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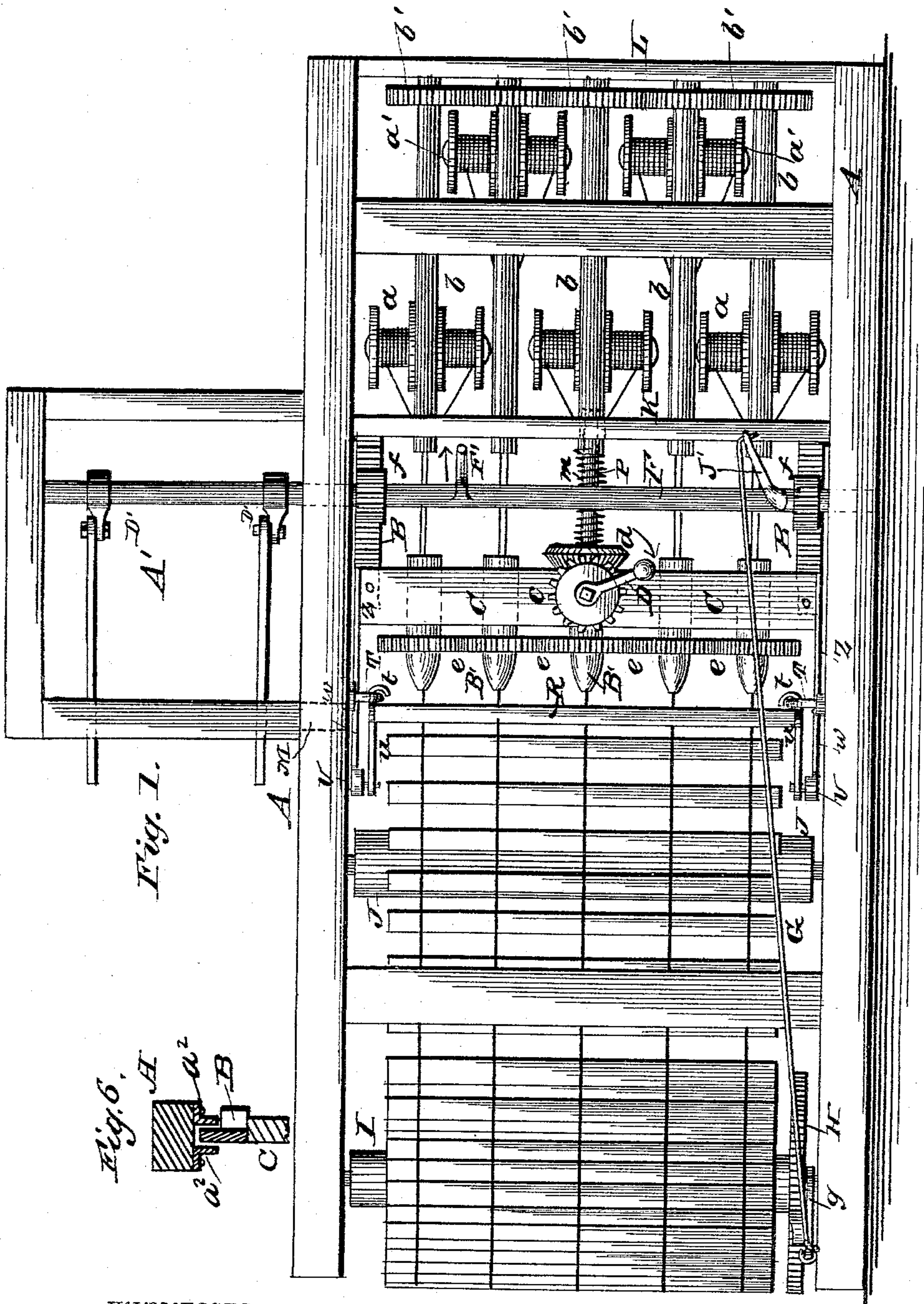
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J. M. HARROP.

FENCE MAKING MACHINE.

No. 321,359.

Patented June 30, 1885.



WITNESSES  
P. Masi.  
E. H. Bates

INVENTOR  
J. M. Harrop.  
by Anderson & Smith  
his Attorneys

(No Model.)

