

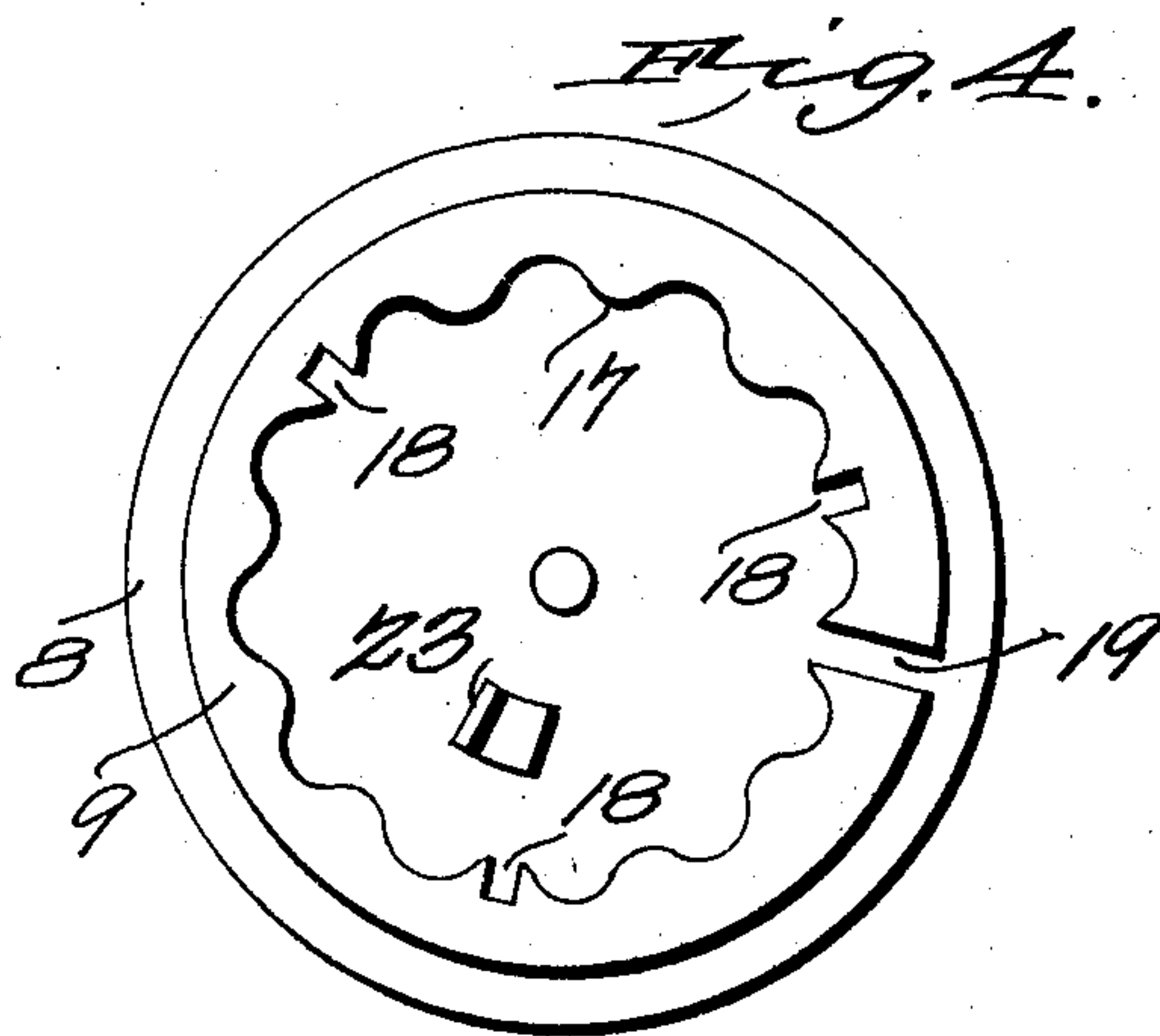
