

No. 656,942.

Patented Aug. 28, 1900.

J. CLARK.
RATCHET BRAKE.

(Application filed Feb. 28, 1900.)

(No Model.)

Fig. 1.

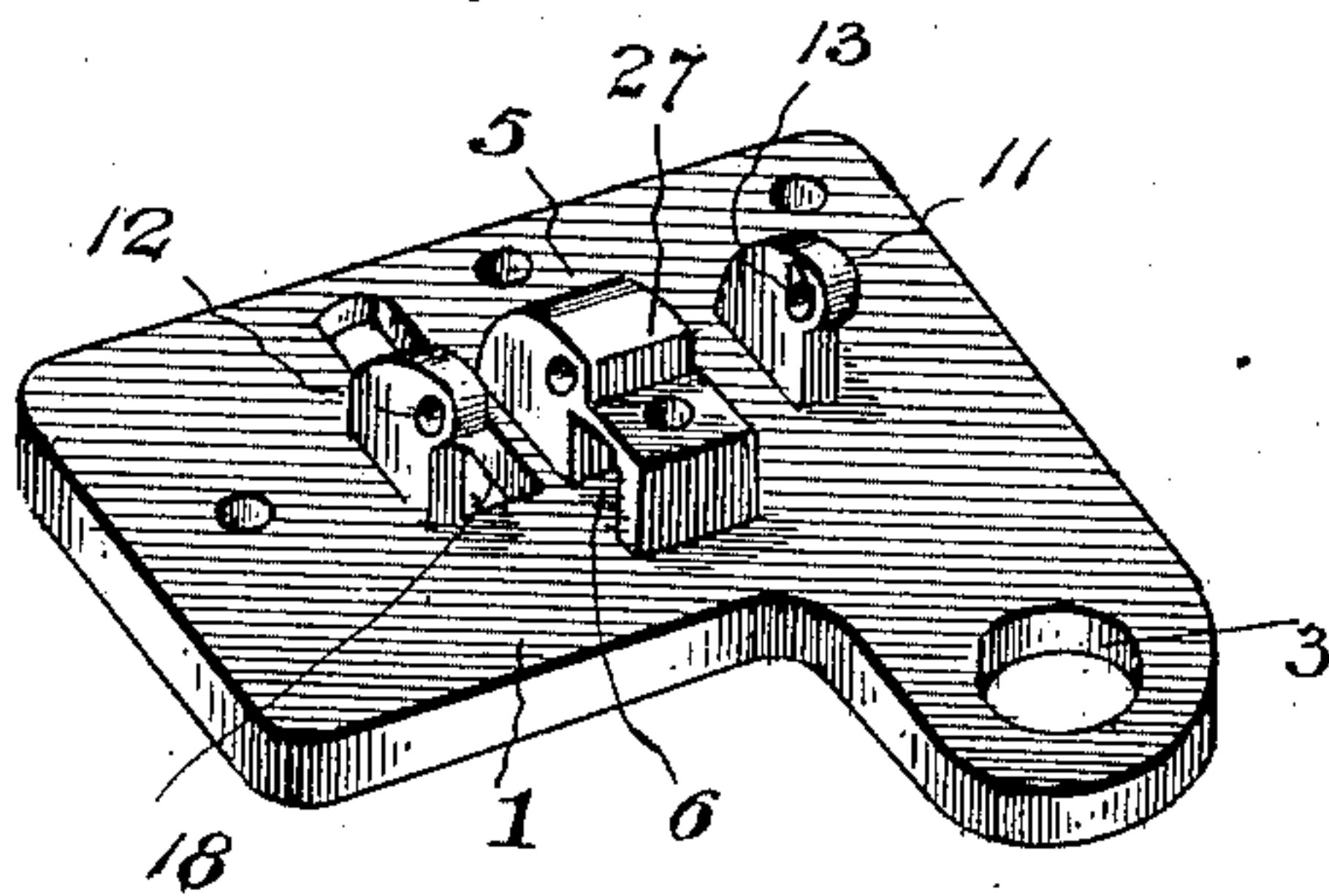


Fig. 5.