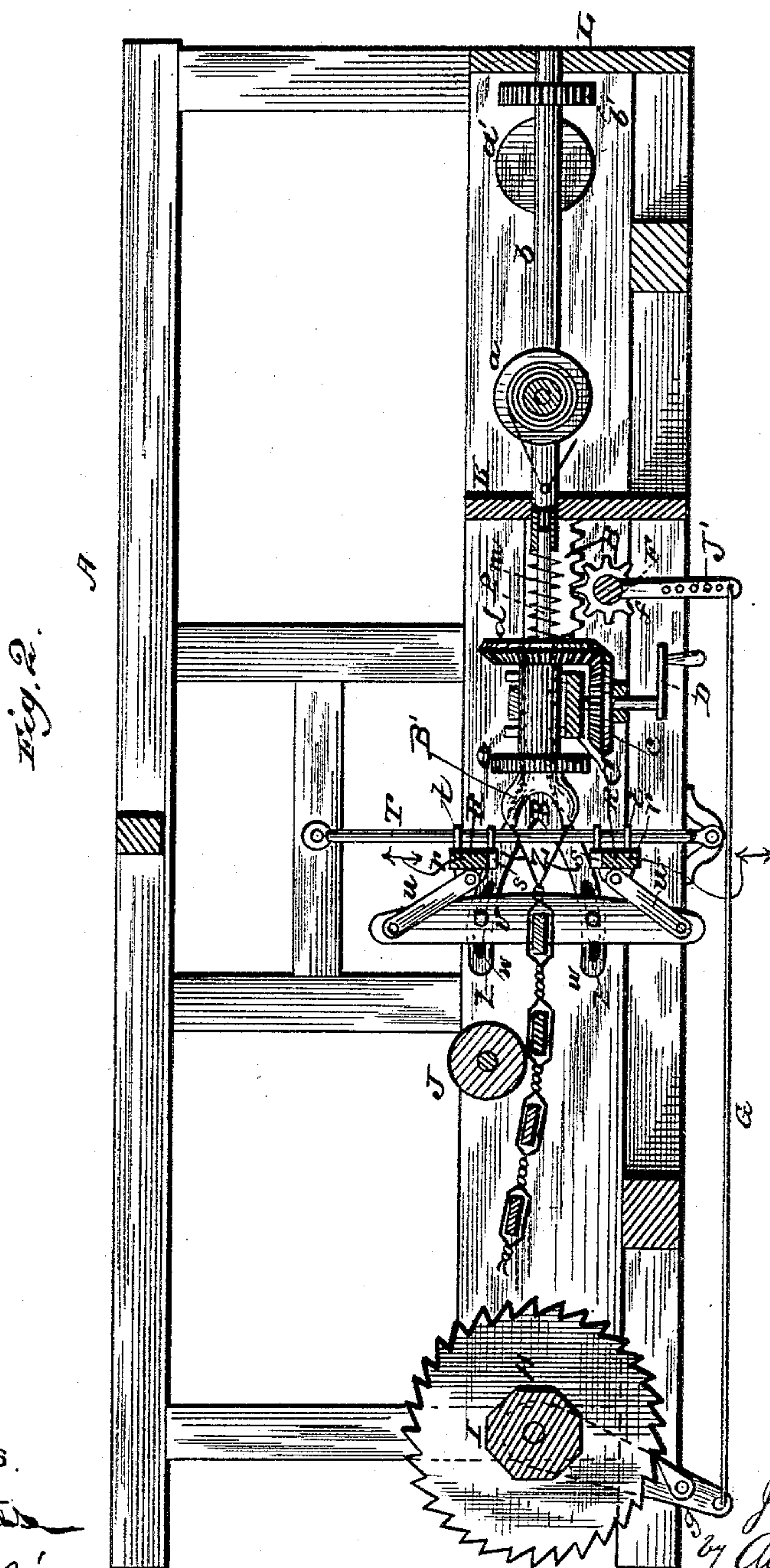
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E. H. Bates  
P. C. Masi.

