

(No Model.)

2 Sheets—Sheet 1.

E. H. BONEBERG.
LOCK.

No. 559,991.

Patented May 12, 1896.

Fig. 1.

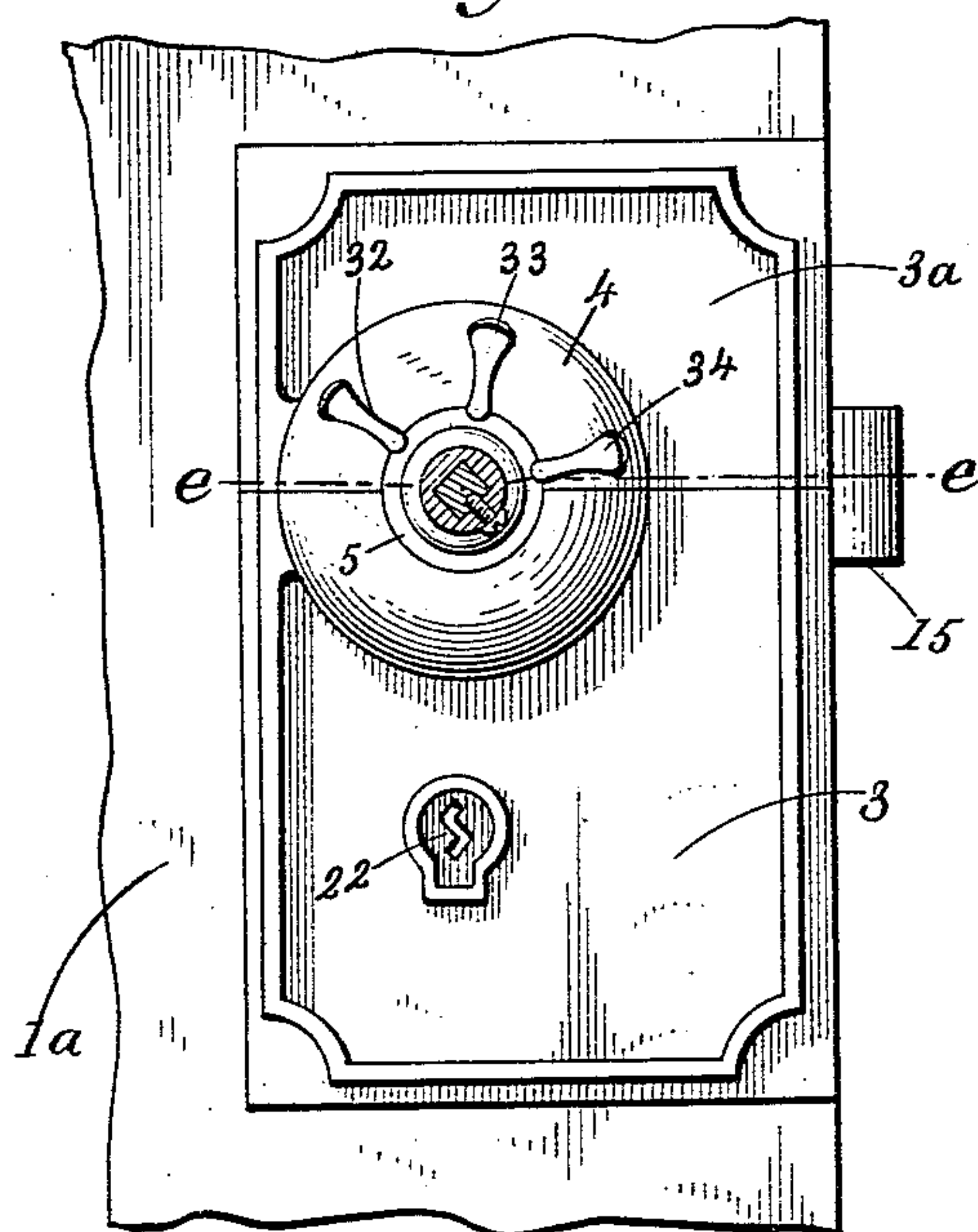


Fig. 2.

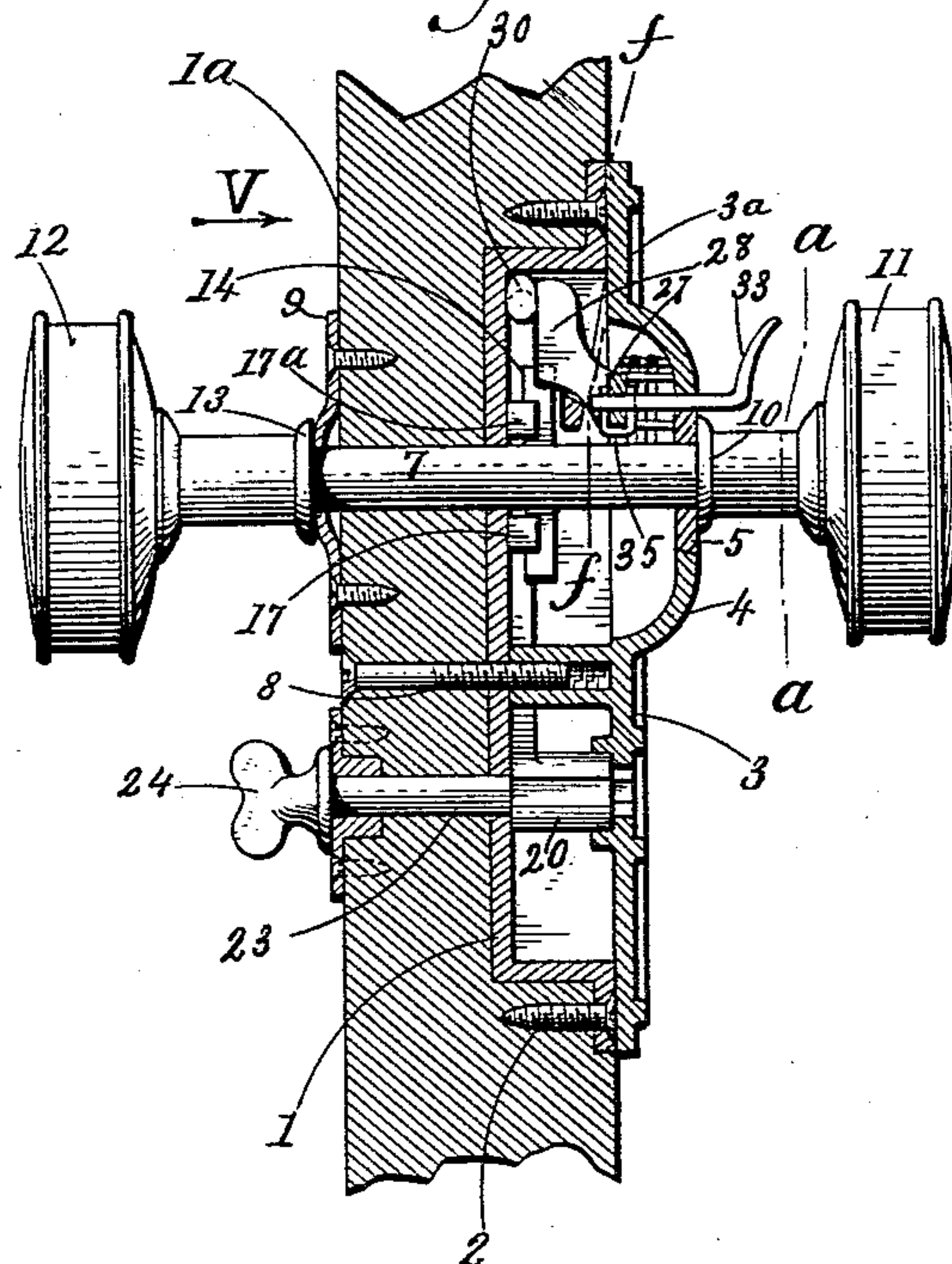


Fig. 3.

