

No. 771,099.

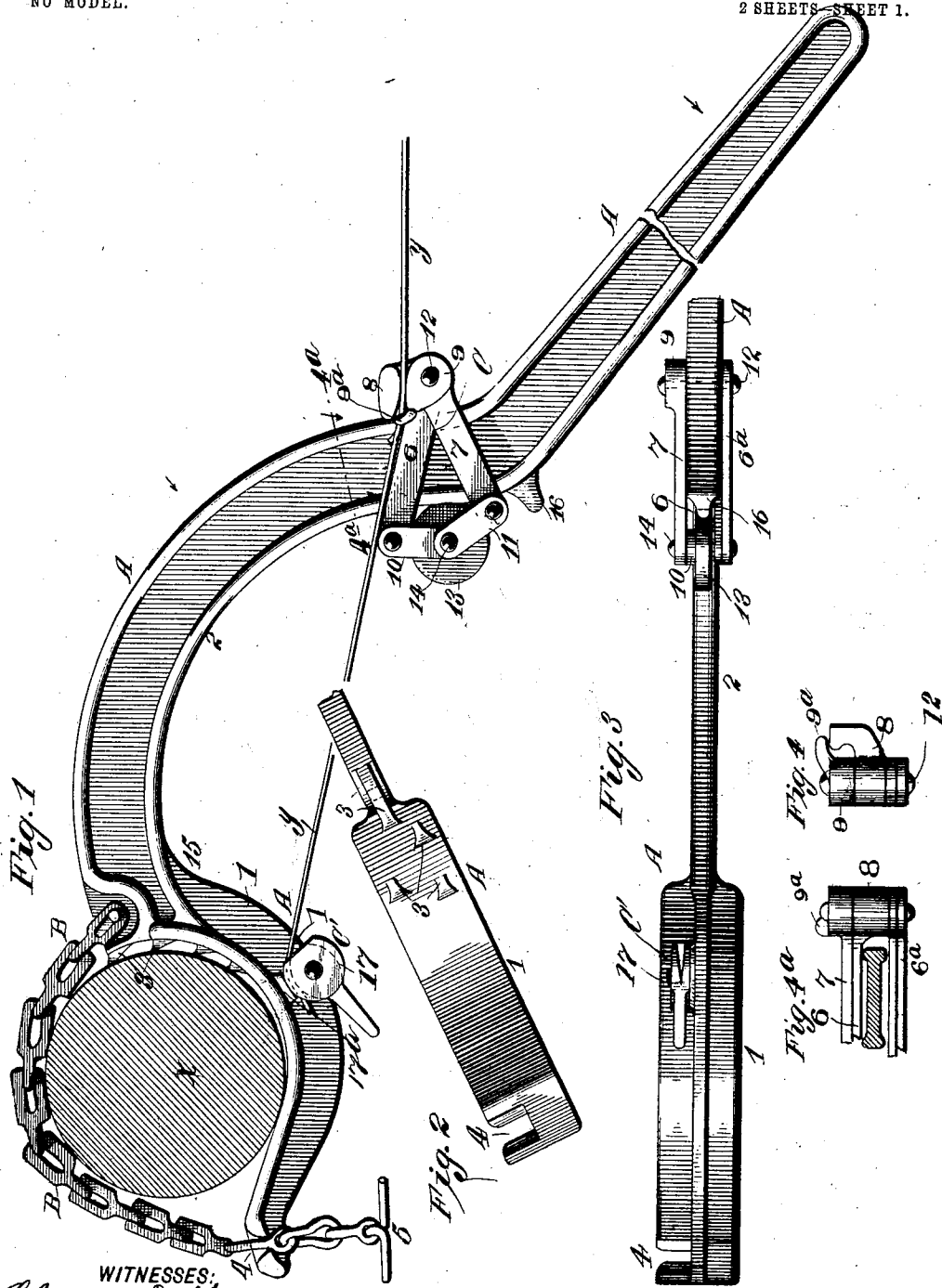
PATENTED SEPT. 27, 1904.

O. C. A. SCHWIEN.
WIRE STRETCHER.

APPLICATION FILED APR. 13, 1904.

NO MODEL.

