

No. 625,825.

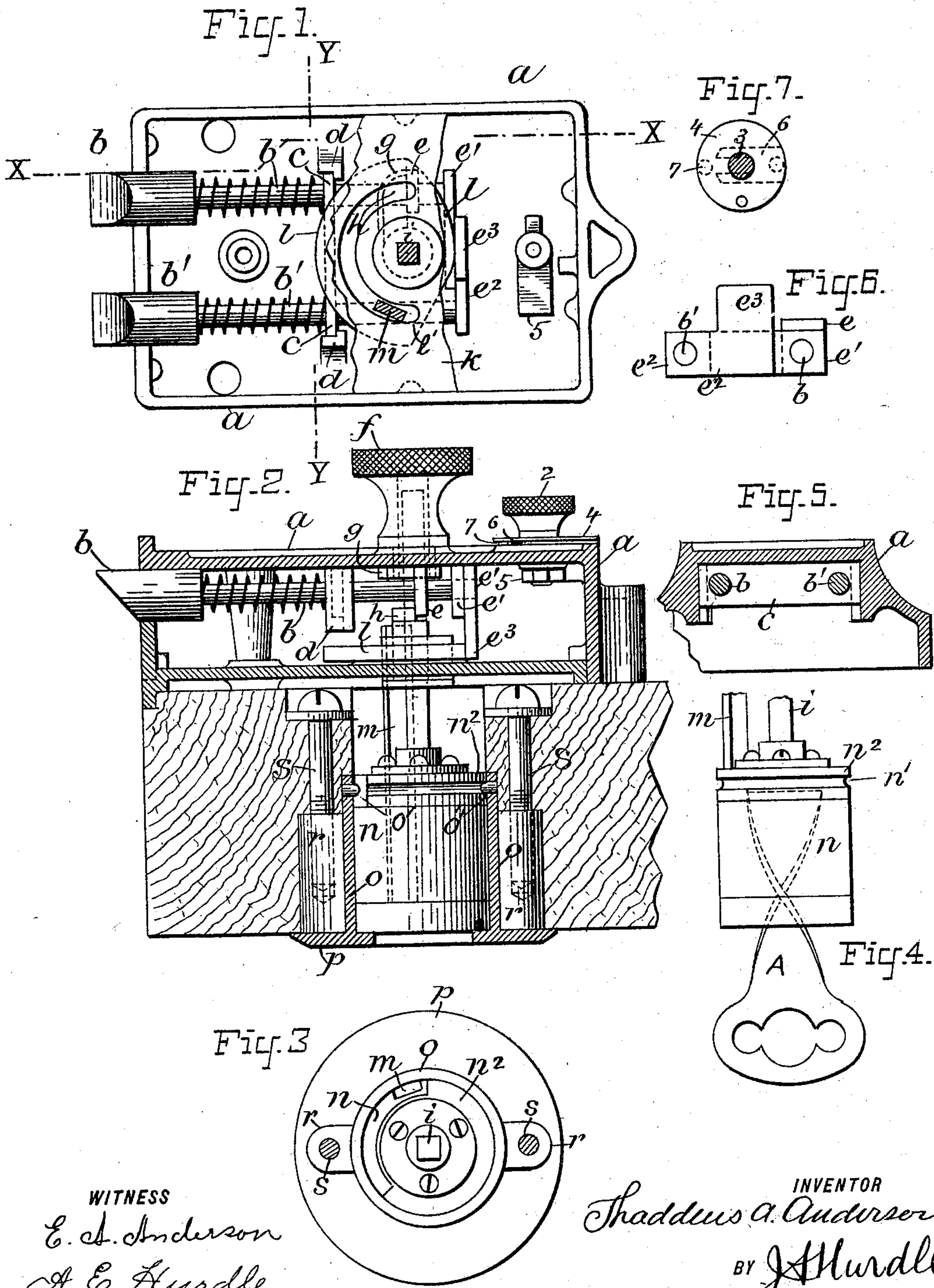
Patented May 30, 1899.

T. A. ANDERSON.  
LOCK.

(Application filed Nov. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESS  
E. A. Anderson  
A. E. Hurdle

INVENTOR  
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2 Sheets—Sheet 2.

Fig. 8.