INVENTOR

J. M. Harrop  
Anderson Smith  
his ATTORNEYS



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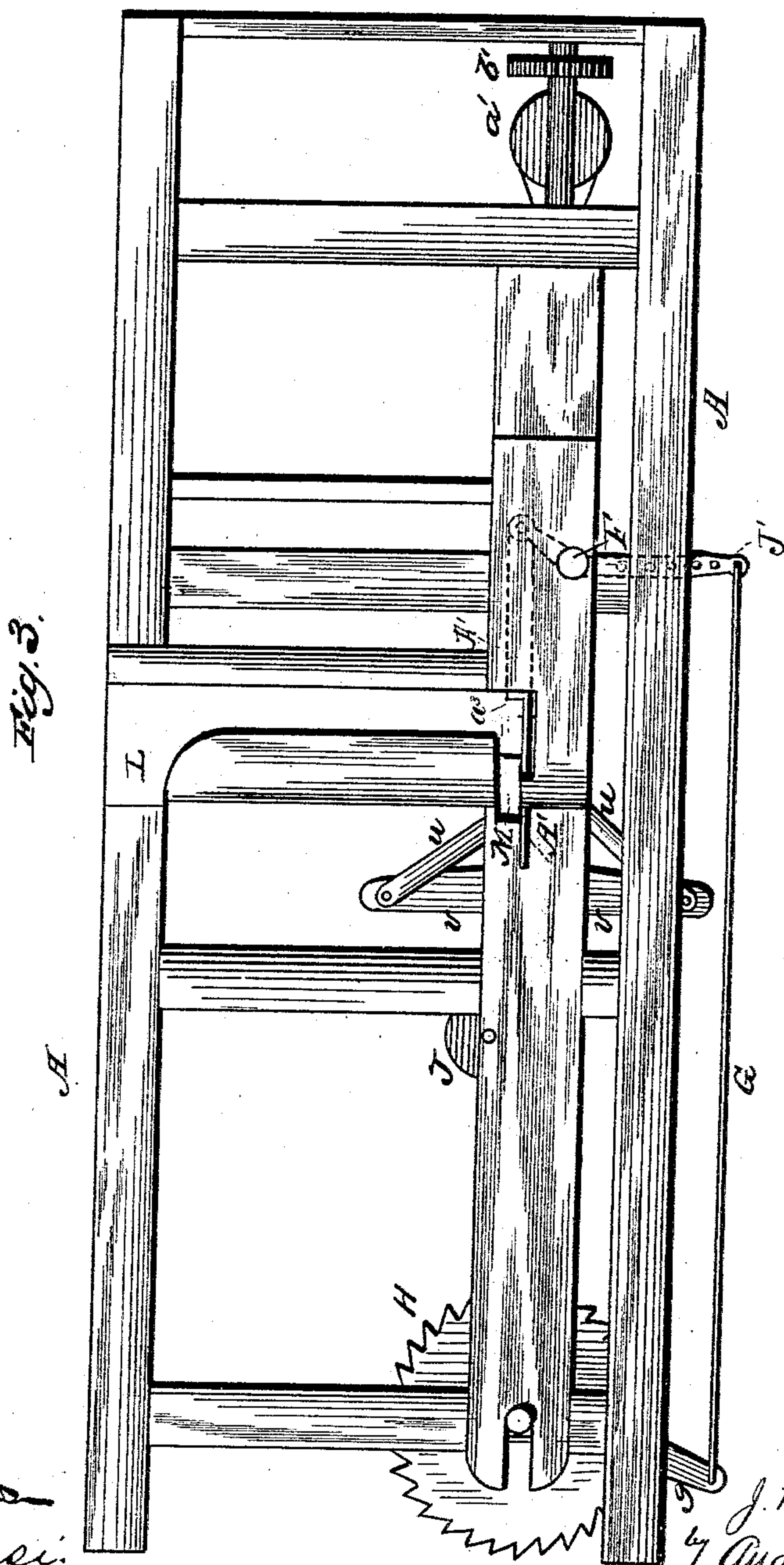
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WITNESSES

