

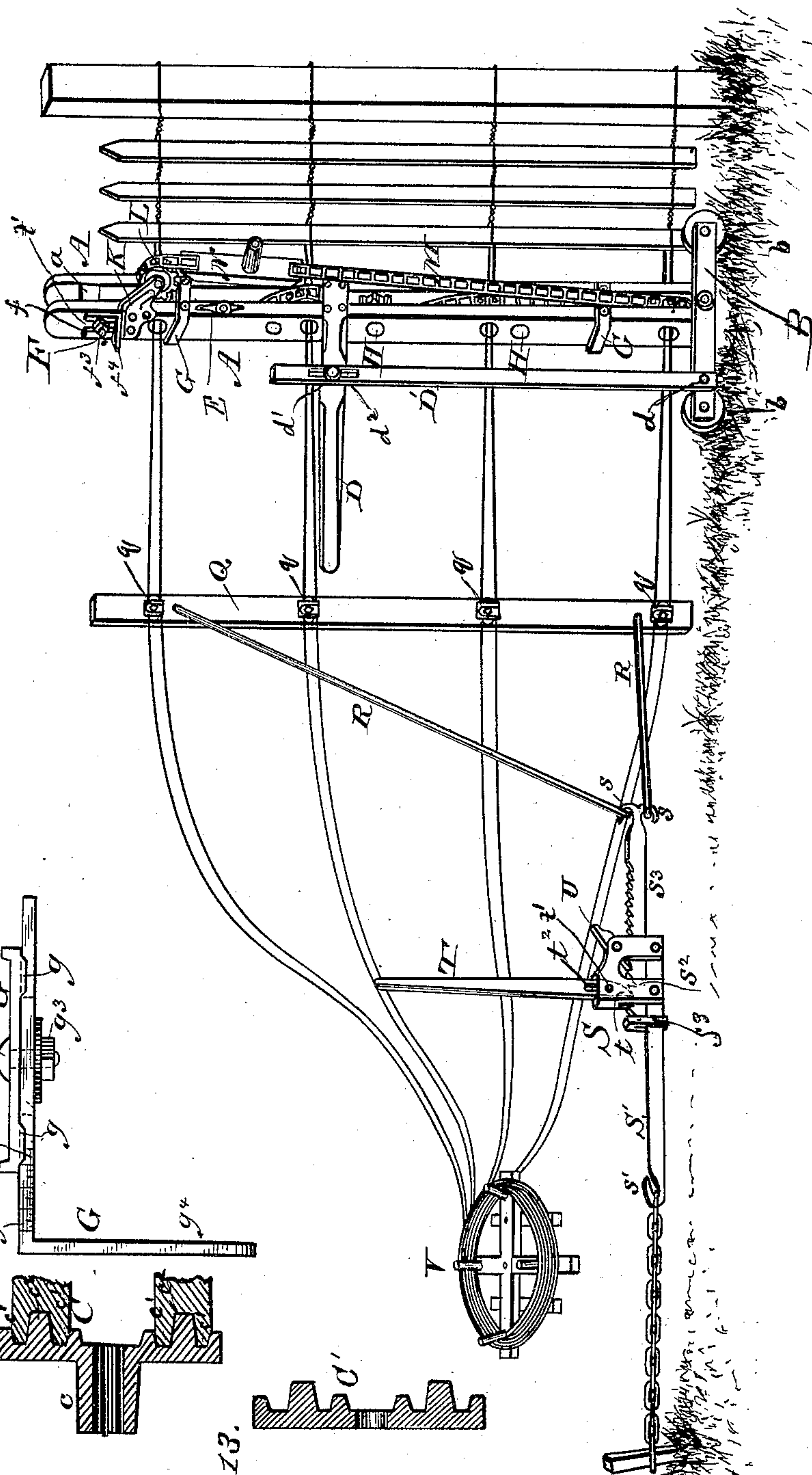
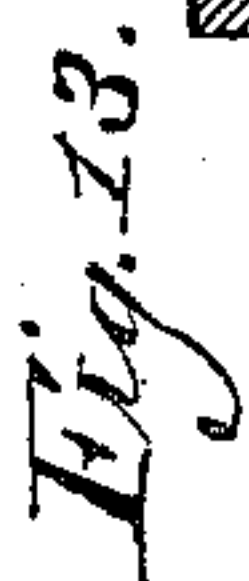
