

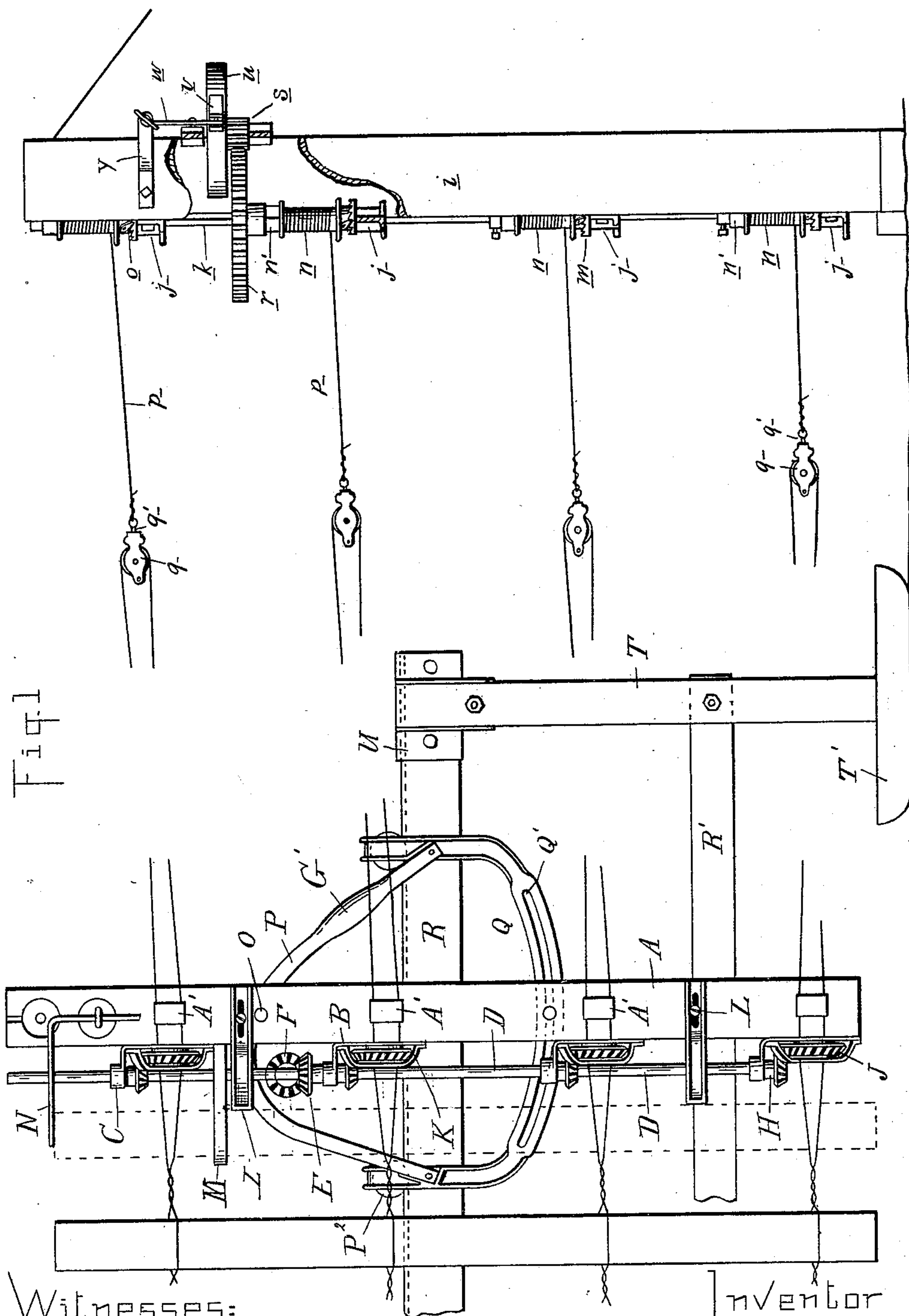
(No Model.)

3 Sheets—Sheet 1.

E. RANSOM.  
PICKET FENCE MACHINE.

No. 404,933.

Patented June 11, 1889.



