

No. 887,695.

PATENTED MAY 12, 1908.

G. L. ROMAN.
PERMUTATION PADLOCK.
APPLICATION FILED JULY 6, 1907.

Fig. 1.

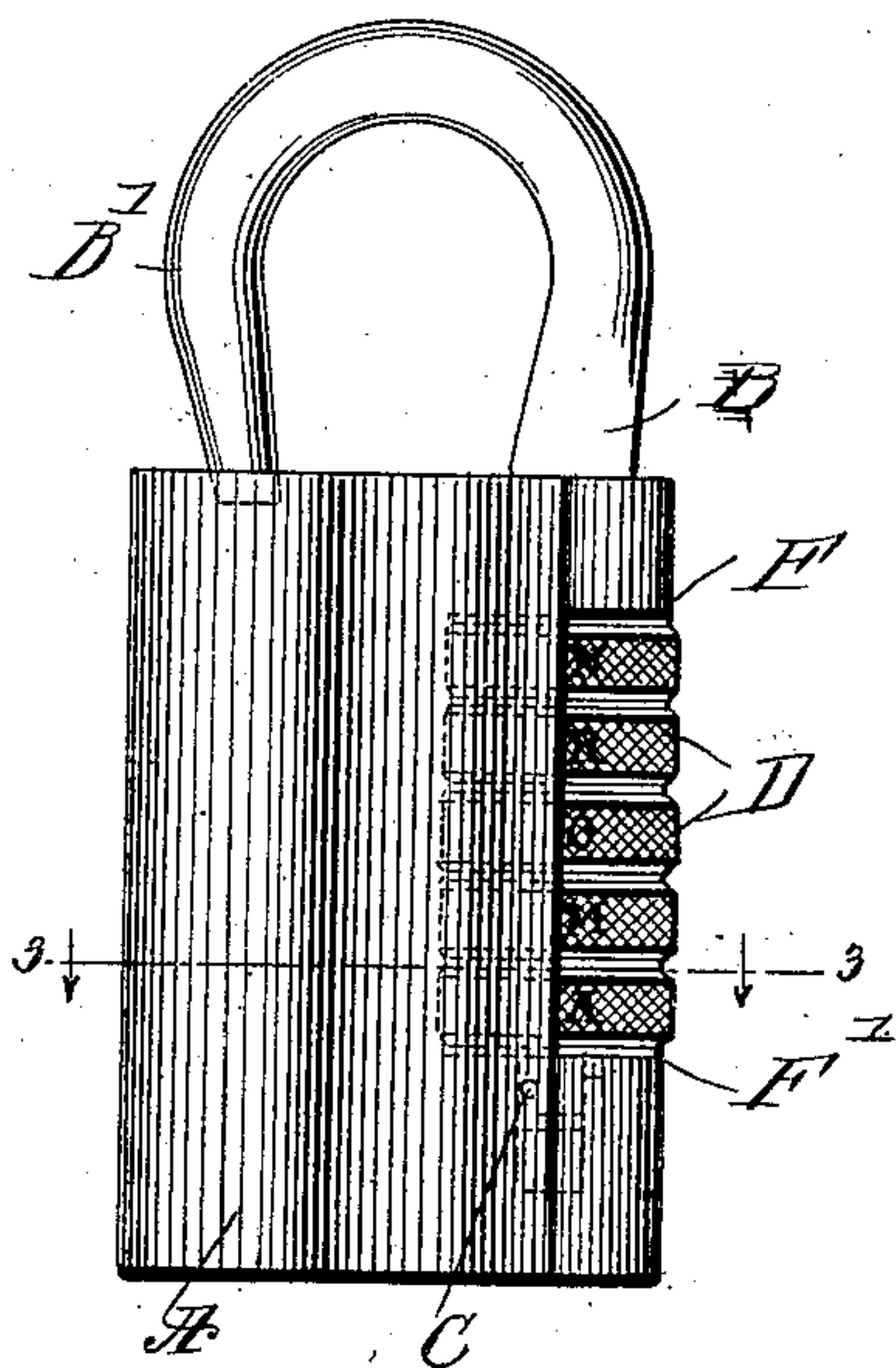


Fig. 2.

