

No. 879,747.

PATENTED FEB. 18, 1908.

H. F. CRIM & W. C. LOY.
PERMUTATION PADLOCK.
APPLICATION FILED JAN. 30, 1907.

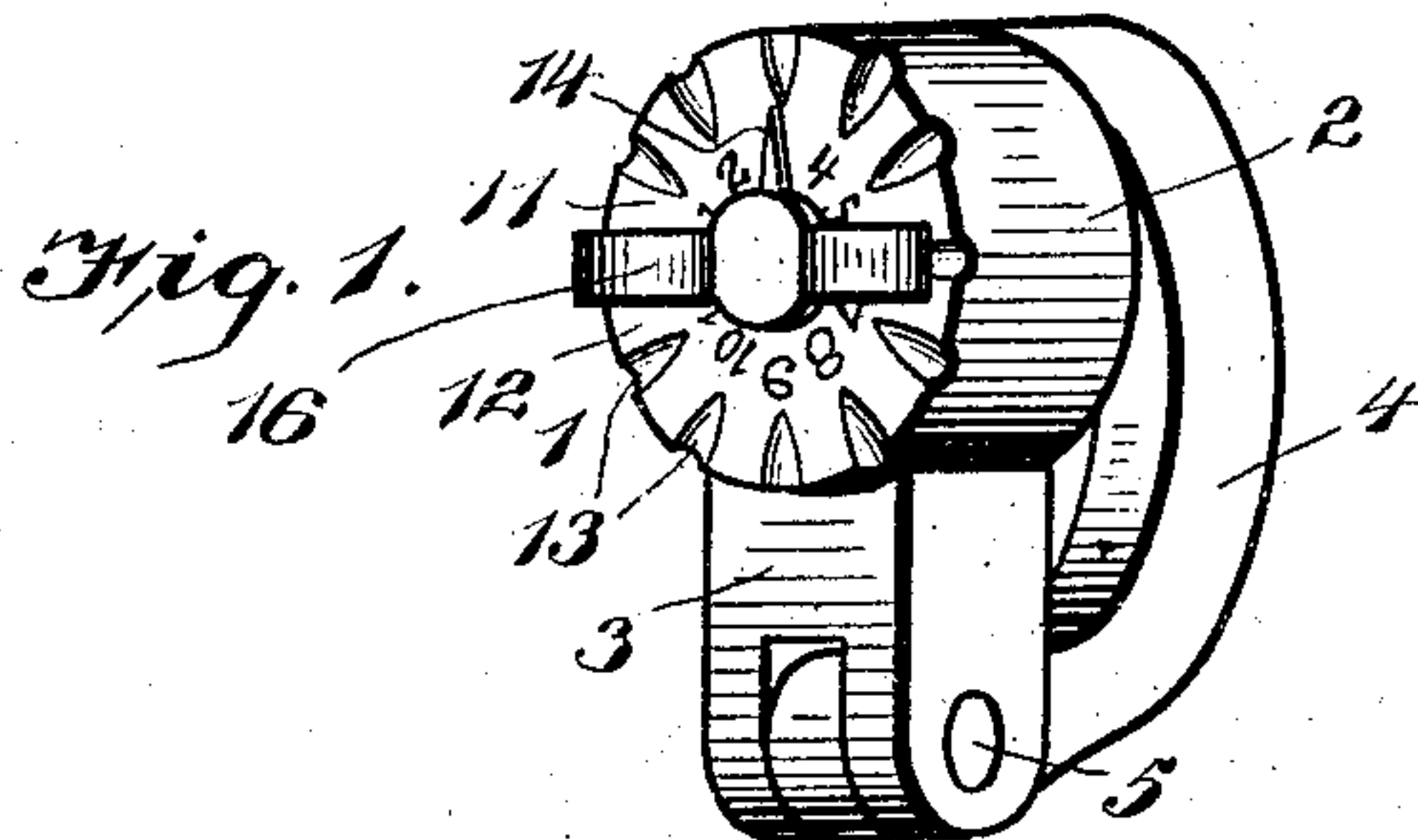


Fig. 2.