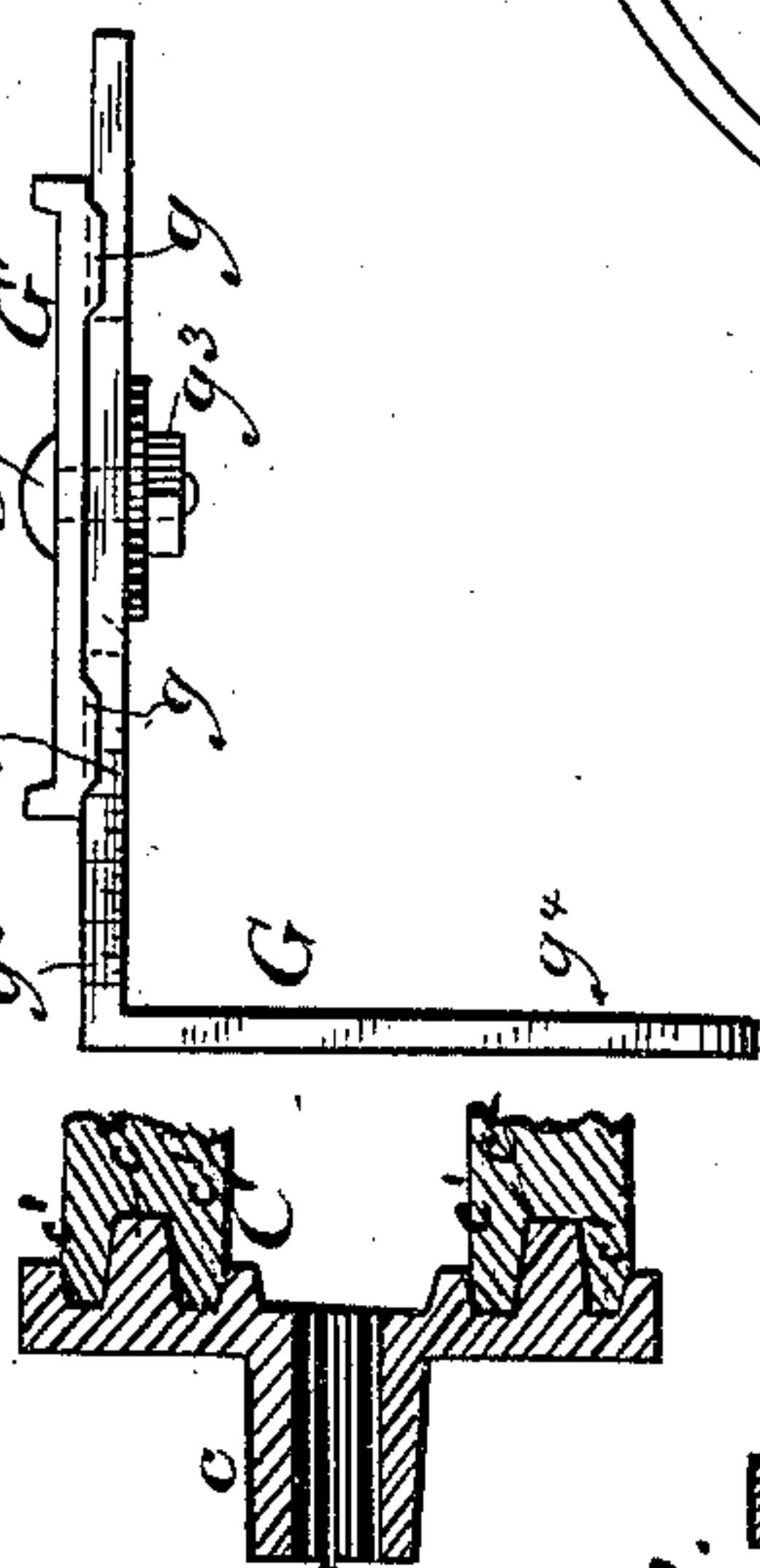
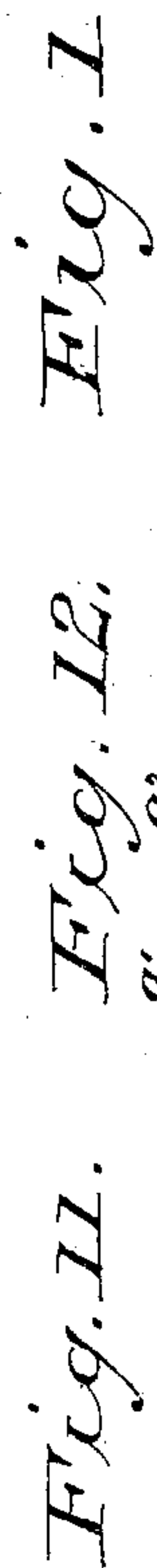
(No Model.)