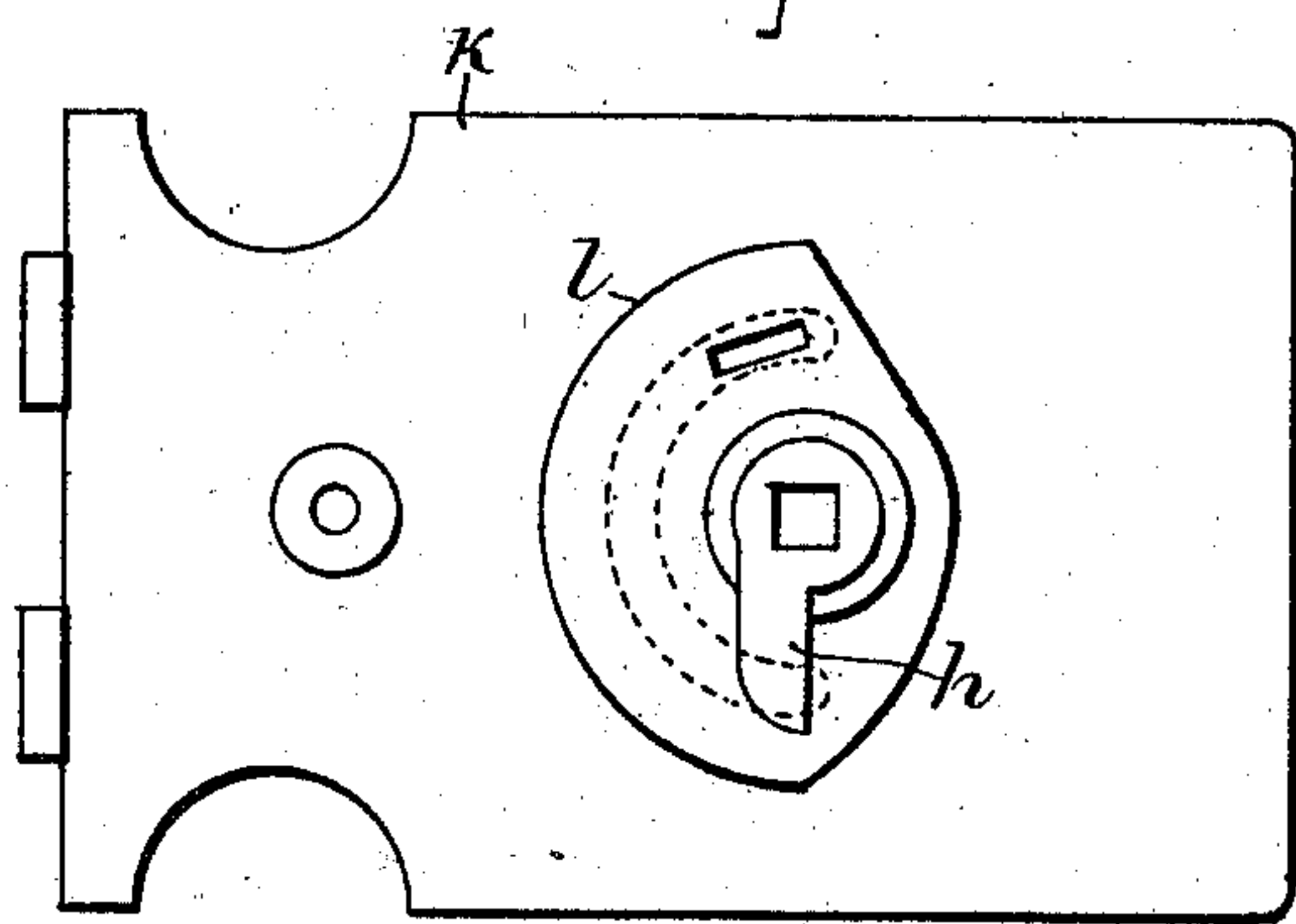


Fig. 9.

