

(No Model.)

2 Sheets—Sheet 1.

R. HOOVER.
SLAT AND WIRE FENCING MACHINE.
No. 446,255. Patented Feb. 10, 1891.

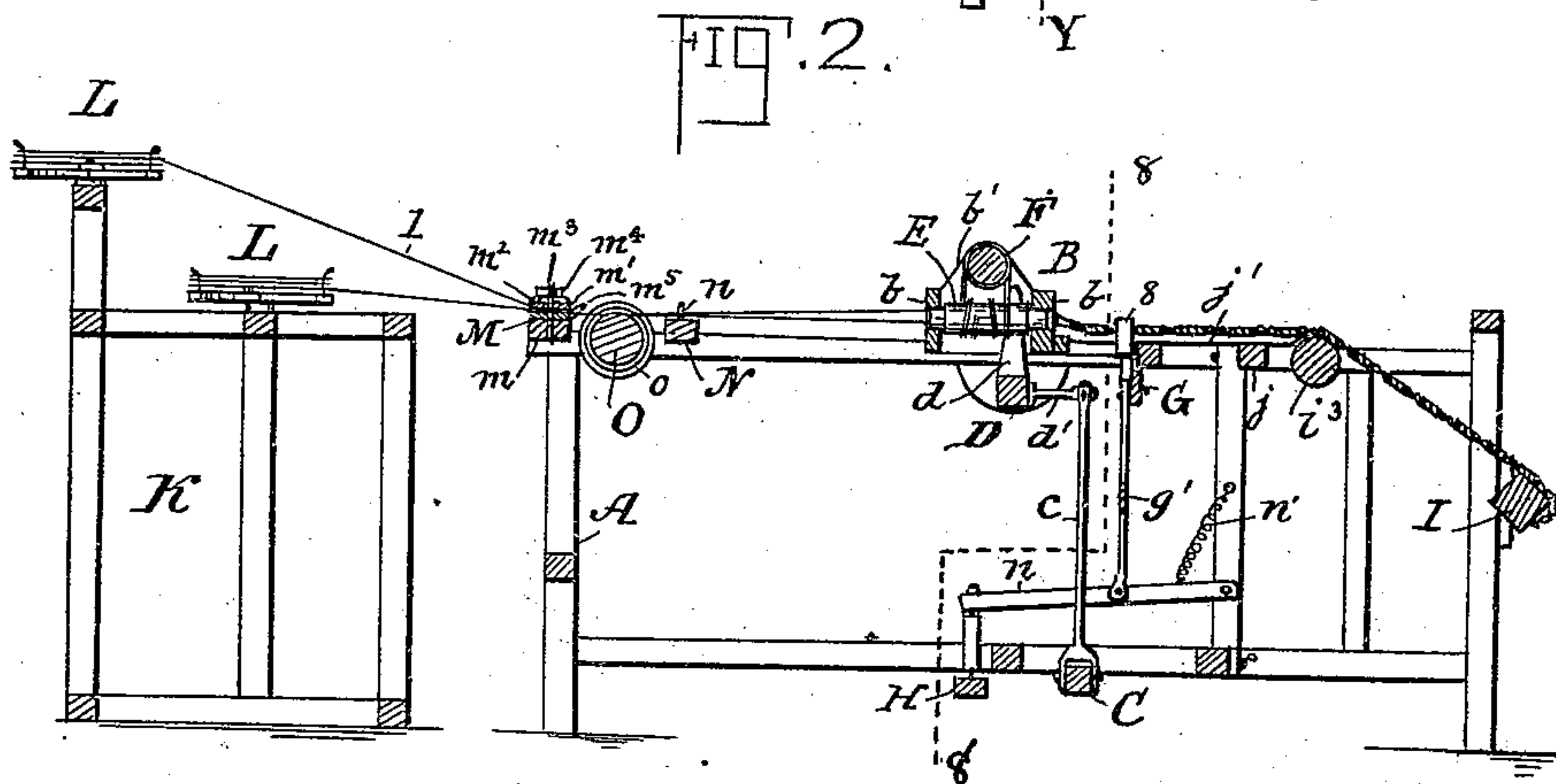
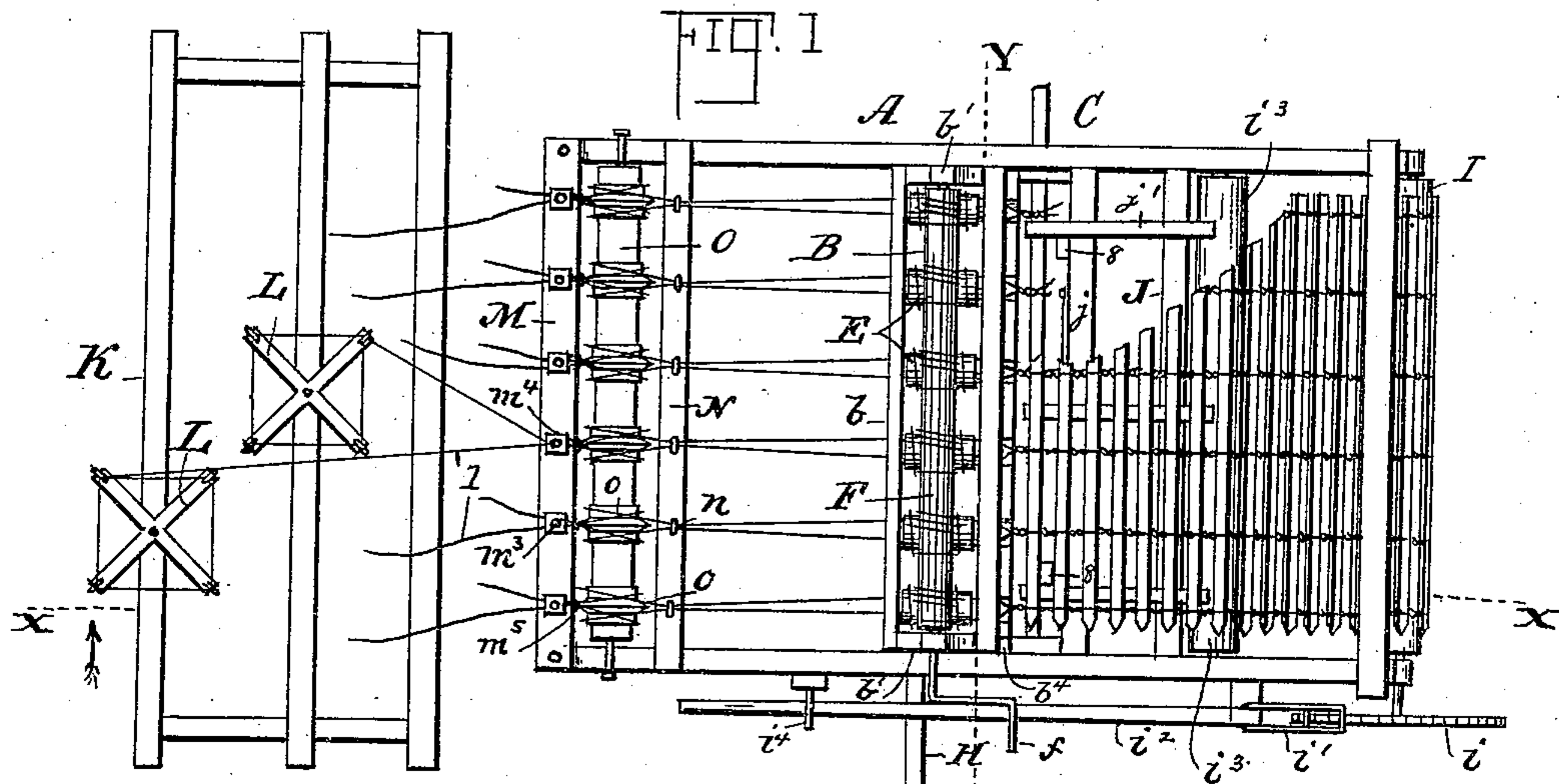
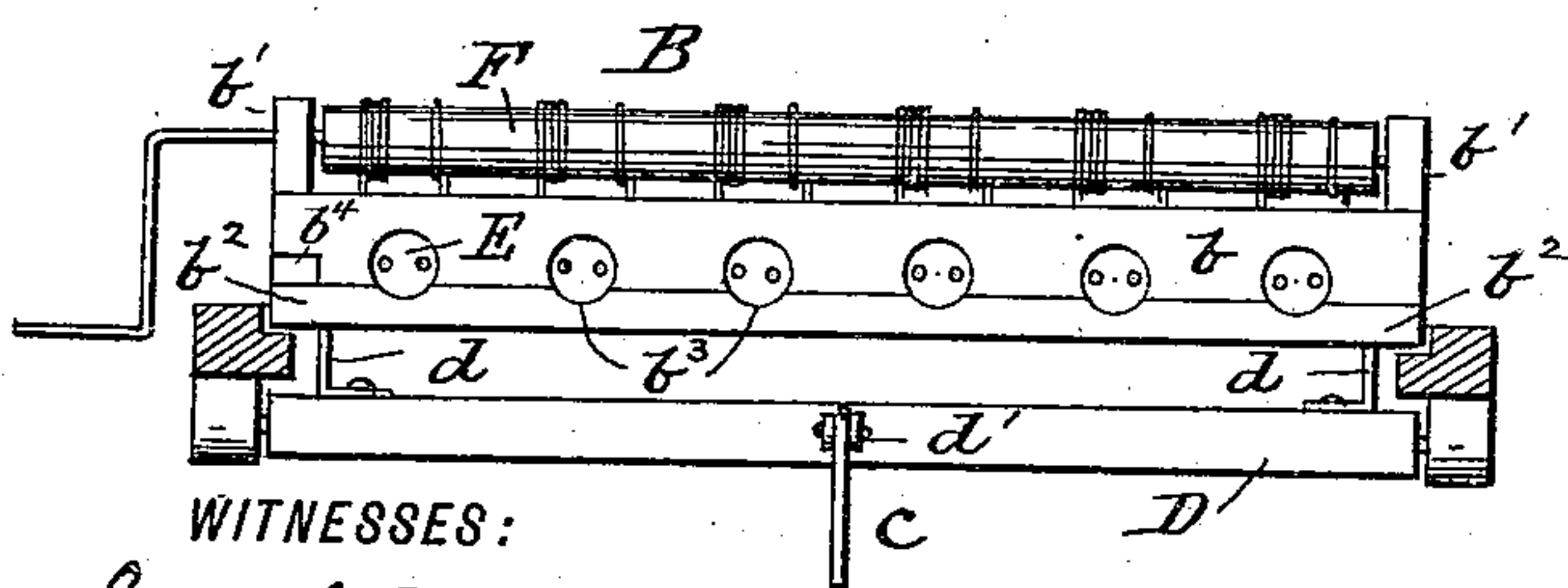


