

(No Model.)

2 Sheets—Sheet 2.

C. E. ANDERSON.

FENCE MACHINE.

No. 360,505.

Patented Apr. 5, 1887.

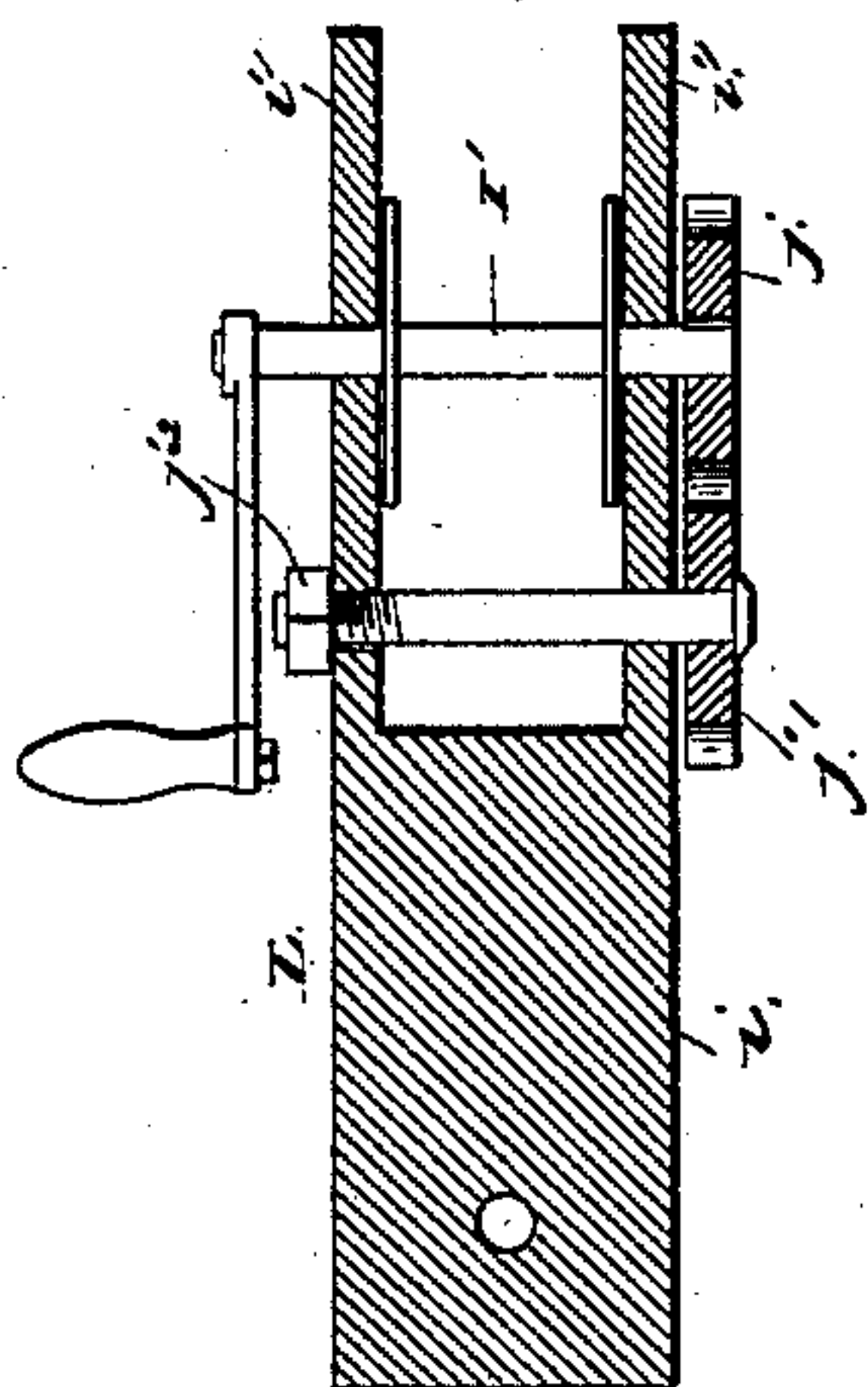


Fig. 6.

Fig. 7.

