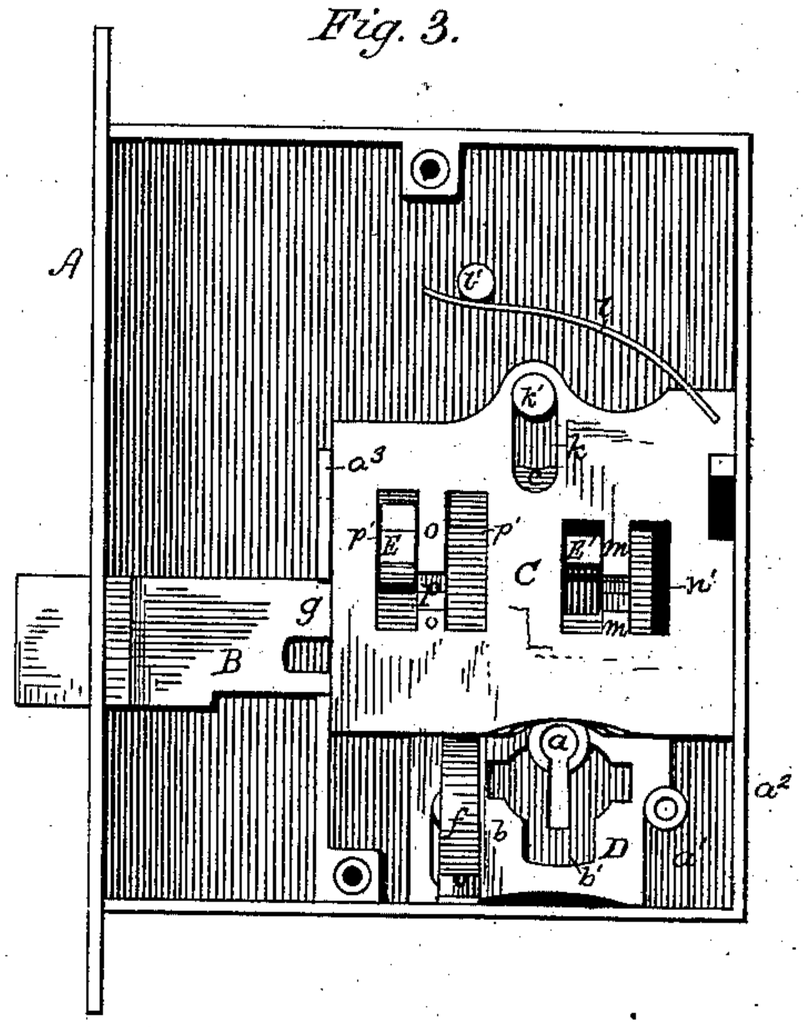


Fig. 3.



WITNESSES:

C. Clarence Poole
R. N. Dyer.

INVENTOR:

Herbert Wadsworth
by Geo. W. Dyer & Co
Attys.

2 Sheets—Sheet 2.

H. WADSWORTH.
Master-Key Lock.

No. 203,222. Patented April 30, 1878.

Fig. 4.

