

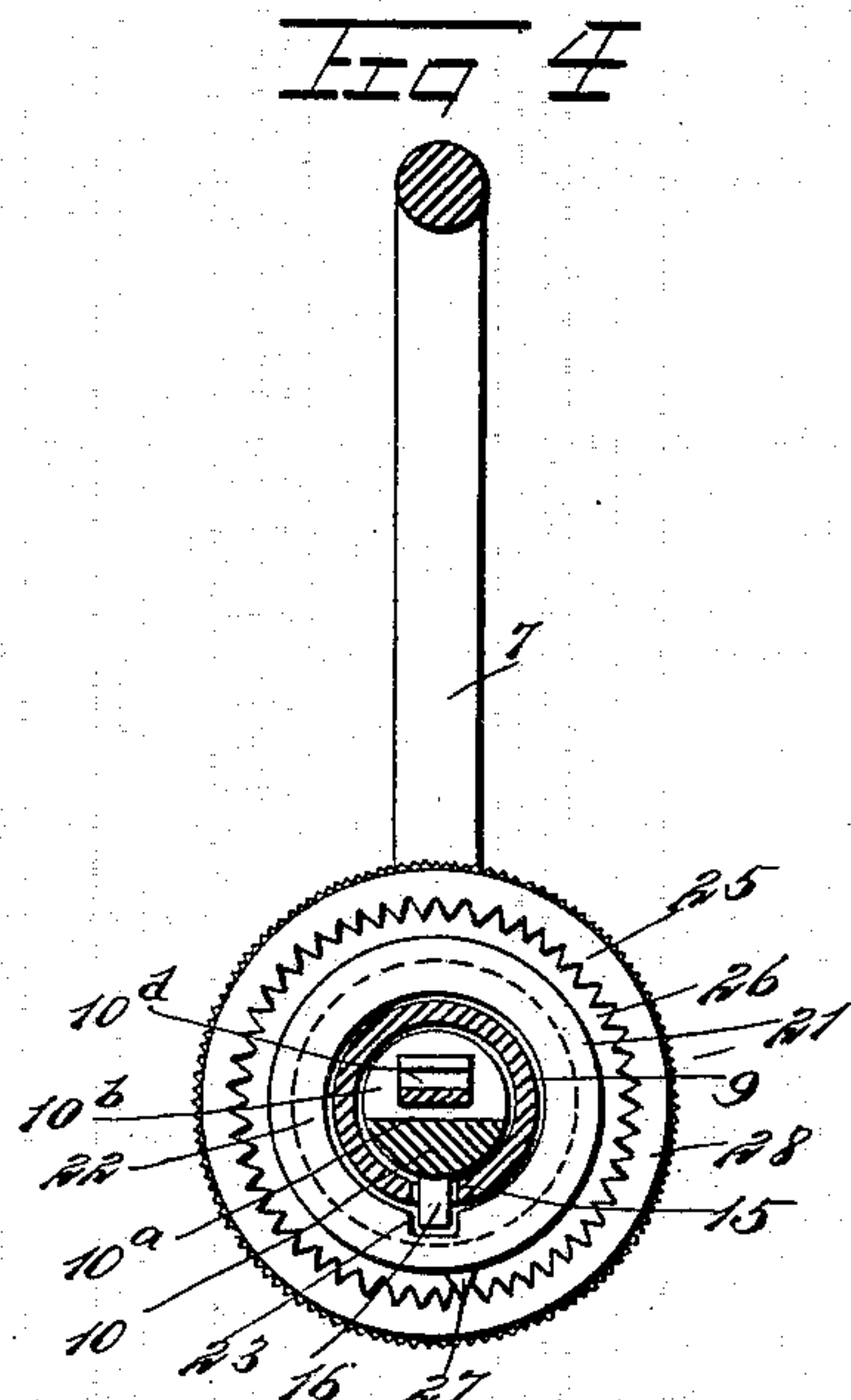