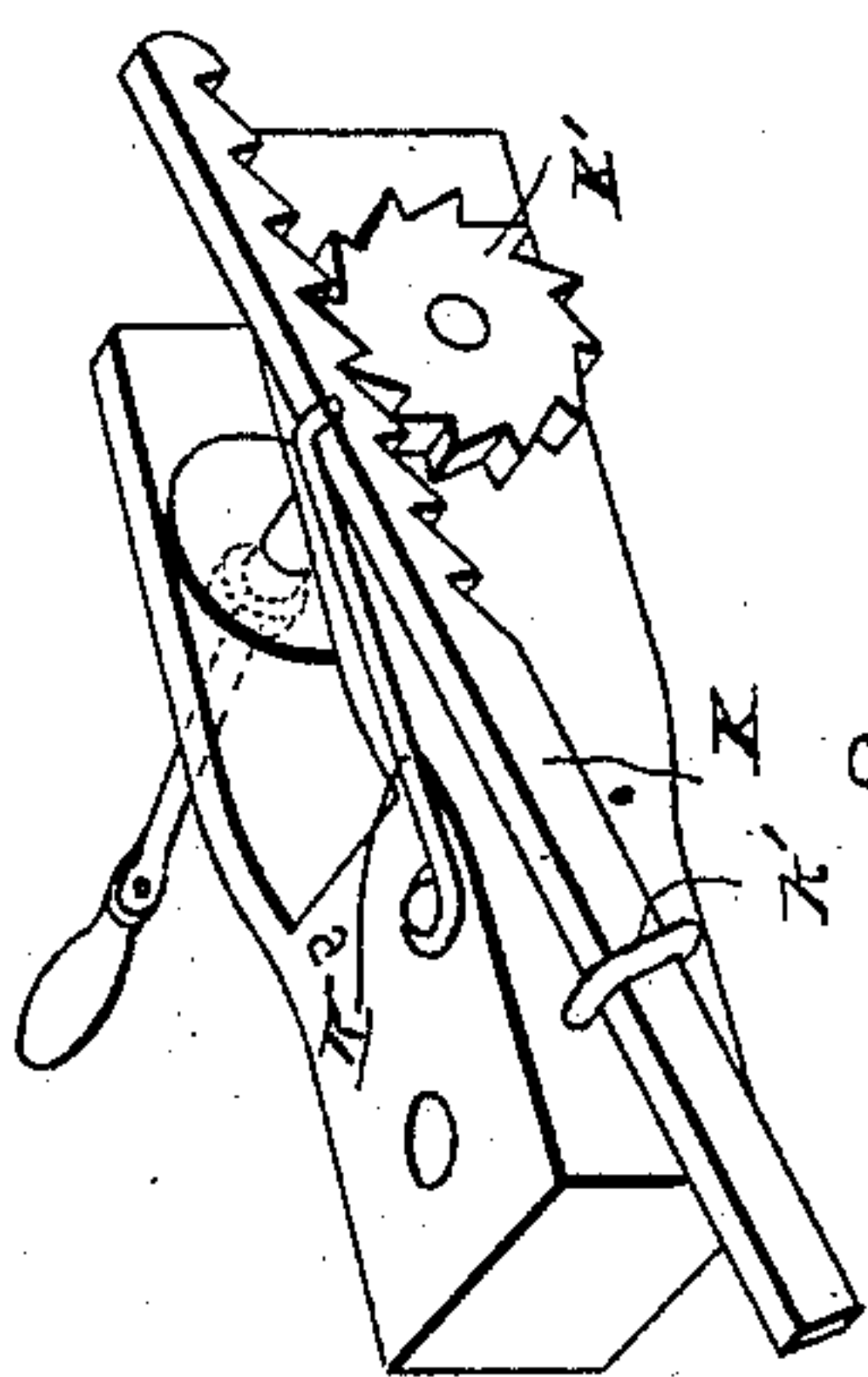


Fig. 8.