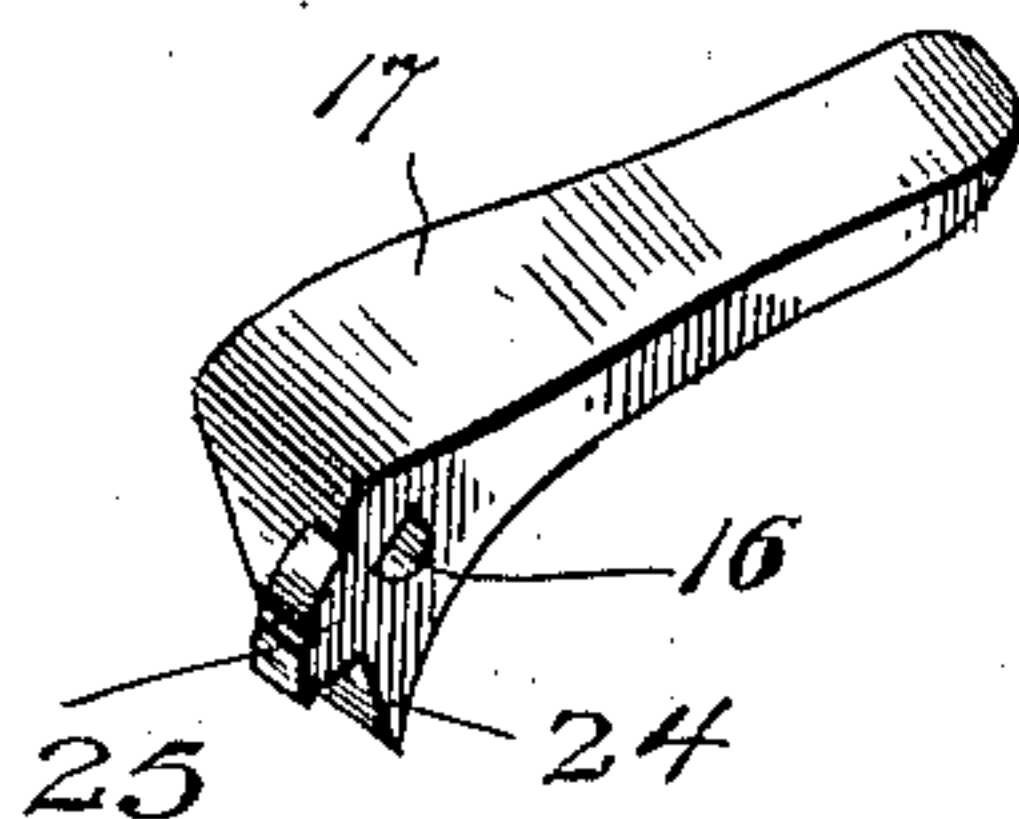


Fig. 2.

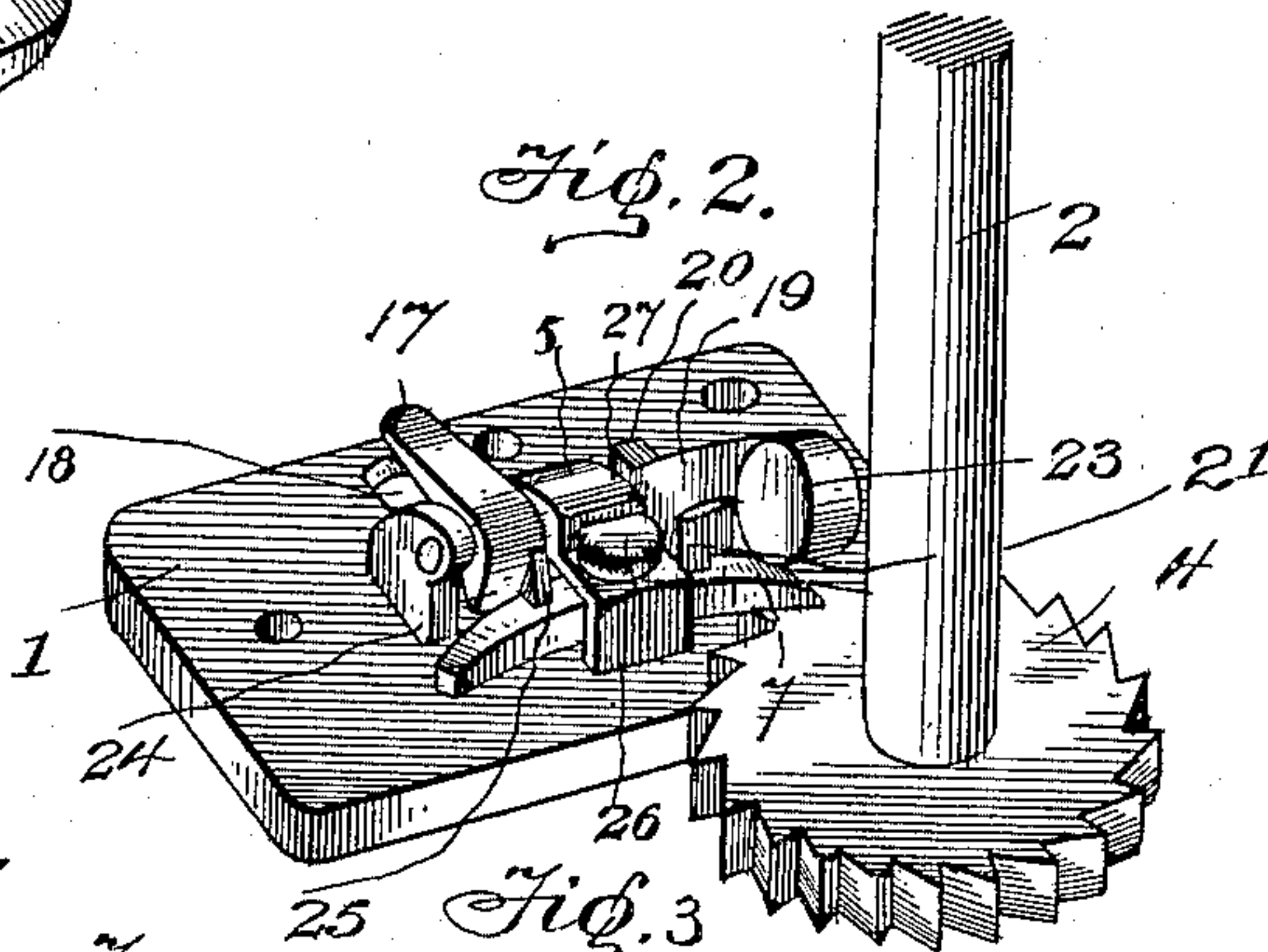


Fig. 8.