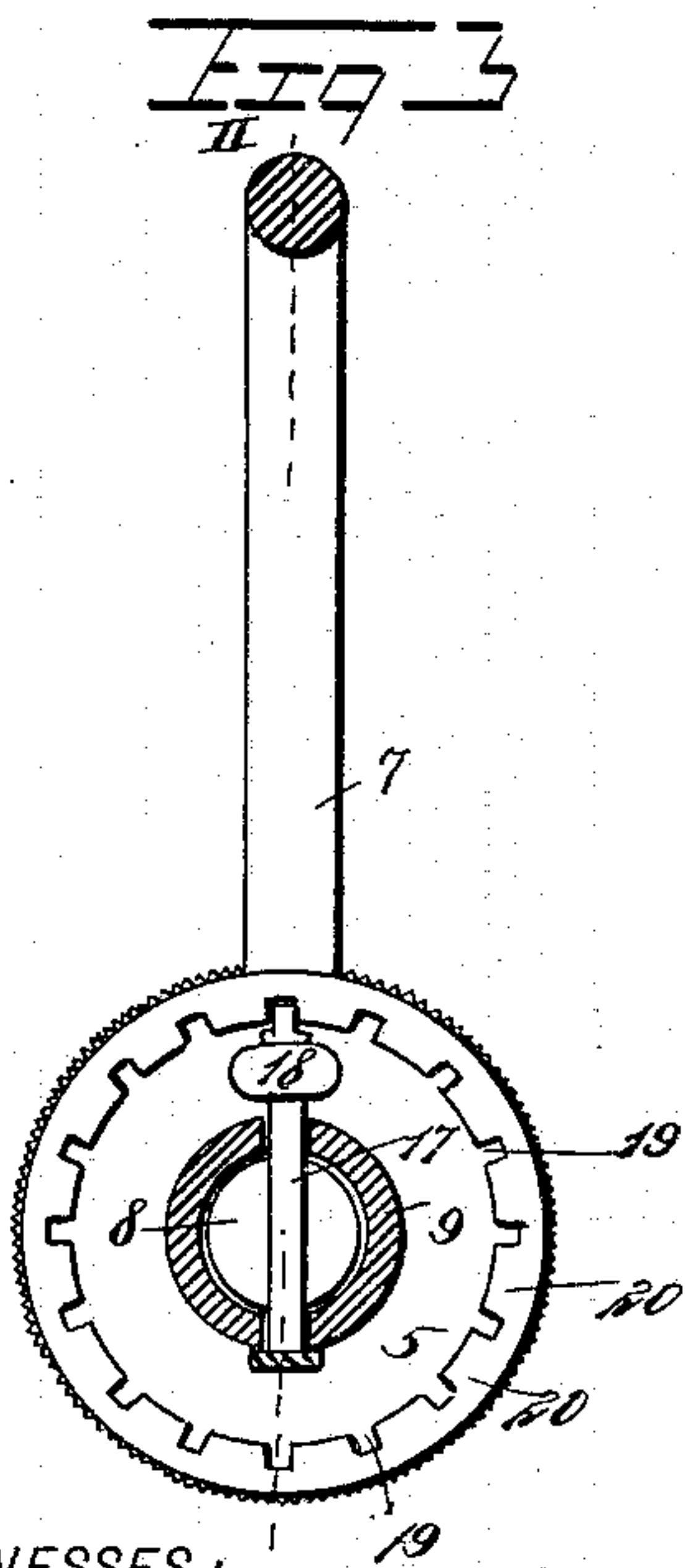