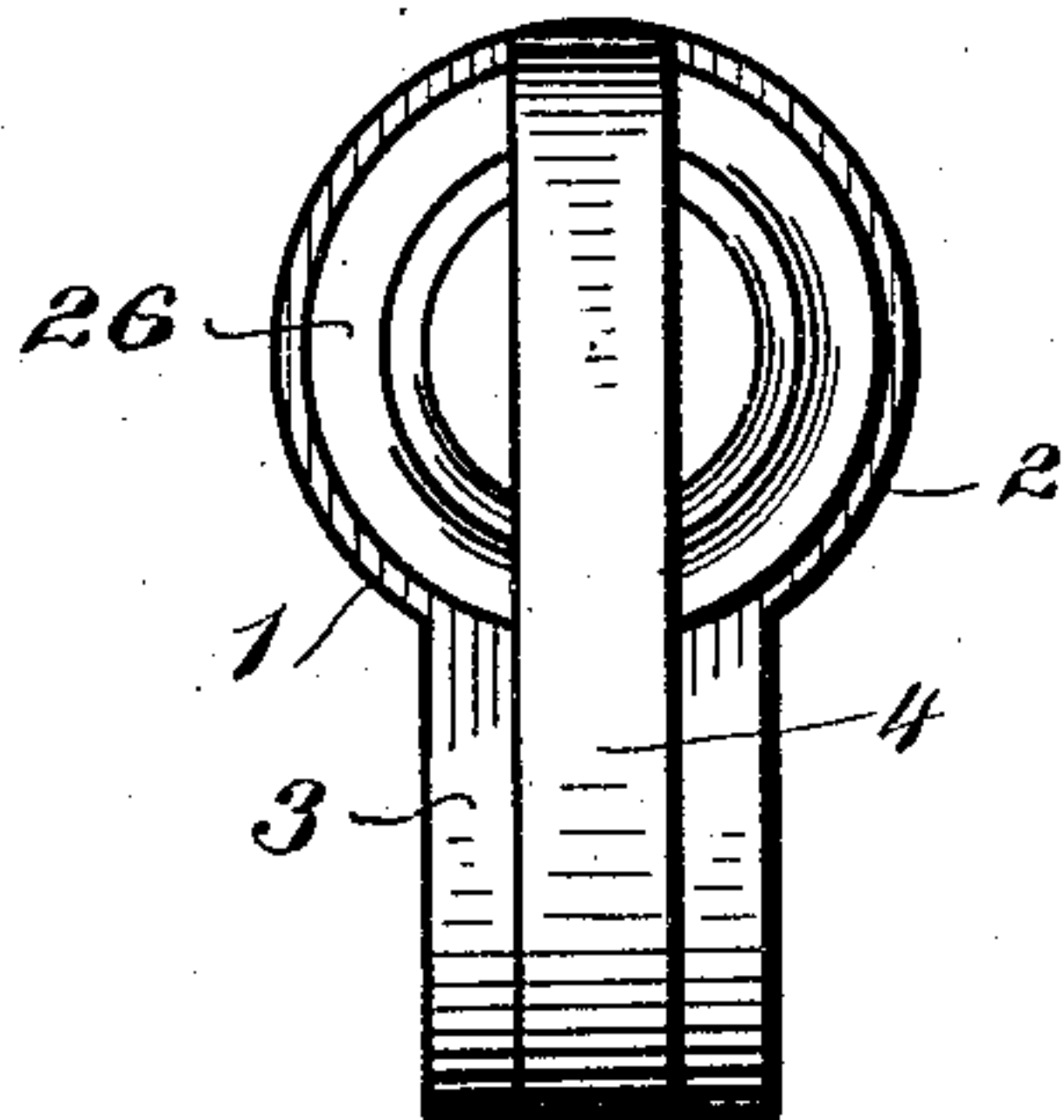


Fig. 3.

