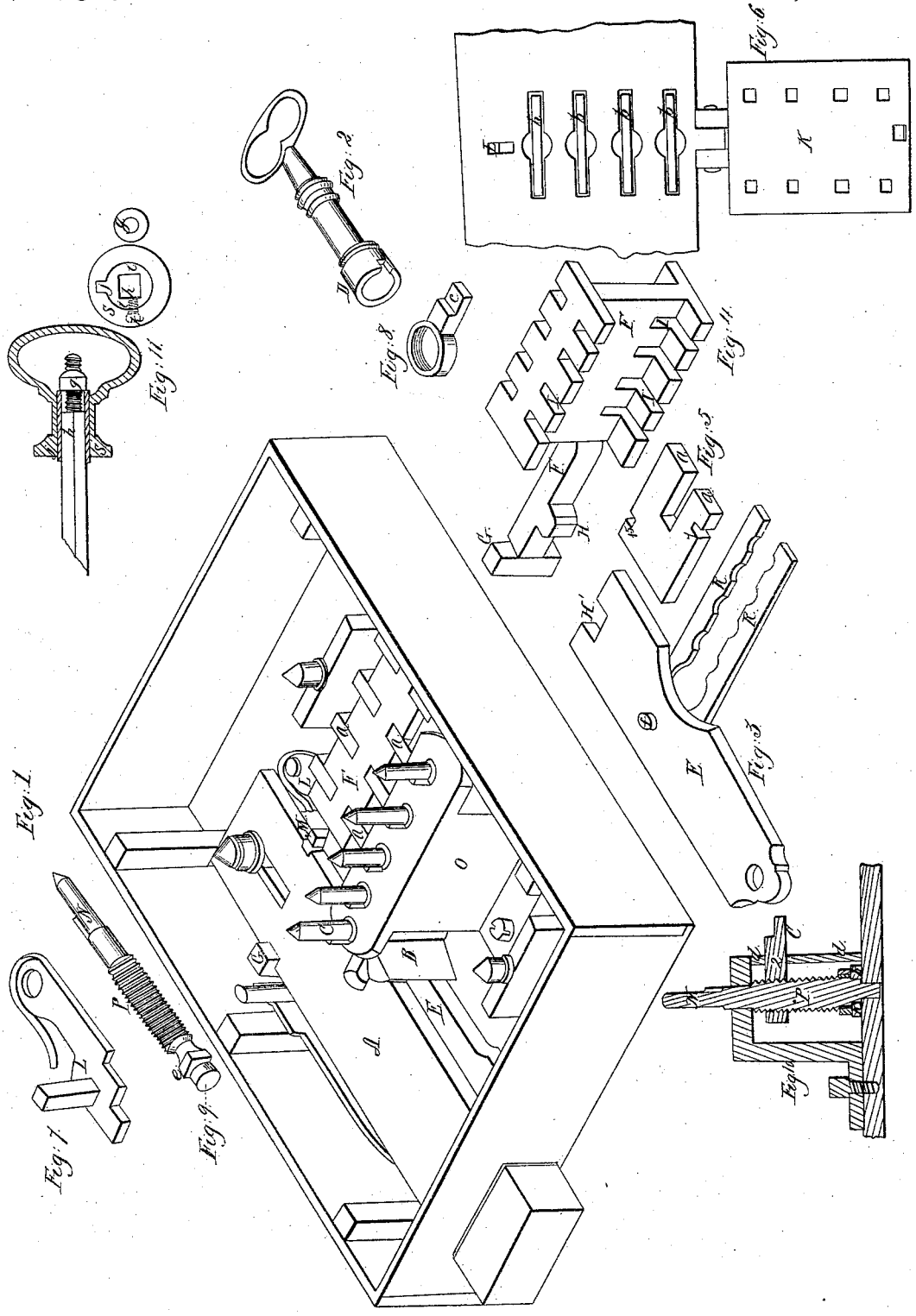
J. McClory,

Permutation Lock.

No. 787. Patented June 19, 1838.



UNITED STATES PATENT OFFICE.

JAMES McCLORY, OF NEW YORK, N. Y.

MODE OF CONSTRUCTING LOCKS FOR THE DOORS OF BANK-VAULTS.

Specification of Letters Patent No. 787, dated June 19, 1838.

To all whom it may concern:

Be it known that I, JAMES McCLORY, of the city of New York, in the State of New York, have invented a new and improved mode of constructing locks for doors, and which is well adapted to doors for the vaults of banks and all other places where great security is required; and I do hereby declare that the following is a full and exact description thereof.

Figure 1 in the accompanying drawing represents the lock in perspective, the top plate being removed for the purpose of exhibiting the arrangement of such of the respective operating parts as are thereby rendered visible, the other figures showing them in detail.

A, is the main bolt, which is made in the ordinary way.

B, is the bit, by which the bolt is to be moved backward and forward. This bit, which is in the ordinary form, is not to be withdrawn from the lock, but is to remain permanently within it, the pin C; making a part of it, and being adapted to receive the key D. Fig. 2 which is notched on the end of the pipe, as shown in the drawing, for the purpose of holding on to a projection or feather, on the pin or shank C, of the bit B, Fig. 1.