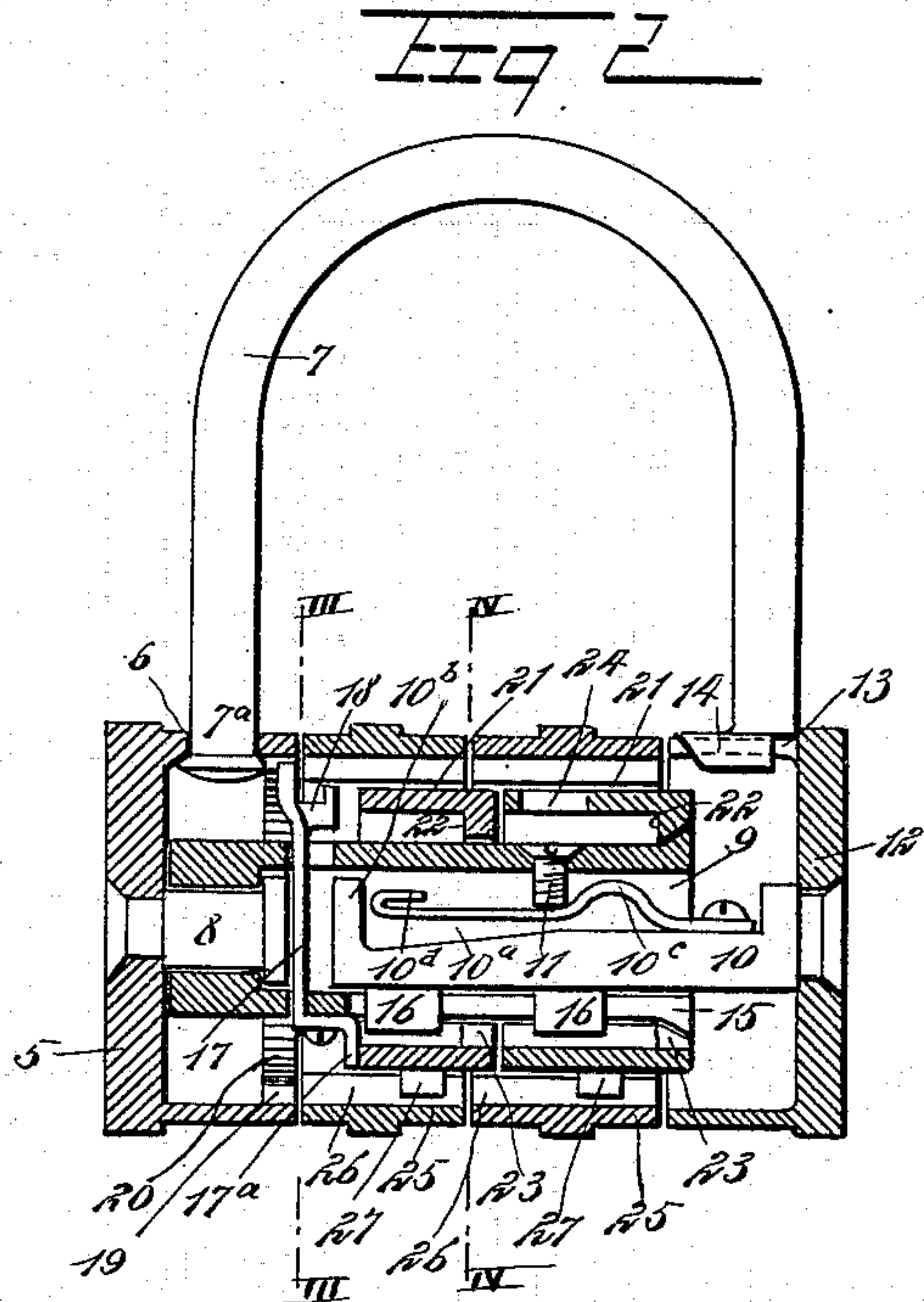
