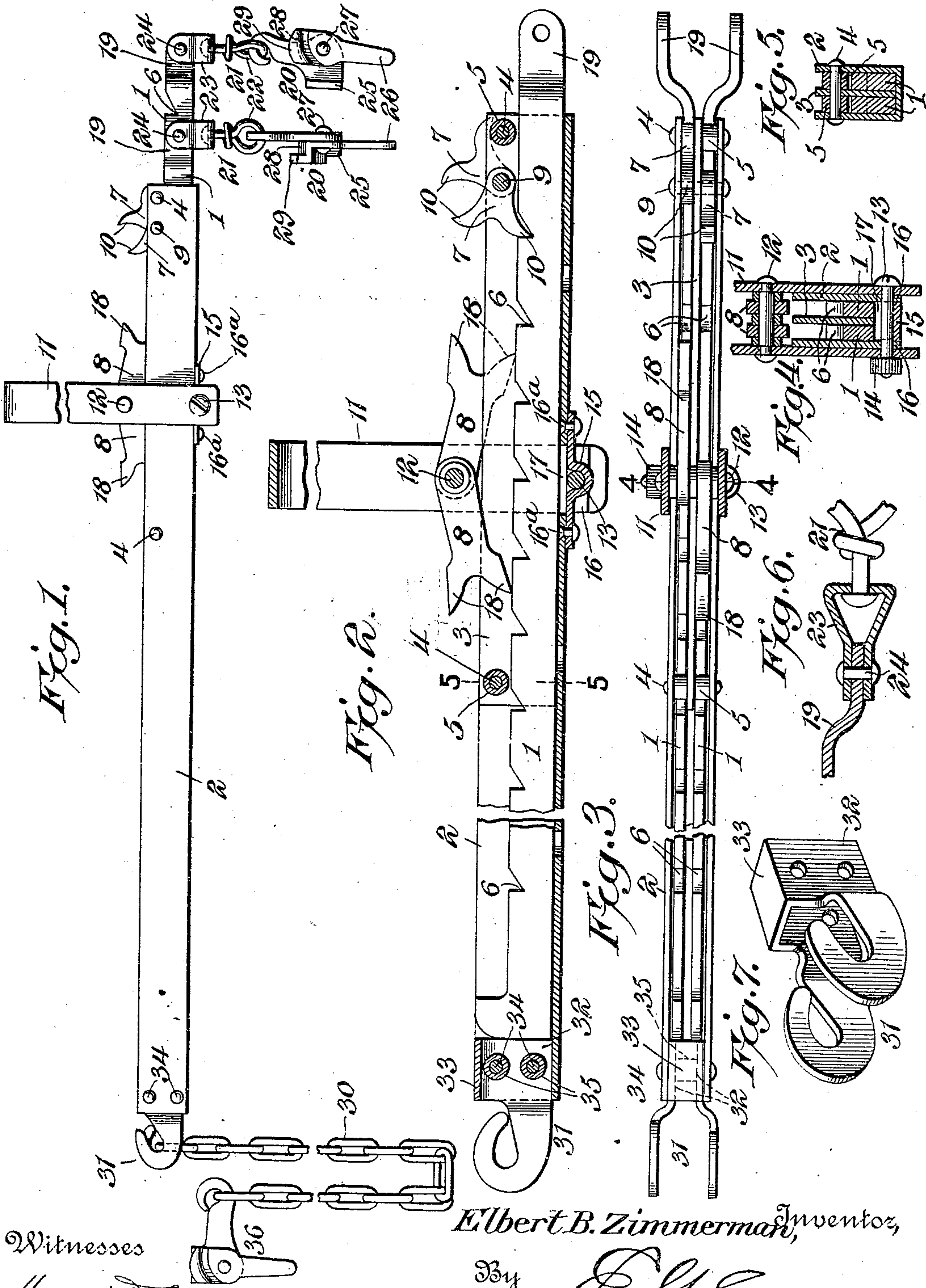


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WIRE STRETCHER.
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951,355.

Patented Mar. 8, 1910.



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ELBERT B. ZIMMERMAN, OF LINCOLN, NEBRASKA.

WIRE-STRETCHER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ELBERT B. ZIMMERMAN, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Wire-Stretcher, of which the following is a specification.

The invention relates to improvements in wire stretchers.

10 The object of the present invention is to improve the construction of wire stretchers, and to provide a simple, inexpensive and efficient one of great strength and durability, adapted to stretch smooth fence wires, and
15 capable of eliminating all danger in stretching barbed wire.

A further object of the invention is to provide a wire stretcher, capable of being operated to continuously stretch a fence
20 wire without releasing the wire and allowing the same to slacken, and adapted to obviate the necessity of stapling wires to a fence post in order to take a new hold on the former.

