

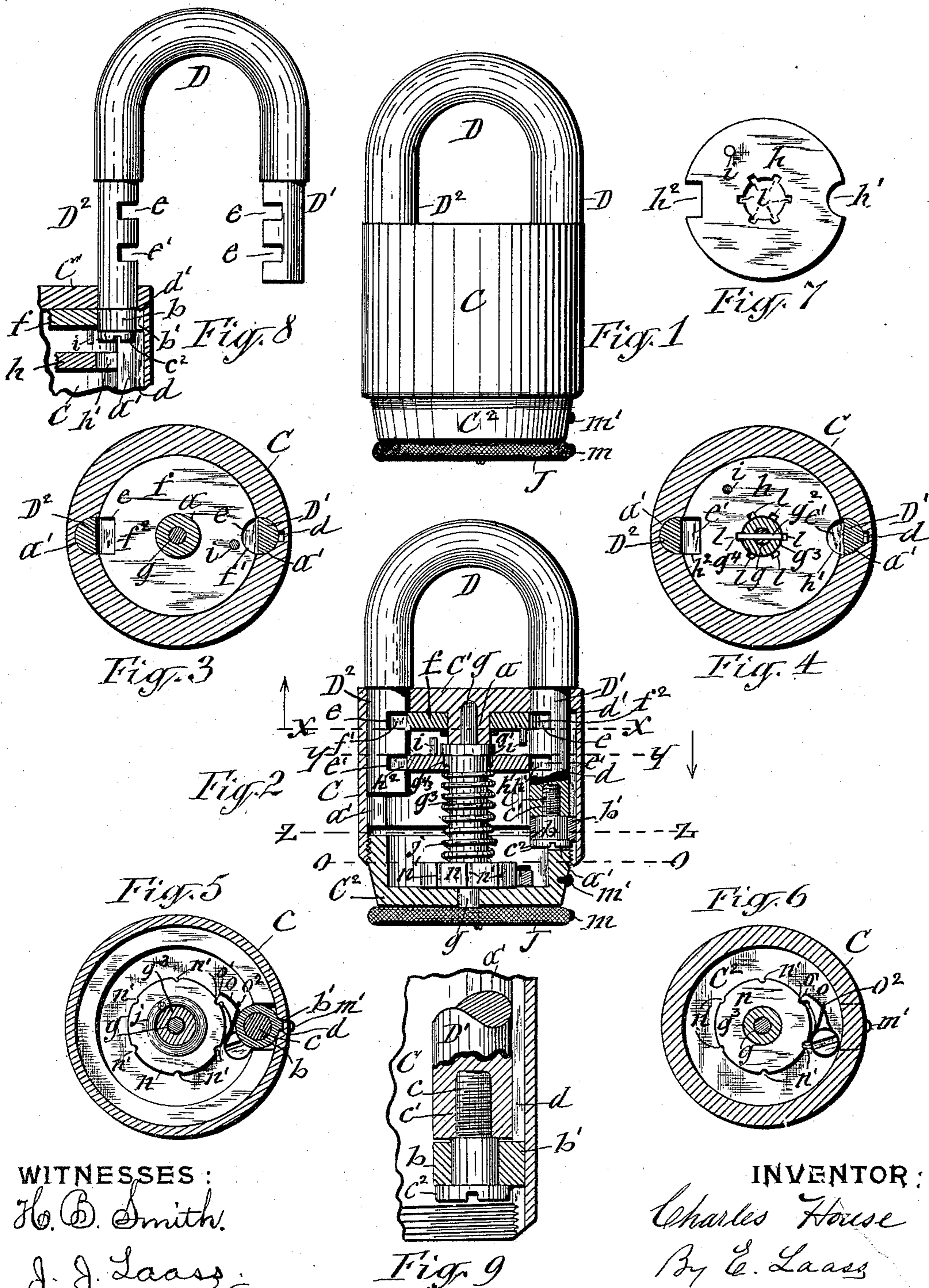
No. 613,065.

Patented Oct. 25, 1898.

C. HOUSE.
PERMUTATION PADLOCK.

(Application filed Apr. 16, 1898.)

(No Model.)



WITNESSES:

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PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 613,065, dated October 25, 1898.

Application filed April 16, 1898. Serial No. 677,786. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HOUSE, of Oneida, in the county of Madison, in the State of New York, have invented new and useful Improvements in Combination-Locks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of combination-padlocks in which the shackle consists of a staple sliding longitudinally in the case and the locking and unlocking are effected by means of tumblers adapted to engage and release the tangs of the shackle.

The object of the invention is to provide a combination-lock which shall be simple and inexpensive in construction, efficient and convenient in operation, and adapted to be embodied in a padlock in such a manner as to dispense with the usual pivoting of the hook or link to the case of the lock.

The invention consists in the improved construction and combination of parts hereinafter described, and set forth in the claim.

In the annexed drawings, Figure 1 is a side view of a padlock embodying my invention. Fig. 2 is a central longitudinal section of the same. Figs. 3, 4, 5, and 6 are transverse sections, respectively, on lines X X, Y Y, Z Z, and O O in Fig. 2, viewed in the direction of the arrows. Fig. 7 is a detached plan view of the adjustable tumbler. Fig. 8 is a fragmentary sectional view showing the shackle of the lock turned into its opened position, and Fig. 9 is an enlarged detail view of the attachment of the detent which limits the outward movement of the aforesaid shackle.

Similar letters of reference indicate corresponding parts.

C denotes the lock-case, which is cylindrical-shaped and provided on one end with a head C', formed with a cylindrical hub α in the center of the inner face, as shown in Fig. 2 of the drawings. The base of the case is provided with a plate C², which is detachably secured thereto to afford access to the interior of the case when required.

