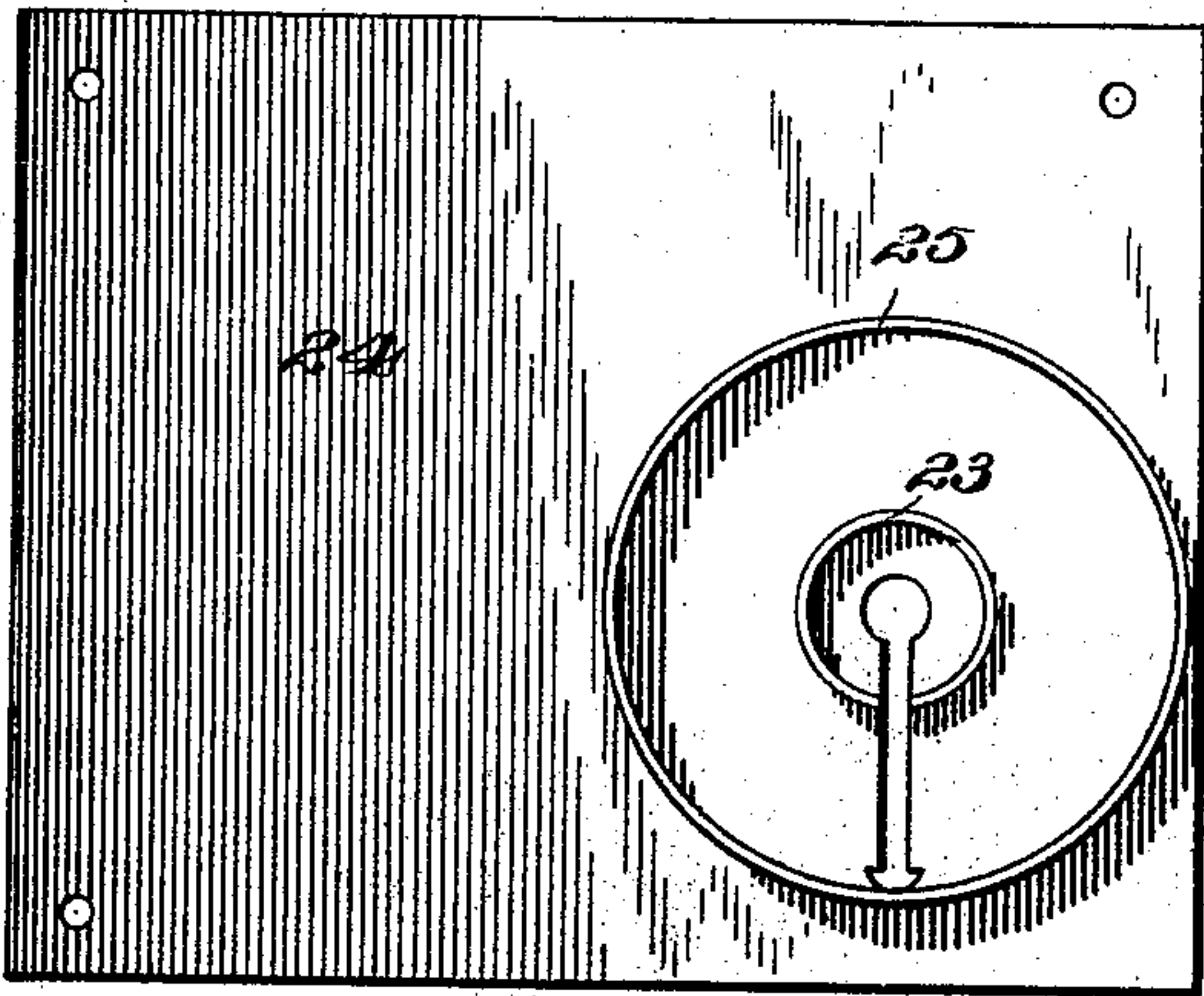