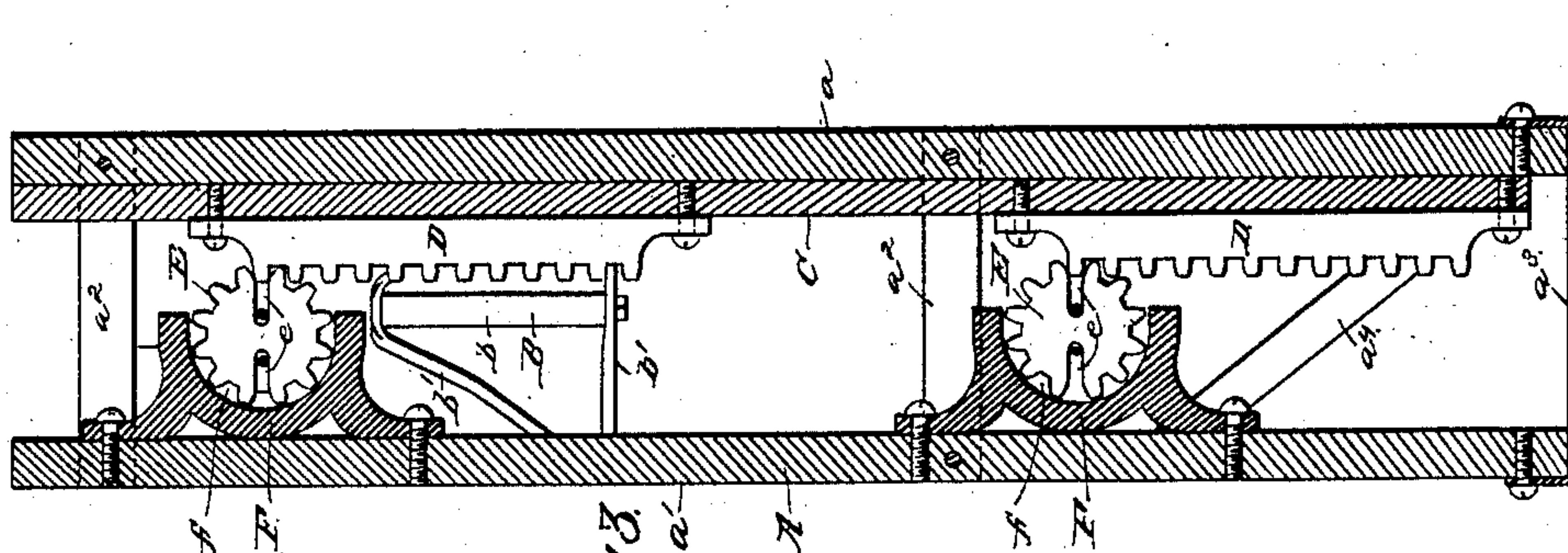
