

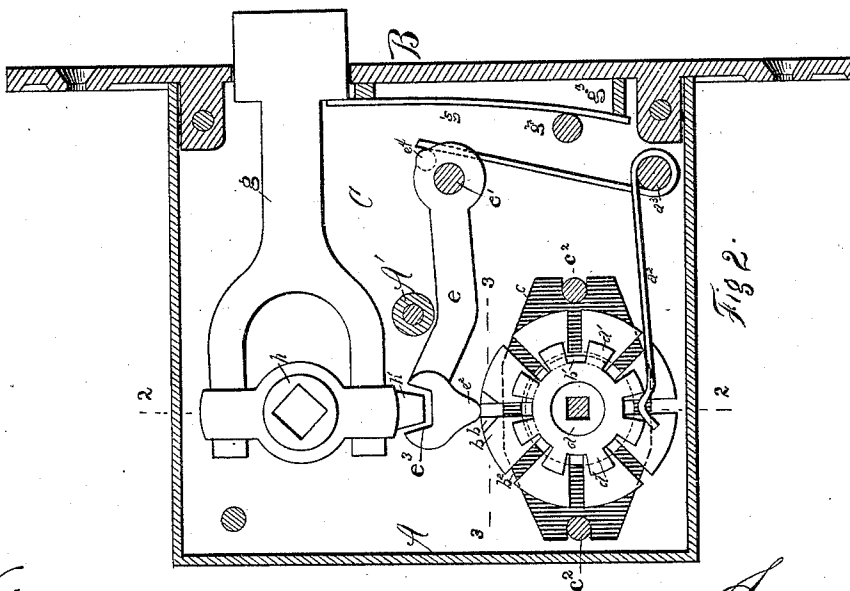
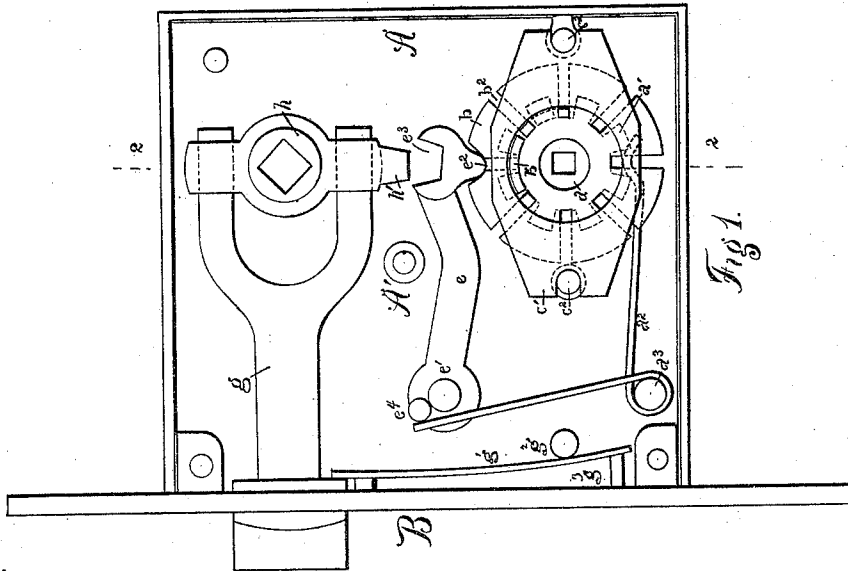
(No Model.)

2 Sheets—Sheet 1.

C. E. PECK.
PERMUTATION LOCK.

No. 463,269.

Patented Nov. 17, 1891.