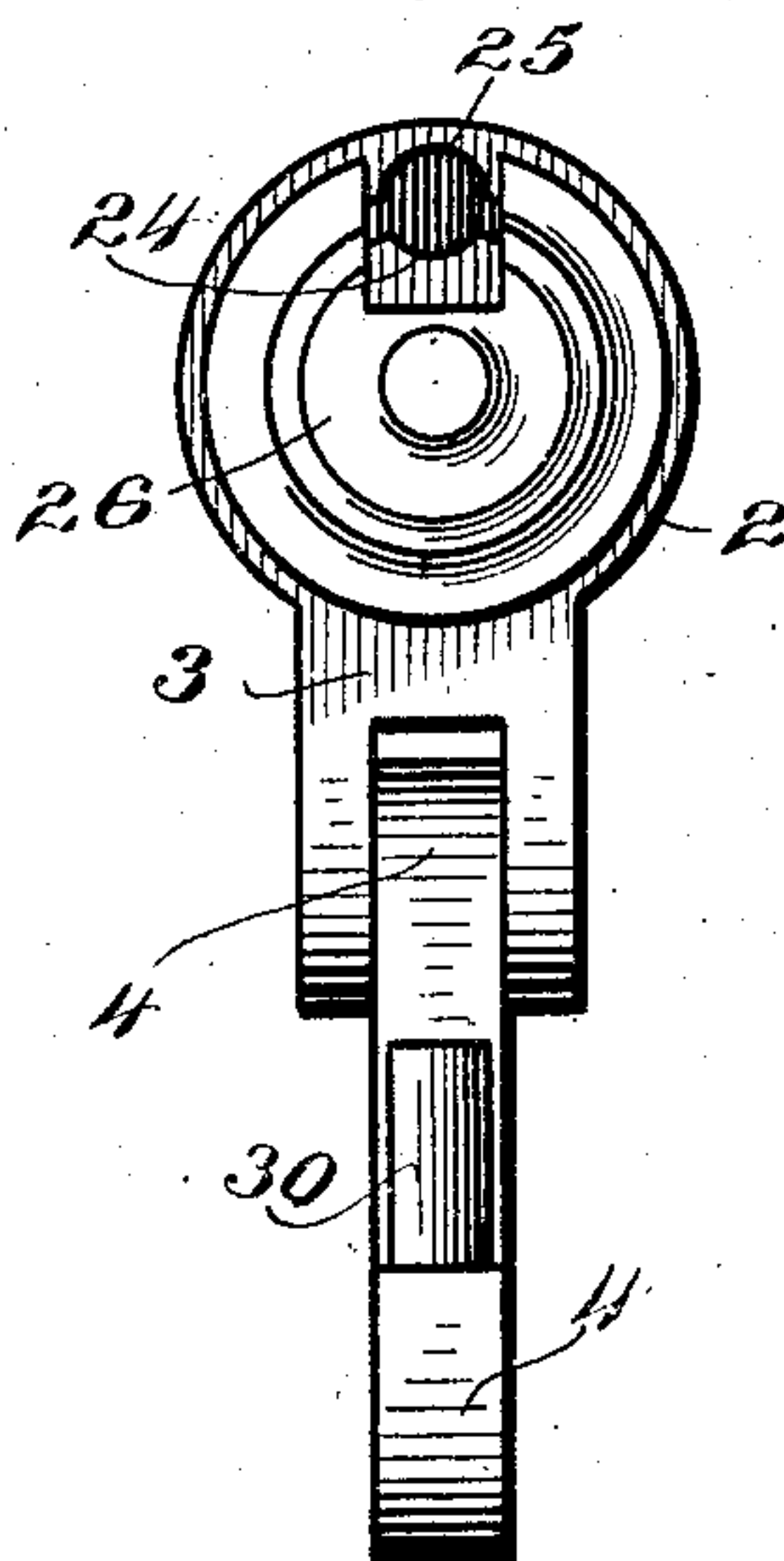


Fig. 4.