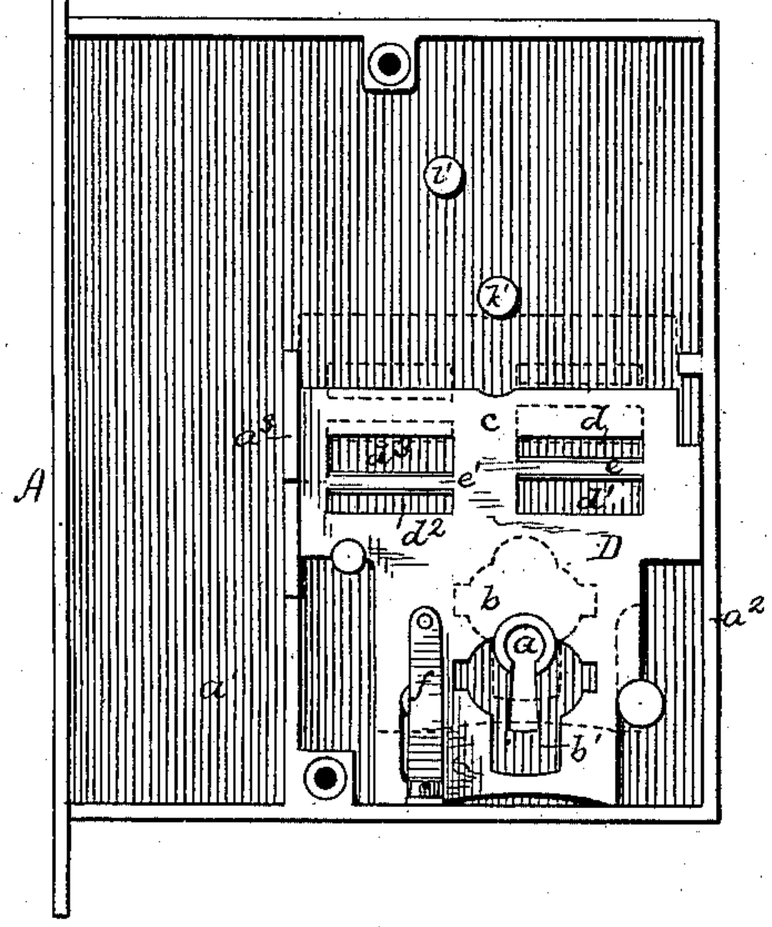


Fig. 5.

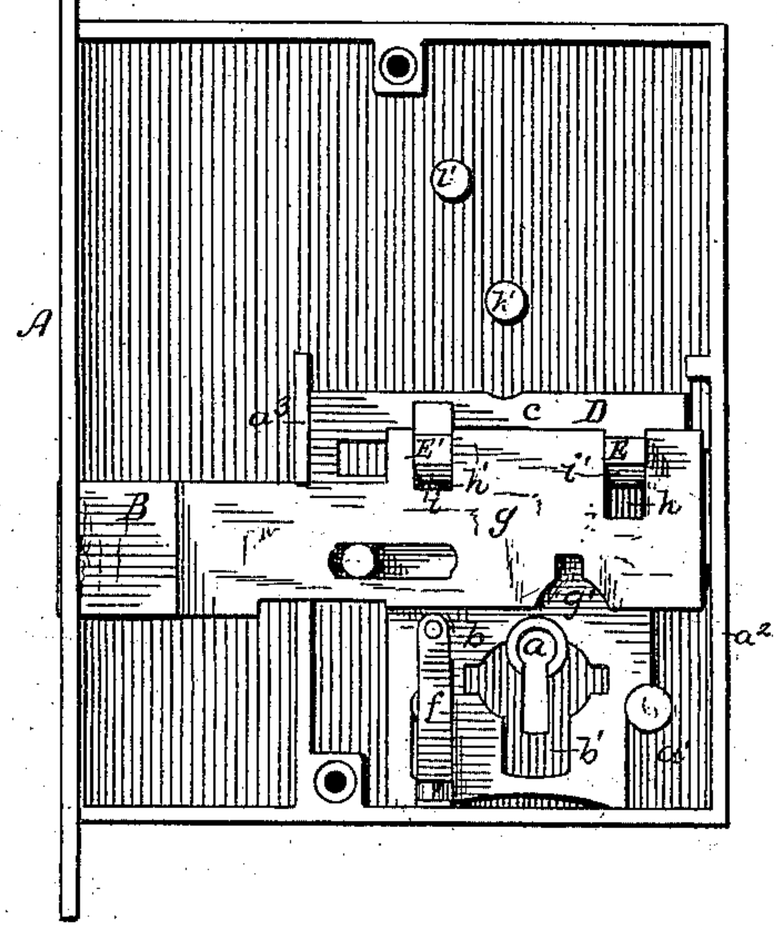


Fig. 6.