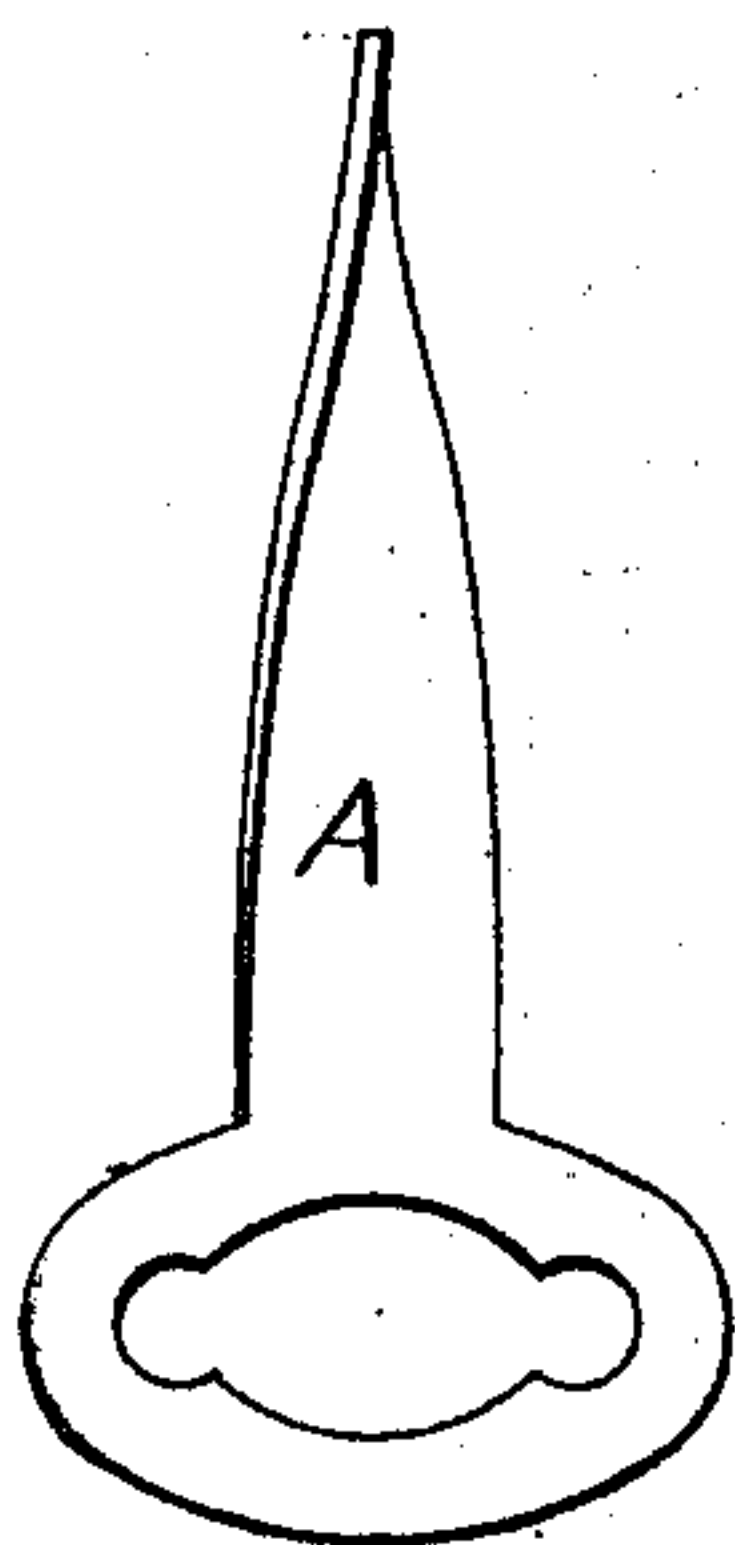