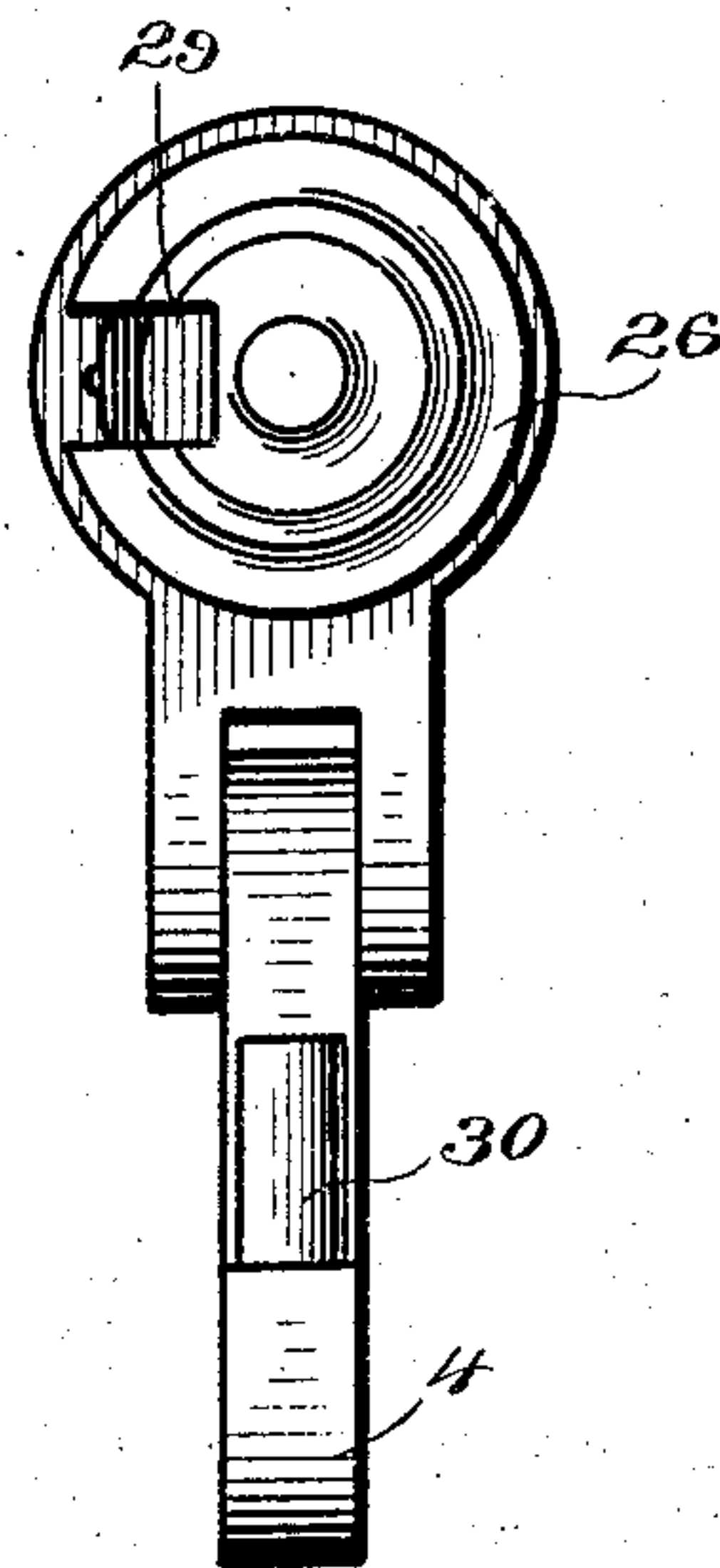


Fig. 5.

