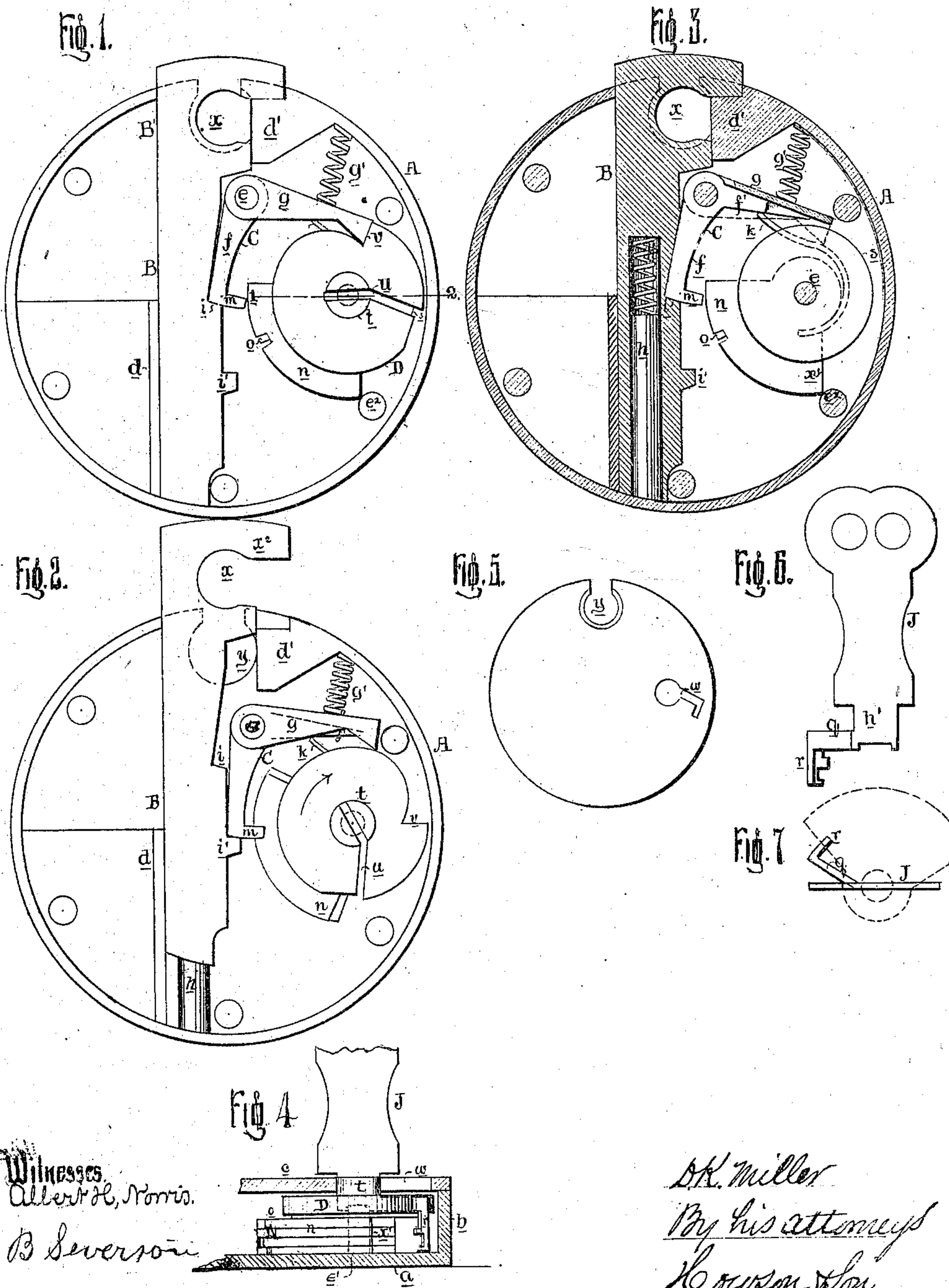


*D. K. Miller,*

*Padlock.*

*No. 105,710.*

*Patented July 26. 1870.*



*Witnesses*  
*Albert H. Norris.*  
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# United States Patent Office.