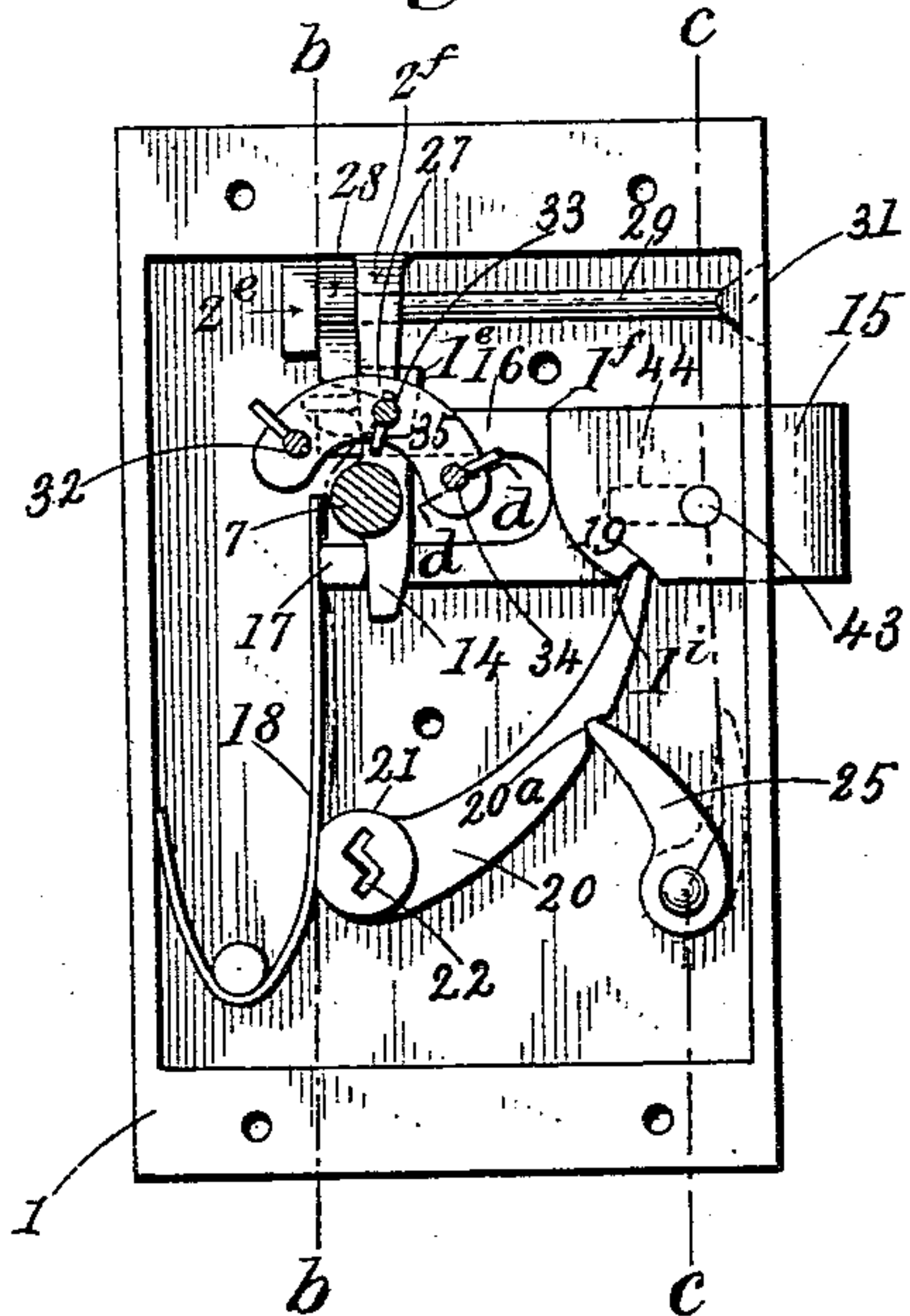
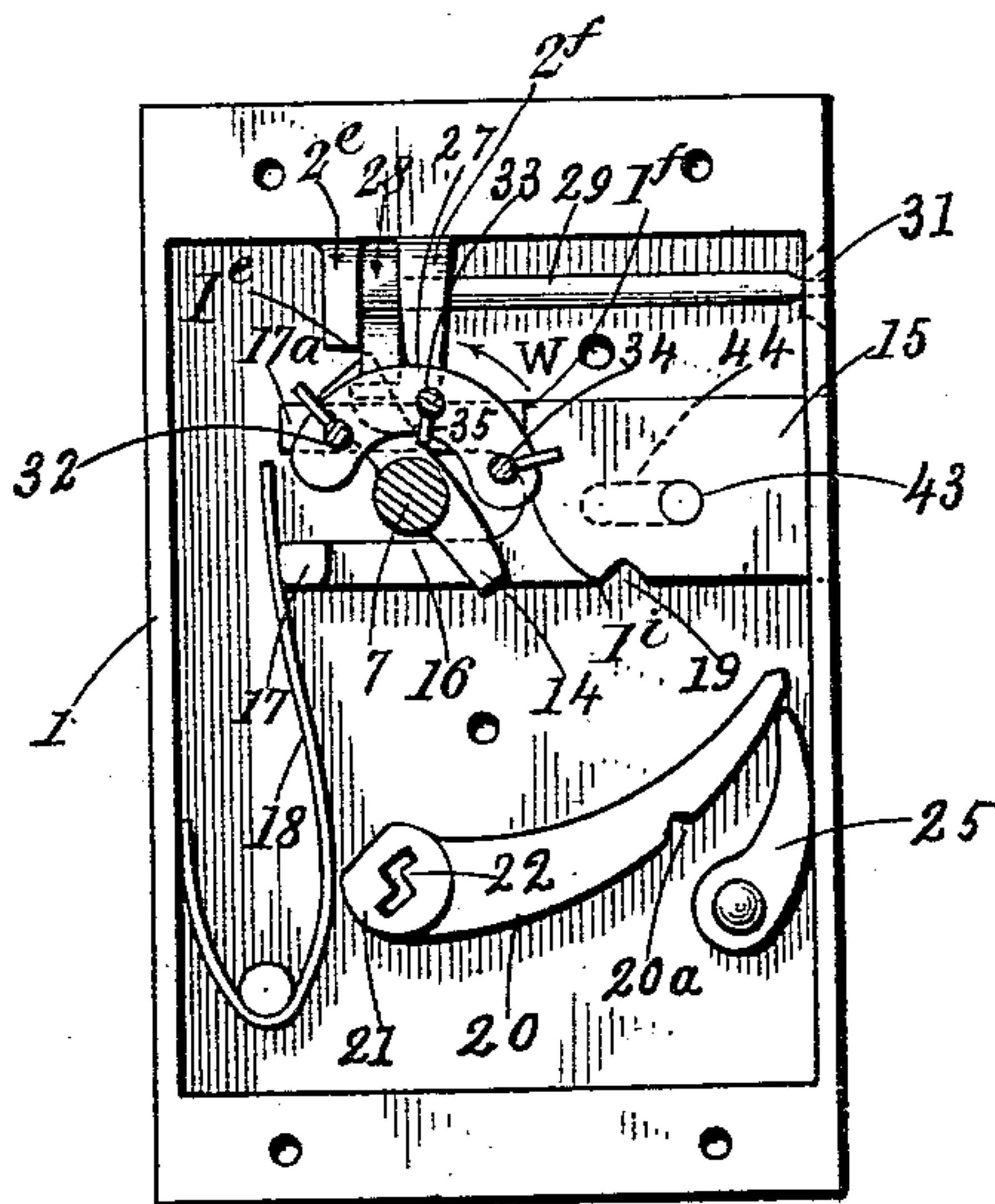