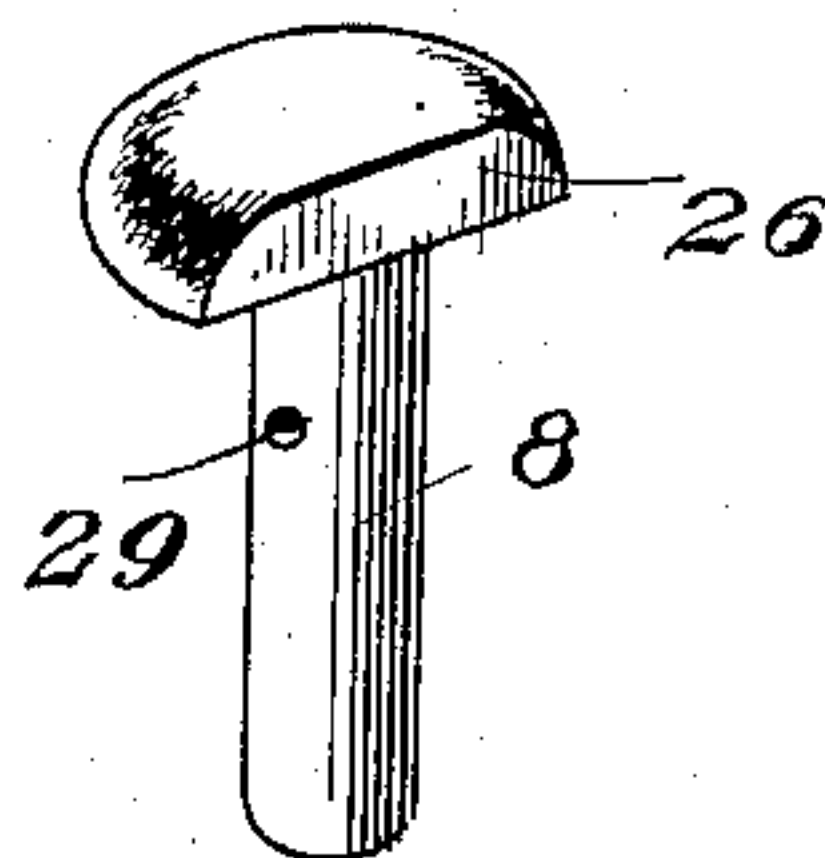


Fig. 6.

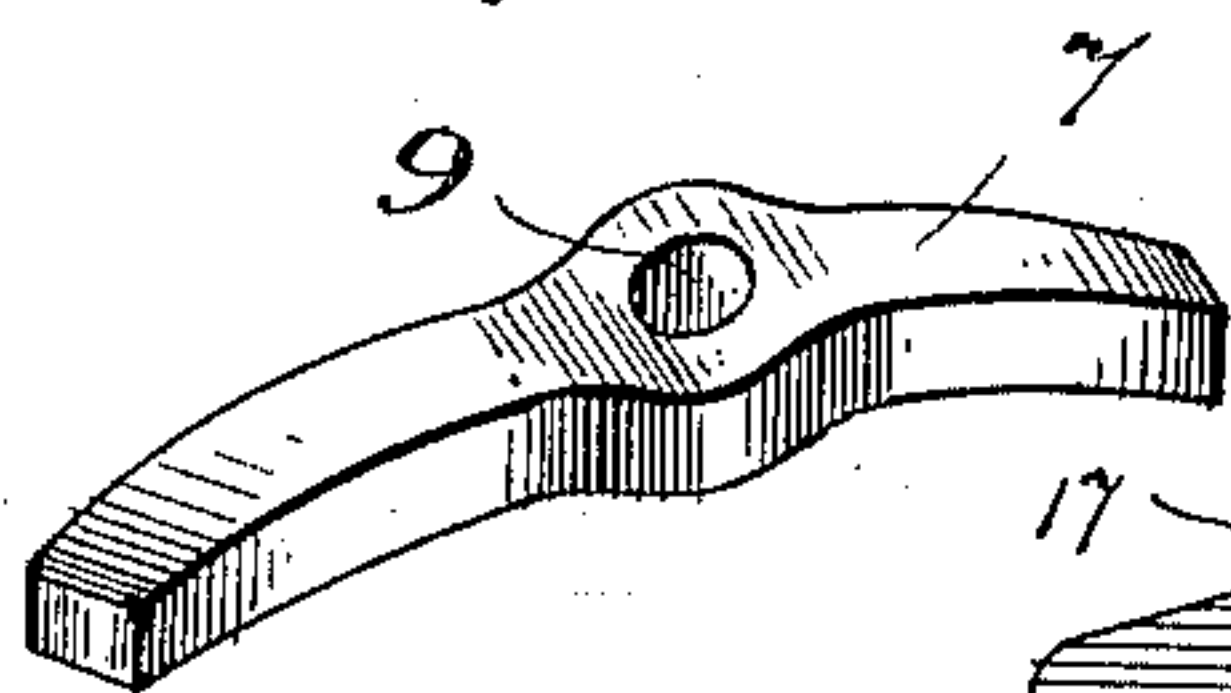


Fig. 3.

