

(No Model.)

J. W. SCHAAL.
FENCE WIRE STRETCHER.

No. 594,708.

Patented Nov. 30, 1897.

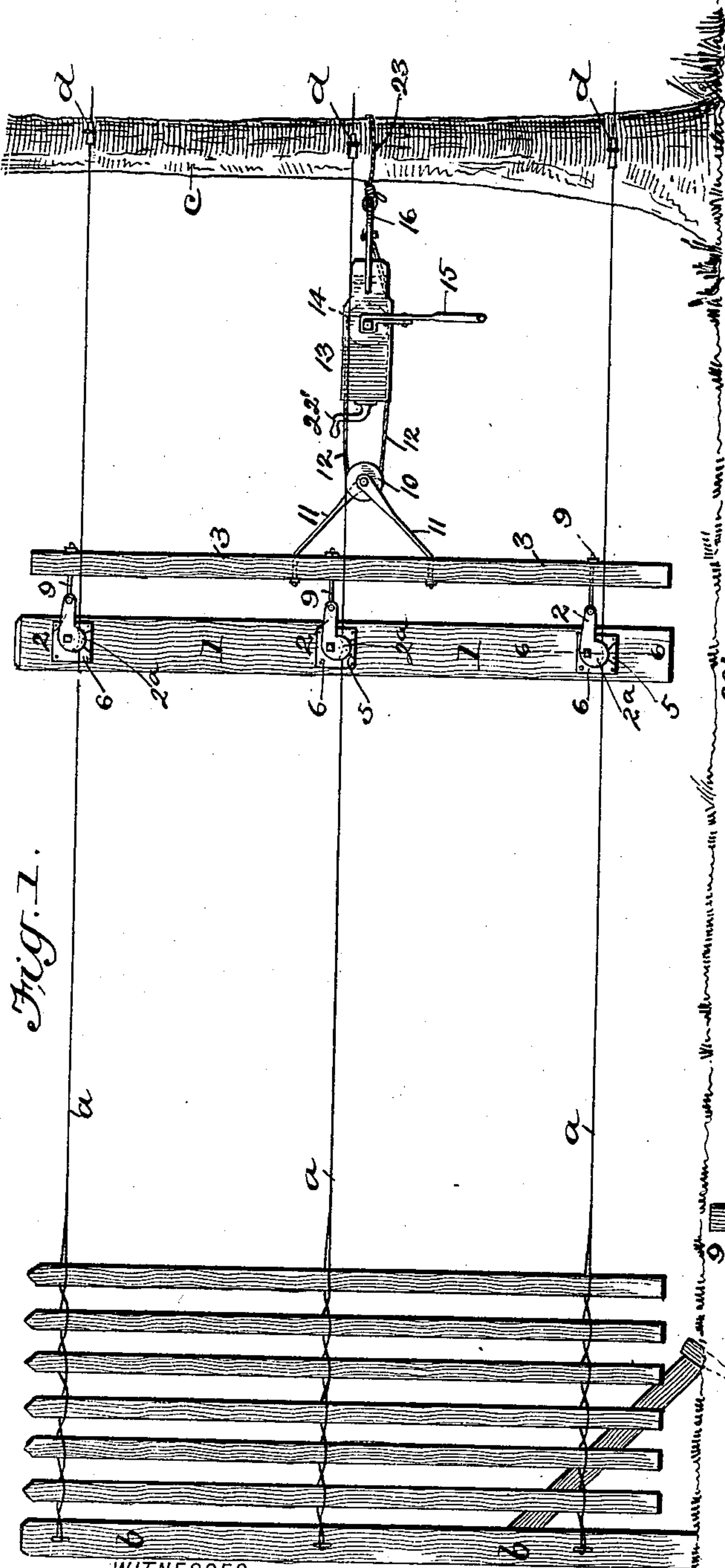


Fig. 1.

