(Model.)

J. EDE.

PADLOCK.

No. 427,755. Patented May 13, 1890.

Fig. 1.

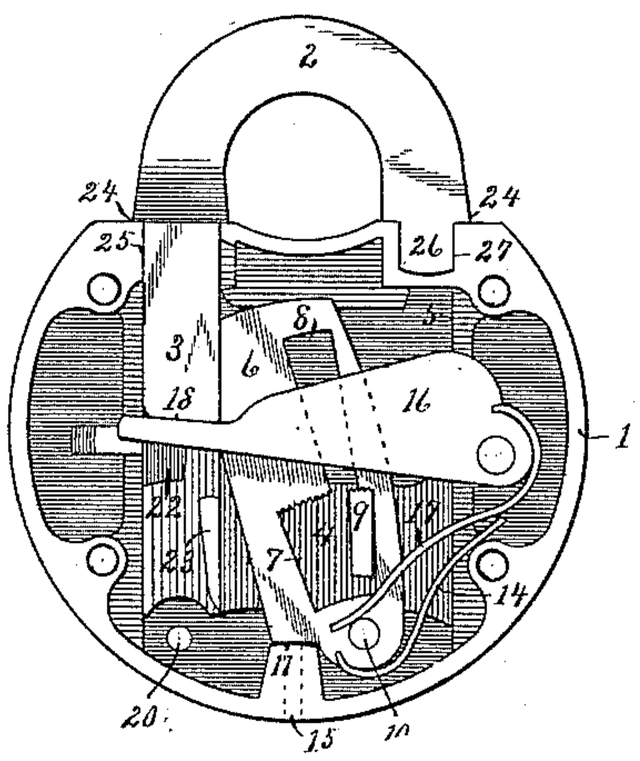


Fig. 2.

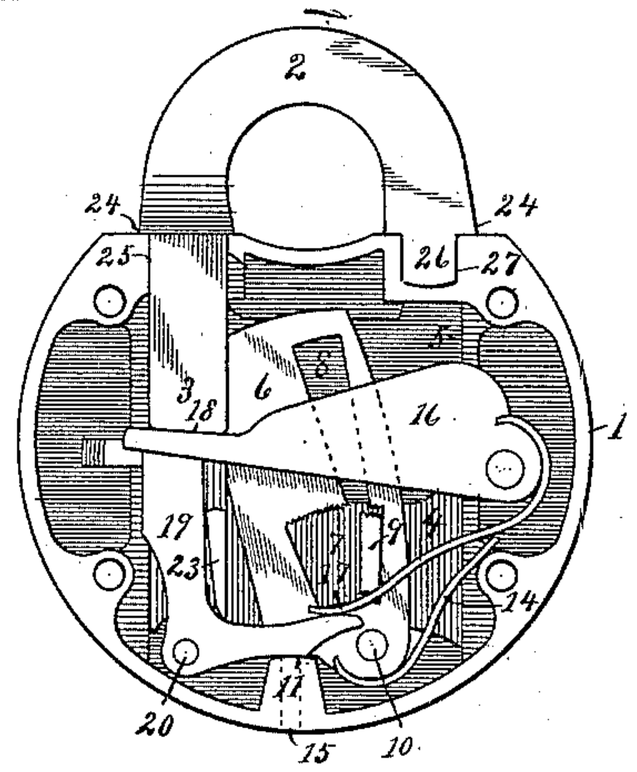


Fig. 3.

