

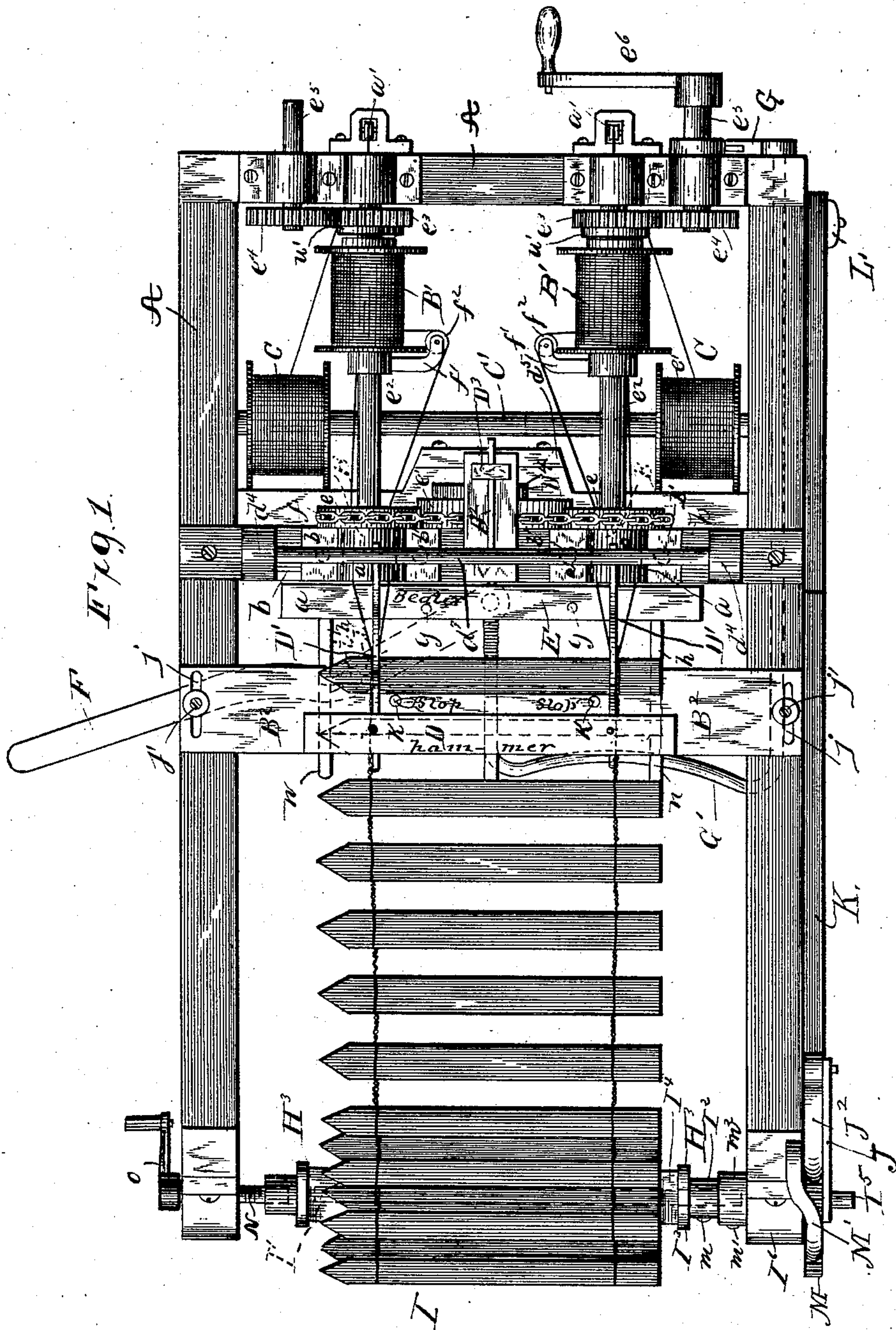
(No Model.)

3 Sheets—Sheet 1.

B. L. FLETCHER.  
MACHINE FOR MAKING FENCES.

No. 301,879.

Patented July 15, 1884.