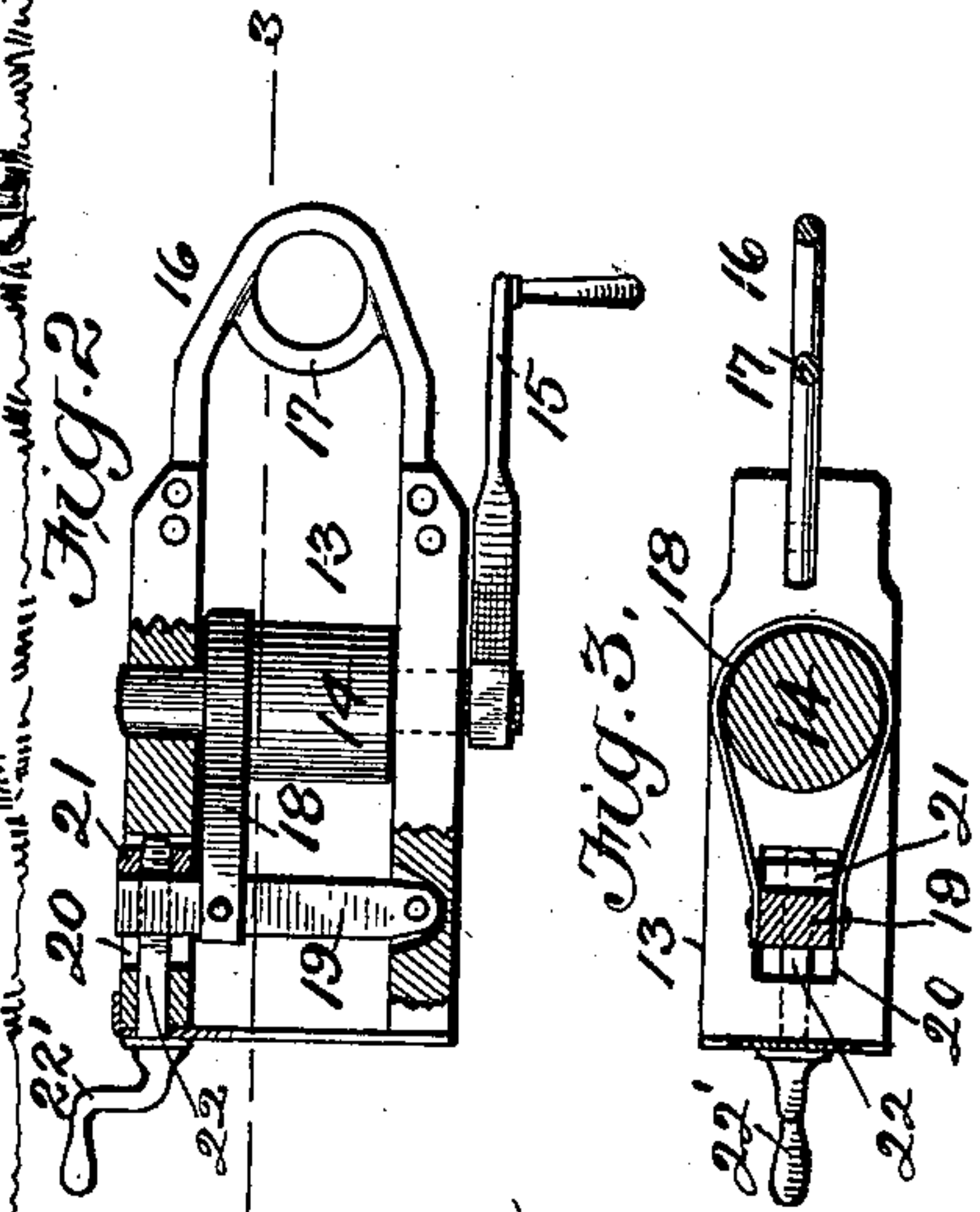


Fig. 2.