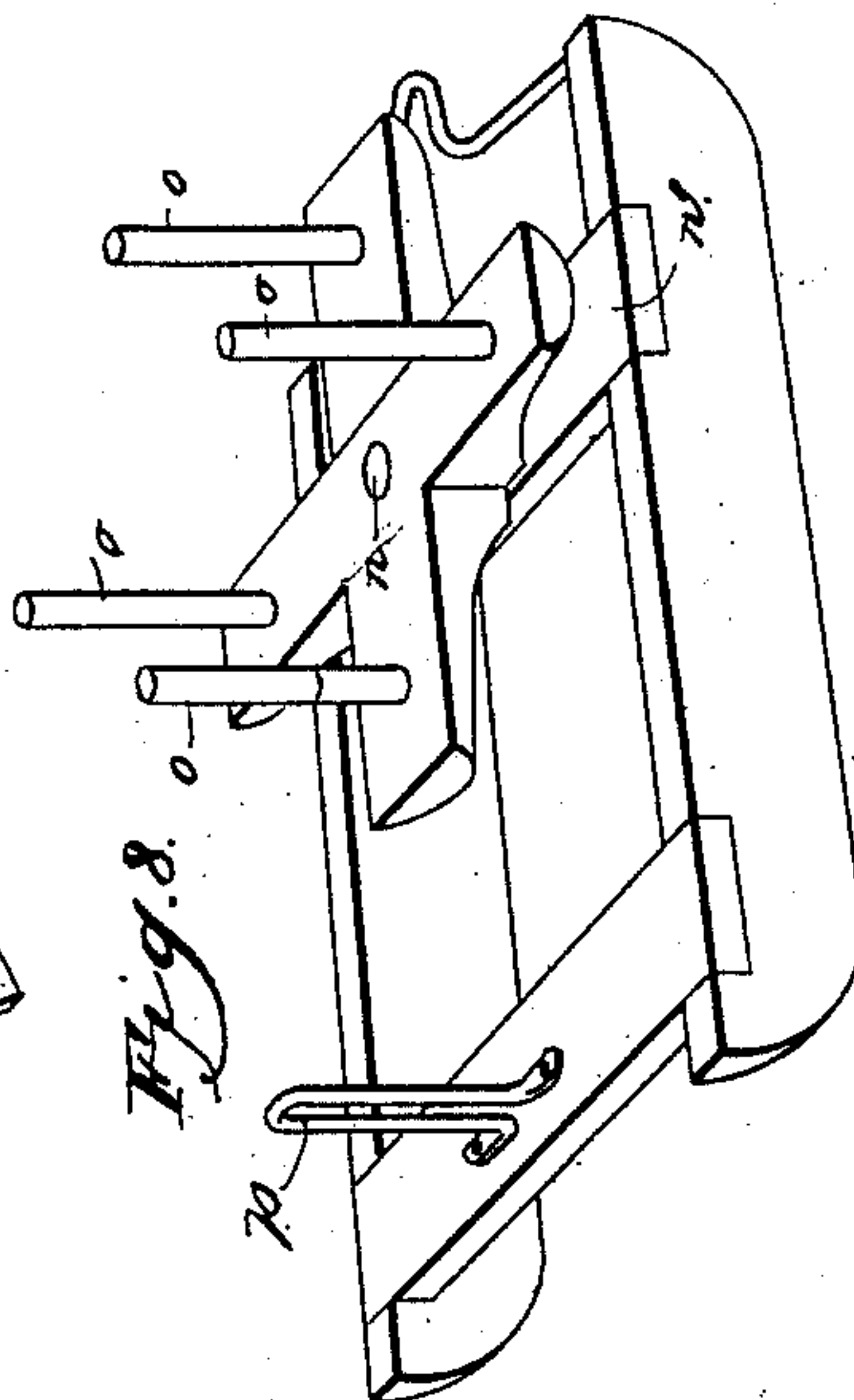