2 SHEETS SHEET 1.



WITNESSES:
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Anna W. Hart

INVENTOR
Otto C. A. Schwien
BY *Munn & Co.*

ATTORNEYS

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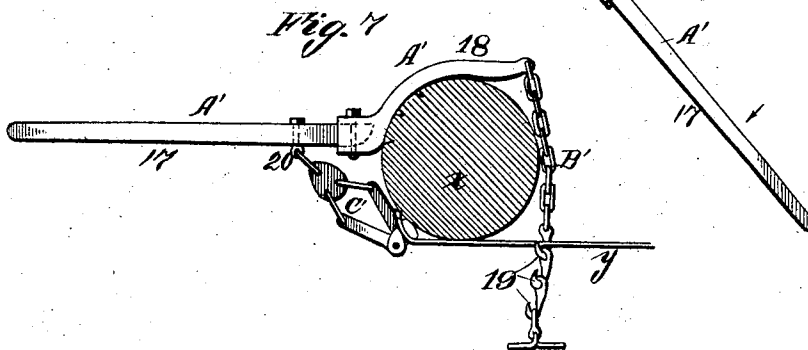
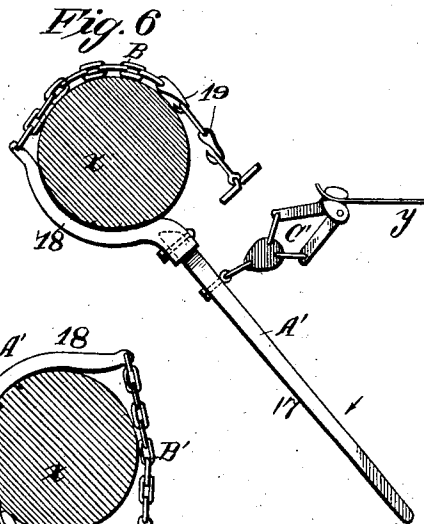
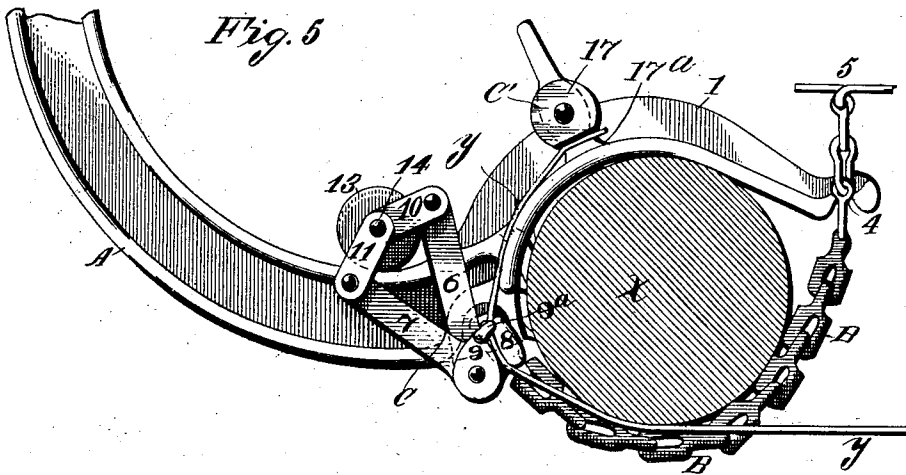
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2 SHEETS—SHEET 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

OTTO C. A. SCHWIEN, OF DAVENPORT, IOWA.

WIRE-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 771,099, dated September 27, 1904.

Application filed April 13, 1904. Serial No. 202,921. (No model.)

To all whom it may concern:

Be it known that I, OTTO C. A. SCHWIEN, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have made certain new and useful Improvements in Wire-Stretchers, of which the following is a specification.

My invention is an improvement in that class of wire-stretchers whose main feature is a lever having a curved portion adapted to engage or partly embrace a fixed post and provided with a wire-grip which is located at a point between the post and the handle or power end of the lever. In my invention a flexible tension device, preferably a chain, is employed, it being connected with the portion of the lever applied to the post and adapted for ready attachment and detachment, so that the apparatus as a whole may be quickly applied to and removed from the post.

A further improvement is the provision of teeth on the curved portion of the lever which engages the post, the same being so constructed and arranged as to bite the post when tension is applied to the wire, and thus aiding in locking the lever at any point in its adjustment or rotation around the post.

The invention further includes an improved automatic wire-grip, which is adapted to travel on a curved portion of the lever.

The invention further includes an improvement in the form and construction of the main portion of the body of the lever.

The details of construction, arrangement, and operation of parts are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is a plan view showing my improved wire-stretcher applied to a post and a wire connected with the automatic grip preparatory to stretching the wire. Fig. 2 is a plan view of the inner side of that portion of the lever which is adapted to engage the post. Fig. 3 is a plan view of the other side of the lever, the power end or handle portion being omitted. Fig. 4 is an end view of the grip, and Fig. 4^a is a cross-section on line 4^a of Fig. 1. Fig. 5 is a view showing the apparatus in the position occupied when the

wire has been fully stretched. Figs. 6 and 7 are views showing a modification.

