J. G. ECKHART & H. M. FISHER.

STRETCHING DEVICE.

APPLICATION FILED DEC. 23, 1908.

952,241.

Patented Mar. 15, 1910.

FIG. 1.

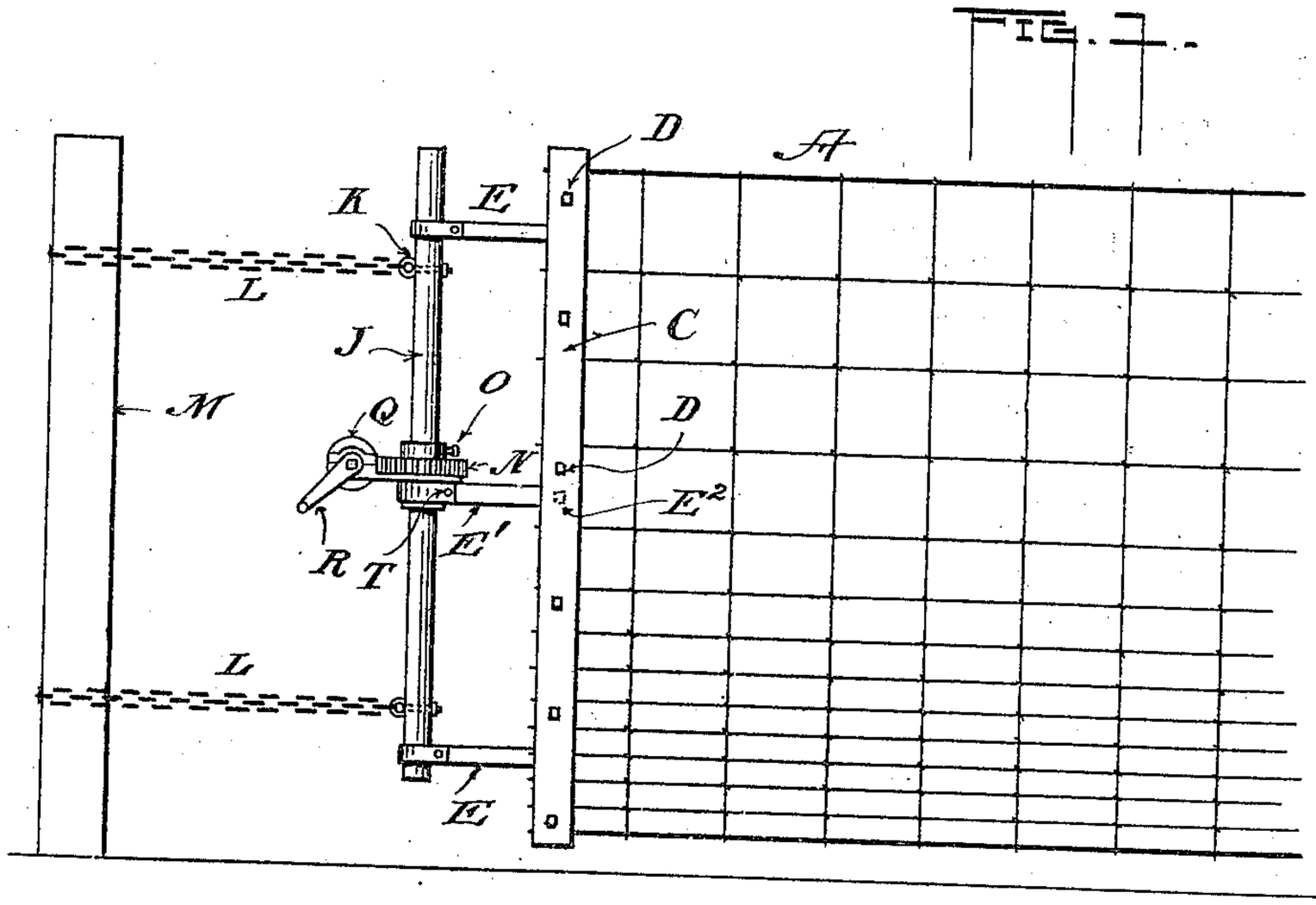


FIG. 2.