Fig. 3.

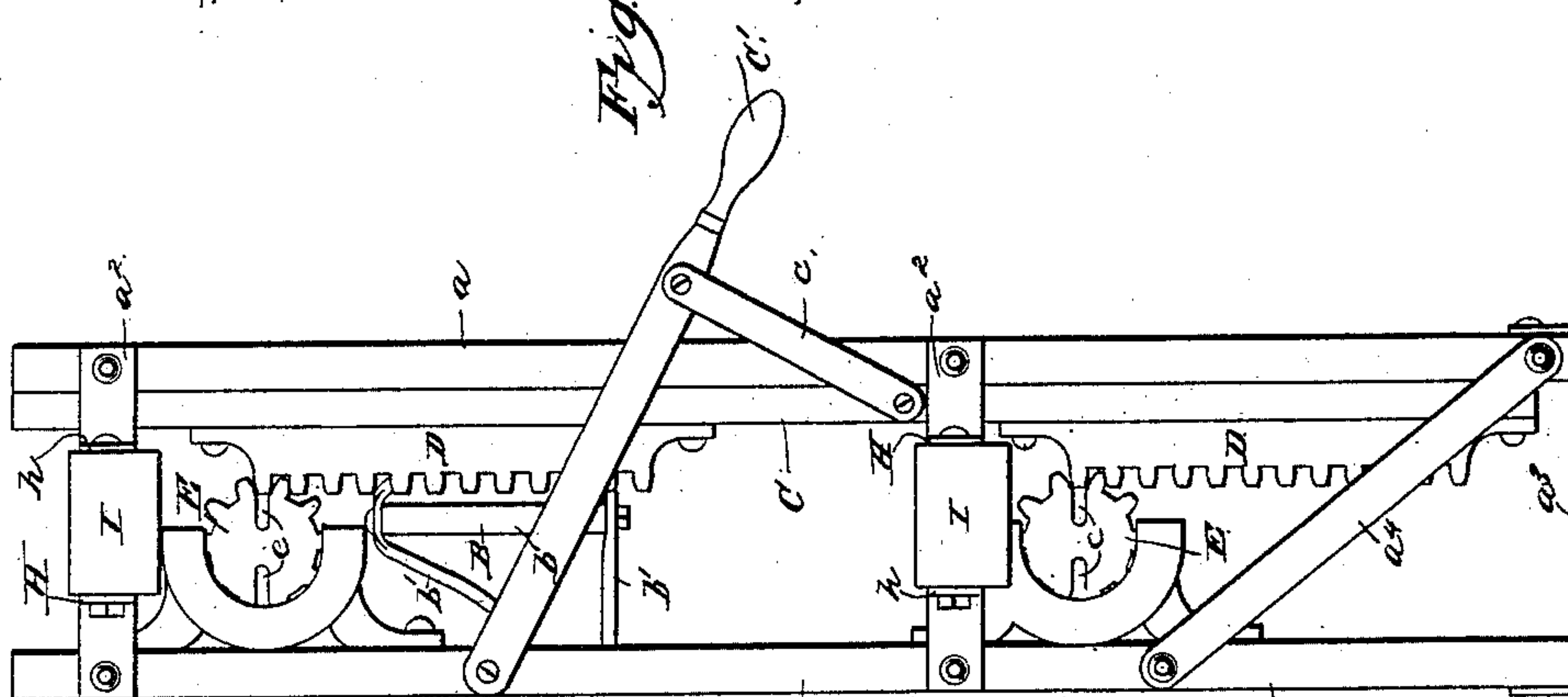


Fig. 2.

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UNITED STATES PATENT OFFICE.

CHARLES EDWARD ANDERSON, OF LA PORTE, INDIANA.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 360,505, dated April 5, 1887.

Application filed January 22, 1887. Serial No. 225,153. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWARD ANDERSON, a citizen of the United States, residing at La Porte, in the county of La Porte and State of Indiana, have invented new and useful Improvements in Fence-Machines, of which the following is a specification.

My invention relates to improvements in machines for making slat and wire or picket fences; and it consists of the peculiar combination of devices and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

The object of my invention is to provide a machine for making picket fences which shall possess superior advantages over others of its class which have preceded it in points of simplicity, strength, and durability of construction, ease of adjustment, efficiency of operation, and cheapness of manufacture.

A further object of my invention is to provide an improved socket in which the rotary twister is free to rotate or turn without the aid of trunnions, shafts, or other like supports, so that when the driving-slide passes the twister it can be readily removed from its socket.

A further object of my invention is to provide an improved device for regulating and varying the width between the pickets; to provide an improved tension mechanism for holding the several strands of wires under equal tension, and for permitting them to be simultaneously slackened to the same extent whenever the tension thereon has become so great as to render the insertion of the pickets and twisting of the wires difficult, and, finally, to provide an improved reel for carrying the wires from which the several strands for the fence are taken.

In the accompanying drawings, Figure 1 is an elevation of a wire and picket fence machine embodying my invention, showing a portion of the fence. Fig. 2 is a front elevation of the machine removed. Fig. 3 is a vertical sectional view of the machine on the line $x x$ of Fig. 1. Fig. 4 is a detached perspective view of the twister and its socket. Fig. 5 is a detail view of one form of my tension device, and Fig. 6 is a horizontal cross-sectional

view thereof on the line $y y$ of Fig. 5. Fig. 7 is a detail view of another form of the tension device. Fig. 8 is a detail view of the wire-reel. Fig. 9 is a detail sectional view through a portion of the bar L' and one of the tension devices thereof on the line $z z$ of Fig. 1.

Referring to the drawings, in which like letters of reference indicate corresponding parts in all the figures, A designates the carrying-frame of a picket-fence-making machine of my invention, which comprises the vertical parallel uprights $a a'$ and the parallel transverse bars a'' , rigidly fastened or secured to the uprights at suitable points of the length thereof. The lower terminal ends of the uprights are covered and braced by a transverse runner-plate, a''' , and, furthermore, by a diagonal brace, a'''' , whereby a firm, strong, and light frame is provided. This frame is conveniently moved and manipulated by a handle, B, which is rigidly affixed to the rear side thereof, said handle comprising a vertical bar, b , and diverging legs b' , which are rigidly affixed to the uprights of the carrying-frame.