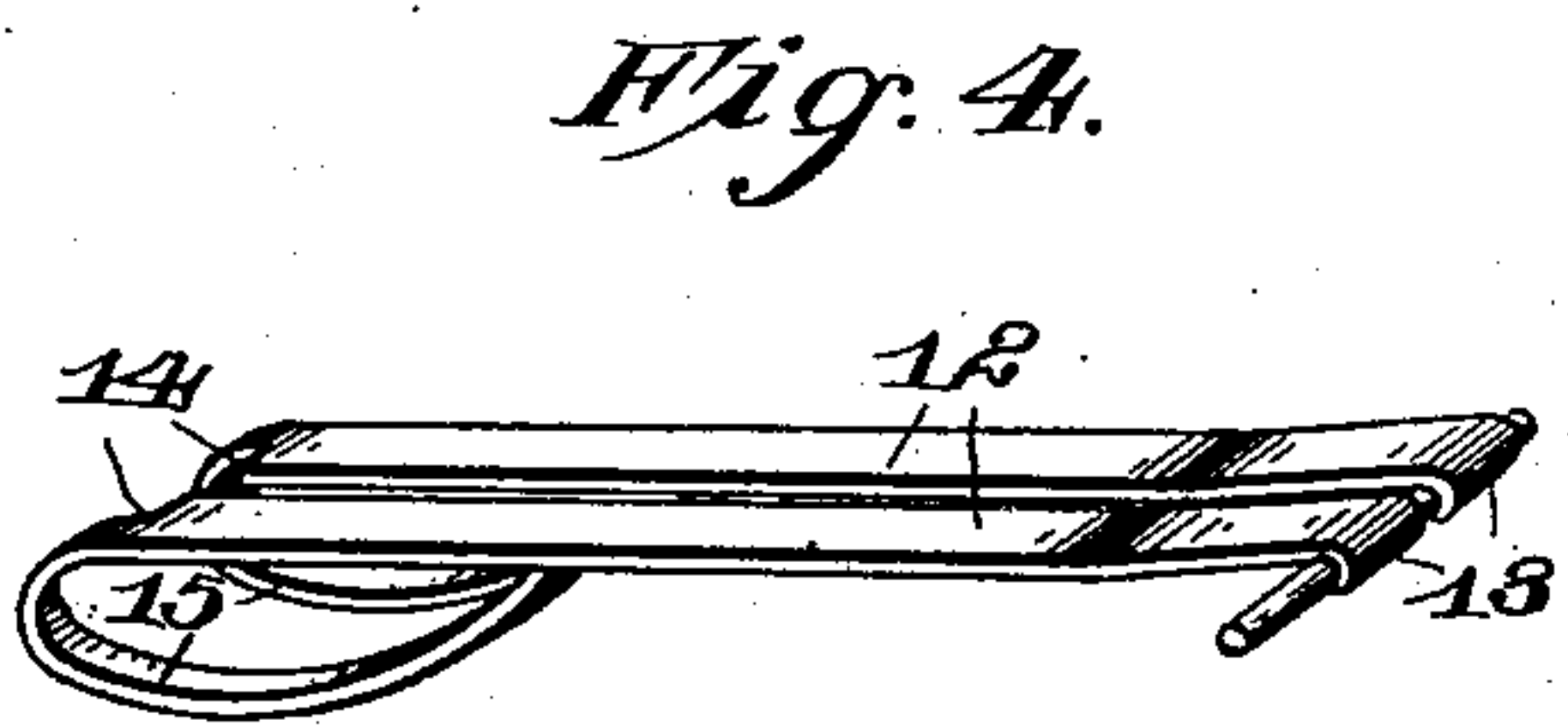