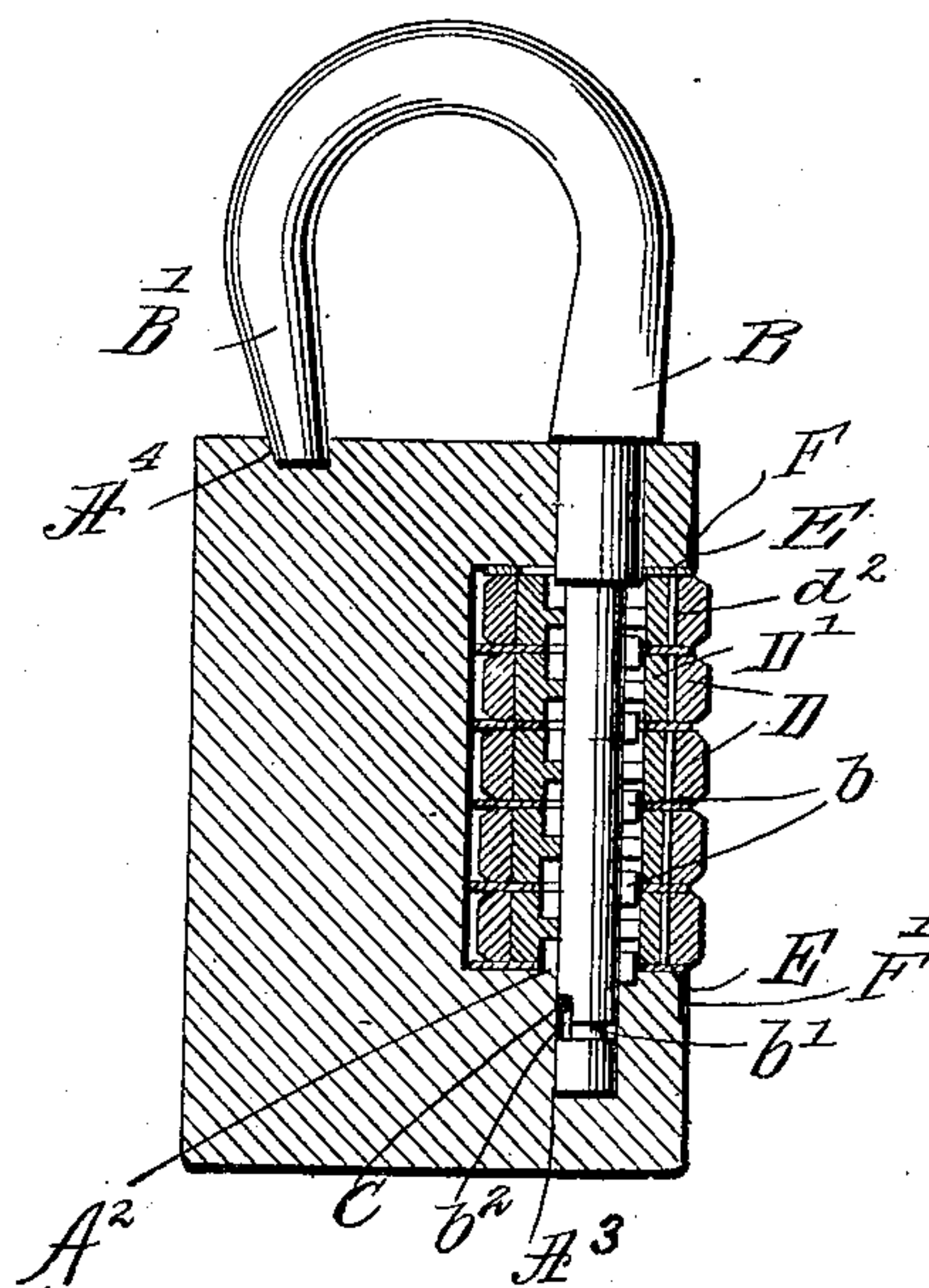


Fig. 3.