2 Sheets—Sheet 1.

J. B. STEEN.  
MACHINE FOR MAKING FENCES.

No. 405,510.

Patented June 18, 1889.



WITNESSES

H. C. Neuman.  
E. S. Neuman.

INVENTOR

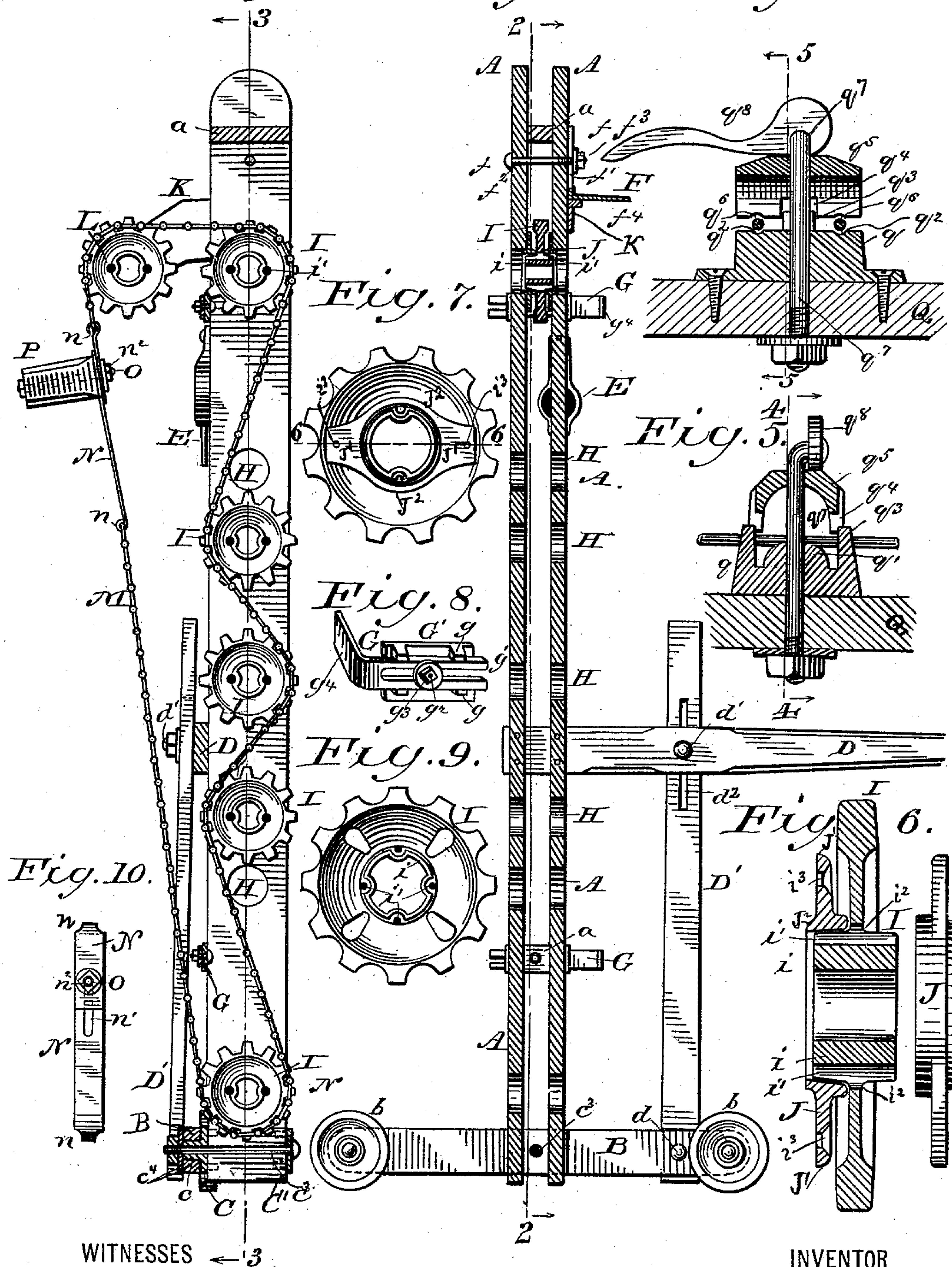
By his Attorneys *J. B. Steen,*  
*Baldwin, Davidson & Hyatt.*