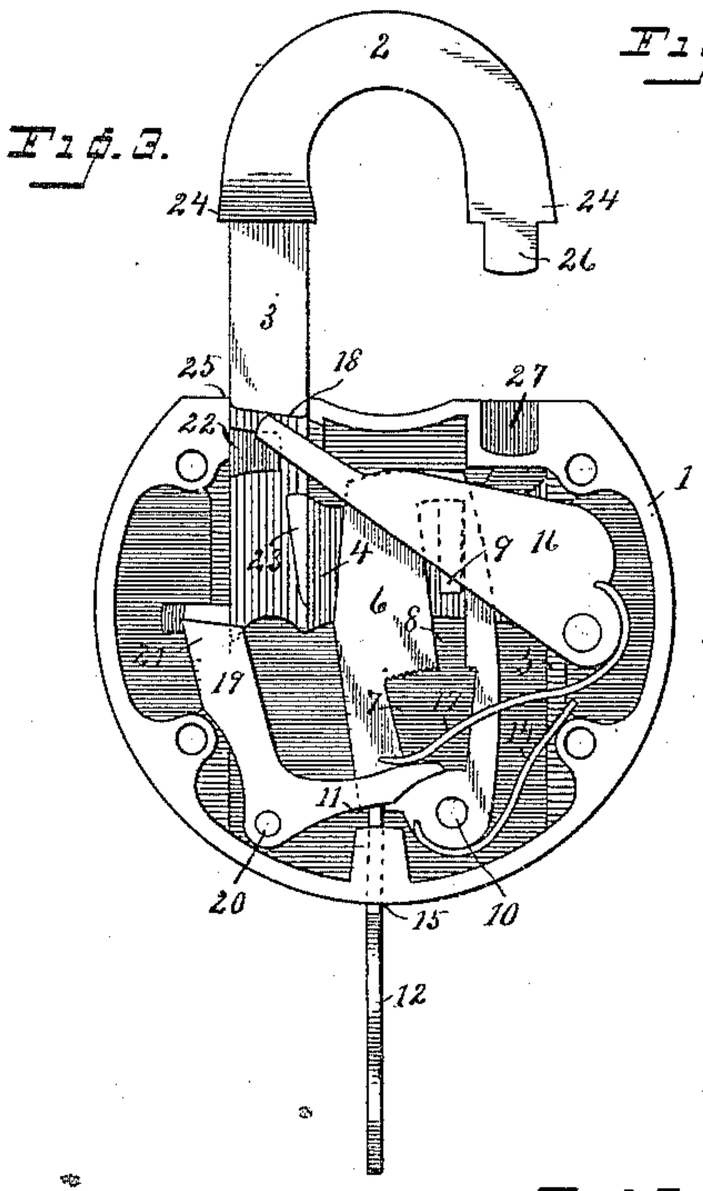


Fig. 5.

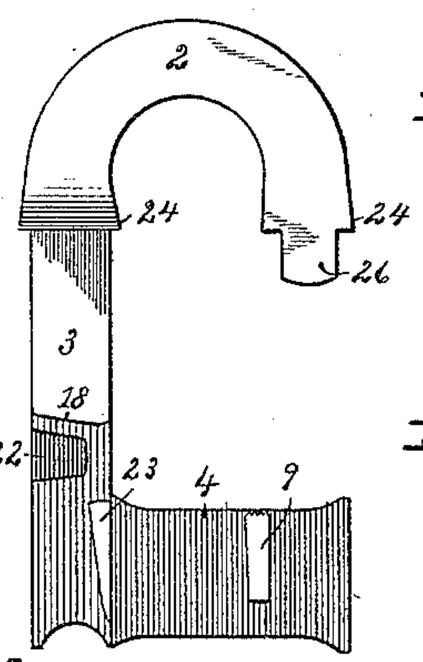


Fig. 4.

Fig. 6.

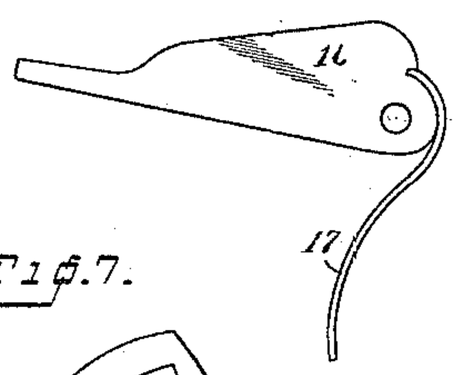


Fig. 7.

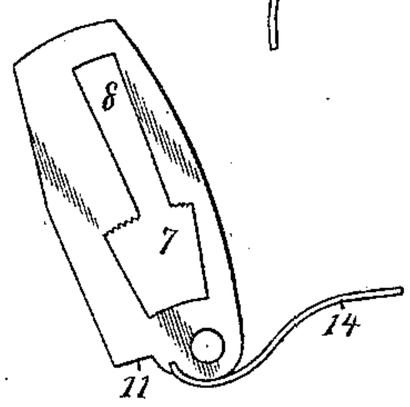
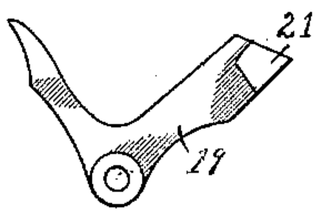


Fig. 8.



