

No. 686,867.

Patented Nov. 19, 1901.

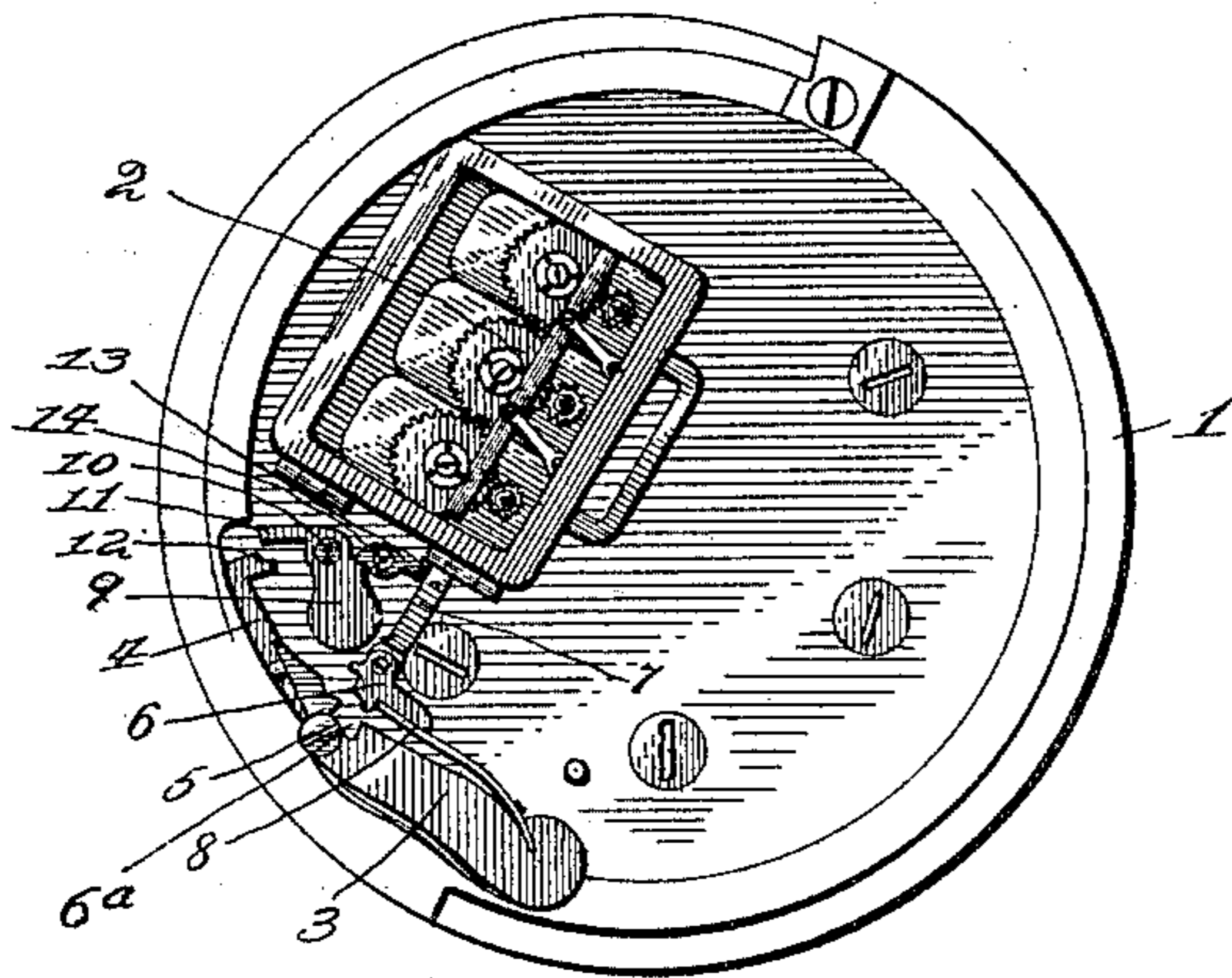
H. C. STOCKWELL.  
LOCKING DEVICE FOR SAFE DOORS.

