

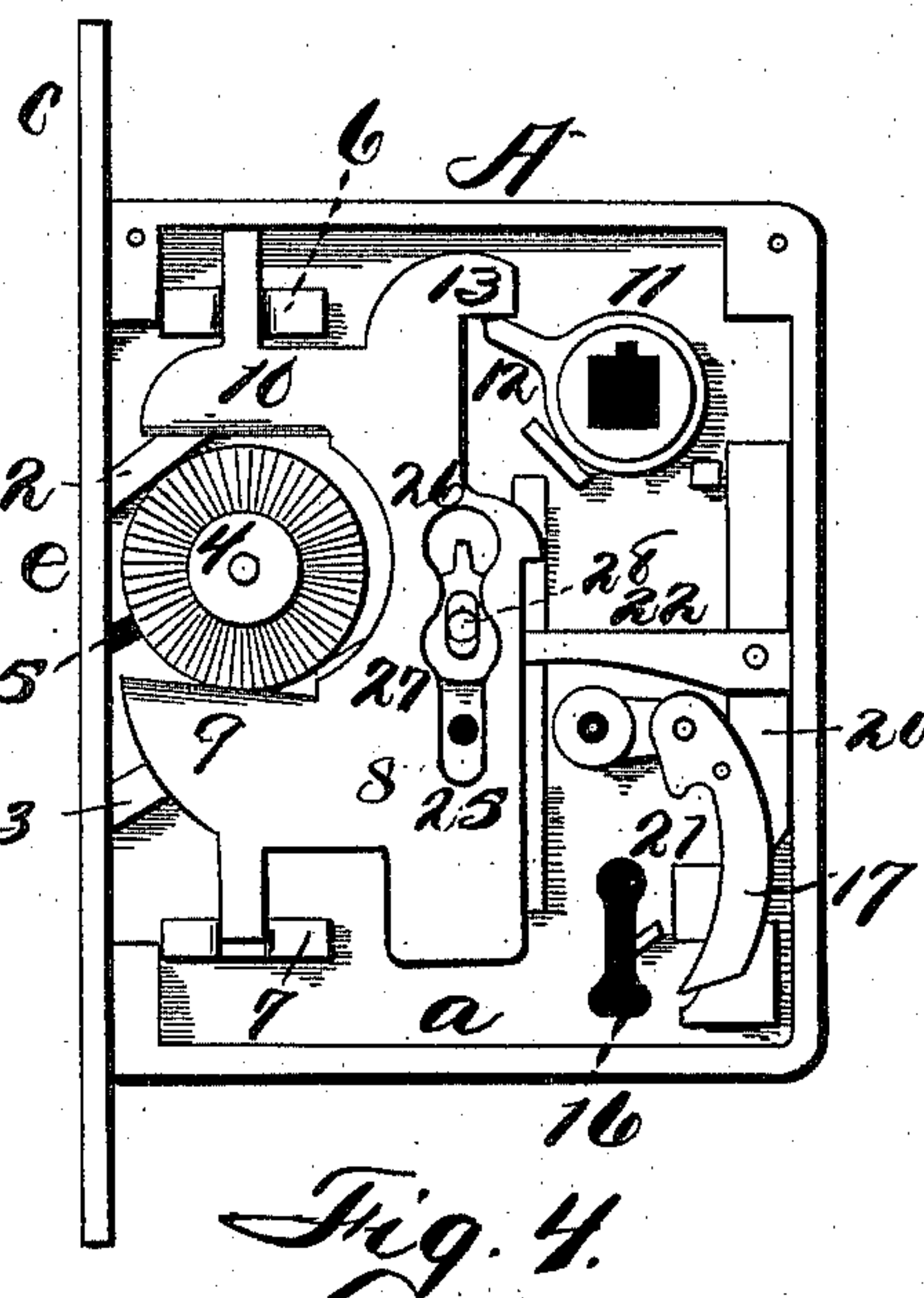
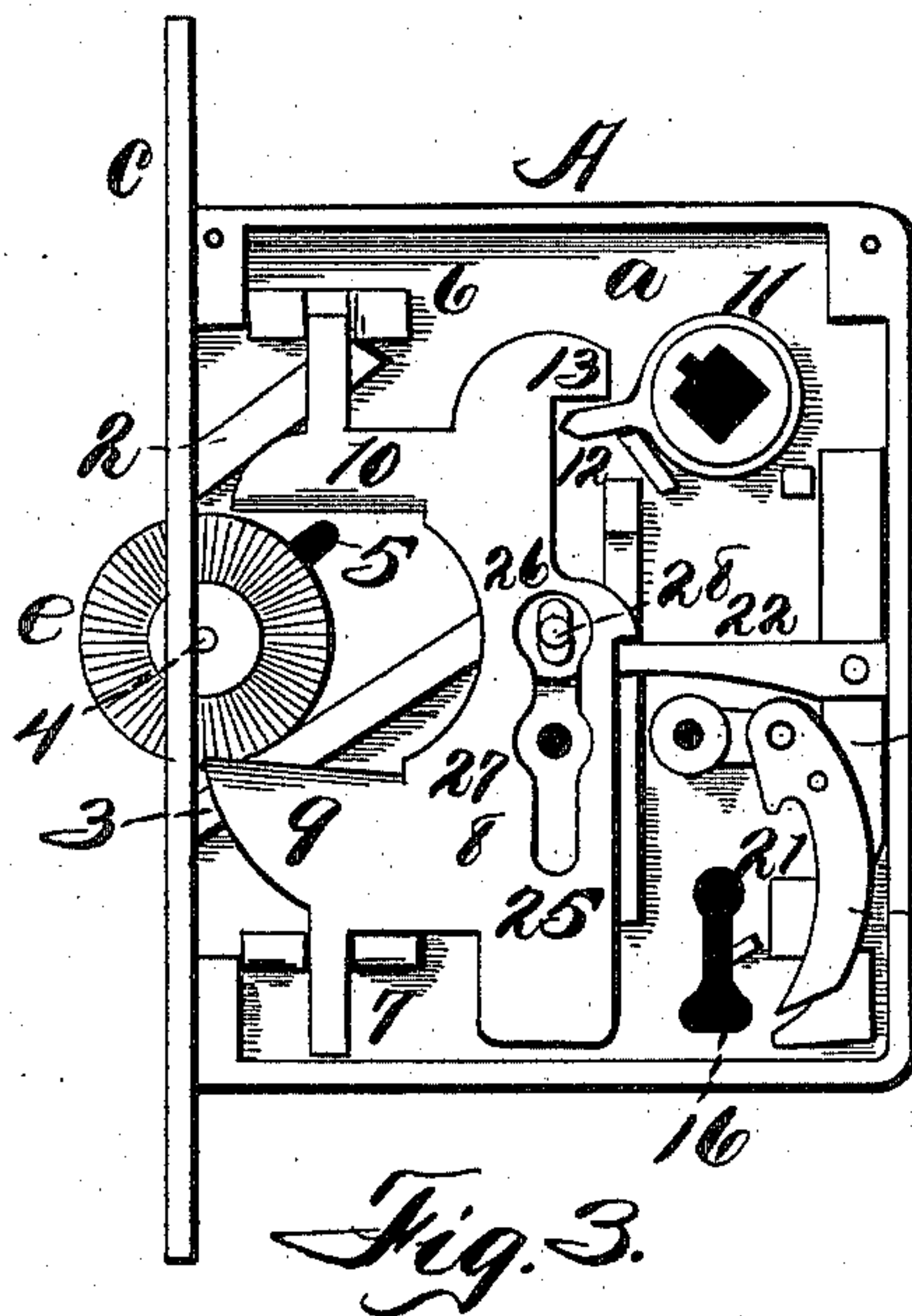
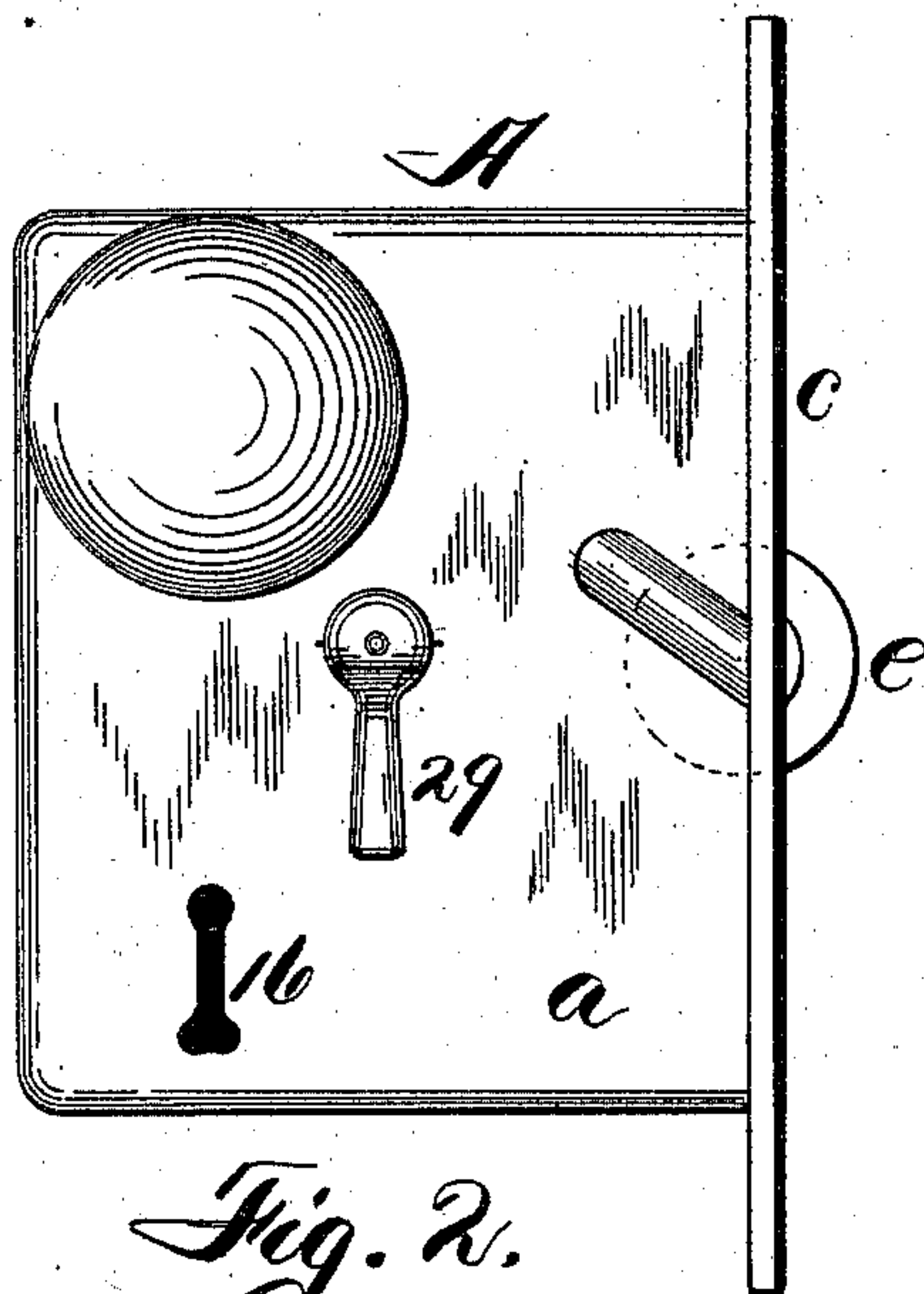
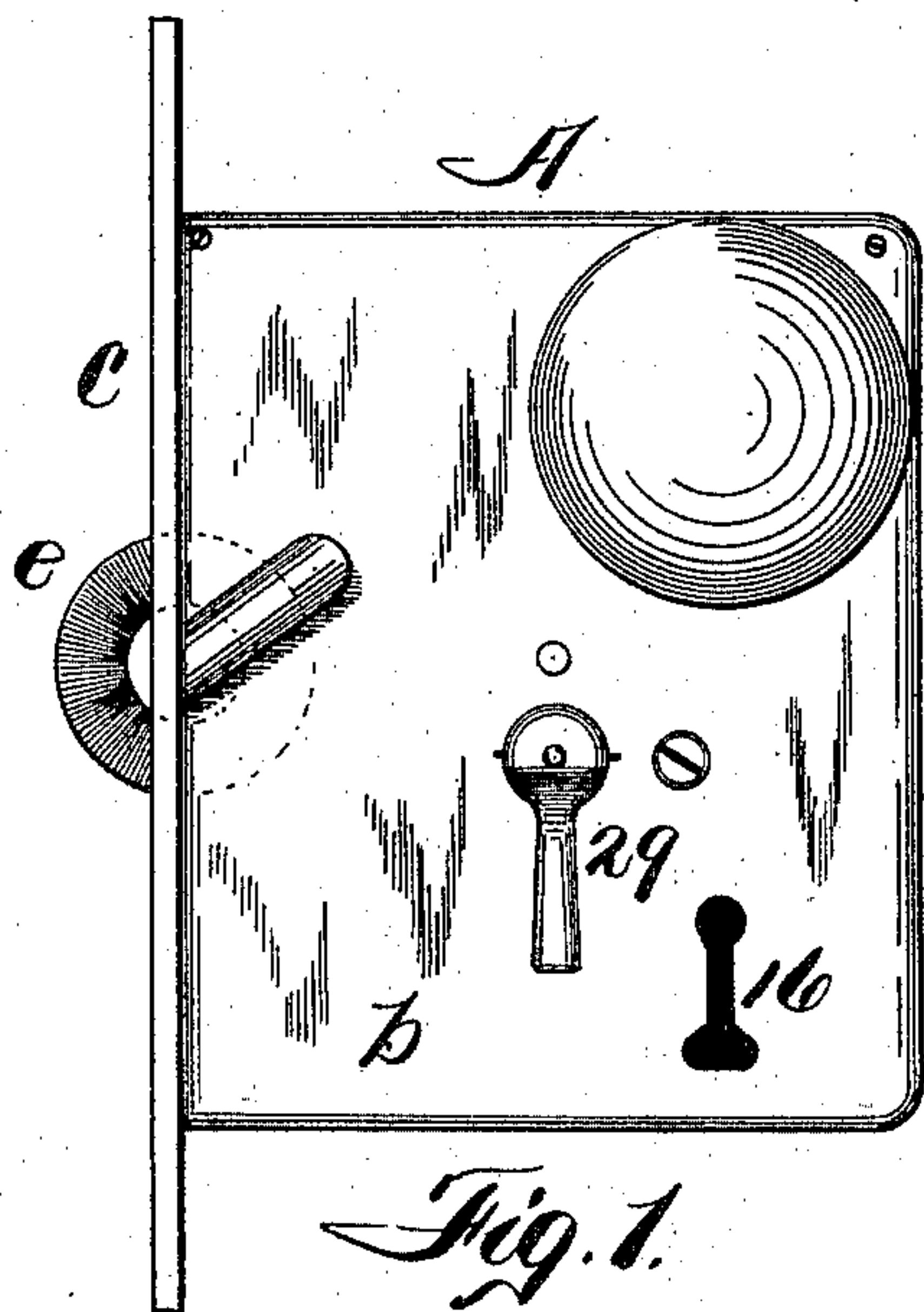
(No Model.)