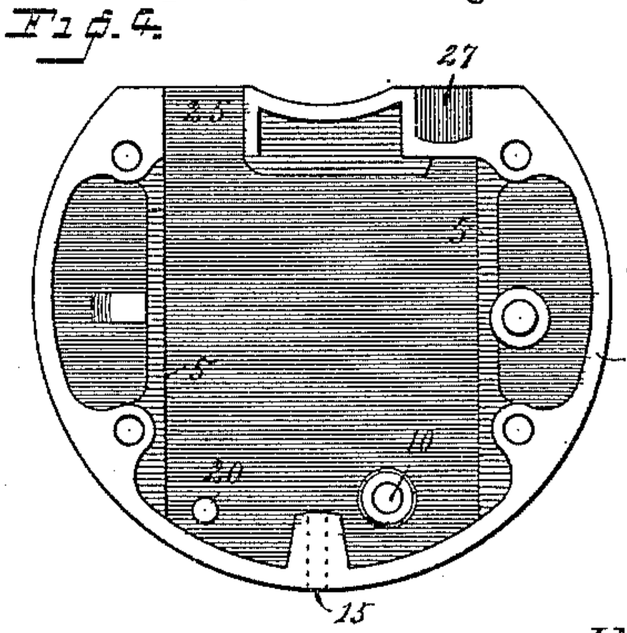
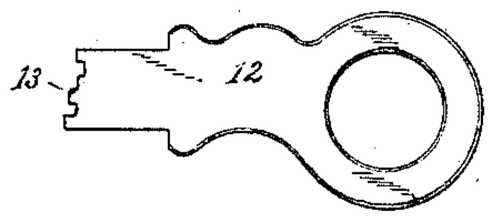


Fig. 9.



WITNESSES

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PADLOCK.

SPECIFICATION forming part of Letters Patent No. 427,755, dated May 13, 1890.

Application filed September 26, 1889. Serial No. 325,192. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH EDE, a citizen of the United States, residing at Cresskill, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Padlocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to generally improve the construction of padlocks and to greatly increase their security in use.

With these ends in view I have devised the novel construction and arrangement of parts, of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to denote the several parts.

Figure 1 is a plan view, the face-plate being removed, illustrating the working parts of my novel lock, with the exception of the locking-dog, the parts illustrated in this view constituting a complete and operative lock, the parts being in the locked position; Fig. 2, a similar view, with the addition thereto of my novel locking-dog; Fig. 3, a view showing the position of all of the operative parts in the unlocked position; Fig. 4, a plan view of the case with all the operative parts removed; Fig. 5, a view of the shackle detached; Fig. 6, a view of the shackle-lever detached; Fig. 7, a view of one of the tumblers detached; Fig. 8, a view of the locking-dog detached, and Fig. 9 a plan view of the key.

1 denotes the case of the lock, and 2 the shackle, which is provided with a shank 3 and an extension 4 to adapt the shackle to slide between ways 5 in the case.

6 denotes the tumblers, which are provided with openings 7 and slots 8 bearing thereon, the upper end of openings 7 on opposite sides of the slot being preferably serrated, as clearly shown.

9 denotes the fence or racking post, which is formed integral with the extension of the shackle, so as to slide with it. The tumblers are pivoted near the base of the case upon a stump 10, the bases of the tumblers being provided with shoulders 11, which are adapted to be engaged by the bits 13 of a key 12. The upper end of the fence is serrated to adapt it to engage the serrations in openings 7 when it is attempted to manipulate the tumblers with a pick or false key. When the parts are in the locked position, the fence lies in openings 7 in the series of superimposed tumblers, the tumbler-springs 14 acting to throw the tumblers to the position shown in Figs. 1 and 2.

The construction and organization of the lock are such that but slight movement of the tumblers is required in unlocking them. For the sake of compactness, therefore, I have so organized the lock that the bases of the tumblers are engaged by the bits of the key in the act of unlocking, the key-hole 15 (indicated by dotted lines) being at the center of the base of the case. The shackle is thrown to its retracted position, as in Fig. 3, by shackle-lever 16, actuated by a spring 17, the forward end of said lever engaging a shoulder 18 on the shackle. It will be seen, therefore, that as soon as the tumblers have been so manipulated as to place slots 8 in line with the fence the shackle-lever will act instantly to throw the shackle to the unlocked position, the fence moving with the shackle and passing into the slots in the tumblers. It will of course be understood that in practice the slots leading from openings 7 in the tumblers are at varying distances from the sides of the tumblers. For the sake of clearness in the drawings, however, and as the feature has long been in common use, I have shown the tumblers as lying vertically one above the other in both the locked and unlocked positions.

