

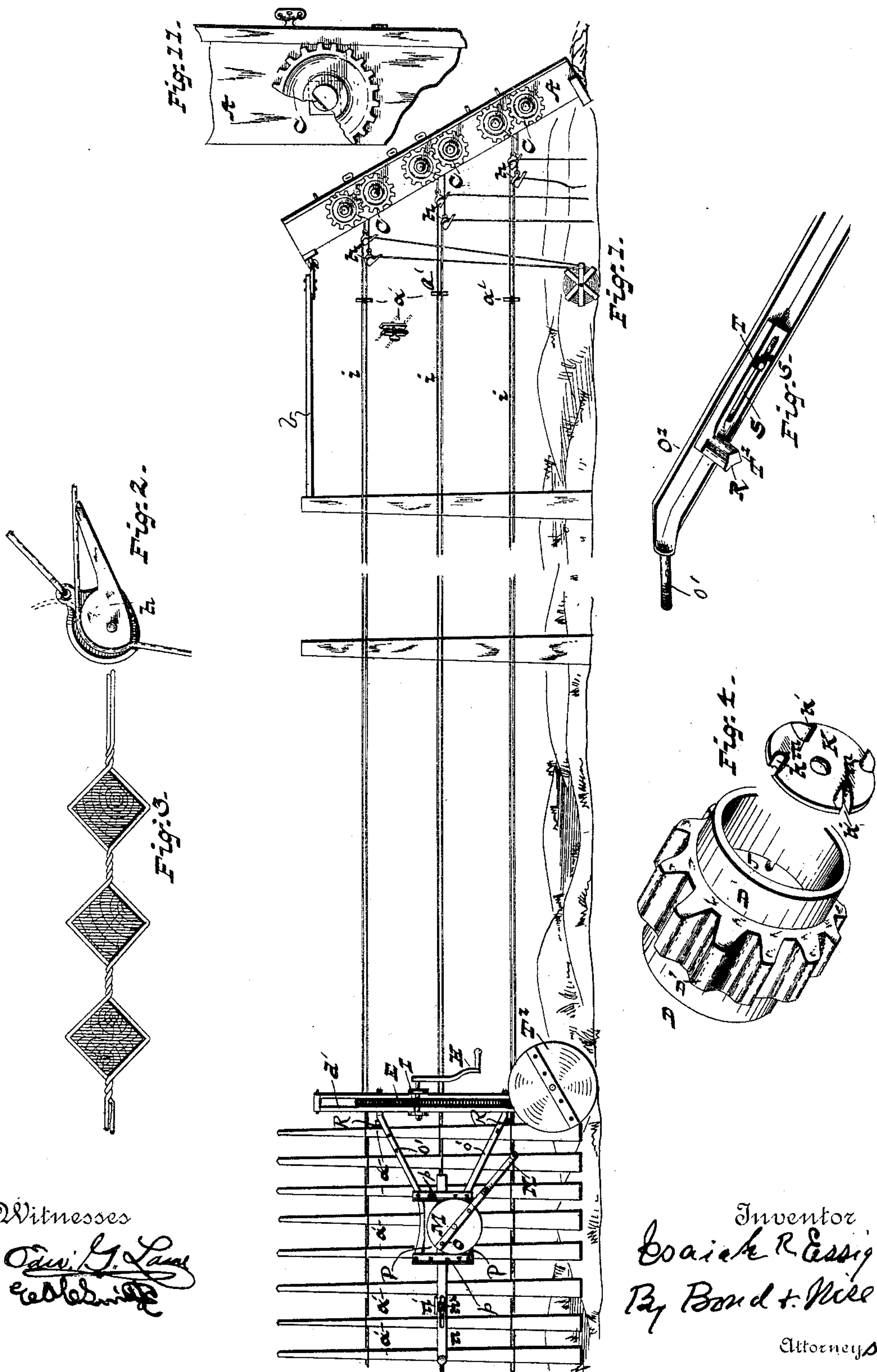
(No Model.)

2 Sheets—Sheet 1.

I. R. ESSIG.  
FENCE MACHINE.

No. 410,706.

Patented Sept. 10, 1889.