3 Sheets—Sheet 1.

J. E. WELLS.  
LOCK AND LATCH.

No. 575,448.

Patented Jan. 19, 1897.



WITNESSES:

Charles W. Marvin.  
Jesse E. Murray.

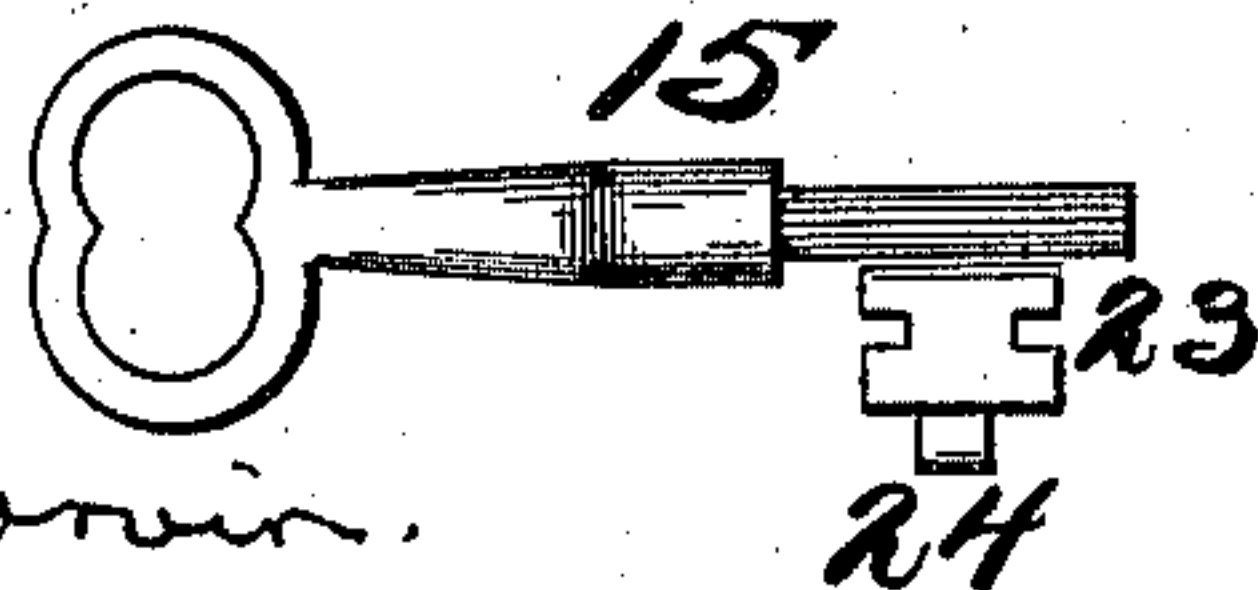


Fig. 24.

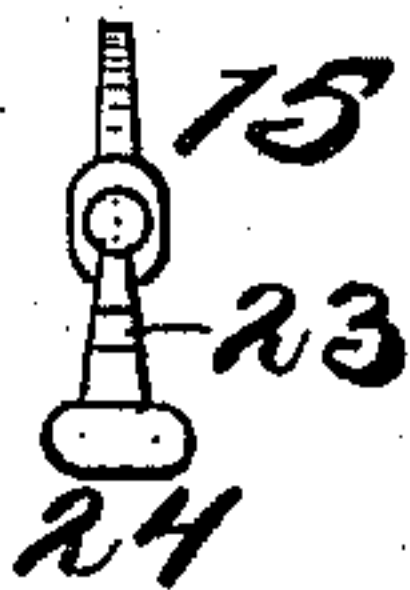


Fig. 25.

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James E. Wells.

BY

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ATTORNEYS.