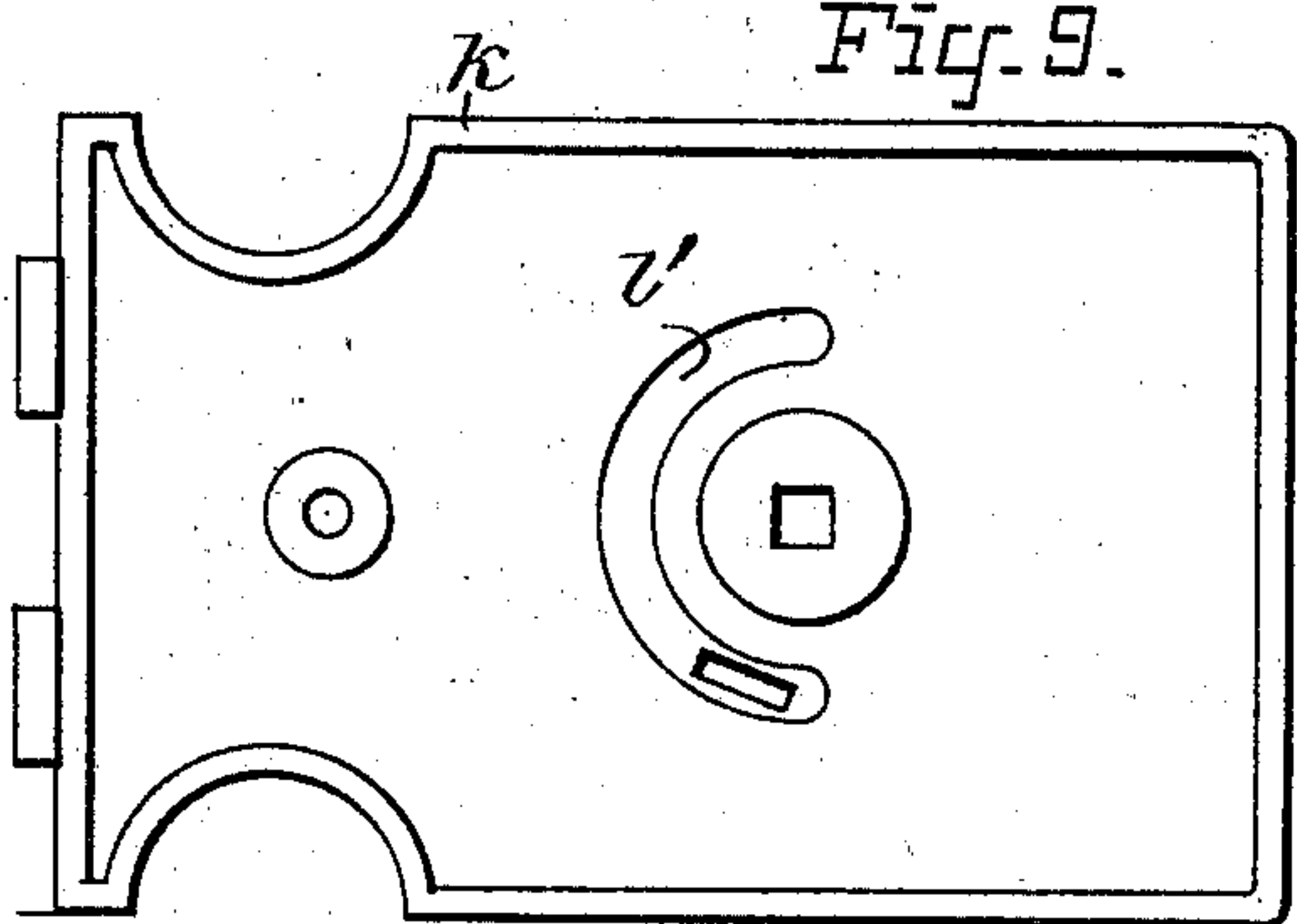