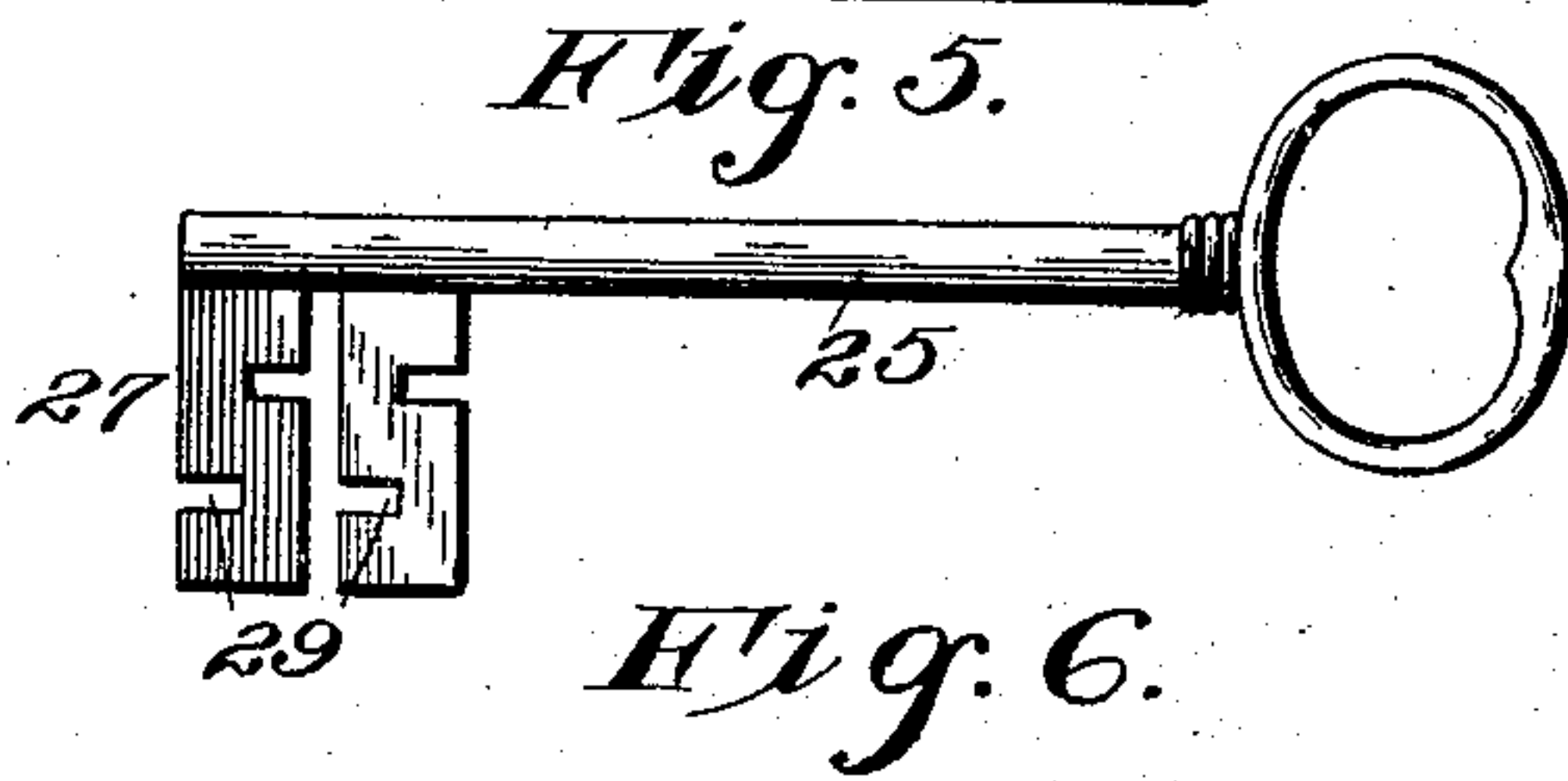