DANIEL K. MILLER, OF READING, PENNSYLVANIA.

Letters Patent No. 105,710, dated July 26, 1870; antedated July 22, 1870.

## IMPROVEMENT IN PADLOCKS.

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

I, DANIEL K. MILLER, of Reading, county of Berks, State of Pennsylvania, have invented an Improvement in Locks, of which the following is a specification.

### *Nature and Objects of the Invention.*

My invention consists of a case, a sliding bar, (the case being recessed for the reception of a staple,) and devices for securing the bar in its position after it has been adjusted, so as to prevent the escape of the staple from the recess.

My invention further consists of certain devices for operating and locking the sliding bar, and for closing the key-hole when the tumblers are in a position to permit the movement of the bar.

### *Description of the Accompanying Drawing.*

Figures 1 and 2 are plan views of my improved padlock, showing the operating parts in different positions, the cap or top plate of the lock being removed;

Figure 3 is a sectional plan;

Figure 4, a vertical section on the line 1-2, fig. 1;

Figure 5, an exterior view, drawn to a reduced scale;

Figure 6, a side view of the key; and

Figure 7, a plan view of the key.

### *General Description.*

The case A of the lock is, in the present instance, circular in shape, although it may be of any other suitable form, and consists of the bottom plate a, rim b, and top plate or cover c.

Within the case is a metal bolt or sliding bar, B, the enlarged head B' of which projects through an opening in the rim b, the bolt being guided by a rib, d, and a lug, d', so that it can move freely in the direction of its length.

In the head of the bar is a slot or recess, x, the mouth of which is at one edge of the bar, the slot being so arranged that, when the bar is at the limit of its inward motion, the inner portion of this slot will be opposite to and communicate with slots or recesses y y' in the top and bottom plates of the case, the mouth of the slot x being closed by the lug d', fig. 1.

To a pin, e, within the case, is hung an L-shaped dog, C, one arm, f, of which is opposite to one edge of the sliding bar B, and is adapted to a recess, i, in the same, the other arm, f', extending beneath an arm, g, hung to the pin e, and maintained in contact with the arm f' by a spring, g'.

A spring, h', within a recess in the bar B, bears on a loose pin, h, and tends to project the bar outward, a projection, i', on the edge of the bar, being so arranged as to strike the dog C and limit the outward movement of the bar.

On a pin, e', vibrate four quadrants or tumblers, n

n, &c., the curved edges of which are opposite to a projection, m, on the dog C, and in the edge of each tumbler is a notch, o.

Springs k, attached to the tumblers, bear against the under side of the arm f' of the dog C, and tend to maintain the straight sides or edges x' of the tumblers in contact with a pin or stop, e<sup>2</sup>.

The pin e' projects slightly above the tumblers, through a thin plate or washer, s, and into an opening in the center of a cam-disk, D, of the form shown in the drawing, a central circular hub, t, on the upper face of the disk, fitting nicely in an opening in the top plate c of the case.

In the hub t and in the disk is a short slot, u, which extends at one side of the hub to the outer edge of the disk, and in the plate c of the case is an L-shaped slot or key-hole, w, which coincides with the slot u in the disk, when the latter is turned to the proper position to admit the key.

The arm g extends beyond the arm f' and opposite to the edge of the cam-disk D, a shoulder, v, on the latter, when the recessed edge of the disk is opposite the arm g, bearing against the end of the arm, as shown in fig. 1.

When the bolt or bar B is at the limit of its outward motion, as shown in fig. 2, the slot x is so exposed that a staple, attached to a case or other object, may be passed into the said slot, after which the bolt may be depressed, so as to carry the slot below the edge of the case and the staple within the recesses y y', the mouth of the slot x being thus closed, so that, while the bar remains in its position, the staple is contained within and protected by the body of the case, and is much less liable to be injured than when connected to a projecting hasp in the usual manner.