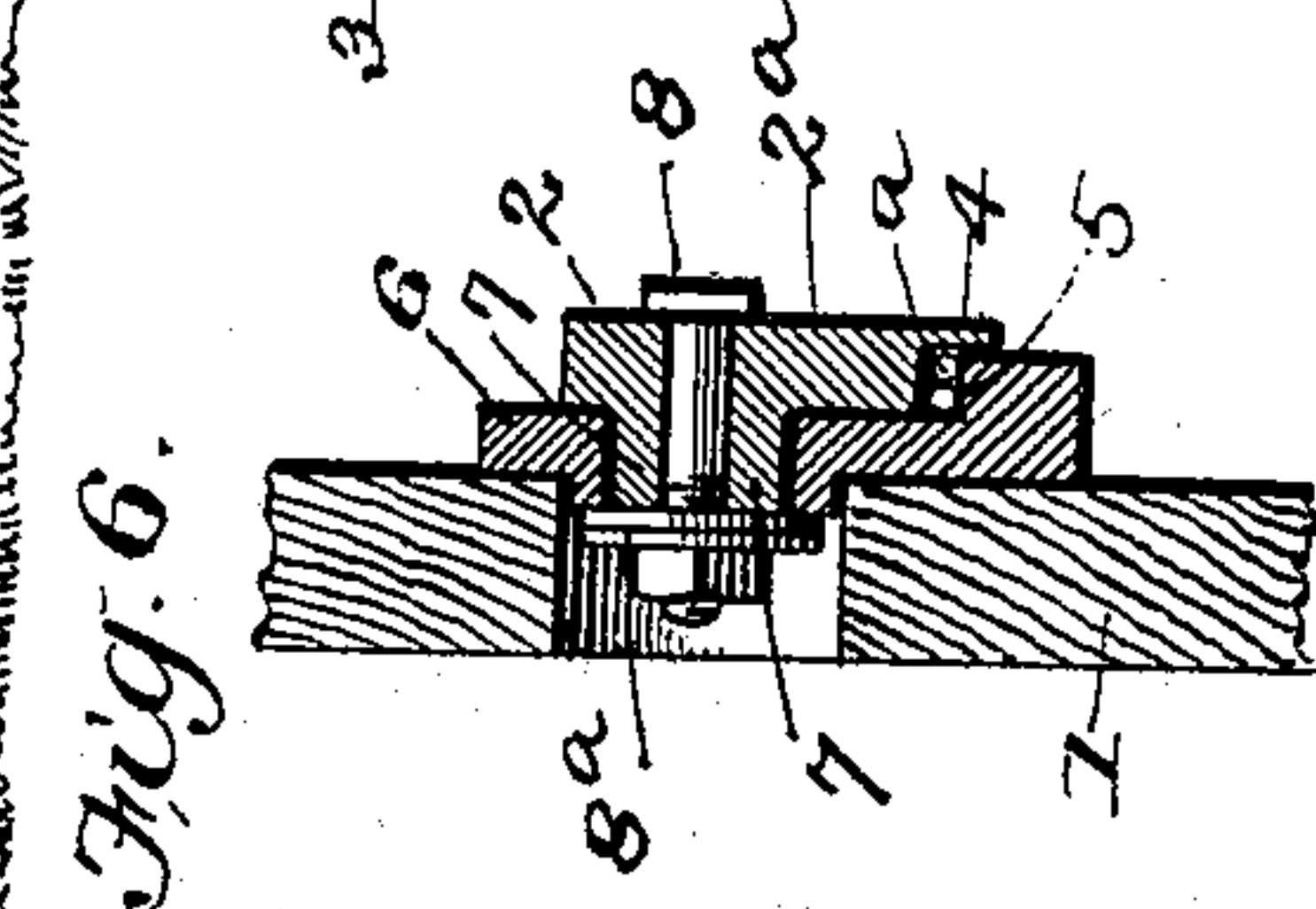


Fig. 3.