2 Sheets—Sheet 2.

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*Fig. 2.      Fig. 3.      Fig. 4.*



H. C. Newman.  
E. S. Newman.

INVENTOR  
J. B. Steen,  
By his Attorneys  
Baldwin, Davidson & Wright.



# UNITED STATES PATENT OFFICE.

JAMES B. STEEN, OF FIDELITY, OHIO.

## MACHINE FOR MAKING FENCES.

SPECIFICATION forming part of Letters Patent No. 405,510, dated June 18, 1889.

Application filed February 7, 1889. Serial No. 299,071. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. STEEN, a citizen of the United States, residing at Fidelity, in the county of Miami and State of Ohio, have invented certain new and useful Improvements in Machines for Making Fences, of which the following is a specification.

My improved machine is designed to construct fences of slats or pickets and wire.

Machines have heretofore been used for the same purpose; but my machine is designed to do the work more effectively and more rapidly than any heretofore employed.

In carrying out my invention I first plant a post to which the wires are secured. Any number of rows of wires may be employed, each row consisting of two wires. I then twist the wires around the post in my improved machine or attach them in any other suitable way, then place a slat or picket in position between the wires in the several rows, and then twist the wires adjacent to the slat near its outer edge. The slats are thus successively secured to the wires as the machine is moved forward. The outer ends of the wires are held in clamps on an upright bar, which is moved forward by a stretcher.

The details of construction of my improved machine and the subject-matter claimed will be hereinafter designated.

In the accompanying drawings, Figure 1 is a diagram view showing my improved machine in operation. Fig. 2 is a vertical central section through my improved machine on the line 2 2 of Fig. 3, and Fig. 3 is a similar section on the line 3 3 of Fig. 2. Fig. 4 is a detail view, partly in section, of my improved wire-clamping devices, the section being taken on the line 4 4 of Fig. 5. Fig. 5 is a section of the same on the line 5 5 of Fig. 4. Fig. 6 is a section of one of the sprocket-wheels on the line 6 6 of Fig. 7, showing one of its bearing-brackets in section and the other in elevation. Fig. 7 is a side view of one of the sprocket-wheels and its bracket. Fig. 8 is a detail view of one of the gage-brackets. Fig. 9 is another view of one of the sprocket-wheels. Fig. 10 is a detail view of the chain-adjusting devices. Fig. 11 is a section of one of the clamping-plates for the lower end of the apparatus. Fig. 12 is a detail view of the ad-

justable gages, and Fig. 13 is a section of one of the clamping-plates for the lower end of the apparatus.

The wire-twisting machine consists of a pair of uprights A, held a suitable distance apart by spacing-blocks *a*. At the lower end of the uprights is secured a transverse beam B, which carries on its outer ends wheels *b*. The beam B and wheels *b* constitute the truck on which the machine is moved. The beam B is pivoted on a boss *c*, formed on a casting C, secured to the uprights at their lower ends. The casting is provided with grooves *c'*, adapted to receive the edges of the uprights. In each of these grooves is a lug *c''*, which engages with the uprights. A casting C' (similar to the casting C, with the exception of the boss *c*) is placed on the opposite side of the uprights, and the two castings are secured together by a bolt *c''*, which passes through the castings between the uprights, through the beam B, and a washer *c''* on the outside of the beam. A handle D, extending transversely from the uprights, is rigidly secured to the uprights about midway up. The handle D is connected to the beam B by means of a link D', pivoted at *d* to the beam, and secured to the handle by a clamping-bolt *d'*, extending through a slot *d''* in the link. By this means the uprights may be arranged at any desired angle to the truck, so that if the truck is on inclined ground the uprights may be adjusted to a perpendicular position by means of the clamping-bolt *d'*. A plumb E, secured to the uprights, indicates whether or not they are in a true perpendicular position. F indicates a gage formed with a side *f*, which lies against one of the uprights on its outer side, and is provided with a vertical slot *f'*, through which extends a bolt *f''*, provided with an adjustable nut *f'''*, so that the gage may be adjusted vertically to accommodate slats or pickets of different lengths. An arm *f''* extends outwardly at right angles to the side *f'* and bears against the top of the picket.