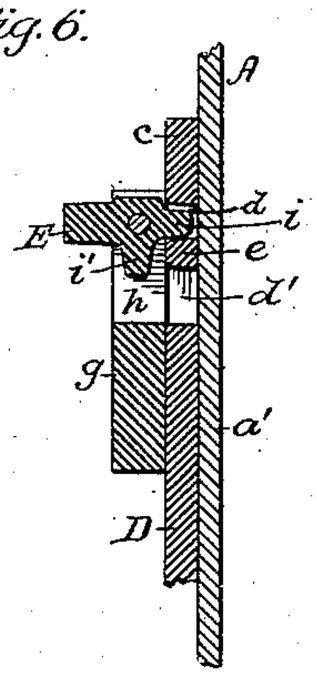


Fig. 7.

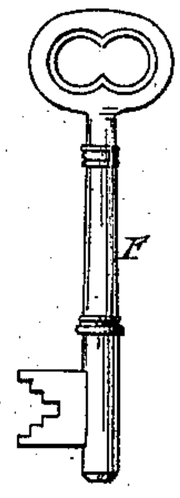
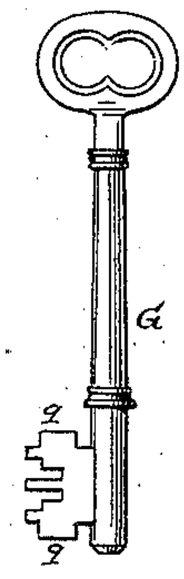


Fig. 8.



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UNITED STATES PATENT OFFICE.

HERBERT WADSWORTH, OF HOHOKUS, NEW JERSEY, ASSIGNOR TO WILLIAM H. ROCKWELL, OF NEW YORK CITY.

IMPROVEMENT IN MASTER-KEY LOCKS.

Specification forming part of Letters Patent No. **203,222**, dated April 30, 1878; application filed February 7, 1878.

To all whom it may concern:

Be it known that I, HERBERT WADSWORTH, of Hohokus, in the county of Bergen and State of New Jersey, have invented a new and useful Improvement in Master-Key Locks; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is the production of a master-key lock the tumblers of which will be as strong and durable and the lock as difficult to pick open as the ordinary tumbler-lock, will be simple in its construction, and at the same time capable of a great number of changes; and my invention therein consists in the combination of a set of tumblers and a pivoted stump adapted to be thrown out of the way of the tumblers by a key; in the combination of a set of tumblers, a pivoted stump, which is turned out of the way of said tumblers by a key, and a second pivoted stump, which is thrown up to guard the bolt until the tumblers are raised into the proper position; in a peculiar pivoted stump carried by the bolt; in the combination of a sliding plate and pivoted stumps on the bolt moved by such plate; and, further, in constructing the sliding plate with horizontal slots, with which engage projections on the pivoted stumps, all as fully hereinafter explained.

To enable others skilled in the art to manufacture my lock, I proceed to describe the same, having reference to the drawings, in which—

Figure 1 is a view of the mechanism of the lock, showing the position of the parts when the bolt is being shot by the primary key, with the stump, which is operated by such key, just entering the gates in the tumblers; Fig. 2, a similar view, but with the master-key operating the tumblers and the master-stump entering its gates; Fig. 3, a plan view, showing the bolt shot, and the parts in the position they assume after the bolt has been thrown by either key; Fig. 4, a view of the case of the lock with the tumblers and bolt removed, showing, in full lines, the sliding plate for moving the pivoted stumps at the lower limit of its movement, and in dotted lines the said plate at the upper limit of its movement; Fig. 5, a similar view, with the bolt in position upon the sliding plate; Fig. 6, a section through the shank of the bolt, one of the pivoted stumps, and the head of the sliding plate; Figs. 7 and 8, views of the primary and master keys.

Like letters denote corresponding parts.