Fig. 4



Witnesses,
Emil Neuhart.
L. M. Spang.

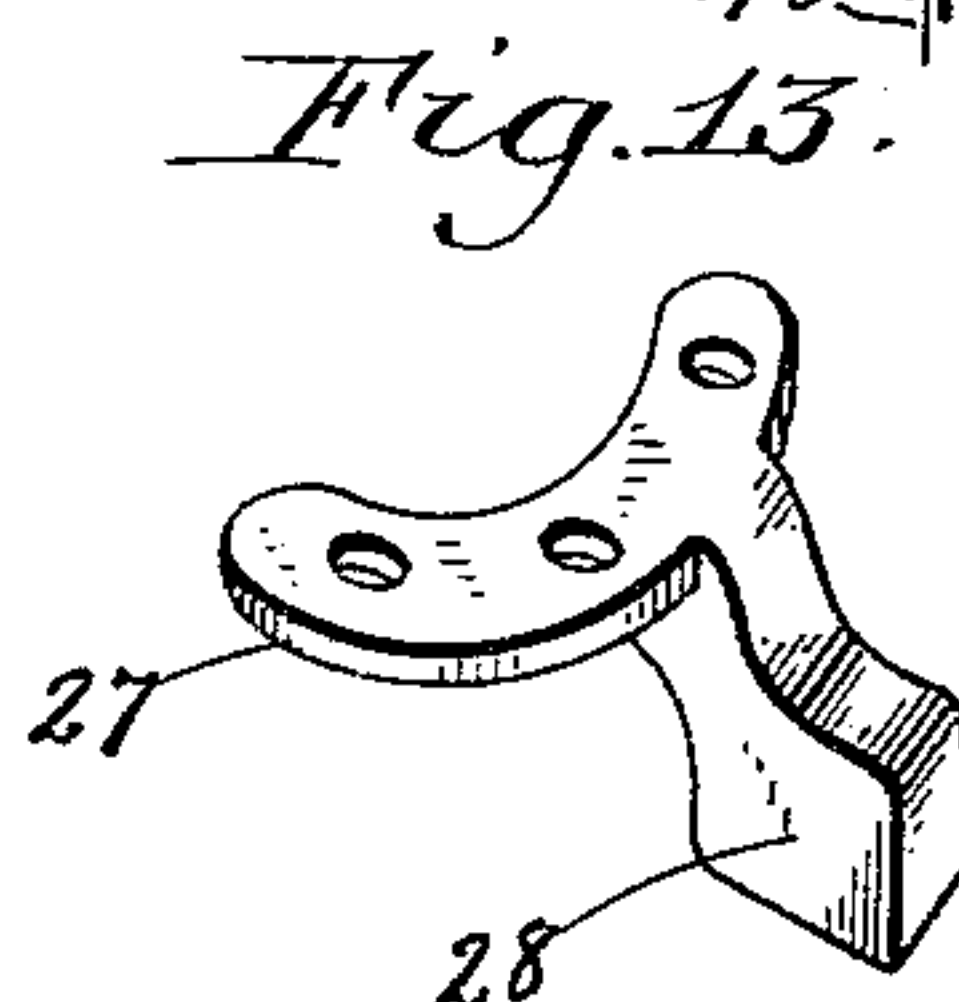
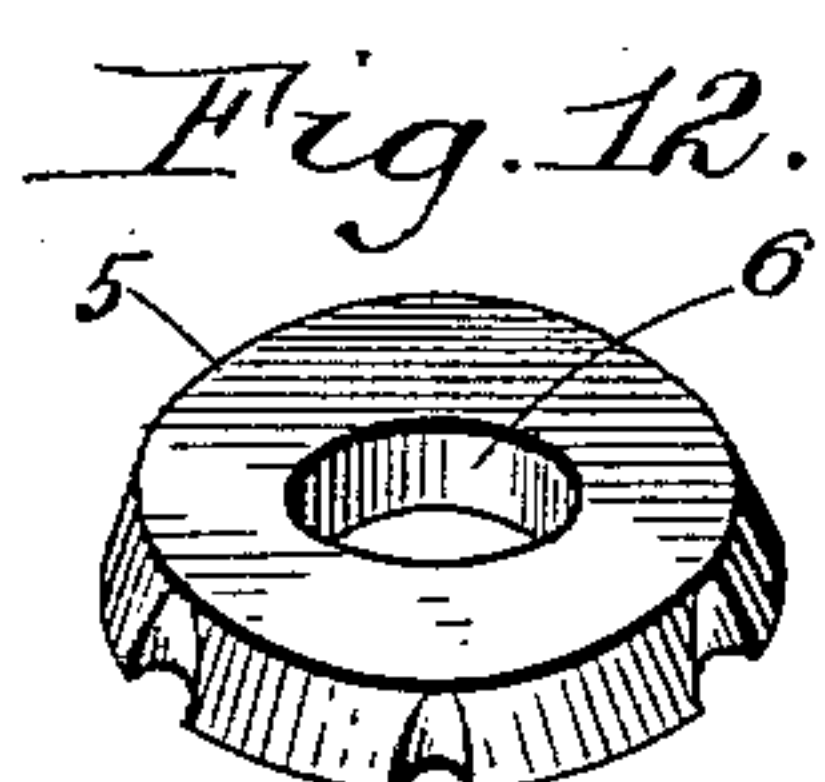