(Application filed July 31, 1896.)

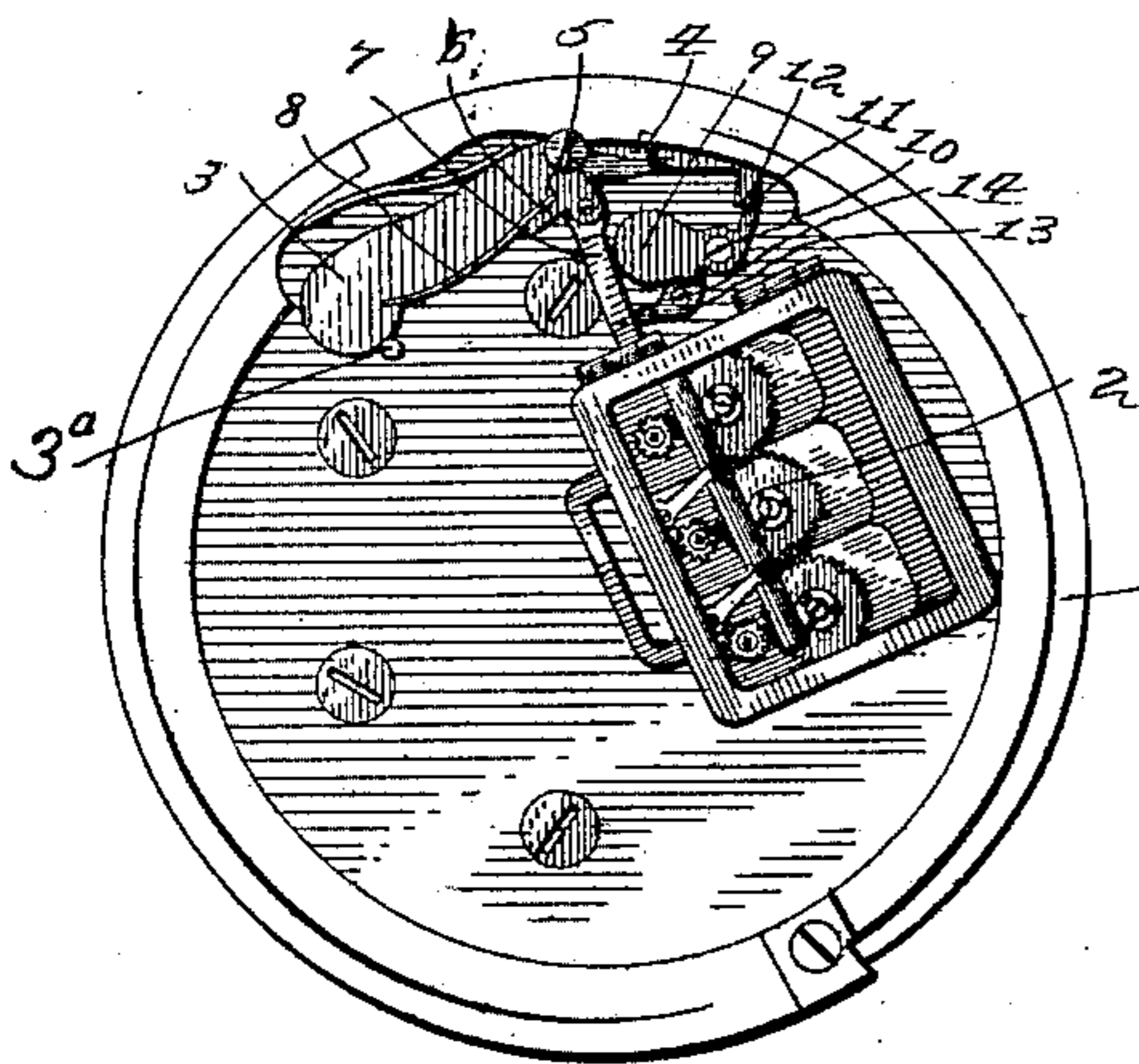
(No Model.)