Witnesses  
 E. H. Bates  
 A. C. Masie

INVENTOR

J. M. Harrop  
Anderson & Smith  
his ATTORNEYS

ATTORNEYS

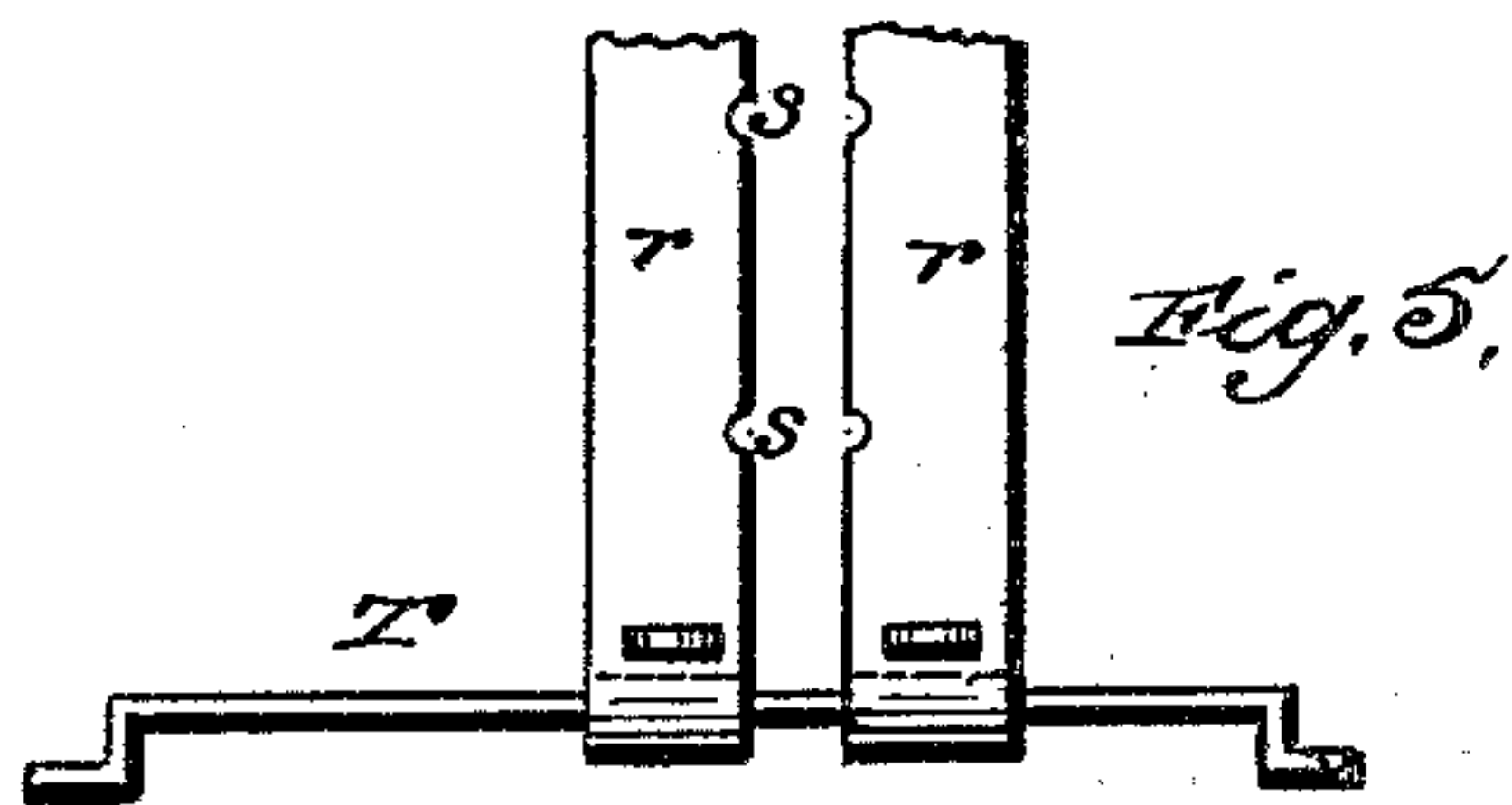
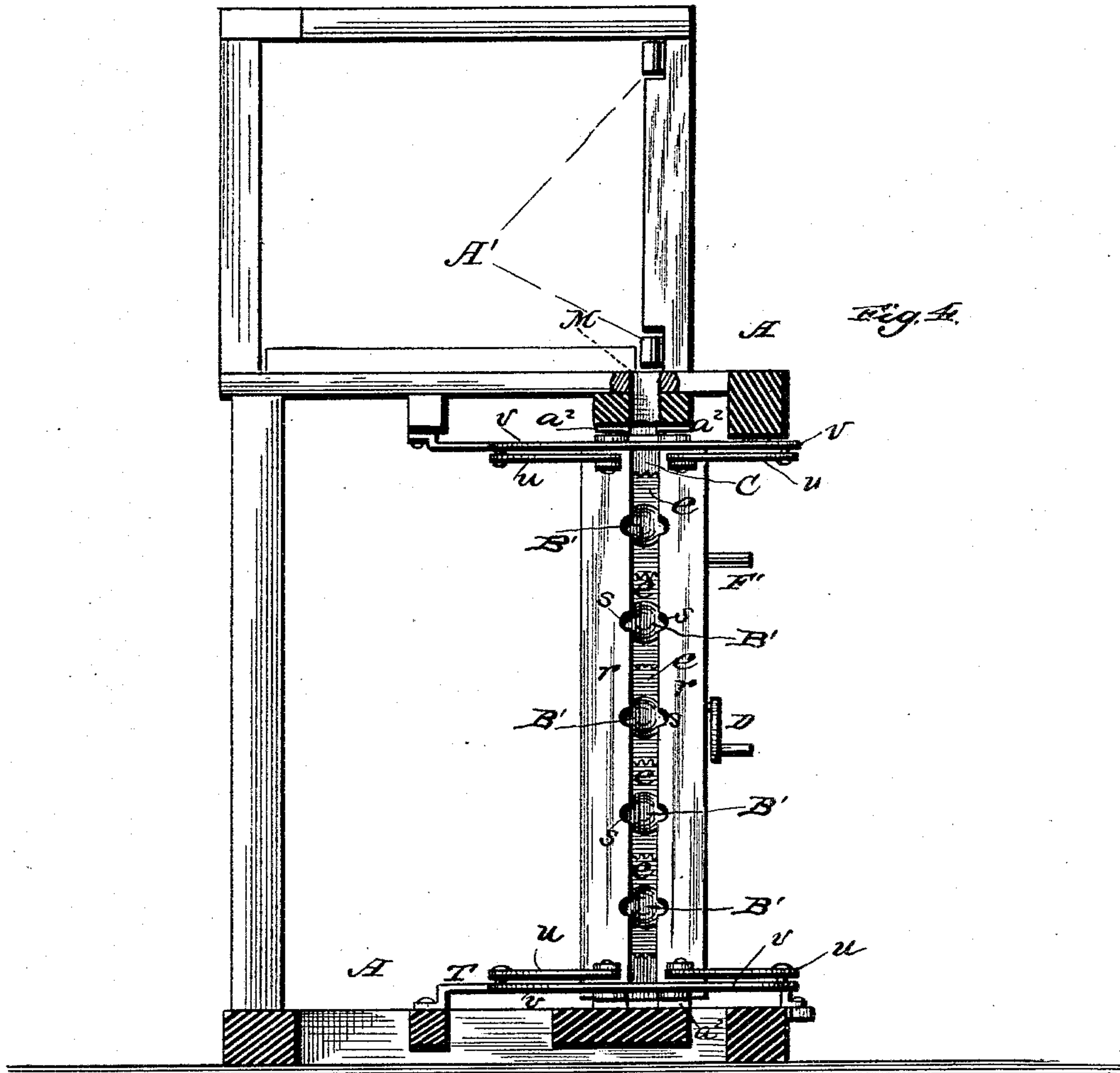
(No Model.)

