No. 647,036. Patented Apr. 10, 1900.

W. F. SEARGEANT.

SLAT AND WIRE FENCE MACHINE.

(Application filed Aug. 12, 1899.)

(No Model.) 3 Sheets—Sheet 1.

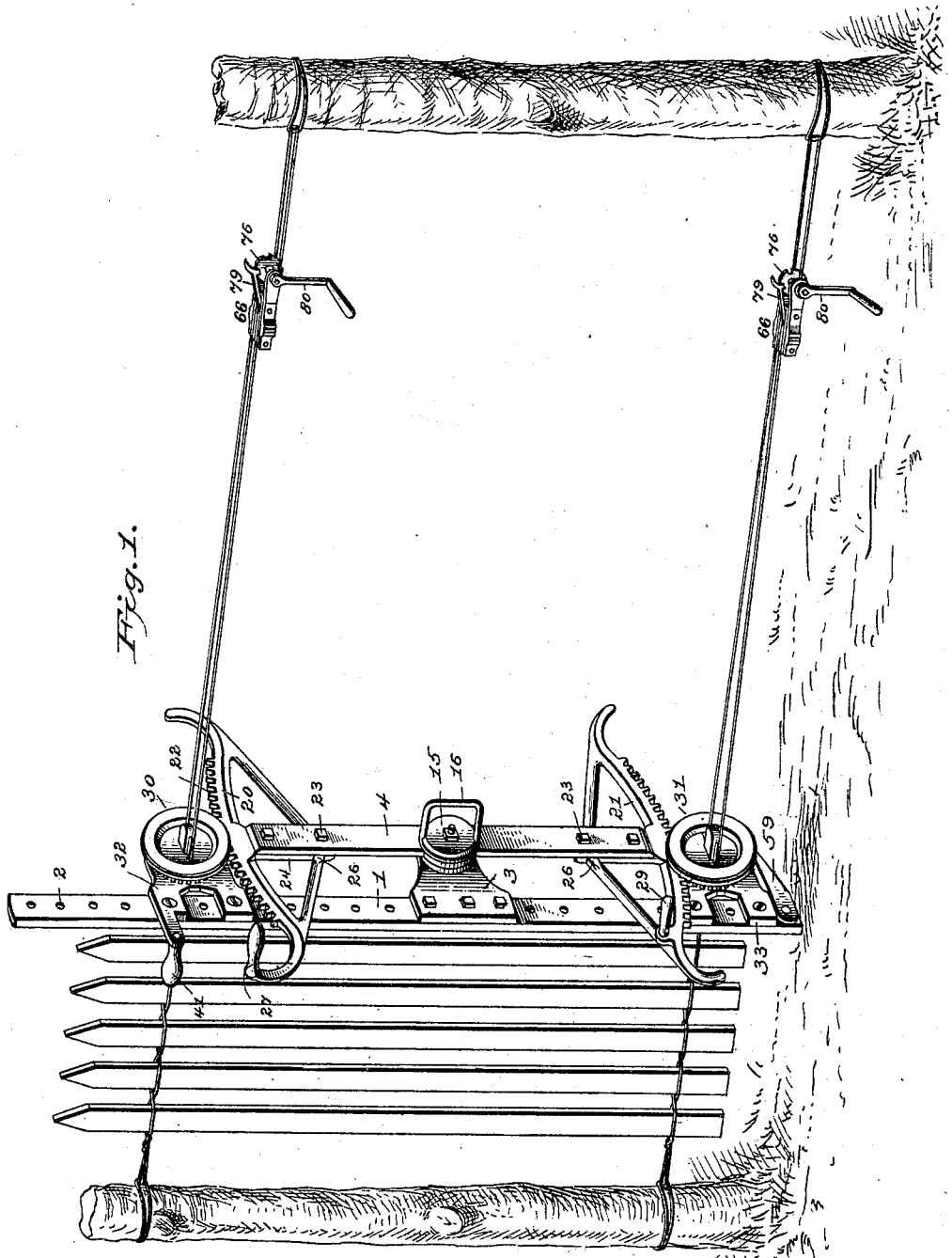

Fig. 1.

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3 Sheets—Sheet 2.

Fig. 5.

