

E. RANSOM.
PICKET FENCE MACHINE.

No. 395,586.

Patented Jan. 1, 1889.

Fig. 1

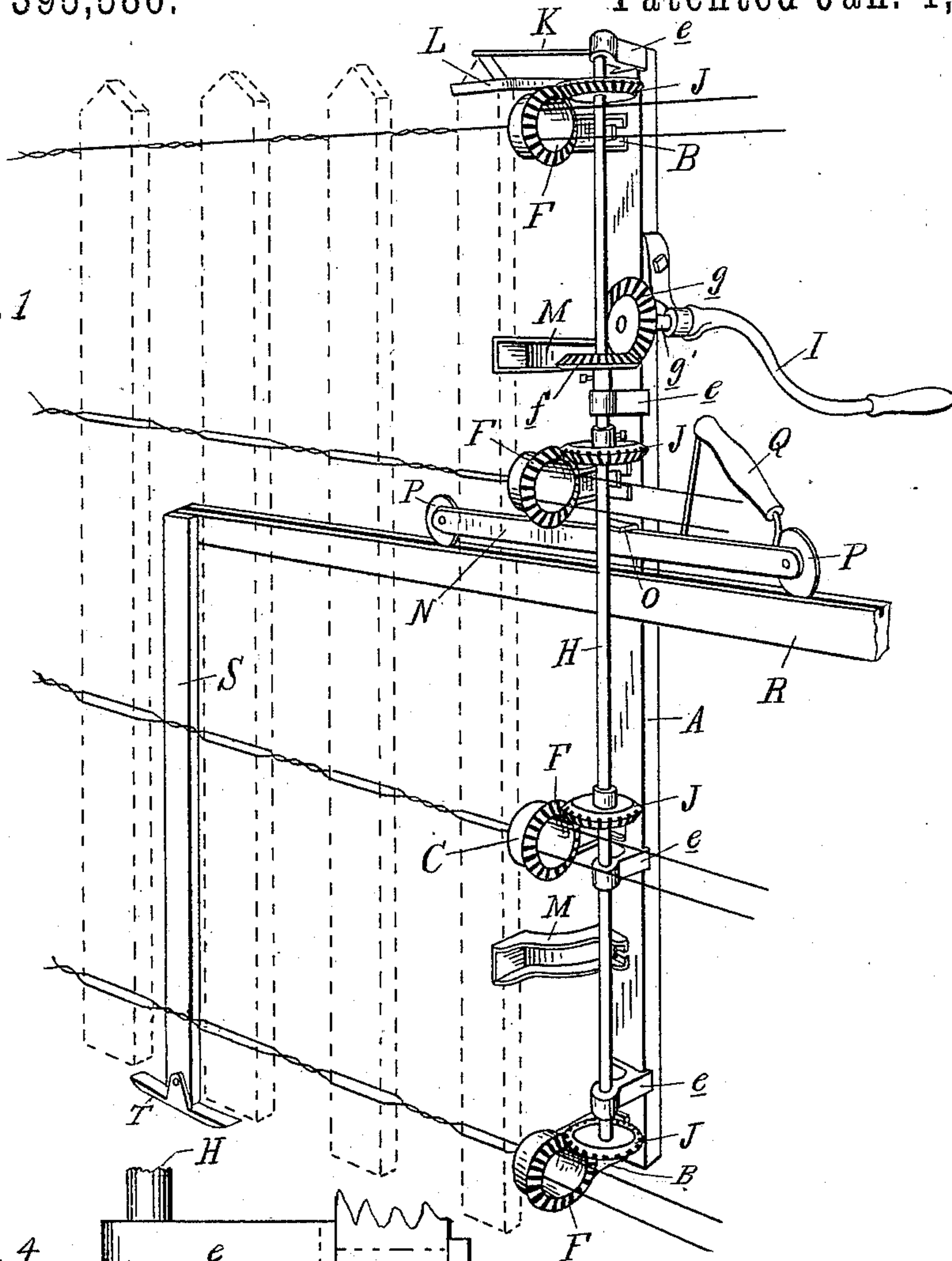
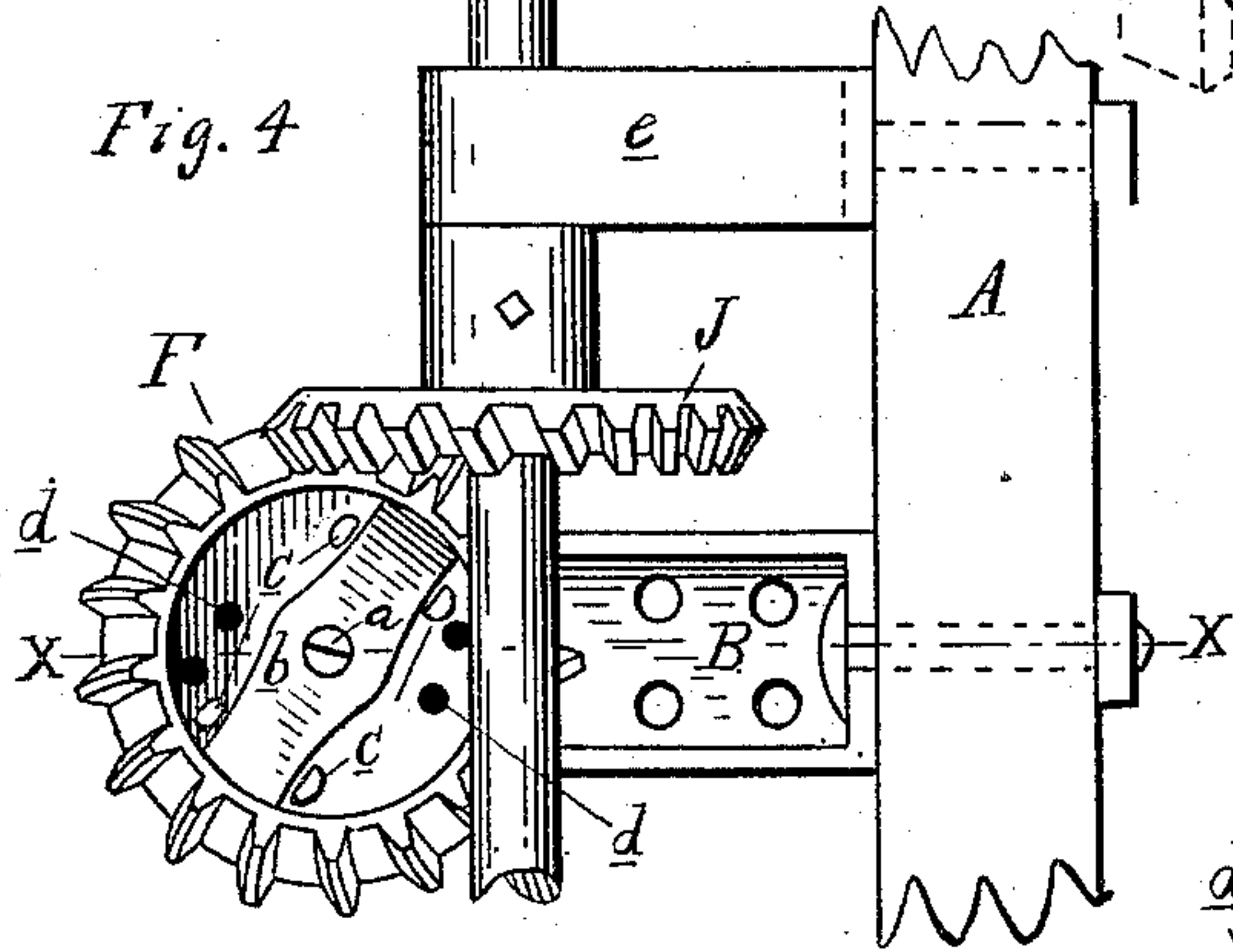