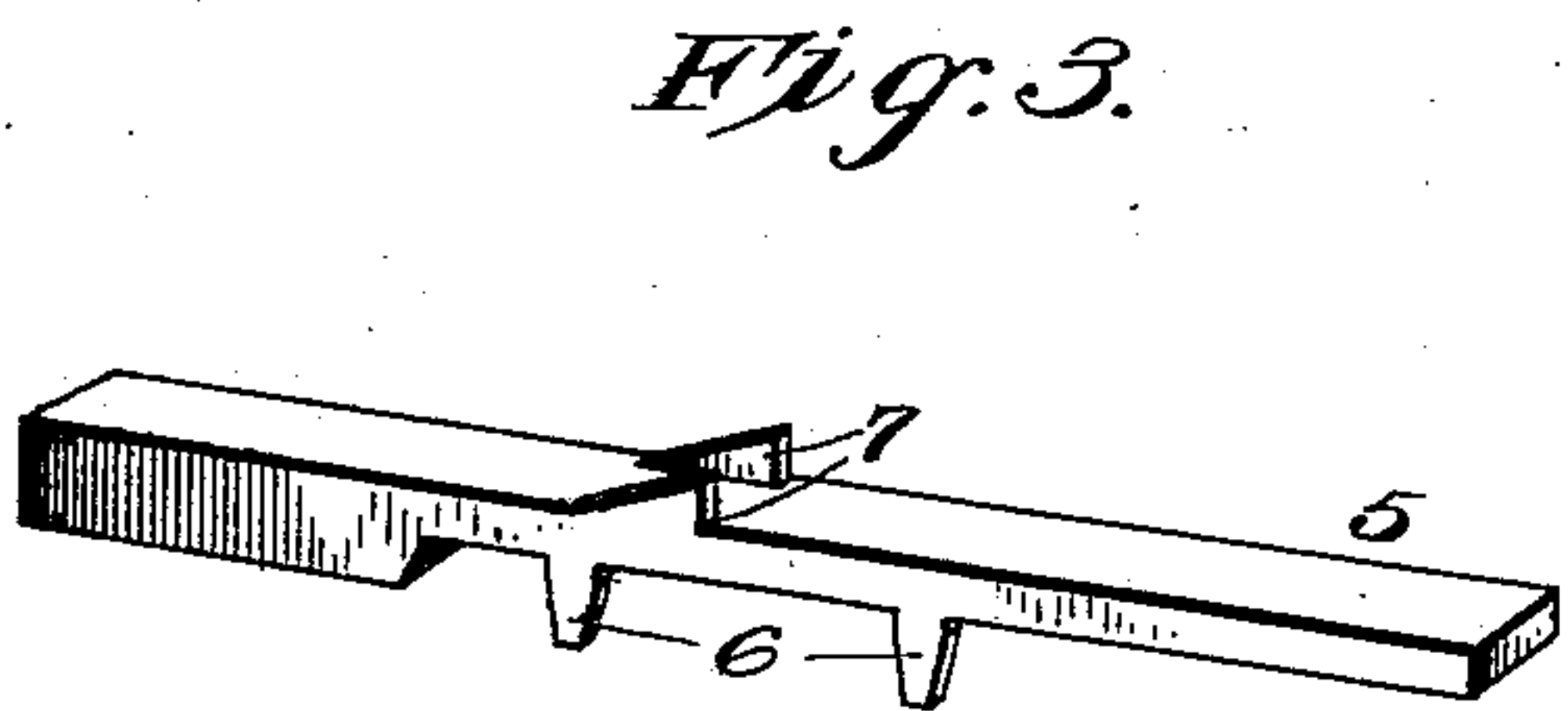