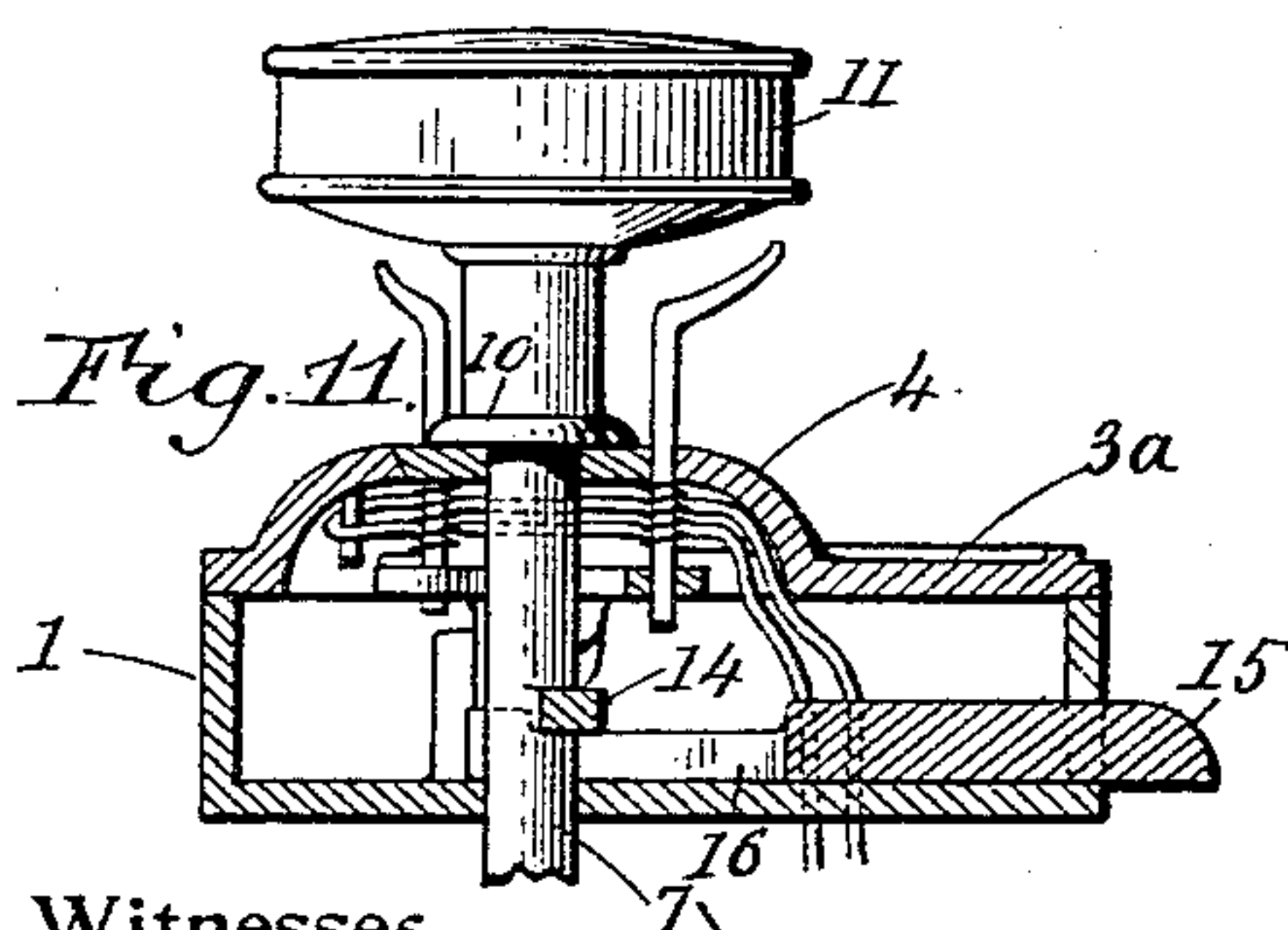
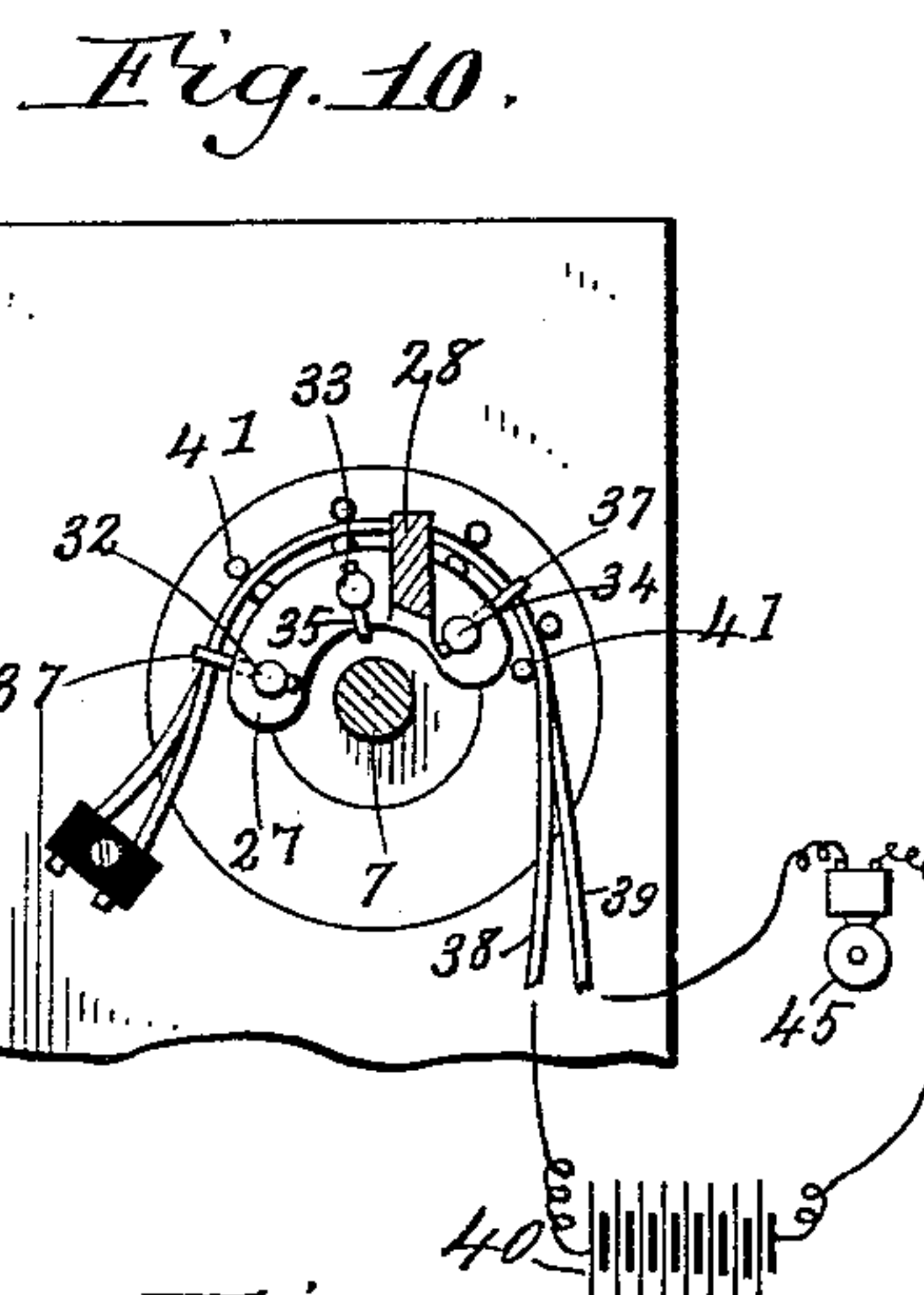