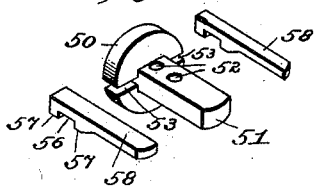
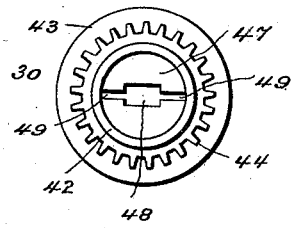


Fig. 4.



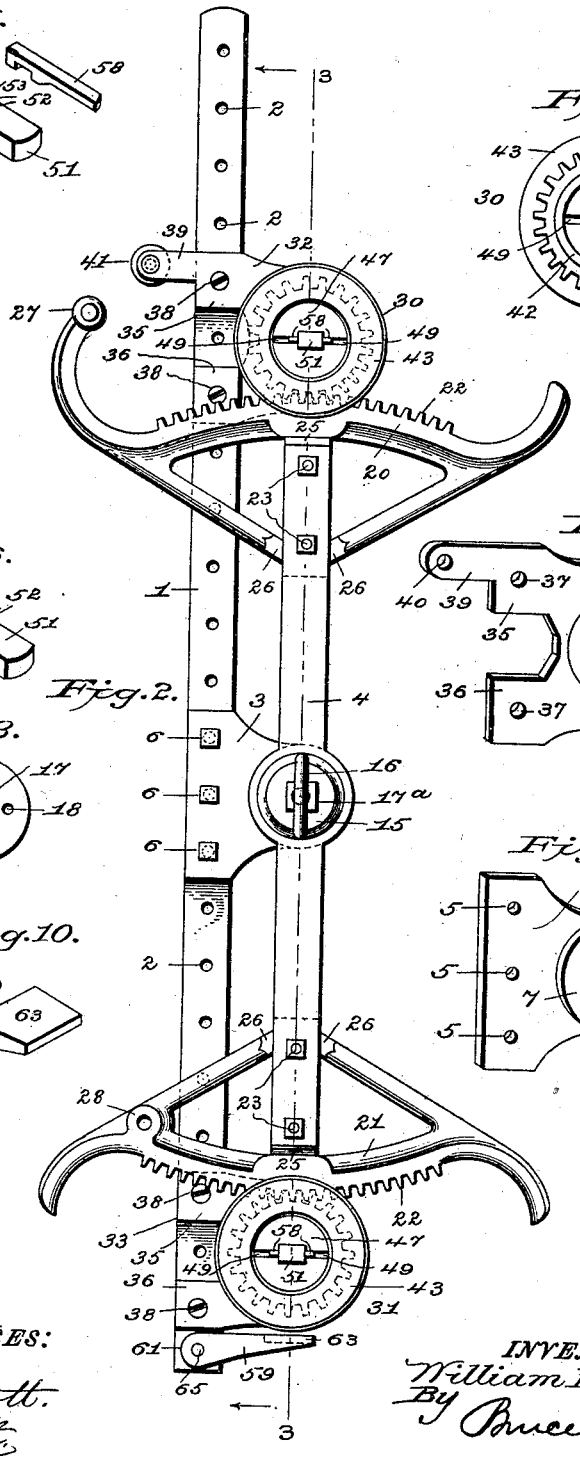


Fig. 9.

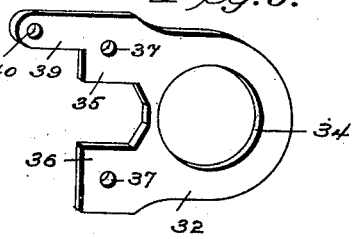


Fig. 6.

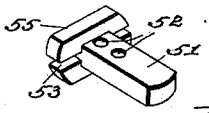


Fig. 2.

Fig. 8.

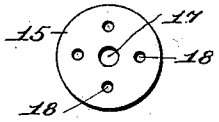


Fig. 7.

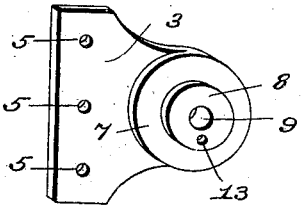
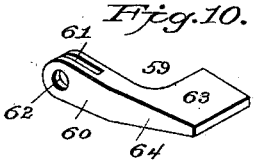


Fig. 10.



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SLAT AND WIRE FENCE MACHINE.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 11.