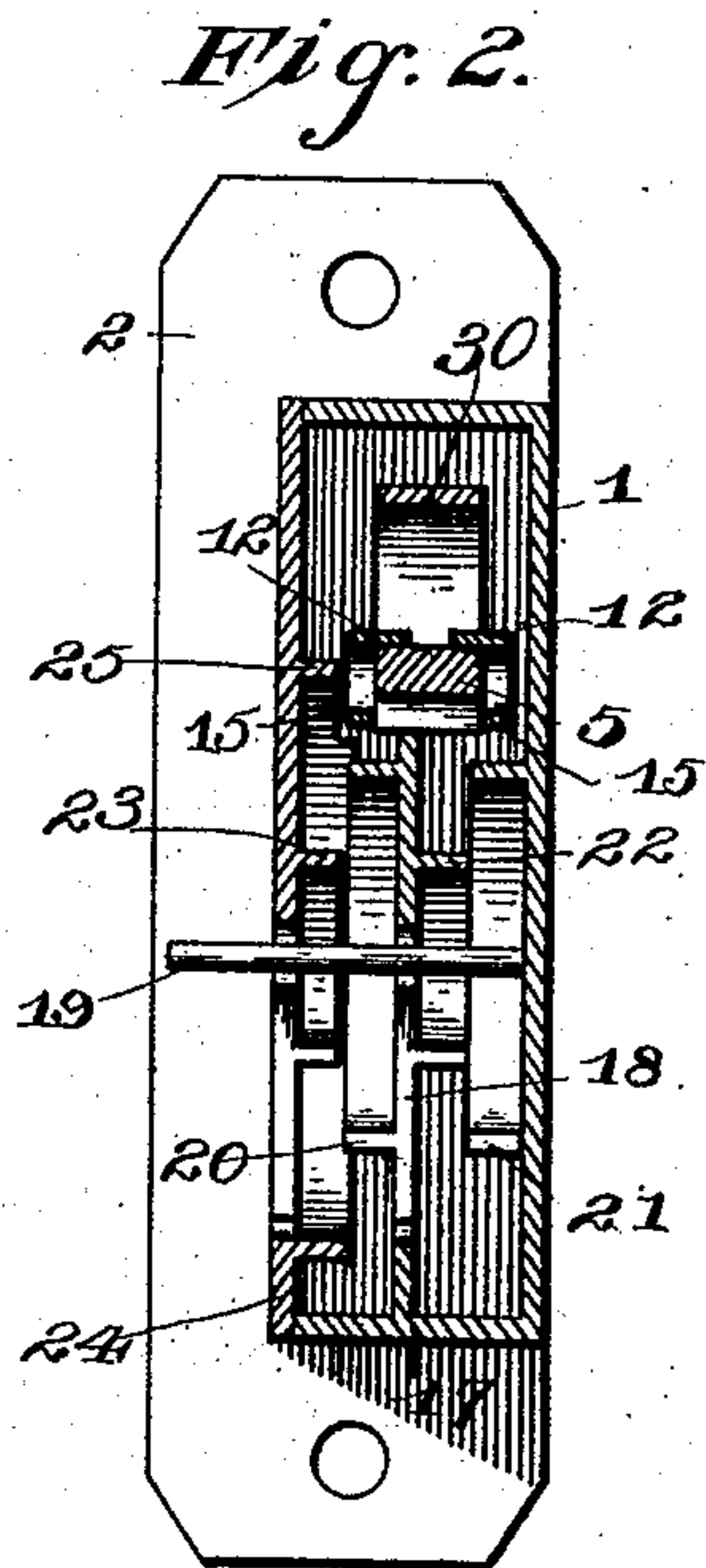