I will first describe the invention as illustrated in Figs. 1 to 5. A indicates the lever, B the chain or flexible tension device, and C the automatic wire-grip. As shown in Fig. 1, the lever has two curved portions 1 2 and a straight or handle portion. The parts 1 and 2 are curved in reverse direction or oppositely, the first being adapted to partly embrace a post X and provided on its inner side with ratchet-teeth 3, which project in a direction opposite that in which the lever is moved when a wire is being stretched. (See arrows.) The chain B is permanently attached to the lever at the junction of the curved portions 1 and 2. The outer end of the part 1 is provided with a notch 4, adapted to receive the chain, but made of less width than the enlarged portions of the links of the chain, as indicated in Fig. 1. As shown, the notch 4 is open on the upper side, so that the chain B may be conveniently laid into the notch 4 or detached therefrom, as occasion requires. The outer end of the chain is provided with a handle 5 for convenience in manipulation of the same. The automatic grip C is composed of two pairs of levers 6, 7, and 6^a. The two levers 6 and 7 are arranged on one side of the handle or lever and the levers 6^a are arranged on the opposite side, the three sets of levers being pivotally connected at their ends. The levers 6 and 7 are provided, respectively, with enlarged heads 8 and 9, that serve as gripping-jaws for holding a wire Y, and two links 10 and 11, which are pivotally connected and also pivoted to the inner ends of the levers. The levers 6, 7, and 6^a are connected by a pivoting cross pin or bolt 12, and a roller 13 is mounted rotatably on the pivot 14, which connects the two sets of links 10 11, it being thus arranged between them and adapted to travel on the inner side of the curved portion 2 of the lever. The bars or levers 6^a being on the opposite side of the main lever from the levers 6 7 serve as means for holding the gripping-jaws and the roller 13 in due position. The automatic grip thus formed is adapted to travel on the curved portion 2 of

the lever A or between the points 15 and 16, the latter having a lug projecting at the junction of its parts 2 3. As shown in Figs. 1, 4, 5, the gripping-jaw 9 is provided with a hook or prong 9^a, which projects laterally and is thus adapted to extend over the wire Y when the jaws are closed and serves to prevent the wire coming out laterally in case it slips in the gripping-jaws. As shown in Fig. 4, the opposite jaw 8 is slightly undercut or recessed to accommodate the wire, which also conduces to safety against lateral escape of the wire. For the purpose of combining maximum lightness and strength I construct the body of the lever in I shape or substantially in the form of the well-known I-beam, and the curved portion 1 is also provided with lateral ribs adjacent to its inner side for the same purpose. It is sometimes desirable, especially when a very long length of wire is to be stretched, to provide a second wire-grip C', the same being attached to the back of the curved fulcrum portion 1 of the lever A, as shown in Figs. 1, 3, 5. It is composed of a pivoted lever having an enlarged cam-head 17, which is provided with a V-groove and coacts with a corresponding projection 17^a, formed integrally with the lever proper.

In the practical use of my invention the lever A is placed in position, as indicated in Fig. 1, the handle or power portion 2 3 being extended in the general direction in which the wire Y lies. The chain or other flexible tension device B is then drawn around the post and engaged with the notch 4 in the outer end of the lever. The gripping device C is then engaged with the wire Y, as indicated in Fig. 1, it being only necessary for this purpose to draw the wire between the grippers 8 and 9 and bring the latter firmly together thereon, when they automatically and firmly grip it by reason of the tension and the automatic action of the levers 6 and 7, whose inner ends are thereby brought nearer each other, as will be readily understood. Now by pressing upon the lever in the direction indicated by the arrows it is swept around the post X until it reaches the position indicated in Fig. 5—that is to say, until the tension on the wire Y indicates that it is fully stretched. The lever being then released retains its position by reason of its grip on the post X, which is mainly due to the engagement of the ratchet-teeth 3 therewith. The wire Y is then secured by staples or other means to the posts near or immediately adjacent to the post X, to which the lever is applied. The apparatus is then released from the wire and the post and carried forward and applied to another post and the stretching operation repeated.

When the first stretch of the wire has been effected and the wire is not drawn tight enough, its end is fastened by the second cam-grip C', and then the chain B, which passes around the post, is fastened and the lever A drawn

back to first position, when another grip is taken on the wire by means of the automatic device C, and thus another length or portion of the slack is taken up. The operation can be repeated as often as need be until the wire has been tightened to the required degree. In turning back the lever the wire is loosened from four to eight inches, according to the size of the post, and the strain comes on the second grip C' when the automatic grip lets go. The gain in taking up the wire each time the lever is pulled back is from eight to ten inches, so any length of wire can be taken up. The stretcher may also be employed for drawing the adjacent ends of the broken wire together so that it may be spliced, one end being fastened by the cam-grip C' and the other by the automatic grip C.