Witnesses  
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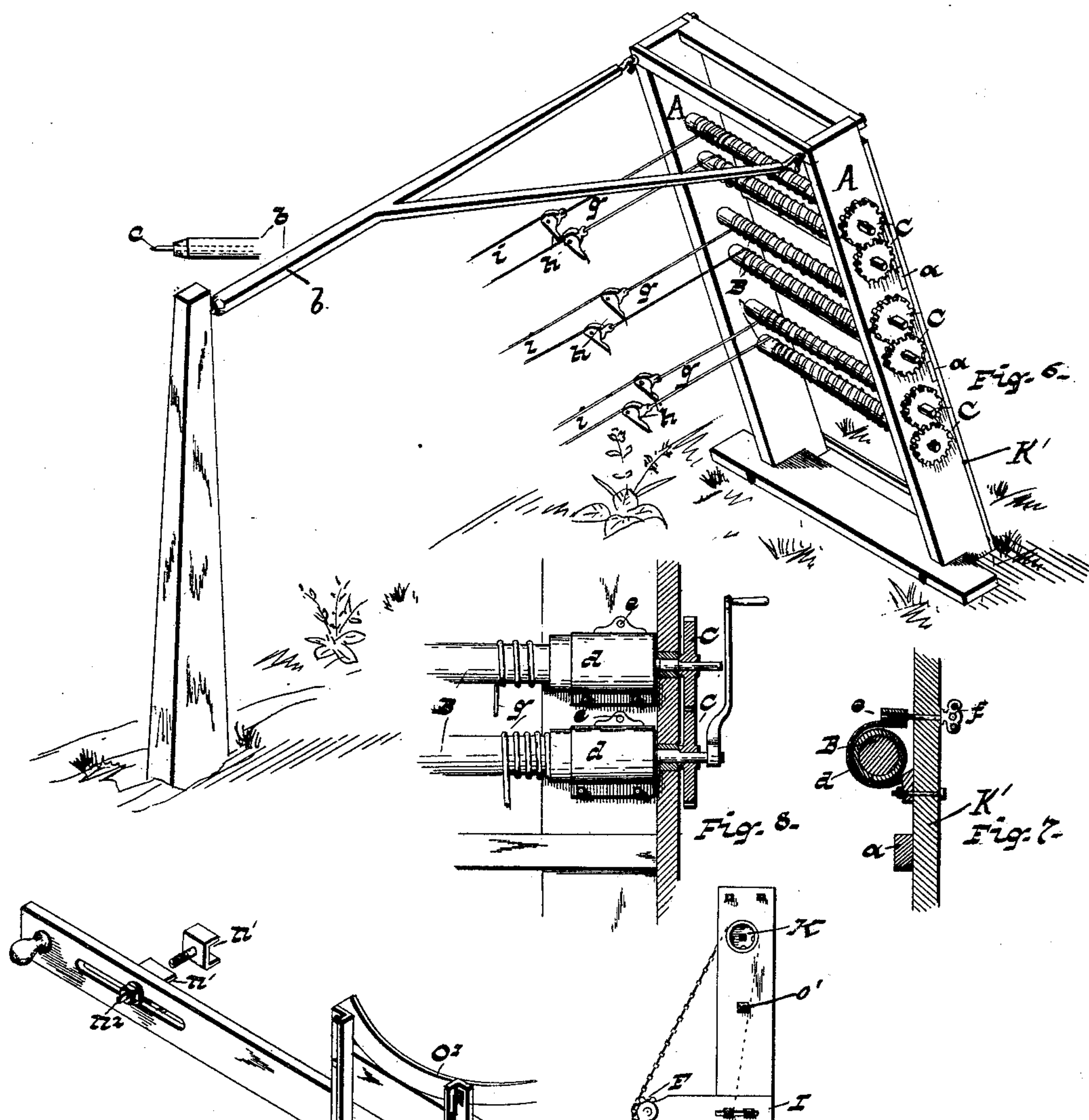
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# UNITED STATES PATENT OFFICE.

ISAIAH R. ESSIG, OF CANTON, OHIO.

## FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,706, dated September 10, 1889.

Application filed February 2, 1889. Serial No. 298,518. (No model.)

*To all whom it may concern:*

Be it known that I, ISAIAH R. ESSIG, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Fence-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 is a view showing a fence partly constructed and the location of the weaving-machine and the roller-frame of jack. Fig. 2 is a detached view of one of the wire-clamps. Fig. 3 is a view showing modified form of picket. Fig. 4 is a detached view of the wire-twister head. Fig. 5 is a detached view showing location of one of the picket-adjusters. Fig. 6 is an isometrical view of the roller-frame of jack, showing the same placed in position, together with its brace. Fig. 7 is a sectional view of one of the rollers, showing its brake properly located. Fig. 8 is a side elevation showing two of the rollers and their brakes, and is a sectional view of the gear-wheels. Fig. 9 is a side view of the twisting-frame. Fig. 10 is a detached view of the adjusting-bar and its eccentric. Fig. 11 is an enlarged view of a portion of the roller-frame and one of the gear-wheels and its shaft.