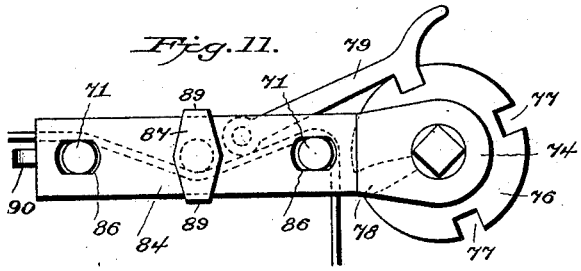


Fig. 12.

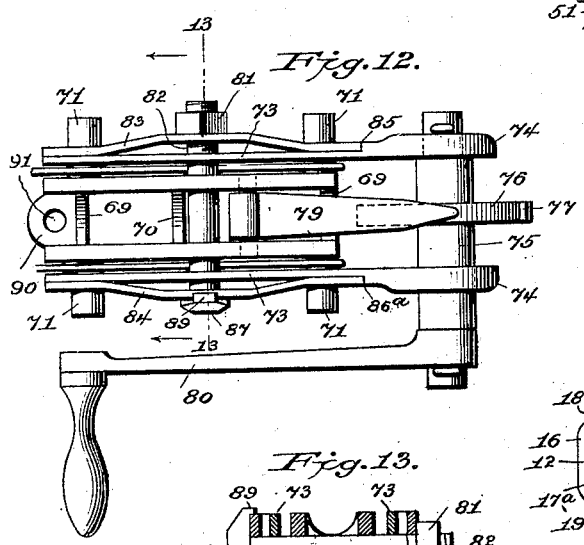


Fig. 13.

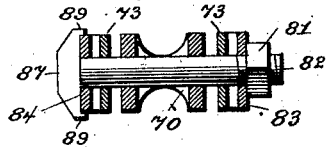


Fig. 14.

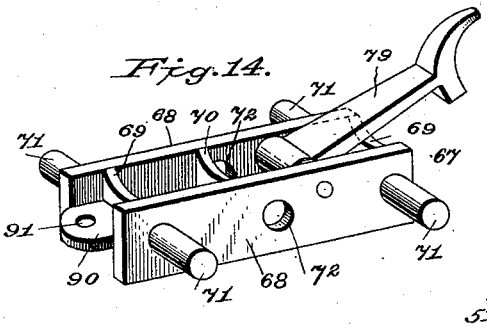
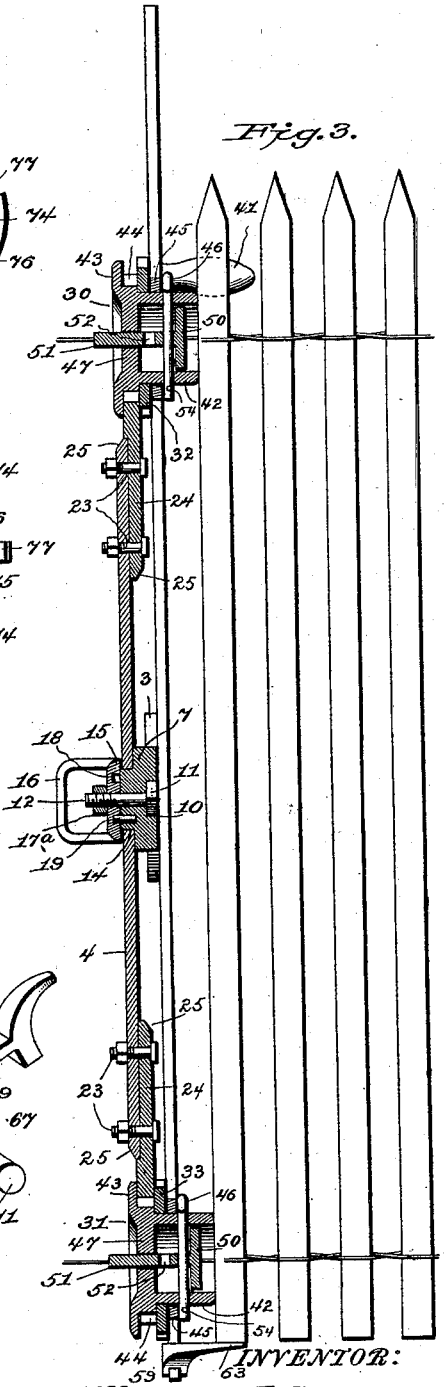


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM F. SEARGEANT, OF MARSHALL, MISSOURI.

