T. FOX.

Combination Padlocks.

No. 198,595. Patented Dec. 25, 1877.

Fig. 1.

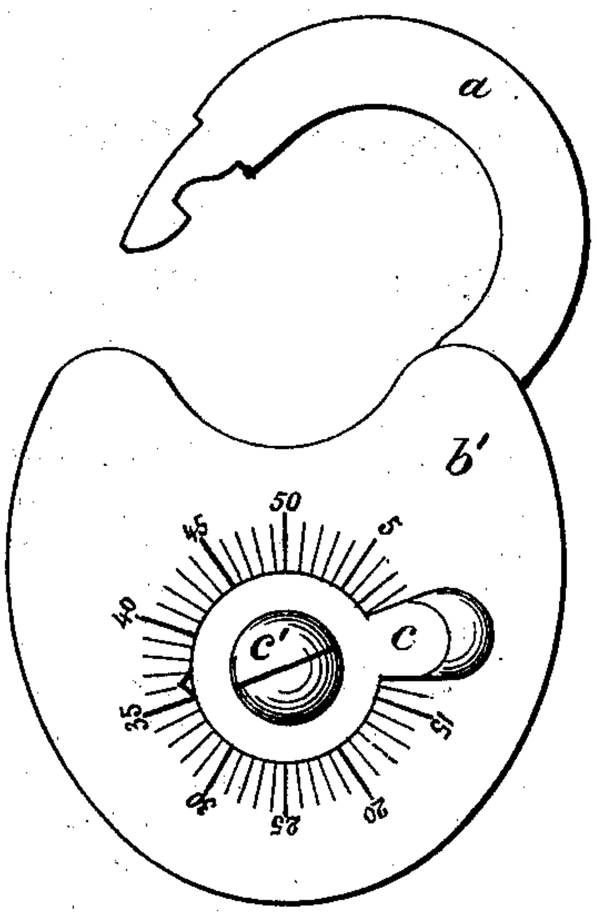


Fig. 2.

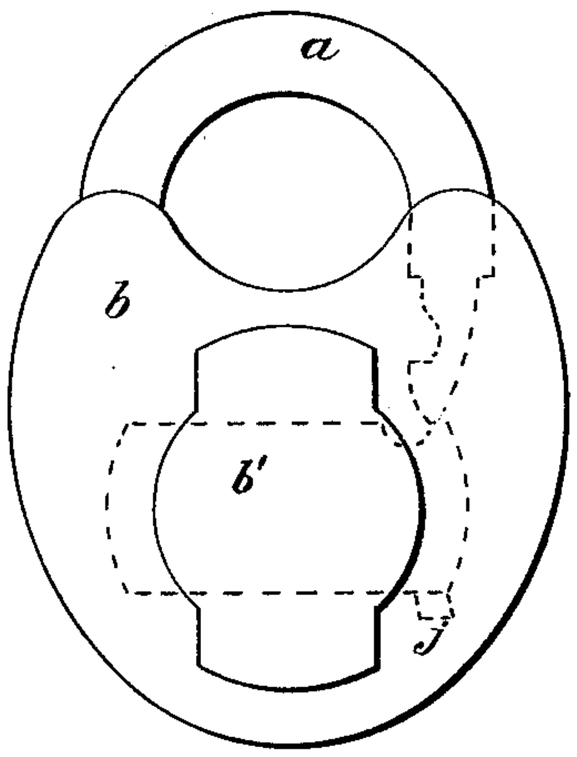


Fig 3.

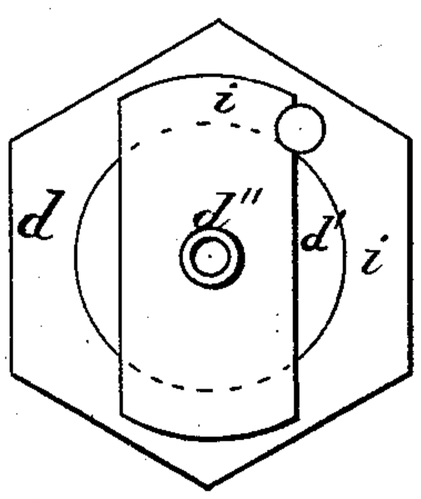


Fig. 5.