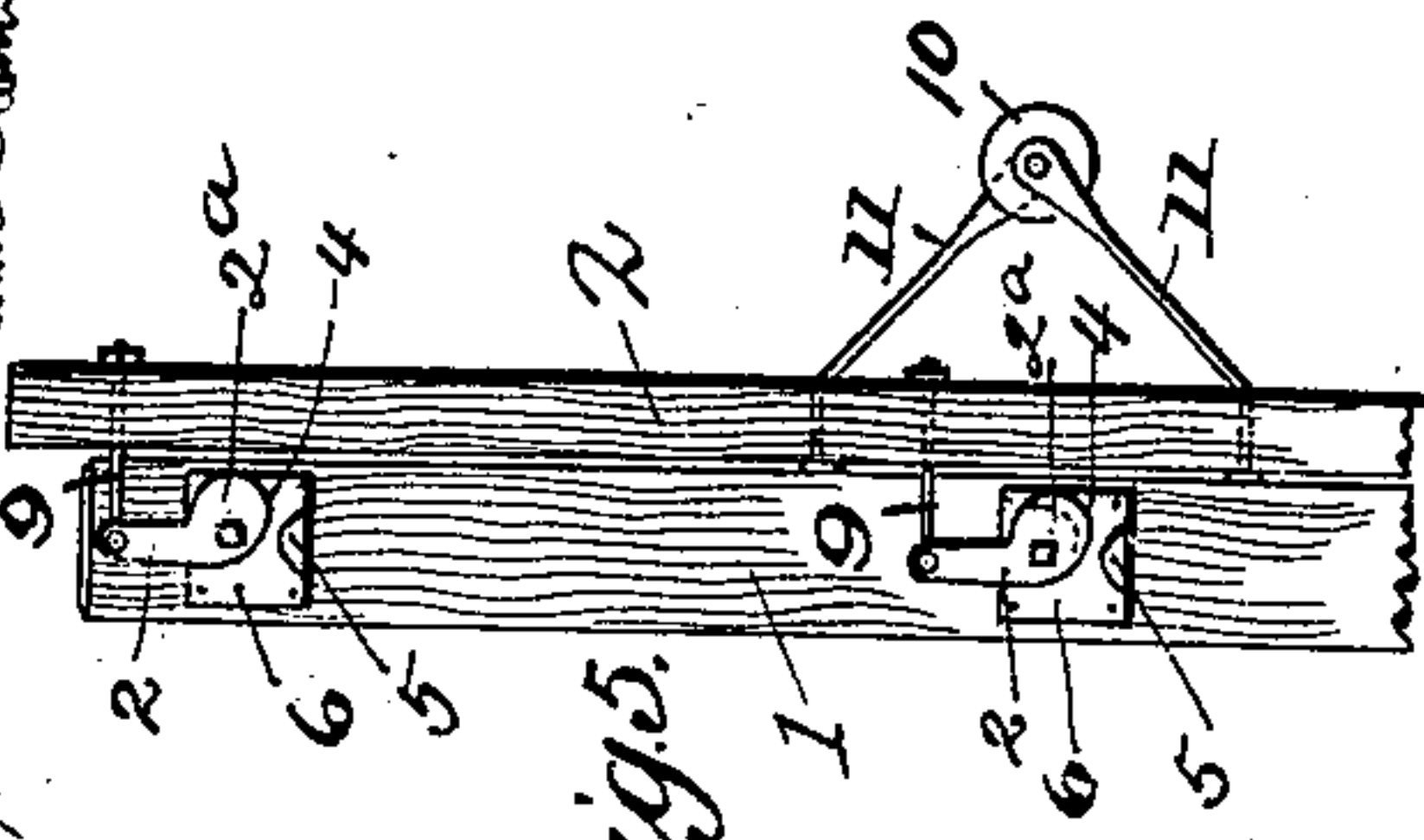


Fig. 4.