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WITNESSES

*E. H. Bates*  
*Philip C. Masi*

INVENTOR

*J. M. Harrop*  
*By Anderson & Smith*  
his ATTORNEYS

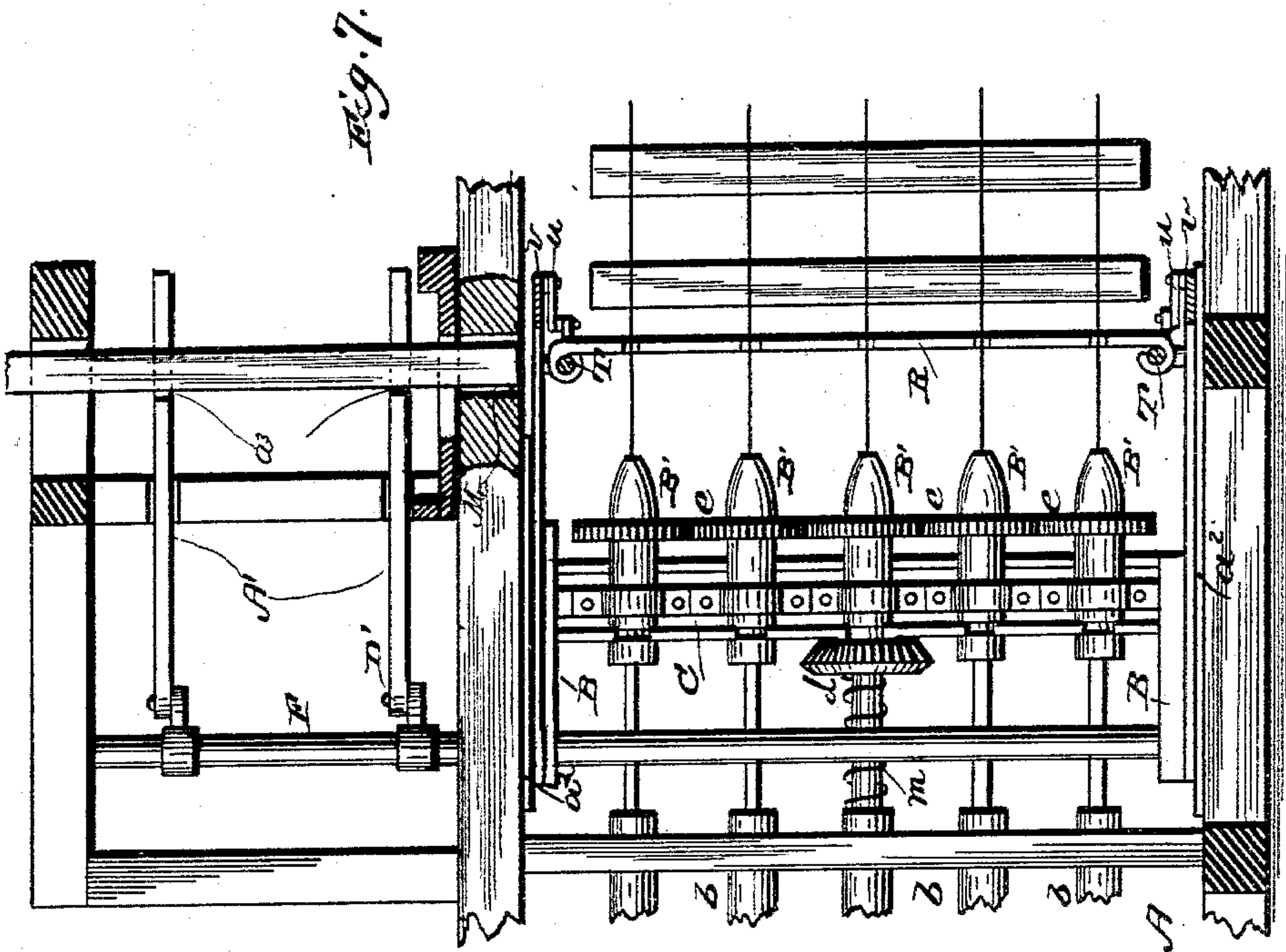
(No Model.)

5 Sheets—Sheet 5.

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Patented June 30, 1885.



WITNESSES

*E. H. Rouse*  
*P. C. Masi*

INVENTOR

*J. M. Harrop*  
by *Anderson & Smith*  
his ATTORNEYS



# UNITED STATES PATENT OFFICE.

JOSEPH M. HARROP, OF QUINCY, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
JOSEPH ASH, OF SAME PLACE.

## FENCE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 321,359, dated June 30, 1885.

Application filed April 23, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH M. HARROP, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Fence-Making Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a side elevation of my invention. Fig. 2 is a longitudinal horizontal sectional view, and Fig. 3 is a plan view. Fig. 4 is a vertical transverse sectional view. Fig. 5 is a detail view of the clamping device, and Fig. 6 is a detail sectional view of one of the rack-bars and guide-ways attached to the frame A. Fig. 7 is a vertical sectional view of the middle portion of my machine, showing a picket in a position to enter between the binding-wires, and two of the pickets strung.

