(Model.)

G. F. SEISER.

PERMUTATION PADLOCK.

No. 346,954. Patented Aug. 10, 1886.

Fig. 1.

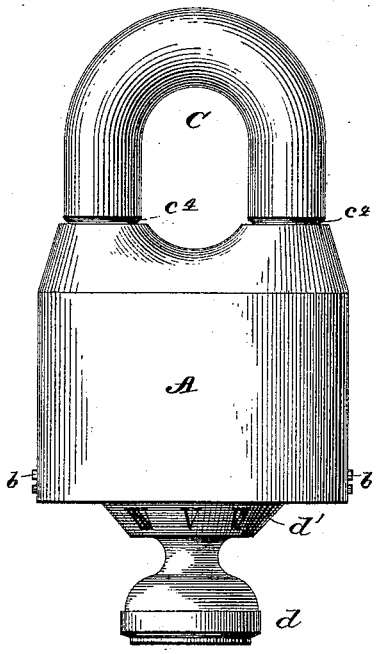


Fig. 2.

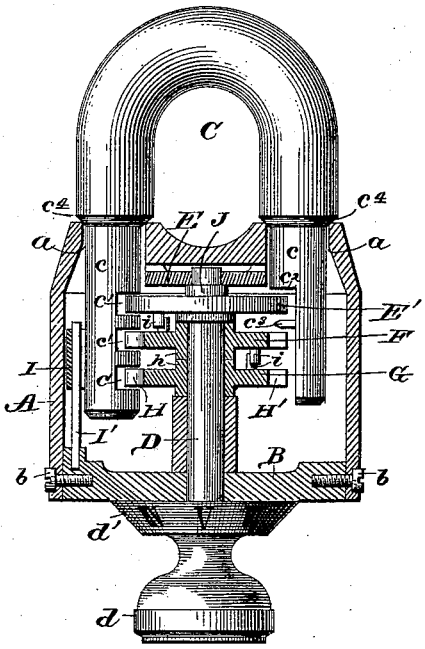


Fig. 3.

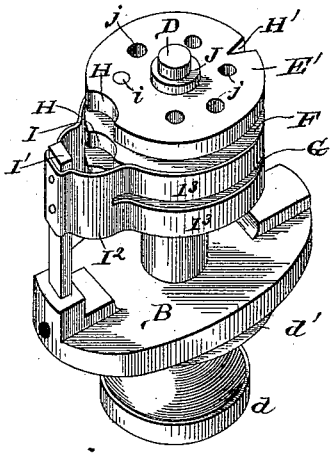
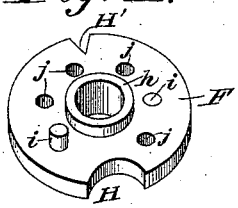


Fig. 4.



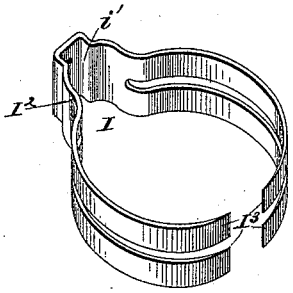


Fig. 5.

Witnesses

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GEORGE F. SEISER, OF WORTHVILLE, KENTUCKY.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 346,954, dated August 10, 1886.

Application filed May 26, 1886. Serial No. 203,314. (Model.)

To all whom it may concern:

Be it known that I, GEORGE F. SEISER, a citizen of the United States, residing at Worthville, in the county of Carroll and State of Kentucky, have invented new and useful Improvements in Permutation-Padlocks, of which the following is a specification.

My invention relates to improvements in permutation-padlocks; and it consists of the peculiar combination and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claim.

The object of my invention is to provide an improved padlock of that class which is opened by a combination of numbers or characters, and which cannot be opened or tampered with by meddlesome persons who have not the proper combination; to provide an improved lock of this class which shall combine simplicity and strength of construction with efficiency of operation and cheapness of manufacture, and to provide improved means for detaining the loose tumblers on the arbor or spindle when the lock is being opened or moved, and which shall thereby prevent the tumblers from becoming disarranged when the staple is temporarily removed from the lock.

In the accompanying drawings, Figure 1 is a side elevation of a lock embodying my improvements. Fig. 2 is a vertical central sectional view showing the device adjusted so that the lock can be opened. Fig. 3 is a detail perspective view of the arbor, the tumblers, the spring, and cap-plate detached from the case. Fig. 4 is a detail view of one of the tumblers, and Fig. 5 is a like view of the spring.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the inclosing shell or case of my improved permutation-padlock, which is provided at one end with two openings, *a*, and the other end thereof is left open for the reception of a cap-plate, B, which is fitted in the said open end of the shell, so that it lies flush therewith, and is secured in place by screws *b*, that pass through the sides of the case and into the cap-plate.