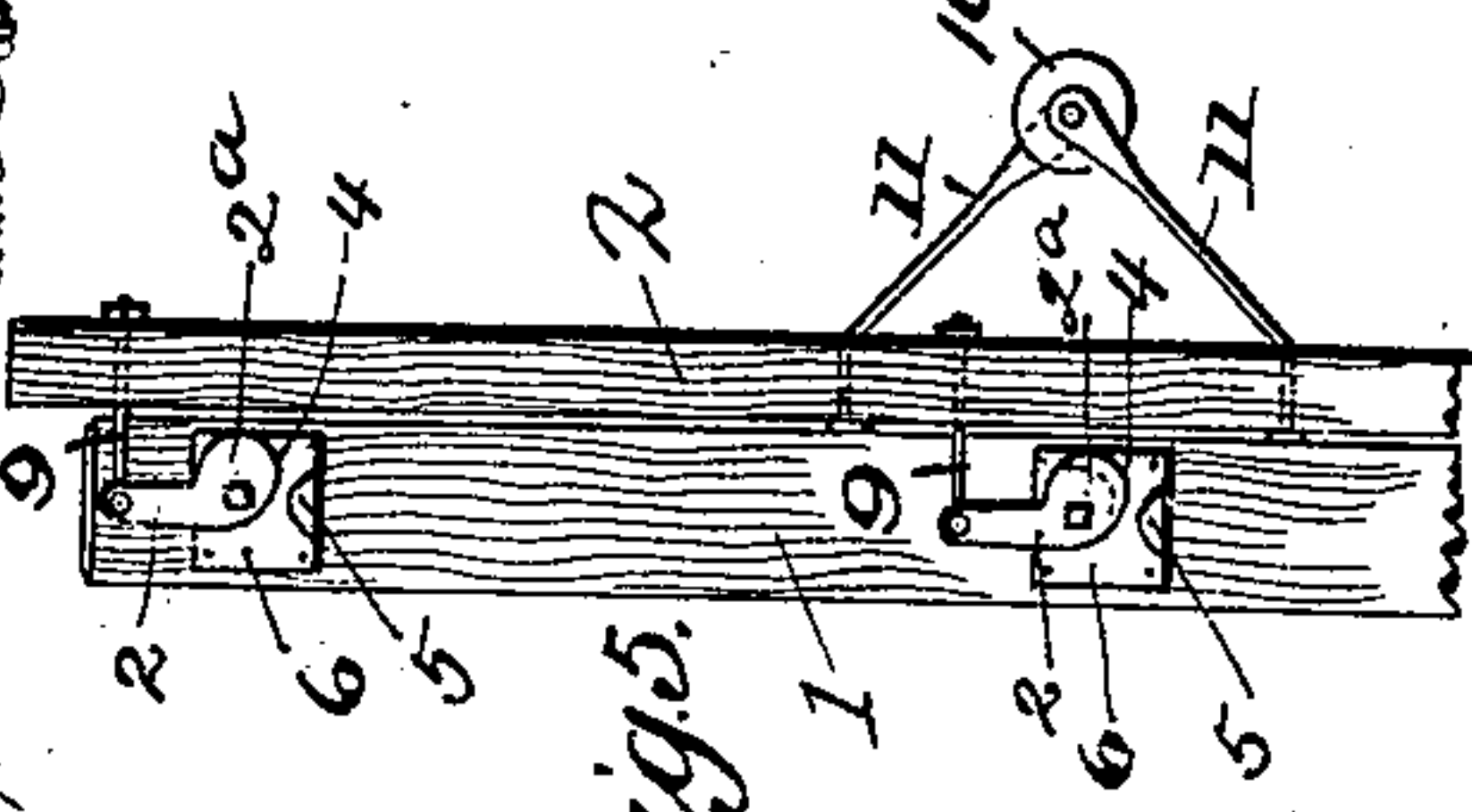


Fig. 5.

