

UNITED STATES PATENT OFFICE.

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WIRE-STRETCHER.

974,258.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANTONIO GREEN, a citizen of the United States, residing at Jet, in the county of Alfalfa, State of Oklahoma, have invented certain new and useful Improvements in Wire-Stretchers; 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 improvements in wire stretchers.

It has for its object the provision of a stretching mechanism adapted to take up the slack of the wire and a holding device arranged to prevent the taken-up portion of the wire from slipping while the stretching mechanism is being readjusted to further stretch the wire.

Another object is the provision of a device so constructed that wires of extremely small diameter may be stretched equally as well as wires of great diameters.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claim; it being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is a plan view of the device showing the stretching mechanism in one position. Fig. 2 is a similar view but showing the parts in another position. Fig. 3 is a central longitudinal sectional view of the device. Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1. Fig. 5 is a similar view on the line 5—5 of Fig. 1.

Similar numerals of reference are employed to designate corresponding parts throughout.

A bed-plate designated by the numeral 5 is designed to support the device. This bed-plate may be of wood or metal, as desired, and is substantially rectangular in contour and cross section. The forward end of the bed-plate 5 is provided with a pair of eyes

6, one of which is adapted to receive the terminal of a chain or other flexible securing element, designated by the numeral 7 while the opposite eye receives a hook at the free end of the chain. It is to be understood that any desired securing element may be employed which will enable the device to be attached to a fence post when it is desired to stretch fence wires or to an insulator when telegraph or like wires are to be stretched. The bed-plate 5 is centrally provided with a longitudinal groove 8, which extends throughout the greater portion of the length of the bed-plate and the floor of which is centrally provided with a longitudinal recess 9 extending through the opposite face of the bed-plate. What will subsequently be termed a carrier is designated by the numeral 10 and is slidably fitted in the groove 8. The carrier is preferably of metal and is substantially rectangular in contour and cross section and corresponds in thickness to the depth of the groove so that when it is disposed within the latter its upper face will be flush with the upper face of the bed-plate, or substantially so. Extending through the intermediate portion of the carrier is a pin 11, the free end of which extends through the recess 9 in the center of the groove, the said free end may be provided with a head arranged to bear on the lower side of the bed-plate and serve to prevent displacement of the carrier in the groove.

Pivotaly mounted on the upper face of the carrier and adjacent one end thereof are a pair of jaws 12 and 13. These members are designed to clamp the wires to be stretched therebetween so that when the carrier is moved in the groove 8 they will carry the wire toward one end of the bed-plate. Each of these jaws is preferably formed of metal and provided at one end with a curved face which is corrugated. The jaws are secured to the carrier by means of pivot pins 13' and 14 which extend through eccentrically disposed openings in the jaws and adjacent one end of their curved faces. Owing to the curvature of the engaging faces of the jaws and their disposition on the follower 10, the said engaging surfaces will bear one upon the other when the jaws are at substantially right-angles to the carrier. The outer ends of the jaws extend to points a trifle beyond the opposite longitudinal sides of the bed-plate, when the said jaws

are at right-angles to the carrier, and are connected together by means of a link 14', this link being preferably secured to the outer faces of the jaws by means of pivot pins or similar connectors as shown. In order to bring the engaging faces of the jaws into engagement the said outer ends are moved toward that end of the bed-plate to which the flexible securing element is attached.

In order to move the jaws into and out of engagement with each other and at the same time to reciprocate the carrier in the groove, the following construction is employed:—By referring now to Figs. 1 and 2 it will be seen that pivoted between one end of the groove 8 and that end of the bed-plate to which the flexible securing element is attached and arranged on opposite sides of the longitudinal center of the bed-plate are a pair of operating handles or levers 15 and 16. The inner ends of these levers are seated in counter-sunk portions 17 and 18 arranged on opposite sides of the longitudinal center of the bed-plate and the said inner ends of the levers terminate in enlarged heads 19 and 20. Fixedly secured to the inner faces of the heads are a pair of segmental gears 21 and 22 and the combined thicknesses of the heads 19 and 20 and gears 21 and 22 will correspond to the depth of the countersunk portions so that when the parts are in position as shown in the drawings the upper outer faces of the heads will be substantially in a plane with one face of the bed-plate. The heads and ears are provided with alining openings for the reception of pivot pins 23 and 24, by means of which the levers are pivotally secured to the bed-plate. The countersunk portions in which the heads of the levers are arranged communicate with each other and the levers are so positioned that the gears 21 and 22 will be in mesh. Connection between the levers 15 and 16 and outer ends of the jaws 12 and 13 is established by means of a pair of connecting rods 25 and 26, the ends of which are pivoted to the levers beyond the gears and fulcrumed pins of the jaws.