Fig. 4



Witnesses:
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Fig. 6

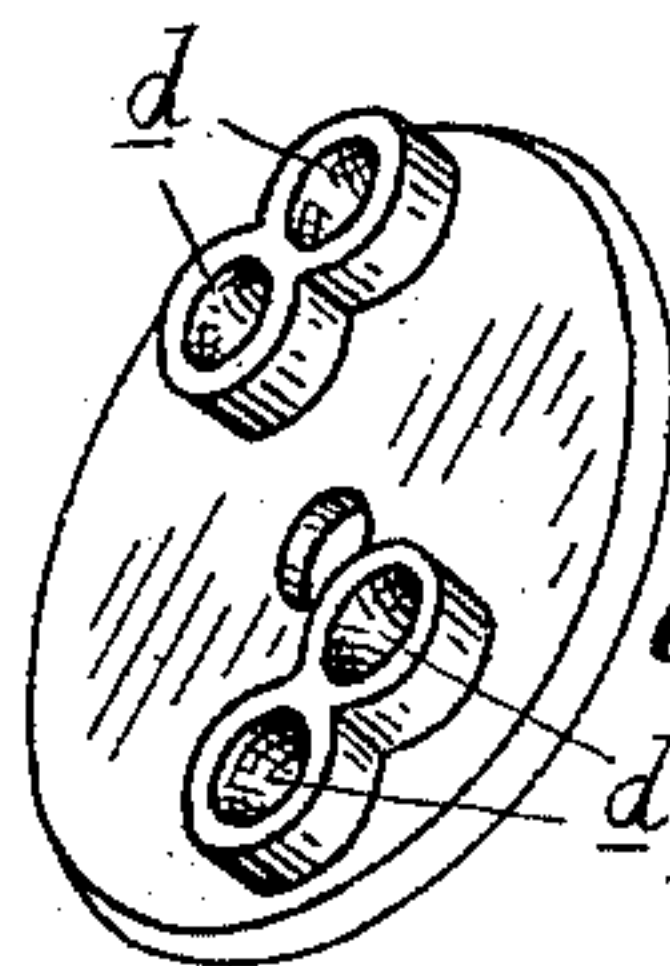
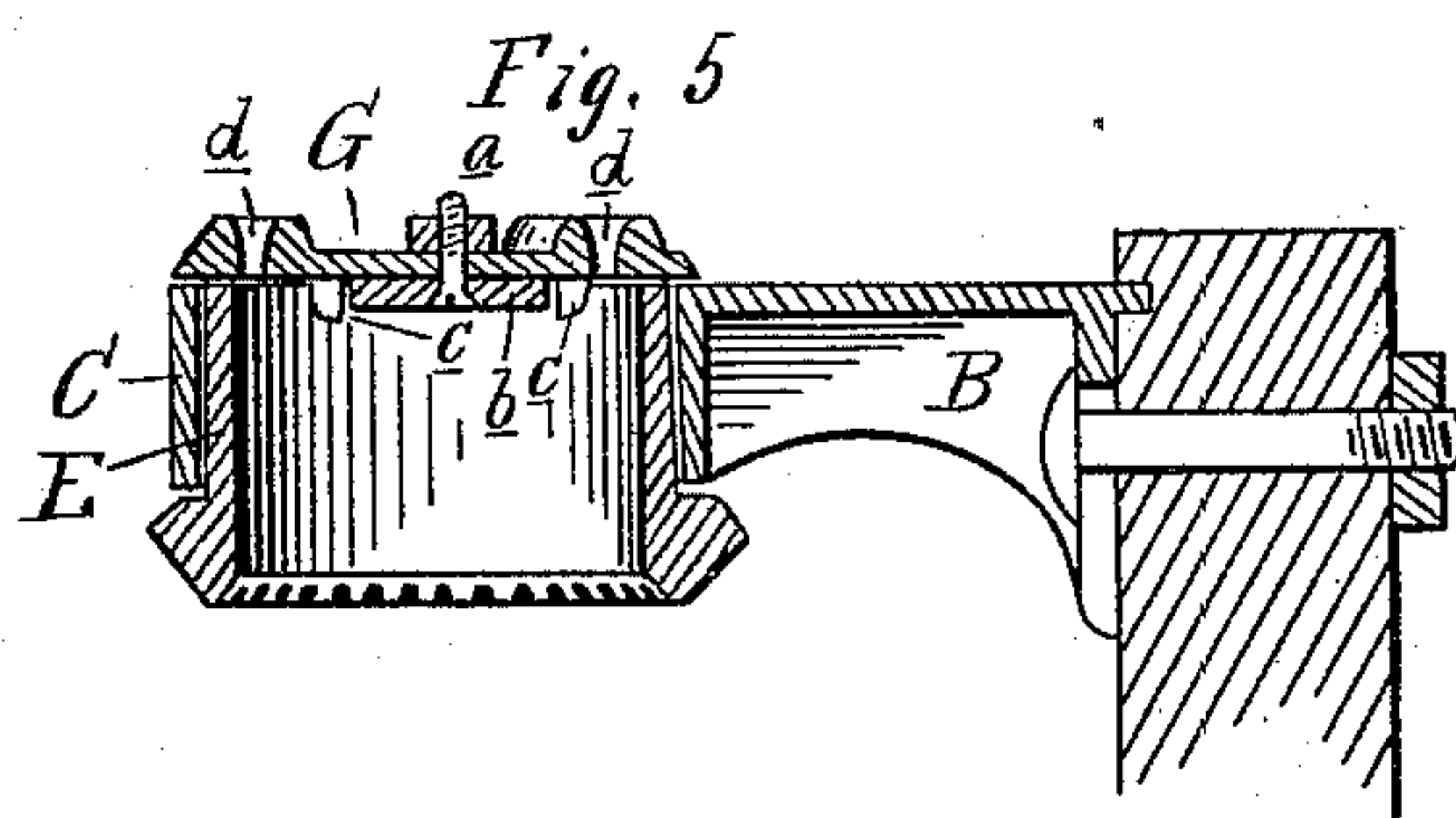


Fig. 5



Inventor:

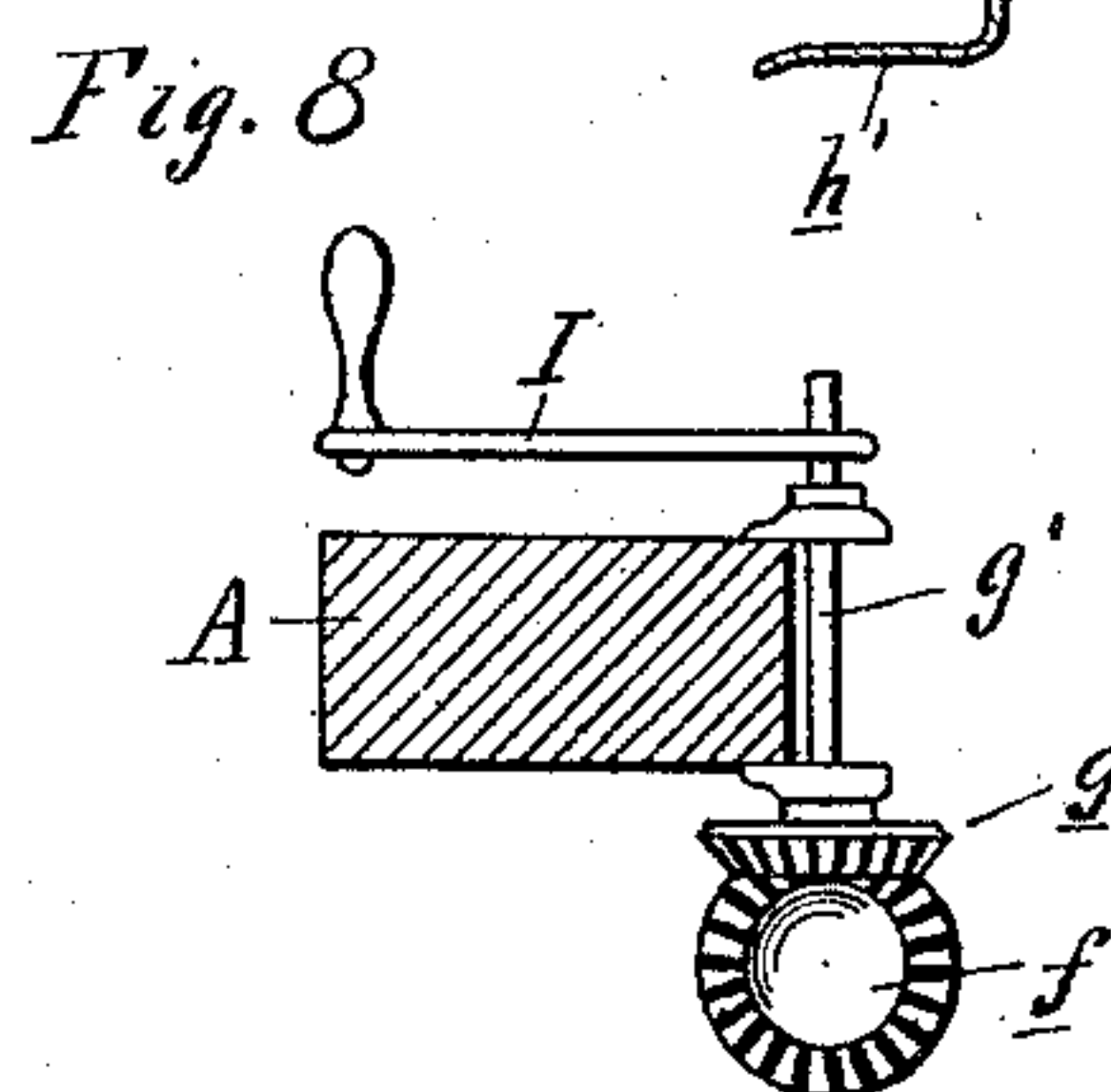