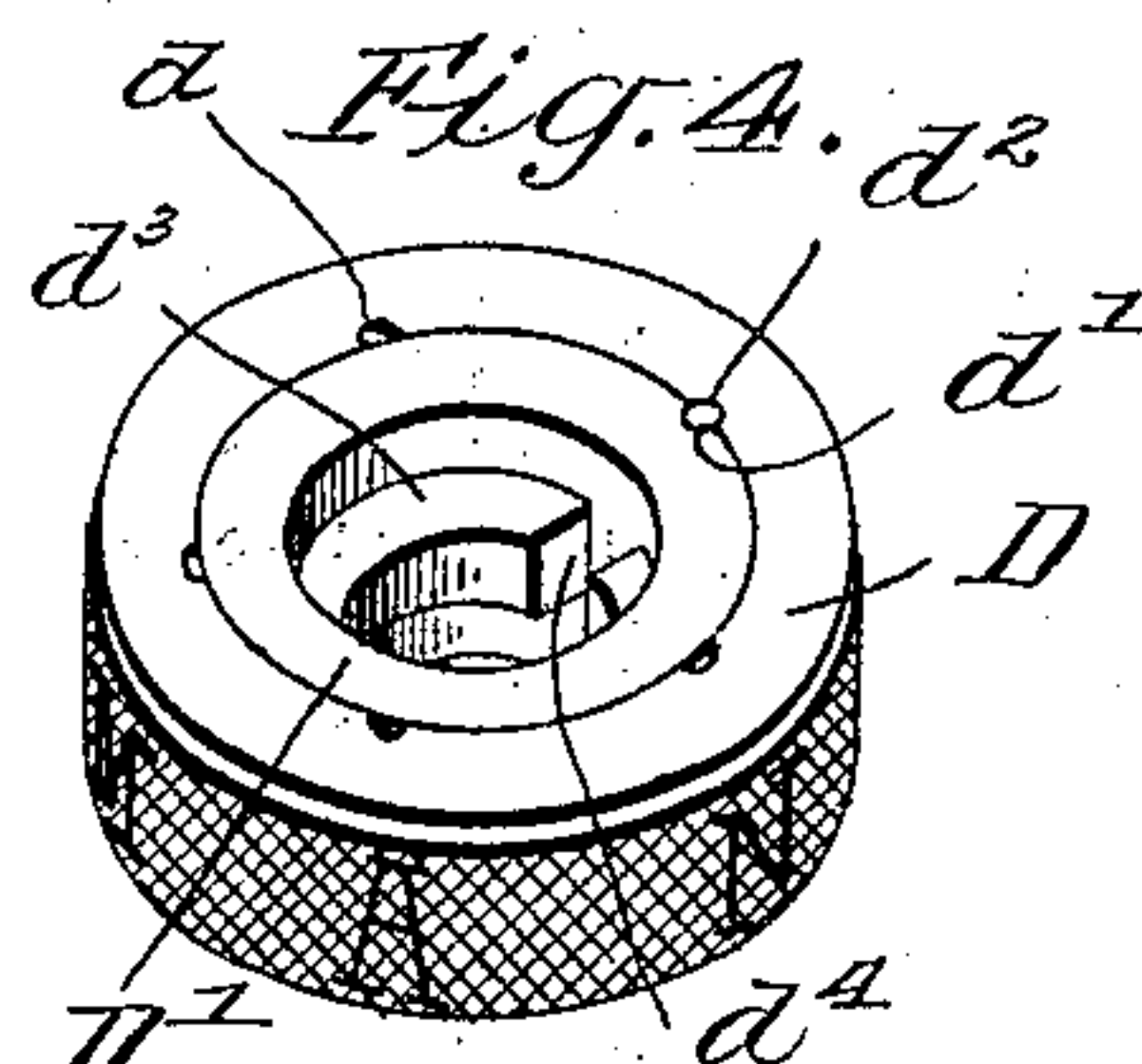
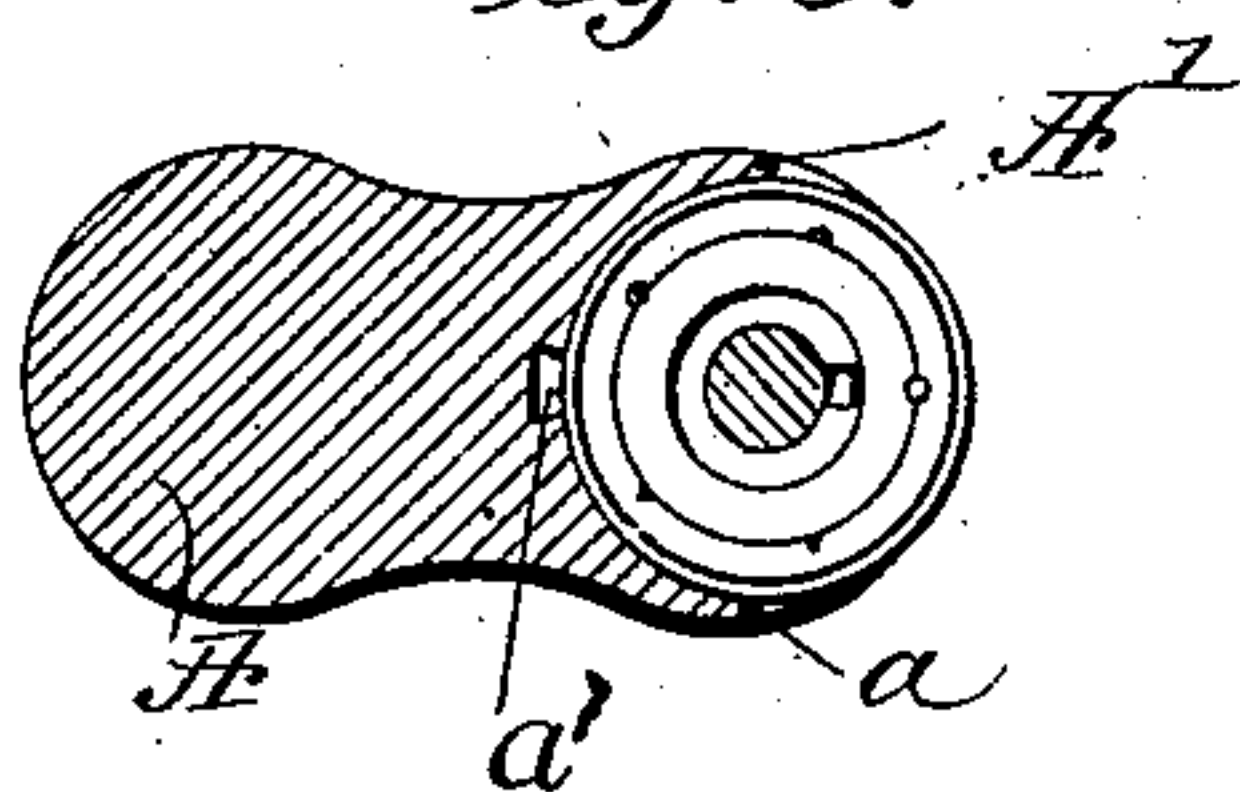