WITNESSES

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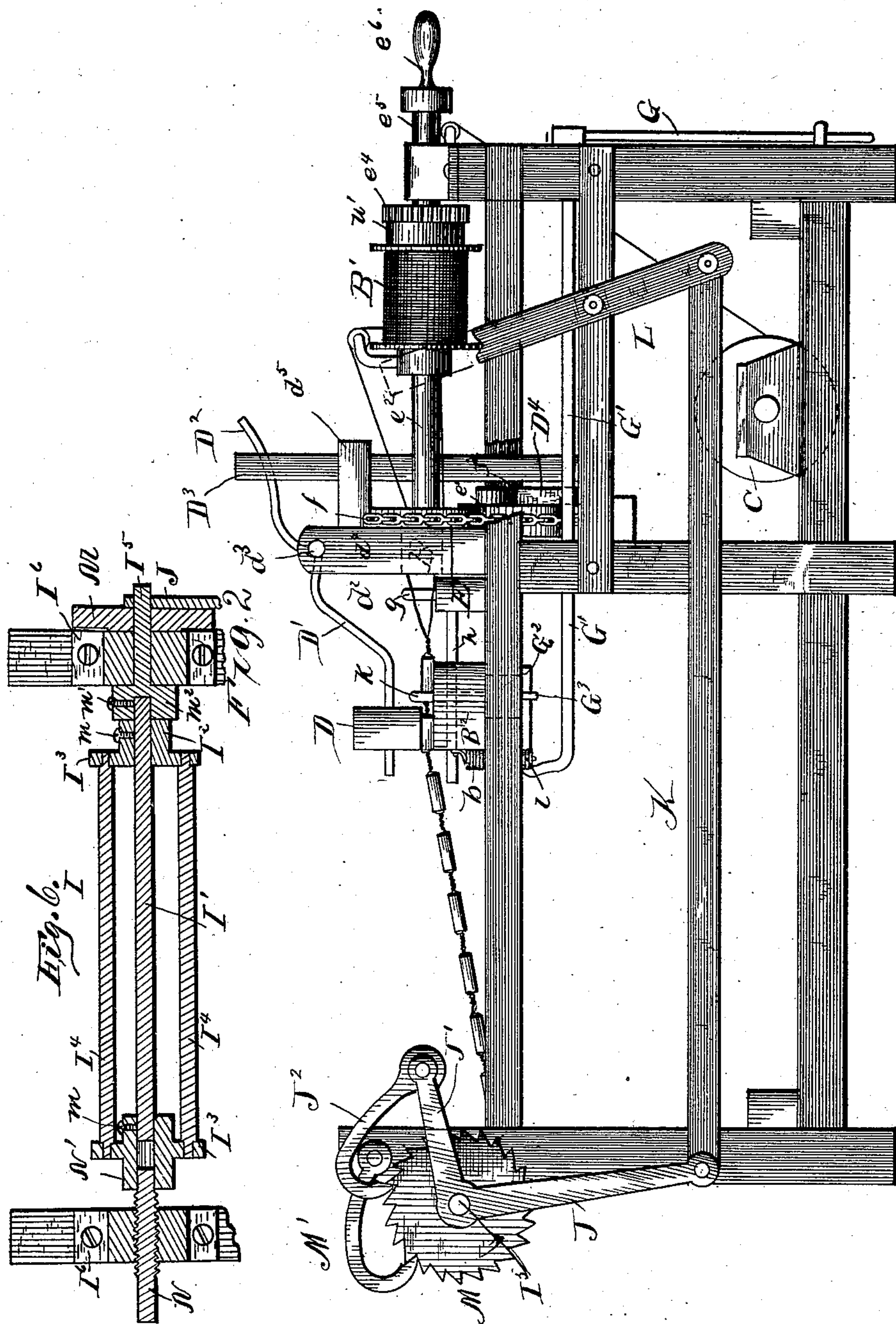
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