This invention has relation to improvements in machines for making picket or slatted fences; and it consists in the construction and novel arrangement of devices, as will be hereinafter more fully set forth, and particularly pointed out in the claims appended.

In the accompanying drawings, A indicates the frame of the machine, which is of a suitable height, and properly braced to support the fencing and mechanism for forming the same. At the rear end of the frame are two rows of double spools carrying the slat-binding wires. These spools are loosely supported and allowed to freely rotate on short lateral or transverse shafts, which are secured to longitudinal hollow shafts *b*, and extend at right angles therefrom. These shafts *b* have their opposite ends supported, respectively, in the rear vertical beam, L, of the main frame, and an intermediate vertical beam, K, which is also secured to the main frame, as shown.

The upper and lower longitudinal beams of the frame A are provided on their inner sides with fixed guide-plates *a*<sup>2</sup>, and sliding in these guide-plates are longitudinal rack-bars B,

near the forward ends of which is secured a vertical bar, C. Journaled to the outer side, and about midway the length of this bar C, is a vertical bevel-gear, *c*, having its fixed shaft provided with an operating-crank, D, and to the opposite side of the said bar C are journal-bearings for supporting the twisting-forks B', the said forks being allowed to rotate freely in the bearings. The twisting-forks are respectively provided with fixed vertically-arranged intermeshing gear-wheels *e*, and the central fork-shaft has a rearward extension, P, which is designed to enter the central hollow shaft, *b*, supporting the spools. On this shaft P, which is also fixed to the bevel-gear *d*, is arranged a spiral spring, *m*, having one end fixed to the said shaft *b*, and the opposite end fixed to the bevel-gear *d*, which has an engagement with the bevel-gear *c*. The horizontal shafts *b* are respectively provided near their rear ends with intermeshing gear-wheels *b'*, which are fixed thereto. Thus it will be seen that when power is applied to the crank D, which turns the bevel-gear *c*, motion will be simultaneously communicated to the twisting-forks by the engaging bevel-gear *d* and the intermeshing gears *e*, and to the central shaft, *b*, through the medium of the spiral spring *m* and gear *d*, when the motion thus attained will be imparted to the respective shafts *b* by the fixed gears *b'*.

F indicates a vertical rock-shaft having its bearings in the main frame, and extended a sufficient distance above the same for the attachment of the picket-feeding arms, as will be presently explained. This shaft F is provided with two horizontally-fixed pinions, *f*, which are designed to engage the rack-bars, respectively, and move the same back and forth when the said shaft is operated. F' indicates the operating-arm of the said rock-shaft. The forward ends of these moving racks B are provided with branched extensions Z, which have curvilinear slots *w*, and are connected with a transverse bar, V. The outer ends of this transverse horizontally-moving bar are pivotally connected, by means of links *u*, with the ends of the laterally-moving vertical clamping-bars R.

The clamping-bars R are supported by transverse rods T, which are secured at oppo-



site ends to the main frame, so as to allow the said clamping-bars a sliding transverse movement when the racks B are operated. The clamping-bars R are also provided in their adjacent edges with notches or projections s, for passing over the binding-wires, while the said clamps are brought against a picket during the twisting operation of the forks.

I indicates a winding-drum at the forward end of the frame, for rolling up the fencing as it leaves the machine. This drum is provided at one end with a fixed ratchet or toothed wheel, H, and a radial arm, g, carrying a pawl for engaging the ratchet-wheel, and the outer end of this arm g is connected to the vertical rock-shaft F by means of a rod, G, and an arm, J', fixed to the said rock-shaft. Therefore, when the shaft F is rocked to feed the pickets and operate the clamping-bars, the fencing as it is formed is simultaneously wound upon the drum. The shafts b are hollow and provided with apertures for the passage of the wire from the spools to the forks.

J indicates a tension-roller, which is vertically journaled in the main frame in advance of the twisting-forks.

Upon the main frame and above the clamping and twisting devices is arranged the picket-holding device, which consists of a vertical transverse guideway, L, within which are vertically arranged the pickets. The floor of this guideway is provided, directly above the branches of the twisting-forks, with a vertical elongated slot, M, through which the pickets are dropped so as to fall between the binding-wires as they leave the forks.