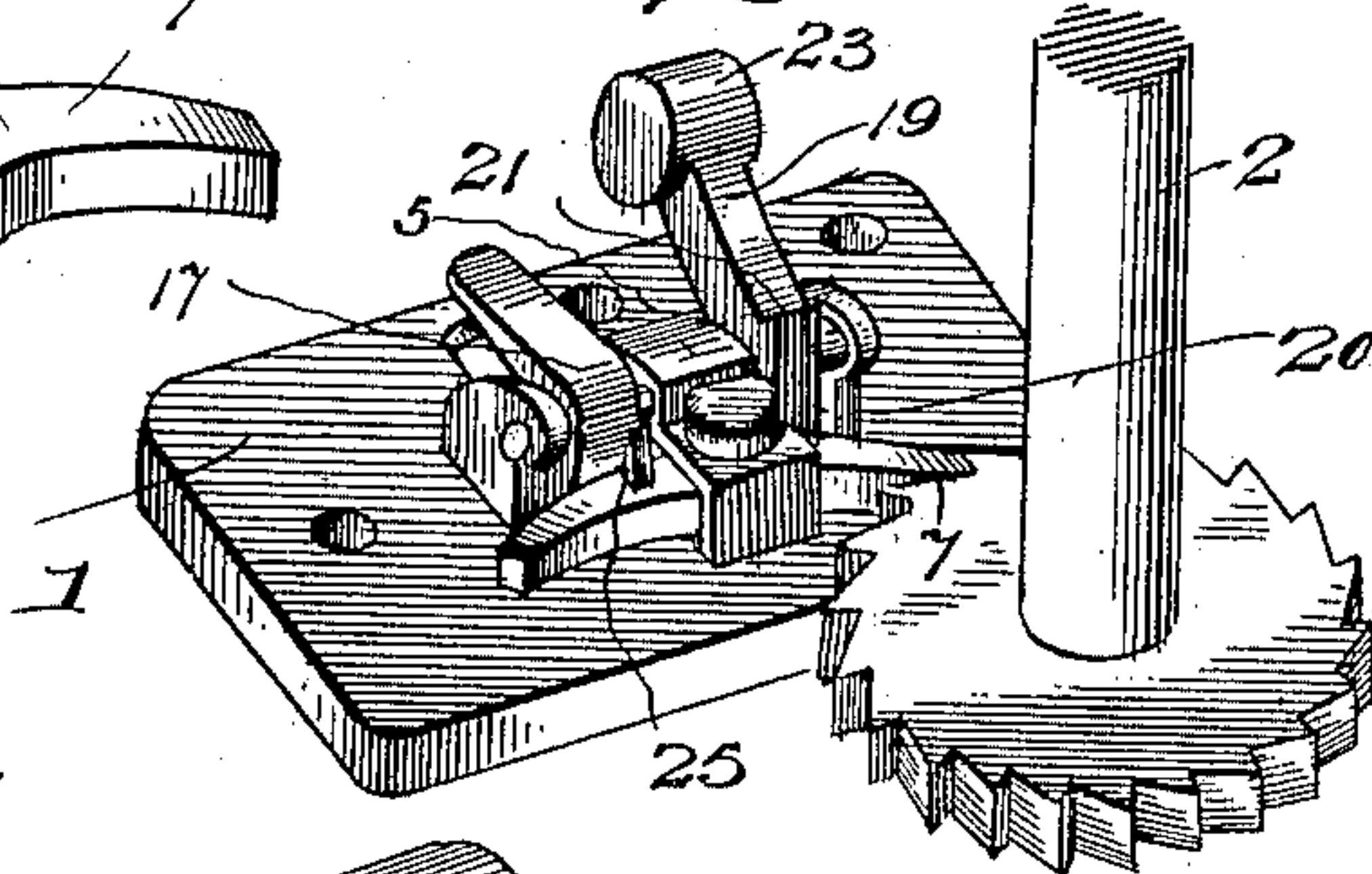


Fig. 9.