Fig. 10.

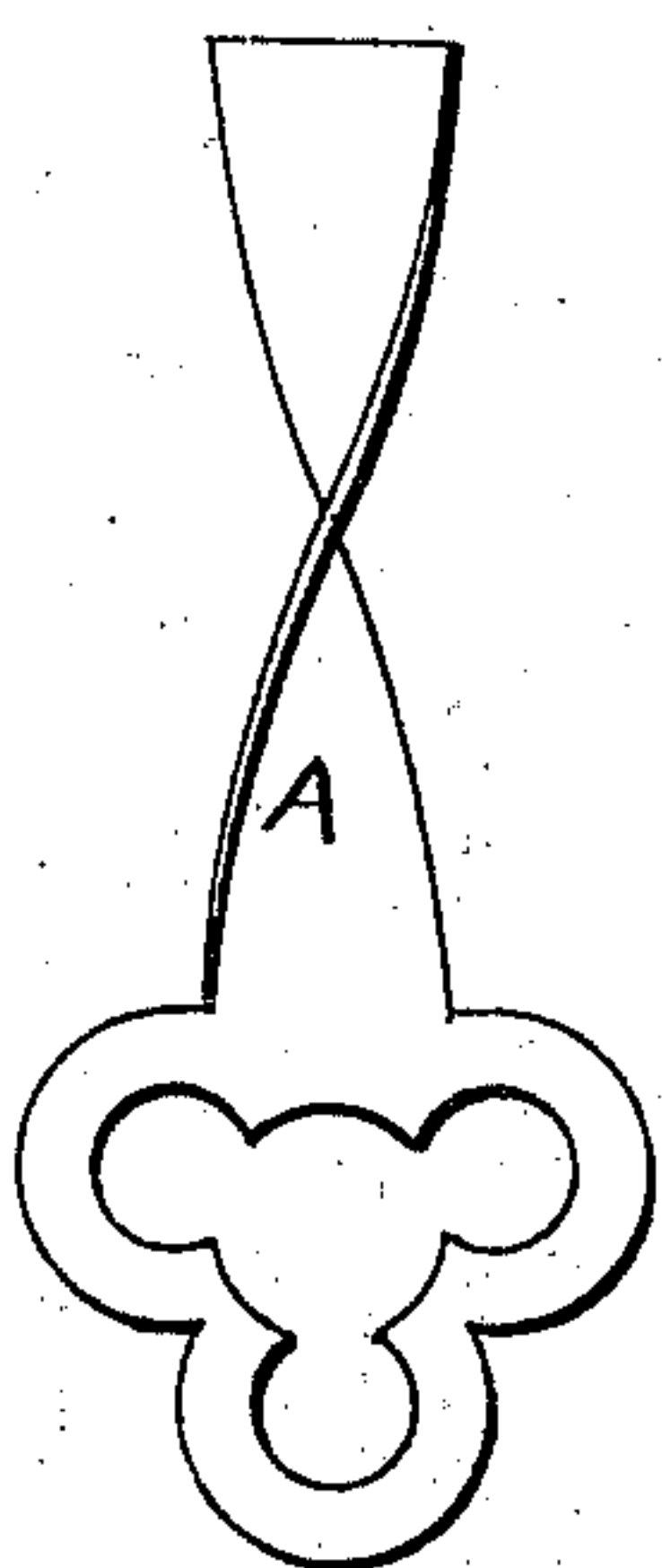


Fig. 11.

WITNESS  
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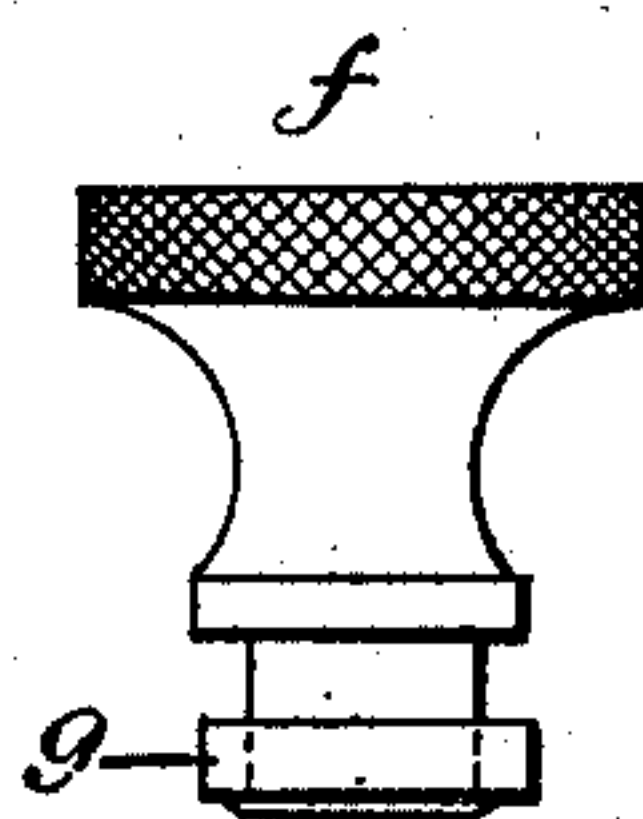


Fig. 12.

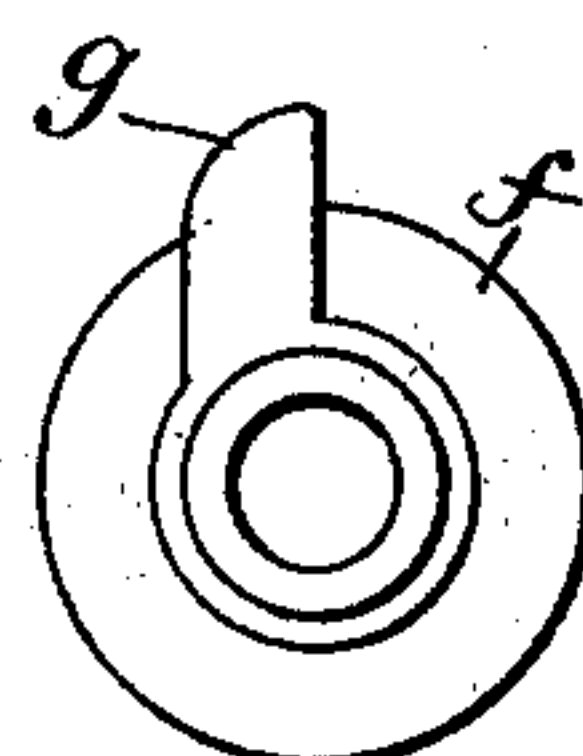


Fig. 13.