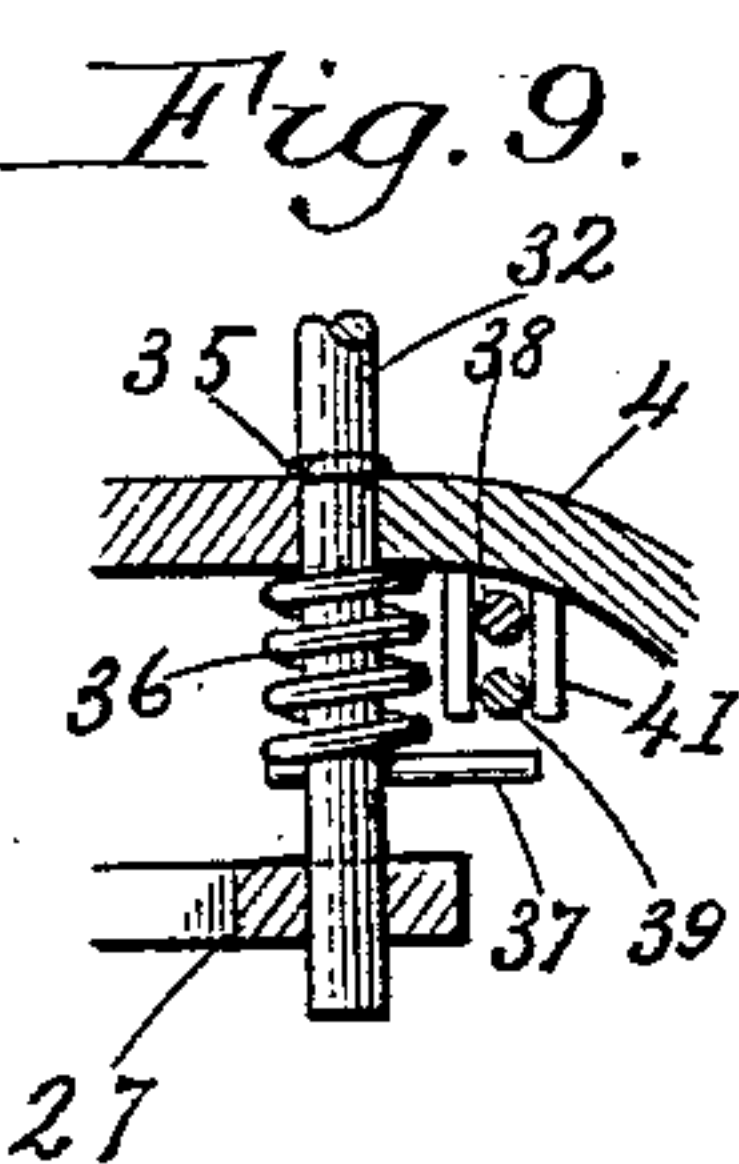
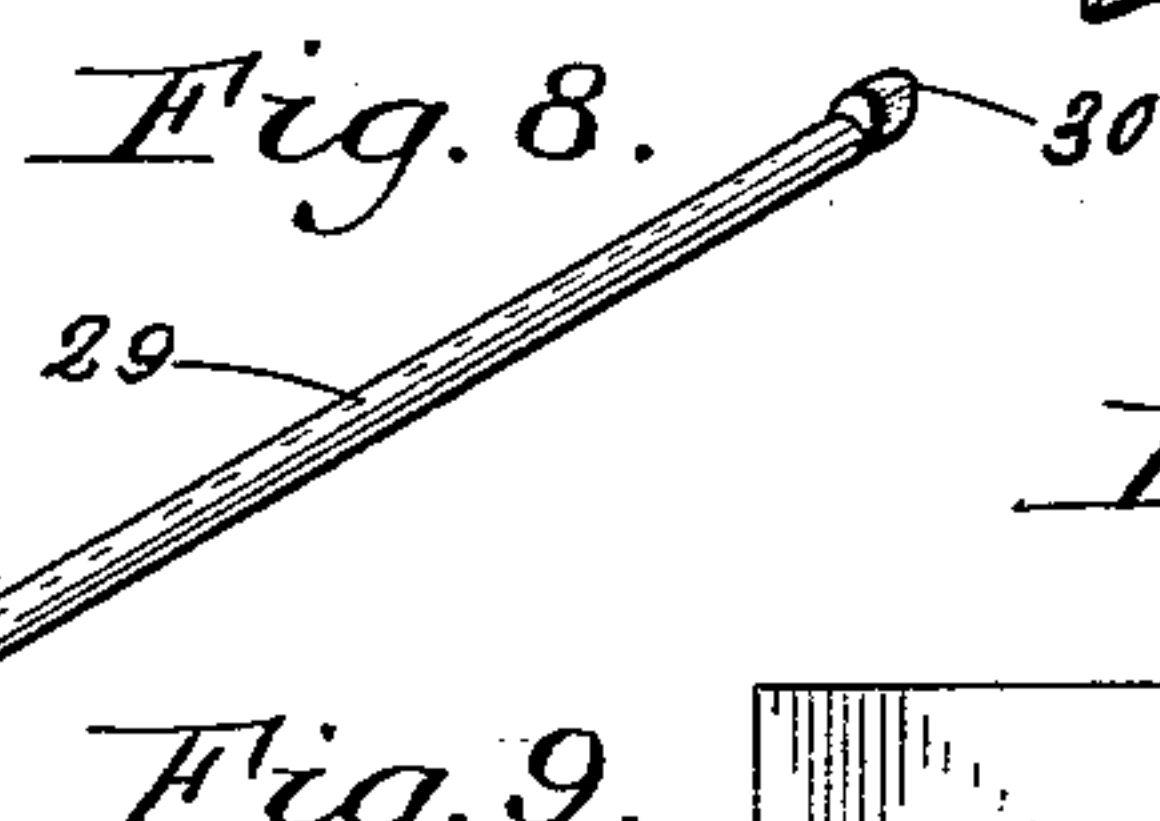
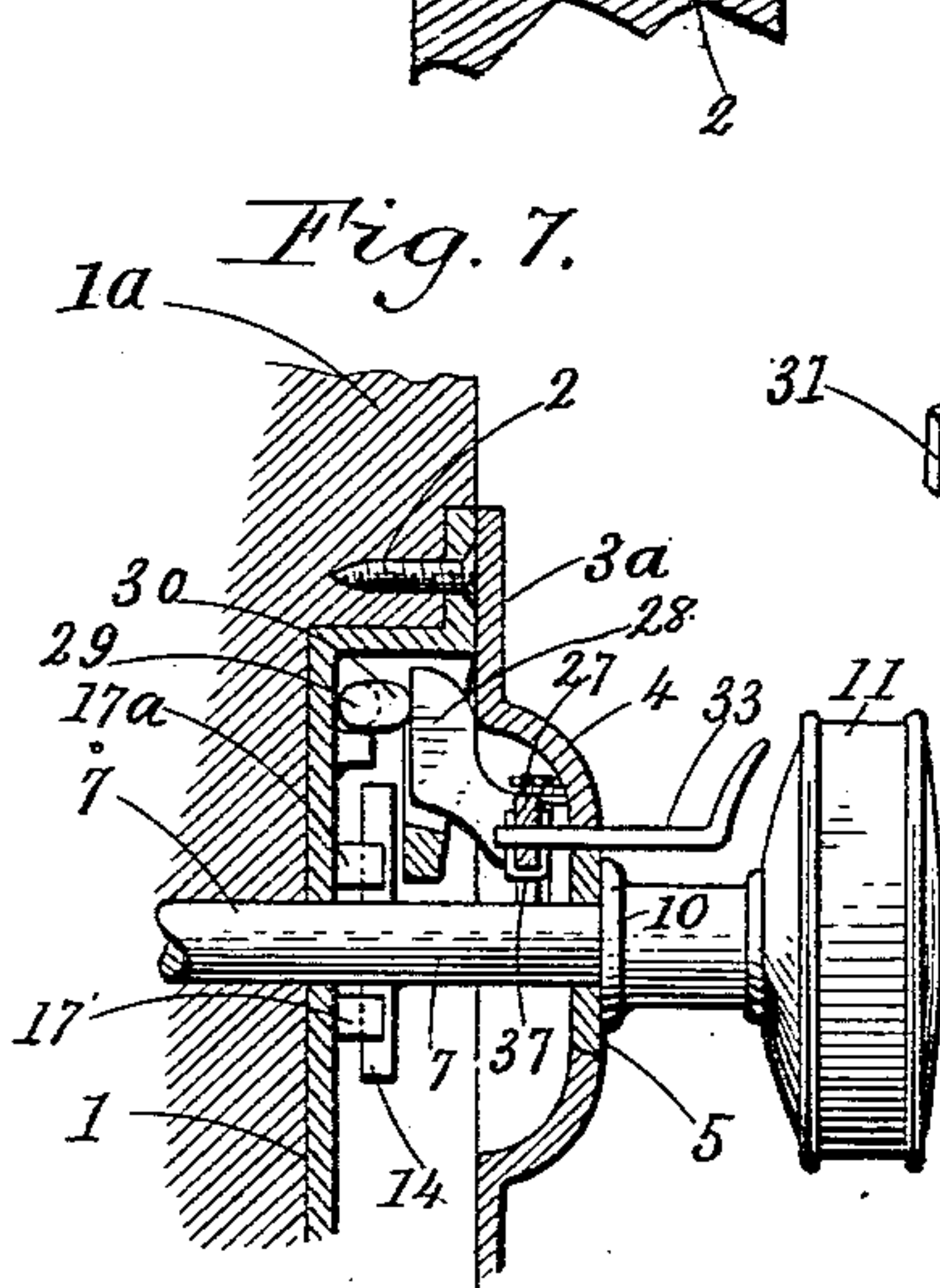