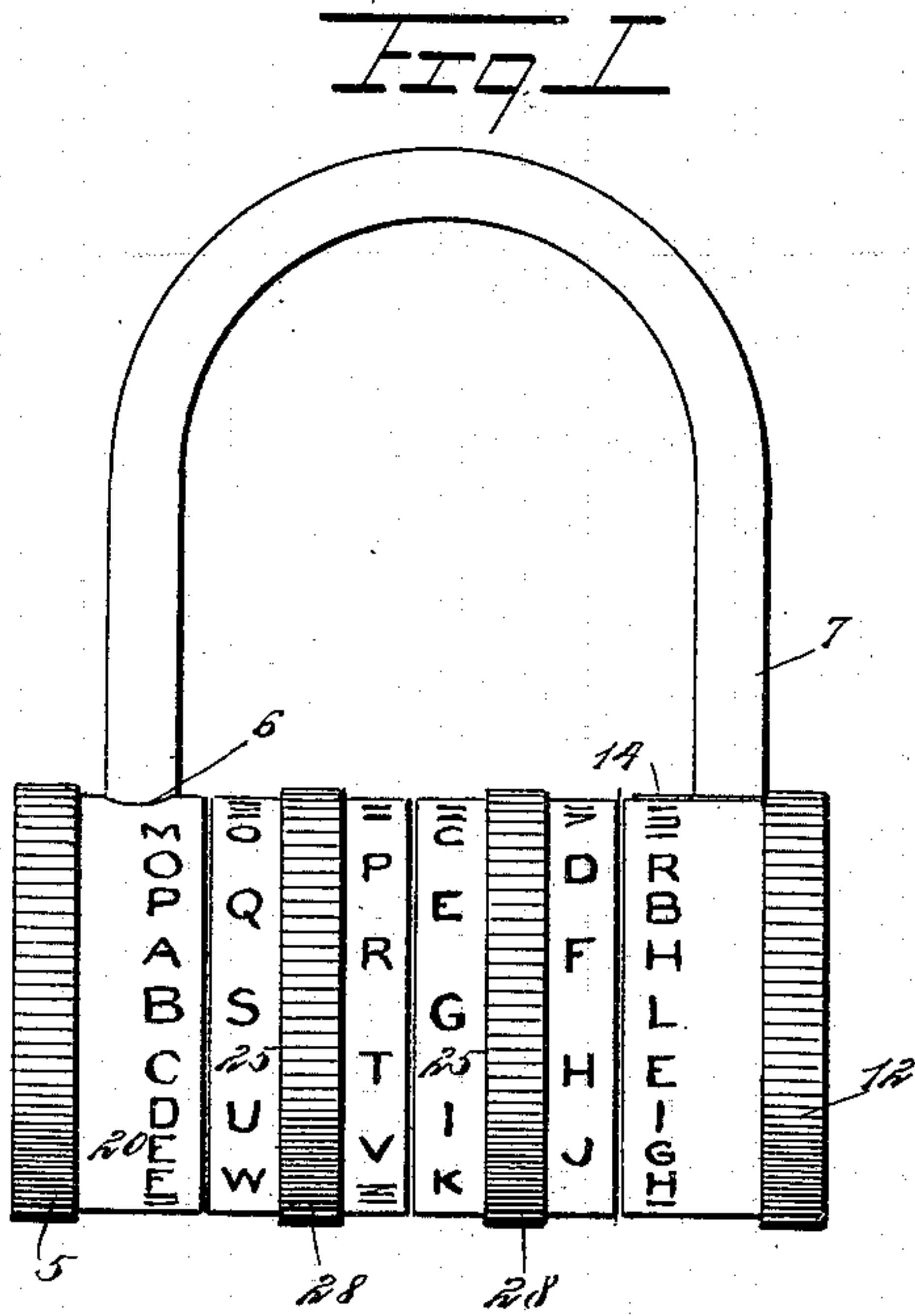
No. 612,359.