E, Fig. 3, is the tumbler which is to be raised by the bit B, in the usual way.

A slide F, Figs. 1, and 4, has on it a projecting piece G, which falls into notches on the upper side of the bolt, to hold it in place. It has also a projecting piece H, which passes into the notch H′, on the tumbler, preventing the latter from rising to relieve the bolt, excepting the slide F, rise with it. This slide is furnished with flanches at its lower end, and these flanches, and a part of the body of the slide are notched out as shown at I, I, I, these notches are to receive the cheek, or combination plates, Fig. 5, which slide easily within them; the ends *a*, *a*, of these combination plates are seen at *a*, *a*, Fig. 1. Notches on their sides numbered 7 and 15, are shown in the figure, these I call combination notches, the use of which will be presently explained. In the drawing Fig. 4, there are places for four such plates, but this number may be varied at pleasure. The plates fit indiscriminately into the respective notches in the slide, and the combination notches, on their own edges, are all made at different heights from their lower sides. There are openings through the face of the lock for the insertion and arrangement of these plates; this opening is to be closed by a door, shutter or slide, after the plates are arranged.

Fig. 6, shows a segment of the face of the lock, with the openings in it, and the plates *b*, *b*, *b*, *b*. When the door H is closed over these openings, it is held so by the latch L, Figs. 1, and 7, which latch cannot be raised, excepting when the bolt A, is shot out, and the stump M, is opposite to the notch in the bolt.

Fig. 8, are the nuts and cheek pieces which prevent the moving of the slide, Fig. 4, excepting when the outer ends *c*, of the cheek pieces are so situated that they coincide with the combination notches before named.

Fig. 9, is a screw shaft, which is to receive the nuts and cheek piece, Fig. 8, by turning which screws said nuts and cheek pieces are raised or lowered. The key, Fig. 2, fits on to the pin N, of this shaft, and serves to turn it. The projecting pins N, N, of four such shafts, are shown in Fig. 1, O, O, being a box in which they are contained, and which also sustains the bit B, and pin C, for moving the bolt.

Fig. 10, is a cross section of the box, through one of the screw shafts P, having the nut 2, and cheek piece *c*, upon it. There is one of these nuts and cheek pieces to each screw shaft; these slide up and down in openings between studs, or strips of metal, *d*, *d*. I sometimes form a square, near the lower ends of the screw shafts, and place a sliding plate R, R, upon the under side of the tumbler E, attaching it thereto by a pin, *f* which sliding plate allows the screw shafts to be turned when the square *e*, is within the curved enlargements shown on it, and prevents the raising of the tumbler when the squares are not so ranged as to pass into the narrower part between them. I frequently, however, omit this device, as not of great importance. The threads of the screws on the screw shafts are of such size as to bear a known relationship to the numbers on the combination notches. Thus for example, if the cheek piece is at its lowest point on the screw shaft, fifteen turns, or half turns, of the shaft, will bring its end *c*, to the point which will enable it to pass through notch 15, and so of the others.

When a spring bolt, and a spindle with knobs to turn it are used, I have devised a

new mode of regulating the length of the spindle between the knobs, so as to adapt it perfectly to the thickness of the door and lock; by which device I am enabled to cast the knob without an opening on its upper side, to receive a nut. Fig. 11, shows a section of the knob, having the end of the spindle within it; *g*, is a nut which is put upon the end of the spindle *h*, and which may be passed with it into the knob, through a cylindrical opening large enough for that purpose. A tube or collar, *i*, *i*, has a square hole through it fitting the spindle, and sliding on it; this collar is cylindrical on its outside fitting the cylindrical opening into the knob and it has a projecting pin *j*, which fits into a notch made to receive it on the end S, of the knob; a screw *k*, fixed in the usual way, fastens the knob to the collar, or tube, *i*, *i*, passing through it, and bearing against the spindle. It will be seen that by this arrangement the nut, *g*, may be made to regulate the length of the spindle to the requisite extent.

Having thus fully described the manner in which I construct my lock, and in which the same operates, I do hereby declare that I do not intend to limit myself by said description to the precise mode of construction pointed out, but to vary the respective parts, in point of form, in any way which I deem proper, while the mode of action remains substantially the same, and

I also declare that what I claim as my invention is—

1. The manner of arranging and combining the screw shafts, and their nuts and cheek pieces, with the combination plates, and the slide in which they operate, in the manner, and for the purpose described.

2. I claim also, the so arranging and combining the shaft, and the bit and pin, for turning the bolt, that the same simple key may operate upon the whole which key, if lost, can be restored, and the lock opened, without resort to violence.

3. I likewise claim the manner of lengthening and shortening the spindle of the knobbed handle, by means of the sliding tube, or collar, with the nut behind it as set forth.

JAMES McCLORY.

Witnesses:
C. H. WILTBERGER,
LINTON THORN.