Witnesses:

R. M. Hulbert  
J. Paul Mayer

inventor

Esra Hansom  
By Thos. S. Sprague, Son  
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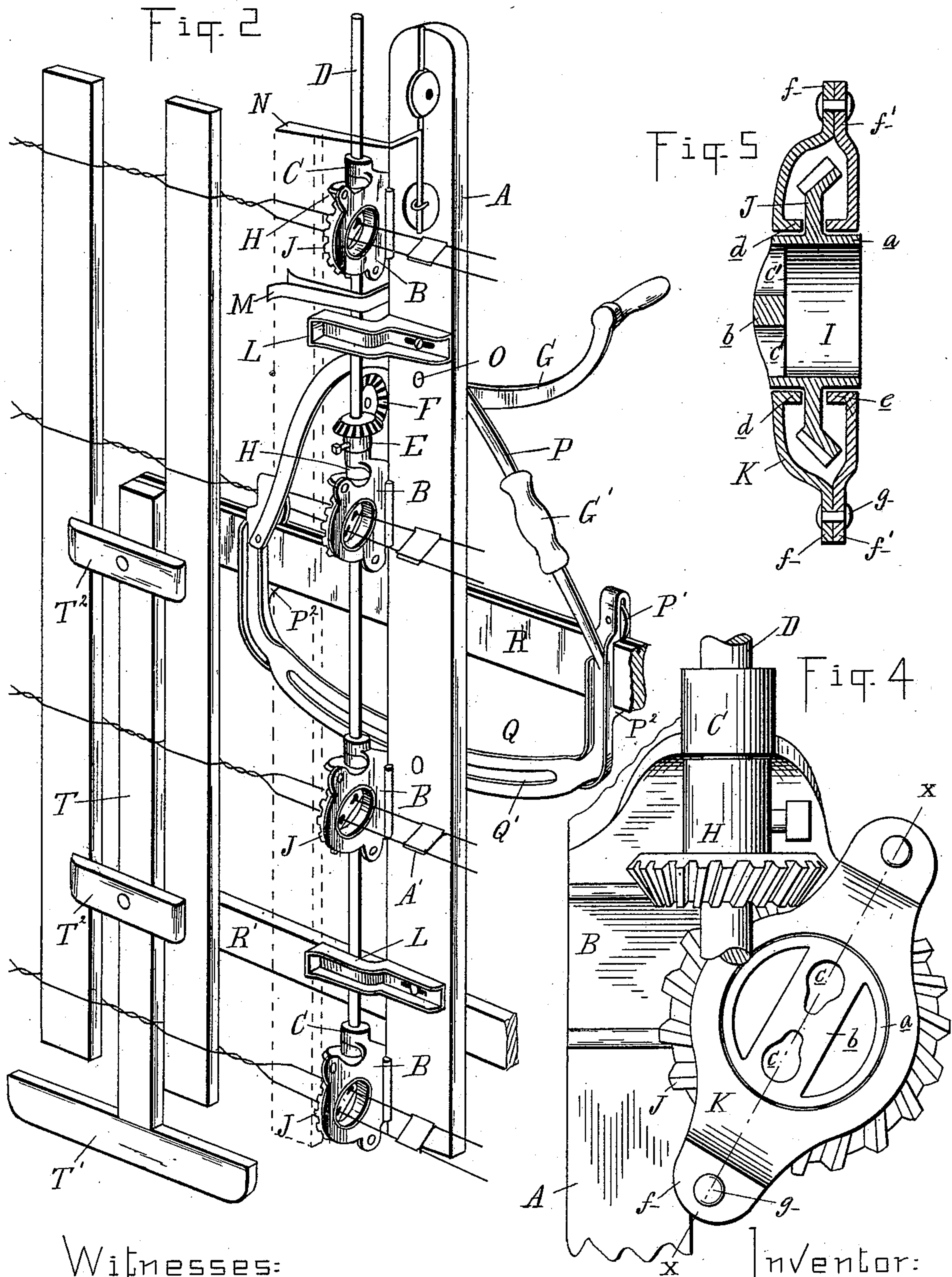
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3 Sheets—Sheet 2.

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PICKET FENCE MACHINE.

No. 404,933.

Patented June 11, 1889.



