

(No Model.)

2 Sheets—Sheet 1.

J. A. HALLDÉN.
PERMUTATION PADLOCK.

No. 491,102.

Patented Feb. 7, 1893.

Fig. 1.

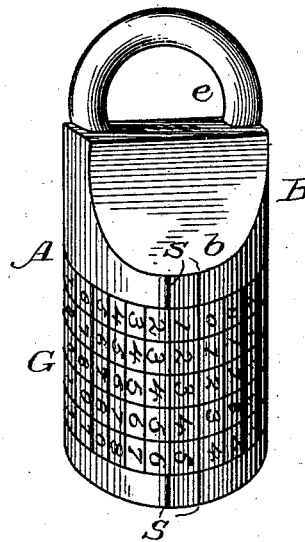


Fig. 2.

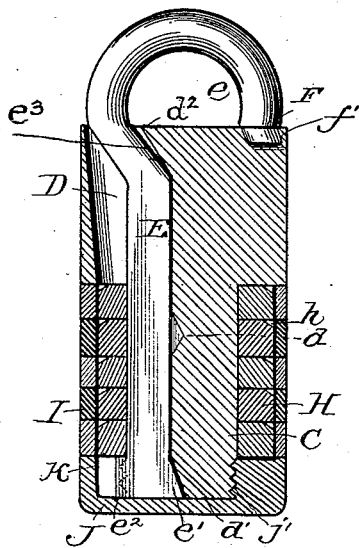
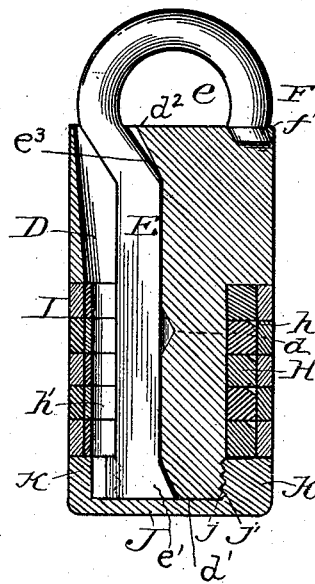


Fig. 3.



Witnesses

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Fig. 4.

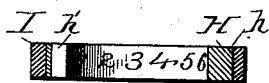


Fig. 5.

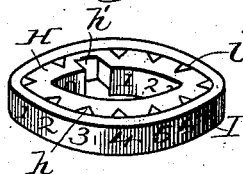
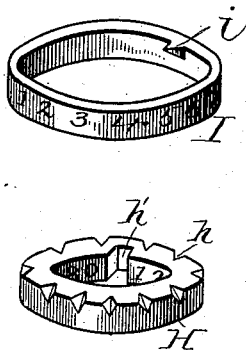


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN ALFRED HALLDÉN, OF ISHPEMING, MICHIGAN.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 491,102, dated February 7, 1893.

Application filed April 30, 1892. Serial No. 431,374. (No model.)

To all whom it may concern.

Be it known that I, JOHN ALFRED HALLDÉN, a citizen of the United States, residing at Ishpeming, in the county of Marquette and State of Michigan, have invented a new and useful Permutation-Lock, of which the following is a specification.

This invention relates to permutation locks of that class embodying a series of rings or collars each provided with a series of characters, said rings being adjustable with relation to one another to effect locking or unlocking.

The object of the invention is to provide an improved lock of this character which will possess advantages in point of simplicity and inexpensiveness in construction, durability and general efficiency.

To this end, the invention consists, substantially, in the construction, combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the claims.

In the drawings—Figure 1 is a perspective view of a lock, embodying my invention. Fig. 2 is a longitudinal sectional view thereof illustrating the keeper in locked position. Fig. 3 is a similar view, showing the same in condition for withdrawal of keeper. Fig. 4 is a transverse sectional view taken through one of the rings. Fig. 5 is a detail perspective view of one of the rings with its parts assembled. Fig. 6 is a similar view, the parts being detached.

Corresponding parts in the figures are denoted by the same letters and figures of reference.

Referring to the drawings, A designates the lock, which is of the padlock pattern. It comprises a cylindrical body portion, B, having its free end beveled at opposite points, as shown at *b*, and from the opposite end projects a cylindrical stem, C, of smaller diameter than the body, and preferably cast or otherwise formed integral therewith. At one side of both the body and stem is formed a longitudinal slot, D, extending from end to end thereof. Centrally at the base of this slot is formed a V-shaped depression, *d*, and at the outer end of the stem said base is beveled as at *d'*. At the opposite end of the slot, the base thereof is provided with an upward-

ly-inclined shoulder, *d*², the purpose of which will appear farther on.