G indicates gages for the sides of the pickets. These are preferably formed of base-pieces G', secured transversely across the edges of the uprights, near their upper and lower ends. The bases are provided with



guide-lugs  $g$ , between which extend the slotted bars  $g'$  of the gages. Bolts  $g^2$  extend through the slots and are provided with adjusting-nuts  $g^3$ . The slotted bars  $g'$  are provided with arms  $g^4$ , projecting at right angles from their outer ends across the face of the uprights, beneath the gage F. The gages may be adjusted for different widths or spaces between pickets, and are preferably graduated, as shown at  $g^6$ , to indicate the width of the space between the pickets for which they are to be adjusted. The uprights A are provided with holes H, extending through from one side to the other, and arranged at proper distances apart to accommodate the fence-wires.

Between the uprights, adjacent to the holes, are arranged sprocket-wheels I. Each sprocket is provided on each side with flanges  $i$ , which constitute the hub. The hub preferably tapers, as shown, and has its bearing in brackets J, secured to the inside of the uprights around the holes H. The central part  $J^2$  of the bracket has a tapered opening corresponding with the tapered hub of the sprocket-wheel. The bracket has arms  $J'$  extending radially from the central hub  $J^2$ , and is provided with holes  $i^3$ , through which the screws for securing it to the uprights extend. The hub is hollow, as shown, and is provided on opposite sides of its periphery with grooves  $i'$  to accommodate the wires. The body of the wheel is perforated at  $i^2$  to permit the wires to pass through. The perforations  $i^2$  join the grooves  $i$ , so as to form on the periphery of the hub a continuous groove extending from one side of the hub to the other and through the body of the wheel.

In Fig. 9 I have shown the hub provided with four grooves of different sizes to accommodate different thicknesses of picket and stoutness of the fence.

A bracket K near the upper end of the uprights carries a sprocket-wheel L, over which passes a chain M, which also passes over sprockets I inside the uprights. The ends of the chain are connected to hooks  $n$  on two bars N, which are adjustably secured together by means of a bolt O passing through a slot  $n'$  in one of the bars and through the other, as shown. The bolt is provided with a clamping-nut  $n^2$ . At this point the chain is provided with a handle P, by which it may be worked back and forth, thereby revolving the wheels L and I. The post Q is provided with clamping devices for holding the wires on that side of the twister opposite to the one on which the pickets are arranged. Each clamping device preferably consists of a base-piece  $q$ , having a curved block  $q'$  provided with grooves  $q^2$ , in which the wires lie, and with guide-lugs  $q^3$ , which fit into grooves  $q^4$  in the cap  $q^5$ , which is curved on its inner side to correspond with the curved block  $q'$ . The lower edges of the cap are formed with notches  $q^6$  to allow the wires to pass through. A bolt

$q^7$  extends through the post Q, the base  $q$ , block  $q'$ , and cap  $q^5$ , and carries on its outer end a cam-lever  $q^8$ , which, when the cap is withdrawn from the block, forces it in and tightly clamps it therein, and thus holds the wires in the grooves  $q^2$ . The clamp may be quickly opened and closed by operating the lever.