Witnesses:

*H. M. Hulbert*

*J. Paul Mayer*

Inventor:

*Ezra Ransom*

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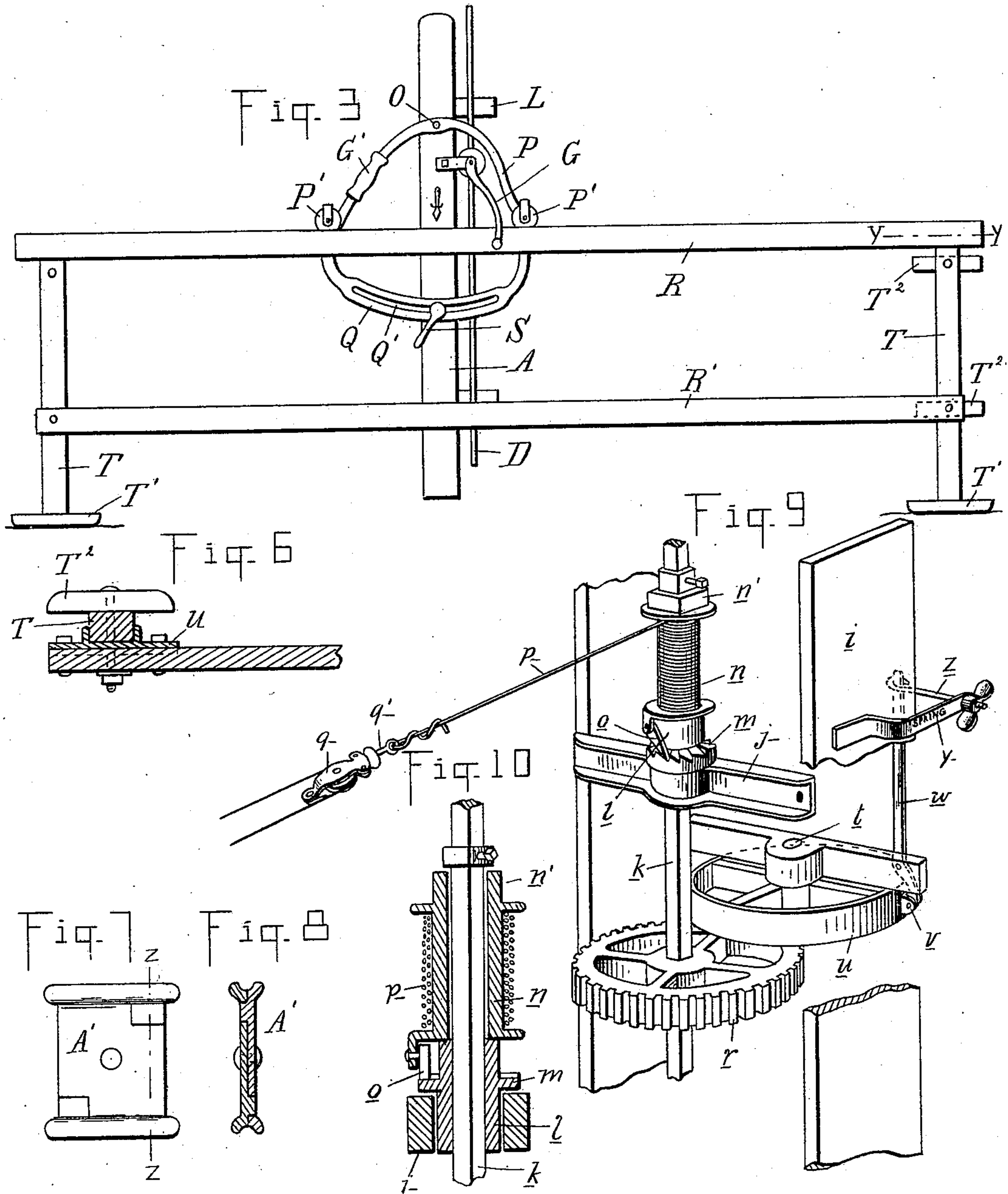
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PICKET FENCE MACHINE.

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J. Paul Mayer

Inventor:

Ezra Ransom

By Thos. S. Sprague & Son

Att'y.



# UNITED STATES PATENT OFFICE.

EZRA RANSOM, OF FLINT, MICHIGAN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO OREN STONE, OF SAME PLACE.

## PICKET-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 404,933, dated June 11, 1889.

Application filed February 18, 1889. Serial No. 300,356. (No model.)