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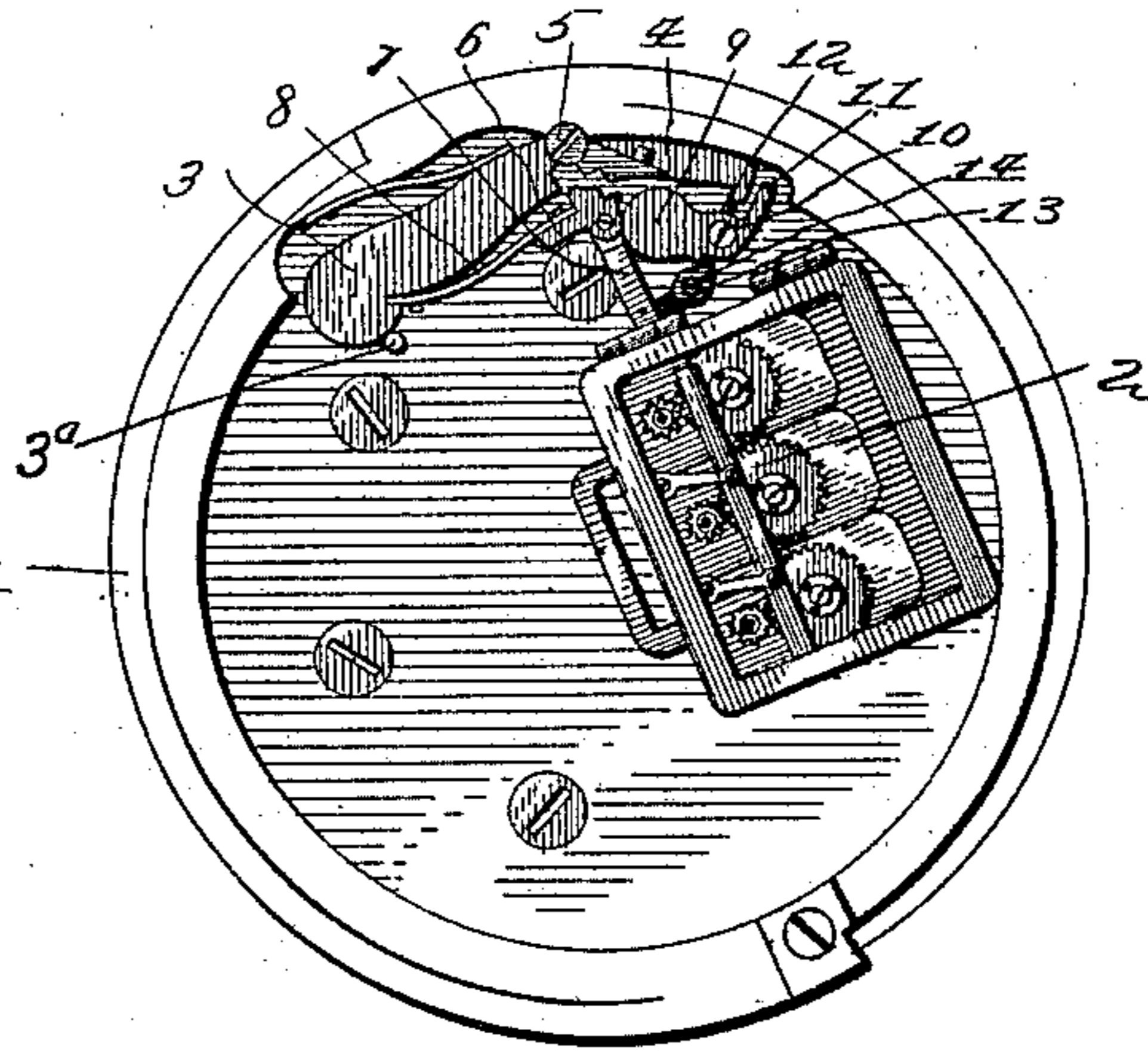