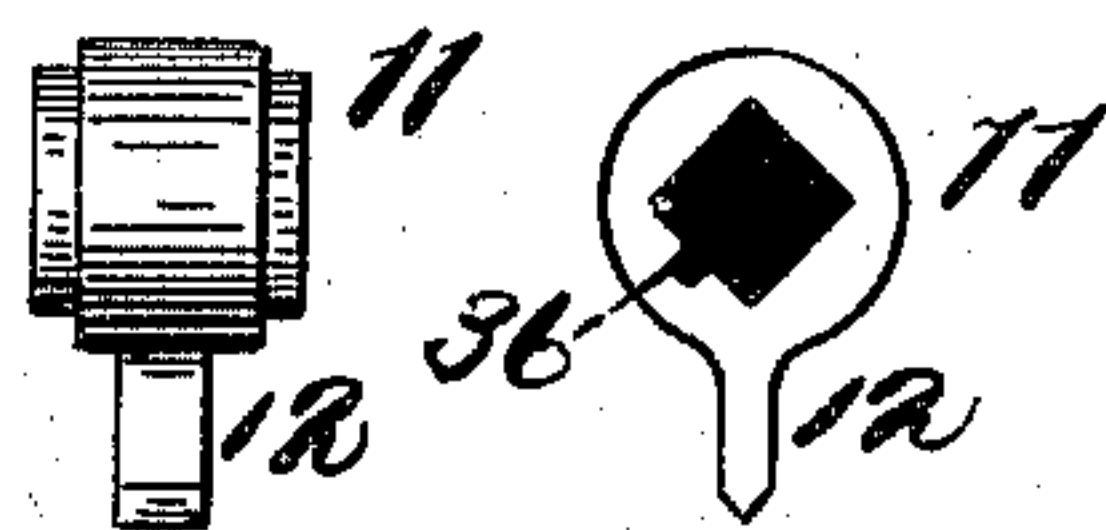
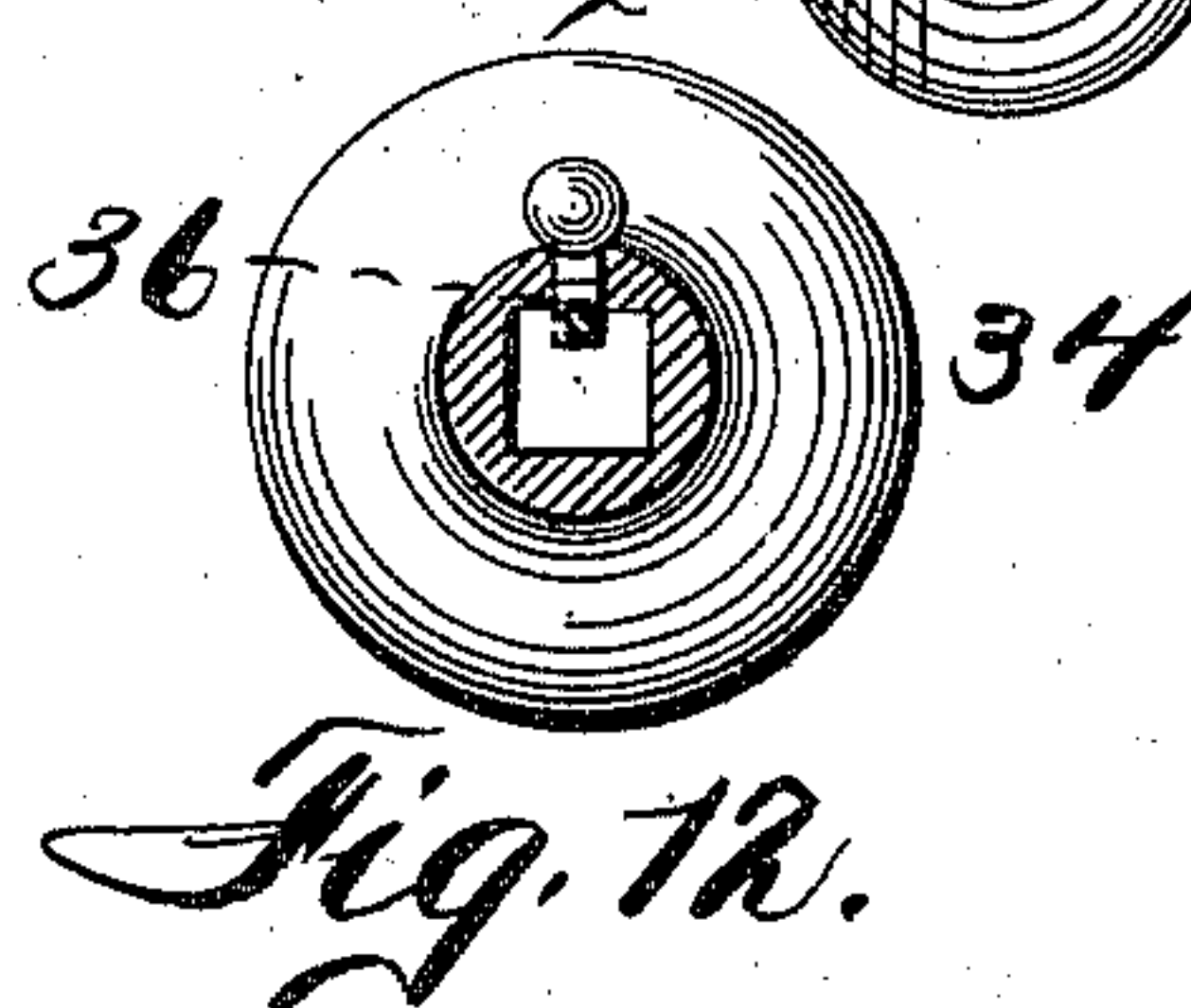
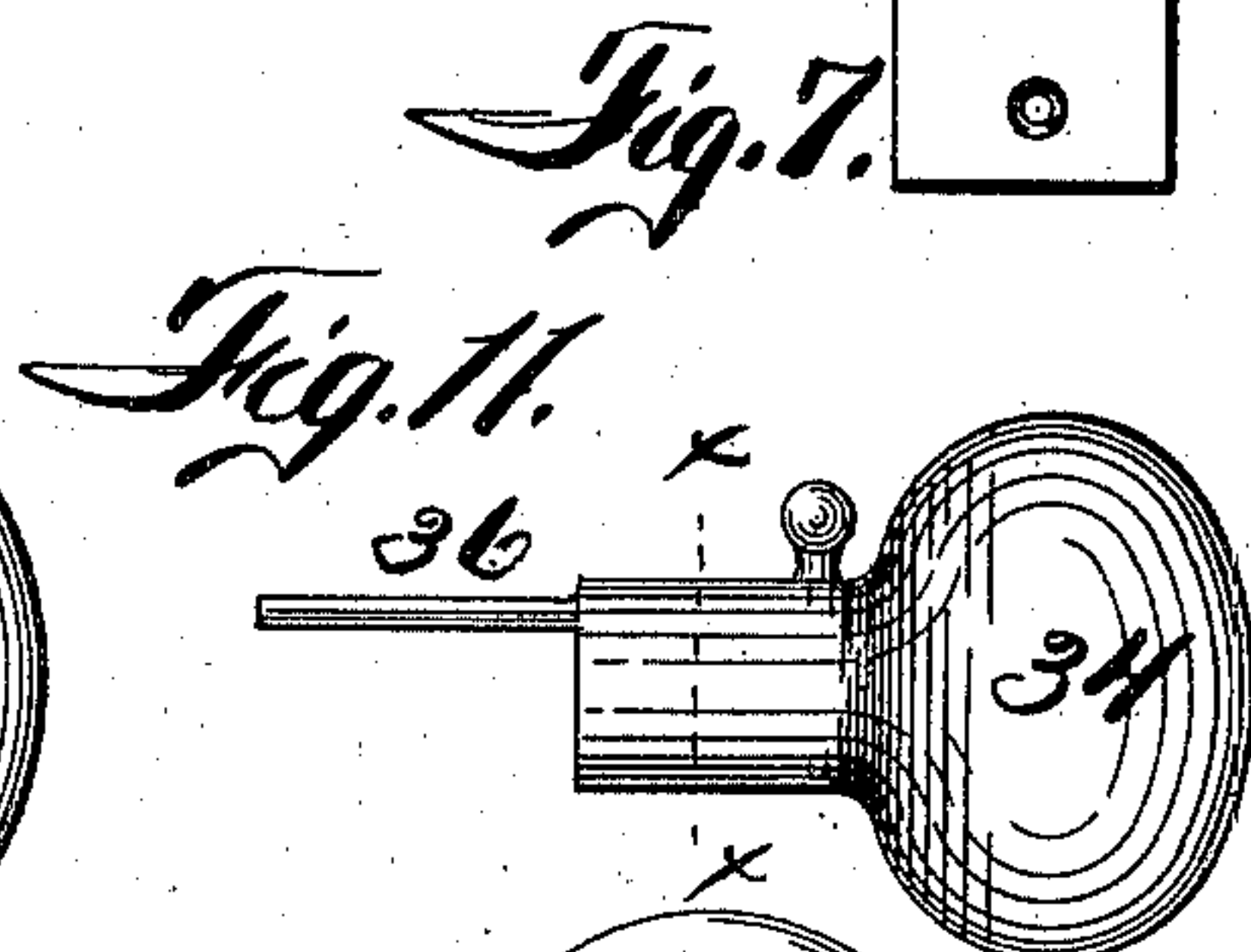