*To all whom it may concern:*

Be it known that I, EZRA RANSOM, a citizen of the United States, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Picket-Fence Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in picket-fences; and the invention consists in the peculiar construction, arrangement, and combination of the different parts, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is an elevation of my picket-fence machine as in operation, and with my wire-tension device shown in connection therewith. Fig. 2 is a perspective view of my fence-machine as in operation. Fig. 3 is a diagram elevation of the machine and the supporting guide-rail. Fig. 4 is an elevation of a twister-spool. Fig. 5 is a section on line *xx* in Fig. 4. Fig. 6 is a section on line *YY* in Fig. 3. Fig. 7 is a plan of the spreader-disk. Fig. 8 is a section on line *ZZ* in Fig. 7. Fig. 9 is a sectional perspective of the brake mechanism on the wire-tension, and Fig. 10 is a vertical central section through one of the tension-spools.

A is a standard.

B are brackets secured to one edge of the standard and carrying the rotary twister.

C are vertical guide-bearings formed integrally with the brackets B. D is a vertical shaft journaled in these guide-bearings.

E is a bevel-gear secured on the shaft D. F is another bevel-gear engaging therewith and forming a drive-pinion, to which the crank-handle G is secured.

H are skew-gear bevel-wheels secured upon the shaft D to communicate motion to the twister.

I are the rotary twisters, and J are circumferential skew-gears upon the hub of the twisters.

*a* are the hollow hubs of the twisters.

*b* is a diametrical cross-bar formed integrally with the hub of the twisters.

C' are wire-passages in the cross-bar twist-ers.

K is a centrally-apertured cap.

*d* is an annular flange in the cap, forming a bearing for one end of the hub of the twist-ers, and *e* is a corresponding annular flange formed on the bracket B to form a corresponding bearing for the other end of the hub of the twisters.

*f* are diametrically-opposite ears formed on the cap K.

*f'* are corresponding ears formed in the bracket B.

*g* are bolts securing the cap K to the twist-ers through the ears.

L are so-called "bumpers" adjustably secured to the standard A.

M is a picket-clamp secured to the standard, and N is a picket-guide vertically adjustably secured near the top of the standard. The standard A is pivotally supported some distance above its longitudinal center at O to the frame of a carriage, preferably formed of a metal bar or bars, the upper portion P of which is arched, while the lower portion Q is formed on a radius with the pivot O, and is provided with the slot Q', through which a clamping-bolt provided with a clamping-nut S passes to adjustably secure the standard to the frame of the carriage. This frame is provided upon opposite sides of the standard with the travelers P' and with the laterally-projecting guide-flanges P<sup>2</sup>.

R is the guide-rail upon which the carriage travels, which is preferably grooved upon its upper end to form a guide-track for the travelers of the carriage, and is supported at the ends upon legs T, the lower ends of which are provided with shoes T'. The legs and guide-rail are rigidly united together by means of flanged angle-plates U, to which the legs and guide-rail are respectively bolted, and below the guide-rail R the legs are united by the sub-guide-rail R', which prevents the machine from tipping. One of the legs is provided with buttons T<sup>2</sup>, by means of which one end of the guide-rail may be secured to the fence, as shown in Fig. 2.

The tension device consists of a suitable frame *i*, provided with vertical bearings *j*, in



which the squared shaft  $k$  is vertically journaled by means of tubular sleeves  $l$ , which are interiorly squared to fit the shaft  $k$ , and are provided upon the upper ends with a ratchet-flange  $m$ .

$n$  are spools loosely sleeved upon the shaft  $k$ , free to turn, and the upper end of these spools is provided with a wrench-hold  $n'$ , and the lower end carries a dog  $o$ , adapted to engage with the ratchet  $m$ .

$p$  are tension-cables wound upon the spools  $n$ .

$q$  are sheaves holding the ends of the strands of the wires, and are secured to the ends of the tension-cables by means of a swivel connection  $q'$ .

$r$  is a gear-wheel secured upon the shaft  $k$ .  $s$  is a pinion engaging therewith.

$t$  is a shaft upon which that pinion is secured, and which is journaled in suitable vertical bearings on the frame.

$u$  is a brake-wheel secured upon said shaft, and  $v$  is a brake-shoe acting against the face of the brake-wheel. This brake-shoe is provided with an adjustable tension consisting of the lever  $w$ , pivotally secured to the frame and carrying at one end the brake-shoe, while the other end is connected to the tension-spring  $y$  by means of the adjustable connection  $z$ .