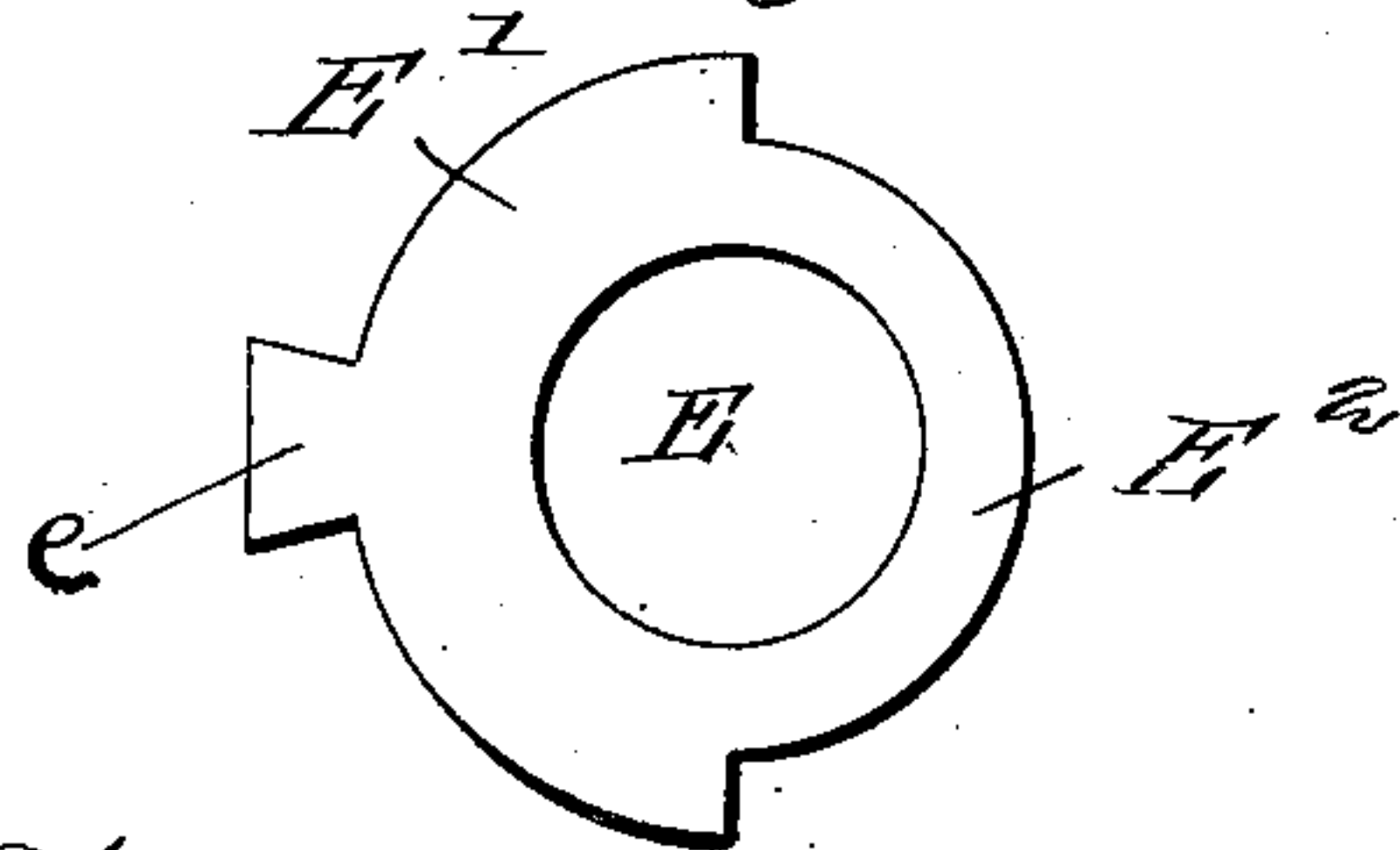