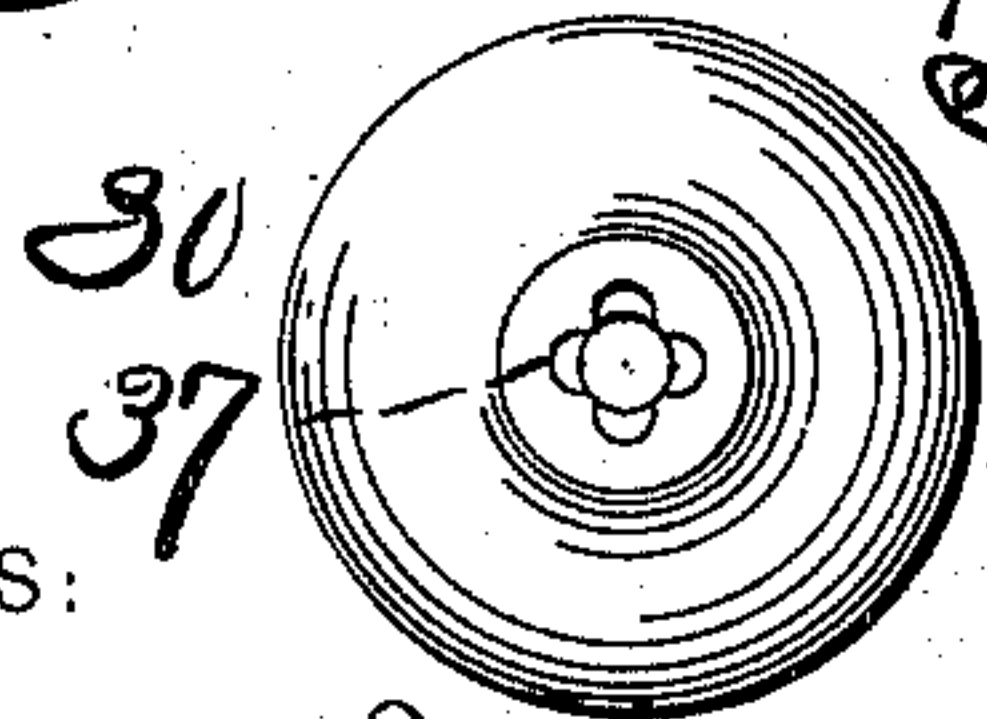
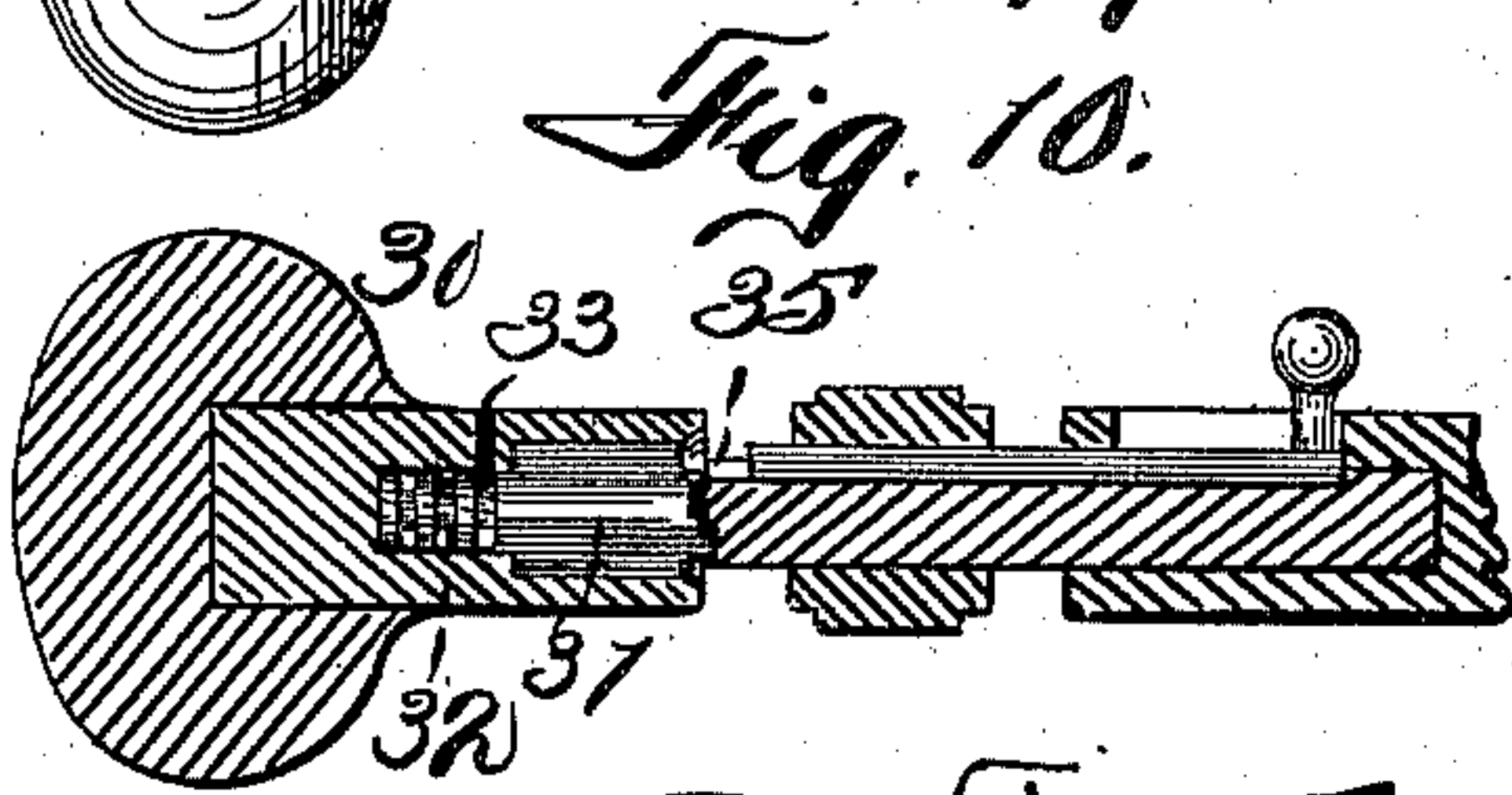
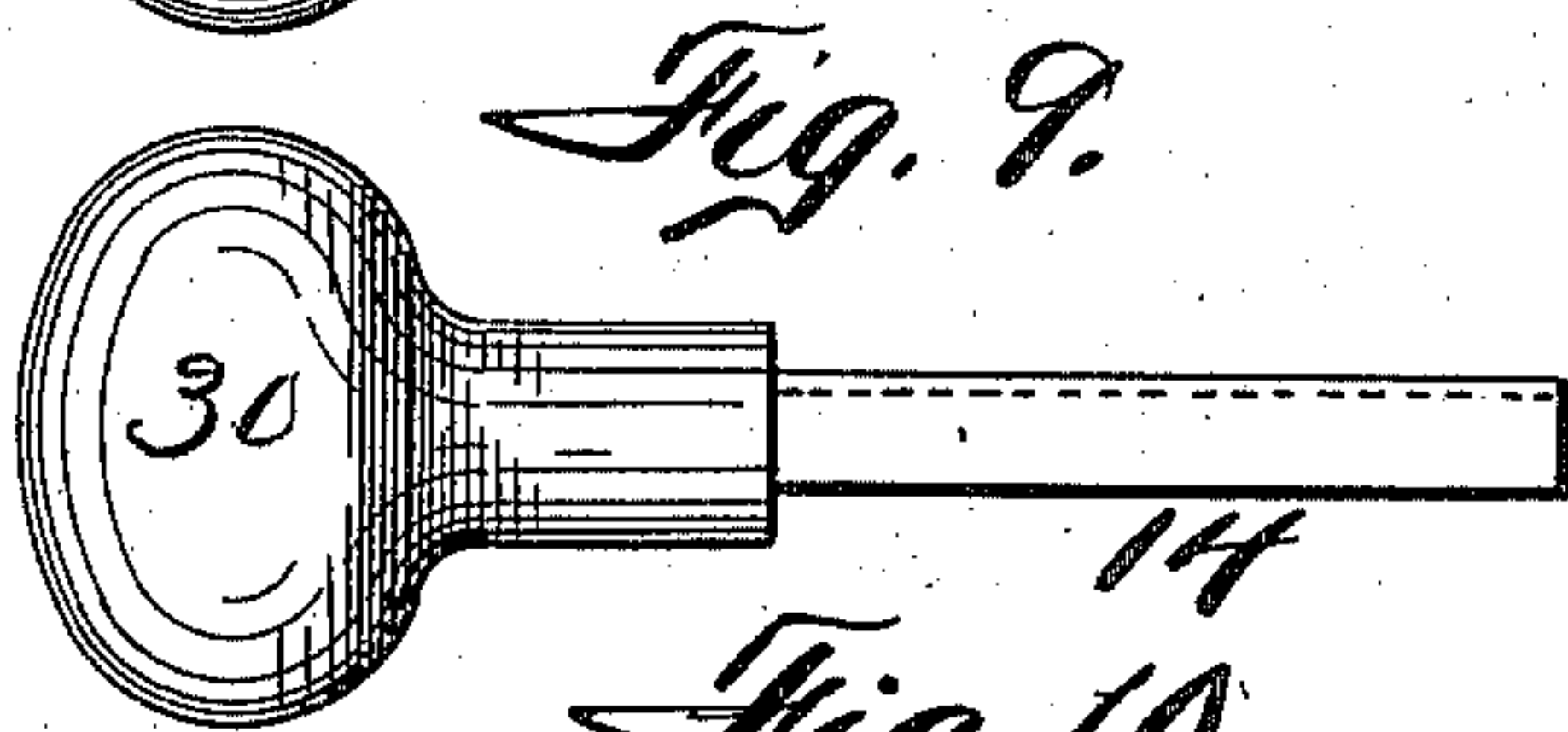