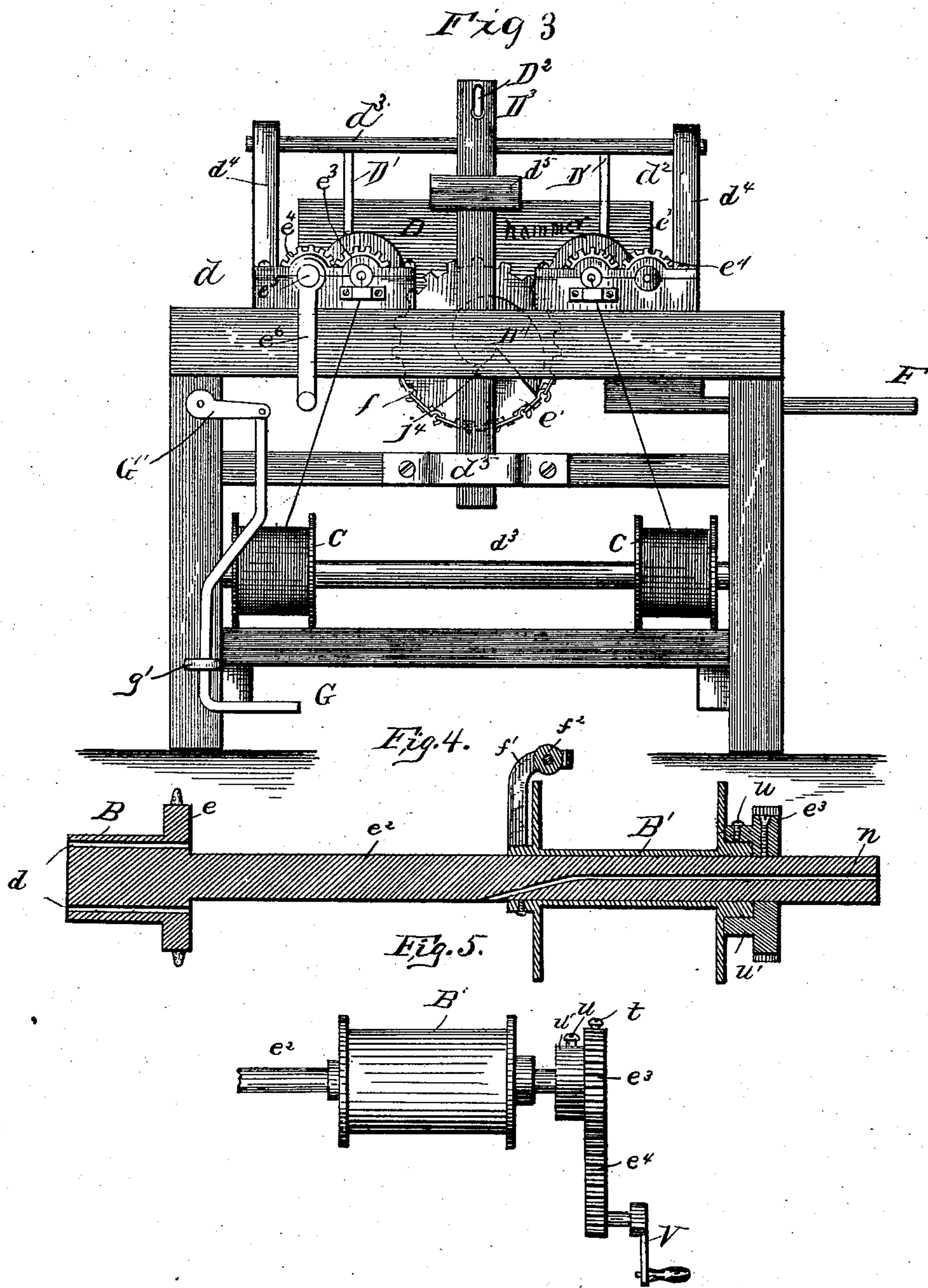
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# UNITED STATES PATENT OFFICE