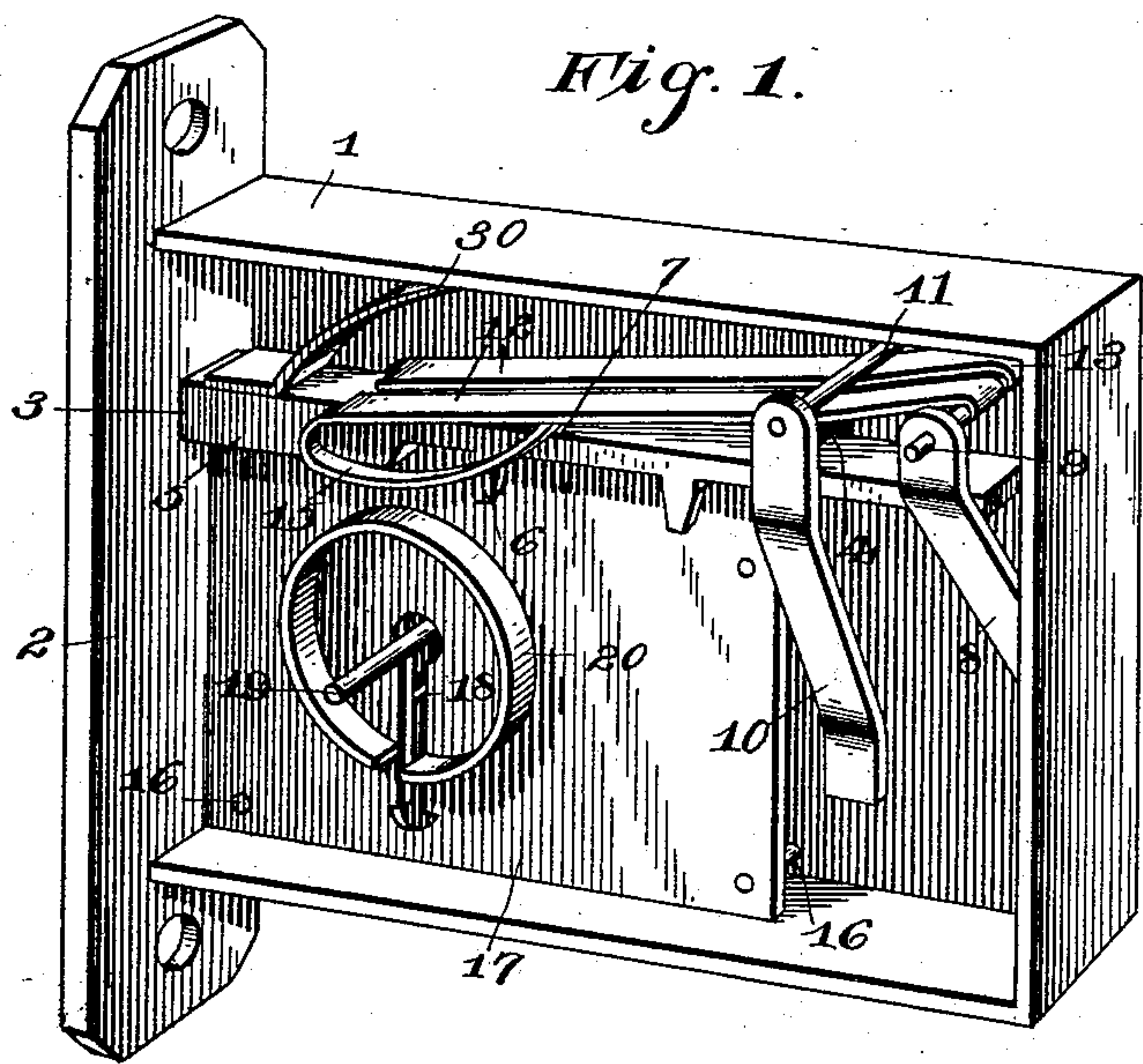