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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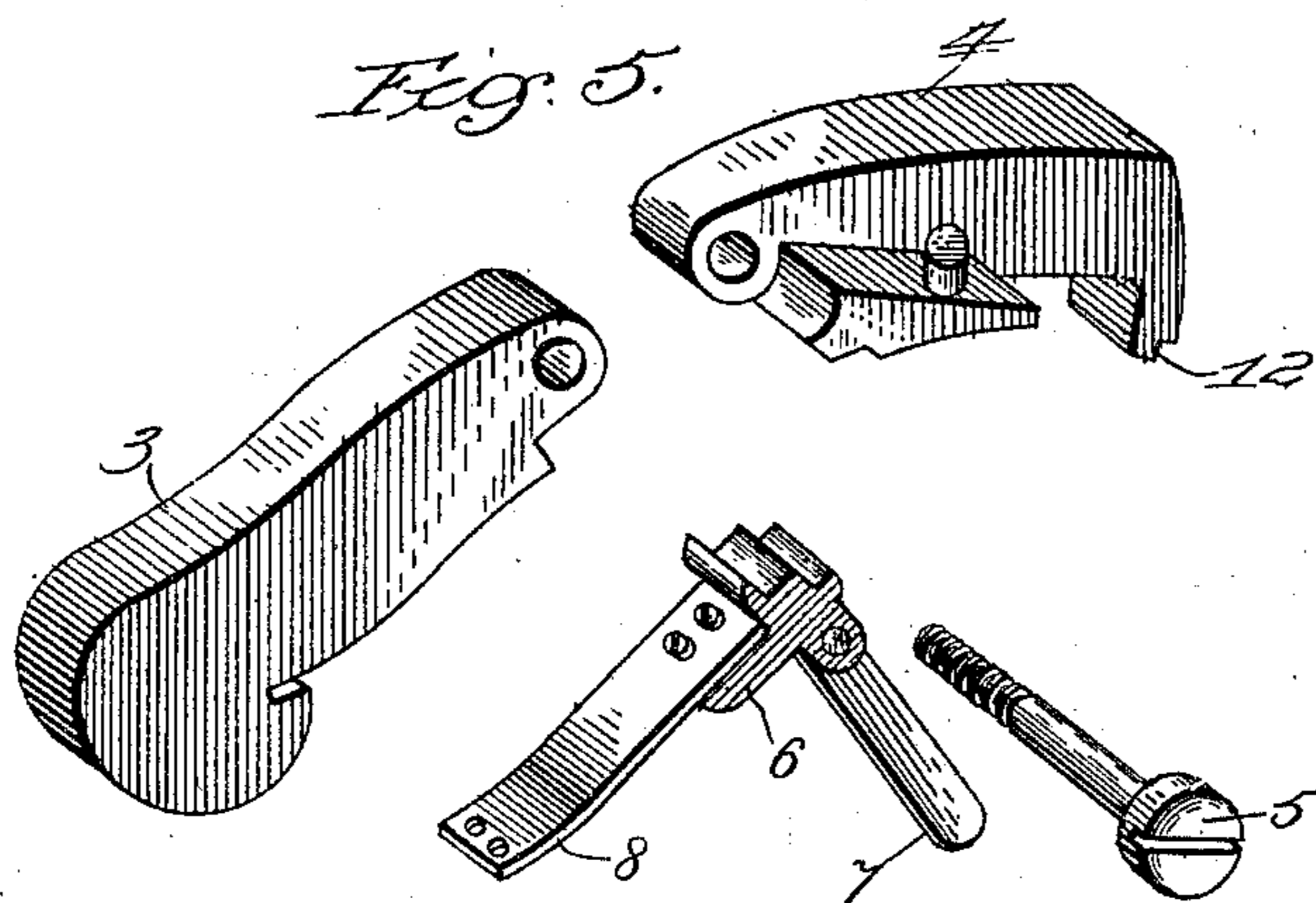