C designates the driving or actuating slide, which is arranged between and guided by the bars a'' , and it bears against the bar a . This slide is operated vertically by means of a lever, C' , which is pivoted at one end to the bar a' of the carrying-frame, and the lever is connected with the slide through the medium of a link, c , which is pivoted to the bar at one end and to the lever at an intermediate point of its length to insure the easy operation of the slide with a minimum exertion of power. To the side or face of the slide which opposes the inner face of the upright a' are rigidly affixed two, three, or any higher number of metallic racks, D, which are spaced equidistant from one another. These racks are carried with the slide in its reciprocating movements, and they each actuate a rotary twister, E. These twisters comprise flat metallic disks, which have a series of gear-teeth formed entirely around their peripheries to engage the teeth of the racks, and the twisters each have two open slots, e , formed at diametrically-opposite points in their peripheries for the reception of the wires which partially form the fence. These twisters are devoid of shafts, trunnions, or other like axial supports; but they merely rotate

freely in segmental sockets F, which are affixed at proper intervals to the inner side of the upright a' of the carrying-frame. These sockets are cast or formed in a single piece of metal, and they are formed with a groove or channel, f , in which the flat twister-disk is placed. The socket is made in the form of an open ring with the channel f formed on its inner side, so that sufficient space is left between its terminal ends to permit the twister to be removed and replaced with ease, so that the wires can be readily placed therein. When the machine is in operation, however, the twister is prevented from lateral play by the walls of the channel in the socket and from edgewise movement by the socket and rack on opposite sides thereof, so that when the rack is moved with the slide the twister is turned or rotated to twist the wire, and it is only when the rack has been elevated above the twister that the latter can be removed from its socket.

Although I have only illustrated two twist-ers in the accompanying drawings, I would have it understood that I do not intend to confine myself to that or any other specific number of such devices.

To the outer side bars, a^2 , of the carrying-frame are rigidly secured supporting frames or brackets H, the parallel arms h of which project outwardly from the frame for a suitable distance. Gage-blocks I are swiveled or journaled in the outer extremities of these arms, so that they can be turned or adjusted to vary the distance between the pickets of a fence, or to build fences in which the pickets are placed at varying intervals. The pivots are placed out of line with the center of the swinging gage-blocks, so that the distances between the pivots and opposite side edges of the blocks are unequal, thus providing two means for gaging the pickets, and the width of the blocks provides another means for further gaging the pickets.

L designates the tension device, which comprises a suitable support or frame, i , between forwardly-extending parallel arms i' , of which is arranged a windlass, I' , over which are coiled or wound the several strands of wire from the fence. The frame of this tension device is suitably supported on or connected to a fixed stake, I^2 , or other object, as seen in Fig. 1 of the drawings, and the shaft of the windlass is extended at one end beyond its bearing in the frame or support. On this extended end of the shaft is rigidly affixed a small gear-wheel, j , which meshes with a corresponding wheel, j' , on an endwise-movable shaft, J, which is journaled in the frame i in rear of the windlass. The opposite end of this endwise-movable shaft is exteriorly screw-threaded, on which is screwed a nut, j^2 , which bears against the frame i . By means of this nut the shaft can be moved back or forth to cause the gear-wheel thereon to bind with greater or less force against the frame, and thereby govern the revolutions of both the shaft and its wheel. When the tension is in

use the nut is tightened to such a degree that the shaft and its wheel cannot be rotated readily, and they thereby check the rotation of the windlass and hold the wires connected thereto under the proper tension; but when the wires become too taut, so as to be difficult to twist, the shaft and its wheel yields to the strain, and thereby permits the windlass to turn and slacken the strain on the wires in the proportion to the strain or pull exerted by the same.

In the device shown in Fig. 7 I employ a sliding rack-bar, K, the teeth of which engage with a ratchet, K' , which is rigidly affixed to one end of the windlass-shaft. This rack-bar is retained or held in place and guided at its lower end by a fixed guide, k' , on the frame of the tension device, while the upper end thereof is normally depressed by a spring, K^2 , so that the teeth thereof will be kept in engagement with the ratchet-wheel; and the said bar is elevated, when the wires are unduly strained, by the windlass, so as to relieve them and permit them to be operated with ease.