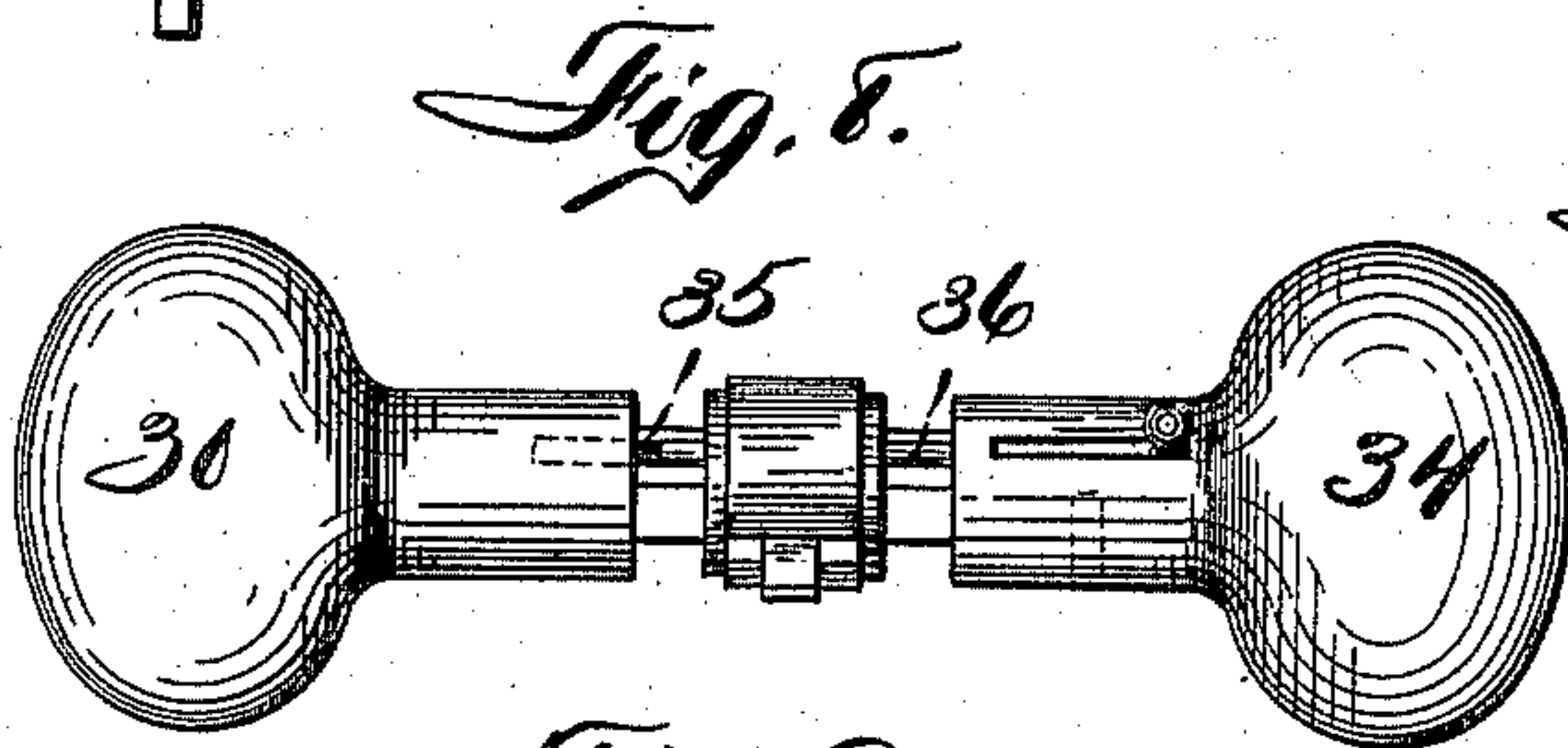
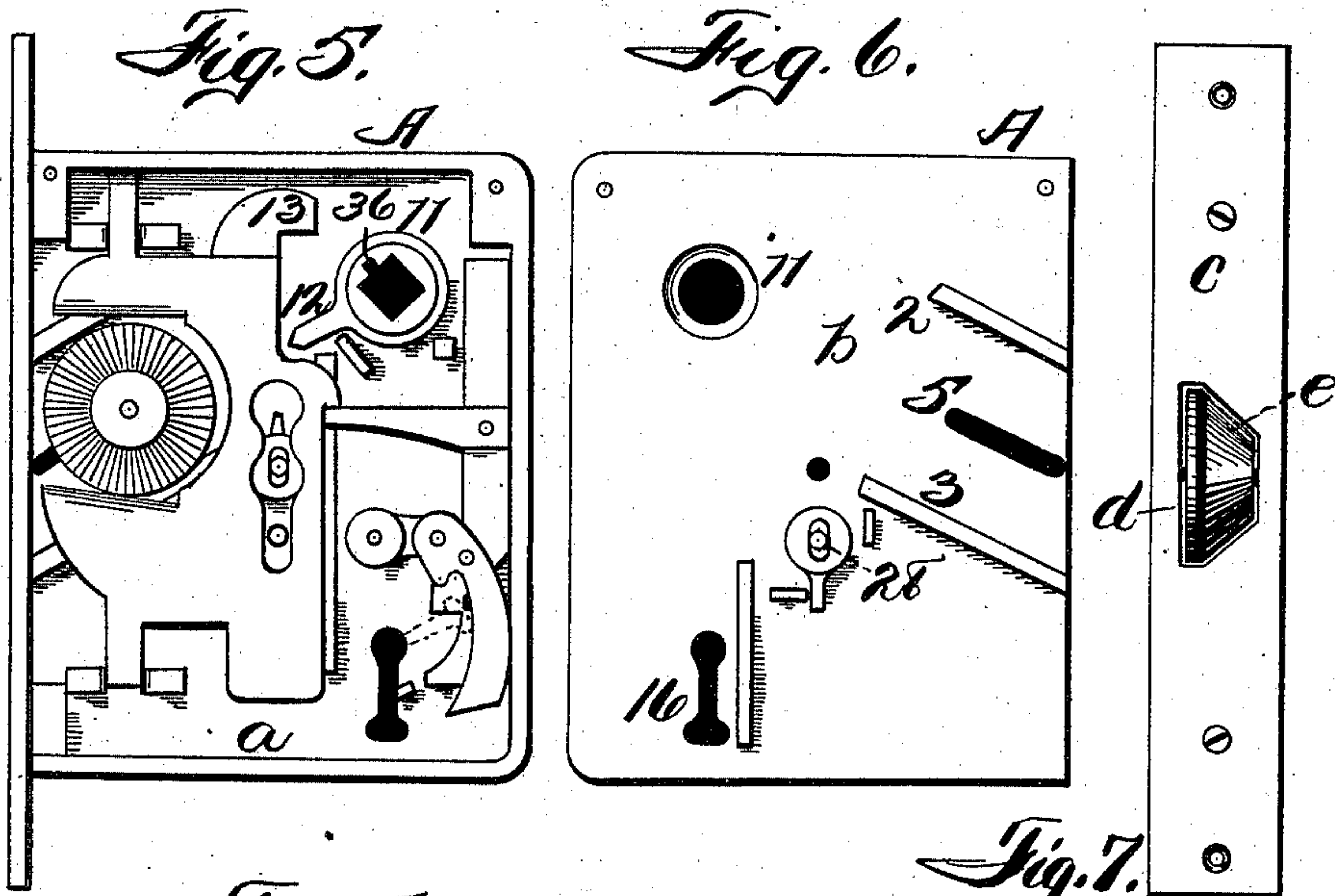
(No Model.)