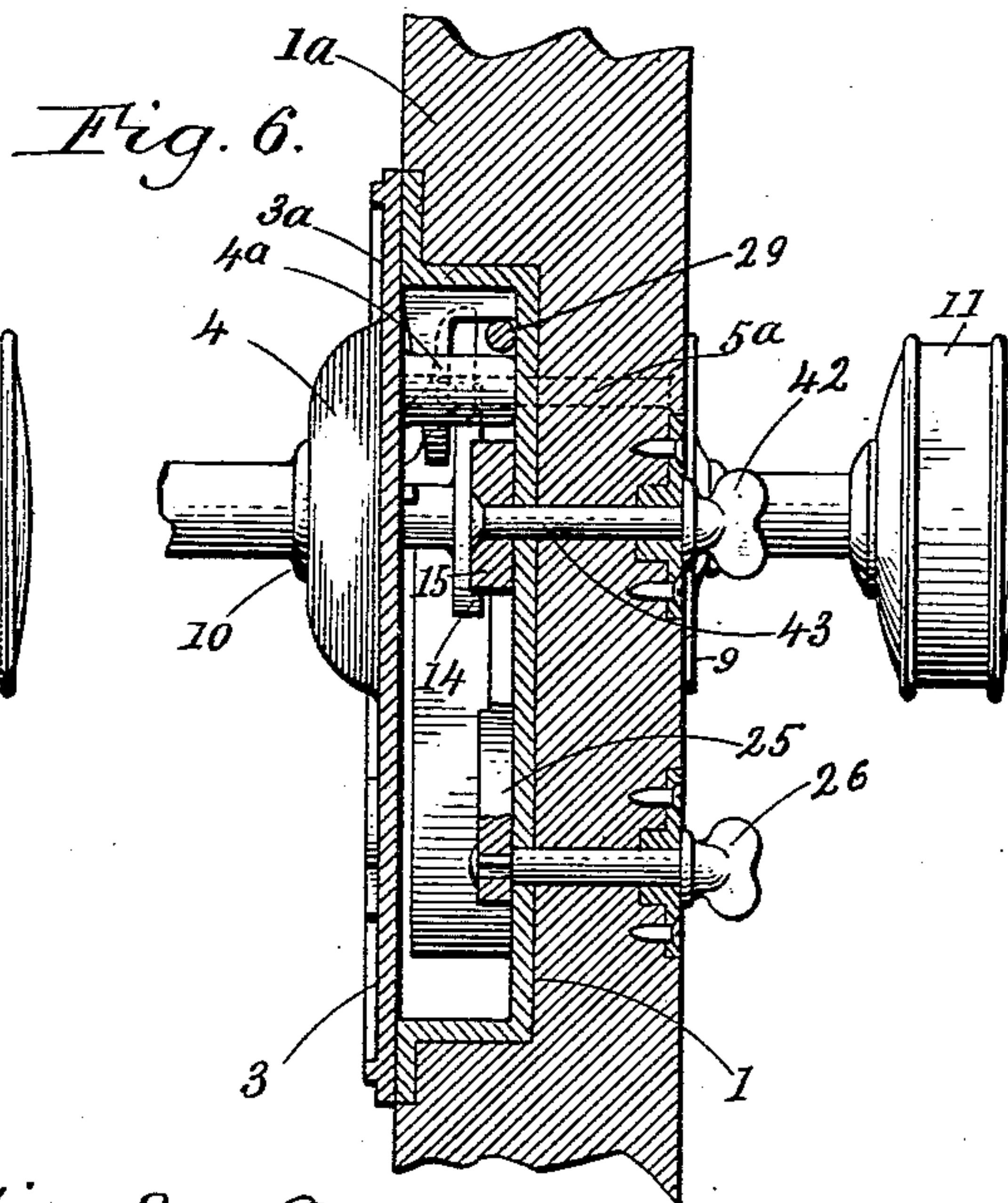
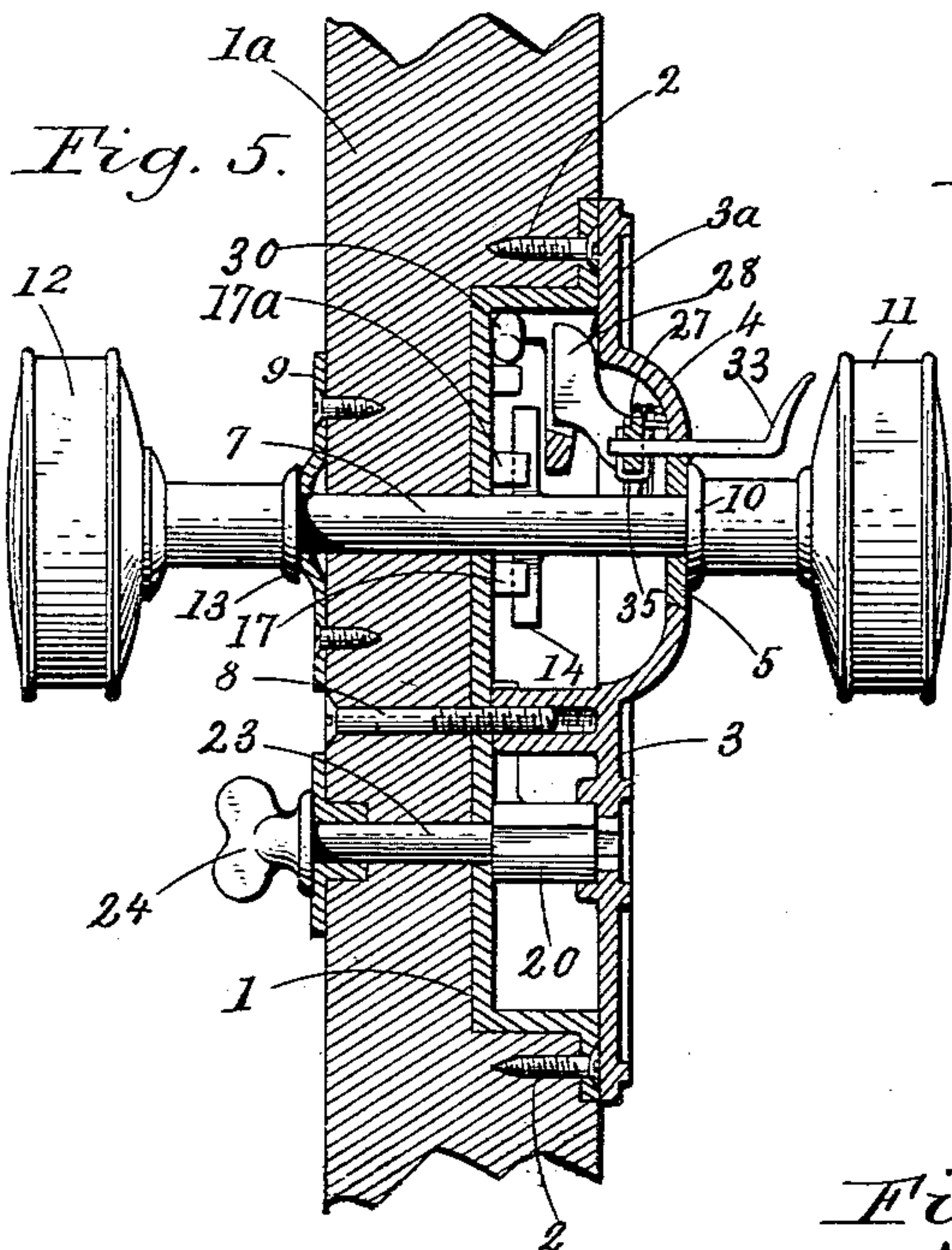
Edwin N. Boneberg Inventor.