Witnesses

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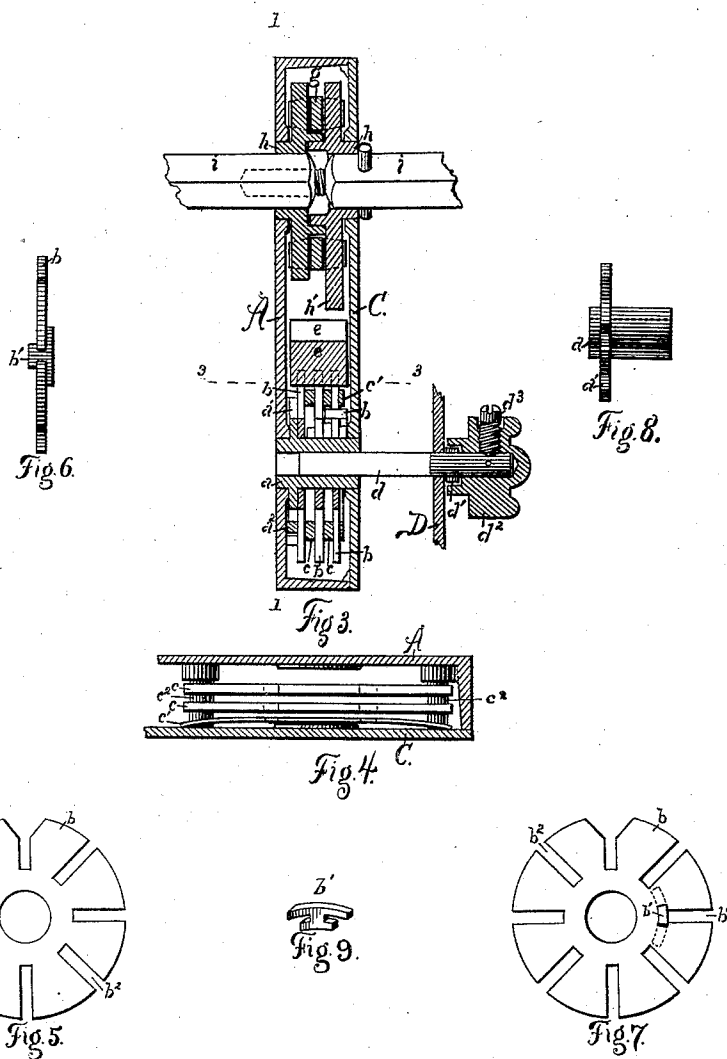
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UNITED STATES PATENT OFFICE.

CHARLES ELMER PECK, OF KENT, OHIO.

PERMUTATION-LOCK.

SPECIFICATION forming part of Letters Patent No. 463,269, dated November 17, 1891.

Application filed January 27, 1891. Serial No. 379,265. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ELMER PECK, a citizen of the United States, residing at Kent, in the county of Portage and State of Ohio, have invented a certain new and useful Improvement in Permutation-Locks, of which the following is a specification.

My invention has relation to permutation-locks, and is particularly adapted to mortise-locks for house-doors, although the interchangeable mechanism can be advantageously applied to other locks.

The objects of my invention are to produce an efficient lock in which the combinations may be quickly and readily changed, to simplify the construction, and reduce the number of parts.

To the aforesaid objects my invention consists of the peculiar and novel construction, combination, and arrangement of parts hereinafter described, and then specifically pointed out in the claims, reference being had to the accompanying drawings.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is an inside view of the lock, the nearest side plate being removed; Fig. 2, a vertical section of the same, looking from the opposite side of the lock and on the line 1 1 of Fig. 3; Fig. 3, a vertical transverse section at the line 2 2 of Figs. 1 and 2; Fig. 4, a horizontal transverse section at the line 3 3 of Figs. 2 and 3; Figs. 5, 6, and 7 are elevations from opposite sides and an edge elevation, respectively, of one of the permutation-disks containing the driving-stud; Fig. 8, the sleeve on which the permutation-disks are mounted, and Fig. 9 a perspective view of one of the driving-studs.

Referring to the drawings, A is the lock-case, to the front of which is attached the face-plate B and which is closed by the cheek-plate C, which is retained by a screw which enters the screw-threaded boss A' on the inside of the case A.

Journalled in oppositely-disposed circular openings in the case A and plate C is a tumbler consisting of two pieces *h h*, arranged by means of projecting annular rims to rest and turn in said openings and to interlock with each other, through a square opening in which pieces extends the knob-staff *i i*, consisting of

two pieces made longitudinally adjustable by a screw-threaded end of one entering a screw-threaded orifice in the other. These pieces can be transposed to opposite sides of the case, thereby rendering the lock right or left handed, as desired. This tumbler rests between the fork of the latch *g*, and when free operates to draw the latch back in the usual manner, said latch being constantly pressed outward by a spring *g'*, held in tension between a post *g²* and an abutment *g³*. One of the pieces *h*, constituting the tumbler, has at its lower end a tapering projection *h'*, arranged to loosely fit and rest in the notch *e³* of the dog *e* when the free end of the latter is raised, as shown in Fig. 2, and when so raised the tumbler is arrested from being rocked to draw back the latch *g*. The dog *e* is pivotally mounted on a post *e'*, extending from the interior of the case A, and its free end is constantly pressed down by a spring *a²*, mounted on a post *a³*, extending from the case A, which rests against a stud *e⁴* on the pivoted end of the dog, the other end of said spring *a²* resting on the edge of the sleeve-disk, hereinafter and for a purpose to be stated. The under face of the free end of the dog *e* has a narrow rounded projection *e²*, arranged to engage and fit in grooves in the edges of the permutation-disks, hereinafter described.