3 Sheets—Sheet 2.

J. E. WELLS.  
LOCK AND LATCH.

No. 575,448.

Patented Jan. 19, 1897.



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(No Model.)

3 Sheets—Sheet 3.

J. E. WELLS.  
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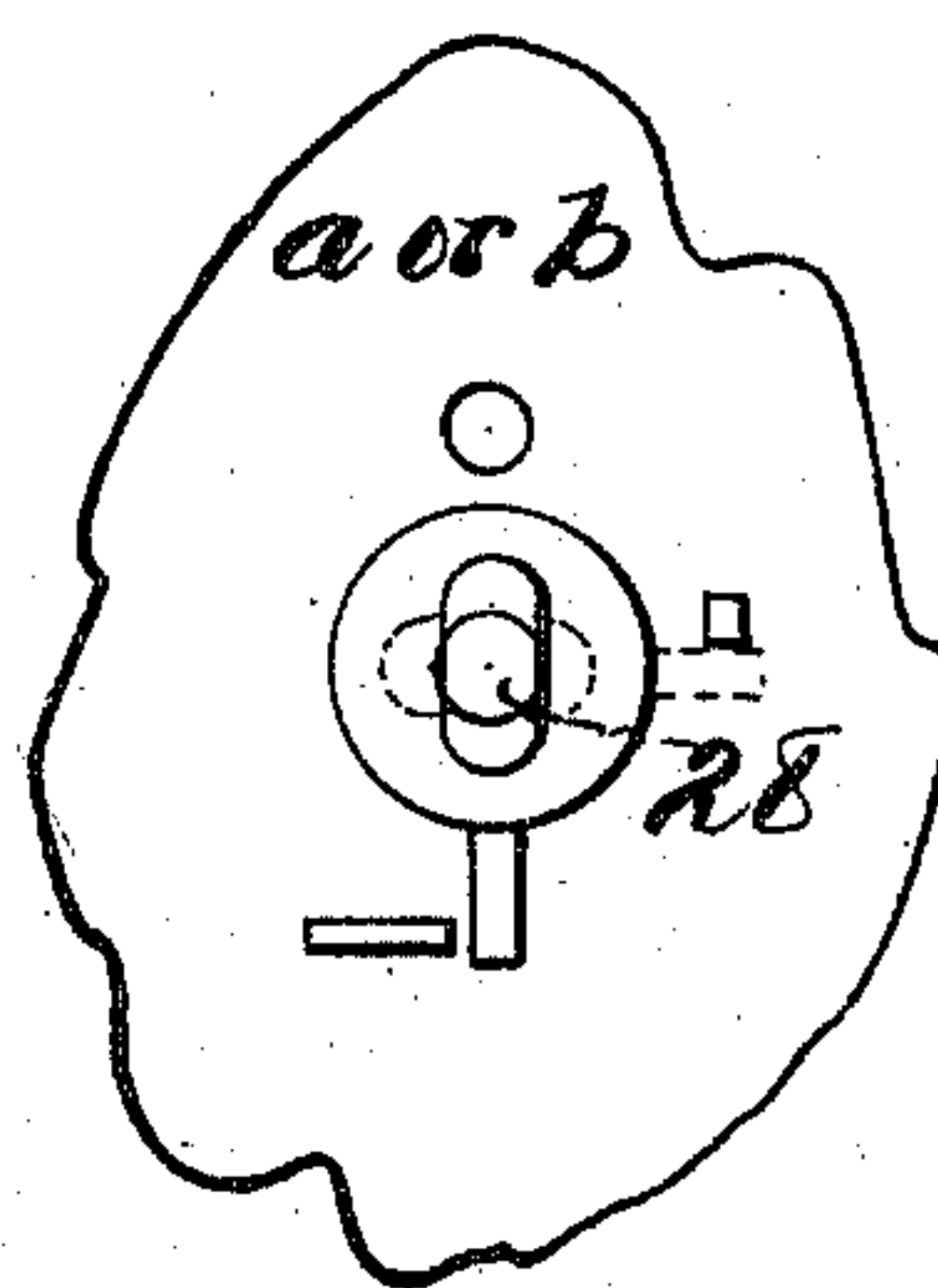
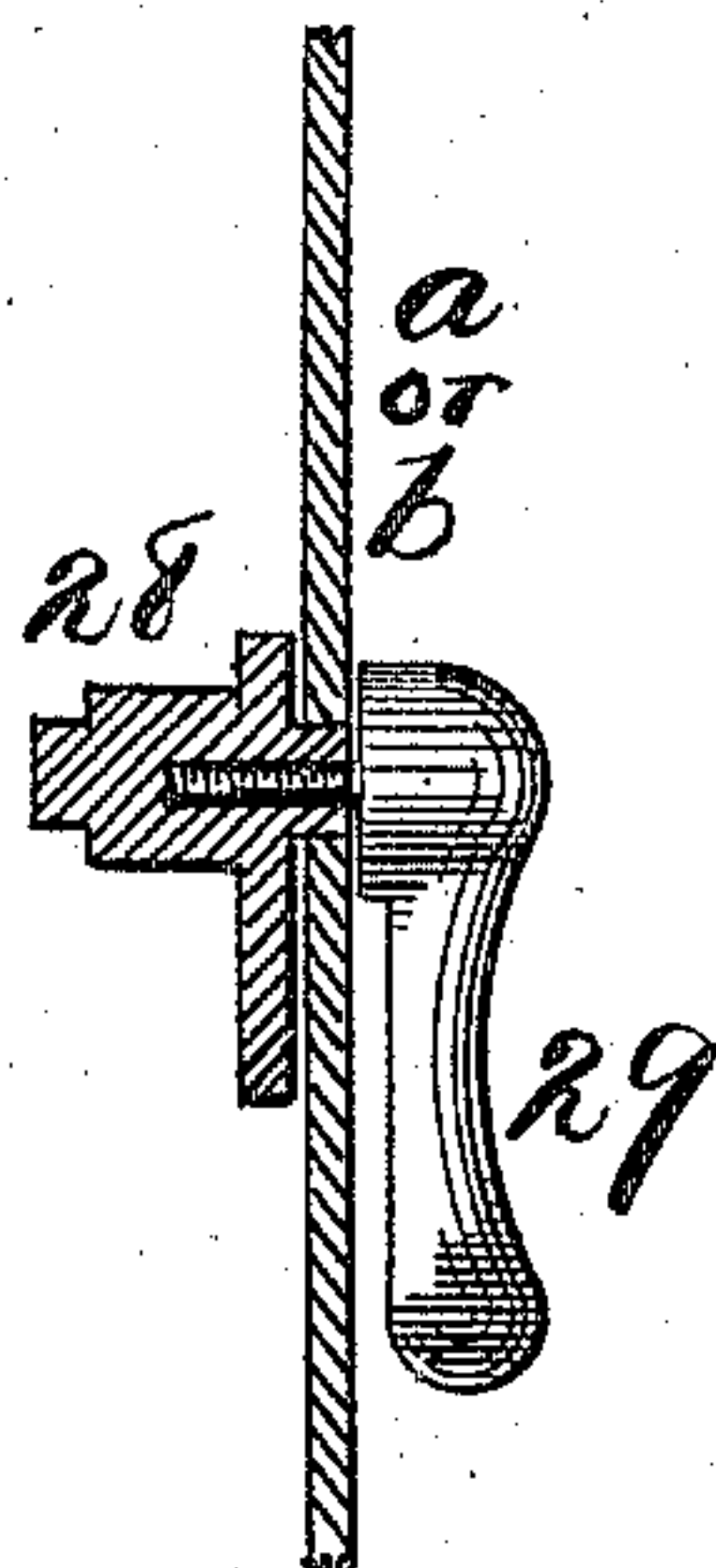
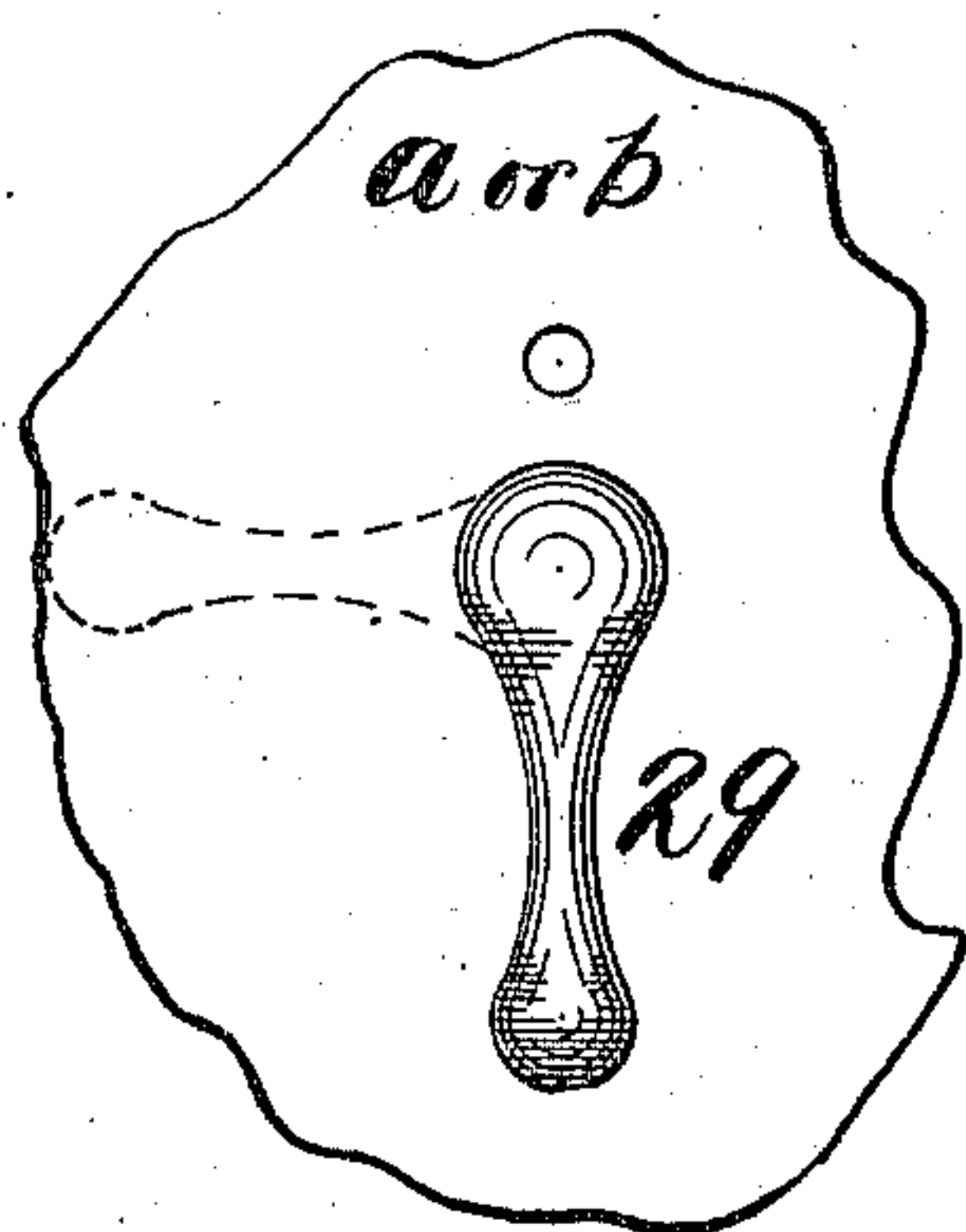
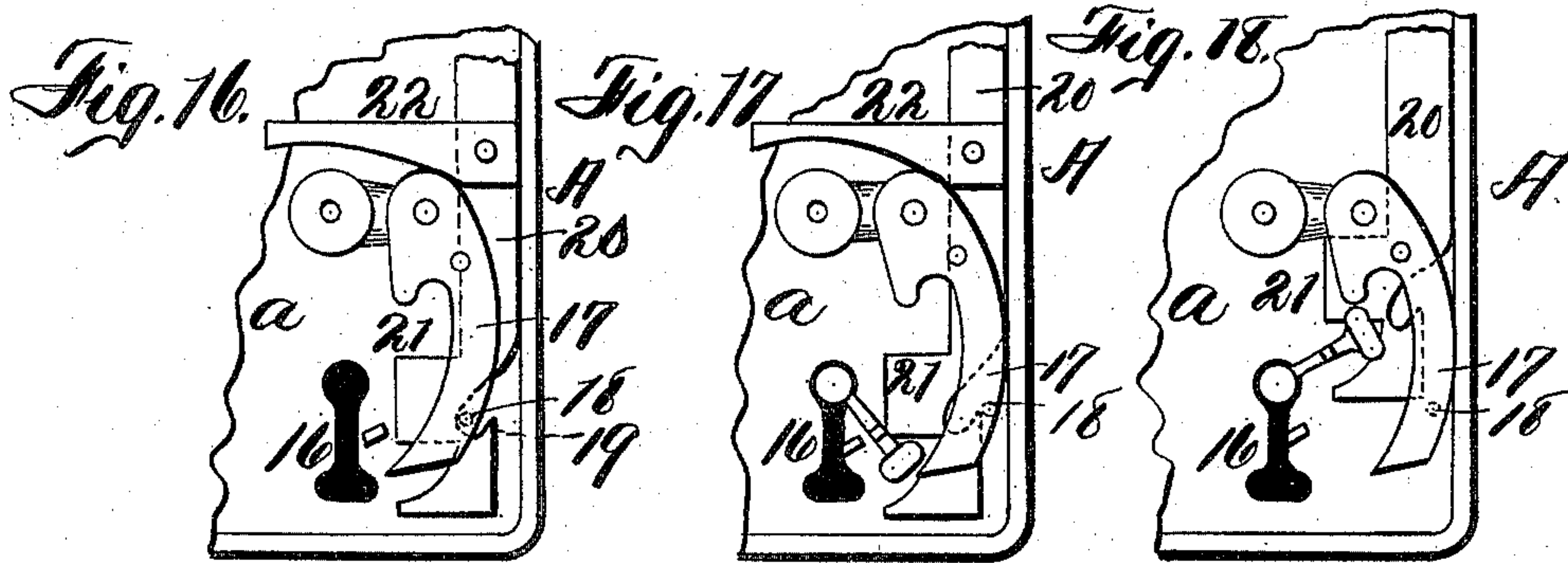


Fig. 19.

Fig. 20.

Fig. 21.