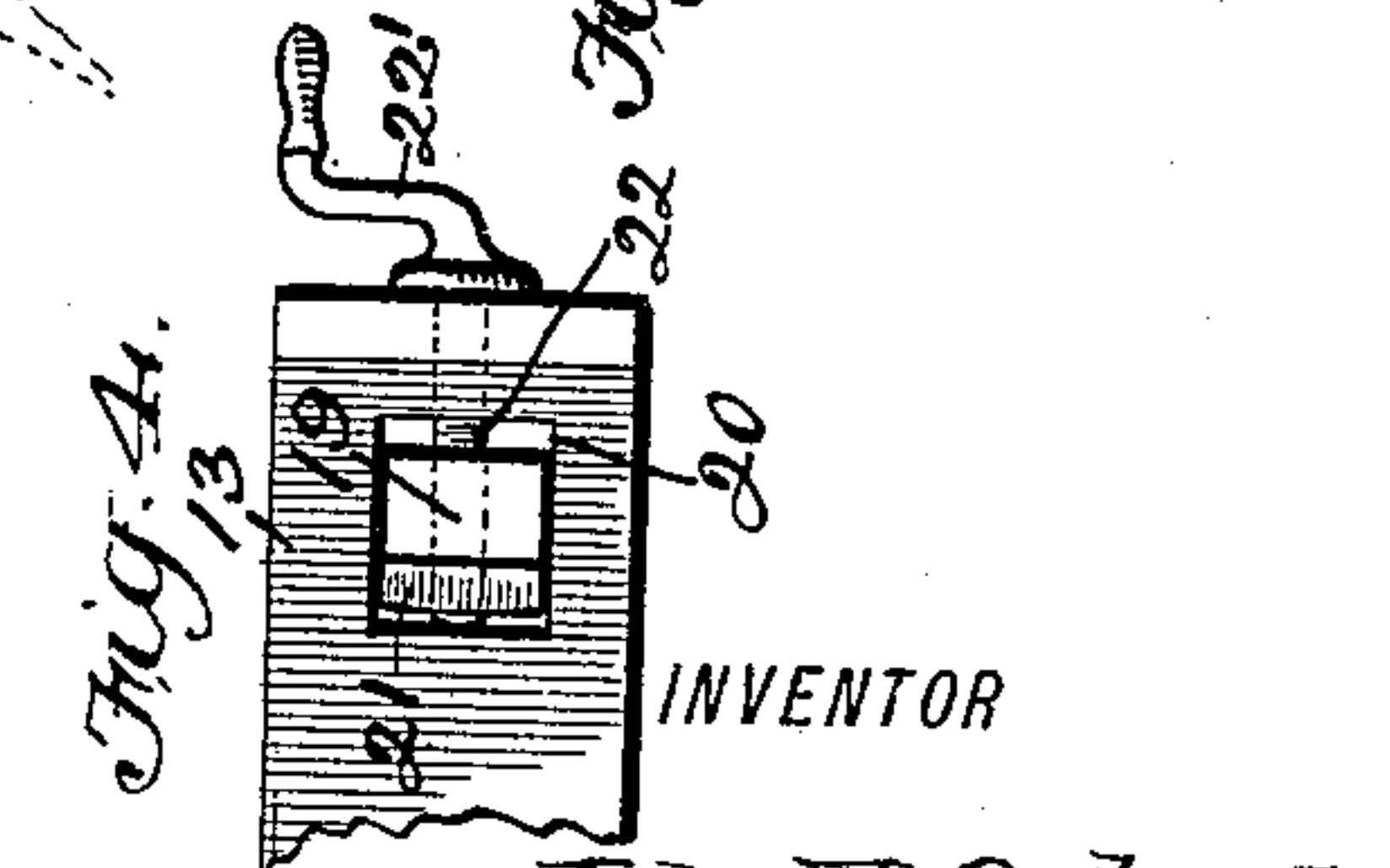


Fig. 6.

WITNESSES:

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FENCE-WIRE STRETCHER.

SPECIFICATION forming part of Letters Patent No. 594,708, dated November 30, 1897.

Application filed June 23, 1897. Serial No. 641,870. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SCHAAAL, of Logan, in the county of Hocking and State of Ohio, have invented a new and useful Improvement in Fence-Wire Stretchers, of which the following is a specification.