A is the case of the lock, of ordinary construction, and provided with the usual key-holes, placed opposite each other, one of which is shown at *a*. B is the bolt, and C the tumblers. Against one side, a^1, of the case, and directly beneath the shank of the bolt, is placed a sliding plate, D. This plate, the construction of which is shown more completely in Figs. 4 and 5, works closely between the rear end a^2 of the case A and a partition, a^3, secured in the case parallel to the end a^2. Suitable stops are cast on the case to limit the movement of the sliding plate. The shank *b* of the plate D is slotted at *b′*, the walls of which slot surround the key-hole *a*, the plate being moved only by the master-key, the web of which is extended to impinge upon the walls of the slot *b′*.

The head or upper part *c* of the plate D is preferably made wider than its shank *b*, and is provided with horizontal slots d d^1 d^2 d^3. These slots are arranged in pairs, as shown, and each is as long, or a little longer, than the movement of the bolt. Their purpose is to operate, by the movement of the plate D, the pivoted stumps carried by the bolt, to be presently described.

The horizontal piece *e*, which divides the slots d d^1, is preferably slightly rounded on its top, and is so situated that the upper slot *d* is smaller than the lower slot d^1, while the piece *e′*, separating the slots d^2 d^3, is placed below the line of the piece *e*, making the lower slot d^2 narrower than the upper slot d^3, the upper and lower slots d d^2 and d^3 d^1 being of the same size, and situated opposite each other, as shown in Fig. 4.

A leaf-spring, *f*, is secured to the lower end of the case, and is bent to press upon the shank *b* of the sliding plate D, so as to keep the sliding plate close against the side of the case. The end of this spring is provided with a small rounded projection, which enters a depression

in the shank *b* when the sliding plate is at its lowest point, so as to retain such plate in this position till it is moved by the master-key. The shank *g* of the bolt B is laid on the sliding plate D, and works through a rectangular opening in the partition a^3; and to further hold and guide the bolt, the shank *g* may be slotted to slide over a stud projecting from the side a^1 of the case. The under side of the shank is provided with the usual notch *g'*, with which the web of the key engages to throw the bolt. The upper side of the shank *g* is provided with rectangular notches *h h'*, and in these notches are mounted the pivoted stumps E E'. Each of these stumps is constructed with a rounded projection, *i*, which, when the stump is in a horizontal position, project a short distance beyond the inner side of the shank of the bolt. On one side of each stump, opposite the pivot, is situated another projection, *i'*, similar in shape and size to the projection *i*, and extending, when the stump is in a vertical position, beyond the inner side of the shank *g*.

The stump E is pivoted in the slot *h*, so that when in a horizontal position its projection *i* hangs downwardly. The stump E' is placed with its projection *i'* pointing upwardly when the stump is in a horizontal position.

When the bolt is in position, and the sliding plate at the lower end of its movement, the stump E, which I call, for convenience in description, the "primary stump," is in a horizontal position, projecting horizontally out from the shank *g*, while its projection *i* is engaged with the narrow slot *d*. With the parts in this same position, the stump E', for the purposes of description called "master-stump," is in a vertical position laid flat against the sliding plate, and has its projection *i'* projecting into the wide slot d^3.

Now, it will be seen, with reference to Figs. 4 and 5, that, by moving the sliding plate upwardly, the primary stump E will be thrown down into a vertical position, flush, or nearly so, with the outer face of the shank *g*, while the master-stump E' will be turned to a horizontal position. In this position the projection *i'* of the primary stump is in engagement with the wide slot d^1, and the projection *i* of the master-stump in engagement with the narrow slot d^2.

When the plate D is moved down again to its first position, the stumps will be given a half-turn in the opposite direction, and will resume the position shown in full lines in Fig. 5. The engagement of the stumps with the slots in the sliding plate does not interfere in the least with the movement of the bolt, since the slots are as long as the extent of the movement of the bolt, and the engagement is the same at every point of such movement.