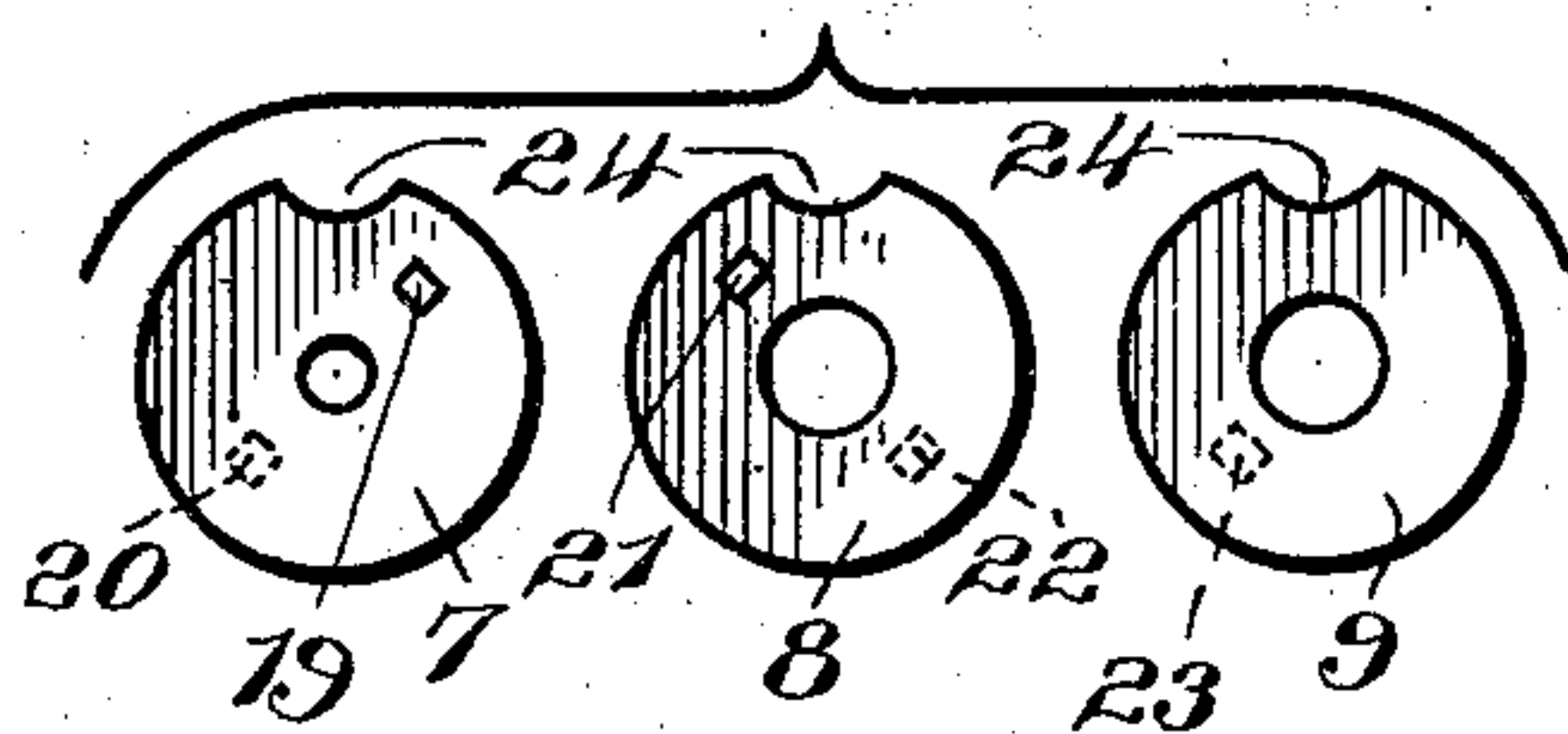


Fig. 6.