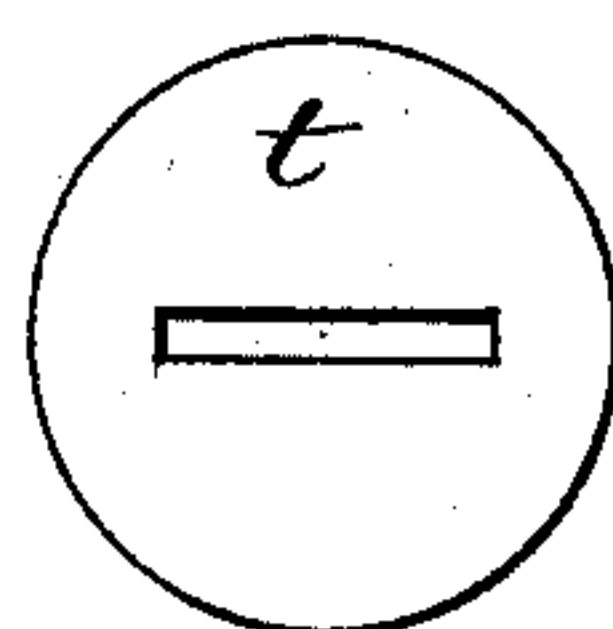
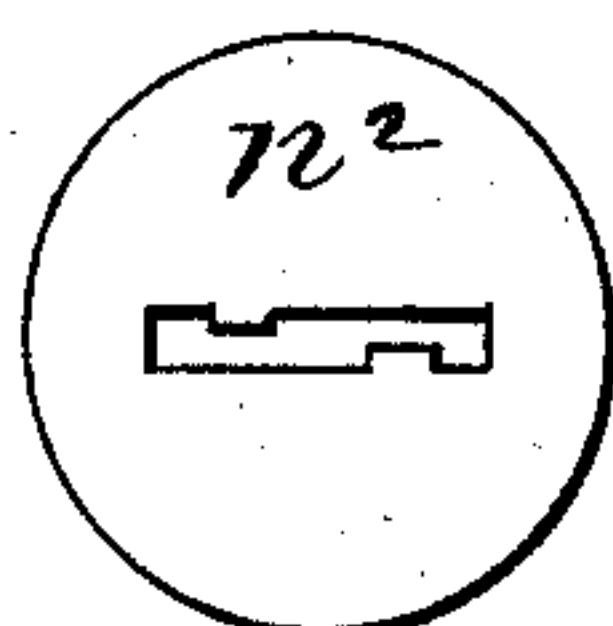
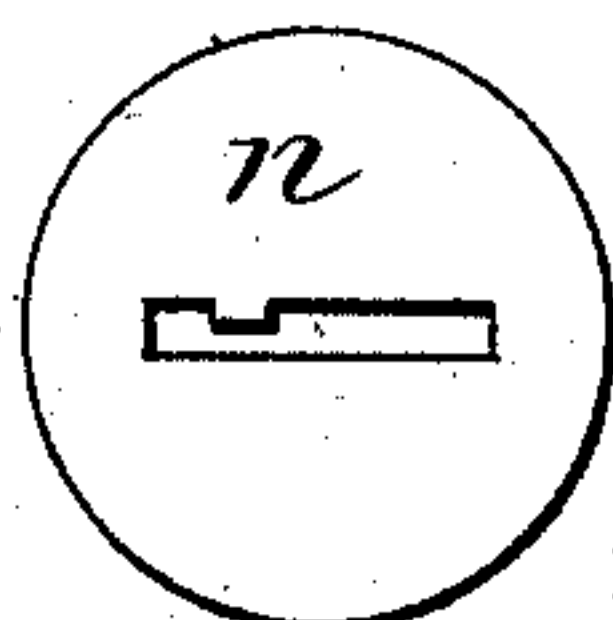


Fig. 14.



INVENTOR  
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ATTORNEY



# UNITED STATES PATENT OFFICE.

THADDEUS A. ANDERSON, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF  
TO JULIAN A. HURDLF, OF SAME PLACE.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 625,825, dated May 30, 1899.