It will be seen that in the construction already described (see Fig. 1) the shackle-lever is acting constantly to throw the shackle outward, the fence being held in engagement with the tumblers by the action of spring 17. I desire, however, in practice that the tumblers shall be wholly disconnected from the fence at all times, and that, in addition to placing the slots in the tumblers in line with the fence in the operation of unlocking, still another operation must be performed before the shackle-lever can act to throw the shackle outward, the shackle being, in fact, held at the locked position by other mechan-

ism acting wholly independently of the tumblers, so that should the tumblers be manipulated by a pick or false key it will be impossible to tell when the slots are in line with the fence, and that should the other mechanism be manipulated by a pick or false key the shackle-lever will instantly act to throw the shackle outward until the serrations of the stump are brought into engagement with the serrations at the edges of openings 7 in the tumblers. I thus render the operation of picking absolutely impossible by ordinary means.

19 denotes the additional element which I have referred to, and which I term a "locking-dog." This dog is pivoted on a stump 20, and is in shape a bell-crank lever, one arm thereof extending inward over the tumblers and being engaged by spring 17, which also manipulates the shackle-lever, said spring acting to control both shackle-lever and locking-dog, as I shall presently more fully explain. At the upper end of the locking-dog is a beveled lug 21, which is adapted to engage a correspondingly-beveled groove 22 in the shank of the shackle. The operation is as follows: The key illustrated in the drawings has six bits or acting parts, the lower five being adapted to engage and operate five tumblers and the upper one to engage and operate the locking-dog. The exact number of tumblers used is of course unimportant so far as my invention is concerned. At the instant the tumblers are brought to such a position as to place the slots in line with the fence lug 21 will have been moved toward the left and disengaged from groove 22 in the shackle, leaving the shackle free to be thrown outward to the unlocked position by spring 17 acting upon the shackle-lever, this position of parts being clearly shown in Fig. 3. The operation of locking is performed by simply pressing the shackle inward against the power of spring 17. It will be apparent that as the shackle is pressed inward the tension of spring 17 will be increased and that the power applied to press the shackle inward will be transmitted by the shackle-lever and the spring to the locking-lever, the tendency being to throw the locking-lever inward, so that as soon as the shackle has been pressed inward far enough so that beveled lug 21 begins to pass into groove 22 in the shackle the power of the spring will be sufficient to cause the lug to draw the shackle inward quickly to the locked position, the inward movement of the locking-dog being limited by a projection 23 on the shank of the shackle.

In order to make the case as perfectly water tight as possible, I provide an overhanging flange 24 at the upper end of the shank of the shackle, which covers the opening 25 in the case through which the shank passes. (See Figs. 1 and 2.) The hook of the shackle is provided at its outer end with a projection 26, which fits a socket 27 in the top of the case, this socket, however, having no connection with the interior of the case and the socket itself being guarded by an overhanging flange 24 on the shackle.

It will of course be understood that the various details of construction may be varied within reasonable limits without departing from the spirit of my invention.

I claim—

1. The combination, with a sliding shackle having a fence formed integral therewith, of a series of tumblers having central openings and slots leading therefrom which are adapted to receive the fence, and a shackle-lever adapted to throw the shackle to the unlocked position when said slots are in line with the fence.

2. In a padlock, the combination, with a sliding shackle having a fence made integral therewith, of a series of tumblers having central openings and slots adapted to receive the fence, and shoulders at their bases adapted to be engaged by a key.

3. The combination, with a sliding shackle having a beveled groove 22, and a fence formed integral therewith, of a series of tumblers having openings and slots to receive the fence, a shackle-lever acting to throw the shackle to the retracted position, and a locking-dog having a lug adapted to engage said groove to hold the shackle at the locked position, so that said tumblers and said dog must be correctly manipulated before the shackle can be thrown to the unlocked position.

4. The combination, with a sliding shackle having a beveled groove 22, of a shackle-lever engaging the shackle, a locking-dog having an arm provided with a lug 21, adapted to engage said groove and an inwardly-extending arm, and a spring 17, acting upon the shackle-lever to throw the shackle upward, and also upon the inner arm of the locking-lever, so that when said locking-lever is engaged by a key in unlocking, the tension of the spring is increased and power transmitted to the shackle-lever to throw the shackle outward, and when the shackle is pressed inward in the act of locking, pressure is transmitted to the locking-lever to throw the shackle inward as soon as lug 21 engages the groove in the shackle.

5. The sliding shackle having a groove 22 and a fence formed integral therewith, and a series of tumblers having openings and slots leading therefrom adapted to receive said fence, in combination with a shackle-lever, a locking-dog having an inwardly-extending arm, an arm having a lug adapted to engage said groove, and a spring acting upon both shackle-lever and locking-dog.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH EDE.

Witnesses:
C. E. BLAMETT,
A. C. DEMAREST.