M. VAN B. HARRIS.

WIRE STRETCHER.

APPLICATION FILED OCT. 2, 1911.

1,054,542.

Patented Feb. 25, 1913.

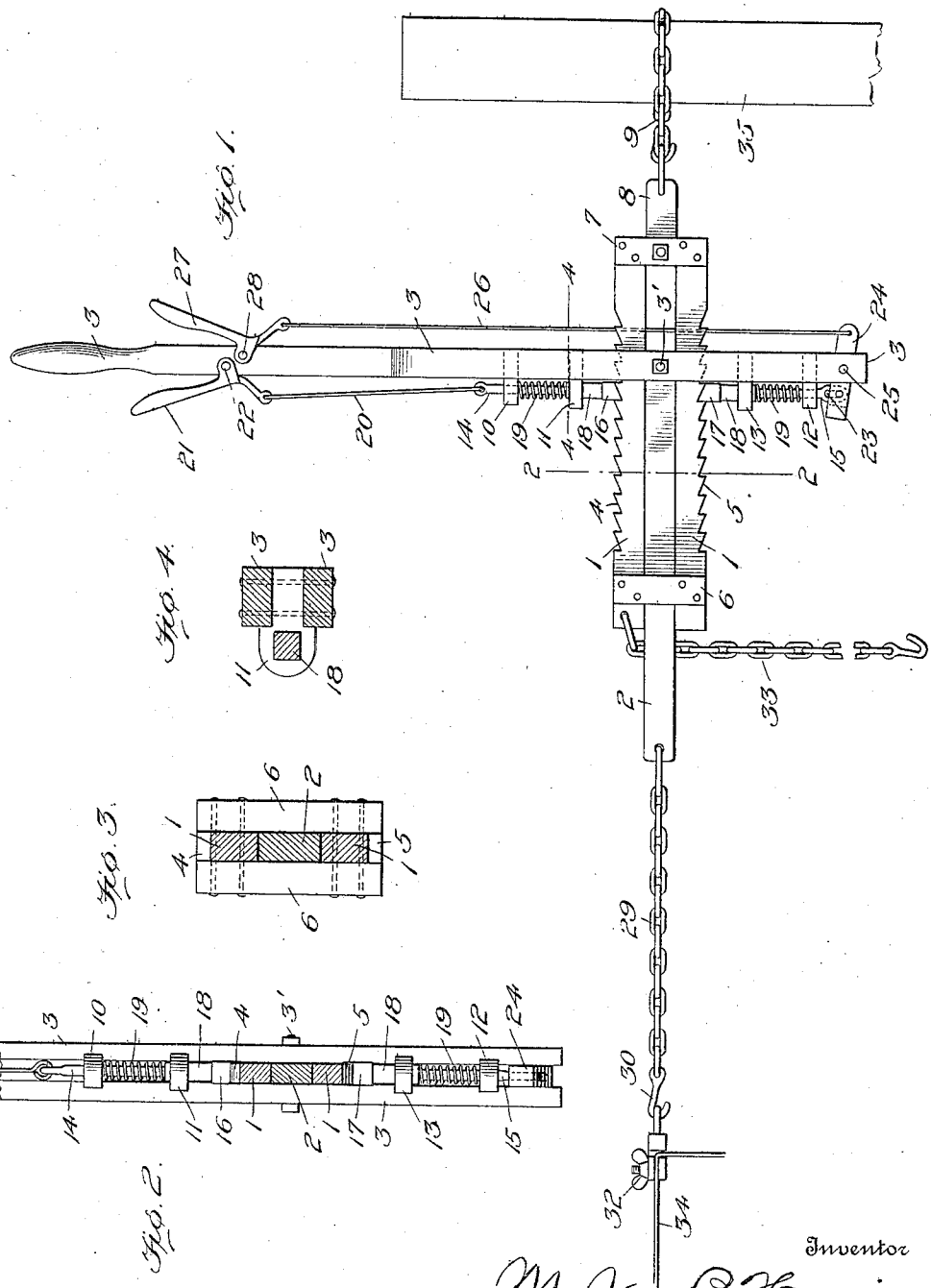

Fig. 1.

Fig. 4.

Fig. 3.

Fig. 2.

Witnesses

Edwin L. Bradford

G. P. Ritter

Inventor

M. Van B. Harris,

By

Wm. C. Dyer

Attorney

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MARTIN VAN BUREN HARRIS, OF BEARDSTOWN, TENNESSEE.

WIRE-STRETCHER.

1,054,542. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed October 2, 1911. Serial No. 652,415.

To all whom it may concern:

Be it known that I, MARTIN VAN BUREN HARRIS, a citizen of the United States, residing at Beardstown, in the county of Perry and State of Tennessee, 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.

My invention relates to wire stretchers, and has reference more particularly to improved apparatus for use in fence building.