The lock may be provided with as many tumblers, C, as may be found necessary or desirable. Three of such tumblers are shown in the drawings. These tumblers are made in a general rectangular shape, and slide between the end a^2 of the case and the partition a^3. Each tumbler has a slot, *k*, in its central upper part, which rests over a stud, *k'*, projecting from the side a^1 of the case, and a leaf-spring, *l*, which bears against a stop, *l'*, and presses downwardly upon the tumbler. On one side of the center the tumblers C are made with tongues *m*, forming gates *n* between the ends of such tongues, through which the primary stump passes. On each side of the gates *n* rectangular slots *n'* are formed, which are large enough to allow the primary stump to turn in and out of them when the plate D is moved. On the other side of the center of the tumblers are formed tongues *o*, and gates *p* between the ends of these tongues, and rectangular slots *p'* on each side of the said tongues.

The primary key F, Fig. 7, which varies with each lock, is of the ordinary construction. Its web is stepped to act upon the lower ends of the tumblers and move their gates *n* in line, and has a lower projection, which throws the bolt.

The master-key G, Fig. 8, is made the same for all the locks of one lot, which can be used upon several floors of a building, or only upon one floor, and its web is stepped to move the gates *p* of the tumblers in line with each other. The web of this key is provided with upward and downward projections *q*, which act upon the slot *b'* of the sliding plate D. The case A has two key-holes, and the bolt can be shot or withdrawn into its case from either side of the door, and with either the primary or master key.

The primary key, it will be seen, acts only upon the tumblers and bolt, and does not affect the relative positions of the pivoted stumps. When the bolt is shot by the primary key the gates *n* will be brought into line, and the primary stump will pass from one slot *n'* through the gates, Fig. 1, into the other slot *n'*, and in withdrawing the bolt by the primary key the operation is the same, the primary stump alone being brought into action.

In operating the lock with the master-key, supposing the bolt to be withdrawn into the case, one of the projections *q* strikes the side of the slot *b'* in the shank of the sliding plate D, and moves such plate upwardly, turning the primary stump out of its slot *n'* and the master-stump into one of the slots *p'*. At the same time the steps on the web are moving the gates *p* of the tumblers into line. When the gates *p* are in line the web of the master-key strikes the shank of the bolt and throws it forward, the master-stump passing through the gates *p*. The projection *q* then strikes the other side of the slot in the sliding plate and moves it down again, at the same time withdrawing the master-stump out of engagement with the tumblers, and turning the primary stump up into the forward slot *n'*. The parts are then in the same position as when locked by the primary key, and can be unlocked by either key. If the bolt is un-

locked by the master-key the sliding plate is first acted upon to reverse the relative positions of the stumps, and the master-stump moved through the gates *p*, and then the stumps are again changed by moving the sliding plate back to its first position.

It will be seen that both keys act directly upon all the tumblers, and the lock is therefore not weakened by being made a master-key lock, as are other master-key locks which have the tumblers constructed to operate upon each other.

My master-key lock is also safe, is simple in construction, cheap to manufacture, efficient in operation, and durable in use.

Having thus fully described my lock, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a lock, the combination of a set of tumblers and a pivoted stump, which may be turned out of the way of the tumblers by a key, substantially as and for the purpose set forth.

2. In a lock, the combination of a set of tumblers, a pivoted stump, which is turned out of the way of said tumblers, and a second pivoted stump, which is thrown up to guard the bolt until the tumblers are raised into the proper position, substantially as described.

3. In a lock, the bolt, provided with a pivoted stump, swinging on its pivot at right angles to the movement of the said bolt, substantially as described and shown.

4. In a lock, the combination, with the sliding plate D, of the pivoted stumps carried by the bolt, substantially as and for the purpose set forth.

5. The combination, with the sliding plate D, of the pivoted stumps and the gated tumblers, substantially as described and shown.

6. In a lock, the combination, with the horizontally-slotted sliding plate, of the pivoted stumps on the shank of the bolt, having projections *i i'*, substantially as described and shown.

This specification signed and witnessed this 1st day of February, 1878.

HERBERT WADSWORTH.

Witnesses:
L. W. SEELY,
R. N. DYER.