Fig. 5.



WITNESSES
Samuel E. Wade.
J. C. Barry

INVENTOR
GEORGE L. ROMAN.
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE L. ROMAN, OF GRANTS PASS, OREGON, ASSIGNOR TO GEORGE B. WARD, OF GRANTS PASS, OREGON.

PERMUTATION-PADLOCK.

No. 887,695.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed July 6, 1907. Serial No. 382,508.

To all whom it may concern:

Be it known that I, GEORGE L. ROMAN, a citizen of the United States, and a resident of Grants Pass, in the county of Josephine and State of Oregon, have invented a new and useful Improvement in Permutation-Padlocks, of which the following is a specification.

My invention relates to improvements in permutation or combination padlocks, and has for its object to provide a lock of this particular character which shall be simple, cheap, and efficient, and one which can be locked and unlocked on a given combination and also permit of changing to a large number of different combinations, thus adding greatly to security against unauthorized or unlawful unlocking of the same.

With these objects in view my invention consists in certain novel features of construction, arrangement, and combination of parts as will be hereinafter fully described and pointed out in the claims, reference being had to the accompanying drawings, in which

Figure 1 is a side elevation of my improvement. Fig. 2 is a vertical section of same. Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1. Fig. 4 is a perspective view of one of the tumblers removed, and Fig. 5 is a plan view of one of the separator washers.

In carrying out my invention I use a solid casing A, of suitable size and shape having one side cored out to form a semicircular recess or chamber A', the edges *a* of said chamber being thinned down to a feather edge; the floor A² of said recess is provided with a socket A³ in which the lower end of the long leg B, of the shackle may rest when the lock is closed. The end of short leg B' of the shackle is adapted, when the lock is closed, to rest in a socket A⁴ at the other side of the casing. The long leg B, of the shackle is provided on one side with the lugs *b* and near its lower end with the annular groove *b'* and the oblong slot *b*². A pin C, passes through the casing from front face to the rear face and engages the aforesaid annular groove *b'* thus permitting the leg B, to turn and yet preventing the withdrawal of the leg; the oblong slot *b*² permits the leg B, to be raised vertically the distance of said slot to raise the free end of the short leg B' out of socket A⁴ and a half turn given to the shackle.

Mounted within the recess A' and on the long leg of the shackle are the tumblers each

consisting of a ring D, having on its outer face suitable characters, such as letters or numbers used in making the various combinations or permutations; opposite each character and on the inner surface of the rings D are vertical semicircular grooves *d* and fitting snugly within each ring D, is a collar D' having on its outer face one or more vertical semicircular grooves *d'* corresponding in shape and size to the grooves *d* of the rings D; a circular pin *d*² fits in said grooves *d* and *d'* thus coupling or connecting the rings D, and the collars D'. The collars D' have the central annular flanges *d*³ which have the slots or recesses *d*⁴ which permit the lugs of the long leg B of the shackle to pass through the same when they are all in alinement.