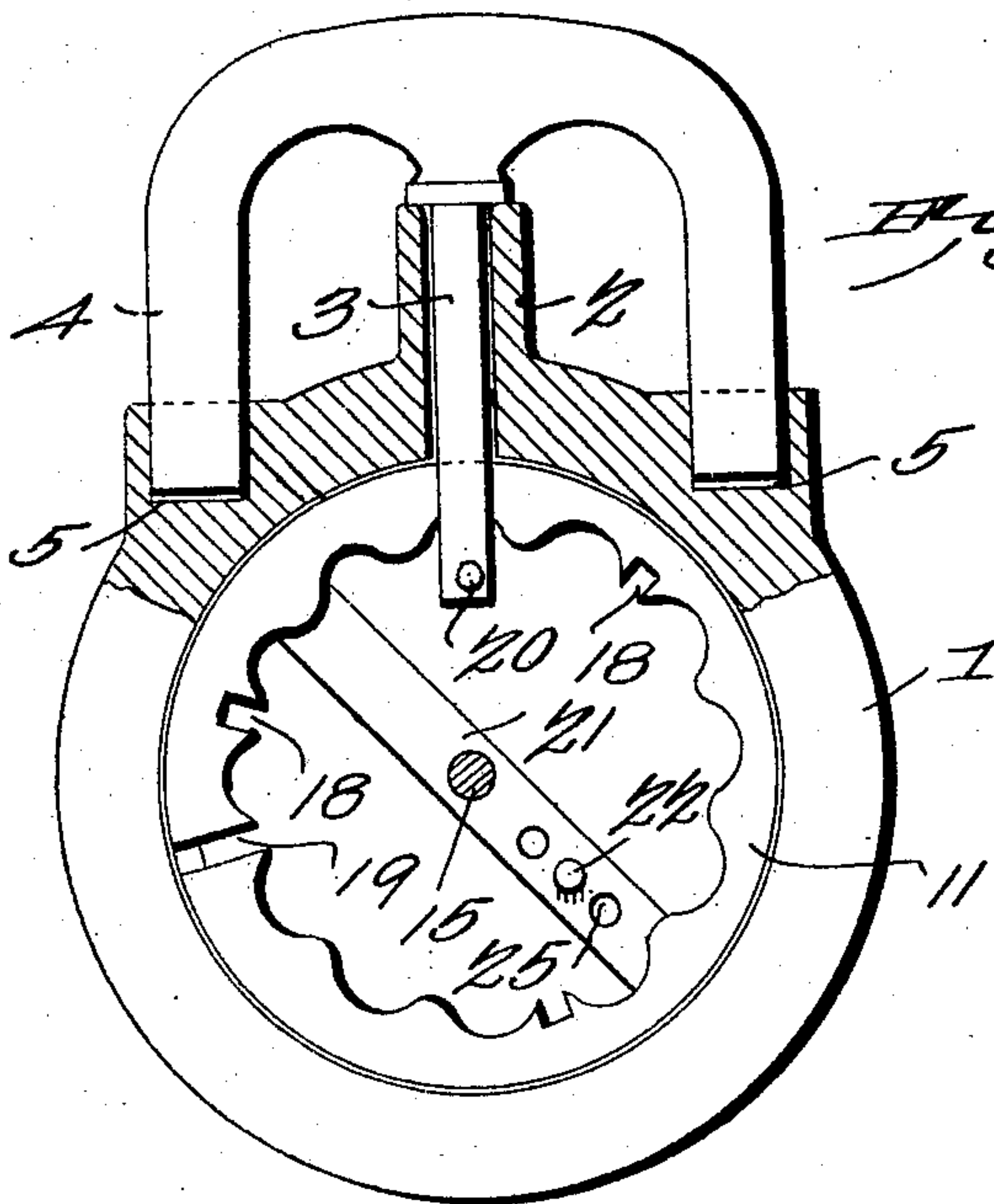
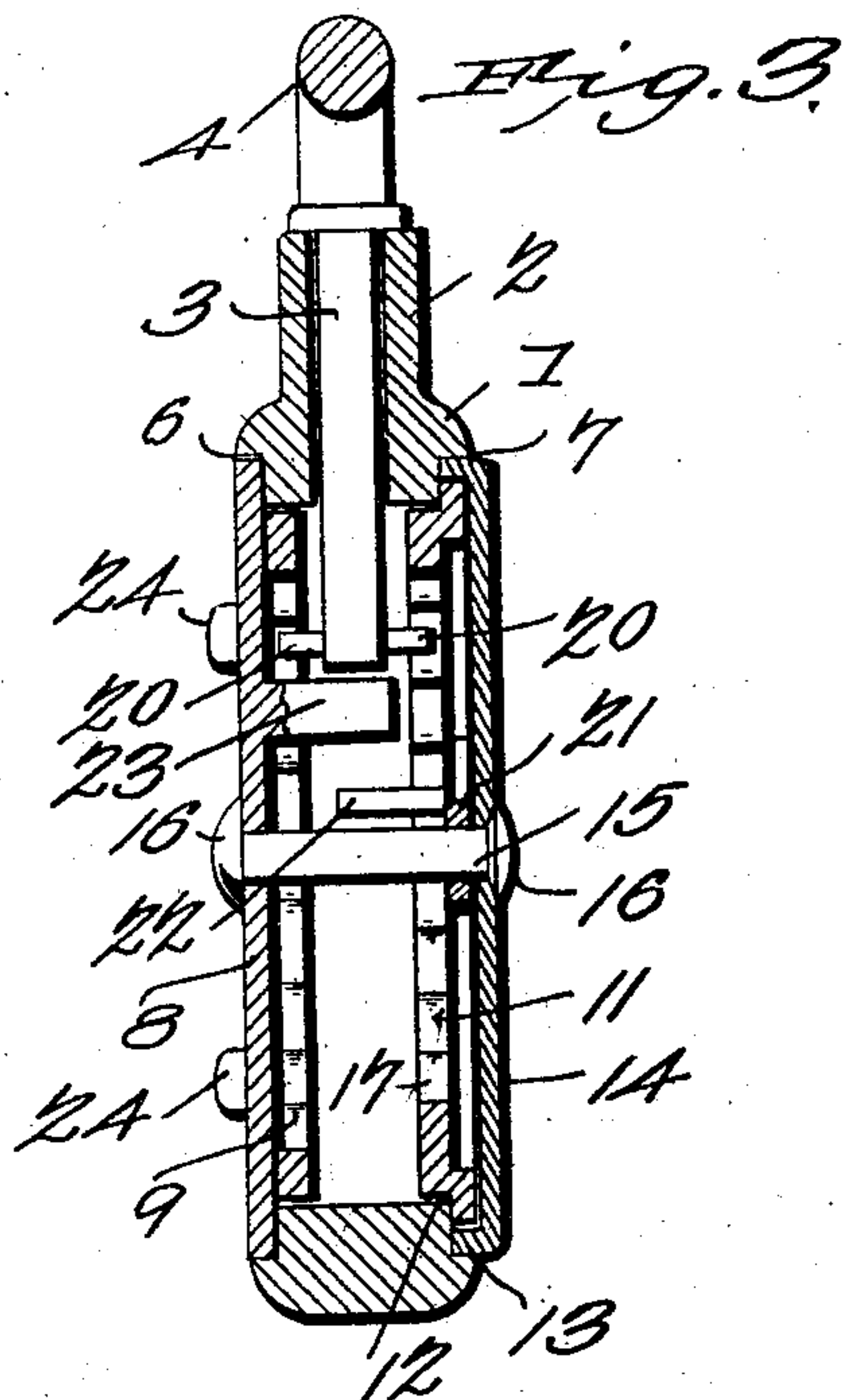