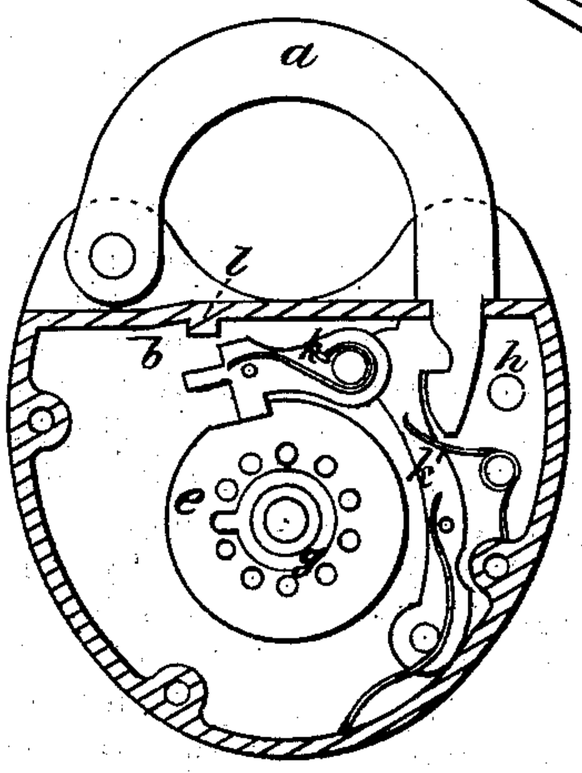


Fig. 4.

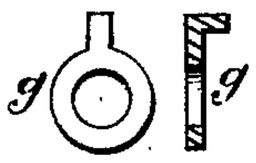


Fig. 7.

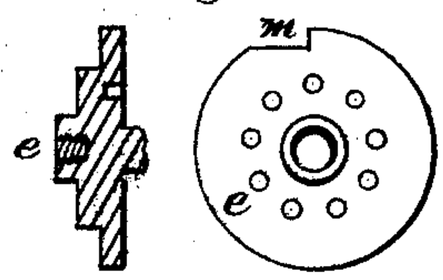
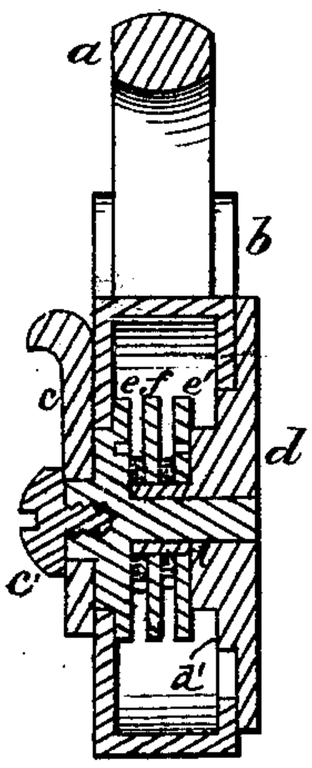


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS FOX, OF BAY CITY, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES JOSEPH FITZGERRELL.

IMPROVEMENT IN COMBINATION-PADLOCKS.

Specification forming part of Letters Patent No. **198,595**, dated December 25, 1877; application filed September 28, 1876.

To all whom it may concern:

Be it known that I, THOMAS FOX, of Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Padlocks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of locks known as "permutation-padlocks;" and consists in the construction and arrangement of the different parts of the lock, as will be hereinafter fully described, and then specifically pointed out in the claim.