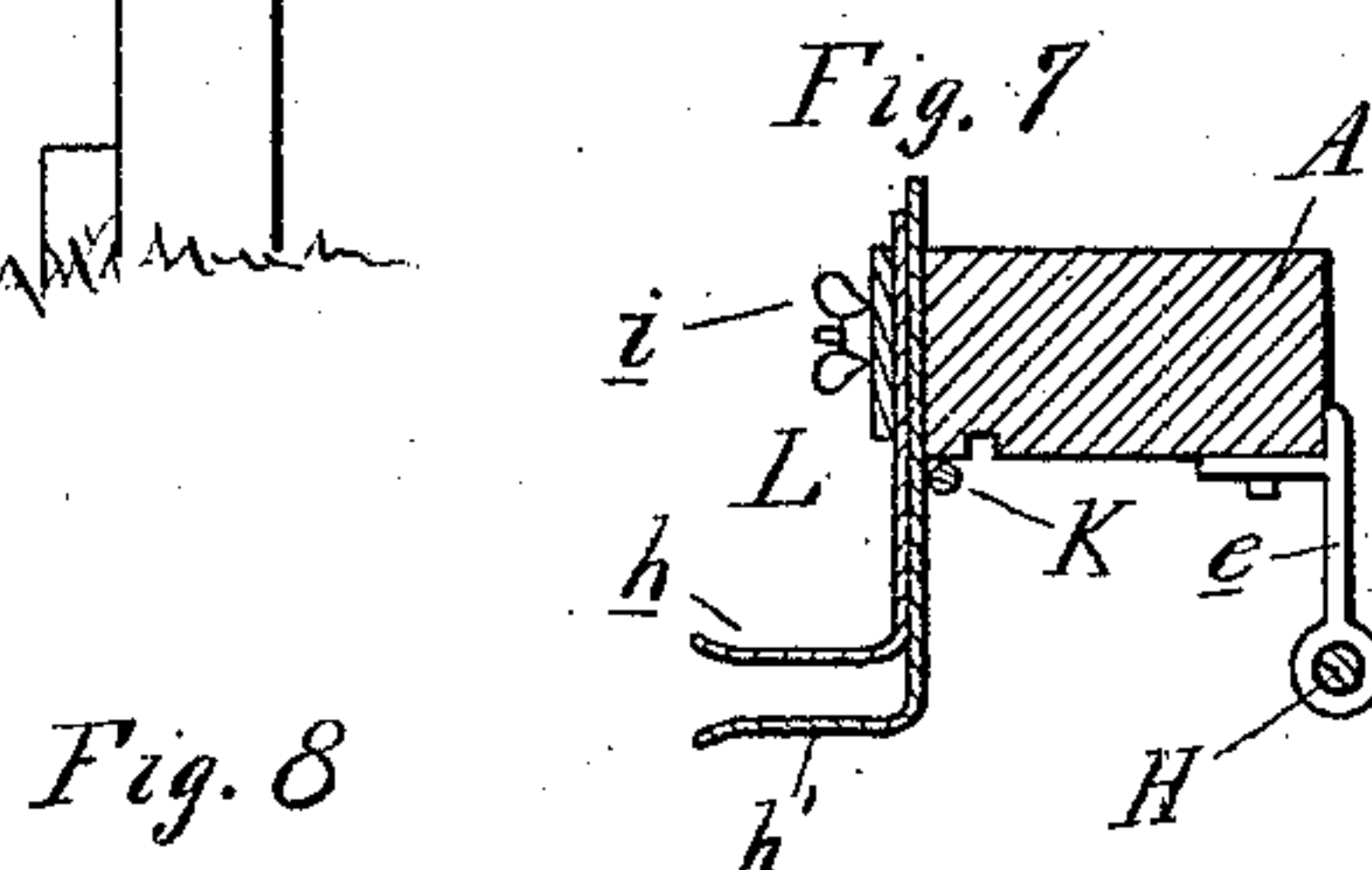
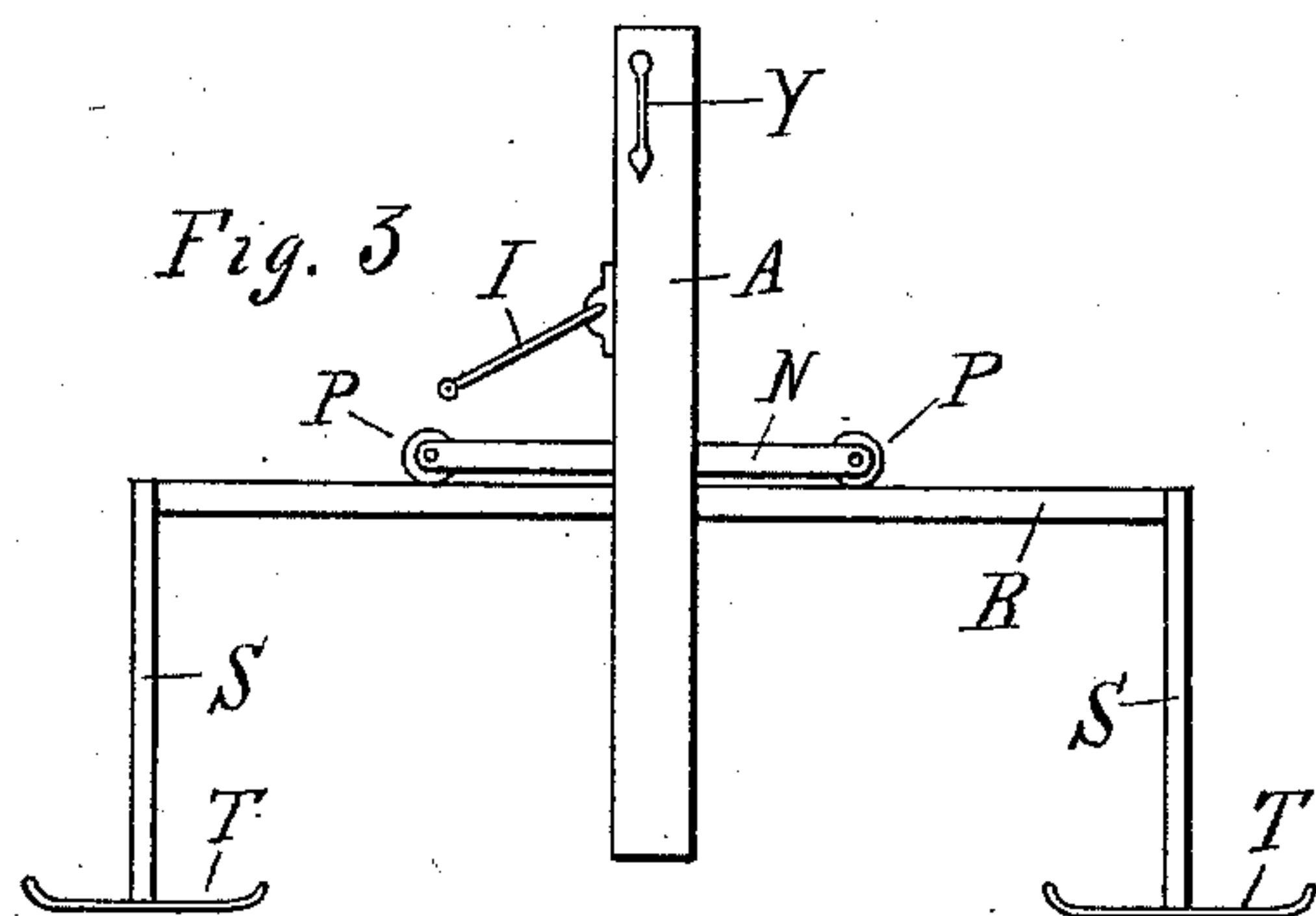