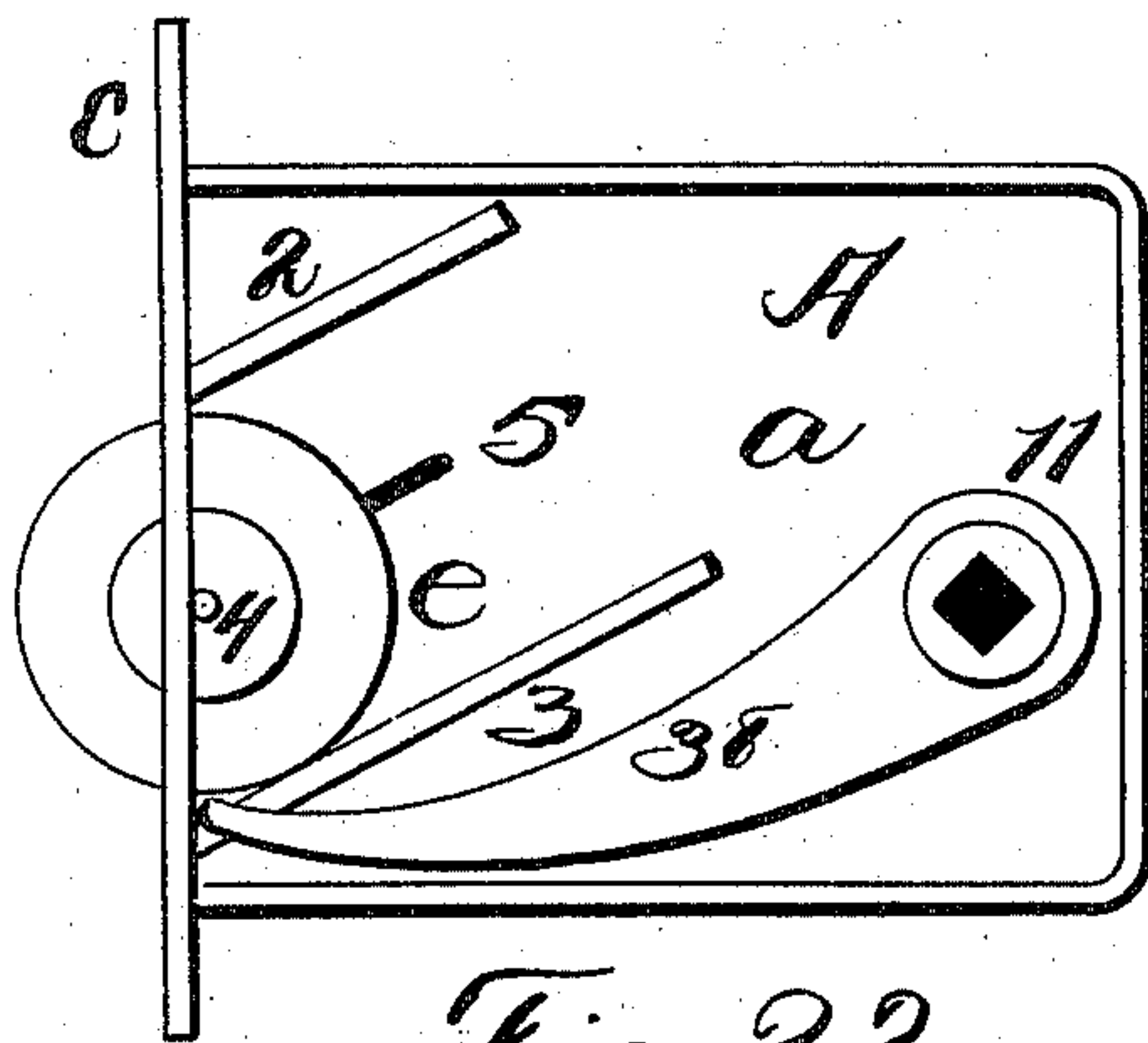


Fig. 22.

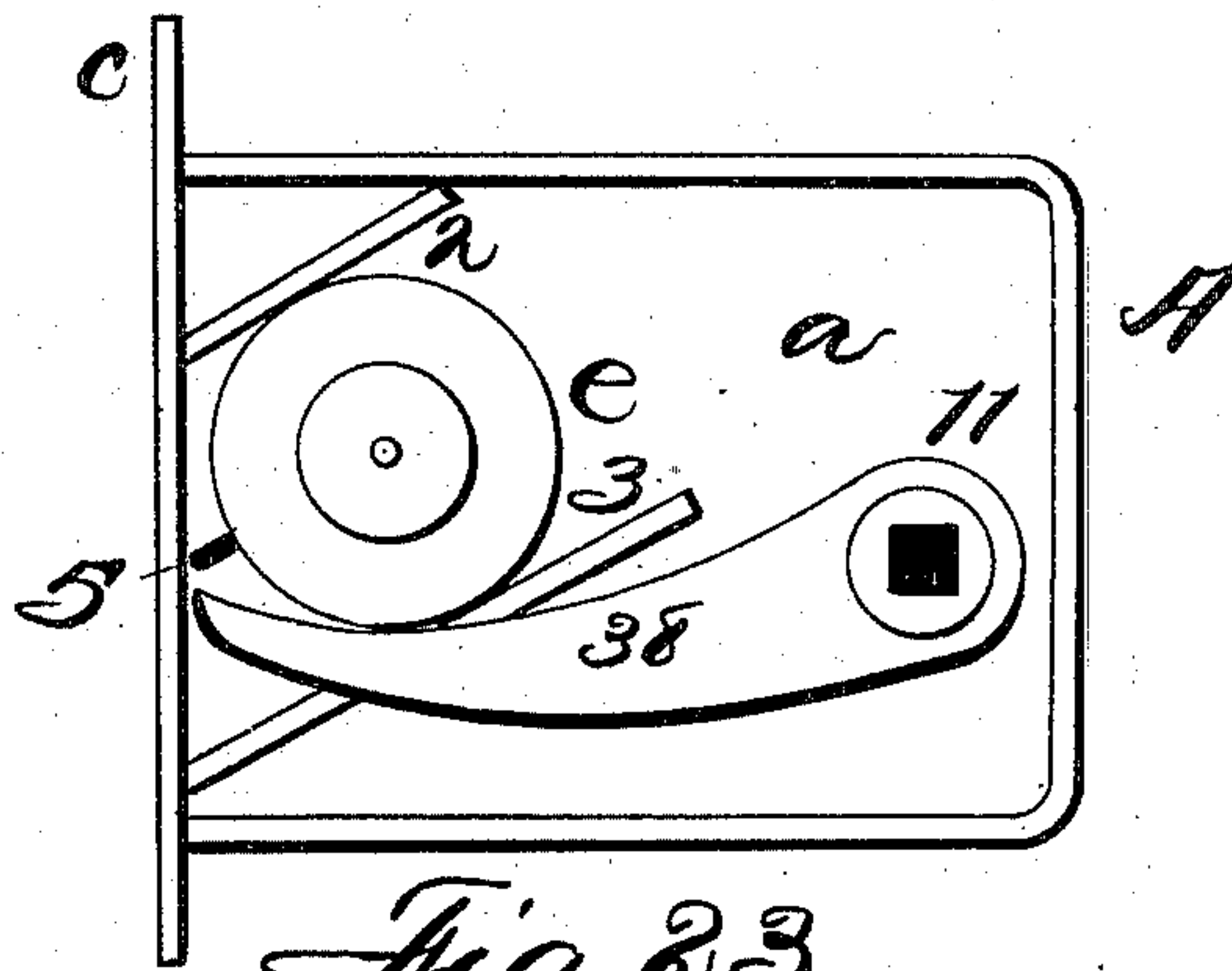


Fig. 23.

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# UNITED STATES PATENT OFFICE.

JAMES E. WELLS, OF SYRACUSE, NEW YORK, ASSIGNOR OF THREE-EIGHTHS  
TO HERBERT S. FULMER, OF SAME PLACE.

## LOCK AND LATCH.

SPECIFICATION forming part of Letters Patent No. 575,448, dated January 19, 1897.

Application filed December 28, 1895. Serial No. 573,666. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. WELLS, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and  
5 useful Improvements in Locks and Latches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to locks and latches  
10 when combined or when used separately to the mechanism for operating the locking-bolt and to the bolt itself.

My object is to produce a new and improved lock and latch adapted to be used for either  
15 a lock or a latch separately or for both combined.

It comprises a suitable casing and side plates provided with suitable parallel ways, in or between which a locking or latching bolt  
20 is mounted having a combined gravity and rolling action, consisting of a circular disk beveled on one side and normally in engagement with a lower way or side of a way, as when a door is being latched, and at other  
25 times in engagement with an upper way or side of the way. Combined with this bolt and its ways is a vibratory arm actuated by a suitable knob and spindle, and which when turned one way raises the bolt and rolls it up-  
30 ward against the upper way to retract it from the catch-plate upon the door-casing and unlock or unlatch the door, and thereafter when turned in the opposite direction said bolt is loosened onto the lower way and will then  
35 roll down upon it and be projected to suitably engage with said catch-plate to lock or latch the door if the door is then closed; or when a door is open and is swung to close it then said bolt will wedge against the catch-plate and be thereby rolled back and retracted  
40 until when it comes into proper position it will roll down into engagement with said catch-plate. Means are also provided whereby said arm can be vibrated by a key.

45 This invention further comprises a mechanism consisting of a spindle having a knob on each end and means whereby both knobs are locked to said spindle, or one can be released therefrom, so as to turn freely thereon,  
50 in which case the locking-bolt or latch must

be operated by a key to unlock the door. When both knobs are fast, the bolt and arm are operated by either of them.