(No Model.)

C. P. NIXHOLM.
LOCK.

No. 506,792.

Patented Oct. 17, 1893.



Inventor

Witnesses:

C. A. Ford.

W. S. Duvall.

By his Attorneys,

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C. Snow & Co.

UNITED STATES PATENT OFFICE.

CALLE P. NIXHOLM, OF HECLA, MONTANA, ASSIGNOR OF ONE-THIRD TO
CHARLES RUNDBERG, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 506,792, dated October 17, 1893.

Application filed June 6, 1893. Serial No. 476,769. (No model.)

To all whom it may concern:

Be it known that I, CALLE P. NIXHOLM, a subject of the Czar of Russia, residing at Hecla, in the county of Beaver and State of Montana, have invented a new and useful Lock, of which the following is a specification.

My invention relates to improvements in locks; and the objects in view are to provide a lock of cheap and simple construction and which is proof against picking or of a successful tampering therewith by an unauthorized person.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a perspective view of a lock embodying my invention, the face-plate of the lock being removed. Fig. 2 is a vertical transverse sectional view through the key-guiding pin of the lock. Fig. 3 is a detail in perspective of the bolt. Fig. 4 is a similar view of the twin springs. Fig. 5 is a detail in elevation of the key for operating in the lock. Fig. 6 is a reverse view of the face plate.

Like numerals of reference indicate like parts in all the figures of the drawings.

The lock-case 1 is of the usual rectangular shape, and is provided at one end with the flange 2 having the bolt-opening 3. In this opening, and a keeper 4 longitudinally aligning therewith, there is mounted for reciprocation the bolt 5. The bolt 5 is provided upon its under side with a pair of depending lugs 6 and upon its upper side at its opposite edges with a pair of shoulders 7 whose front edges are inclined and whose rear edges are abrupt. A bracket arm 8 extends from the back wall of the lock and supports in connection with said wall a transverse pin 9. A similar bracket 10 extends from said back wall in front of the bracket arm 8 and in connection with the back wall supports a similar pin 11. Upon the pin 9 there are loosely mounted the inner or rear ends of a pair of flat or what might be termed twin-springs 12, the same being arranged side by side. The inner or rear ends of these springs are shaped to form eyes 13, which receive and are loosely mounted upon the pin 9, the opposite or front

ends of the springs being cut away to form notches or shoulders 14 for engaging with the shoulders 7 of the bolt, and to one side or beyond said shoulders 14 provided with depending cam-portions 15, which embrace the opposite sides of the bolt. Between their ends the springs pass under the pin 11, and are thus maintained in such a position as to bear upon the bolt.

Supported upon a series of posts 16 between the face-plate and back wall of the lock and extending from the under side of the bolt to the lower wall of the lock, is a partition or diaphragm 17 which is provided with a key-hole 18, through the eye of which there extends from the back wall a pin 19 for the purpose of guiding the key hereinafter described.

Upon the outer side of the diaphragm 17 and upon the inner face of the back wall of the lock casing there are respectively mounted circular wards 20 and 21, which wards are cut away at those points where they intersect the key-hole. A similar though smaller ward 22 is upon the under side of the diaphragm, and a corresponding ward 23 is formed upon the under side of the face plate 24 of the lock-casing. There is also formed upon this face-plate an inclosing flange 25, which might be said to act in the capacity of a ward.

Referring to Fig. 5, 25 designates the stem or body of the key, which is provided at one end with the usual bow and at the opposite end with the web 27. This web is provided with a central slot radiating from the stem to the outer end of the web and at a right angle to the stem, the slot being designed to receive the diaphragm of the lock, and the bifurcations thus formed of the web are provided in their upper and lower edges and near their inner and outer ends with wards or notches 29, which receive the several circular wards heretofore described as being formed upon the inner and outer faces of the diaphragm, the back wall of the lock, and the face plate thereof. The key having been inserted in the slot or key-hole to which it is guided through the medium of the key guiding pin or spindle, it will be seen that the same may be rotated, the wards of the key fitting those of the lock, and that the bifurcations thereof