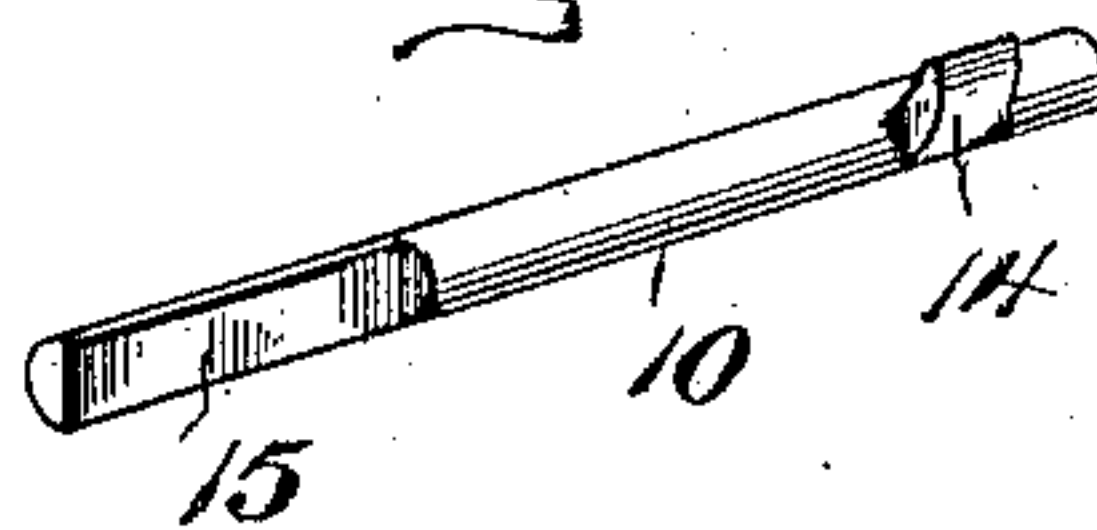


Fig. 7.

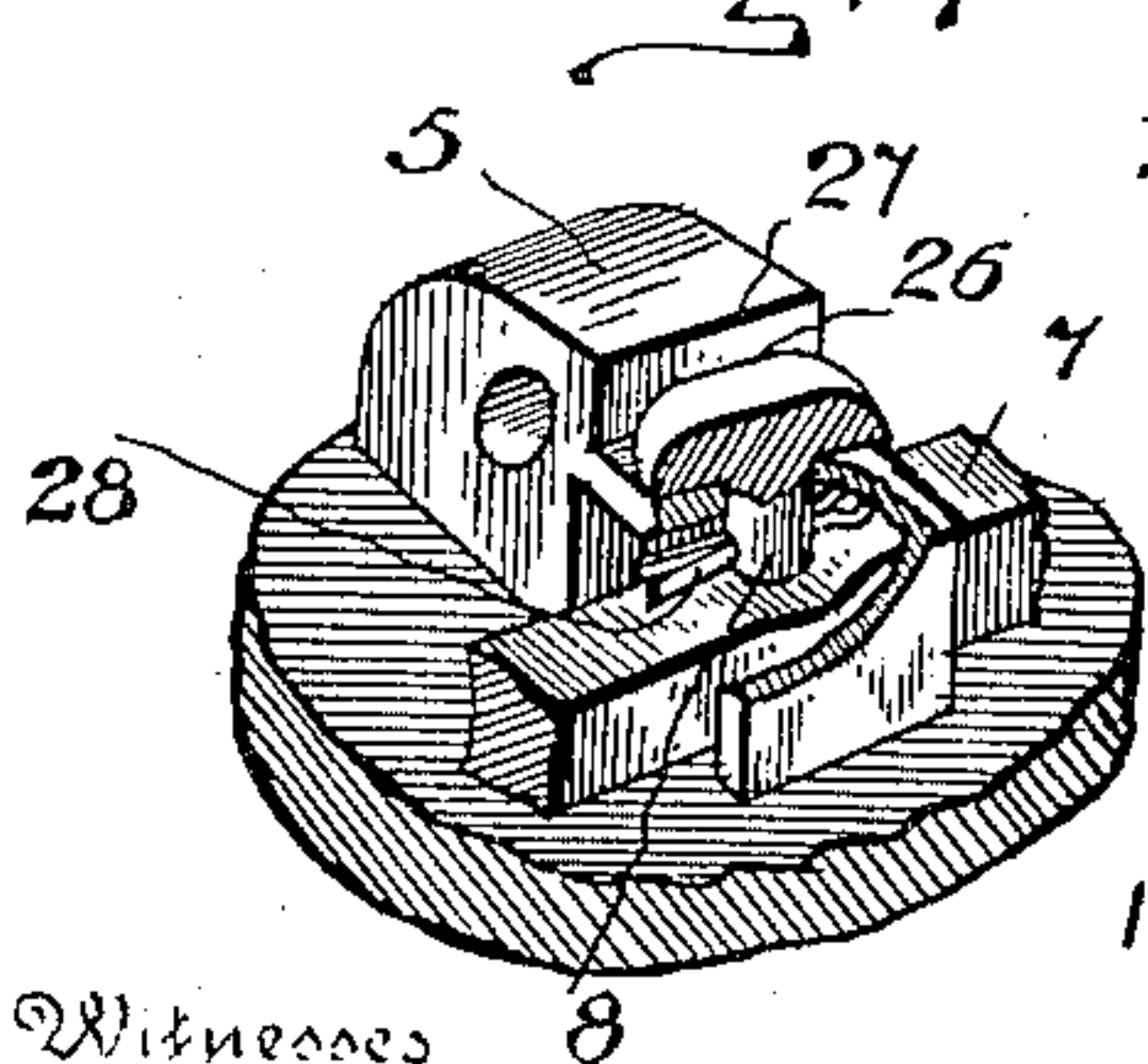


Fig. 4.