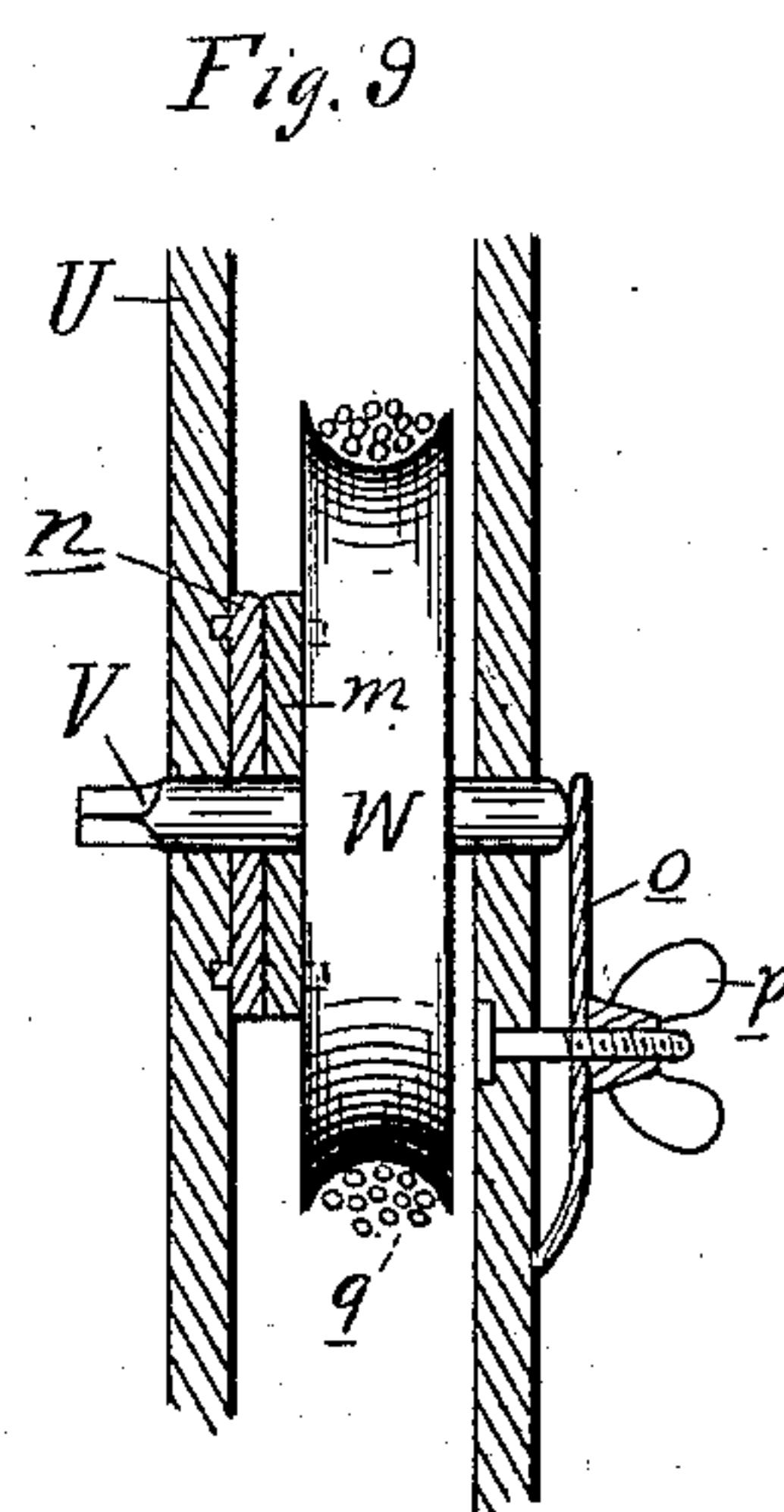