The cam D is of such a shape that, when in the position shown in fig. 1, the arm g will rest on the arm f' of the dog C, a position in which it is maintained by the spring g', the springs k being too weak to move the arm f', so that the arm f is retained in the recess i, and from contact with the tumblers. Any movement, therefore, which may be imparted to the tumblers by wires introduced through the key-hole or otherwise will not serve in any way to indicate the position they should assume to release the bolt, nor will the dog change its position, even if all the slots o are brought in a line to receive the projection m.

When, however, the cam D is turned in the direction of the arrow, the arm g will be carried away from the arm f', so that the springs k can act on the dog, which will then vibrate, and the projection m will enter the slots o the moment the latter are brought in a line opposite the said projection, the withdrawal of the dog from the bolt B releasing the latter, and the spring h' throwing the bolt outward until the lug i'



strikes the end of the dog. The slot  $x$  is thus uncovered, so as to allow the staple to be withdrawn.

The proper movements are imparted to the cam and tumblers by a key, J, consisting of a flat plate, having at the lower end a projection,  $k'$ , an arm,  $g$ , extending from one side of the projection, and a serrated arm or projection,  $r$ .

The key, after being passed into the key-hole, rests upon the pin  $e'$ , the arm  $g$  extending through the slot  $u$  in the disk, and the projection  $r$  extending below the disk, as shown in fig. 4.

As the key is turned the disk D is first revolved, so as to throw back the arm  $g$ , when the springs  $k$  will throw the dog C against the tumblers  $n$ , the serrated projection  $r$ , on the further movement of the key, adjusting the tumblers to such position that the projection  $m$  can enter the notches  $o$ .

It will be seen that the disk D moves independently and prior to the movement of the tumblers, and that the arm  $g$  is not raised until a slight movement of the disk has been effected. By this means the slot  $u$  is carried from below the key-hole  $w$ , and the latter is closed before the dog C is caused to bear on the tumblers, thus effectually preventing the introduction of any wires through the key-hole to operate the tumblers while the dog is bearing upon the same.

As the disk D is turned, the arm  $g$  of the key is carried beneath the top plate  $c$ , so that the key cannot be withdrawn until the disk is turned back to such a position as to permit the arm  $g$  to bear upon the arm  $f'$  of the lever. The arm  $f$  will thus be carried to bear against the edge of the bolt, so that, when the latter is brought to the position shown in fig. 1, the dog will enter the recess  $i$ , and lock the bolt in its place.

From the above description, it will be seen that, even should the tumblers be moved by wires or otherwise to the proper position for the notches to receive the projection on the dog, the latter will remain in contact with the bar until the pressure of the spring  $g'$  on the dog is overcome, and that to remove this

pressure it is necessary to first move the cam D, which movement will close the key-hole and prevent the introduction of wires to operate the tumblers.

Inasmuch as the key turns with and follows the tumblers, it cannot become worn by sliding on the latter.

Instead of a recess,  $z$ , in the bar B, the latter may have only a projection or arm,  $z^2$ , which, when the bar is depressed, closes the recess  $y$ .

I do not claim a case having a recess and a bar arranged to slide across the said recess; but

I claim—

1. A lock-case, having a slot or recess,  $y$ , near one edge, in combination with the bar B, retained permanently in connection with the case, and sliding in a direction to and from the rim of the same, and so constructed as to close the mouth of said recess when at the limit of its inward movement, substantially as described.

2. The bar B with its recess  $z$ , in combination with the case A and its recess  $y$ , and with the within-described devices, or their equivalents, for operating the bar, when the recesses  $z$  and  $y$  are so arranged as to coincide with each other when the bar is at the limit of its inward movement.

3. A dog, C, arranged within a case containing a series of tumblers, in combination with a shield or guard, D, and with the within-described devices, or their equivalents, constructed and operating so that the dog is maintained from contact with the tumblers until the key-hole is obstructed by the movement of the shield, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

D. K. MILLER.

Witnesses:

CHARLES E. FOSTER,  
WILLIAM P. BARD.