The present invention has relation to fence machines; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, A represents the side pieces of the roller-frame or jack, which are securely held together at the required distance apart by means of the cross-pieces *a*.

To the side pieces A are journaled the rollers or spools B, which are located substantially as shown in Fig. 6.

To the top or upper end of the frame proper is attached the brace *b*, which is so adjusted

that it will press or bear against a post, as illustrated in the drawings. The outer end of this brace is provided with the metal point *c*, which is for the purpose of entering the post, and thereby prevent the brace from slipping out of position.

For the purpose of providing the desired amount of tension upon the rollers or spools B, the brake-straps *d*, mounted upon the brace K', are provided, said straps being located substantially as shown in Fig. 8, and for the purpose of providing a large amount of brake-surface the brake-straps are carried a short distance under or back of the rollers or spools, as illustrated in Fig. 7. The brake-straps *d* are each provided with the screw-threaded aperture *e*, which are for the purpose of receiving the adjusting-screw *f*.

For the purpose of having each set of the rollers or spools rotate uniformly, and thereby preventing one of the wires moving faster than its mate, the cog-wheels C are provided, said wheels being located substantially as shown in Fig. 6, and for the purpose of providing a means for rotating one of the rollers or spools independent of the other one of the cog-wheels C is removably attached to its shaft.

To the rollers or spools are attached and wound the wires *g*, and to the outer ends of the wires *g* are attached the clamps *h*, said clamps being for the purpose of securely holding the fence-wires *i*. The wires *g* are for the purpose of providing a means of permitting the clamps to move away from the rollers or spools B as the fence-wires *i* are taken up in twisting, the wires *g* unwinding from said spools as the wires are taken up.

In use the roller frame or jack is placed at the desired point and properly braced, as illustrated in the drawings, and the wires *g* wound upon the rollers or spools B, when the fence-wires *i* are securely attached by means of the clamps *h*, said wires *i* extending to any desired distance along and by the fence-posts proper, their outer ends being securely attached to a post.

The twisting-frame and its various parts are placed at the point where it is desired to commence weaving pickets. It will be under-



stood that before the fence-wires *i* are attached to a post they are passed through their respective twister-heads.

In the machine shown three twister-heads are illustrated; but it will be understood that a greater number of these twister-heads may be used, if desired.

The twister-head proper is provided with the smooth face-bearings D, which are for the purpose of forming journals for the twister-head, said journals being located in the side pieces *d'*. These twister-heads are each provided with the cog-wheel D', which is for the purpose of communicating motion to the twister-heads by means of the drive-chain E, cog-wheel F, and crank H.

To the side pieces *d'* are attached the arms I, which are for the purpose of holding in proper position the cog-wheel F and its shaft. These arms I are each provided with slots for the purpose of adjusting said arms to give the drive-chain the desired amount of tension.

Each of the twister-heads is provided with the partition J, to which is attached in any convenient and well-known manner the disk K. The disk K is provided with the notches *k* and *k'*. Each of these notches are provided with the lips or extensions *m*, which are for the purpose of providing a sufficient bearing-surface for the fence-wires *i*. The notches *k'* are somewhat deeper than the notches *k*, and are so formed for the purpose of permitting the fence-wires *i* to come closer together in case it is desired to weave thinner pickets.

The partition J is provided with notches, one of which is shown in Fig. 4, two notches being provided and located diametrically opposite to each other, and are as deep as the notches *k'*.

In case it is desired to change the fence-wires *i* from one set of notches in the disk K to the other set, the disk K is removed and the wires placed in the notches desired, when said disk is replaced. It will be understood that the set of notches being used are to be in line with the notches in the partition J.

When it is desired to commence weaving pickets, the twisting-machine proper is moved along the fence-wires *i* to the point where pickets are to be inserted. A picket is then placed between the wires *i* and said wires twisted sufficiently to securely hold the picket, at which time the twisting-machine is moved a short distance away from the picket last inserted, when another picket is inserted and the wires again twisted in the opposite direction, thereby removing the twist in the wires between the twisting-machine and the roller-frame or jack. After a few pickets have thus been inserted and properly secured, the sliding bar *n* is placed in the position shown in Fig. 1. This sliding bar is provided with the block *n'*, and is securely held to the sliding bar *n* by means of the clamping-bolt *n*<sup>2</sup>, or its equivalent, and is for the purpose of entering

between the pickets and securely holding the twisting-machine proper in the desired position. When it is desired to move the machine out of the way for the next picket, the sliding bar is moved away from the pickets a sufficient distance to detach the block *n'* from between the pickets, when the crank N is elevated at its free end, thereby moving the sliding bar *n* toward the twisting-machine or twister-heads. When the sliding bar has been moved a sufficient distance to bring the block *n'* opposite to the space adjacent to that from which it was last removed, it is again inserted between the pickets and the crank N lowered, thereby forcing the twisting-machine toward the roller-frame or jack, at which time the twisting-machine is in proper position for the introduction of another picket.