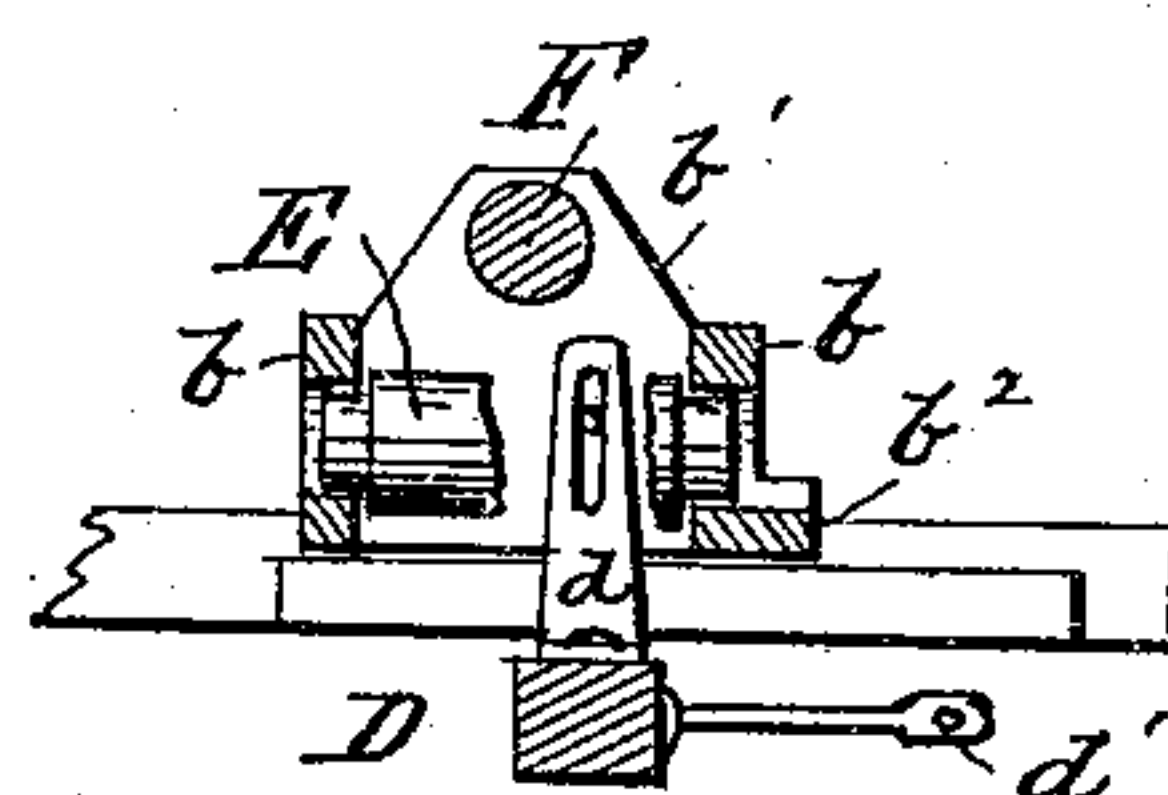
FIG. 3.

FIG. 4.



WITNESSES:

Sam R. Turner
Van Buren Hillyard.