A' indicates longitudinally-vibrating arms, which are eccentrically clipped to the vertical rock-shaft F, as shown at D'. These arms A' extend transversely across the slot M of the picket-guideway, and are shouldered, as shown at a<sup>3</sup>, so as to receive the pickets as they are fed by any suitable means in the guideway and carry them to the said slot. The slot M is of a size sufficient to receive but one picket at a time, and the shoulders of the arms A' are also constructed so as to engage but one picket. Therefore it will be seen that as the rock-shaft is operated the said arms engage and carry the pickets to the slots, where they are dropped slightly in advance of the forks and between the binding-wires.

It will be perceived that the spools carrying the binding-wires have a rotary movement similar to that of the forks, the object being to prevent the wires from twisting after leaving the spools at any point other than at the forks, or where the pickets are dropped or bound.

The operator stands with one hand upon the lever F' of the vertical rock-shaft, and the other upon the crank-arm D of the gear C, the lever F' being directed forwardly or toward the winding-drum, and the forks lying in the opposite direction, with the branches of each respective fork on the same horizontal plane. The operator then moves the lever F' rear-

wardly or in the direction indicated by the arrow in Fig. 1. This causes the arms A' A' to engage and carry a picket to the slot M; the forks to go forward so as to have the space between their branches to coincide with a vertical line from the said slot M; the clamps R to separate for the introduction of the twisting-forks and the picket which drops between the branches of the forks and clamps, respectively. The same movement, through the medium of the rod G and its connections with the shaft F and drum I, causes the pawl on the said rod to engage the teeth on the wheel H and turn the drum I, fixed thereto. A picket being now between the loops of the respective wires, the operator moves the lever F' in the opposite direction, causing a reverse movement of the devices before mentioned, and the said pawl to ride over the teeth on the wheel H and engage them at the desired point, and the clamps R to engage the picket. He then turns the crank-arm D in the direction indicated by the arrow, when the forks, through the medium of the gears C and d and gears e, will be rotated, thereby twisting the wires around the picket, the spools at the same time being given a similar movement to the forks by the gears b', receiving motion from the central shaft, b, imparted to it by the spring m on the shaft P, which has one end fixed to the gear d, and the opposite end attached to the said middle or central shaft, b. Any suitable means may be employed for holding the picket in a vertical position during the withdrawal of the forks therefrom and the approach of the clamps; or the operator may, if desired, hold it in such position by his hand.

Having described this invention, what I claim is—

1. The combination, in a fence-machine, of the twisting-forks, their gear-wheels, the moving racks, and means for operating the same, substantially as specified.
2. The combination, with the movable bar carrying the twisting-forks, the rack-bars, the rock-shaft carrying the pinions, means for rotating the winding-drum, and means for connecting the rock-shaft with the winding-drum, substantially as specified.
3. The combination, with the movable bar carrying the twisting-forks, of the rack-bars, the clamping device, and means for reciprocating and rotating the twisting-forks, and for operating the clamps, substantially as specified.
4. The combination, with the rack-bars having branch extensions, the transverse rods forming slides for the clamping-bars, the transverse bars connected with the branches of the rack-bars, and the links connecting the clamping-bars with said transverse bars, substantially as specified.
5. The combination, with the twisting-forks and their supporting movable bar, of the racks, bevel-gears c and d, and means for partially rotating the spools carrying the binding-wires, substantially as specified.



6. The combination, with the main frame, of the rack-bars, the rock-shaft carrying engaging pinions, the movable bar carrying the twisting-forks, and means for feeding the slats or pickets between the wire loops in front of the twisting-forks, substantially as specified.

7. The combination, with the twisting-forks, gearing for rotating the forks, the movable bar supporting the same, and the rack-bars, of the shaft having the spiral spring surrounding it, and tubular spool-shafts provided with intermeshing gear-wheels, the spring being connected to the gearing and to one of the tubular shafts, substantially as specified.

8. The combination, with the main frame, of the picket-guide trough having the vertical slot, the rock-shaft, and the vibrating arms secured to the shaft for feeding forward and dropping the pickets to the twisting devices, substantially as specified.

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

JOSEPH M. HARROP.

Witnesses:

HENRY B. COOKE,  
GEO. A. BINKERT.