Above the upper and below the lower tumblers and between the other tumblers are placed washers E of the shape shown, except the upper one which has no lug; the larger part E' fitting within the recess A', and the smaller part E² projecting out through the open part of the recess. On the end face of the case immediately above and below the recess A', are made marks F and F' respectively, which must be in perfect alinement so that the letters or characters on the outer face of the rings D, may be brought into proper register to form the particular combination decided on.

It will be noticed that the recess *d*⁴ in the flange *d*³ of each collar is immediately opposite the pin *d*² and consequently the letter or character on the outer face of that particular tumbler, and this arrangement governs the combination, hence to change a combination, the pin *d*² must be removed, the collar D' turned until the recess *d*⁴ is opposite the letter or character decided upon to form one of the new combination, and the pin then dropped into place coupling the ring D and the collar.

With the particular set of characters shown and the number of tumblers used the lock can be set to give different combinations.

To unlock the shackle, a combination having been decided on and properly set, the letters or characters on the various tumblers are brought into alinement with the marks F and F', whereupon the shackle can be raised the distance of the slot *b*², at the lower end of long leg B, and the short leg B', then

swung around a half turn, its free end having been lifted from the socket A⁴.

It will thus be seen that I provide an extremely simple and cheap padlock which is easily manipulated when the combination is known, and one which is secure and has no springs, or parts likely to become deranged and lost.

Within the recess or chamber A' and in the rear wall of the same is made the vertical groove *a'* having undercut walls in which fit the lugs *e* which are on all of the dovetail shape washers E except the upper one, the lugs preventing the washers from turning and also from dropping out of the casing.

I claim:

1. In a permutation padlock, the combination with a shackle and casing said casing having a recess in its upper face for the end of the short leg of the shackle, and an open chamber to receive the long leg of the shackle, said long leg having a series of lugs projecting therefrom, of tumblers rotatably mounted on said long leg and fitting in said open chamber but projecting therebeyond, said tumblers comprising an outer ring having characters on its periphery and vertical grooves on its inner face, an annular collar fitting within said outer ring and having a vertical groove in its outer face and a central inwardly projecting recessed flange, the recess of said flange being opposite the vertical groove in the outer face of said annular collar, and a pin adapted to fit in registering grooves in the outer ring and collar, for interchangeably locking the parts of the tumbler together.

2. In a permutation padlock the combination with a shackle and casing, said casing having recesses to receive the long and short legs of the shackle, said long leg having spaced lugs projecting therefrom, of tumblers adapted to fit within the recess containing the long leg, each of said tumblers comprising an outer ring having characters on its periphery and having vertical grooves in its in-

ner face, an annular collar fitting within said ring and having a vertical groove in its outer surface, a pin adapted to fit partly within said groove and partly within one of the vertical grooves in the inner face of the outer ring and couple the collar and said outer ring, a central annular flange projecting inwardly from the inner face of said collar, said flange having a slot or recess disposed opposite the groove in which the coupling pin is seated, the slots or recesses of the collars when in alinement permitting the longitudinal movement of the lugs on the long leg of the shackle.

3. In a permutation padlock the combination with a shackle and casing said casing having a recess in its upper face for the end of the short leg of the shackle and an open chamber in the opposite side to receive the long leg of the shackle said long leg having a series of spaced lugs projecting therefrom, of tumblers adapted to fit in said open chamber said tumblers comprising an outer ring having characters on its periphery, and having vertical grooves in its inner face, an annular collar fitting within said outer ring and having a vertical groove in its outer face, a pin adapted to fit partly within said groove and partly within one of the vertical grooves in the inner face of the outer ring and couple the collar and the said outer ring, a central flange projecting inwardly from the inner face of said collar said flange having a recess or slot disposed opposite the groove in said collar, and separator washers placed between said tumblers, said washers having a central opening and a lug projecting from their peripheries and adapted to fit in a vertical slot in the inner wall of the aforesaid open chamber, the slots or recesses of the annular collars when in alinement permitting longitudinal movement of the lugs which project from the long leg of the shackle.

GEO. L. ROMAN.

Witnesses:

E. R. TAYLER,
JEREMIAH LANE.