INVENTOR

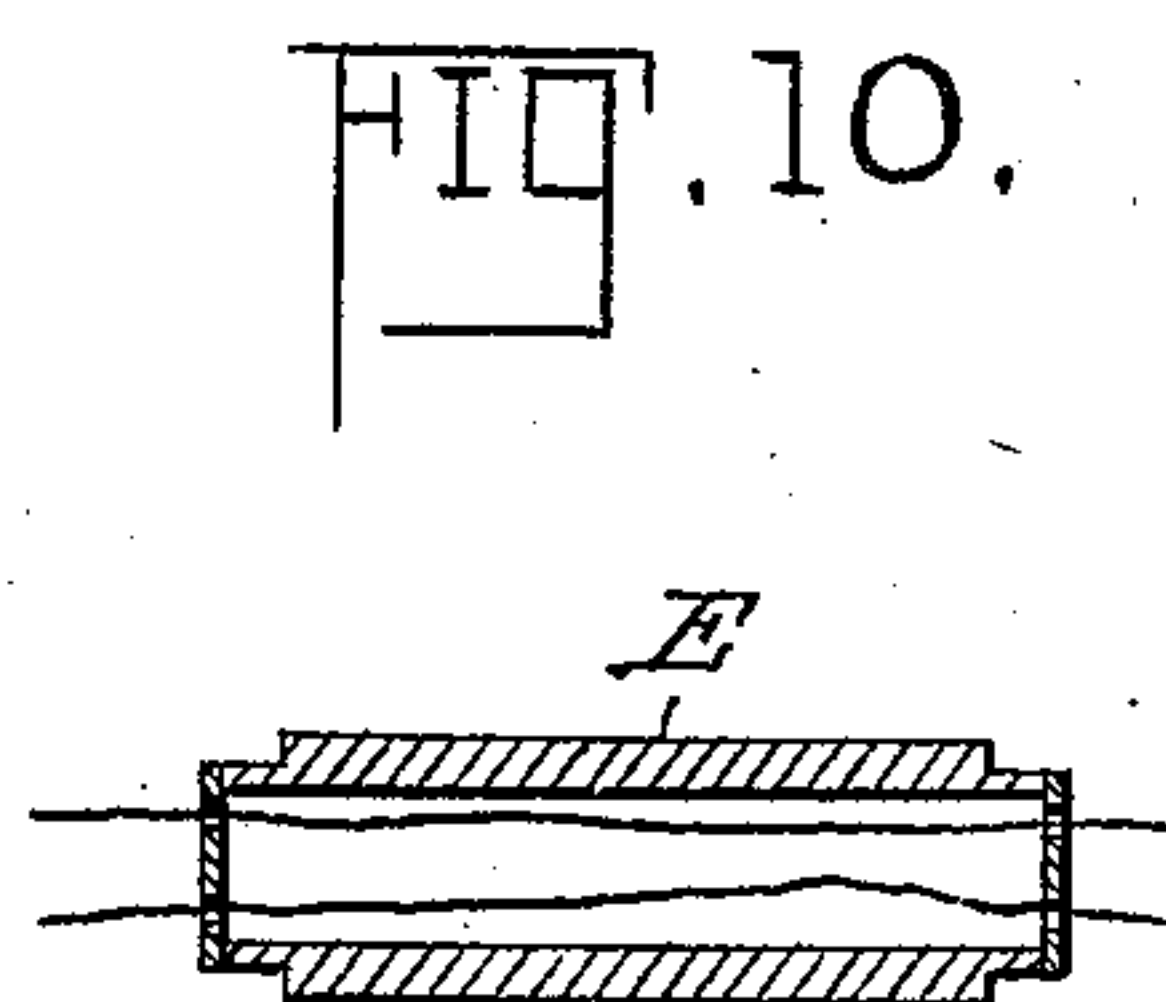
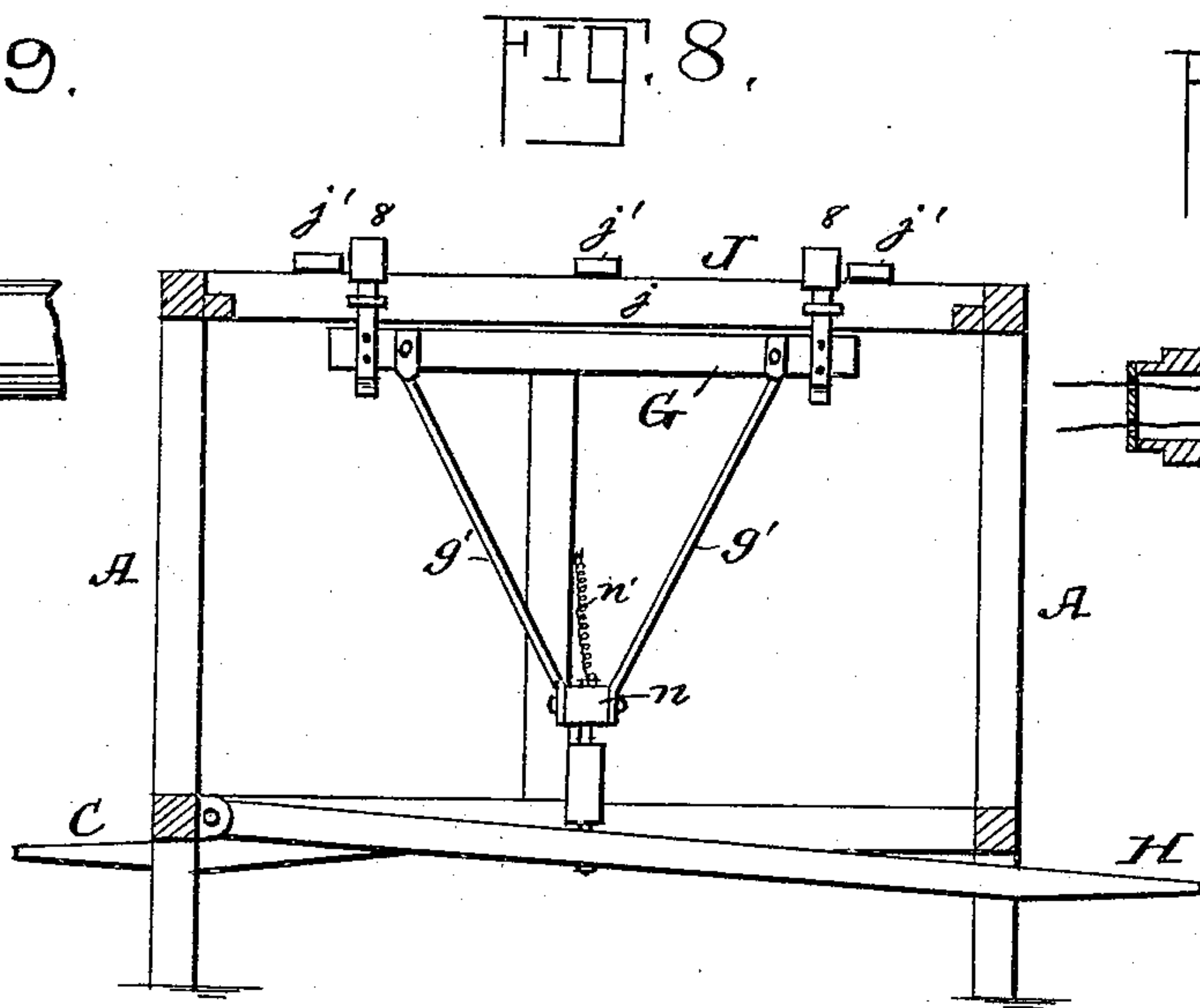