E designates the shackle, which consists of a straight arm provided at its outer end with a hook, *e*. At the opposite end of the keeper is provided a beveled lug, *e'*, upon its inner edge and upon its outer edge is provided a lug, *e*², projecting at right angles from the keeper. The arm of the keeper corresponds to the slot D, and when in normal or locked position therein its outer edge is flush with the periphery of the stem C. In this position the lug *e'* is seated in the beveled end *d'* of the slot. The arm is further beveled at its point of intersection with the hook, as at *e*³, and said beveled surface is normally located behind the shoulder, *d*². Thus when the shackle is being withdrawn from the lock, the beveled parts at each end slide up the beveled surfaces of the slot, throwing the arm of the keeper beyond the periphery of the stem C throughout its length.

The hook *e* is provided with a slightly out-turned free end F, adapted to be received by a corresponding under-cut recess, *f*, in the opposing face of the body of the lock. The movement of the shackle in locking being obliquely to the lock the manner of the end F engaging the recess *f* will be obvious.

For normally retaining the keeper in locked position, a series of collars, G, are provided, said collars being disposed and adapted to be turned upon the stem C. These collars being similar in construction, a description of one will suffice to a clear understanding thereof. Each collar is composed of two rings, an inner and an outer one, H, I, respectively, the former fitting within the latter. The outer ring I is provided upon its periphery with a series of letters numbers or characters, at a point upon its inner surface with an inwardly-projecting stud, *i*. The inner ring H is provided at its periphery with a series of notches or recesses, *h*, corresponding in number to the characters upon the periphery of the ring I, and adapted to receive the stud *i*. At the inner surface of the ring H is formed a recess, *h'*, adapted to register with the slot D of the lock when the parts are assembled and permit the keeper to be withdrawn.

The rings H are removable from the rings I, so as to permit a change in the combination.

To facilitate this the notches or recesses *h* are marked relatively to the characters upon the rings I. For instance, in the present illustration the rings I are marked with figures, and the notches with corresponding figures. Thus if it is desired to have the recess *h'* of one of the collars register with the slot D when the numeral "2" occupies the proper position for unlocking, the ring H must previously be placed in its ring I, with the notch or recess *h* marked "2" in engagement with the stud *i*. By this means the key numeral may be changed upon each collar, and the combination varied at will.

The collars G are retained upon the stem C by a cap, J, the latter having internal screw-threads, *j*, meshing with external threads, *j'*, formed upon the end of the stem. The cap is further provided with an interior recess or recesses, K, one of which being adapted to coincide with the slot D when the cap is screwed home, and form a continuation thereof. When the arm of the keeper E is in locked position, the lug *e*² is seated in this recess, and thus prevents the removal of the cap.

The body portion B of the lock and the cap J are suitably marked at a point upon the periphery thereof, as shown at S, said marks being in alignment. To unlock the keeper, each ring is turned to bring its respective key character in alignment with the designating marks. The recesses *h'* of the rings are thus brought into alignment and into register with the slot D, permitting the keeper to be withdrawn until its lug *e'* engages the recess *d*.

I claim as my invention—

1. In a permutation lock, the combination with a cylindrical body provided at one side with a longitudinal slot having at its base inclined ways, of an obliquely and longitudinally movable shackle working in said slot

and provided with opposing inclined ways, and with an outwardly-projecting lug at its inner end, and a series of collars loosely encircling said cylindrical body and each provided at its interior with a recess; substantially as and for the purpose set forth.

2. In a permutation lock, the combination, with a cylindrical member provided at one side with a longitudinal slot having at its base inclined ways, and a shackle comprising an arm working in said slot and having opposing inclined ways, of a series of collars loosely encircling said cylindrical member and each provided at its interior with a recess; substantially as and for the purpose set forth.

3. In a permutation lock, the combination, with a cylindrical member provided at one side with a longitudinal slot having its base downwardly beveled at one end and provided with a beveled shoulder at its opposite end and with an intermediate recess, and a shackle comprising an arm provided at its distal end with a beveled lug, and having its opposite end beveled, of a series of collars loosely encircling said cylindrical member and provided each with an interior recess; substantially as and for the purpose set forth.

4. In a permutation lock, the combination, with the body provided with an under-cut recess, of a shackle working obliquely in said body and having its hook end outturned and adapted to be received by said recess and means for locking the shackle; substantially as and for the purpose set forth.

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

JOHN ALFRED HALLDÉN.

Witnesses:

AUGUST W. LINDHOLM,
ANDREW ERICSON.