In Figs. 6 and 7 I show a modification in which the lever A' is made in two parts, the wooden handle portion being straight and fitted in a socket in the curved portion 18, which is applied to the post X, and the chain being provided near its free end with a series of hooks 19, which are adapted to engage the wire Y, as indicated in Fig. 7. The gripping device C is provided with gripping-jaws and toggle-levers, as before; but instead of being adapted to travel on the lever it is permanently connected therewith at a point 20, near the junction of the two parts 17 and 18. It will be seen that by the provision of the hooks 19 the chain may be engaged with the wire Y instead of with the end of the lever, as in Figs. 1 and 5. The result is practically the same and the lever is manipulated in the same way as before for the purpose of stretching the wire. It will be understood that one of the hooks is engaged with the wire Y while the same is quite slack.

By the construction and arrangement of parts before described I provide a simple, strong, and powerful apparatus which is capable of being handled and operated by one man in putting up wire fence.

What I claim is—

1. The improved fence-wire stretcher comprising a lever, a flexible tension device attached to one end of the same and adapted to pass around a post, a wire-grip connected with the lever at a point adjacent to its fulcrum end and adapted to slide thereon, substantially as described.

2. The improved fence-wire stretcher comprising a lever, a chain connected therewith and adapted to pass around a fence-post which serves as the fulcrum in the stretching operation, and an automatic wire-grip connected with the lever at a point between its handle and fulcrum end, and comprising jaws adapted for holding the wire and forming attachments of levers which are automatically brought together when power is applied to the lever, substantially as described.

3. The improved fence-wire stretcher com-

prising a lever having its inner end curved to adapt it for application to a post, and provided on the inner side of such curved portion with teeth adapted to engage the post, a chain which is connected with the fulcrum end of the lever and adapted to pass around the post, and an automatic grip adapted for holding the wire to be stretched, the same being applied to the lever near its fulcrum portion, substantially as described.

4. The improved fence-wire stretcher comprising a lever having two adjacent and reversely-curved portions, one of which is adapted for engaging the post, an automatic wire-grip adapted to travel on the curved portion adjacent to the fulcrum portion of the lever, and a flexible tension device pivoted to the lever at the junction of the two curved portions and adapted for engaging the inner end of the lever detachably, substantially as described.

5. In a fence-wire stretcher, the combination, with the lever having a curved portion adapted to engage the post and provided with a lateral notch in its inner end, of a flexible tension device which is connected with the lever at the inner end of such curved portion and adapted to pass around a fulcrum-post, the same being constructed with parts which are wider than the aforesaid notch, and with other adjacent portions which are narrower than the same, whereby the device is adapted for locking with and disengagement from the lever, in the manner described.

6. In a fence-wire stretcher, the combination, with a lever of an automatic wire-grip comprising levers pivoted together and having parts adapted to serve as gripping-jaws, and means for connecting the inner ends of said levers and retaining the grip in connection

with the lever so that it may slide thereon, substantially as described.

7. In a fence-wire stretcher, the combination, with a lever adapted for application to a fulcrum, of an automatic wire-grip comprising levers having jaws, one of which is provided with a lateral extension adapted to pass over the wire when the same is gripped, and means for connecting the inner ends of the levers and applying traction and also connecting the said levers with the main lever, substantially as described.

8. In a fence-wire stretcher, the combination, with a lever, of the automatic wire-grip comprising levers having grip-jaws and pivoted together, links connecting the inner ends of the levers, and a roller journaled on the connecting-pivot of said links and adapted to travel on the lever, substantially as described.

9. In a fence-wire stretcher, the combination, with a lever having a curved fulcrum portion adapted to engage a post a cam wire-grip fixed on the outer side of such curved portion, and an automatic wire-grip applied to the adjacent portion of the lever and adapted to slide thereon, substantially as described.

10. In a fence-wire stretcher, the combination, with a lever, having a fulcrum portion adapted to engage a post, and an adjacent portion which is curved reversely and provided with a stop as described, of the automatic wire-grip comprising levers having jaws adapted to hold a wire, and means for securing the levers to such curved portion of the main lever and to travel thereon, substantially as described.

OTTO C. A. SCHWIEN.

Witnesses:

Fritz Gottsch,
H. LANTAN.