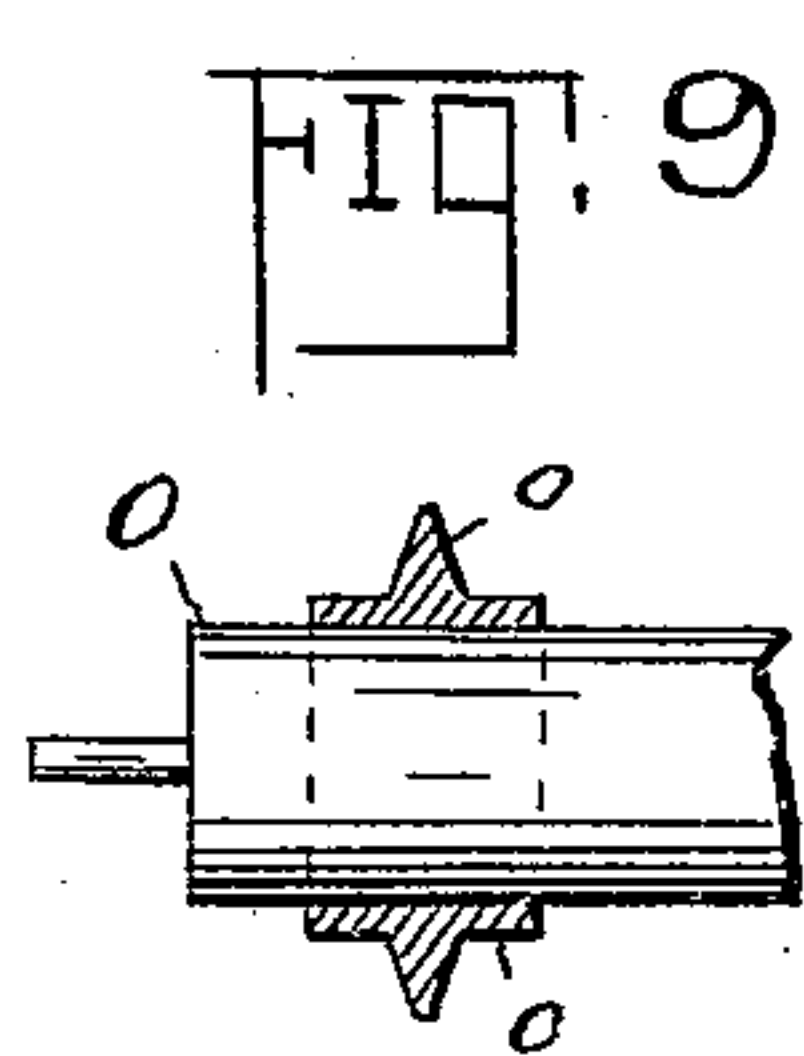
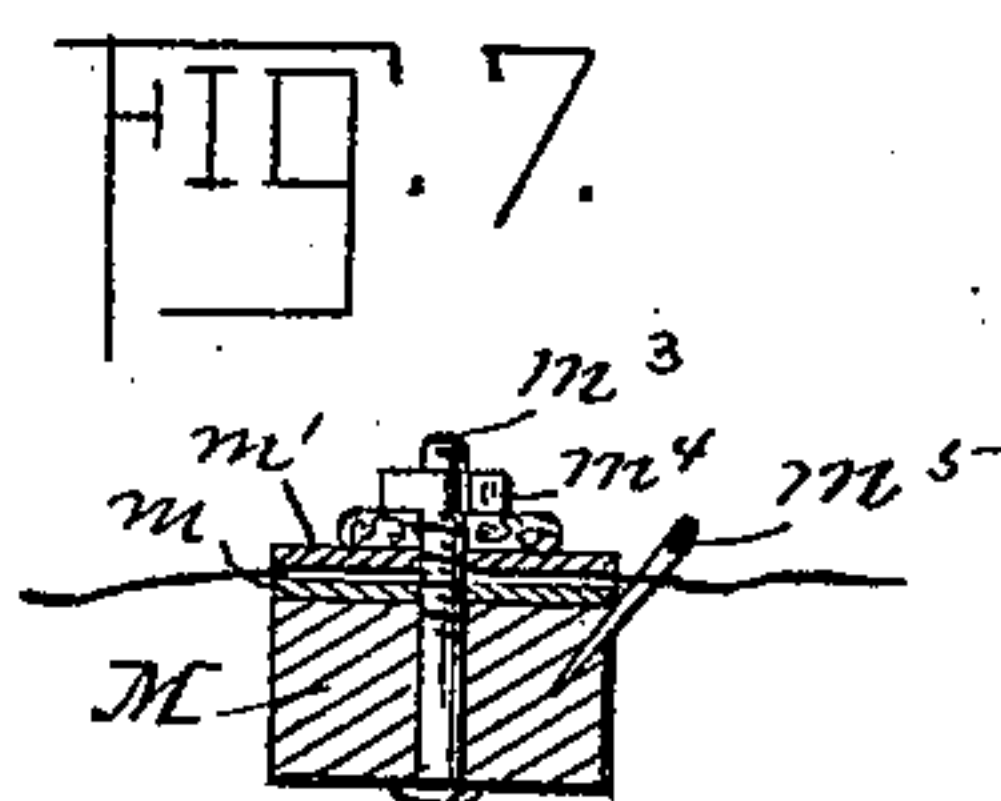