SLAT-AND-WIRE-FENCE MACHINE.

SPECIFICATION forming part of Letters Patent No. 647,036, dated April 10, 1900.

Application filed August 12, 1899. Serial No. 727,041. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. SEARGEANT, a citizen of the United States, residing at Marshall, in the county of Saline and State of Missouri, have invented certain new and useful Improvements in Slat-and-Wire-Fence Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in slat-and-wire-fence machines of the type shown and described in Patent No. 611,944, granted to me October 4, 1898.

The broad object of the invention is to provide an improved construction and arrangement of the parts of a machine having the same general characteristics and operation as the machine disclosed in my patent above mentioned.

Stated in detail, the objects of the invention are in part to provide an improved means for drawing the machine readily along the wire strands which are to form the twisted cables, to provide an improved construction of twister-head and also of the means for varying the size of the twist or mesh to correspond with the size of the picket it is desired to employ, such improved constructions also permitting the ready passage of the twister-heads over splices in the wires, and to provide an improved detachable rest or support for the pickets being wired.

A further object of the invention relates to an improvement in the construction of the tension device for holding the wires taut while they are being twisted around the pickets.

Still further objects of the invention relate to certain details of construction and operation of the parts, which will more clearly hereinafter appear.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a perspective view of a wire-twisting machine constructed in accordance with my invention as it appears in practical service in the field. Fig. 2 is a front elevation of the machine. Fig. 3 is a vertical longitudinal sectional view on the line 3 3 of Fig. 2 and viewed in the direction of the arrows, but showing the device in operative relation to the wires to be twisted and to the pickets. Fig. 4 is a front view of one of the twister-heads. Fig. 5 shows detached perspective views of the twister and two spacing-jaws. Fig. 6 is a perspective view of a different shape of twister. Fig. 7 is a perspective view of my improved fulcrum-plate. Fig. 8 is a bottom plan view of the retaining-disk for securing the operating-lever upon said fulcrum-plate. Fig. 9 is a perspective view of the upper journal-plate for the twister-head. Fig. 10 is a perspective view of the support for the pickets. Fig. 11 is a side view of the tension device. Fig. 12 is a plan view of the same. Fig. 13 is a section taken on the line 13 13 of Fig. 12, and Fig. 14 is a detail perspective view of the inside frame and the pawl hinged to said frame, forming parts of the tension device.

Like numerals of reference denote like parts in each of the several figures of the drawings.

The reference-numeral 1 indicates the main upright, which carries all the working parts of the twisting mechanism and which is of a length suitable to adapt the machine for working with pickets which vary in height. Said upright is preferably formed of a single bar of metal, although it might be formed of wood, and is provided along its length with a series of equidistant apertures 2, which provide for the adjustable attachment of certain, parts to be hereinafter described.

The numeral 3 designates the fulcrum-plate for the operating-lever 4, which fulcrum-plate has a flat substantially-rectangular portion provided with a series of apertures 5, which are adapted to coincide with certain of the apertures 2 in the upright 1, whereby the fastening-bolts 6 may pass through the coincident apertures for the purpose of holding the fulcrum-plate firmly and rigidly on the upright. It is evident that the bolts 6 may be removed to permit the fulcrum-plate to be raised or lowered on the upright when the twister-heads are correspondingly raised or lowered to twist the wires at the desired height on the pickets, said adjustment of the fulcrum-plate being coincident with and not independent of that of the twister-heads, as will be understood. The fulcrum-plate 3 is of a width to project beyond one side of the

upright, and said projecting portion is provided on its front face with an integral boss, affording a circular offset 7 and a journal 8, concentric with said offset, and extending centrally through this boss is a bolt-hole 9, the inner end of which is enlarged on the rear face of the plate to provide a squared recess 10, adapted to receive a square head 11 of a fastening-bolt 12. The front face of the journal 8 is provided with a small circular recess 13 for a purpose to be presently explained. The operating-lever 4 is provided at its center with an aperture 14 of a diameter and form to journal snugly on the cylindrical journal 8 of the fulcrum-plate, whereby said lever has a solid support on the fulcrum-plate and is adapted to swing freely back and forth in a plane parallel to that of the upright 1.