Patented Oct. 11, 1898.

R. B. H. LEIGHTON.
PERMUTATION PADLOCK.

(Application filed Apr. 20, 1898.)

(No Model.)



WITNESSES:
H. Walker
Isaac May.

INVENTOR
R. B. H. Leighton.
BY *[Signature]*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

RICHARD B. H. LEIGHTON, OF PHILADELPHIA, PENNSYLVANIA.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 612,359, dated October 11, 1898.

Application filed April 20, 1898. Serial No. 678,236. (No model.)

To all whom it may concern:

Be it known that I, RICHARD B. H. LEIGHTON, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Permutation-Lock, of which the following is a full, clear, and exact description.

This invention relates to a permutation-lock similar to that patented by me March 29, 1898, No. 601,519; and the invention embodies certain improvements in the construction of said previously-patented invention.

This specification is the disclosure of one form of my invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the invention. Fig. 2 is a sectional view on the line II II of Fig. 3. Fig. 3 is a sectional view on the line III III of Fig. 2, and Fig. 4 is a sectional view on the line IV IV of Fig. 2.

The lock has a circular head 5, provided with an opening 6 in one side, in which is fitted the headed end 7^a of the bow 7, so that the bow may swing in the opening. The head 5 has rigidly secured thereto a pin 8, which projects inward centrally and carries loosely a sleeve 9. The sleeve 9 projects beyond the pin 8 and carries a bolt 10, which has slidable movement in the sleeve 9, said movement being limited by a set-screw 11, removably seated in the sleeve 9. The bolt 10 has a cavity 10^a, into which the screw 11 projects, said cavity forming a finger 10^b at the inner end of the bolt, which finger is adapted to engage the screw 11 to limit the outward movement of the bolt. Secured rigidly to the bolt 10 and situated in the cavity 10^a is a spring having a hump 10^c and an upturned lip 10^d. The hump 10^c is formed adjacent to the fixed end of the spring and the upturned end 10^d is located at the free end of the spring. Normally the outward movement of the bolt is limited by the upturned end 10^d of the spring; but by pressing down the spring at the hump 10^c the end 10^d is moved into the cavity to a point out of line with the screw 11, so that the bolt 10 may move out until the finger 10^b engages the screw 11, and thus

stops the bolt. The outer end of the bolt is loosely connected with a locking-head 12. The head 12 has a recess or notch 13 formed therein, such recess running to the inner edge of the sides of the head and being adapted to receive a notched block or enlargement 14, which is rigidly attached to or forms a part of the free end of the bow 7. By these means the bow may be held in locked position, and upon the outward movement of the head 12 with the bolt 10 the bow may be released. This construction prevents the lock from being fraudulently opened, which might otherwise be done by pressing together the arms of the bow.

The sleeve 9 has a longitudinally-extending slot 15 formed therein. This slot receives the wards 16 of the bolt 10, which wards may be of any desired number. The sleeve 9 is held adjustably on the pin 8 by means of a spring-arm 17, which extends diametrically through the sleeve 9 and has its lower end fastened rigidly to the sleeve, as shown in Fig. 2. Such lower end of the spring-arm 17 is bent downwardly to form a lug 17^a, the purpose of which will be hereinafter explained. The upper end of the spring-arm 17 is free and is provided with a spur 18, adapted to be engaged by the finger-nail of a person or by any other means by which to swing the arm. For the purpose of permitting the arm to swing the opening in the sleeve 9, adjacent to the free end of the arm 17, is elongated longitudinally with the sleeve, as shown in Fig. 2. The free end of the arm 17 is adapted to enter any one of the several notches 19 formed in the inner face of the inwardly-overhanging flange 20 of the rigid head 5. It will thus be seen that the sleeve 9 may be turned freely on the pin 8 when the arm 17 is moved to the right, as in Fig. 2, and that when the arm is permitted to return to its normal position it engages one of the notches 19, and thereby holds the sleeve 9 in fixed relation to the head 5. The sleeve 9 carries rings 21, the ring at the left bearing against the end 17^a of the spring-arm 17, which end serves to limit the movement of said ring 21 to the left, and the ring at the right is held on the sleeve 9 by upsetting the end of said sleeve. The rings 21 are respectively arranged to embrace the wards 16 and to be freely revoluble. Each ring 21 has a flange

22, each of which is provided with a recess 23, through which the wards 16 may pass in the acts of locking and unlocking the lock. When the wards 16 are in alinement with the recesses 23, the bolt 10 may be moved in either direction, but when said recesses are out of alinement with the wards the bolt cannot be moved. The ring 22 at the right is provided with a recess 24 capable of registering with the screw 11, so that the screw may be reached with a screw-driver and placed or displaced, as desired. The rings 21 are encircled by exterior rings 25, each of which is provided on its inner surface with a series of closely-adjacent grooves 26. These grooves 26 are adapted to receive feathers 27, arranged one on each ring 21. By these means the rings 25 may be respectively adjusted on the rings 21, so that the members of the rings may occupy any desired position relative to each other. Each groove 26 is represented by a certain letter or other character on the corresponding ring 25. The rings 21 are turned to position for removing the bolt by means of the rings 25, for which purpose the latter rings are provided with metal belts 28.