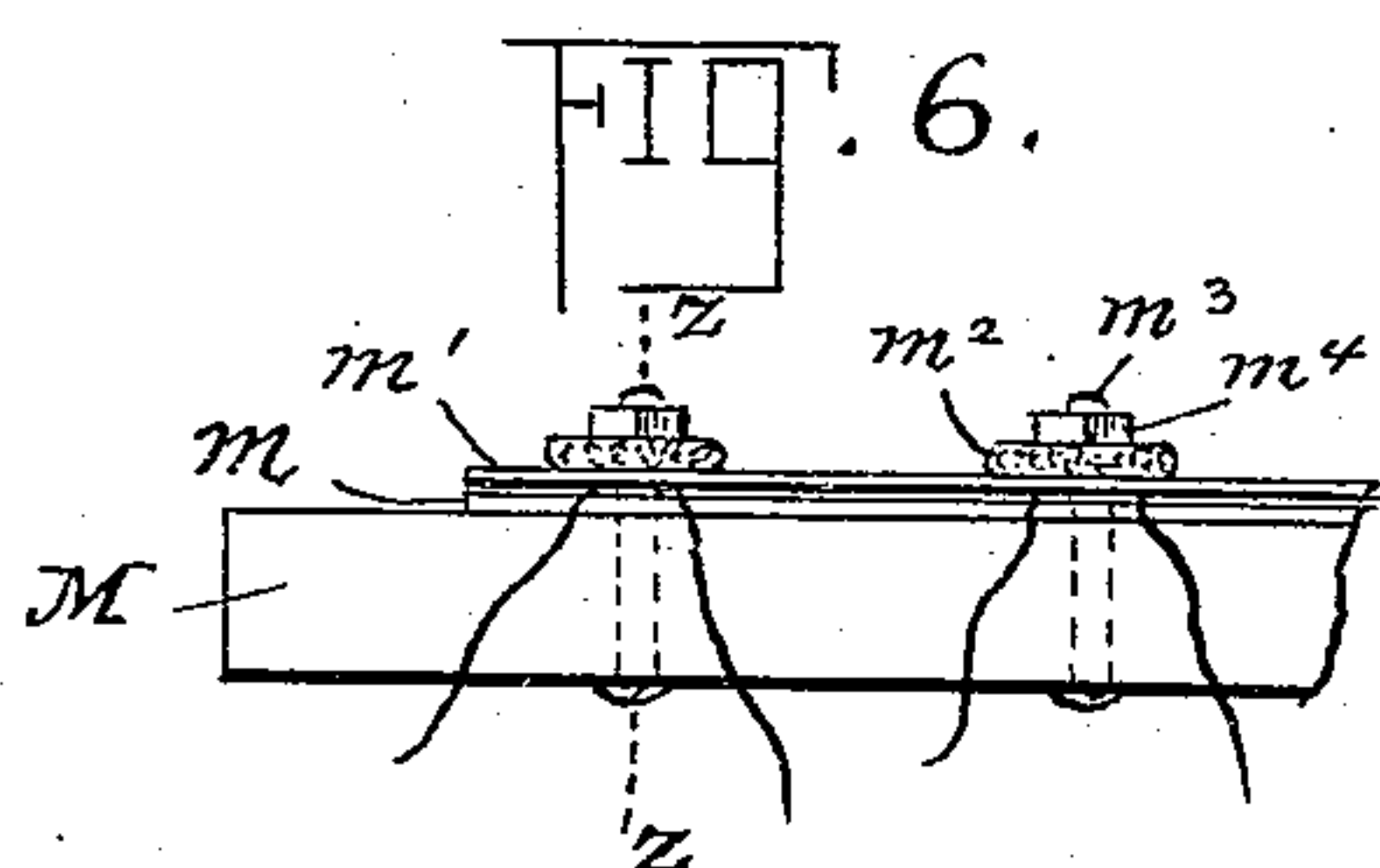
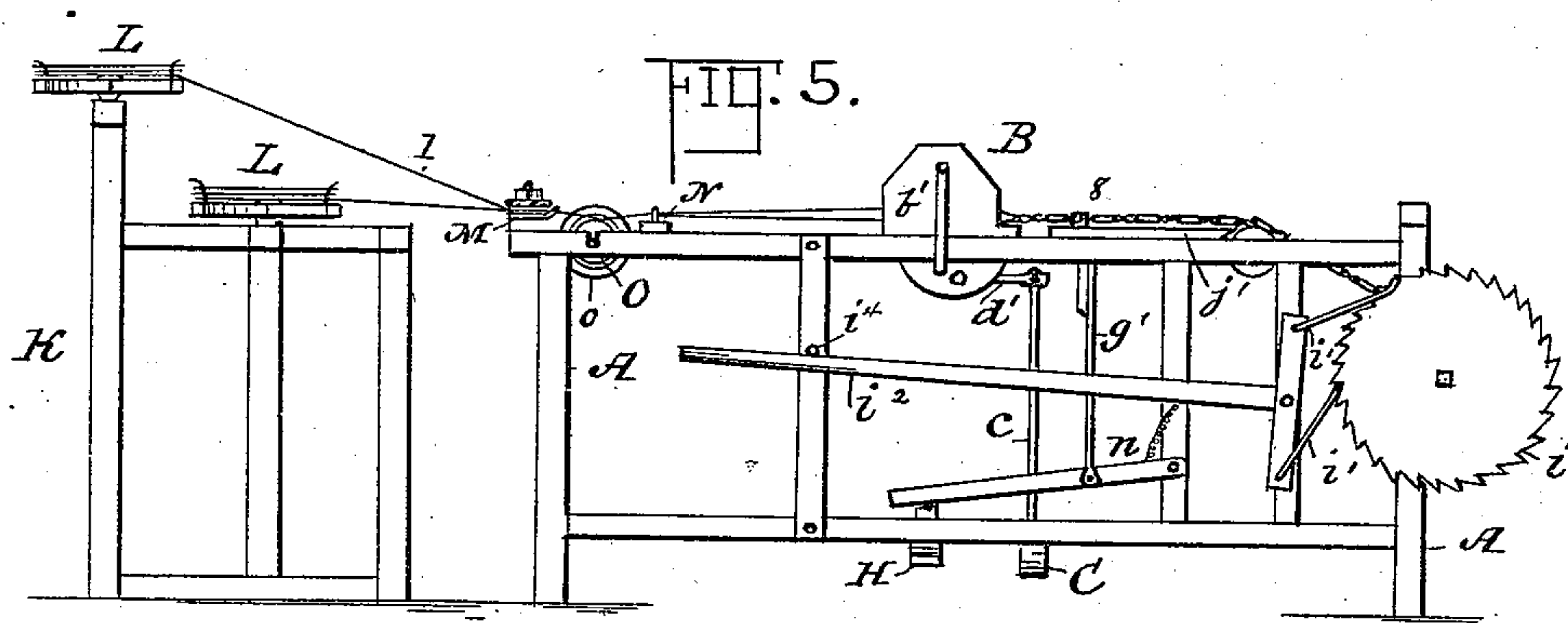
Reuben Hoover.