One of the improvements which I have made in the present invention is the provision of a combined disk and handle, the disk serving to hold the lever 4 on the fulcrum-plate and the handle affording means by which the machine may be readily moved along the wires which form the cables of the picket fence. The numeral 15 indicates this disk, and 16 the handle cast integral therewith. Said disk is provided with a central aperture 17 and is fitted against the vertical exposed face of the journal 8, which lies flush with the surface of the lever 4, and through the bolt-hole 9 in the journal and the aperture 17 in the disk passes the securing-bolt 12, the head 11 of which is fitted in the recess 10 of the fulcrum-plate 3, so as to lie flush with the rear face thereof. The threaded end of the bolt 12 passes through the aperture in the disk 15 and has applied thereto the clamping-nut 17^a, which clamps the disk 15 firmly against the exposed face of the journal 8, said disk overlapping the journal and the aperture 14, so that it serves to confine the lever 4 on said journal, but in such manner as not to prevent its movement. The rear face of the disk 15 is provided with a series of apertures 18, preferably four in number, in any one of which may be secured one end of a pin 19, the other end of said pin being secured in the aperture 13 on the front face of the journal 8. It will thus be seen that this pin will operate to prevent the disk 15 from turning when the latter has been clamped in position on the journal 8. By loosening the nut 17^a the disk 15 may be turned to have the pin 19 inserted in any one of the apertures 18, whereby the handle 16 may be shifted to and held securely in various angular positions in relation to the upright 1 to suit the convenience of the operator. The offset 7 serves to space the operating-lever away from the vertical face of the upright 1, so that the operating-lever may rock or turn freely without striking against the bolts that fasten the fulcrum-plate on the upright. The operating-lever 4 carries the segments 20 21, by which the twisters are given the axial turning movement necessary to twist the parallel strands of wire around the pickets of the fence. The numerals 22 indicate the teeth of the respective segments. Said segments are secured to the operating-lever 4 by bolts 23 in a manner similar to that described in my previous patent and are of the same general construction, with the exception that I do away with the socket in the tang, (indicated in this case by the numeral 24,) bevel off the ends of the tangs and operating-lever, as indicated by the numerals 25, and form the braces square in cross-section where they unite with the tangs, as indicated by the numerals 26. The numeral 27 indicates the operating-handle of the upper segment. The lower segment is further provided with an aperture 28, in which may be suitably secured an arm 29, so that the foot may be used as well as the hand in operating the lever 4. In case of a left-handed person operating the machine the segments could be transposed and the arm 29 serve as a handle.

The numerals 30 31 indicate, respectively, the upper and lower twister-heads, which are arranged to engage with the segments 20 and 21, respectively, and are journaled in the respective journal-plates 32 33. Said journal-plates comprise each a circular portion having a round aperture 34 and integral extensions 35 36, each of which is provided with a countersunk aperture 37 to receive the head of a screw-bolt 38, by means of which bolts the journal-plates may be secured to the upright 1, said screw-bolts passing through the apertures 2 in said upright. The upper journal-plate is shown as having its extending portion 35 provided with an integral rearwardly-extending arm 39, having an aperture 40, by means of which a handle 41 may be secured to said arm to assist in moving the machine along the wires. With this exception the two journal-plates are alike in construction. The parts constituting each twister being identical, a description of one will suffice, which I will now give, referring particularly to Figs. 3, 4, 5, and 6 of the drawings. Each twister-head comprises a tubular or cylindrical portion 42, affording a journal, an annular flange 43, and a pinion 44, as in my former patent, the cylindrical portion 42 being revolubly seated in the aperture 34 of the journal-plate and being secured therein by means of a washer 45 and fastener-pin 46. The tubular portion of the twister-head is provided on its interior, adjacent to and within the vertical plane of the externally-arranged pinion 44, with a web 47, which is an integral part of the twister-head and is situated in the opening or passage provided in said twister-head. The web 47 is provided in its central portion with a rectangular opening 48, communicating with which and extending from the ends thereof to the inside walls of the twister-head, respectively, are two relatively-narrow slots 49. In Fig. 5 I have shown my improved form of twister, which is adapted to be secured in the twister-head, as presently described. Said twister comprises a