Below and in vertical alignment with the tumbler *h h* in the case A and plate C are two oppositely-disposed circular openings, in which is journaled a sleeve *a*, projecting from which and arranged to rest close to the inner face of the case A is a flange *a'*, in which is a series of radial notches. (See Figs. 1 and 2.) Through the sleeve *a* is a square opening to receive the staff *d* of the operating-knob, hereinafter described, and against the edge of the disk *a'* rests one end of the spring *a²*, bent slightly so as to partially enter the notches therein as they are brought opposite thereto. On this sleeve *a* is placed one of the permutation-disks *b*, each of which has a central opening to fit said sleeve, and a series of radial notches *b²*, one whereof has its outer corners beveled to receive the rounded face *e²* of the dog *e*. (See Figs. 5 and 7.)

In one of the radial notches *b²* of the disk *b* is placed one of the driving-studs *b'*, with

its smaller end toward the disk a' on the sleeve a , one of the radial notches of which it is arranged to fit and which it enters. These studs each consist of two parallel segments of an annular disk united by a narrow neck, which fits in the notch b^2 of the disks b , the segments being concentric with the disk b when the stud is at the bottom of the notch b^2 , and the smaller segment being substantially one-half the length of the larger.

Against the disk b is placed a partition c , having semicircular openings at each end that fit on posts c^2 , projecting from the inside of the case A and which has an inner circular opening concentric with the sleeve a and of the same diameter with the circle of which the ends of the studs b' are segments. Against this partition is placed a second disk b , provided in the same manner with a stud b' , with its smaller end toward the first disk b , and against this in turn a second partition c , until the number of alternate disks and partitions permitted by the case is reached, when against the last disk is placed a slightly-curved partition c' of thin sheet metal, which is held in place by the outer plate C and acts as a spring to press the alternate disks b and partitions c together.

From the foregoing description it will be apparent that as the sleeve a is revolved it will carry with it, by means of the stud b' , the first disk b , which in turn will move the next disk as the projecting end of stud b' engages the projecting end of the stud in the next disk within the circular opening in the first partition c , and thus in succession each disk will be moved in unison. By alternately turning the sleeve a in opposite directions the beveled notches of the disks b will be brought in alignment and permit the lower face e^2 of the dog e to drop therein and thereby allow the latch to be operated. The staff d , by which the sleeve a is turned where it passes through the escutcheon D , is cylindrical, and on its outer end is mounted a collar d' and a knob d^2 , held by a set-screw d^3 , which enters one of a series of shallow holes placed at regular intervals about it.

In operation no dial is used; but as each notch in the disk a' is brought opposite the curved end of the spring a its entrance therein produces a sharp click, and these, as the sleeve a is alternately revolved in opposite directions, inform a person familiar with the combination when the latch is released. As the grooves in the disk a' and disks b will be in alignment when the latch is released, the click of the spring a subserves the further purpose of concealing any sound made by the dog e in dropping into the beveled notches of the disks b if the combination should ac-

cidentally be successfully operated. The screw d^3 in the knob d^2 by its position affords an index by which a person familiar with the combination knows the point to which to turn the knob at each alternate revolution to release the latch, and this index may be arbitrarily arranged at any angle by releasing the screw and resetting it in any other of the shallow holes in the staff d . The combination is readily changed by shifting one or more of the studs b' into a different notch b^2 in one or more of the disks b , by which a great multiplicity of combinations may be produced. Further combinations may be produced by placing two studs in different notches of the same disk, whereby a shorter partial revolution is required to move the next disk, and other changes can be effected by reversing the position of the studs and placing two shorter or two longer segmental ends toward each other.

Having thus described my invention, I claim—

1. In a permutation-lock, the combination, with a supporting-shaft, as a , and a disk, as a' , connected and arranged to revolve with it, of disks, as b , having radial notches, as b^2 , and studs, as b' , arranged to enter said notches, and plates, as c , for separating said disks and retaining said studs, substantially as shown and described.

2. In a permutation-lock, the combination, with a series of radially-grooved disks mounted on the same shaft and arranged when in alignment, to release the locking mechanism, of detachable interchangeable studs arranged to enter the radial grooves of said disks having projecting ends to engage the ends of studs in adjacent disks, and intermediately-disposed partitions to divide said disks and retain said studs in place, substantially as shown and described.

3. The combination, with the dog e and disks b , of the spring a' , mounted in the post a^3 , having one end arranged to actuate the dog, the other end being arranged to enter one of the disk-grooves simultaneously with the entrance of the dog in the disk-notches, substantially as shown and described.

4. In a permutation device for locks, the combination, with disks, as b , having radial notches, as b^2 , of studs, as b' , having ends of different sizes, and a neck adapted to enter said notches, substantially as shown and described.

In testimony that I claim the above I hereunto set my hand.

CHARLES ELMER PECK.

In presence of—

F. E. POISTER,
GEO. O. RICE.