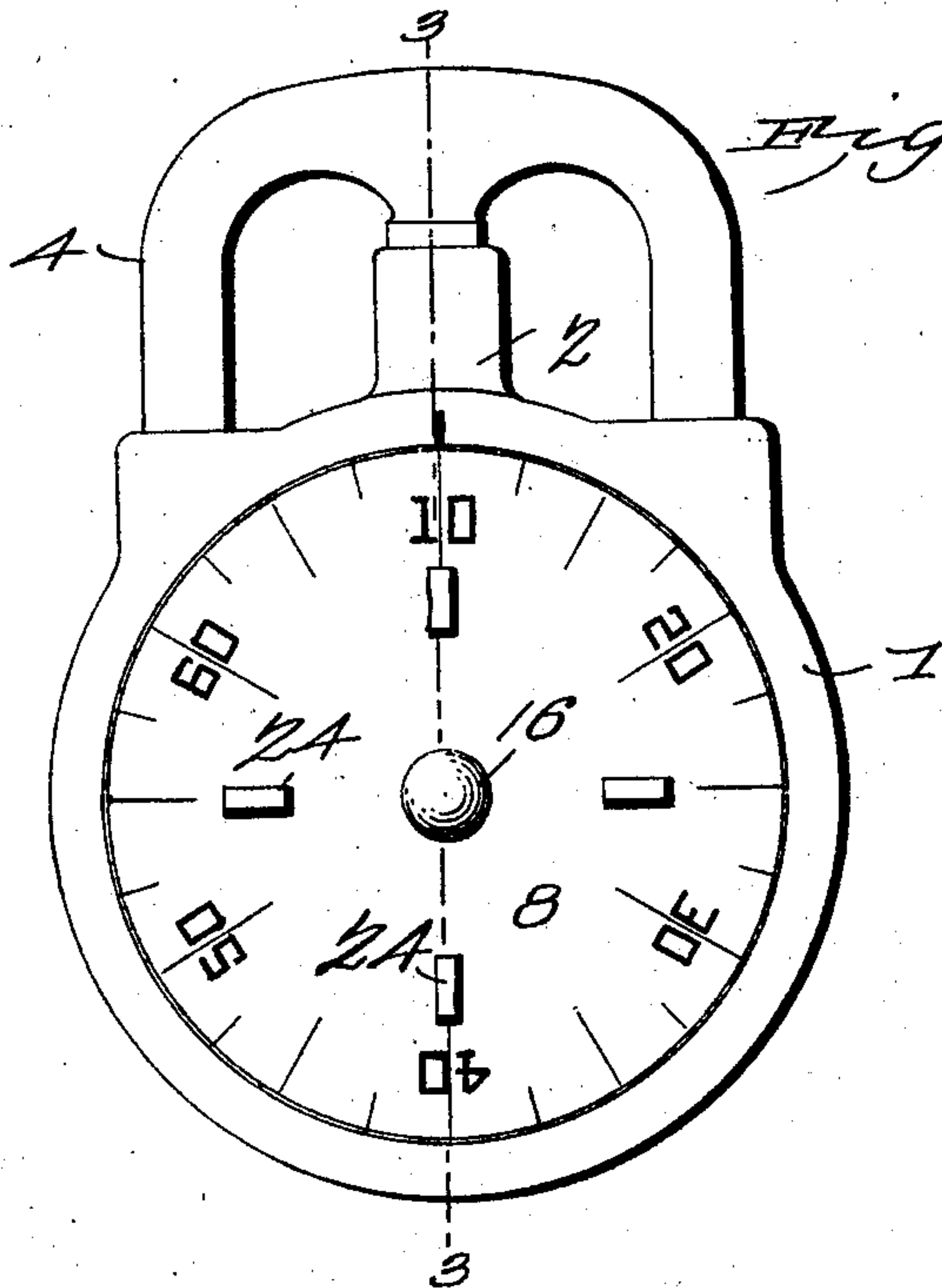
No. 711,608.