25 The invention also has for its object to provide a wire stretcher, adapted to be employed for drawing the two ends of a broken wire together to splice the same.

30 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that
35 various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.
40

In the drawing:—Figure 1 is an elevation of a wire stretcher, constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same.
45 Fig. 3 is a plan view, the lever being in section. Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 3. Fig. 5 is a transverse sectional view, taken on the line 5—5 of Fig. 2. Fig. 6 is a sectional view,
50 taken longitudinally of the swivel connection between one of the clamps and its ratchet bar. Fig. 7 is a detail perspective view of the double hook.

55 Like numerals of reference designate corresponding parts in all the figures of the drawing.

The wire stretcher is equipped with a pair of ratchet bars 1, slidable in a guide 2, constructed from a single sheet or piece of metal, which is bent longitudinally to form
60 two parallel sides and a connecting bottom portion. The front portion of the guide is divided into two ways by means of a centrally arranged longitudinal partition 3, connected with the side walls of the guide
65 by means of transverse fastening devices 4, piercing the side walls of the guide and the partition and provided with spacing sleeves 5, interposed between the partition
70 and the side walls, whereby the partition is rigidly secured in spaced relation with the sides of the guide. The spacing sleeves 5 also serve to engage the upper edges of the rack bar 1 to prevent the same from moving
75 upward in the guide.

The rack bars are provided in their upper edges with notches 6, having inclined walls and vertical rear walls forming shoulders and adapted to be engaged by dogs 7 and
80 pawls 8. The dogs 7, which operate as check pawls, are pivoted in the ways of the guide by a transverse fastening device 9, and are provided with diverging tapering portions 10, adapted to serve as handles for
85 enabling the dogs to be readily swung backward and forward, and when the dogs are swung forward, they rest upon the front spacing sleeves 5, and do not interfere with the outward movement of the ratchet bars. When one of the dogs is swung rearward,
90 as illustrated in Fig. 2 of the drawing, the lower projecting portion engages the ratchet bars and is adapted to prevent outward movement of the same. The tapered portions 10 are exact duplicates, and when one
95 of the said portions 10 becomes worn, the dog is adapted to be reversed to present its other tapered portion to the ratchet bar.

The pawls 8 are pivotally mounted between the sides of an operating lever 11 by
100 a transverse fastening device 12, which also supports spacing washers arranged between the pawls and at the sides thereof to space the same from each other and also from the sides of the lever. The operating lever,
105 which is preferably constructed of a single piece of metal bent centrally to form two sides, is fulcrumed at its lower end by means of a transversely disposed screw 13, provided at one end with a head and having
110 its other end threaded for the reception of a milled nut 14. The screw passes through

an eye formed by a bearing plate 15 and through perforations of depending flanges 16, formed by cutting the bottom portion of the guide and bending the cut portions downward. The bearing plate, which is bent at its center to form the bearing eye, is secured at its ends to the bottom of the guide by rivets 16^a, located in advance and in rear of the opening 17, formed by cutting the bottom of the guide to provide the side flanges 16. The pawls are provided at their outer ends with similar diverging tapered portions 18, arranged to be readily grasped by the operator in swinging the pawls backward or forward, and when one of the pawls is swung rearwardly, as shown in Fig. 2 of the drawing, the lower tapered projection is adapted to engage the shoulders formed by the recess. The similar engaging portions 18 of the pawls 8 render the latter reversible, and when the engaging point or portion of one of the pawls becomes worn, the pawl may be reversed to present its other tapered portion to the ratchet bar. The operating lever is swung forwardly and downwardly to engage the inwardly or rearwardly extending pawl with one of the notches of the companion ratchet bar, and the lever is then swung inwardly or backwardly to slide the ratchet bar into the guide for stretching the fence wire.

The outer or front ends 19 of the ratchet bars are bent laterally to off-set them from each other, and they are equipped with wire-engaging clamps 20, connected with the front or outer ends of the ratchet bars by swivels 21, composed of outer rotary members 22 and inner yokes 23 having converging sides, provided with terminal parallel portions embracing the ratchet bar and pivoted by a horizontal pin 24 to the outer end of the same. The yokes 23 have transverse outer connecting portions, which are provided with perforations to receive the rotary members of the swivel connection.

The rotary members, which are provided with outer eyes, have inner stems or shanks arranged in the perforations of the yokes and provided with heads, located within the yokes and engaging the transverse portions thereof. The eyes of the rotary members of the yokes are linked into eyes of the clamps, which consist of a body portion having a jaw 25 and a lever 26, pivoted by a rivet 27 or other suitable fastening device to the body portion of the clamp, and provided with an eccentrically arranged milled edge 28, cooperating with the jaw 25 and adapted to securely grip a smooth wire. The lever is constructed of chilled steel, and is also provided with a lip 29, projecting beyond the milled edge to prevent the wire from moving laterally out of the clamp.