BENJAMIN L. FLETCHER, OF WICHITA, KANSAS, ASSIGNOR OF ONE-HALF  
TO JOHN M. DUNKIN, OF SAME PLACE.

## MACHINE FOR MAKING FENCES.

SPECIFICATION forming part of Letters Patent No. 301,879, dated July 15, 1884.

Application filed March 29, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN L. FLETCHER, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Machines for Making Fences, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention pertains to machines for making fences; and it consists in the sundry combinations of parts and their construction, substantially as hereinafter fully set forth, and pointed out in the claims.

15 In the accompanying drawings, Figure 1 is a plan view of my machine. Fig. 2 is a side elevation, the upper side bar thereof being partially broken away. Fig. 3 is an end elevation of the same. Figs. 4, 5, and 6 are detail views.

20 In carrying out my invention, I provide a suitable supporting-frame, A, upon which are mounted at a suitable distance from one end thereof the twisting devices or cylinders B, bearing in boxes *a*, in practice, secured adjust- 25 ably by set-screws *b* upon a cross-piece, *b*, designed to have a longitudinal slot, to permit of the disposition of the twisting devices or cylinders near together or farther apart, according to the length of the pickets, panels, or slats, as more clearly shown in concurrent application filed March 7, 1884, Serial No. 123,302. 30 These cylinders or devices are each provided with two parallel apertures, *d*, extending through the same, for the passage of the wires or strands of wire. At one end of each of the twisting cylinders or devices and its shafts is secured a rag or sprocket wheel, *e*, said wheel being fastened to both the cylinder and shaft, 40 and which wheels are encompassed by a chain-belt, *f*, also encompassing and driving (for the purpose hereinafter explained) a similar larger wheel, *e'*, suitably journaled in bearings secured to frame A. These cylinders or twisting devices are provided with fixed shaft *e*<sup>2</sup>, 45 the rear ends of which are journaled upon the cross-bar of that end of the frame A where they are provided with spools or drums B' B', sleeved thereon. The function of these spools 50 is to carry two coils of wire, the other coils of

the wire being carried upon the drums C C, located upon the transverse shaft C', arranged below said spools or drums and the twisting cylinder-shafts, two strands of the weaving wire passing from said lower drums over frictional pulleys *a'*, with their supports secured 55 to the rear cross-bar of frame A, and two passing from the upper drums or spools to and through the twisting cylinders or devices. These shafts *e*<sup>2</sup> of each twisting-cylinder B may 60 be integral with the latter.

To each of the spools B', or, rather, to its sleeve, and to each shaft *e*<sup>2</sup>, is fixed a pinion, *e*<sup>3</sup>, which gears with similar pinion, *e*<sup>4</sup>, each secured to a driving-shaft, *e*<sup>5</sup>, designed to have 65 a crank, *e*<sup>6</sup>, for imparting by hand motion to said drums or spools, for the purpose of coiling the wire upon said spool to supply the twisting devices and to rotate the latter. In practice but one crank is employed to actuate 70 this mechanism, as the two spools B' B' are actuated simultaneously by means of the chain-belt *f* on the sprocket-wheels *e e*. An arm, *f'*, is fixed to each spool-sleeve, and carries a frictional roll or pulley, *f*<sup>2</sup>, over which the wire 75 from said spool or drum is carried or passed to the twisting cylinders or devices B.

D is a hammer, which consists of a heavy transverse bar arranged over the table B<sup>2</sup>, and connected near its ends to the outer or forward 80 ends of arms D', secured at their right ends to a fulcrum or shaft, *d*<sup>3</sup>, pivoted in uprights *d*<sup>4</sup>, fastened to the frame A, said fulcrum or shaft being arranged on a higher plane than the hammer D, and provided with a rearwardly- 85 projecting central arm, D<sup>2</sup>, connected to an upright sliding bar, D<sup>3</sup>, which moves in guides *d*<sup>5</sup> *d*<sup>5</sup>, suitably disposed and fastened in place. The slide or bar D<sup>3</sup> has a pin, *j*<sup>4</sup>, arranged to project horizontally under and to be acted up- 90 on by a cam, D<sup>4</sup>, secured to the rear side of the sprocket-wheel *e'*, said cam being so disposed that it will depress said slide to elevate the hammer just as a panel or picket that has been secured to the wire is to be passed under 95 said hammer, and to permit, after the elevation of the hammer, the latter to escape therefrom, when the hammer will fall on the inter-twisted wire passed around the slat or picket and tighten the wire thereon, the hammer be- 100



ing thus intermittently operated for each slat during the operation of the machine.