The combination of the lock is changed by means of the adjustment of the sleeve 9 and by means of the adjustment of the feathers 27 in the grooves 26. The arm 17 may be reached to adjust the sleeve 9 when the head 12 is moved to the right with the bolt 10. The rings 25 may also be moved to the right, and thus permit the spur 18 to be reached. The rings 25 are adjusted on the rings 21 to change the combination by pushing down on the spring of the bolt 10 at the hump 10^c thereof, so that the end 10^d of the spring is moved out of engagement with the screw 11, thus permitting the bolt 10 to be drawn outward until the finger 10^b engages with the screw 11. When this has been done, the head 12 will have been moved sufficiently to the right to permit the rings 25 to move to the right, and thus entirely disengage the feathers 27 of the rings 21, whereupon the feathers 27 may be engaged with any one of the grooves 26 in the rings 25, and thus the combination may be changed. When the combination has been changed, the parts are returned to operative position by pushing back the bolt 10 until the upturned end 10^d of the spring slips past the screw 11 and engages said screw to perform the operations explained above. Assuming that the parts are in the position shown in Fig. 2, the lock is opened by moving the rings 25 to the predetermined combination of letters, which letters are produced on the heads 5 and 12 and on the rings 25. This moves the rings 21, so as to place the recesses 23 in registry with the wards 16. When this is done, the bolt 10 may be drawn out, and the block 14 will thus be disengaged from the walls of the recess 13 in the head 12, so as to free the bow 7. The bow may now be turned in the opening 6 of the head 5. When the head 12 is moved out, the upturned end 10^d of the

spring of the bolt 10 will engage with the screw 11 and prevent the head from moving outward excessively. This permits the rings 25 to move to the right, but not to an extent sufficient to disengage the feathers 27 from the grooves 26 in which they are placed. Consequently the unlocking of the bow 7 does not result in a disturbance of the combination or adjustment of the parts, and the lock is thus held in immediate readiness to be closed. When the bolt 10 is drawn out, the rings 21 are kept from turning by the engagement of the wards 16 in the recesses 23 of the flanges 22 of said rings 21. To lock the parts, the rings 25, being held always in the proper place, need not be readjusted. The bow 7 is returned to engage the block 14 with the walls of the recess 13, whereupon the bolt 10, with its head 12, is pushed inward. The rings 25 are then given a slight turn, so as to throw the recesses 23 out of alinement with the wards 16.

The lock may be provided with any desired number of rings 21 and 25 and with any desired number of wards 16 on the bolt 10. Hence I do not limit myself to the number of wards and rings herein shown.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a permutation-lock, the combination of a head; a pin carried centrally thereby, a sleeve turning on the head, and a spring-arm having one end fixed to the sleeve and having its opposite end free and capable of engaging with the head to hold the sleeve stationary with the head, the spring-arm extending diametrically through the sleeve.

2. In a permutation-lock, the combination of a head, a pin attached thereto, a sleeve turning loosely on the pin, and a spring-arm having one end attached to the sleeve, the arm extending diametrically through the sleeve and having its free end capable of engaging with the head to hold the sleeve in fixed relation to the head, the free end of the arm having a stud by which to swing the arm.

3. In a permutation-lock, the combination of a head, a pin attached to the head, a sleeve mounted to turn on the pin, a spring-arm having one end attached to the sleeve, the spring-arm extending diametrically through the sleeve and having its free end capable of engagement with the head, the fixed end of the sleeve having an outwardly-turned portion forming a stop, and a ring mounted to turn on the sleeve and limited by the stop.

4. In a permutation-lock, the combination of a sleeve, a screw carried thereby and projecting thereinto, a bolt slidable in the sleeve and provided with a concavity or recess, and a spring fitting in the concavity or recess in the bolt and secured to the bolt, the spring having an upturned end normally limiting the outward movement of the bolt.

5. In a permutation-lock, the combination of a sleeve, a member carried by the sleeve

and projecting thereinto, a bolt slidable in the sleeve, and a spring held by the bolt and normally engaging said member to limit the normal outward movement of the bolt.

5 6. In a permutation-lock, the combination of a sleeve, a member carried thereby and projecting thereinto, a bolt slidable in the sleeve and having a recess forming a lip at the inner end of the bolt, and a spring lo-
10 cated in the recess and having its outer end secured to the bolt, the spring having a hump adjacent to its outer end and having its free or inner end upturned to normally engage the said lip.

15 7. In a permutation-lock the combination

of two heads, the first having a notch opening at its inner edge, means for joining the heads such means comprising rings one of which when the lock is closed bears against the head having the notch to close said notch, 20 and a bow pivoted to the second head and having an enlargement at its free end such enlargement being slidable into the notch of the first head and being held therein by the said ring.

RICHARD B. H. LEIGHTON.

Witnesses:

WM. CASTOR, Jr.,
JAS. HEWETT.