BY
R. A. P. Sacy
HIS- ATTORNEY'S.

2 Sheets—Sheet 2.

No. 446,255.

Patented Feb. 10, 1891.



INVENTOR

Sam R Turner
Van Buren Hillyard.

Reuben Hoover:

BY
R. H. A. Lacey
HIS-ATTORNEY'S:

UNITED STATES PATENT OFFICE.

REUBEN HOOVER, OF BOONE, IOWA.

SLAT-AND-WIRE-FENCING MACHINE.

SPECIFICATION forming part of Letters Patent No. 446,255, dated February 10, 1891.

Application filed September 3, 1890. Serial No. 363,800. (No model.)

To all whom it may concern:

Be it known that I, REUBEN HOOVER, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have
5 invented certain new and useful Improvements in Slat-and-Wire-Fencing Machines; 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
10 art to which it appertains to make and use the same.

This invention relates to machines for making wire-and-wood fencing, and has for its object the provision of a loom that will weave
15 any number of double strands up to six, so that the roll after it is woven can be sawed in two in the middle and have each half with three double strands on it to be used to fence hog-lots, thus weaving it twice as fast as is
20 generally done where the pickets are first cut short and woven into the three strands separately, thus making half of the fence in the same time only.

The principal feature of my loom, distinguishing it from others, consists in a movable head-block or frame in which are arranged the spools or pulleys that twist the wires. This movable head-block can be moved forward by a foot-lever with great force, so as to
30 drive the picket tight in between the spread wires and hold it there at the will of the operator, so that the twisting of the wires is commenced close up to the picket, thus causing the wires to cut into the corners of the
35 pickets and hold them so tightly that they cannot be removed without first breaking them into pieces. Now as the twisting of the wires proceeds the twist forces the head-block back, and this can be controlled by the operator of the foot-lever, so as to cause it to
40 twist very tightly or loosely, or very tightly on the first half-twist so as to cut into the picket, and then loosely during the twisting of the center or space between the pickets, and then
45 tightly on the last half-twist to make a proper square opening for the next picket to be forced into.

The improvement further consists in having a measuring-roller on which are located
50 bands of iron or wood with a raised center to keep the two wires apart and to prevent them

from gaining along the shaft toward the end next to which the feed-wire is wound. In winding the wires the feed end must be wound so that it comes next to this raised center, on
55 either side of it, thus making one wheel serve for two wires which feed the same twister-spool. These rings, being either rigged or turned onto the shaft on which they are located, cause any detention or strain that may
60 be made by a full spool to be communicated to the whole shaft, thereby distributing the strain on all the wires, thus increasing or diminishing the tension in all the wires and causing them to all be woven in under the same
65 strain at any given point in the fence, and perfectly equalizing the strain, thus greatly increasing the strength of the fence as well as causing all the wires to twist uniformly. Again, uniformity of tension is a necessity
70 throughout the whole length of the fence, and is interfered with when the spools are full, as the tension on the wires will be increased over the tension on the wires when the spools are nearly empty, in that they turn so
75 much more readily. This I obviate by means of two flat pieces of iron laid on each other with a wooden bar under them, and holes with bolts passing up through them between each two wires exactly back of the annular
80 ridges on the separating-shaft. The wires pass through between these flat irons and immediately under the nuts on the said bolts. Now, if the nuts be screwed down equally, it will make equal tension on all; but if not it is
85 equalized by the rollers that measure the wire onto the machine. Now, to obviate the difficulty of the unevenness of wire or kinks in it that would not pass between two rigidly-set pieces of iron, I put a rubber washer un-
90 der the nuts on the bolts passing through these irons and causing the tension, and thus have a slightly self-adjusting tension for each two wires. The foot-lever is changeable, so that it can be operated from either side of the
95 machine, thus making it possible for one person to run the machine and do his own feeding of pickets; but it is advisable for two to operate it, as there is great gain by the division of work and consequent increase of speed. 100