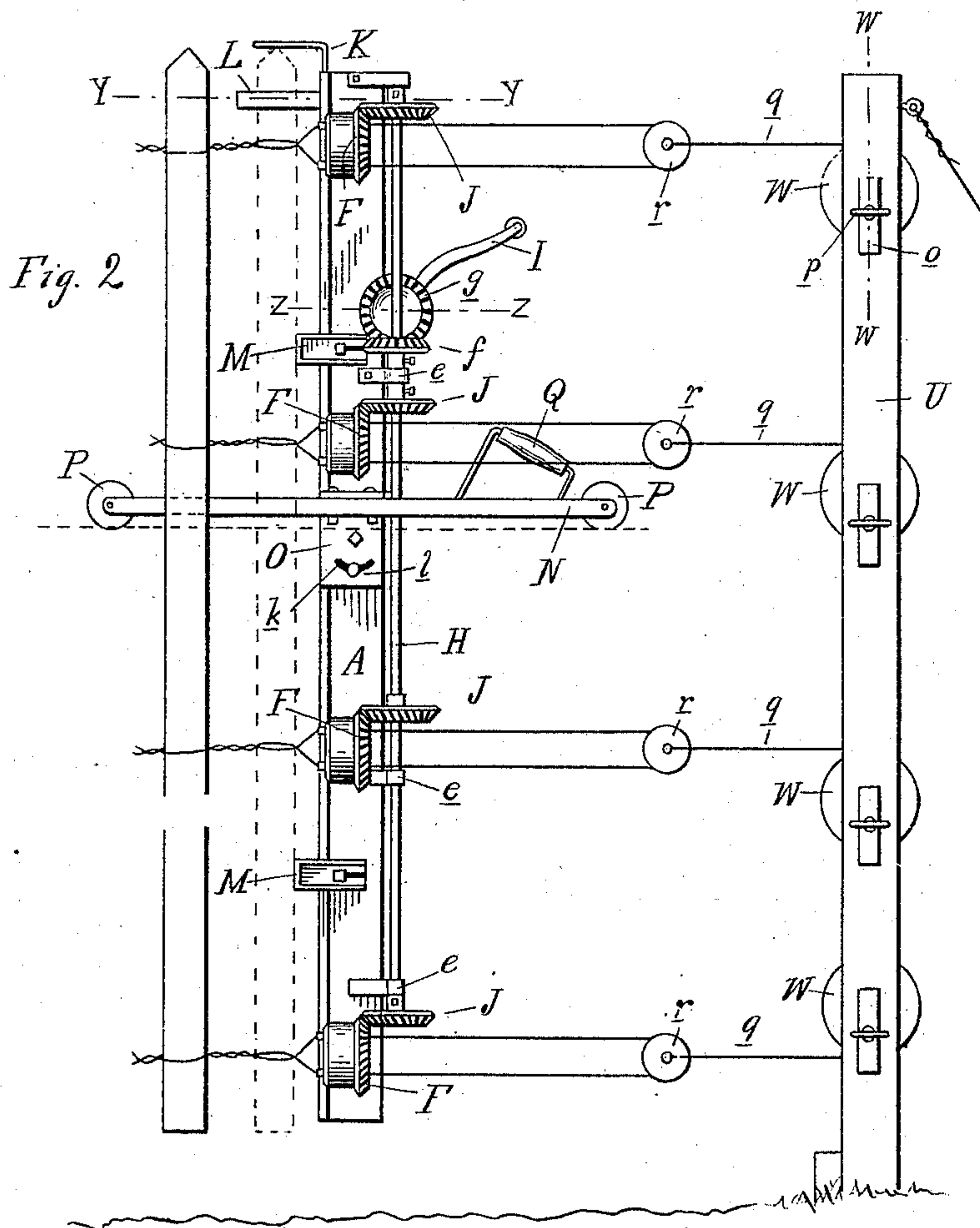
Ezra Ransom.