In constructing wire fences the parallel strands of wire require to be tightly stretched preparatory to securing them to posts or to interweaving pickets therewith. It is the object of my invention to provide a stretching apparatus which is adapted to be applied to and stretch one wire or several simultaneously, as conditions may require, and is capable of being applied to and used at any point in the length of the wire or wires of a section of the fence being constructed, whether the ground-surface be flat or undulating. The apparatus is also adapted to release tension on the wires automatically as the pickets are inserted or as the wires are depressed or raised for attaching them to posts set in uneven ground.

The invention is embodied in the construction and combination of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a view showing my invention as applied and used in practice. Fig. 2 is a plan view, with part in section, of the stretcher proper. Fig. 3 is a longitudinal section of the stretcher on line 3 3 of Fig. 2. Fig. 4 is a side view of a portion of the stretcher. Fig. 5 is a side view of a part of the wire-clutching mechanism. Fig. 6 is an enlarged section on line 6 6 of Fig. 1.

Fig. 1 represents a wire picket fence in process of construction. Three pairs of wires *a* are permanently attached in the usual way to an end post *b*, which is suitably braced to withstand the strain, and temporarily attached to a tree or post *c* by means of staples and wedges *d*. The said wires *a* may be supposed to be of indefinite length and extended to reels (not shown) located at some more or less distant point. My improved stretching apparatus is shown applied to the several sets of wires *a*, so as to subject them to the required tension simultaneously, and is yet adapted to relieve such tension automatically, so as to allow the wires to slacken when required. The said apparatus is con-

structed and operates as follows: The wire clamp or clutch mechanism is composed, Figs. 1 and 5, of a straight flat bar 1, a series of clamps or clutches proper, 2, attached to said bar, and a parallel tension-bar 3, which is connected with the arms of the clutches 2, so as to operate them simultaneously.

As shown best in Figs. 5 and 6, each individual wire-clutch is composed of two parts—namely, 2 and 5. The part 2 is a lever having an enlarged eccentric head 2^a, which is pivoted to the flat face of bar 1, parallel to the same, and provided on its most eccentric gripping portion with a peripheral flange or lip 4, Fig. 6, for keeping the wires *a* in place when inserted between the eccentric and part 5. The latter is a rounded lug or boss on the metal plate 6, to which the aforesaid lever 2 is pivoted, and the lug 5 is in such proximity to the eccentric that when the lever 2 is turned down into horizontal position its head will engage the lug, as shown in Fig. 1. The head of the lever 2 is provided with an integral tubular cylindrical bearing 7, Fig. 6, that fits in a corresponding socket or hole in the plate 6, and a screw-bolt 8 passes through the lever-head and bearing and a washer and nut 8^a, which are applied on the rear side of a plate 6, as shown. Thus the eccentrics are secured to the bar 2, which is provided with holes for accommodating the nut and washer.

The movable tension-bar 3 has a series of rigid metal arms 9, which are pivotally connected with the outer ends of the eccentric clutch-levers 2, whereby when said bar 3 is adjusted up or down the clutches 2 are operated together. When the tension-bar 3 is close to the bar 1, as shown in Fig. 5, the clutches 2 are open, and when adjusted so that the arms are in line with the levers, as in Fig. 1, the clutches 2 are closed.

A pulley 10 is secured to the tension-bar 3 and arranged in the same plane therewith by means of rigid diagonal rods 11, and serves as a point of attachment for a cord or rope 12, that forms part of the stretcher proper. The latter is constructed chiefly of a rigid forked oblong frame 13, a roller 14, arranged between and journaled in the sides of the same and having a crank 15 affixed to its projecting end, and a mechanism, which is hereinafter described, for locking said roller and

yet allowing its automatic backward rotation for relieving extra tension on the wires *a*. The said frame 13 has an iron clevis 16 at one end to provide for convenient attachment of the stretcher to a tree or post *c* in line with the fence and with a loop 17, to which the free end of the rope 12 is tied after the same has been passed from the roller 14 over the pulley 10 on the tension-bar 3. Said loop 17 is attached to the clevis 16 and braces and strengthens it. The roller-locking mechanism is composed of a flexible metal band 18, that passes around the roller 14, a lever 19, pivoted in the frame 13 and arranged cross-wise of the same, its end working in a slot 20 in the frame, a nut 21, attached to said lever, and a crank-screw 22 for adjusting the free end of said lever 19. The ends of the band 18 are attached to the lever 19 at a point between the pivot of the latter and the screw 22. The latter has a curved handle portion 22' for convenience in operating it.