In stretching a fence wire one of the

ratchet bars is drawn outward, and its clamp is connected with the wire. The ratchet mechanism is then operated to slide the ratchet bar inward for stretching the fence wire. The other ratchet bar is moved outwardly, and its clamp is connected with the wire, and the ratchet mechanism is then operated for again stretching the wire. This operation is repeated until the wire is stretched to the desired tension, and the wire is not released and permitted to slacken during these continuous stretching operations. The swivel connections between the slidable ratchet bar and the clamps enable the latter to be turned in any direction and to grip the wire either from above or below, thereby greatly facilitating the operation of stretching fence wires.

The wire stretcher is adapted to be secured to a post, or other suitable anchor by means of a chain 30, adapted to engage a double hook 31, composed of two hook-shaped sides, bent laterally to off-set them from each other and having inner shanks 32, connected by an integral top portion 33 and forming a rectangular spacing member, which is secured between the sides of the guide at the inner end thereof by transverse fastening devices 34. The transverse fastening devices 34 are also provided with spacing sleeves 35, which are interposed between the shanks 32. The chain is adapted to be passed around a post and to be linked into the sides of the double hook, and it is also equipped with a wire-engaging clamp 36, constructed similar to those heretofore described and designed for use when the wire stretcher is employed for drawing the ends of a broken wire together for splicing the same. When it is desired to splice the ends of broken wire, one of the ends of the wire is placed in the clamp 36 and the other end is secured to the clamp of one of the ratchet bars, and the device is operated by means of the ratchet mechanism to successively stretch the broken wire for drawing the ends of the same together.

The device may be increased in strength and weight to enable it to be employed for stretching woven wire fencing.

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

1. A wire stretcher including a guide composed of a piece of metal bent longitudinally to form two sides and a connecting portion, a longitudinal partition arranged within the guide in spaced relation with the sides and forming two ways, ratchet bars slidable in the ways and provided with wire-engaging means, an operating lever fulcrumed on the guide, pawls carried by the operating lever and arranged to engage the ratchet bars, and dogs mounted on the guide for engaging the ratchet bars.

2. A wire stretcher including a guide constructed of a single piece of sheet metal bent longitudinally at opposite sides of the center to form two sides, and a connecting bottom portion, a longitudinal partition arranged within the guide and dividing the same into two ways, transverse fastening devices piercing the sides of the guide and the partition, spacing sleeves arranged on the transverse fastening devices and interposed between the sides of the guide and the longitudinal partition, ratchet bars slidable in the ways and provided with wire-engaging means, an operating lever fulcrumed on the guide, pawls carried by the operating lever for engaging the ratchet bars, and dogs mounted on the guide for engaging said ratchet bars.

3. A wire stretcher including a guide composed of a piece of metal bent to form spaced sides, and a connecting bottom portion, said guide being provided at the opposite sides with depending flanges cut from the metal at the bottom of the guide, ratchet bars slidable in the bars and having wire-engaging means, a bearing plate secured to the bottom of the guide and having an eye, an operating lever having spaced sides receiving the guide, a fastening device piercing the sides of the operating lever and extending through the said flanges and the eye of the bearing plate, pawls mounted on the lever for engaging the ratchet bars, and dogs mounted on the guide for engaging the said ratchet bars.

4. A wire stretcher including a guide, a lever fulcrumed on the guide, a transverse

pivot carried by the lever, ratchet bars slidable in the guide, a pair of reversible dogs mounted at their inner ends on the said pivot and extending in opposite directions therefrom and provided at their outer ends with tapered diverging portions engaging the ratchet bars and forming projecting handles, and dogs mounted on the guide for engaging the ratchet bars.

5. A wire stretcher including a guide having opposite side walls and provided with a longitudinal partition spaced from the side walls, a lever fulcrumed on the guide, pawls carried by the lever and engaging the ratchet bars, a pair of dogs located in the guide at opposite sides of the partition and provided with upper and lower tapered portions, the lower portions engaging the ratchet bars below the upper edges of the side walls, and the upper portions forming projecting handles extending above the side walls, and a single pivot piercing both of the dogs and the side walls of the guide.

6. A wire stretcher including a guide having spaced sides, means operating in the guide for stretching a wire, and a double hook composed of spaced hook-shaped sides having inner shanks connected together and secured between the sides of the guide.

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

ELBERT B. ZIMMERMAN.

Witnesses:

EDWARD H. SCHRODER,
W. R. STRINE.