Disposed directly in front but below the twisting-cylinders, and so as to move up against the table B<sup>2</sup>, is a sliding bar, E, which has two upright stout pins, *g*, arranged thereon in planes inside of the wire. Said bar is mounted upon rods *h*, fixed in frame A transversely to the length of said bar or slide. The slide E is actuated by bent hand-lever F, pivoted at its inner end to said slide or bar, and guided in its movement so as to move the slide parallel to the transverse axes of the frame A by a pin or stud, *i*, fitting in an oblique slot, *i'*, in the under side of the table B<sup>2</sup>, (see dotted lines, Fig. 1,) while the handle of said lever extends a suitable distance from the frame A for its convenient manipulation. The purpose of the slide E with its pins *i* is to effect the temporary holding of the slat (the pins, when the slide is moved forward, bearing against the slat) while the wires are being intertwisted on one side thereof after the slat has been passed between the wires, the opposite side of the slat being held as against movement in that direction, as presently described. The table B<sup>2</sup>, upon which the slat, panel, or picket is placed, is adjustably connected to the frame A, being provided with transverse slots *j*, which receive adjusting-screws *j'*, entering the frame. Through the table passes two upright stout pins, *k*, secured to a bar below the table, (presently described,) and arranged about in line with the pins *g* of the slide E, and adapted to bear against the forward side of the slat, that side opposite to which the pins *g* bear. The pins *k*, in order to permit the slat or picket to pass after having been fastened, are capable of retraction or being depressed below the upper surface of the table B<sup>2</sup> by means of the foot-lever G, connected to a second right-angled lever, G', pivoted in bracket *g'*, secured to the frame A, the inner end of said latter lever being extended inwardly and thence forwardly at right angles to the latter bend, and connected to a bar, G<sup>2</sup>, having the pins *k*. A spring, *l*, connected to the inwardly-bent or projecting portion of the lever G', serves to automatically project or hold the pins *k* in a projecting position in the table. G<sup>3</sup> is a bracket pendent from the under side of the table B<sup>2</sup>, with its lower horizontal portion extending a short distance below and under the bar G<sup>2</sup>, to limit the downward movement of the latter when the pins *k* are depressed or retracted.

I is the reel upon which the fence fabric, as fast as woven, is wound, as more fully shown and claimed for in concurrent application filed March 7, 1884, Serial No. 123,302, and which consists of a central shaft, I', held detachably in the tubular portions or boxes I<sup>2</sup> of end plates or disks, I<sup>3</sup>, by set-screws *m*, and of peripheral bars I<sup>4</sup>, with their ends let into oblong or other apertures of the disks or plates I<sup>3</sup>. One of the central shafts, I', is secured remova-

bly by a set-screw, *m'*, in a hub or box *m*<sup>2</sup>, formed with or fixed to a short shaft, I<sup>5</sup>, bearing a bracket, I<sup>6</sup>, secured to an upright of the frame A.

To the outer end of the shaft I of the reel is connected, so as to revolve with it to cause the intermittent rotation of the reel, a lever, J, connected by a rod, K, to a hand-lever, L, hung or fulcrumed at or near the opposite or feeding end of the frame or machine within easy reach of the attendant, said lever J having an arm, J', carrying a gravity-pawl, J<sup>2</sup>, engaging with a ratchet, M, secured upon the shaft I<sup>5</sup>. A second gravity-pawl, M', engages said ratchet to prevent the reverse movement of the reel, said pawl being hung or pivoted upon an upright of the frame A.

A screw-shaft, N, is screwed into a screw-threaded box or bracket secured to an upright of the frame A, and enters one of the boxes of the plates or disks I<sup>3</sup> and forms a bearing therefor. This shaft has a handle, O, to enable the convenient unscrewing or withdrawal of said shaft from the reel end or plate I<sup>3</sup> when it is desired to remove the reel, which becomes necessary when its holding capacity has been taken up by the completed section or portion of the fence, the wire previous to the removal of the reel having, of course, been severed from the other portion of the work. After the removal of the reel with its contents from the machine, which is accomplished by simply unscrewing the shaft N and the screw *m'* and lowering the reel from its position by the hands to the floor or ground, one or both of the end plates, I<sup>3</sup>, is removed by withdrawing its holding-screw *m*, when the remainder of the reel can be readily released, leaving the reeled or rolled-up slats or finished section of fence in condition to be conveniently and expeditiously stowed away or shipped. The parts of the reel are now reunited by simply slipping or reinserting the detached ends of the peripheral bars into the removed end plate, and replacing, fastening said end plate to the central shaft, after which the reel is bodily placed again in position upon the machine by first introducing one end of its shafts I' into the box or bearing *m*<sup>2</sup>, and then holding it in alignment with the screw-shaft N, revolving the latter until it has been properly screwed into the box of that end plate of the reel, when the reel will be secured in place.