Application filed November 25, 1898. Serial No. 697,481. (No model.)

*To all whom it may concern:*

Be it known that I, THADDEUS A. ANDERSON, a citizen of the United States of America, and a resident of the city of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to duplex bolt latches or locks operated by a spiral or twist key, all of which will be fully described hereinafter.

My invention relates to locks operated by a spiral or twisted key engaging similarly-grooved parts which actuate bolt-withdrawing devices.

The said invention consists in the construction and combination of parts hereinafter set forth and claimed.

In the drawings, Figure 1 represents an inverted plan of a duplex latch-lock having a portion of its covering-plate broken away and the remaining portion shown intact. Fig. 2 represents a longitudinal section taken on line  $x x$  of Fig. 1. Fig. 3 represents a plan view of the three barrels  $o$ ,  $n$ , and  $n^2$ , their spindles  $i$  and  $m$ , and the escutcheon  $p$ , the screws  $S$  being shown in cross-section. Fig. 4 represents an elevational view of the barrels detached and showing the manner in which the key is inserted in the twist or spiral shaped keyhole. In this view the spindles for operating the duplex bolts are broken off. Fig. 5 represents a transverse section taken on line  $Y Y$ , with most of the mechanism removed. This view is merely to show the position of the duplex bolt-rods and the plate through which they pass and by which they are supported on the interior of the housing of the structure. Fig. 6 is an elevational view in which are shown the three plates fixed upon the duplex bolt-rods. Fig. 7 represents a detail view of the plate 4, spring 6, and locking-knob stem 3, hereinafter described, the two latter parts being shown, respectively, in dotted lines and in section. Fig. 8 represents an inverted plan of the covering-plate detached, in which are shown the rotative lugs or cams for operating the duplex bolts. Fig. 9 is a plan view of the exterior of the covering-plate. Fig. 10 represents a twist or spiral key. The pitch of its spiral is

about one-quarter turn in its whole length.

Fig. 11 represents a similar shaped or constructed key whose spiral pitch is one-half turn in its length. Fig. 12 represents a detached view of the device for unlocking the duplex bolts without the assistance of the key. Fig. 13 is an inverted plan view of Fig. 12. Fig. 14 represents an end view of the three barrels in which is shown how different wards may be employed in a single lock.

Similar letters and figures refer to similar parts throughout the drawings, in which—

$a$  represents the case or housing of the latch-lock.

$b b'$  are the bolts, adapted to work independently of each other. The inward extension of said bolts  $b b'$  are supported by a guard-bar  $c$ , which in turn is supported by the vertical standards or posts  $d d$ . The bolt  $b$  is provided with two abutment plates or lugs  $e e'$ . The bolt  $b'$  is provided with but one abutment-plate  $e^2$ . The unlocking-knob  $f$  is provided with a cam or tongue  $g$ , the latter adapted to engage with the plate  $e$ , mounted on the bolt  $b$ . The plate  $e$  is also operated upon by the unlocking tongue or cam  $h$  and the lug or plate  $e^2$  by the cam  $l$ , both of which are actuated by the same twisted or spiral key for successively withdrawing the said bolts through the medium of the following devices:

A barrel or cylinder  $o$ , integral with an escutcheon  $p$  and provided with perforated lugs  $r$ , is fastened by screws  $S$ , which pass through the said lugs within a recess of the structure which receives the lock, its outer end being open for the admission of the key. Within this barrel two disks, rotary parts, or barrels  $n n^2$  are free to rotate, the innermost barrel  $n^2$  being provided with a peripheral groove  $n'$ , which receives pins or studs  $o'$ , whereby the said rotary barrels are held in place. The said barrels  $n n^2$  are internally grooved to form a continuous spiral passage to receive the key aforesaid, the inward pressure of which key turns them in consequence of this spiral shape, though they may also be rotated by turning this key axially.

The barrel  $n$  is provided with a spindle  $m$ , extending toward the said bolts from a point



eccentric to the axis of the said barrel, though parallel thereto. This spindle passes through a curved slot  $l'$  of the lower plate or base  $k$  of the lock-case  $a$  and is attached to the cam  $l$ , turning about a bearing on said plate or base. This bearing is centrally arranged with regard to the circle of which the curve of the said slot forms a part. The said slot permits this motion of the said spindle, as the cam and spindle turn together, with the barrel  $n$ .