circular metal head or disk 50, having formed integral therewith and projecting from one of its faces a rectangular tongue or shank 51, which is of a size to be received in the opening 48 of the web 47 of the twister-head and is provided with two or more holes 52 for adjustably securing the twister in the twister-head, as presently explained. The circular head 50 is provided on opposite sides, respectively, with two radial slots 53, which extend from the edge of the head to the side of the tongue 51, which slots 53 when the twister is secured in the twister-head will aline with the slots 49 thereof. This twister is inserted in the tubular end of the twister-head, its tongue 51 passing through the opening 48 and fitting snugly therein and its circular head 50 resting in the tubular portion 42. The pin 46 is now inserted in the twister-head and is passed through one of the openings 52 of the tongue 51. A keeper 54 will be employed to hold the pin 46 in position, as in the patented device referred to. By removing the pin 46 the twister may be moved to a greater or less distance from the end of the twister-head next to the picket to be wired and the pin 46 be inserted in the corresponding aperture 52 of the tongue 51. By this construction, whereby I secure a lateral adjustment of the twister, I provide for twisting the wires more or less close to the picket, as may be desired. It will be understood, of course, that the wires to be twisted pass through the slots 53 in the head of the twister and the slots 49 in the web of the twister-head lying against the sides of the tongue 51 and that when said twister-heads are revolved by the engagement of the teeth 22 of the segments with the pinions 44 of the twister-heads said wires will be twisted around the picket which has previously been placed between them. In Fig. 6 I have shown a different form of twister, the head 55 whereof is flat on opposite sides instead of being circular.

In the practical use of machines of this character it is frequently desirable to space the wires at a greater or less distance apart to accommodate pickets of different sizes. In order, therefore, to provide for adjusting the wires to different widths, I contemplate herein, as in my patented construction, the employment of jaws of different sizes or widths, substantially as represented by Fig. 5, said jaws 58 being interchangeable one with the other and each comprising an oblong piece of metal a fraction longer than the twister and having one end enlarged and provided with a squared recess or seat 56, affording on opposite sides of said recess shoulders 57, whereby said jaws may be inserted in the slots 53 and their shoulders engage opposite faces of the circular head 50, the jaw lying along the side of the tongue 51. The wires when inserted in the respective slots of the twister-head and twister will now rest against the outer sides of the jaws 58 and hold them firmly in place. The portions of the jaws beyond the circular head 50 are of a thickness to fit in the slots 49 of the twister-head, so as to permit them to move in and out with the twister in its adjustments. The provision of means as just described for varying the distance of the twister from the picket about which the wires are to be bound and of the wires from each other will be found of great advantage where different sizes of pickets and length of twists are found necessary to be used.

In moving the machine along the wires should a splice in either or both wires be reached it is only necessary to remove the twister from the twister-head, when a sufficiently-large opening will be afforded by the aperture 48 to permit the passage therethrough of the splice in the wire, after which the twister may be replaced.

In Fig. 10 I have shown a detail view of the support or rest 59 for the pickets. This support comprises an arm 60, having a bifurcated end, as shown at 61, and transversely apertured, as shown at 62. Formed integral with said arm and extending at right angles thereto is a flat bracket or plate 63, affording a platform on which the bottom of the picket being wired may rest. For the sake of lightness in construction a portion of said support may be cut away or inclined, as shown at 64. The slot 61 is of a width to receive and fit snugly the upright 1, the inner edge or bottom of said slot resting against the edge of the upright, and a pin or bolt 65, inserted in the aperture 62 and extending through one of the apertures 2 near the bottom of said upright, holds the support in place thereon.

In connection with my improved machine I employ a tension device 66, which is illustrated in its operative relation to the twisting mechanism by Fig. 1 and shown in detail by Figs. 11 to 14, inclusive. This tension device consists of an inside frame 67, having its side bars 68 joined together by suitable end bars 69 and braced at a point intermediate of their length by a cross-bar 70. Said inside frame 67 is further provided at its ends with the studs 71, which project outwardly from the side of said frame, and its side members with apertures 72. The wires which it is desired to hold under tension are arranged to pass between the sides of the inside frame 67 and the outside clamping-plates 73, which are arranged in close lateral relation to said frame 67, and the outside clamping-plates 73 are apertured to enable them to be fitted loosely on the studs 71 of said frame, thus giving to said outside clamping-plates a limited lateral movement with respect to the sides of the frame 67. The ends of the clamping-plates 73 are extended beyond one end of the frame 67, and said extended ends are enlarged to form bearings 74 for a transverse shaft 75, which is journaled in said plates. Said shaft is provided with a disk 76, in which is formed a series of radial notches 77 and a deeper notch 78. This deep notch is adapted to receive the looped end of the double wire by which the tension device may be connected