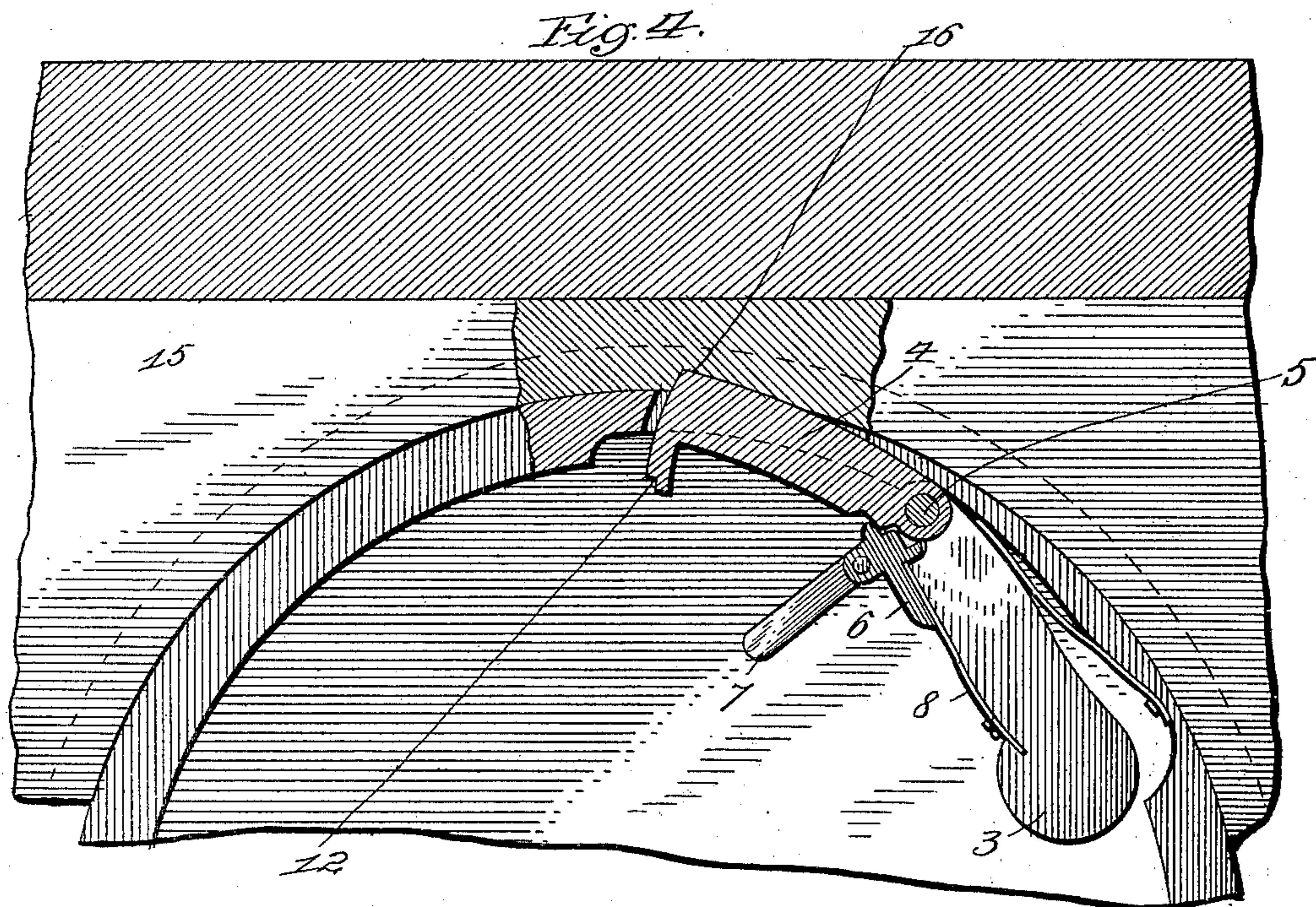
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