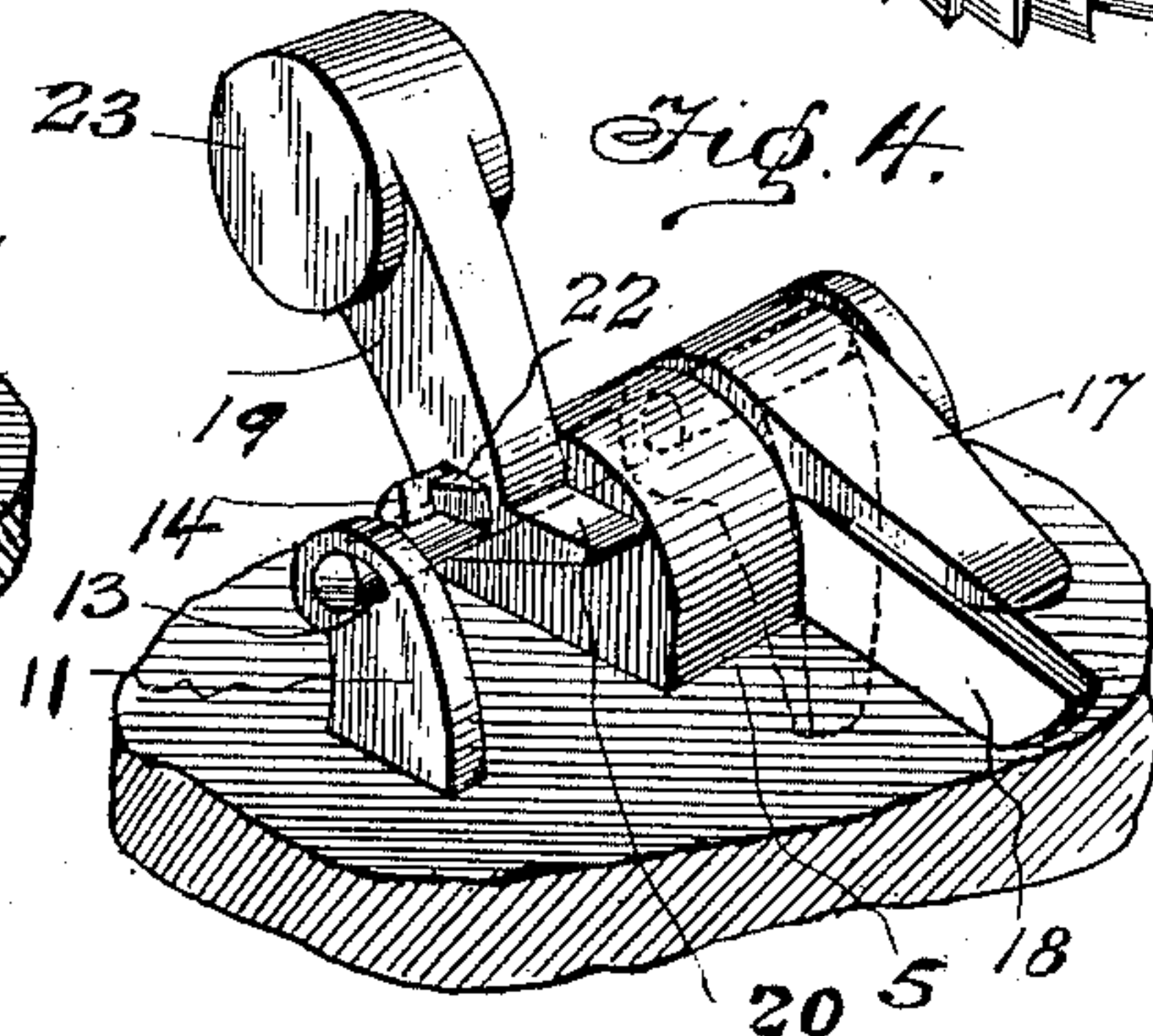


Fig. 10.



Witnesses
Fenton S. Belt
Marcus L. Byrnes.

Inventor
James O. Clark
by
Charles F. Smith
His Attorneys

UNITED STATES PATENT OFFICE.

JAMES CLARK, OF COLORADO SPRINGS, COLORADO, ASSIGNOR OF ONE-HALF TO A. B. CLARK, OF CLARINDA, IOWA.

RATCHET-BRAKE.

SPECIFICATION forming part of Letters Patent No. 656,942, dated August 28, 1900.

Application filed February 28, 1900. Serial No. 6,838. (No model.)

To all whom it may concern:

Be it known that I, JAMES CLARK, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented certain new and useful Improvements in Ratchet-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in mechanism for controlling the staffs of brakes; and it consists in a pawl adapted to engage the ratchet-wheel of a brake-staff, a weight pivotally mounted and adapted to engage the said pawl for holding the same in or out of engagement with the ratchet-wheel, and a foot-lever for throwing the weight one way or the other, as may be desired.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a base-plate for holding the ratchet-controlling mechanism. Fig. 2 represents a perspective view of a brake-ratchet-controlling mechanism constructed in accordance with my invention, the pawl of said mechanism being held out of engagement with the ratchet-wheel. Fig. 3 represents a similar view, but showing the pawl held in engagement with the ratchet-wheel. Fig. 4 represents a detail perspective view showing a portion of the base-plate, the weighted lever, and the foot-operated lever of my improved brake-controlling mechanism. Fig. 5 represents a detail perspective view of the foot-lever. Fig. 6 is a detail perspective view of the pawl. Fig. 7 represents a detail perspective view of a portion of the brake-controlling mechanism, showing the manner of securing the pawl in place upon the base-plate. Fig. 8 represents a perspective view of the pivot-pin used to hold the pawl in position. Fig. 9 is a perspective view of the shaft or pivot-rod upon which the weighted lever and the foot-lever are mounted. Fig. 10 is a perspective view of a cotter-pin.