Patented Oct. 21, 1902.

I. WILLIAMS.
PERMUTATION PADLOCK.

(Application filed Feb. 28, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

IRVIN WILLIAMS, OF NELSON, MISSOURI.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 711,608, dated October 21, 1902.

Application filed February 28, 1902. Serial No. 96,145. (No model.)

To all whom it may concern:

Be it known that I, IRVIN WILLIAMS, a citizen of the United States, residing at Nelson, in the county of Saline and State of Missouri, have invented a new and useful Permutation-Padlock, of which the following is a specification.

This invention relates to permutation-padlocks.

The object of the invention is to simplify the construction, cheapen the cost of production, and increase the difficulty of picking or unlocking the lock; furthermore, to provide for the ready changing of the combination when desired.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a permutation-padlock, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof, and in the drawings—

Figure 1 is a view in front elevation of a padlock. Fig. 2 is a view in elevation, partly in section. Fig. 3 is a vertical transverse sectional view taken on the line 3 3, Fig. 1. Fig. 4 is a view in rear elevation of the combination-dial.

Referring to the drawings, 1 designates the frame of the lock, the same being substantially circular in form and provided at its upper portion with a tubular extension 2, constituting a guide for the bolt 3, which latter is carried by a two-armed shackle 4, the terminals of which normally rest in recesses or sockets 5, formed in the upper portion of the frame, and are thereby positively held against turning. The frame, which is an annulus, is provided at its front and back with a seat 6 and 7, respectively, the seat 6 being engaged by the combination-dial 8, to which is secured in any preferred manner the rotary tum-

bler 9. (Clearly shown in Fig. 4.) The tumbler may be associated with the dial in any preferred manner, as by being brazed or riveted thereto, and as this will be well understood detailed illustration thereof is deemed unnecessary. The seat 7 is engaged by an offset flange 10, carried by the other tumbler 11, being guided for rotary movement within the seat and held from lateral movement therein by a marginal shoulder 12. (Clearly shown in Fig. 3.) As will be seen by reference to the said figure, the periphery of the flange 10 does not extend to the wall of the seat 7, and in the recess thus formed is fitted an inturned flange 13 of the back plate 14, the plate and dial being permanently associated with the frame in this instance by a bolt 15, the ends of which are upset, as at 16, thus to prevent the parts of the lock being detached without destructive force being applied thereto.