to one of the fence-posts, as shown by Fig. 1, and the strain or pull of the looped wire and the fence wires or cables is resisted by the employment of a locking-pawl 79, the parts of the device as thus described operating in the same manner as described in my patented device. The numeral 80 indicates the crank for the shaft 75. The clamping-plates 73 are drawn together to hold the wires between themselves and the frame 67 by means of a nut 81 on the screw-threaded end of a bolt 82, which passes through suitable openings formed in the clamping-plates 73 and the apertures 72 in the sides of the frame 67. In my present device, however, I interpose springs between the head and nut of the bolt, respectively, and the clamping-plates in order to permit a yielding engagement to allow for unevenness in the wires. These springs are indicated by the numerals 83 84, respectively, and each comprises two oblong pieces of spring metal having their central portions bent upward or outward and their end portions apertured to extend over the stud 71 and lying flat on the side of the clamping-plate. Said clamping-plates are provided with shoulders 85, against which one end of each spring bears. The apertures in the springs for receiving the studs 71 are indicated by the numerals 86 and, as shown in Fig. 11, are enlarged to extend laterally from each side of the studs to permit play or movement of the springs. Said springs are also centrally apertured to receive the bolt 82, and the head 87 of the bolt is widened and provided at opposite ends with inward-extending flanges 89, which flanges are adapted to fit over opposite edges of the spring 84, and thus prevent the bolt from revolving when the nut 81 is being turned to clamp or unclamp the wires. The spring 83 will also tend to prevent the nut 81 from working loose, as will be understood.

In order to provide for stretching or straining a single wire—as, for example, if it is desired to have a barbed wire at the top of the fence—I form integral with the end bar 69 a tongue or arm 90, having an aperture 91, in which one end of the wire may be secured and the wire be strained by turning the shaft 75 to wind the stay or doubled wire thereon, as will be understood.

Having thus described my invention, what I claim as new is—

1. In a fence-machine, the combination with an upright and twister-heads journaled thereon, of a fulcrum-plate rigidly clamped to said upright, a lever journaled on said fulcrum-plate and carrying means for engagement with the twister-heads to operate the latter, and a carrying-handle clamped to the fulcrum-plate to hold the operating-lever against displacement thereon and for moving the machine lengthwise along the wires comprising a disk having formed integral therewith and connected at diametrically-opposite sides thereto a bail or handle, substantially as described.

2. In a fence-machine, the combination with an upright and twister-heads journaled thereon, of a fulcrum-plate clamped to said upright and affording an offset portion and a journal and having a passage extending centrally through said journal and offset portion, an operating-lever mounted on said journal and bearing against said offset portion and having means for engaging with the twister-heads to rotate the latter, and means for confining the operating-lever in place on the journal comprising a centrally-apertured disk fitted against the end of said journal and having formed integral therewith a bail or handle, a bolt passing through the apertures in said journal and disk, and a nut engaging the bolt and bearing on said disk, substantially as described.

3. In a fence-machine, the combination with an upright and twister-heads journaled thereon, of a fulcrum-plate rigidly clamped to said upright, and affording a journal having a passage extending therethrough, a pin secured in said journal and projecting from the front face thereof, a lever mounted on said journal and carrying means for engagement with the twister-heads to operate the latter, and means for confining the operating-lever in place on the journal comprising a centrally-apertured disk having formed integrally therewith and connected at opposite sides thereto a bail or handle and having formed on its rear face a series of apertures, in any one of which said pin may be inserted, a bolt passing through said journal and disk, and a nut engaging said bolt and bearing on said disk, the combination operating substantially as described.

4. A fence-machine comprising a single integral bar affording an upright and provided throughout its length with equidistant apertures, an upper and lower journal-plate each of which comprises a flat metal plate having near one side apertures alining with those of the upright whereby it may be adjustably secured thereto and a portion projecting from one side of said upright and provided with a circular opening, a twister-head journaled in each of said openings, a fulcrum-plate adjustably secured to said upright intermediate the journal-plates and having a portion projecting from one side of the upright, a journal formed on said projecting portion in line with the twister-heads, an operating-lever mounted on the journal and having at opposite ends means for engaging the respective twister-heads, and means for confining said operating-lever upon said journal.