With this construction it is obvious when the levers are moved to position parallel with the bed-plate that the outer ends of the jaws will be moved toward that end of the bed-plate remote from the flexible securing element; whereby the gripping surfaces of said jaws will be in spaced relation. When the levers are moved in the opposite direction however, the said gripping surfaces of the jaws will be brought near each other until the levers are at substantially right-angles to the bed-plate when the gripping surfaces of the jaws will bear one upon the other. It will be observed when the levers are parallel with the bed-plate and the gripping surfaces of the jaws in spaced relation

as before described, one end of the carrier will be at that end of the groove remote from the end of the bed-plate to which the flexible securing element is attached, and when the levers are moved in the opposite direction as before described and the jaws are brought into engagement with each other further movement of the levers will result in moving the carrier toward the opposite end of the groove 8. With this construction it can be seen when a wire is placed between the gripping surfaces of the jaws and the latter are brought in engagement with the wire that continued movement of the levers will result in the jaws carrying that portion of the wire with which they are in engagement toward that end of the plate on which the securing element is attached.

After the wire has been stretched as before described, and before the carrier is moved to its original position and the jaws brought into engagement with another portion of the wire, it is evident that some means must be provided for securely holding the taken-up portion of the wire and in order to accomplish this result the following construction is employed:—By referring now to Figs. 1 and 2 it will be seen that the opposite ends of the bed-plate are each provided with a pair of clamping elements. These members are yieldingly held in closed position and are arranged to open in opposite directions, since both pairs are identical in structure a description of one will be sufficient. The pair located at that end of the bed-plate adjacent the flexible securing member consists of a pair of jaws 27 and 28 which are arranged between the heads 19 and 20 of the operating levers and free end of the bed-plate. The jaw 27 is stationary and is secured to the bed-plate by a pair of bolts or rivets 29 and its inner edge approaches the longitudinal central line of the bed-plate. This inner edge of the jaw is rounded and constitutes a gripping surface. The opposite jaw 28 is an elongated structure and of greater length than one half the width of the bed-plate. The outer end of this jaw is reduced and rounded to provide a handle 30, while its inner end terminates in a somewhat enlarged head the inner edge of which is rounded and bears on the inner rounded edge of the jaw 27. The jaw 28 is eccentrically pivoted on the bed-plate by means of a pivot bolt 31, which is arranged in the enlarged head of the jaw and adjacent its outer longitudinal side. With this construction it is obvious when the handle 30 is moved toward the adjacent end of the bed-plate, it being understood that the normal position of the jaw 28 is at right-angles to the bed-plate, that an opening will be presented between the jaws sufficient to permit a piece of wire to be inserted therein and after the said wire has been inserted a pull

in the opposite direction on the wire will result in the gripping face of the jaw 28 moving into closer engagement with the opposite jaw 27, whereby the wire will be securely held. The jaws are normally held in closed position by means of a leaf spring 32, one terminal of which is secured to the bed-plate while the opposite terminal of which bears on the outer longitudinal side of the jaw 28 and by its pressure forces the handle 30 toward that end of the bed-plate remote from the flexible securing member whereby the gripping faces of the jaws are yieldingly held in contact. The jaws 33 and 34 arranged at the opposite end of the bed-plate are, as before stated, identical in structure to the jaws 27 and 28 and are in alignment with the latter and arranged to open in the opposite direction.

In taking up the slack in a fence wire intermediate two posts, the wire is inserted between the jaws 27 and 28, 33 and 34, and 12 and 13. The levers 15 and 16 will be in the position shown in Fig. 2 while this is being done. A movement of the levers outwardly will result in the carrier moving longitudinally in the groove after the jaws 12 and 13 have engaged with the wire whereby the latter will be pulled through the jaws 33 and 34. When the levers have reached the limit of their movement and are moved inward to secure a new grip on the wire, the

latter will be prevented from moving by virtue of the jaws 33 and 34, and 27 and 28 on the ends of the bed plate being closed upon the wire by their springs.

It will be noted that the jaws 27 and 28 and 33 and 34 when in engagement with the fence wire as shown in Fig. 1 cause the slack taken up in the stretching operation to bow outwardly. It is evident that this bowed portion may be severed and after a sufficient length of the wire has been removed to take up all the slack, the ends may be spliced together.

What is claimed as new, is:—

A wire stretcher, comprising a bed plate, a slide on the bed plate, a pair of segmental wire gripping jaws pivoted eccentrically on said slide, a pair of transversely disposed handle levers having meshing toothed heads fulcrumed on the bed plate, links connecting the free ends of the jaws with the handle levers, and a pair of wire gripping elements located on the bed plate in advance of said jaws, and coöperating to grip and hold a wire during its release by said jaws.

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

ANTONIO GREEN.

Witnesses:

C. T. POWELL,
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