The wheel M is mounted eccentrically on the pin *o*, said pin passing through the sliding bar *n*, and is for the purpose of actuating the sliding bar. The wheel M is held in proper position while it is being operated by means of the flanges or bars *p*, and is prevented from becoming detached by means of a head on the pin *o*, said head being sunk into the sliding bar so as not to interfere with the movements of said sliding bar.

The bars P are located substantially as shown in Figs. 1 and 10, and are for the purpose of preventing the sliding bar *n* from moving up or down as the wheel M is rotated.

The braces O' are securely attached to the side pieces *d'* by means of suitable clamping-bolts, and are preferably formed of angle-iron, as shown in Fig. 5. To each of these braces is attached a picket-adjuster R, which is substantially of the form shown in Fig. 5.

For the purpose of adjusting the picket-adjusters R to any desired point upon the braces O', the elongated slots S are provided, and said adjusters are securely held in the desired position by means of the clamping-bolts T.

For the purpose of presenting a perpendicular surface, the picket-adjusters are provided with the beveled shoulders T'.

It will be seen that by providing the picket-adjusters R tapered pickets can be woven by setting the upper adjuster in advance of the lower one, at the same time causing the pickets to stand perpendicular when securely fastened.

For the purpose of causing the twisting-machine proper to be moved easily, the wheel T<sup>2</sup> is provided, and located substantially as illustrated in Fig. 1.

For the purpose of providing an interchangeable crank, all the shafts upon which the crank is to be attached are formed as illustrated in Fig. 11.

It will be seen that by providing the brace *b*, and bracing the same against the adjacent fence-post the tension of the wires *i* will cause the frame A, together with its rollers B, to be drawn toward the post, thereby causing



the post at its top or upper end to be forced toward the twister by means of the brace *b*, so that when the fence-wires are attached to the post and the brace *b* is removed the post will assume its normal position, thereby taking the slack out of the wires *i* and preventing the fence proper from sagging.

The block *n'* is provided with a groove, which is for the purpose of receiving the wires *i* opposite the sliding bar *n*, thereby holding the twisting-machine proper at right angles to the wires *i*, and causing the pickets to stand perfectly perpendicular to the wires *i*.

In Fig. 3 a modified form of picket is shown, the opposite corners of said pickets being in line with each other, thereby providing a thicker picket and better filling the space.

It will be seen that by a downward movement of the crank *N* the picket will be firmly set between the wires *i* by the beaters *R*, and securely held in proper position while the wires *i* are being twisted.

For the purpose of holding the wires *i* and preventing any variance in their tension, the clamps *a'* are provided, which consist of two metal bars placed upon each side of the wires *i*, said bars being pressed together and clamping the wires by means of an ordinary clamping-bolt.

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

1. The combination of the spool-frame *A*, provided with the spools *B*, the gear-wheels

*C*, adapted to cause each set of the spools *B* to rotate in unison, the straps *d*, and the brace *b*, adapted to press against the adjacent post, substantially as and for the purposes specified.

2. The combination of the side pieces *d'*, the twister-heads provided with the journals *D*, and the disk *K*, having the notches *k* and *k'*, said notches being formed in pairs of unequal depth, and the lips or extensions *m*, the drive-chain *E*, and the adjustable arms *I*, carrying the wheel *F*, substantially as and for the purpose specified.

3. The combination of the sliding bar *n*, the wheel *M*, eccentrically attached thereto by the bolt *o*, the block *n'*, adjustably attached to the sliding bar *n* and provided with a groove adapted to receive the fence-wires *i*, opposite the groove, the guides or ways *p*, and the bars *P*, the whole being mounted on a twister-frame, substantially as and for the purpose specified.

4. The combination of the braces *Θ'*, the picket-adjusters *R*, provided with the elongated slots *S*, and the shoulders *T'*, and the bolts *T*, the whole being mounted on a twister-frame, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ISAIAH R. ESSIG.

Witnesses:

E. A. C. SMITH,  
F. W. BOND.