In operation the wires, after passage of one from each of the lower drums through the longitudinal passages *n* in the rear ends of the shafts *e*<sup>2</sup>, (said passages terminating at and extending through one side of the said shafts, as seen in Fig. 4,) and one from each of the drums B', and over the frictional rolls *f*<sup>2</sup>, and thence through the passages or apertures of the twisting devices, are temporarily held or secured, when the operator begins the placing of the pickets, panels, or slats, one at a time, upon the table, between the wires. He then suit-



ably adjusts the slide E, with its pins *g* against one side of the slat, picket, or panel, the latter resting at its opposite side against the pins *k*, and by turning the crank *e*<sup>6</sup> first to the right the required extent, and then turning it in the reverse direction, being thus also limited, the required twist will be imparted to the wires, and the intertwisting of the same around the slat, panel, or picket be effected, thus effecting the weaving of the fence. As fast as the picket, panel, or slat is secured to the wires, the same, with the wires, is fed forward, and as the same accumulates they are wound upon the reel by operating the hand-lever L, the aforesaid operation being continued until the required amount of fence has been woven or constructed.

The mechanism employed for winding the wire upon the spools B' is shown in Fig. 5, wherein *e*<sup>3</sup> represents a cog-wheel, which is rendered fast to the shaft *e*<sup>2</sup> by means of the set-screw *t*, which is projected through the periphery of the wheel and screws into a suitable threaded orifice in the shaft *e*<sup>2</sup>, the cog-wheel having the cylindric flange *u* cast integral therewith. This flange encircles shaft *e*<sup>2</sup>, and is sufficiently large to admit flush between its inner periphery and the shaft *e*<sup>2</sup> the adjoining end of the spool. When the cog-wheel *e*<sup>3</sup> is rendered fast to the shaft by means of the set-screw *t*, the spool B' is then in the position shown in Fig. 1, and as the spool is not then rigidly connected to but merely rests on the shaft the wire-twisting operation is then carried on; but when it becomes necessary to resupply the spools with wire by rewinding it thereon the set-screw *t* is removed, the spool-cylinder is slipped up on its shaft and partly inserted in the cylindric flange *u*, and the thumb-screw *u* is screwed down into the projecting cylindric end of the spool, thus rigidly connecting the spool to the cog-wheel *e*<sup>3</sup>, which latter gearing in the cog-wheel *e*<sup>4</sup>, which is rotated by means of the crank V.

I do not claim herein anything of my invention in the means for moving, holding, and releasing the picket, or in the reel, those matters being the subjects of another concurrent application, No. 123,302.

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

1. The hammer, with its cross-bar connected to an axis bearing in supports fastened upon the machine, said axis being connected by a lever to a slide actuated by a cam in connection with the twisting devices, substantially as shown, and for the purpose set forth.

2. In a machine for making fences, the spool having the cylindric flange, in combination with the cog-wheel having cylindric flange and set-screw arranged for winding wire upon the spool by means of a crank operating the cog-wheel, substantially as shown, and for the purpose set forth.

3. The twisting devices with their shafts provided with sprocket-wheels encompassed by a belt driving a third similar wheel carrying a cam actuating a slide connected to the hammer and engaging with the cam, for straightening the intertwisted wire looped around the slats, panels, or pickets just after the completion of the twisting operation, substantially as described.

4. The combination of the spool having cylindric flange, cog-wheel having cylindric flange, set-screw and thumb-screw, and cog-wheel actuated by a crank, substantially as shown, and for the purpose described.

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

BENJAMIN L. FLETCHER.

Witnesses:

J. NOTA MCGILL,  
H. A. HALL.