The rotary tumblers are flat ring-like structures, the inner walls of which are disposed eccentrically to the axis of rotation and are provided with a plurality of depressions 17 and with a plurality of slots 18, one of which, 19, is the releasing-slot. The releasing-slot of the front tumbler is on the narrow side thereof and on the back tumbler on the broad side thereof, this disposition being employed to heighten the difficulty of picking the lock. The depressions 17 and slots 18 also operate to confuse a person attempting to pick the lock—as, for instance, should two of the slots 18 align and the locking-lugs 20 of the bolt enter therein the dial will be held from turning, and the person attempting to pick the lock might then either conclude that the lock had been damaged or that the supposedly correct combination was wrong, and thus again be thrown off the track.

The back tumbler carries a bridge 21, through which the rivet 15 is passed, and to this bridge is secured a pin 22, adapted to be engaged by a lug 23, carried by the inner side of the dial-plate, the coaction between the pin and the lug operating, when the combination is known, to bring the releasing-slots opposite the locking-lugs 20, and thus release the shackle.

The locking-lugs 20, to which reference has been made, are produced in this instance by

passing a pin through the lower extremity of the bolt 3; but it is to be understood that the invention is not to be limited to this precise mode of arrangement, as other forms of locking-lugs may be employed and still be within the scope of the invention. The lugs are to be of a length to pass freely between the releasing-slots of the tumblers, but by engagement with the inner wall of the frame-opening will positively prevent disconnection of the shackle from the frame.

The dial-plate is provided on its outer side with a plurality of lugs 24, by which the dial may be turned, and the dial, as well as the frame adjacent thereto, is graduated and laid off into numbered divisions in the usual manner. The back plate 14 is herein shown as held associated with the frame by the bolt 15; but it is to be understood that, if preferred, the same may be secure to the frame by being riveted thereto, and as this will be obvious and well understood detailed illustration is deemed unnecessary.

It will be understood that instead of employing the pin 22 and lug 23 for operating the back tumbler from the dial, these may be omitted and the dial-plate and the back be made independently rotatable to effect release of the shackle, in which event the back would have to be provided with designating-marks to determine when the releasing-slot of the back tumbler is in alinement with the locking-lug.

The bridge 21 may be provided with a plurality of openings 25, by which to permit shifting of the pin 22, and the lug 23 may also be shifted, thus in a ready manner to effect a change in the combination when desired, or, if preferred, the bridge may be shifted with relation to the tumbler to produce the same result.

To unlock the padlock, the operating-dial is first turned to the right to bring one number on the dial opposite a mark on the frame, and this effects setting of the back tumbler, and the dial is then turned to the left to another known number, thus setting the front tumbler, and when the releasing-slots are thus brought into alinement the locking-lugs will pass therethrough and release the shackle, which may then be turned one side and free the lock from the staple.

It will be seen from the foregoing description that although the lock of the present in-

vention is exceedingly simple of construction it possesses all the requisites of a thoroughly-effective lock, and that by reason of the arrangement and disposition of its parts it will be exceedingly difficult to pick it.

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

1. A permutation-padlock comprising a pair of rotary tumblers each provided with a releasing-slot and with a plurality of false slots eccentrically disposed with relation to the axes of rotation of the tumblers, a shackle carrying locking-lugs adapted to interlock with the tumblers and normally hold the shackle from release, and means for bringing the releasing-slots into alinement with the lugs, thereby to permit withdrawal of the shackle.

2. In a permutation-padlock, the combination with a frame, of a pair of rotary tumblers having openings disposed eccentric to the axis of rotation of the tumblers, the inner walls of the openings being provided with a plurality of slots, one of which constitutes a releasing-slot, and with a plurality of depressions, the releasing-slot of one dial being disposed on the broad side thereof and the other on the narrow side thereof, means for holding the tumblers permanently associated with the frame, and a two-armed shackle carrying locking-lugs adapted to engage with the inner walls of the openings of the tumblers to prevent withdrawal of the shackle, and means for operating the tumblers to bring the releasing-slots into alinement with the lugs.

3. A permutation-padlock comprising a frame provided in its front and its back with a seat, a dial carrying a rotary tumbler mounted in one seat, a rotary tumbler mounted in the other seat, a back plate, means for permanently associating the back plate and the dial, a shackle carrying locking-lugs co-acting with the tumblers, to prevent withdrawal of the shackle, and means for operating the tumblers to effect release of the shackle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

IRVIN WILLIAMS.

Witnesses:

B. E. STAPLES,
FELIX APPLING.