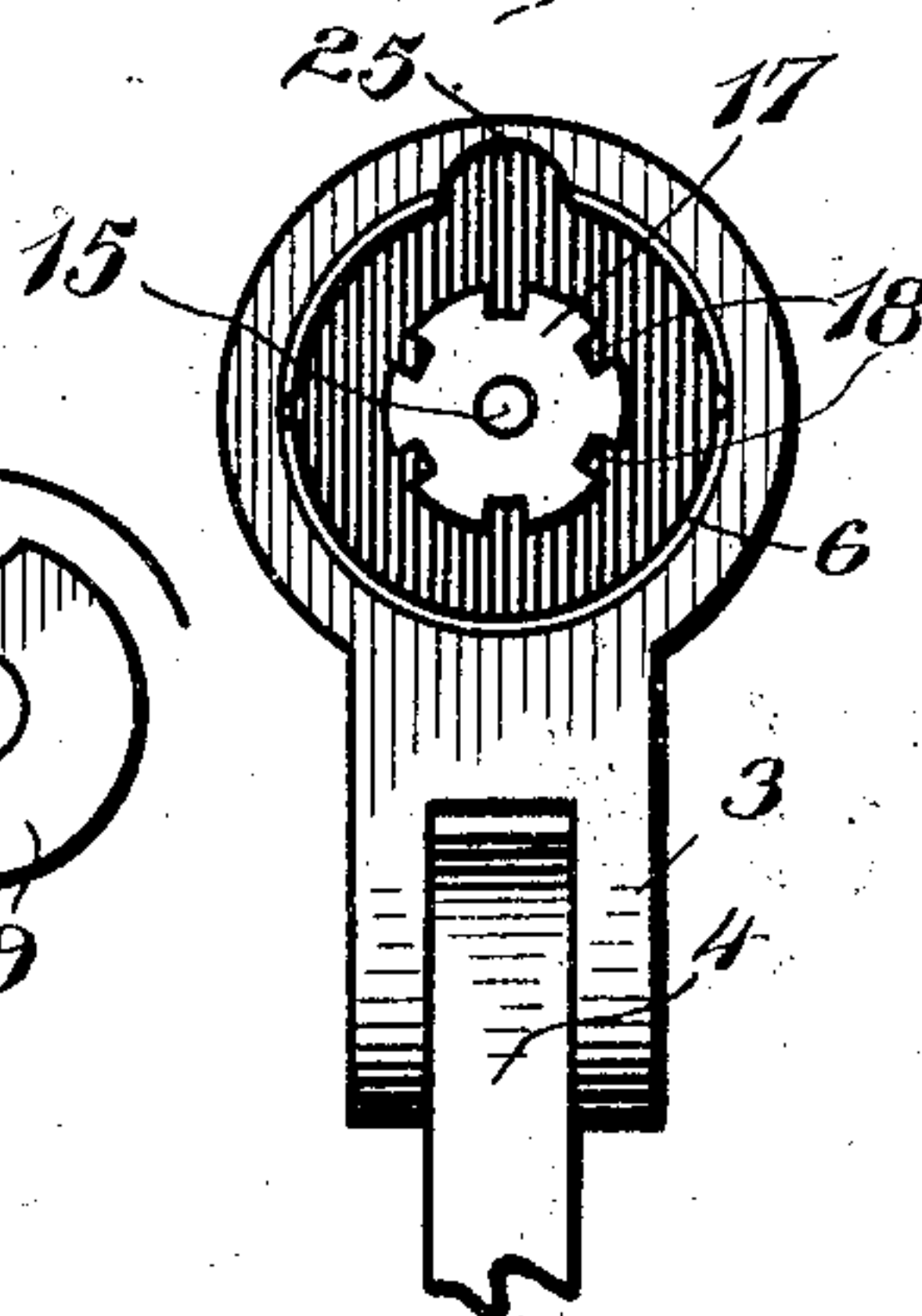
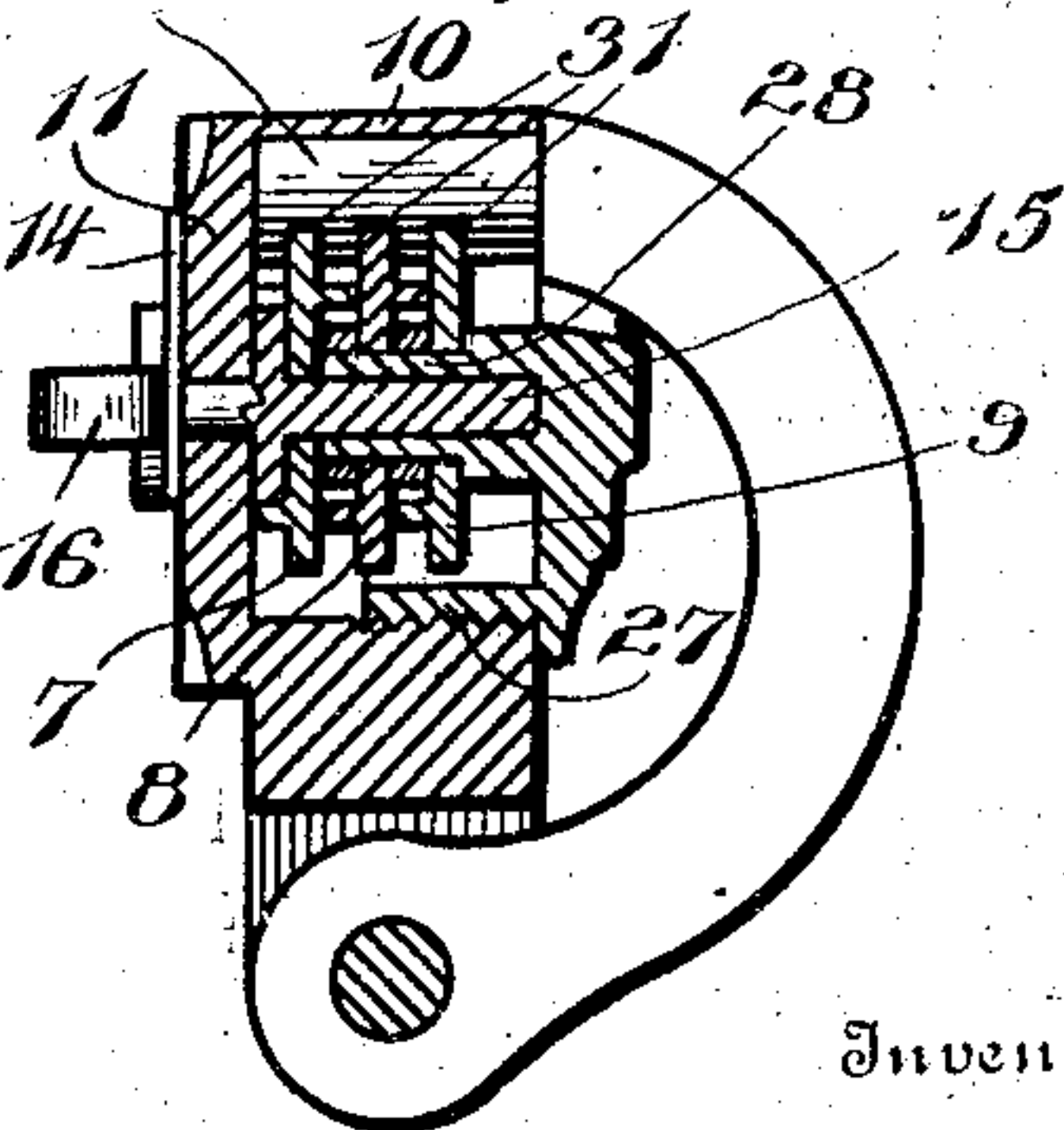


Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY F. CRIM AND WILLIAM C. LOY, OF ROCHESTER, INDIANA.

PERMUTATION-PADLOCK.

No. 879,747.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed January 30, 1907. Serial No. 354,952.

To all whom it may concern:

Be it known that we, HENRY F. CRIM and WILLIAM C. LOY, citizens of the United States, residing at Rochester, in the county of Fulton and State of Indiana, have invented certain new and useful Improvements in Permutation-Padlocks; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to locks, but more particularly to a permutation pad-lock, and has for its object to provide a device of this class which is particularly simple in its construction, cheap and easy to manufacture, and strong and durable.

A further object of our invention is to provide a permutation padlock which is so constructed that access cannot be had to the interior of the lock so long as the same is in a locked position.

A further object of our invention is to provide a permutation padlock, the interior and working parts of which are readily accessible when the shackle is in an unlocked position, in such manner that the combination of the lock can be readily changed at any time, and this can be accomplished without the use of tools or instruments and without disfiguring the lock in any way.

With these objects in view our invention consists in the combination of the lock casing, shackle, tumblers and cap as will be hereinafter fully described and specifically pointed out in the appended claim.

Referring to the accompanying drawing: Figure 1 is a perspective view of our permutation lock. Fig. 2 is a top plan view of the same. Fig. 3 is a top plan view showing shackle in an unlocked position. Fig. 4 is a similar view showing shackle in an unlocked position and illustrating the screw cap or top swung out of its normal position. Fig. 5 is a plan view of the three circular tumblers. Fig. 6 is a plan view showing casing with tumblers removed, and Fig. 7 is a vertical longitudinal sectional view through the lock.

Like numerals of reference indicate the same parts throughout the several figures in which;

1 indicates the pad-lock comprising the

body or casing 2, said body or casing being provided with an extension 3 to which the shackle 4 is pivoted at 5. Except for the extension 3 it will be seen that the body or casing 2 is circular, and by referring to Figs. 6 and 7 it will be seen that the said body 2 is recessed at 6 to accommodate the circular tumblers 7, 8 and 9, the annular wall 10, face 11 and extension 3 being integral and preferably formed out of a solid piece of metal. Upon the face 11, as shown in Fig. 1, is formed a dial 12, said dial being provided with a series of numbers from one to twelve or more, and around the edge of said dial are provided a series of slight grooves or indentations 13, which grooves or indentations coincide with numbers on the dial.

14 indicates a pointer carried on a shaft or spindle 15, and 16 is a turn button secured also to said shaft 15, by means of which button the pointer 14 is moved over the face of the dial.

Secured to the shaft 15 or formed integral therewith and on the inside of the casing is a disk 17, said disk being provided around its periphery with a series of notches 18, as shown in Fig. 6.