will engage with the lugs 6 at the inner and outer sides of the bolt, thus moving said bolt forward or to a "shot" position and into the keeper. The bolt is steadied in its movement
 5 by means of a curved flat spring 30 secured to the upper wall of the lock-case and bearing at its upper end upon the upper side of the bolt. When thus shot it will be seen that the shoulders of the bolt pass beyond the ends of the
 10 twin springs so that the shoulders of the latter drop beyond the shoulders of the bolt and prevent a retraction of the bolt without a previous or simultaneous elevation of the springs, whereby a disengagement of the springs and
 15 bolt is effected. In order to accomplish such retraction the springs, as before stated, are provided upon their undersides with the cams 15, which are rounded at both ends and lying between the lugs 6 at each side of the bolt
 20 are operated upon by the bifurcations of the web of the key before the rear lugs are acted upon by said bifurcations and hence by a retrograde rotation of the key, the springs are first elevated and subsequently the rear
 25 lugs are engaged with and the bolt moved back out of a locked or "shot" position.

It will be seen that the complexity of the different wards, employment of the diaphragm, &c., all combine to produce a lock
 30 which it is next to impossible to pick or open with any key but the proper one, and hence though of similar construction the lock is exceedingly safe and may be relied upon for all ordinary use.

Various changes in the details of the invention will be readily made without deviating from the spirit or sacrificing any of the advantages thereof, and I therefore do not
 35 limit my invention to such precise details of construction as I have herein shown and described.
 40

Having described my invention, what I claim is—

1. In a lock, the combination with the casing, a diaphragm between the front and back walls thereof, a key-hole formed in the front wall and the diaphragm, a spindle extending from the back wall through the key-holes thus
 45 formed, and a series of wards arranged upon the diaphragm, back, and front walls, of a bolt arranged above the diaphragm and having lugs at its opposite edges embracing the diaphragm, shoulders on the bolt, and a pair of flat springs pivoted in the casing, bearing
 50 on the bolt provided with shoulders for engaging therewith, and beyond said bolt at opposite sides provided with cam portions upon their under sides, substantially as specified.
 55

2. In a lock, the combination with the casing, the intermediate diaphragm, the key-hole formed in the casing and diaphragm, the key-guiding spindle extending from the back wall of the casing through the key-holes thus
 60 formed, the inner and outer wards formed upon the inner and outer sides of the diaphragm and of different diameters, the ward formed upon the back wall agreeing with that upon the outer side of the diaphragm, the ward
 65 formed upon the inner side of the front wall and agreeing in diameter with that upon the inner side of the diaphragm, of the superimposed bolt provided at opposite sides of the diaphragm with a pair of depending lugs and between the same upon its upper side and at
 70 its opposite edges with shoulders inclined at their front edges and abrupt at their rear edges, a flat steadying spring secured to the upper flange or wall of the casing and bearing upon the bolt, the bracket arms 8 and 10
 75 supporting the transverse pins 9 and 11, respectively, the flat springs 12 having eyes 13 engaging the pin 9 and passed under the pin 11, said springs having their front ends shouldered as at 14 to engage with the shoulders of
 80 the bolt and at opposite sides thereof provided with the depending curved cam portions 15, substantially as specified.
 85

3. In a lock, the combination with the lock-casing, a key guide and opening, of keepers, a reciprocating bolt arranged in the keepers,
 90 lugs depending from the under side of the bolt, a shoulder arranged upon the upper side of the bolt and having an inclined front face and a rear abrupt end, a flat spring pivoted in the casing and bearing upon the bolt in line
 95 with the shoulder, said spring having a notch for engaging the rear end of the shoulder and provided upon its outer side with a depending cam portion, substantially as specified.

4. In a lock, the combination with the casing, a diaphragm between the front and back walls thereof, and a key-hole formed in the front wall and the diaphragm, of a bolt arranged above the diaphragm, and a pair of
 100 flat springs pivoted in the casing, bearing on the bolt, and beyond said bolt at opposite sides provided with cam portions upon their under sides, substantially as specified.
 105

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

CALLE P. NIXHOLM.

Witnesses:

G. G. EARLE,
 B. BRADFORD.