The improvement consists in the novel features and the peculiar construction and com-

combination of the parts, which will be hereinafter more fully described, and pointed out in the claims, and which are shown in the annexed drawings, in which—

5 Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a longitudinal section about on the line X X of Fig. 1, looking in the direction of the arrow. Fig. 3 is a cross-section on the line Y Y of Fig. 1, looking to the left. Fig. 4 is a detail view of the mechanism for operating the head, which is provided with the wire-twisting devices. Fig. 5 is a side elevation of the machine. Fig. 6 is a detail view of one end of the tension mechanism. Fig. 7 is a cross-section of the tension device on the line Z Z of Fig. 6. Fig. 8 is a cross-section on the line 8 8 of Fig. 2, looking to the right. Fig. 9 is a detail section of the annular ribbed ring for spacing the parallel wires which form a cable. Fig. 10 is a longitudinal section of one of the twisting devices.

The frame A of the machine may be of any well-known construction, and is adapted to support the operating parts.

The head B, provided with the wire-twisting mechanism, is mounted on ways on the frame and is operated by any suitable means from the treadle or foot-lever C. The shaft D is provided with vertical arms d , which engage with the said heads and with a horizontal arm d' , which is connected by a rod c with the treadle or foot-lever C. When the lever or treadle C is pressed upon, the shaft D is turned on its axis, and the arms d , which engage with the head B, effect a forward movement of the said head for the purpose hereinbefore specified. The head B is composed of side bars b and end pieces b' . The twisting-heads E are journaled in the side bars b and are connected so as to operate simultaneously, preferably by being geared with the shaft F, which is journaled at its ends in the end pieces b' . The gearing found to give the best results, combined with simplicity and economy of construction, is an endless band or cord, which takes several turns around the shaft F and around the twisting heads. This shaft F is turned by means of the crank f , which is applied to its outer end.

The head B is provided on its front side with a picket-supporting bar b^2 , which, besides forming a rest for the picket, also serves to guide the same between the wires when placing the picket in position. The stop b^4 at the end of the bar b^2 and on the top side thereof limits the movement of the pickets when thrust in between the wires. The bar b^2 is provided with notches b^3 opposite the twisting-heads, which receive the wires and permit them to turn freely during the operation of the said twisting-heads. The picket-spacers 8 8—two in number, one near each end of the picket—are secured to the vertically-movable bar G, which is operated from the foot-lever H by lever n and yoke g' . The foot-lever H

is returned to an operative position, and the spacers 8 8 projected across the path of the picket by the spring n' , which is interposed between the lever n and a vertical post of the frame.

The spindle I, on which the completed fence is wound, is journaled at its ends to the frame and is provided at one end with means for rotating it on its axis to wind the fence thereon. The ratchet-wheel i at the end of the spindle is operated on by the alternately-actuated pawls i' , which are pivotally connected with the lever i^2 . The stop i^4 , projected from the frame, limits the movement of the lever i^2 . The spindle I being lower than the head B, the fencing is deflected between the said head and the spindle and passes over the guide or fending roller i^3 . The fencing is supported between the guide-roller i^3 and the spacing devices on the rest J, which comprises cross-bars j and short bars j' , extending in the direction of the length of the fence.

The reel-frame K is preferably independent of the frame A, being secured to the floor or otherwise supported in position. The reels of wire L are suitably mounted on the frame K, so as to turn freely and not interfere with one another. The tension contrivance M comprises the beam m , the metal plates m' , the rubber or other elastic washers m^2 , the bolts m^3 , passing through beam m , plates m' , and washers m^2 , and the adjusting-nuts m^4 , mounted on the bolts m^3 . The wires l pass between the plates m' , and through guides m^5 on the beam m , and through corresponding guides n on the beam N. Between the beams N and m is journaled the shaft O, which is provided with metal or wooden bands o , that have annular ridges o' . The wires l pass once around these bands, and the two wires which compose each cable are disposed one on each side of the annular ridges o' , which keep them separated.

The purpose of the shaft O is to control the movement of the wires and cause them to feed alike, thereby insuring the production of a practically straight fence. The wires take one complete turn around the shaft O, this being sufficient to get the required tension or friction between the shaft and the wires to cause the latter to feed alike when the shaft O rotates, which latter is effected when winding up the completed fence, which draws the wires forward.

It will be observed that the head B is pushed back by the tension on the wires during the twisting process, the closeness of the twist being regulated by the degree of resistance offered by the head caused by the workman pressing more or less on the foot-lever C. The head is carried forward, after each picket has been bound in, by pressing on the outer end of the lever C.

The operation of the invention is manifest to one skilled in the art to which this invention appertains from the detailed description

in the statement of the object of the invention. Hence a further description is deemed unnecessary.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a fence-machine, the combination, with the head provided with the wire-twisting mechanism and having the picket-supporting bar b^2 and the stop b^4 at the end of the said bar b^2 , and means for moving the said head horizontally, of the spacers 8 in front of and independent of the said head, and means for operating the said spacers to project them in and out of the path of the completed fence, substantially as and for the purpose described.

2. In a fence-machine, the combination of the wire-twisting mechanism, the tension device M, having guides m^5 , the beam N, parallel with the tension device M and having guides n , which correspond with the guides m^5 , the shaft O between the tension device M and the beam N, and the metal bands o on the shaft O, having the ridges o' in line with the guides m^5 and n , substantially as described, for the purpose specified.

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

REUBEN HOOVER.

Witnesses:

W. S. BICKSLER,
J. H. SMULLIN.