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## LOCKING DEVICE FOR SAFE-DOORS.

SPECIFICATION forming part of Letters Patent No. 686,867, dated November 19, 1901.

Application filed July 31, 1896. Serial No. 601,150. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT C. STOCKWELL, a citizen of the United States, and a resident of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Locking Devices for Safe-Doors, of which the following is a specification.

My invention is designed to be applied to all safe-doors which employ a time mechanism carried by the safe-door for controlling the locking mechanism thereof. For the purpose of illustrating my invention I have shown my improvements applied to circular doors which are screwed bodily into the safe, the thread on the door fitting in a corresponding female thread in the body of the safe. Doors of this type have heretofore been locked by a latch, which tends through the action of a spring to stick out beyond the surface of the threads, so that when the door is screwed into place this latch will shoot up into a corresponding pocket formed in the body of the safe, so that the door cannot be unscrewed, and is therefore locked. The latch is retracted or unlocked by a time mechanism, which withdraws it from its pocket against the action of the spring, so that it lies flush with the screw-thread and so that, therefore, the door can be revolved, so as to unscrew and be opened. Some defects have existed in this ordinary form of locking-latch, one being that in its simplest form it might be jarred open by dropping or causing heavy concussion upon the safe, to prevent which a weighted swinging dog was hung under the latch in such a position that it prevented the latch being jarred down against its spring, and it was also so adjusted that even if the safe were turned over it would still form a dog for the latch. Another difficulty of fastening the door by the latch was that the safe could not thereby be locked for a short period of time—as, for instance, during the noon-hour, when it is desired by some to lock the safe through the medium of the time mechanism. With the ordinary construction of latch this was not practicable, because in order to give the latch sufficient freedom to take secure hold in its pocket it was necessary to wind the

lock up for a period which was too long to be convenient. My invention is designed, primarily, to overcome this objection and to enable the safe to be locked with perfect security under the control of the time mechanism for a comparatively short time. This is accomplished by the mechanism hereinafter referred to, and illustrated in the accompanying drawings.

In the said drawings, Figure 1 shows the door in an unlocked position with the time mechanism run down and the several parts connected therewith in their retracted positions. Fig. 2 shows the position of the door when it has been rotated into position for locking with the several parts in their locked position. Fig. 3 is a view similar to Fig. 2 with the several parts in unlocked position. Fig. 4 is an interior view of a safe looking toward the front, parts being broken away, showing the latch in its locked position. Fig. 5 is a perspective view of parts of the lock unassembled.

Referring to the drawings, 1 represents the safe-door of that type which are designed to be swung into position on their hinges to close the opening into the safe and then rotated in the openings in order to lock the door.

2 represents the time mechanism, which is carried by the door and which controls the locking device of the door.

The locking device consists of a counterpoise 3 and a latch 4, separately pivoted on a common center 5. When the door is unscrewed, the locking device is in the position shown in Fig. 1, and the counterpoise assumes by gravity a position which will withdraw the latch. When the door is turned to position shown in Figs. 2 and 3, the counterpoise settles by gravity inward, as into contact with a stop 3<sup>a</sup>. If therefore means be provided whereby the counterpoise 3 and latch 4 previous to the rotation of the door are interlocked, so that the latter will be moved by the former on their common pivot 5, then when the door is rotated and screwed in the inward gravitation of counterpoise 3 will force the latch 4 outward beyond the threaded periphery of the door and into engagement with the door-frame, so that the door will be locked