It comprises in the main two slidably connected body members one within the other, a double rack upon the edges of said outer member, an operating lever pivotally connected to said intermediate slidable member the latter serving as a stretcher-bar, spring-pressed pawls carried by the operating lever for engaging said racks, finger levers for simultaneously disengaging both pawls by the single grasp of an operator's hand, a stretcher-chain or its equivalent for connecting the slidable stretcher-bar and the wire or wires to be operated upon, and a holding chain or its equivalent for temporarily connecting the other of said body members to the wire or wires while a new purchase is being taken by the stretching-chain.

The invention has for its object the production of a hand tool of the character described, which shall possess the combined qualities of strength, durability and effectiveness, and which is not likely to become deranged, but which, on the contrary, is always ready for instant use, and is most powerful in its action. It may be formed of any suitable material or materials, but by preference is most economically and durably constructed of wrought iron.

The invention will be hereinafter particularly described and pointed out in the claims following.

In the accompanying drawings which form part of this application, and whereon corresponding numerals indicate like parts in the several views: Figure 1 is a side elevation of the invention as assembled in operative position. Fig. 2 is a fragmentary view taken on the line 2—2 of Fig. 1 showing a portion of the operating lever in edge view. Fig. 3 is also a sectional view on the line 2—2 of Fig. 1, but looking in the opposite direction, and, Fig. 4 is a section on the line 4—4 of Fig. 1 looking down.

Reference being had to the drawings and numerals thereon, 1 and 2, respectively, indicate relatively slidable body members of the present invention, while 3 indicates an operating lever pivotally connected as at 3′ to one of said members, and adapted to slide them one within the other. In form the body member 1 is substantially rectangular having upper and lower parallel racks 4, 5 oppositely arranged and connected at front and back by side cleats 6 and 7, respectively. Between the latter cleats is bolted a clevis 8 provided with an anchor-chain 9, while between the front cleats 6 is reciprocally arranged the slidable stretching bar 2 or intermediate body member aforesaid. To the inner end of the latter is pivotally connected the bifurcated operating lever 3 which crosses both rack bars 4, 5, and is separated above and below by space blocks 10, 11, and 12, 13. These blocks all project from between, and to one side of, the forked portion of lever 3, as best shown by Fig. 1, and serve as suitable mountings for upper and lower reciprocating pawl-stems 14, 15, the inner ends whereof constitute pawls 16, 17 beveled to correspond with the pitch of the teeth of their respective rack-bars 4 and 5 which they normally engage. The inner ends of the pawl-stems 14 and 15 are squared as at 18, their bearings in blocks 11 and 13 being of corresponding shape to guard against rotation of the pawls, while the opposite end of each of said stems is preferably round in cross section and supported in corresponding bearings in the blocks 10 and 12.

Interposed between each pair of blocks 10, 11 and 12, 13, and surrounding the pawl-stems 14, 15 are springs 19, 19, which, resisted by the blocks 10 and 12, exert their force upon shoulders formed by the squared portions 18, 18 aforesaid, to normally force the pawls 16, 17 into engagement with the teeth of the rack bars 4 and 5.

From the upper end of the pawl stem 14 is projected a pull wire or rod 20 joined to a small finger-lever 21 pivotally connected as at 22 to the upper end of the operating lever 3 for purposes of withdrawing pawl 16 when it is desired so to do. The lower end of the other pawl-stem 15 is provided with a longitudinal slot 23 loosely connected to a short rock-lever 24 pivoted as at 25

between the lower extremities of the bifurcated operating lever 3 in such manner that the said pawl-stem may be reciprocated without affecting the lever 24. From the opposite end of said rock-lever 24 rises a second pull wire or rod 26 which like the rod 20 is controlled by a second finger lever 27 pivotally connected at 28 to the operating lever 3 near its upper end in a position substantially opposite that of the lever 21.

To the free end of the stretching bar 2 is attached a pull-chain 29 having a hooked terminal 30 for engaging a suitable wire-clamp such as 32, while in like manner secured to the end of the body member 1 is a similar chain 33 for use in temporarily holding a partially stretched wire while a fresh hold thereon is being taken by the chain 29 for further stretching it.

For purposes of describing one use and operation of the present invention a single strand of wire 34 is shown by Fig. 1 of the drawings, also the representation of a post 35 as a fixed point of anchorage for the stretcher when in service.