By Thos. S. Sprague & Son
Att'y.

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UNITED STATES PATENT OFFICE.

EZRA RANSOM, OF FLINT, MICHIGAN, ASSIGNOR OF TWO-THIRDS TO OREN STORN AND EDWIN B. WOODIN, OF SAME PLACE.

PICKET-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 395,586, dated January 1, 1889.

Application filed May 15, 1888. Serial No. 273,998. (No model.)

To all whom it may concern:

Be it known that I, EZRA RANSOM, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Picket-Fence Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in picket-fence machines; and the invention consists in the peculiar combinations and the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described and claimed.

In the drawings which accompany the specification, Figure 1 is a perspective view of my improved machine. Fig. 2 is an elevation of the machine as in operation. Fig. 3 is a diagram elevation of the machine from the opposite side to the one shown in Fig. 2. Fig. 4 is an elevation of one of the rotary twister gear-wheels, showing the means of conveying motion thereto in detail. Fig. 5 is a cross-section on line *xx* in Fig. 4. Fig. 6 is a detached perspective view of the head of the rotary twister in which the wire-passages are formed. Fig. 7 is a cross-section on line *yy* in Fig. 2. Fig. 8 is a cross-section on line *zz* in Fig. 2. Fig. 9 is a cross-section on line *ww* of one of the tension-wheels.

A is a standard which carries the twisting mechanism, which mechanism is secured to one side of the standard to form what is known as a "side-gear wheel," and this twisting mechanism is constructed as follows:

B are cast-iron brackets, preferably detachably secured to the standard and projecting laterally therefrom. These brackets terminate at the outer ends in bearings C, in which the rotary twisters are journaled. These twisters consist of the hollow twisters E, journaled in the bearings C and provided with the circumferential gears F, the cogs or teeth of which are skewed, as more fully hereinafter described.

The wire-passages are formed in the head G, detachably secured to one end of the twister by means of a bolt, *a*, which passes through a cross-bar, *b*, formed within the twister, and by

means of the lugs *c*, which engage with the sides of the cross-bar *b*, whereby the head G is firmly secured to the twister. In this head G the wire-passages *d* are formed, there being preferably two or more sets of such wire-passages for engaging the fence-wires nearer or farther from the center of the twister to accommodate smaller or larger pickets. There are preferably four of these rotary twisters secured to the standard A; but they may be reduced to three, if desired, to make three-strand fences, and to this end the brackets which hold the twisters are detachably secured to effect the change readily. In proximity to the twisters is journaled in suitable bearings, *e*, the vertical shaft H, and this shaft carries the beveled gear *f*, which engages with the beveled gear *g* upon the crank-shaft *g'*, to which the crank I is secured. From the shaft H motion is communicated to the twisters by means of skewed beveled gears J, which mesh with the skewed beveled gears F of the twisters. The object of providing skewed gearing is to enable me to place the shaft H sufficiently to one side of the twister-spools to allow the wires to pass freely through the twister-spools without their interfering with the shaft H. The gears described are preferably made in the form of so-called "miter-gears," and to effect the change from four twisters to three twisters the gears J are made adjustable on the shaft H.