against unscrewing and therefore against opening. Furthermore, if the means employed for interlocking the said counterpoise and latch be so connected with the time mechanism that interlocking will take place as the time mechanism is set and removed as the time mechanism runs down then the locking and unlocking will be controlled by the time mechanism. This I accomplish by forming the two parts so as to leave an opening 6<sup>a</sup> between them and on one side of their common pivot 5. When the parts 3 and 4 are in the position shown in Fig. 1, opening 6<sup>a</sup> will receive a dog 6, which is pivotally connected to the link 7 of the time mechanism, so as to be moved back and forth thereby, and also connected to one end of the flexible spring 8, whose other end is fixed to the counterpoise 3, so that the dog is caused to move into and out of opening 6<sup>a</sup>, as the time mechanism is set preliminary to locking the safe or runs down at the predetermined time for unlocking. I thus accomplish the above objects by the combination of a latch, a counterpoise for controlling the latch, an interlocking dog for determining when the counterpoise shall control the latch, and a time mechanism for withdrawing the interlocking dog to permit the latch to become disengaged independently of the movements of the counterpoise.

Sometimes it is very desirable to put the safe under control of the time-lock for a very short period of time, but this has not generally been practicable. To accomplish this, I so construct the opening 6<sup>a</sup> and the dog 6 that the requisite interlocking will result from a very slight entry of the dog into the opening as effectually as if pushed in to the full extent of the opening. It thus becomes an easy matter to introduce the interlocking dog to such a slight degree that the time mechanism will withdraw it again even in a fraction of an hour, while the safe will remain effectively locked during a corresponding period. In other words, I so construct the parts that the interlocking dog has a movement beyond the point at which it establishes controlling connection between the latch and its controlling part.

As a safeguard against operating the interlocking counterpoise and latch by tilting the safe or by jarring I provide a weighted dog 9, pivoted at 10 and arranged so that its end 11 will engage with the end 12 of the latch 4 and positively hold said latch 4 in its locked position until a lever 13, pivoted at 14 and having connection with the link 7, trips said weighted lever 9 and releases its end 11 from the end 12 of latch 4 and permits said latch to gravitate to unlocked position.

The operation of my device is as follows: In Fig. 1 the parts are all in unlocked position, and when it is desired to lock the safe the time mechanism is first wound to the desired number of hours. At the commencement of winding the dog 6 enters the opening 6<sup>a</sup> between counterpoise 3 and latch 4 and

interlocks them. The door is then swung into the opening of the safe 15 and rotated a sufficient distance to screw it in. This done counterpoise 3 drops inward and projects the latch 4 into a pocket or keeper 16, suitably located in the body of the safe, and all the parts will have assumed the position shown in Fig. 2, and the safe is locked. When the time mechanism has run down, dog 6 is withdrawn and weighted dog 9 tripped, so that the several parts assume the position shown in Fig. 3, and the safe may be unscrewed. If the safe is to be locked for a short period and the time mechanism is wound to run accordingly, the dog 6 will enter opening 6<sup>a</sup> but slightly, but will lock the safe just as effectively as if the latch were allowed to move into the opening the full distance. Consequently this construction affords a safe time-lock for a short period which may be regulated at will.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A gravity-operated lock comprising a latch, a separately-movable counterpoise for said latch, an interlocking dog entering between said parts and bringing the latch under control of the counterpoise, and suitable unlocking means for withdrawing the interlocking dog as explained.

2. In a locking mechanism for rotating safe-doors, the combination of a latch and counterpoise separately pivoted upon a common center and formed with an opening between them to one side of their pivot, an interlocking dog constructed to enter said opening, and a connection for time mechanism to withdraw said interlocking dog, substantially as set forth.

3. In a locking mechanism of substantially the character described, the combination with the latch 4 and a separately-movable controlling part 8; said parts, 4 and 8 having opposed shoulders or faces of an interlocking dog 6 entering the space between said shoulders or faces and thereby operatively connecting the latch and its controlling part; said interlocking dog having a movement in said space beyond the point of establishing such controlling connection, whereby it may be controlled by time mechanism and remain effective for predetermined periods of time of greater or less duration, substantially as set forth.

4. In a lock, the combination of the two-part gravitating locking device, the interlocking dog entering between and establishing working connection between the two parts of said locking device and constructed for control by time-lock, and an auxiliary locking-dog engaging the locking device and constructed for control by the same time mechanism; as explained.

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