The barrel  $n^2$  is provided with a centrally-arranged spindle  $i$ , which is angular in cross-section and carries the cam  $h$ , the latter being provided with a hole of corresponding shape to receive the said spindle.

In order to secure the bolts in locked position, the spindle 3 of a locking-knob 2 extends through the outer plate of the case  $a$  and a plate 4, exterior to the latter, into the interior of the said case and is there provided with a lateral tongue or cam 5. The said spindle is normally free to turn in the said case, but not in plate 4, which is carried with it, the spindle and plate turning together. This plate has a locking-stud 7 on its inner face, which is adapted to engage projections of the casing, a spring 6, interposed between the said plate and casing and attached to both, serving to draw the said stud into locking-contact with said projections and prevent further rotation of the knob 2 and spindle 3.

The key A is preferably of metal and has a twisted or spiral shape, as shown, the pitch of said spiral being of any chosen degree. The shape of said key may vary widely in cross-section, and said key may be provided with one or more grooves, ribs, corrugations, or apertures, the passage of the rotating parts in which it works being of corresponding shape.

The operation is as follows: The spiral or twisted key A is inserted through the opening of cylinder or barrel  $o$  into the spiral or twisted continuous passage of the barrels or disks  $n n^2$ , and by its inward pressure, as a result of that shape, causes the two latter barrels to turn, carrying around with barrel  $n$  the eccentrically-arranged spindle  $m$ , which is attached to the cam  $l$  and rotates the said cam, so that the latter bears against the lip  $e^3$  of the plate or lug  $e^2$  and withdraws the bolt  $b'$ . The key A is then given about one-eighth of a turn from left to right, which causes the barrel  $n^2$  and its concentric spindle  $i$  to turn, so that the cam  $h$  on the latter will act on the plate or lug  $e$ , withdrawing bolt  $b$  and completing the operation of unlocking. A reverse movement of the key allows the bolts to be shot by their springs into their normal position. (Shown in Fig. 1.) When it is desired to lock the bolts in this position, the knob 2 is slightly raised against the strain of spring 6 and turned until the tongue 5 is against lug  $e^2$ . The knob 2 is then released and the spring 6 causes the stud 7 to engage with projections of the case, as described, locking all

the parts until the said knob is raised again and turned back into its former position.

Whenever the bolts are not locked against withdrawal, as last described, they may be withdrawn by the latch-knob  $f$ , as well as by the key A. The turning of said knob  $f$  brings the tongue  $g$  against the lug  $e$  and forces back the latter, withdrawing both of the bolts.

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

1. In a lock, the combination of two rotary parts each carrying a spindle which actuates a cam, said rotary parts being internally grooved to form a continuous spiral passage adapted to receive a spiral key, a fixed barrel or cylinder surrounding these rotary parts and adapted to hold them in place, and a pair of spring-bolts provided with attachments which are arranged to be engaged by the said cams as the said rotary parts are turned, for the purpose of successively withdrawing the said bolts, substantially as set forth.

2. In a lock, the combination of the barrel  $o$ , having an opening in its outer end and inwardly-extending pins at its inner end, with two rotary disks or barrels  $n, n^2$ , which have a continuous inner spiral passage adapted to receive a twisted key, the barrel  $n^2$  being also peripherally grooved to receive the said pins, a spindle  $m$  eccentrically mounted on the barrel  $n$ , a spindle  $i$  centrally mounted on the barrel  $n^2$ , a cam  $l$  arranged to be turned on its axis by the spindle  $m$ , a cam  $h$  carried by the spindle  $i$  and two spring-bolts adapted to be engaged and withdrawn successively by the said cams, substantially as set forth.

3. In a lock, the combination of independently-operating bolts, with cams adapted to successively engage and withdraw them, a pair of rotating parts which actuate the said cams and which are provided internally with a spiral passage adapted to receive a twisted key and means for holding these parts thus spirally grooved in place while allowing access of the key to rotate them, substantially as set forth.

4. In a lock, the combination with two spring-bolts, both of which are provided with attachments adapting them to be engaged and withdrawn and one of which bolts has an additional lug, a set of rotary, key-actuated devices adapted to withdraw the said bolts successively and a knob carrying a cam which is adapted to engage the said additional lug and withdraw the said bolt, the two bolts being arranged to engage and move back together, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 18th day of November, 1898.

THADDEUS A. ANDERSON.

Witnesses:

E. P. STOUGHTON,  
JOHN HANSON.