C designates the staple, having one of its legs, *c*, provided with a series of notches, *c'*, that correspond in number to the tumblers employed, and the other leg is recessed on its inner face to provide a shoulder, c^2, and has a nib, c^3, near the shoulder, each of the legs of the staple having a shoulder, c^4, that limits the inward movement of the staple within the case. The legs of the staple are passed through the openings *a* in the case, and the shoulders c^4 of the staple-legs come in contact with the edges of the openings, to limit the inward movement of the staple, as will be very readily understood.

D designates the spindle or arbor, which extends longitudinally and centrally through the case, and is stepped at its inner end in a socket or opening of a bearing-plate, E, that is arranged between the openings *a* of the case, and is rigidly secured thereto in any preferable manner. The outer end of the arbor or spindle has an enlarged head or knob, *d*, for its convenient rotation by hand, and exterior of the case. The spindle or arbor is further provided with a dial, *d'*, rigidly secured thereto, and having the numbers or characters of the combination thereon. The spindle passes through the cap-plate, which is provided with an indicating mark or character, with which the numbers or characters of the dial are to align, the dial bearing against the outer face of the cap-plate.

E' designates a tumbler that is rigidly secured on the inner end of the spindle or arbor, and F G designate the loose tumblers that are sleeved on said spindle. Each of the tumblers is provided at its middle with a collar or flange, *h*, to keep them from coming in contact, and to space them on the spindle, and at or near their peripheries the tumblers are provided with projecting pins *i*, the two end tumblers each having only one pin, and the intermediate tumbler two pins that are to engage the pins on the end tumblers. At diametrically-opposite points in the periphery of each tumbler are formed notches or recesses H H', the former of which are large and with curved edges, while the latter are smaller than the recess H, and have their edges arranged at an acute angle to each other, or approximately V-shaped. The notches H are adapted to align or coincide, to permit the leg *c* of the staple to pass through the same, and the V-shaped notches are made of that form and smaller, to prevent the staple from being withdrawn unless all of the larger curved notches

H register. The pins of the tumblers are adapted to impinge upon each other to rotate with the spindle, and each tumbler has a series of perforations, *j*, to adapt the lock to be set at different combinations.

I designates a spring that is rigidly secured at its middle to a post or stud, I′, of the cap-plate or other part of the lock-case, and the spring is provided with a rounded or inclined portion, I^2, that forms an opening or space, *i*′, through which the longer leg of the staple is passed in order that the tumblers may enter the notches therein. The spring is further provided with independent arms I^3, which correspond in number to the tumblers, and are formed integral with the spring, and extend around and bear against the peripheries of the tumblers. The free ends of the independent arms are out of contact with each other, so that they are free to exert the proper requisite pressure on the tumblers to prevent them from moving out of line when the staple is withdrawn from the lock, the larger curved notches in the tumblers coinciding to permit the staple to be withdrawn from engagement with the tumblers and from the case. The spindle is provided with a sleeve, J, that is fitted thereon intermediate of the upper tumbler and bearing-plate.

The operation of my device is as follows: The parts being adjusted in the position shown in Fig. 2 and the combination being known, the knob of the spindle is turned until the first number of the combination on the dial is opposite the indicating-mark of the cap-plate, in which position the notch H of the loose tumbler F coincides or is in line with the similar notch of the rigid tumbler E. The knob is turned in the reverse direction to bring the next number of the combination on the dial opposite the indicating-mark on the cap-plate, and to thus cause the notches H of all the tumblers E′ F G to align and permit the staple to be withdrawn from the lock with great ease. To lock the parts, the staple is again fitted or inserted in the lock-case, and the spindle is rotated a few times in one direction to throw the notches of the tumblers out of line and cause the edges of the tumblers to enter the notches in the longer leg of the staple. When the staple is removed from the lock, the loose tumblers are held in place and prevented from rotating or turning on the spindle, so that their notches are in line to permit the staple to be readily fitted again in the lock to lock the parts without manipulating the spindle, as is sometimes necessary in devices of this class not having my improvement.

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

In a permutation-padlock, the combination of a case having a removable cap-plate, a rigid post, I′, carried thereby, an arbor journaled in the cap-plate, the rigid and loose tumblers carried by the arbor, and having the notches in their peripheries, a staple having the notched legs, and a spring, I, formed of a single piece of metal and secured at its middle to the post I′, and having the outwardly-bent portions I^2, for the free passage therethrough of one leg of the staple, and the independent arms I^3, extending outwardly from both sides of the post and fitted around and bearing against the periphery of the loose tumblers, to prevent the latter from rotating loosely on the arbor by frictional contact between said arms of the spring and the tumblers, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE F. SEISER.

Witnesses:

WILLIAM J. COGLE,

SILAS CUNNING.