It is constructed as follows, reference being had to the accompanying drawings, in which— 55

Figure 1 is a side elevation of a combined latch and lock adapted to be set into a mortise. Fig. 2 is a like view of the opposite side. Fig. 3 is an elevation of the same with the cap-plate removed to show the interior 60 and showing the bolt in the position it assumes when the door is latched. Fig. 4 is a like view of the same, showing the bolt retracted by the turning of the knob. Fig. 5 is a like view of the same, showing the bolt 65 retracted by the turning of the key, said key being indicated by the dotted lines. Fig. 6 is a plan view of the inner face of the cap-plate. Fig. 7 is a front elevation of the latch and lock, showing the reversible face-plate. 70 Fig. 8 is a side elevation of the knobs, spindle, and knob-tumbler detached. Fig. 9 is a side elevation of the spindle and the knob loose thereon. Fig. 10 is a vertical sectional elevation of Fig. 8 with one knob broken off 75 and showing the slide which locks the loose knob. Fig. 11 is a side elevation of the fixed knob and locking-slide detached. Fig. 12 is a vertical sectional elevation of the same on line  $x x$  in Fig. 11. Figs. 13 and 14 are 80 respectively a side and front elevation of the knob-tumbler through which the spindle passes. Fig. 15 is an end elevation of the loose knob with the spindle removed. Fig. 16 is an elevation of part of the interior 85 of the lock and latch and key-operated tumbler and shifter, enlarged, ready for operation. Fig. 17 is a like view of the same, showing the key turned far enough to swing the tumbler out of engagement with and to re- 90 lease the shifter. Fig. 18 shows the same parts with the key turned far enough to operate the shifter. Fig. 19 is an enlarged elevation of part of the outside of one of the side plates or cap and the locking-cam. Fig. 95 20 is a vertical sectional elevation of the same. Fig. 21 is an elevation of the inner face of one of said plates and said cam. Fig. 22 is a plan of the interior of a latch embodying my rotating bolt and a lifting-arm connected directly 100



to the knob-tumbler, showing it latched. Fig. 23 is a like view of the same parts, showing it unlatched. Fig. 24 is a side elevation of a key. Fig. 25 is an end elevation thereof.

5 A is a suitable case provided with a stationary side plate *a* and a removable cap *b* and having a face-plate *c* removably secured to said case, so as to be reversible, and also provided with an opening *d*, through which  
10 the bolt *e* projects to engage with a suitable catch-plate (not shown) secured upon the stile of a door-casing. The bolt *e* consists of a disk having parallel faces of unequal size, created by beveling off one face, substantially as shown in Fig. 7, leaving a flat periphery of more or less width, which bears  
15 upon the ways 2 3 upon the back plate *c* and by which the bolt is guided in its combined reciprocatory and rotating movements. When  
20 a central pin 4 is used, a slot 5 can be cut in the back plate or cap, or both, to receive the projecting ends of said pin, thus acting as the sole or as an auxiliary guide or way for the bolt, and the ends of the pin will also operate  
25 as stops to regulate the projection of the bolt by engaging with the inside of the face-plate or the end of said slot, or both, as also to regulate the retraction thereof.

In suitable ways, as 6 7, in the latch and  
30 lock combined the bolt-retractor 8 is mounted and adapted to be reciprocated vertically, being provided with the arms 9 10, so that when raised the arm 9 will engage with the periphery of the bolt, lift it until it strikes one of  
35 said ways, and thereafter it will roll against this way, and thus be retracted, and when the retractor is lowered said bolt will, by its gravity, roll down the said way, and thus be projected, the upper arm engaging with it  
40 and assisting it in its descent to project it beyond the face-plate; also, when the door is pushed shut the then-projected bolt will strike the catch-plate and be wedged inward and upward and rotating at the same time upon  
45 one of said ways.

In the catch shown in Figs. 22 and 23 the bolt operates in precisely the same manner when lifted or released.

A suitable knob-spindle bearing or tumbler  
50 1 1 is suitably mounted in the side plates and provided with an arm 12, which engages with a shoulder 13 upon the retractor 8, so that when the knob-spindle 14 is rotated one way said arm will lift said retractor and raise the  
55 bolt to retract it. To operate said retractor and bolt by a key 15, it is inserted through a keyhole 16 and when turned will first engage with the swinging tumbler 17, swinging it back, throwing the pin 18 (dotted lines in  
60 Figs. 16, 17, and 18) out of engagement with the notch 19 in the slide 20 and release said slide, so that when the key engages with the lug 21 on said slide the arm 22 will lift said retractor and retract said slide, as in Fig. 4.  
65 When the key is released, the gravity of the parts will return all of the parts to their normal position, as in Fig. 3. The key is shown

as provided with an ordinary ward 23 and a transverse bar or bit 24 to engage with both said tumbler and slide. 70

To lock the bolt against operation by either the knob-spindle or key, the retractor is provided with a slot 25, having an enlargement or enlargements 26 27, and a cam 28 is journaled in the plate, (either front or back, or 75 both,) and 29 is a suitable handle upon the cam-shaft, and which can be adjacent to the face of the door, said cam being rotatable and when turned will not pass through the narrow portion of said slot, and consequently 80 the retractor cannot be lifted.

In some cases it is desirable to have means provided whereby a door can be locked on either side or both sides, as a door between two rooms in a hotel, in which case a like 85 cam is mounted in both plates, one cam being normally in the enlargement 26 and the other in 27.

To convert the latch and lock into a night-latch, a knob 30 is rotatably mounted upon 90 the rounded end 31 of the spindle 14 by means of a suitable joint, as the grooves 32 and pin 33, Fig. 10, and the square end of said spindle is inserted into the shank of the knob 34 and there secured in any ordinary 95 manner.

The spindle is provided with a longitudinal channel 35, and 36 is a sliding bolt inserted through a slot 37 in the shank of the knob 34, provided with a handle 35 and normally extending through a channel 36', cut 100 through the knob-spindle tumbler, so that when said slide is pushed in its end will enter one of the bevel-mouthed recesses 37 in the shank of the loose knob, and thus lock this 105 knob to the spindle, so that the bolt can be operated by either knob; and when said slide is drawn back the loose knob is released, so that it will simply revolve upon the spindle and the bolt can only be operated by the other 110 knob or the key.

In Figs. 22 and 23 the bolt-lifting arm 38 is secured directly to the spindle-tumbler, and this engages with the bolt to lift it whenever the knob-spindle is turned, and this creates 115 a simple latch.

It will be seen that all of the parts operated by the knob-spindle or key return to their normal positions by gravity and that not a single spring is used. 120

To change the lock or latch from a right to a left hand one, remove and reverse the bolt and remove and reverse the face-plate.

It is evident that this invention is applicable to rim as well as mortise locks and latches, 125 and that in some cases the pin in the bolt may project through said slot beyond the casing far enough to be operated manually.

Having described my invention, what I claim, and desire to secure by Letters Patent, 130 is--

1. In a lock or latch, a locking-bolt, consisting of a circular disk having one side beveled and suitable parallel ways between which



it is mounted to roll upon the lower one as it is being projected and to roll against the upper one as it is being retracted.

2. In a lock or latch, a casing comprising a body, sides, and face-plate, and parallel inclined ways upon the inner face of one or both sides, in combination with a beveled circular bolt, mounted between said ways and adapted to roll upon a lower way while being projected and to roll against an upper one while being retracted to unlock or unlatch.

3. In a lock or latch, a casing comprising a body, sides, and a reversible face-plate to change from a right to a left hand lock or latch, in combination with a beveled roller locking-bolt adapted to project through a mortise in the face-plate to lock the lock or latch, and to be reversed when the face-plate is reversed.

4. In a lock or latch a casing comprising a body, sides and face-plates suitably mortised, and parallel inclined ways upon one or both sides, in combination with a locking-bolt consisting of a beveled disk rolling on the lower way when the bolt is being projected, and rolling against the upper one when it is being retracted, and a vertically-vibratory arm engaging with said bolt to raise it into contact with the upper way and cause it to roll against it to be retracted and to lower it onto the lower one to roll outward thereon until projected.

5. In a lock or latch a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a vertically-vibratory arm engaging with said bolt to raise it and rotate it through its engagement with one of said ways, and to release it to gravitate down the other one of said ways.

6. In a latch or lock a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a knob-spindle, a rotatable tumbler receiving it an arm upon said tumbler, or retractor engaged by said arm and an arm upon said retractor whereby said bolt is retracted or projected by the rotation of said knob-spindle.

7. In a latch or lock a casing, parallel inclined ways therein and a rotary beveled circular bolt alternately guided by said ways in combination with a retractor having an arm engaging with said bolt, and a slide having an arm engaging with said retractor to lift it

when a key is inserted into the casing and turned.

8. In a latch or lock a casing, inclined ways therein and a rotary beveled circular bolt guided by said ways, in combination with a retractor engaging with said bolt and provided with a slot of varying width and a cam journaled in said casing and adapted to be rotated to lock said retractor and bolt.

9. In a lock or latch a casing, a beveled circular bolt, ways by which it is guided, a retractor engaging with said bolt, and a knob-spindle tumbler rotatably mounted in said casing and engaging with said retractor, in combination with a knob-spindle channeled longitudinally and rounded on one end, a knob rotatably mounted upon said rounded end and having recesses in it exterior to the spindle, a knob secured upon the other end of said spindle and having a slot through its shank, and a reciprocatory slide inserted through said slot, channel and tumbler and adapted to be shifted longitudinally into engagement with said loose knob to lock it to the spindle, or out of such engagement to release it.

10. In a latch or lock, the combination with a spindle grooved longitudinally and rounded on one end, of a knob rotatably mounted upon said rounded end, and having recesses in its shank, another knob secured upon the other end of said spindle and provided with a slot in its shank, and a slide inserted through said slot and into said groove and adapted to be reciprocated longitudinally therein to bring it into or out of engagement with one of said recesses in said loose knob, a knob-tumbler, a rotating bolt and intermediate mechanism whereby the bolt is operated when the spindle is turned.

11. In a latch or lock, the combination with a suitable casing, and a bolt mounted therein, of a vertically-reciprocated slide and means to connect it to said bolt and a gravity-tumbler suspended from a pivot and normally locking said slide and with which a key, inserted into the casing engages when turned to swing it away from and release said slide.

In witness whereof I have hereunto set my hand on this 23d day of December, 1895.

JAMES E. WELLS.

In presence of—

JESSIE E. MURRAY,

HOWARD P. DENISON.