D represents the shackle of the padlock, which shackle is of the form of a staple terminated with parallel tangs D' D², which are of unequal lengths and slide in longitudinal grooves α' α' in the inner sides of the case C.

The longer tang D' is cylindrical shaped to allow the shackle D to be turned on the case after the shackle has been drawn out sufficiently to release the shorter tang D² from the case, as represented in Fig. 8 of the drawings.

To limit the outward movement of the tang D', I attach thereto a detent formed of a collar b , swiveled on a smooth portion of a screw c , which is inserted into a screw-threaded socket c' in the lower end of the tang D' and is provided with a head c^2 , which retains the collar b on the screw. Said collar has projecting from its side a lug b' , which constitutes the aforesaid detent. The inner side of the case C is provided with a longitudinal groove d , extending part way the length of the case and terminating with a shoulder d' , as shown in Fig. 2 of the drawings. The detent b' slides in said groove during the longitudinal movement of the tang D', and by contact of said detent with the aforesaid shoulder d' the outward movement of the said tang is arrested, and when thus drawn out to its limit the shorter tang D² is completely withdrawn from the case and the shackle D can be turned into the position shown in Fig. 8 of the drawings. The described construction of the detent and its swiveled connection with the tang of the shackle obviate the liability of turning and loosening the screw c by frictional contact of the detent with the end stop in the case during the operation of turning the released shackle to and from the position shown in Fig. 8 of the drawings. Each of said tangs is provided with two transverse grooves e e' in the side facing toward the axis of the case for the purpose hereinafter explained.

On the hub α of the annular head C' is pivoted a diaphragm or tumbler f , the marginal portion of which passes through the grooves e of the tangs and is provided with two notches f' and f^2 , which permit the tangs D' and D² to slide longitudinally when required.

g represents a spindle which is pivoted at one end in the base-plate C² and at the opposite end in a socket in the hub α . To this spindle is fastened a collar g' by means of a pin g^2 , passing transversely through the spindle and through a sleeve g^3 , affixed to the collar and embracing the spindle. Said pin

projects with one end from said sleeve to form a tooth or lug g^4 , as more clearly shown in Fig. 4 of the drawings. To the sleeve g^3 is adjustably connected a diaphragm or tumbler h by means of the lug g^4 , as hereinafter described. This tumbler is shaped similar to the tumbler f and passes with its marginal portion through the grooves e' in the tangs $D' D^2$ and is provided with notches $h' h^2$ to permit longitudinal movement of the tangs when required. Each of the two tumblers has a lug i projecting from the face adjacent to that of the other tumbler, which lugs are disposed to meet during the rotation imparted to the tumbler h by the spindle g . Said meeting of the lugs causes the tumbler f to be turned with the tumbler h . By a predetermined degree of turning the tumbler h in different directions the two tumblers are brought into positions to cause the notches in the margins thereof to register with the positions of the two tangs $D' D^2$, which tangs are then permitted to be moved longitudinally in the case.

To permit the lock to be adjusted so as to require different degrees of turning of the tumbler h to bring the two tumblers into the aforesaid positions for releasing the tangs, the tumbler h is provided with a plurality of notches $l l$ in the edge of the orifice through which the sleeve g^3 of the collar g' passes, as shown in Fig. 4 of the drawings. Each of said notches is adapted to receive the lug g^4 , so as to lock the tumbler on the collar. A spiral spring j , surrounding the sleeve g^3 and bearing with one end on the tumbler, serves to hold the latter interlocked with the lug g^4 . By pushing the tumbler h from the collar and then turning the tumbler so as to cause the lug g^4 to enter into a different notch l the combination is changed, so as to require different movements of the tumbler h to bring the marginal notches of the two tumblers into positions to allow the two tangs $D' D^2$ to move longitudinally outward, so as to release the shorter tang D^2 from the case and allow the shackle D to be turned into the position shown in Fig. 8 of the drawings.

For turning the tumbler h I attach a thumb-plate J to the end of the spindle g , protruding through the base-plate C^2 .

In order to provide means for guiding the manipulation of the aforesaid thumb-plate, I provide the edge thereof with a lug m or other suitable indicator and a corresponding indicator m' on the adjacent portion of the case.

The registering of the two indicators serves as the starting-point for the manipulation of the thumb-plate, and by turning said plate certain degrees first in one direction from the aforesaid starting-point, then in the opposite direction from said point, and then back to a predetermined position the tumblers are placed in positions to release the shanks and permit them to be moved longitudinally, as hereinbefore described.

To determine the degrees of the movements of the thumb-plate, I employ a suitable click operated by the spindle g . Said click I preferably form of a disk n , fastened to the spindle and provided with notches n' in its periphery. A dog o , pivoted to the base-plate C^2 , is provided on its free end with a nose o' , adapted to drop into the successive notches n' during the rotation of the thumb-plate. A spring o^2 causes the dog to constantly bear on the periphery of the disk n and in dropping into the notches thereof produces the clicks by which the operator can determine the degree of movement of the thumb-plate.

What I claim as my invention is—

The lock-case having its head formed with a socketed cylindrical hub on its inner side, a spindle pivoted in said hub and in the base of the case, a tumbler pivoted on said hub, a collar fastened to the spindle and formed with a sleeve embracing the spindle, a tooth projecting from the side of the sleeve, a tumbler loosely mounted on the sleeve, and provided with a plurality of notches adjacent to the sleeve for engaging the aforesaid tooth, a spring surrounding the sleeve and forcing the latter tumbler toward the collar to hold said tumbler interlocked with the tooth in combination with the shackle having parallel tangs adapted to slide longitudinally in the case and become locked and unlocked by the tumblers as set forth.

CHARLES HOUSE. [L. S.]

Witnesses:

J. J. LAASS,
H. B. SMITH.