To the upper end of the standard A is secured the picket-guide K, vertically adjustable to suit higher or lower pickets, and below this guide is arranged the picket-clamp L, which consists of two spring-clamp jaws, *h h'*, as shown in Fig. 7, wherein the jaws are shown adjustably secured by means of a clamp-nut, *i*, to the side of the standard, for the purpose of adjusting the jaws nearer or farther apart, so that they may be adjusted to clamp the varying sizes of pickets in operation and hold the picket in position during the operation of twisting.

M are rests adjustably secured to the standard A, for the purpose of holding the picket in parallel relation to the standard.

N is a cross-bar or carriage secured to a plate, O, which plate is pivotally secured to

the standard, and which is provided with a slot, *k*, through which passes a suitable clamp-bolt, *l*, preferably provided with a thumb-screw to adjust the cross-bar *N* to any desired inclination. This cross-bar is provided upon its outer ends with travelers *P* and with a handle, *Q*.

R is a guide-rail supported by means of suitable legs, *S*, upon the ground. The lower ends of these legs are preferably provided with the shoes *T*. The travelers *P* are arranged to engage with the top of the guide-rail, there being preferably a suitable groove cut into the top of the rail for such purpose.

The tension is arranged in the following manner: In a suitable upright frame, *U*, are journaled the shafts *V*, and upon each of these shafts is secured a groove-pulley, *W*, which upon one side has secured to it, preferably detachably, the friction-disk *m*, which bears against a corresponding friction-disk, *n*, secured to the side of the standard, preferably detachably. The shafts *V* are squared upon one end for the application of a wrench, and upon the other side the free end of a tension-spring, *o*, is arranged to press the shaft endwise, so as to produce a friction between the friction-disks *m n*, which friction can be adjusted to any desired degree by means of the adjusting screw-nut *p*. Around the groove of the pulley *W* are wound several turns of the tension-wire *q*, to the free end of which is secured the loose pulley *r*, and around this pulley the two wires of each strand pass freely, so that the same strain is brought upon both wires of each strand, while by means of the wire *q* the tension is applied to such strands.

In practice the operation of the twisting mechanism is like the operation of similar machines of this class; but the manner of guiding and supporting my machine in operation I consider a great improvement. The guide-rail *R* may be made of considerable length, so as to require of its being adjusted or drawn forward only from time to time, as the work of constructing the fence progresses.

The shoes, which are preferably turned up at the ends, allow the device to be readily drawn upon the ground, and also prevent the device from sinking into the mud when building across soft spots. The cross-head *N* forms lateral side supports to hold the machine in perpendicular position, and to facilitate the vertical adjustment I secure to the standard a suitable plumb, *Y*.

By means of the travelers at the end of the cross-bar or carriage *N* the machine can be drawn readily by the handle *Q* along the rail; and all side twisting is avoided by engaging the travelers into the groove upon the rail. It is obvious that the guide-rail serves also to prevent the sagging of the fence, which always appears where a machine is supported upon the wires. By securing the cross-bar pivotally to the standard it may be adjusted

to any inclination required to adjust the machine perpendicularly when going up or down hill.

The construction of my tension is also novel in some respects, as it allows the two wires of each strand to equalize their tension, and keeps the tension always or nearly the same by enabling me to use a wheel, *W*, of relatively large diameter, so that any winding of the tension-wire *Q* does not change the leverage, and thereby the tension of the wire, in any appreciable degree.

I deem it important that the guide-rail be arranged so as to support the machine at or near its vertical middle, and that the carriage be located near the vertical middle, as by this construction the machine is well balanced and can be more readily tilted than otherwise.

What I claim as my invention is—

1. The combination, with the standard and the bracket *B*, secured thereto, of the hollow twister journaled in said bracket, and provided with circumferential gear and with bar *b*, and a detachable head formed with wire-passages, and having lugs *c* engaging the bar *b*, substantially as described.

2. The combination, with the twister-frame and a carriage pivotally secured to said frame near the vertical middle of the machine, of a guide-rail independently and movably supported above the ground, and a handle secured to said carriage, substantially as described.

3. The combination, in a picket-fence machine, of the twister-frame, the carriage pivotally secured thereto, the clamp-screw and slotted clamping-plate adjustably securing the carriage to the standard, the guide-rail upon which said carriage is supported from the ground, and the shoe, substantially as described.

4. The combination, with the picket-fence machine provided with the carriage, substantially as described, of the guide-rail, the supporting-legs to the guide-rail, and the curved shoes secured to the legs of the guide-rail.

5. The combination, with the twister-frame of the picket-fence machine, of the picket-clamp *L*, consisting of the adjustable jaws *h h'* and clamp-screw *i*, substantially as described.

6. The herein-described tension, consisting of the twister-frame *U*, the tension-wheel *W*, mounted on the shaft *V*, the friction-disks *m n*, the tension-spring *o*, the tension-wire *q*, and the loose pulley *r*, the parts being combined and arranged to operate substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 1st day of May, 1888.

EZRA RANSOM.

Witnesses:

JOHN SCHUMAN,
P. M. HULBERT.