By James Sangster Attorney.

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By *James Sangster* Attorney.

UNITED STATES PATENT OFFICE.

EDWIN H. BONEBERG, OF BUFFALO, NEW YORK.

LOCK.

SPECIFICATION forming part of Letters Patent No. 559,991, dated May 12, 1896.

Application filed January 8, 1896. Serial No. 574,720. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. BONEBERG, a citizen of the United States, residing at Buffalo, in the county of Erie 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 certain improvements whereby a lock can be used as an ordinary latch during the daytime and may be locked on the inside so it will be impossible to open it from the outside, or so that it can be unlocked with a key if desired. The lock can also be adjusted so that while using it either as a latch or lock a stranger opening the door is liable to give an electric alarm, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a face view of the lock, a vertical section being shown on or about line *a a*, Fig. 2, so as to expose the mechanism beyond the knob. Fig. 2 represents a vertical longitudinal section through the lock on or about line *b b*, Fig. 3, showing the position of the parts below the knob when the lock is in its locked position. Fig. 3 represents a face view of the lock, the cover being removed to show the interior construction, the several parts of which are shown in their locked position, a section being cut through the knob-shaft and attached keys. Fig. 4 is also a face view of the lock, showing the cover removed and a similar section through the knob-shaft and attached keys, showing the position of the parts when placed so the lock can be unlocked from the outside. Fig. 5 is a section on or about line *b b*, Fig. 3, showing the unlocked position of the locking-catch. Fig. 6 is a vertical section through line *c c*, Fig. 3, showing the locked position of the several parts so it can be unlocked by the attached keys and knob. Fig. 7 is a fragmentary vertical section on or about line *b b*, Fig. 3, showing the position of the parts in their unlocked position so the device can be opened or closed by the knob alone. Fig. 8 represents a detached perspective view of the device for lifting the locking-catch. Fig. 9 represents a fragmentary section through a portion of the lock-case, showing one of the elec-

trically-attached keys out of contact. Fig. 10 represents a vertical section on or about line *f f*, Fig. 2, showing the electrical connections with the lock, looking in the direction of the arrow *V* in said Fig. 2. Fig. 11 represents a section on or about line *e e*, Fig. 1, looking upward. Fig. 12 is a detached perspective view of the removable cover through which the knob-shaft passes. Fig. 13 represents a detached perspective view of the locking-catch.

Referring to the several parts in detail, 1 represents the body of the lock, or that part which is set into a recess made in the door to receive it. It is made of cast-iron, brass, or other suitable material and is secured to the door 1^a by screws 2. (See Figs. 2, 5, and 7.) The cover 3 and 3^a is provided with a concavo-convex portion 4, (see Figs. 2, 5, and 7,) having a central tapering opening in which is fitted a small tapering cover 5, having a central hole 6, through which the knob-shaft 7 passes. (See Fig. 12.)

The body 1 of the lock is secured to the door 1^a in a recess in which it fits nicely by the screws 2. The cover 3 is then fitted thereon, substantially as shown in Figs. 2 and 5, and rigidly secured thereto by a screw 8 on the inside of the door, by which it is made impossible to remove it from the outside of the door. I have shown but one of the screws 8, but more may be used if desired.

The upper portion of the lock-cover 3^a is made easily removable by means of a lug 4^a (shown in Fig. 6) and a screw 5^a on the inside of the door, so that it cannot be removed from the outside. The screw 5^a is shown by dotted lines in said Fig. 6.

The object of the above construction is to provide the means for easily removing the portion of the cover 3^a for the purpose of changing the position of the keys for operating the electric alarm or for other purposes.

The knob-shaft 7 is round in cross-section and passes, as before stated, through the removable portion or cover 5. It then passes through the body of the lock, through the door, and the usual disk-plate 9 until the collar 10 of the knob 11 (which is secured to a square portion on the end of the shaft) rests against the removable cover 5. The opposite end of the knob-shaft is then secured by the

knob 12, which is fastened in the ordinary way to a square portion at the end of the shaft, so that its flange or collar 13 rests against the plate 9. In this position the knob is securely held in place and can easily be turned in one direction only to unlock the bolt—that is, the part 1^e (see Fig. 4) of the transverse locking-bar 14, if turned in the opposite direction to that shown in Fig. 4, will come in contact with the portion 1^f of the bolt 15 before the opposite end of the bar 14 can move the bolt far enough to unlock it. Consequently it cannot unlock the bolt by being turned in that direction. The opposite side 1^f of the bolt is rounded off so as to leave plenty of room for a reverse movement of the bar 14.