The parts being constructed and arranged as shown and described, they are intended to operate as follows: The operation of the machine, as far as the weaving of the fence is concerned, is not substantially different from that of other machines, especially that for which Letters Patent were granted to me, No. 395,586, dated January 1, 1889, and on which my present application is intended as an improvement. One of my improvements consists in the construction of the carriage, to which the standard is now pivotally connected some distance above its longitudinal center and adjustably by means of the clamping screw-nut  $S$  some distance below its center. By this means the standard may be readily adjusted to the perpendicular in going up and down hill. At the same time the machine is supported in a very substantial manner by the carriage, and the latter cannot jump its track, as the guide-flanges  $P^2$  extend underneath the guide-rail  $R$ . To disengage the machine from the guide-rail it has to be tipped sidewise until the flanges  $P^2$  are withdrawn from underneath the guide-rail. The frame of the carriage forms at the same time a convenient means for moving the carriage upon the guide-rail, and a suitable hand-hold  $G'$  may be formed thereon. The wire-passages  $C'$  through the twist-ers approach nearer the center of the twist-ers than in the former machine. The advantage I derive therefrom is that it takes considerably less power to twist the wires and to overcome the difficulty which would naturally result therefrom—that is, of bringing the two strands

of wire so close together that it is difficult to put a new picket between—and this I overcome by using upon said strand of wires a sliding spreader  $A'$ , the construction of which is shown in Figs. 7 and 8. This spreader is provided with two parallel edges, which are grooved a sufficient distance apart from each other to hold the two wires of said strand apart when placed between, as shown in Fig. 1. These spreaders interfere in no way with the weaving of the fence, as it will be seen that after one picket is woven and the machine is withdrawn the necessary distance to insert the new picket the spreader slides along between the wires, and when the machine is pushed back again, as in the action of bumping the new picket into place, the spreaders are left. These spreaders may be constructed in any suitable manner. However, for the convenience of forming the grooves into the opposite edges, I cast it into two parts, riveted or otherwise secured together.

Another part of the improvement relates to the construction of the tension device, and the adjustable tension is obtained by the brake mechanism described. It will be seen that each tension cable or wire can be tightened independently of the other by means of a wrench applied to the wrench-holds  $n'$  of the spools. By increasing or diminishing the tension of the spring  $y$  on the end of the brake-lever  $w$ , the tension of all the wires is increased or decreased. The construction affords a very easy and accurate regulation of the tension.

What I claim as my invention is—

1. The combination, with a twister of a picket-fence machine, of an independent spreader formed of two parts detachably secured together and slidingly engaging between the two wires of a strand in advance of the twister, substantially as described.

2. The combination, in a picket-fence machine, of the twister-frame, a carriage pivotally secured thereto, and consisting of the frame  $P$ , pivotally secured at  $O$  to the standard above its longitudinal center and provided below its longitudinal center with the circular slotted portion  $Q$ , the clamping-bolt and clamp-nut  $S$ , adjustably securing the same to the standard, and the travelers  $P'$ , substantially as described.

3. The combination, in a picket-fence machine, of the twister-frame, a carriage pivotally secured thereto, and consisting of the frame  $P$ , pivotally secured at  $O$  to the standard above its longitudinal center and provided with the circular slotted portion  $Q$ , the clamping-bolt and clamping-nut  $S$ , adjustably securing the same to the standard, the travelers  $P'$ , the guide-rail  $R$ , and the guide-flanges  $P^2$ , projecting underneath said guide-rail, substantially as described.

4. The herein-described tension mechanism, consisting of the frame, the shaft  $k$ , the sleeves  $l$ , having the ratchet-flanges  $m$ , the

spools  $n$ , upon which the tension - cable is wound, and provided with a dog  $o$  and wrench-holds  $n'$ , the gear-wheel  $r$ , the pinion  $s$ , the brake-wheel  $u$ , the brake-shoe  $v$ , and the  
5 brake-lever  $w$ , adjustably secured to the tension-spring  $y$ , substantially as described.

In testimony whereof I affix my signature, in

presence of two witnesses, this 14th day of December, 1888.

EZRA RANSOM.

Witnesses:

J. PAUL MAYER,  
P. M. HULBERT.