In providing means for controlling brake-staffs, especially those which are used in connection with brakes applied by hand, it is

very desirable to have a mechanism for controlling the turning of the brake-staff which can be readily thrown into and out of engagement with the usual ratchet-wheel applied to the said brake-staff. The present invention is designed to supply a mechanism of this character in which the mere pressure of the foot may be used to quickly throw the controlling-pawl of a brake-staff either into engagement or out of engagement with the ratchet-wheel, it not being necessary to change the position of the foot for the two different operations.

In carrying out the features of my invention I preferably mount the mechanism upon a base-plate, as 1, which is suitably situated so as to receive the brake-staff 2. The base-plate 1 is preferably provided with a bearing, as at 3, to receive the brake-staff 2, the said staff being preferably provided with a ratchet-wheel 4 just above the bearing 3 in the said base-plate 1. Formed upon the upper side of the base-plate 1 is a central upwardly-extending projection or housing, as 5, which may be cast, if desired, integral with the said base-plate. This projection is formed with a recess, as at 6, in which is inserted a ratchet-controlling pawl 7. This pawl is preferably pivotally held in the recess 6 by means of a pivot-pin 8, which passes through apertures in the projection 5 and the base-plate 1, as well as through an aperture 9 in the pawl 7. The pawl 7 projects at each end beyond the housing 5, one end being adapted to engage the teeth of the ratchet-wheel 4, while the other end extends upon the other side of the pivot-pin 8 in the usual manner. Mounted in the housing or projection 5 is also a pivot pin or rod 10, which extends beyond the said housing 5 at each end and is further supported near its ends by means of standards 11 and 12, which are formed with journal-bearings to accommodate the ends of the said pin or rod 10. The journal-bearing formed in the standard 11 is preferably provided with an extension or enlargement, as at 13, so that in inserting the rod or pivot-pin 10 a lug 14, formed upon the same, may pass through the aperture thus formed in the standard 11, the said lug 14 being thus brought between the standard 11 and the housing 5. The other end of the pivot pin or rod 10 is flattened, as

at 15, and is thus adapted to engage a correspondingly-shaped recess or aperture, as 16, formed in the foot-lever 17. By this construction when the foot-lever is in position upon the pivot-rod 10 it will be adapted to rotate the said pivot-rod when pressure is applied to it. The position of the enlarged bearing 13 is such with respect to the lug 14 upon the pivot-rod 10 that when the said rod is inserted the foot-lever must be bent downwardly to a point below its normal position in order to slip upon the flattened end of said rod. For this purpose I form a recess or cut-away portion, as at 18, in the base-plate 1 immediately beneath the place occupied by the foot-lever 17. This aperture permits the end of the foot-lever to swing down sufficiently to make it possible for the said foot-lever to be placed upon the end of the rod 10. When the foot-lever is in its normal position, the rod 10 will be turned so far that the lug 14 cannot pass out through the enlarged bearing 13, and the rod will thus be locked in position against accidental displacement.

Pivotally mounted upon the pivot-rod 10 is a weighted lever 19. The lever 19 is formed with oppositely-extending pawl-engaging projections, as 20 and 21, at its lower end, the said projections being so located when the lever is pivotally mounted upon the rod 10 that the projection 20 will engage the pawl 7 upon the side, and when the weighted lever is moved in the other direction its projection 21 will engage the top of the pawl 7. The weighted lever is loosely mounted upon the rod 10 at a point quite close to its lower end and carries a lug, as 22, upon one side, which is adapted to be engaged by the lug 14 upon the rod 10. When the lever is thrown forward toward the brake-staff 2, as seen in Fig. 2 of the drawings, the projection 21 in the said lever will rest upon the top of the pawl 7 and at the same time the lug 22 will engage the lug 14. When the foot-lever 17 is actuated by the toe of the operator, the said lever will partially rotate the pivot-rod 10, its lug 14 forcing the lug 22 with it, thereby throwing the weighted lever away from the brake-staff, as shown in Fig. 3 of the drawings.

While a weight may be secured to the lever 19 in any suitable manner, I preferably cast the upper end of said lever with a thickened portion, as at 23, to form a weight. The foot-operated lever 17 is provided with a heel or projection, as 24, which bears against the outer surface of the pawl 7. The foot-lever 17 is further provided with a lug 25, which is adapted to engage the top surface of the pawl 7. When the foot-lever is depressed, the projection 24 will force the end of the pawl 7 forward, disengaging the same from the teeth of the ratchet 4, the said pawl also striking the projection 20 of the weighted lever 19 and throwing it forward toward the brake-staff.

When the foot-lever is again depressed, it will turn the shaft 10 and throw the weighted lever away from the brake-staff and cause

the return of the said pawl into engagement with the ratchet-teeth by the action of the projection 20 of the lever 19. The lug 25 upon the foot-lever 17 limits the motion of the said foot-lever in one direction.