The foregoing being a description of my invention in its preferred form of construction, its use and operation as a wire stretcher for fence making may be briefly set forth as follows: The body portion or frame of the apparatus is first secured to a fixed point of attachment as to a post such as 35, by means of the anchor chain 9. A suitable clamp such as 32 for example, is next secured to the wire to be stretched, and the stretching or pull-chain 29 hooked thereto. A forward throw of the operating lever 3, in the direction of post 35, now causes said lever to fulcrum upon its lowermost pawl 17 held stationary by a tooth of the rack 5, the other of said pawls 16 traveling in the meantime over several teeth of its rack 4, also in the direction of post 35. As a consequence, the stretching bar 2, pivotally connected at 3′ to lever 3, is correspondingly advanced carrying with it the pull chain 29 and stretching the wire 34 to that extent. Thereupon a reverse throw of the said operating lever 3 causes the latter to fulcrum upon the pawl 16 resting against a tooth in its rack 4, the pawl 17 then moving as a ratchet over several teeth of its rack 5 in the direction of post 35, thereby subjecting the wire 34 to still further tension by agency of the aforesaid stretching bar and chain 2 and 29, respectively. If, as a result of the movement described of the stretching bar 2 from one end to the other of the frame or body member 1, the wire 34 has not been stretched to the required extent, a fresh hold is next taken by a clamp such as 32 (not shown) upon the wire under operation, at a point immediately beyond that occupied by the casing 32 shown by Fig. 1. Holding chain 33, projecting from frame 1, is next hooked into said second clamp; by this means the stretch of the wire 34 is maintained temporarily while the operator with one hand grasps both finger levers 21 and 27 to simultaneously withdraw both pawls 16 and 17 from their respective racks 4 and 5 by agency of intermediate connections made obvious by the drawings. In this relation of parts the operating lever 3 with all depending parts, including the stretching bar 2, are returned by the free hand of the operator to the extreme forward end of frame 1, or in the direction of the wire 34 to be further stretched. Chain 29 is thereupon again hooked in the clamp 32 as shown, and the stretching operation hereinbefore described repeated as often as may be necessary.

While the present invention is shown and described in connection with a single strand of wire 34, for example, it is self-evident that the apparatus would be equally effective as a stretcher in connection with wire fences of various structural shapes and configuration, also for stretching wires, cables, etc., used in telephone or telegraph service, and for any or all uses to which an apparatus of this character may be found applicable. It may further be noted that the peculiar arrangement of pawls 16 and 17 with their extended pawl-stems 14 and 15 respectively, arranged and adapted, as they are, to reciprocate longitudinally in a direction parallel with the longitudinal axis of the operating lever 3, insures an exceptionally strong and durable structure and action, each pawl-stem having a double bearing 10, 11 and 12, 13 by which the stretching strains of the implement are shared, instead of falling upon a single pawl-pin pivotally arranged as in the general run of such devices.

Having thus described my invention what I now claim and desire to secure by Letters Patent is:

1. A wire stretcher comprising in combination a body member having racks upon its opposite edges, a stretching-bar slidably interposed between said racks, an operating lever crossing said racks and slidable stretching-bar to which latter it is pivotally connected, spring pressed pawls engaging their respective racks on said body member having extended pawl-stems adapted to reciprocate longitudinally in a direction parallel with the longitudinal axis of the operating lever, finger levers oppositely positioned upon the operating lever, and connections between said finger levers and their respective pawls whereby the latter may be withdrawn individually or collectively.

2. A wire stretcher comprising in combination a body member having racks upon its opposite edges, a stretching-bar slidably interposed between said racks, an operating lever crossing said racks and slidable

stretching-bar to which latter it is pivotally connected, spring pressed pawls engaging their respective racks on said body member having extended pawl-stems adapted to reciprocate longitudinally in a direction parallel with the longitudinal axis of the operating lever, bearings for said pawl-stems projecting from said operating lever, finger levers oppositely positioned upon the operating lever, and connections between said finger levers and their respective pawls whereby the latter may be withdrawn individually or collectively.

3. A wire stretcher comprising in combination a body member having racks upon its opposite edges, a stretching-bar slidably interposed between said racks, a bifurcated operating lever crossing said racks and slidable stretching-bar to which latter it is pivotally connected, spring pressed pawls engaging their respective racks on said body member having extended pawl-stems adapted to reciprocate longitudinally in a direction parallel with the longitudinal axis of the operating lever, space blocks separating the two members of said bifurcated operating lever and projecting to one side thereof, bearings in the projecting portions of said space blocks for the valve-stems aforesaid, finger levers oppositely positioned upon the operating lever, and connections between said finger levers and their respective pawls whereby the latter may be withdrawn individually or collectively.

4. A wire stretcher comprising in combination a body member having racks upon its opposite edges, a stretching-bar slidably interposed between said racks, an operating lever crossing said racks and slidable stretching-bar to which latter it is pivotally connected, spring pressed pawls engaging their respective racks on said body member having extended pawl-stems adapted to reciprocate longitudinally in a direction parallel with the longitudinal axis of the operating lever and in an adjacent plane, bearings for each of said pawl-stems projecting from said operating lever, finger levers oppositely positioned upon the operating lever, and connections between said finger levers and their respective pawls whereby the latter may be withdrawn individually or collectively.

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

MARTIN VAN BUREN HARRIS.

Witnesses:

F. E. STANLEY,

his

JESSIE × CABLE,

mark

H. W. SHEPARD.