In the annexed drawings, Figure 1 is a front view of the lock, showing the dial-plate and the finger-lever by which the mechanism of the lock is operated. Fig. 2 shows the opposite side of the lock with the tumbler-plate removed. Fig. 3 is a view of the inner side of the removable piece, showing the cross-bar for securing it in its proper position in the back plate. Fig. 4 represents a side and sectional view of the carrier. Fig. 5 shows the lock with the back plate and tumblers removed, illustrating the relative arrangement of the hasp, its securing-hook, and other operative parts. Fig. 6 is a vertical section through the lock and its hasp, and Fig. 7 represents a side view and section of the driving-wheel.

In constructing this lock the back plate *b* is formed with a circular opening, *b'*, having two segmental extensions diametrically opposite to each other, as shown in Fig. 2 of the drawings. Through this opening the tumblers of the lock, which are attached to the plate *d*, are inserted. This plate *d* is provided with a circular portion, *d'*, which fits the circular opening in the back plate *b*, and is of even thickness with it. Crossing this circular portion of the plate, and securely attached to it, is a cross-bar, *d''*, which is of such length and width as to just enter the cavity of the lock by passing through the opening *b'*, when, by turning the plate *d* until the ends of the cross-bar are nearly at right angles to the recesses in the opening, one end of the bar will strike the projection *j*, and the plate, together with its attached tumblers, will be securely fastened to the lock-case by meeting with the end of the hasp *a*, but in such a manner that it may be partially rotated upon its axis, if desired.

Attached to and forming a part of the cross-bar *d''* is a sleeve, *i*, upon which the tumblers *e'* and *f* revolve. In order to give motion to these tumblers, a driving-wheel, *e*, is so placed as to have one of its bearings in the front plate *b'*, and the other in the sleeve *i*, motion being imparted to it by means of the thumb-lever *c*, provided with a pointer placed upon the face of the lock, and secured to the driving-wheel by the screw *c'*. The carriers *g*, which are clearly shown in Fig. 4, are formed with a ring at one end, which passes over the sleeve *i*, and with a right-angled projection at the other end, which enters one of a series of holes in the driver; but when applied to the tumbler it passes through the hole far enough to engage with the carrier of the adjacent tumbler. It is therefore apparent that when the thumb-lever is carried around the dial-plate its motion will be transmitted through the driving-wheel and carriers to the tumblers.

A notch, *m*, is formed in the periphery of the driving-wheel, and also in that of the tumblers, into which the projection upon the dog *k* falls when all the notches in the periphery of the driving-wheel and tumblers are in line. This dog *k* is pivoted to the hook *k'*, which is, in turn, pivoted to the lock-case at one end, the other end engaging with the notched end of the hasp *a* when the latter is pushed down into the lock. Both the hooks *k* and *k'* are held in place by springs properly arranged, so that when the hasp is forced into the lock the hook *k'* will immediately engage with it and prevent its retraction, while its end comes in contact with the cross-bar *d''*, and prevents the latter from being rotated for the purpose of removing the tumbler-plate *d*.

In order to unlock the lock, the finger-lever is manipulated in the same manner as the knob of the ordinary permutation-locks until the notches in the periphery of the driving-wheel and tumblers are in line with each other and the hook *k*, when the latter, falling into the notches, while the rotation of the driving-wheel and tumblers is continued in the proper

direction, will draw the hook *k'* out of the notch in the end of the hasp, thus allowing the latter to be withdrawn, and at the same time releasing the plate *d* and its appurtenances, so that it may be partially rotated and removed, if it be desired to change the combination, by shifting one or more of the carriers, or for other purposes.

I am aware of patent No. 183,214, and hereby disclaim the construction of parts therein shown and described.

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

The back plate *b*, provided with the lug or projection *j*, in combination with the cross-bar *d''* and hasp *a*, all arranged so that when the hasp is locked its end will bear against the side of the cross-bar *d''*, to prevent the same from being removed, as shown and described.

In testimony whereof I have hereunto affixed my signature this 13th day of September, 1876, in presence of two witnesses.

THOMAS FOX.

Witnesses:
E. E. BRIGGS,
H. WHIPPLE.