To the knob-shaft 7 is rigidly secured, or formed in one integral piece with it, the usual transverse locking-bar 14. The bolt 15 is provided with a rear open-slotted portion 16, which straddles the knob-shaft 7. (See Figs. 3 and 4.) At the rear end of the bolt are two upright pieces 17 and 17^a, (against which the opposite ends of the locking-bar rest,) either secured to the bolt or formed integral therewith, and a spring 18, secured in the ordinary way, substantially as shown in Figs. 3 and 4, keeps the bolt 15 forward with a yielding force. It will now be seen that by turning the knob in the direction of the arrow W in Fig. 4 the bolt will be drawn in as there shown, and that when released the spring 18 will act and force the bolt outward and thereby bring the knob back to its normal position again.

In the under side of the bolt 15 is a notch 19, (see Figs. 3 and 4,) and within the lock is pivoted a main locking-pawl 20, provided on its under side with a notch 20^a, and having on the outer side a boss 21, provided with a keyhole 22, which may be made of any suitable shape to which the key is adapted. The opposite side of the pawl is provided with a pivoted portion 23, which extends through that side of the lock and through the door, and is provided with a thumb-piece 24, by which it may be turned from the inside, and it can only be turned, under conditions which will be described further on, by means of a key adapted to fit the keyhole 22.

When the lock is locked so that it can be unlocked from the outside, the main pawl 20 alone is turned so that its point fits into the notch 19, as in Fig. 3.

When it is desired to secure the lock so that it cannot be unlocked from the outside, the supplementary pawl 25 is employed. This supplementary pawl is pivoted by a pin secured rigidly thereto and which passes through the inner side of the lock and through the door, and is provided with a thumb-piece 26, which can only be operated from the inside of the door, so that it can be made to engage with the notch 20^a, as in Fig. 3, and thereby secure the lock from being opened from the outside, or it can be turned back, as

in Fig. 4, so that the pawl 20 can be operated either with a key from the outside or by the thumb-piece 24 on the inside, as hereinbefore mentioned.

The thumb-piece 26 is shown in Fig. 6. It will be noticed that the spring 18 performs a double work, as it acts against the back end of the pawl 20 to keep it either in or out of engagement with the notch 20^a. (See Figs. 3 and 4.)

27 represents a curved bar provided with a locking foot or catch 28. This curved bar and foot are made integral or both secured rigidly together, and both are adapted to be moved together, so that when in engagement with the locking-bar 14 the knob cannot be turned to unlock the bolt, but when moved away from the locking-bar 14 the knob can be easily operated. A perspective view of the combined curved bar 27 and foot piece or catch 28 is shown in Fig. 13. The foot-piece 28 is fitted between two portions 2^e and 2^f, made integral with and extending up from the inner side of the lock. (See Figs. 3 and 4.) Consequently it is kept securely in place and at the same time it can be moved easily up or down between said portions.

By referring to Fig. 7 it will be seen that the foot or catch 28 is raised above the transverse locking-bar 14, so that the said bar 14 is free to be moved to unlock the bolt, and by referring to Fig. 2 it will be seen that the foot-catch is let down below the face of the transverse locking-bar 14. Consequently it is clear that it would be impossible to turn the transverse bar 14 in the proper direction to unlock the bolt, because the foot-catch 28 then lies directly in the way of the bar 14.

29 represents a bar provided with a cam 30 at its inner end and with a widened flat portion 31 at its outer or exposed end. A detached perspective view of this device is shown in Fig. 8. It is also shown in Figs. 2, 3, 4, 5, 6, and 7. The object of this bar 29 is to provide the means for raising the locking-catch and holding it up when it is desired to use the lock as an ordinary knob-latch during the day. This is done by turning said bar by taking hold of the flat portion 31 and turning it so as to bring the cam portion 30 up in the position shown in Fig. 7, thereby bringing the locking-catch 28 out of engagement with the transverse locking-bar 14, so that it can be operated by turning either the inside or outside knobs only to move the bolt 15. The curved bar 27 is provided with a series of attached keys 32, 33, and 34. The key 33 passes through the top part 4 of the lock and bar 27 and is rigidly secured to said bar by means of a staple 35, which passes through it, as shown in Figs. 2 and 3, so that when the said key 33 is pulled upward it lifts the bar and its locking-catch 28 up out of engagement with the transverse locking-bar 14, so that the bolt can be operated by the knobs. The keys 32 and 34 also pass the top 4, and through the bar 27 they are adapted to move easily in their bearings

in said bar 27, so that they can be moved up without moving said bar. Each of said keys 32 and 34 is provided with a collar 35, (see Fig. 9,) to prevent it from going down too far, and with a spiral spring 36 and outwardly-extending pin 37, to hold it down until stopped by the collar 35.

In Figs. 9 and 10, 38 and 39 represent the positive and negative wires of an electric battery 40. These wires are kept in place by a series of pins 41. The construction is such that when the key is pulled upward an electric circuit is formed with an electric bell 45 for giving an alarm.

It will be noticed that both keys 32 and 34 will give an alarm and the lifting of one key only, the key 33, will allow the lock to be operated by the knobs. Consequently there are two chances of giving an alarm to one of moving the right key for opening the lock. These keys are operated by the fingers, as the hand is used to operate the knobs.

The operation of the device will be clearly understood from the foregoing description and drawings. If it is desired to move the bolt 15 from the inside of the lock without using the knob or its connecting operating parts, it can be done by means of the thumb-piece 42. (See Fig. 6.) This thumb-piece 42 is connected with the bolt 15 by a pin 43, which passes through a slot 44 in the door and lock-cover, and is secured to said bolt substantially as shown in said Fig. 6. The slot 44 is shown by dotted lines in Figs. 3 and 4.

I claim as my invention—

1. The combination in a lock provided with knobs for operating it, of a slotted locking-

bolt provided with projecting portions at the rear end of the bolt, means for keeping it forward with a yielding force, a locking-bar on the knob-shaft adapted to operate against said projecting portions, a locking-catch or foot-piece 28, and a cam-bar 29, for lifting it out of engagement with the locking-bar, for the purposes described.

2. The combination in a lock provided with knobs for operating it, of a slotted locking-bolt provided with projecting portions at the rear end of the bolt means for keeping it forward with a yielding force, a locking-bar on the knob-shaft adapted to operate against said projecting portions, a locking-catch, keys for lifting it out of engagement with the locking-bar, and a key for forming and breaking an electric circuit with an electric bell, for the purposes described.

3. The combination in a lock, of a slotted bolt through which the knob-shaft passes, means for keeping the bolt forward with a yielding force, a notch in the under side of the bolt, a main locking pivoted pawl adapted to engage with said notch and lock said bolt, a notch in the back of the main locking-pawl, a supplementary pawl adapted to be brought into engagement with the notch in the main locking-pawl and thereby lock it, and means on the inner side of the lock for operating the supplementary pawl, for the purposes described.

EDWIN H. BONEBERG.

Witnesses:

A. J. SANGSTER,
JAMES SANGSTER.