L' designates an auxiliary tension-bar intermediate the tension I and the twisting-machine. This tension-bar is connected with the frame of the tension device I by means of the swivels and the loop l' , connected to the swivels and the frame i . The tension-bar is provided on its opposite sides with two fixed plates or washers, M, and against these fixed washers are pressed the movable plates M' . These movable plates have central openings, through which and the fixed plates and bar are passed tension-bolts m , having nuts m' , by means of which the pressure of the movable plates upon the wires can be varied.

N designates the reel for the wire. This reel is capable of horizontal rotation around a central spindle, n , which is fixed to a transverse piece, n' , mounted upon runners, so that it can be conveniently drawn across the field. The four arms of the reel are each provided with fixed vertical pins o , around which are coiled the wires for the fence; and the coils of wire for the upper, lower, and intermediate strands are separated from one another by removable division-boards O, which are placed crosswise upon one another and over the pins o .

When the reel is being prepared for use, a large coil is first placed thereon around the pins, then a division-board, O, is placed above it, another coil of wire is then placed above the first board, another board is then placed on the reel at right angles to the first board, and so on until the desired number of coils have been placed on the reel. By thus providing the reel with a number of separate coils the several strands for the fence can be made without cutting the wire, and thus the strands can be made in one continuous piece. The wires are first passed through a fixed guide, p , on the transverse piece of the runners after they pass from the reel.

This being the construction of my invention,

the operation thereof is as follows: The wires from the reel are first secured to a post, as *z*, and the reel then drawn to a suitable distance, where the wires are passed over the windlass of the tension device I, which is suitably anchored in place, the wires of the coils upon the reel remaining intact. The tension-bar is now connected with the tension device, and the wires are then properly separated and passed between the fixed and movable clamping-disks, which thereby serve to hold the wires in place, in addition to holding them under proper tension. The first picket is now inserted between the wires, and, the machine having been previously adjusted in proper position so that the wires are passed through the twisters thereof, the lever is now operated to rotate the twisters in one direction. The machine is now moved a limited distance, another picket inserted, and the lever operated to rotate the twisters in the reverse direction, and so on until the desired number of pickets have been inserted to build the fence to the tension device, the gage-blocks being employed to regulate the distance between the pickets.

I do not desire to confine myself to the exact details of construction and form and proportion of parts herein shown and described as an embodiment of my invention.

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

1. In a machine for making picket fences, the combination of a carrying-frame, the open sockets affixed to the frame, a slide working in the frame opposite the sockets and having the racks, and the twisters fitted in the sockets and gearing with the racks on the slide, substantially as described.

2. In a machine for making picket fences, the combination of a suitable frame, the me-

tallic segmental sockets rigidly affixed to the inner sides of the frame and each having an internal groove or channel, the reciprocating slide working opposite the openings in the sockets and carrying the racks, a lever for operating the slide, and the twisters having the slots and fitted in the channels in the sockets to gear with the racks on the slide, substantially as described.

3. In a machine for building picket fences, the combination of an open frame, the fixed sockets arranged within the sides of the same, a slide working in the opposite side of the frame to the sockets, the twisters fitted in the sockets and geared to the slide, a lever pivoted to the frame, and a link intermediate of the lever and slide, substantially as described.

4. A socket for the twister of a machine for making picket fences, comprising a segmental casting having an interior groove or channel and with a space between its terminal ends to permit of the insertion and removal of the twisters, substantially as described.

5. In a machine for making picket fences, the combination of the fixed bracket secured to the carrying-frame of the machine and a gage-block journaled in the bracket, the trunnions or shaft being arranged to one side of the center of the block, substantially as described.

6. A tension device for machines for making picket fences, comprising a suitable frame, a windlass journaled therein, an endwise-moving shaft geared to the windlass-shaft, and means for controlling the rotation of the endwise-moving shaft, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

CHARLES EDWARD ANDERSON.

Witnesses:

WM. F. GRAF,

T. W. BUTTERWORTH.