5. In a fence-machine, the combination with an upright, of upper and lower journal-plates secured thereon and projecting from one side of said upright and in said projecting portion having each a circular opening, said upper journal-plate having an integral

apertured arm extending from the opposite side of the upright whereby a handle may be secured thereto, twister-heads journaled, respectively, in said circular openings, a fulcrum-plate secured to said upright intermediate the journal-plates and affording a journal, an operating-lever mounted on said journal and having at opposite ends means for engaging the respective twister-heads, and means for confining the operating-lever on said journal.

6. In a fence-machine, the combination with an upright of an upper and lower twister-head journaled thereon each twister-head having a pinion, an operating-lever centrally and pivotally mounted on said upright and having at opposite ends toothed segments for engaging the respective pinions of the twister-heads, said lower segment being provided at one side with an aperture, an operating-handle carried by the upper segment and a bar secured in the aperture of the lower segment to afford a foothold, substantially as described.

7. In a fence-machine of the class described, the combination with the apertured upright, of a support for the picket being wired comprising an arm having one end slotted, to receive said upright edgewise, and apertured, whereby a bolt may be passed therethrough and through an aperture in the upright to secure said support in place, and its opposite end provided with an integral portion extending at right angles to the arm and affording a platform on which the lower end of the picket may rest, substantially as described.

8. In a fence-machine, a tubular twister-head having a transverse web affording a central aperture and side slots communicating with said aperture, a twister having a tongue adapted to pass into said aperture and a head provided on opposite sides with slots alining with those in said web, and means for securing said twister in the twister-head, substantially as described.

9. In a fence-machine, a tubular twister-head having an interior transverse web affording a central rectangular aperture and slots communicating with the sides of said aperture, a twister having a tongue adapted to pass into said aperture and of a shape to fit snugly therein and having a head provided on opposite sides with slots alining with those in said web, and means for securing said twister in the twister-head, substantially as described.

10. In a fence-machine, a tubular twister-head having an interior transverse web affording a central rectangular aperture and slots communicating with the sides of said aperture, a twister having a head provided on opposite sides with slots alining with those of said web and a tongue adapted to pass into said aperture and fit snugly therein, said tongue having a series of vertically-disposed apertures, and a pin passing through the twister-head and through either of the apertures in said tongue, substantially as described.

11. In a fence-machine, a tubular twister-head having an interior transverse web affording a central rectangular aperture and slots communicating with the sides of said aperture, a twister having a head provided on opposite sides with slots alining with those of said web and a tongue adapted to pass into said aperture and fit snugly therein, a series of spacing-jaws having recessed ends fitting in the slots of said head and body portions lying along the sides of said tongue, respectively, and means for securing the twister in the twister-head, substantially as described.

12. In a tension device of the class described, the combination with the inner frame and the outer clamping-plates, of a bolt passing through said frame and clamping-plates, a nut engaging said bolt, and springs interposed respectively between the head and nut and the adjacent clamping-plate, substantially as described.

13. In a tension device of the class described, the combination with the inner frame having studs on the sides thereof, of the clamping-plates having apertures to receive said studs, a bolt passing through said clamping-plates and frame, a nut engaging said bolt, and leaf-springs interposed respectively between the head and nut of said bolt and having at opposite ends elongated apertures to receive said studs, the combination operating as set forth.

14. In a tension device of the class described, the combination with the inner frame having studs on the sides thereof, of the clamping-plates having apertures to receive said studs, a bolt passing through said clamping-plates and frame, a nut engaging said bolt, and leaf-springs interposed respectively between the head and nut of said bolt, said bolt having an elongated head provided with end flanges adapted to embrace opposite sides of the spring against which it bears to prevent turning of the bolt, substantially as described.

15. In a tension device of the class described, the combination with the clamping-plates having a crank-shaft journaled therein, and of the inside frame having the end bars, of an apertured lug or arm formed integral with the end bar opposite the crank-shaft for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. SEARGEANT.

Witnesses:
F. C. BARNHILL,
E. G. DAWES.