In assembling the parts the rod 10 is inserted through the enlarged bearing 13, the lever 19 being next threaded upon the said rod. The rod is then pushed on through the bearing in the housing 5 and its flattened end inserted in the recess 16 of the foot-lever. The foot-lever is turned downwardly through the recess 18, so that the lug 14 can pass through the enlarged bearing 13. After the rod 10 has been forced inwardly as far as it will go the foot-lever is then raised and the pawl 7 is inserted in the housing 5 in front of the weighted lever 19 and the foot-lever 17. The pivot-pin 8 is then placed in position, so as to hold the pawl 7 in the said housing. It is preferable to form the pivot-pin 8 so that it will not turn, and for this purpose I form the said pin with a head which is flattened, as at 26, upon one side, the flattened surface being adapted to engage a shoulder 27, formed upon the housing 5. Thus when the pivot-pin is inserted to hold the pawl 7 in position it cannot turn. This pivot-pin is preferably locked in place by means of a cotter-pin 28, which is passed through an aperture 29 in the pivot-pin 8 at a point between the housing 5 and the pawl 7. It will be seen that this one cotter-pin thus operates to lock all of the parts in place, since the pawl 7 when thus held in position prevents the foot-lever from being rotated sufficiently to withdraw the pivot-rod 10 from its bearing. After the parts have been thus assembled the pawl 7 is thrown in one position or the other by merely depressing the foot-lever 17.

It will be seen from the above description that my brake-ratchet-controlling mechanism while simple in construction is capable of throwing the controlling-pawl into and out of engagement with the teeth of the brake-ratchet by a simple movement of the operator's foot. In constructions heretofore used it was necessary when the pawl was to be held in engagement with the ratchet-teeth to place the foot against one end of the pawl, and when the pawl was to be released from the ratchet-teeth it was necessary to change the toe to the other end of the pawl. By the present invention the foot need not be moved from the foot-lever 17, as when depressed said lever always throws the weighted lever to the opposite position from the one it is then occupying. This mechanism also has the advantage that the weighted lever tends to hold the pawl in its altered position under a yielding pressure, so that it is not necessary to keep the foot against the pawl to hold it in or out of engagement with the ratchet-wheel the desired length of time.

Having now described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A ratchet-controlling mechanism for brakes comprising a pivoted pawl, a weighted lever for engaging one end of the said pawl, and a foot-lever engaging the other end of said pawl, means connecting the foot-lever with the weighted lever, the construction being such that the foot-lever may be actuated to move the pawl or to move the weighted lever so as to throw the latter back and forth and thereby hold the pawl into or out of engagement with the ratchet of a brake, substantially as described.

2. A ratchet-controlling mechanism for brakes comprising a base-plate, a pawl pivotally mounted thereon, a weighted lever adapted to engage the top and side of the said pawl, a foot-lever for throwing the said weighted lever back and forth whereby the said lever will alternately engage the top and side of the pawl to hold it in or out of engagement with the ratchet-wheel of a brake, substantially as described.

3. A mechanism for controlling brakes comprising a base-plate, a housing mounted thereon, a pawl pivoted in said housing and projecting upon either side thereof, a pivot-rod also mounted in the said housing, a weighted lever loosely mounted on the said pivot-rod and having projections for engaging the top and side of the said pawl, a foot-lever also mounted upon the said pivot-rod and adapted to partially rotate the same, the said foot-lever also engaging one end of the pawl whereby upon depressing the foot-lever the weighted lever will be thrown to one side or the other and the pawl may be moved back and forth, substantially as described.

4. A ratchet-controlling mechanism for brakes comprising a base-plate, a housing formed thereon, standards having journal-bearings, a ratchet-engaging pawl mounted in said housing, a pivot-rod mounted in the said housing and supported at its ends in the bearings of said standards, the said pivot-rod being provided with a locking-lug adapted to

pass through an enlargement of one of the bearings, a weighted lever loosely mounted upon one end of said pivot-rod, a lug formed upon the said lever engaging the locking-lug on the pivot-rod, a foot-lever mounted upon the other end of the rod and having a flat surface adapted to engage a flattened portion of said rod whereby upon depressing the foot-lever the rod will be rotated, and projections on the weighted lever for engaging the pawl upon its top and side, a projection upon the foot-lever for engaging the said pawl, a limiting-lug also formed upon the said foot-lever, the said foot-lever being adapted to enter a recess formed in the base-plate in order that the locking-lug may be passed through the enlargement in the bearing, the construction being such that upon depressing the foot-lever the pawl will be thrown one way or the other according to the position of the weighted lever, substantially as described.

5. A ratchet-controlling mechanism for brakes comprising a base-plate, a housing mounted thereon, a pawl pivoted in the said housing, a pivot-rod also mounted in the said housing, a weighted lever loosely mounted in the pivot-rod, a foot-lever also mounted on the said rod and adapted to rotate the same, a pivot-pin for holding the pawl in position in the housing the said pin having a flattened head, a shoulder upon the housing for engaging the said flattened portion to prevent the pin from turning, and a cotter-pin for locking the said pivot-pin in position, the construction being such that the said cotter-pin, through the agency of the pivot-pin and the pawl operates to lock all the parts in place, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES CLARK.

Witnesses:

FRANKLIN E. CLARKE,
SADIE M. CLARK.