Referring to Fig. 5, which illustrates the circular tumblers, it will be seen that the tumbler 7 is provided with a lug 19 on its upper face and a similar lug 20 on its lower face, said lug 20 being shown in dotted lines. The tumbler 8 is also provided with an upper and a lower lug 21 and 22; while the tumbler 9 is provided only with a lower lug 23. It will also be seen from Fig. 5 that a portion of the periphery, of each of the tumblers, is cut away, forming in each tumbler a notch 24, and in this connection it will be seen from Fig. 6 that the wall 10 of the casing is similarly cut away at 25, the notches 24 in the tumbler forming substantially a circular opening in connection with the cut away portion 25 in the wall 10 of the casing.

26 indicates the threaded cap or top of the lock, which as shown in Fig. 7 is provided with a flange 27; said flange being threaded, while the wall 10 of the casing is also threaded to receive said flange. A central tube 28 carried on the cap 26 accommodates the two circular tumblers 8 and 9, as shown in Fig. 7, while the lowest tumbler 7 is journaled on the shaft 15 which is rotated by the turn button 16, as shown in Fig. 7.

Referring now to Figs. 3 and 4, it will be seen that the threaded top or cap 26 is cut

away at 29 allowing the end 30 of the shackle to enter the lock, as shown in Fig. 7, said end 30 of the shackle being provided with three transverse grooves 31 within which the tumblers 7, 8 and 9 enter, as shown in Fig. 7.

Having thus fully described our invention, its operation is as follows: The lugs having been assembled, the circular tumblers 7, 8 and 9 are rotated by means of the turn button 16 on the dial, and any movement imparted to the turn button 16 rotates the disk 17 on the inside of the lock, and the lower or under lug 20 on the tumbler 7 being in engagement with one of the notches 18 in said disk 17, as shown in Fig. 7, said tumbler is necessarily rotated in either direction; the central or intermediate tumbler 8 having its lower lug 22 directly in the path of the upper lug 19 on the tumbler 7, said tumbler 8 is rotated when the lugs 19 and 22 come together; the central tumbler 8 being provided with an upper lug 21 and the tumbler 9 being provided with a lower lug 23, said lugs being in the same path the said tumbler 9 is rotated by the tumbler 8 when the said lugs 21 and 23 come together.

In order to unlock the lock or release the shackle 4 from engagement with the tumblers it is necessary that every one of the notches 24 in the tumblers 7, 8 and 9 register one above the other, and unless these tumblers are brought into this position one or more of them will be in engagement with the shackle, and thereby hold the shackle in a locked position. The tumblers are placed within the lock so that the pointer 14 will have to be rotated to a certain point and back to a certain point, and again forward to a certain point in order to bring the notches in all of the tumblers directly in line and directly opposite the recess 25 in the wall of the casing; consequently the lock can be opened at any time when the combination is known. It will be seen, however, from the drawings that access can be had to the interior of the lock only by removing the threaded top or cap 26, and it will also be seen, particularly from Figs. 3 and 7 that the said top or cap

cannot be unthreaded or removed while the shackle is in a locked position, as the said shackle passes through a portion of said top or cap 26 and securely locks said top or cap against rotation. This being the case, and the balance of the lock casing being formed of a solid piece of metal it is at once apparent that to open the lock the entire lock must first be demolished unless the combination is known. It is thus seen that while the shackle is securely locked by the circular tumblers, said shackle at the same time securely locks the top or cap 26 against rotation and any possibility of removal.

In order to change or alter the combination of the lock the cap 26 and tumblers are removed and the last tumbler 7 rotated so that its lug 20 will enter a different notch 18 in the disk 17, Fig. 6. This of course alters the position of the notch 24 on the disk 7 with relation to the pointer 14 on the dial 12, thereby changing the combination.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent of the United States, is,—

In a permutation padlock of the character described, the combination of a casing comprising the annular wall 10, face 11 and extension 3, a shackle 4 pivoted to said extension, a series of tumblers within said casing for engagement with the free end of said shackle, a cap 26 for said casing; said cap being cut away on its periphery to receive said shackle, the said annular wall 10 being provided with a recess 25 and the said tumblers being each provided with a notch 24 on its periphery to register with the said recess in the annular wall 10, the said free end of the shackle entering said recess 25 in the wall 10 and said notches 24 in the peripheries of the tumblers, substantially as described.

In testimony whereof, we affix our signatures, in presence of two witnesses.

HENRY F. CRIM.
WILLIAM C. LOY

Witnesses:

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W. H. TAYLOR.