In constructing a fence, pairs or sets of wires *a* having been attached to the end post *b* and drawn by hand as taut as practicable and secured temporarily by hooks and wedges *d* to a tree or post *c*, which is located a greater or less distance from said end post, the first step in the operation is to place the bar 1 vertically beside such wires *a* at some point intermediate of the posts *b* and *c*. The clutch and tension bar 3 is raised, as shown in Fig. 5, to open the clutches 2 and allow the wires *a* to pass between the eccentrics and lugs 5, whereupon the clutches 2 are adjusted downward to close the eccentrics on the wires, as shown in Fig. 1. The stretcher proper having been secured to the tree or post *c* by means of a rope 23, the next step consists in drawing the rope 12 off the roller 14 and passing it around the pulley 10 and securing its free end to the loop 17, forming an attachment of said clevis 16. Then the operator rotates the crank 15 and thus winds the rope 12 on the roller 14 until the required tension has been applied by it to the bar 3, and thereby to the clutches 2 and bar 1, and finally to the wires *a*, which will all be pulled equally and simultaneously. When such tension has been applied, the crank-screw 22 is rotated to tighten the friction-band 18 on the roller 14 and hold the latter from rotation. The pickets may then be inserted between the wires *a*, as shown, which will obviously take up the wires to some extent and require an intermittent slackening of their tension to accommodate the pickets as their number increases. For this reason the roller 14 must rotate backward at intervals to pay off the rope 12 and thus allow the wires *a* due slack. This function is performed automatically by my improved stretcher by reason of the band 18 allowing the roller 14 to slip and rotate a frac-

tion of a revolution when extra or increased tension is applied to the wires *a* by inserting additional pickets. It is apparent that to allow such operation the band 18 must be applied to the roller 14 with a certain degree of force—just enough to lock it and not enough to prevent its rotation when extra leverage is applied to it. This graduation of pressure and tension is readily determined by the operator with slight experience.

The apparatus is obviously applicable for stretching plain, barbed, or twisted wires, also woven wire and woven picket and wire, and it may be applied to one wire alone or to several, whether they form part of a picket or other form of fence and whether the ground-surface is undulating or flat.

What I claim is—

1. The improved fence-wire stretcher, comprising the forked frame having a tie-loop at one end, the rotatable crank-roller journaled therein, a rope attached to said roller, a friction-band passing around the latter, a lever pivoted adjacent and parallel to the roller in slots of said frame, and connected with the band, and a crank-screw applied to the end of the frame and passing through the free end of the lever, as shown and described.

2. The fence-wire clutch mechanism comprising a bar, a series of clutches proper attached thereto, a tension-bar and arms attached to the latter and pivotally connected with the said clutches, for operating them simultaneously, as shown and described.

3. The improved fence-wire mechanism comprising a bar, having plates with projections or lugs as specified, a series of eccentric clutch-levers pivoted at points contiguous to said lugs, a tension-bar arranged parallel to the aforesaid bar, and pivotally connected with the free extremities of the clutch-levers, as shown and described.

4. In a fence-wire clutch mechanism, the combination with the bar 1, having a series of perforated plates attached, of a series of eccentric clutch-levers having tubular journals that fit and work in the holes of said plates, bolts passing through the tubular bearings, and washers applied on the rear side of the plates, as shown and described.

5. The combination with the bar 1, eccentric wire-clutch levers, and a tension-bar having arms which are pivoted to the free extremities of said levers, of the stretcher proper, comprising a frame, a roller, a rope for attachment to the tension-bar centrally, and friction locking mechanism for the roller, as shown and described, to operate as specified.

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Witnesses:

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