The post Q is provided with a bail R, secured near top and bottom and engaging with hooks  $s$  on the stretcher S. The stretcher S is preferably constructed as follows: A base-rod  $S'$  is provided on its outer end with a hook  $s'$ , by which it may be secured to a stake, as shown in Fig. 1. On its inner end it is provided with a housing  $s^2$ , through which the toothed bar  $s^3$  passes. The toothed bar  $s^3$  is provided on its inner end with a loop that embraces the rod  $S'$ , by which it is guided. On its outer end the toothed bar  $s^3$  is provided with hooks  $s$  for engagement with the bail R, as above explained. The operating-lever T is provided with a toothed end  $t$ , adapted to engage with the toothed bar  $s^3$ . It is connected to the housing by a bolt  $t'$ , which passes through a slot  $t^2$ . By this means the lever may be forced into or out of engagement with the toothed bar  $s^3$ , and when turned on the bolt  $t'$  it may be made to force the bar  $s^3$  forward, and thus stretch the wires secured to the post Q. A dog U is pivoted in the housing to hold the toothed bar in position when moved forward by the operating-lever. The wires for forming the fence may be fed continuously from a reel V.

The apparatus thus organized puts up the fence very expeditiously.

The manner of operating the machine and the way of constructing the fence have been indicated above. The standards are shown as provided with additional holes—i. e., holes at which sprocket-wheels are not located. Should it be desired, one or more of the sprockets may be removed to either of these holes and the chain suitably adjusted to provide for the change.

I claim as my invention—

1. The combination, substantially as hereinbefore set forth, of the uprights, the truck pivoted thereto, the stationary handle, the link adjustably secured thereto, and the plumb mounted on the standards.

2. The combination, substantially as hereinbefore set forth, of the uprights having a series of holes or perforations, the brackets J, having central openings tapered, as described, and laterally-projecting arms  $J'$ , secured to the inner sides of the uprights adjacent to the holes or perforations, the sprocket-wheels having tapered flanges or hubs on each side fitting in the brackets, said hubs being provided with grooves on their periphery communicating with perforations extending through the body of the wheels and through which the wires extend.

3. The combination, substantially as hereinbefore set forth, of the uprights, the wire-



twisting devices, and the horizontally-adjustable gages, each consisting of a base-piece  $G'$ , secured transversely across the edges of the uprights and provided with guide-lugs  $g$ , a  
 5 slotted bar  $g'$ , through which extends an adjustable securing-bolt, and the arm  $g^4$ , extending at right angles from the slotted bar across the face of the uprights.

4. The combination, substantially as here-  
 10 inbefore set forth, of the uprights made in two parts, the spacing-blocks, the base-piece, the clamping-plates or castings  $C C'$  at the lower ends of the uprights, said clamping-plate  $C$  being provided with a boss  $c$ , extend-  
 15 ing through the base-piece, and with grooves  $c'$ , in which the edges of the uprights are seated, and with lugs  $c^2$ , engaging with the uprights, and said casting  $C'$  being provided with similar grooves and lugs engaging with  
 20 the opposite edges of the uprights, and a bolt extending through the uprights and the base-piece and securing the castings together, the wire-twisting sprocket-wheels, and the endless chain for operating them.

25 5. The combination, substantially as here- inbefore set forth, of the uprights, the sprocket-wheels, the chain extending over the sprocket-wheels, the bars having hooked ends secured to the opposite ends of the chain, one of said

bars having a slot in its end, as described, the  
 30 chain-operating handle, and a bolt extending through the bars and the handle, for the purpose specified.

6. The combination, substantially as here-  
 inbefore set forth, of the clamp-carrying post  
 35 and the wire-clamping devices, each consisting of a base-piece  $q$ , having a curved block  $q'$ , provided with grooves  $q^2$ , in which the wires lie, and with guide-lugs  $q^3$ , a cap  $q^5$ , hav-  
 40 ing grooves  $q^4$ , into which the guide-lugs on the base-piece fit, said cap being curved on its inner side to correspond with the curved base-block, and the cam-lever for forcing the cap into engagement with the block.

7. The combination, substantially as here-  
 45 inbefore set forth, of the curved base-block, the correspondingly-curved cap, the grooves formed in the cap and base-block through which the wires extend, the bolt extending  
 50 through the base-block and cap, and the cam-lever attached to the bolt.

In testimony whereof I have hereunto sub-  
 scribed my name.

JAS. B. STEEN.

Witnesses:

H. H. WILLIAMS,  
 W. H. CURTIS.