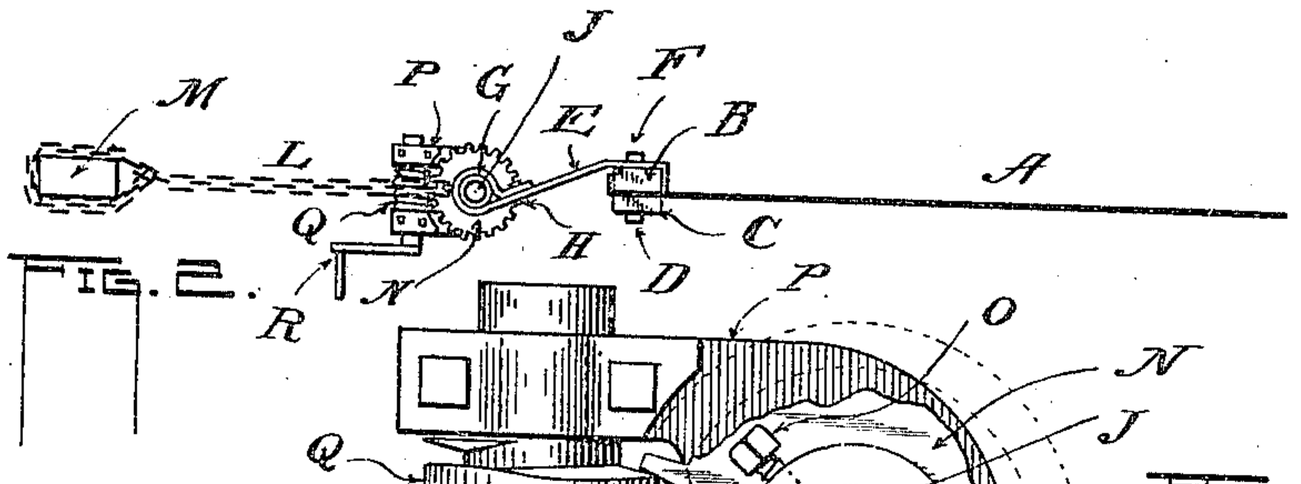


FIG. 3.

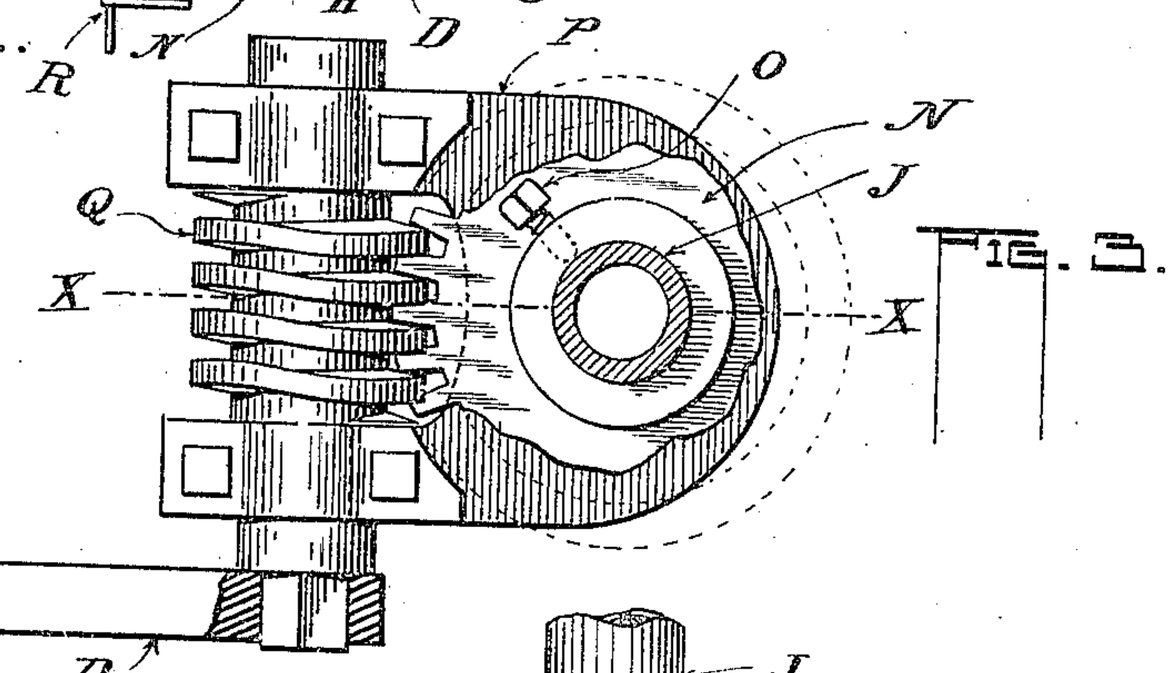
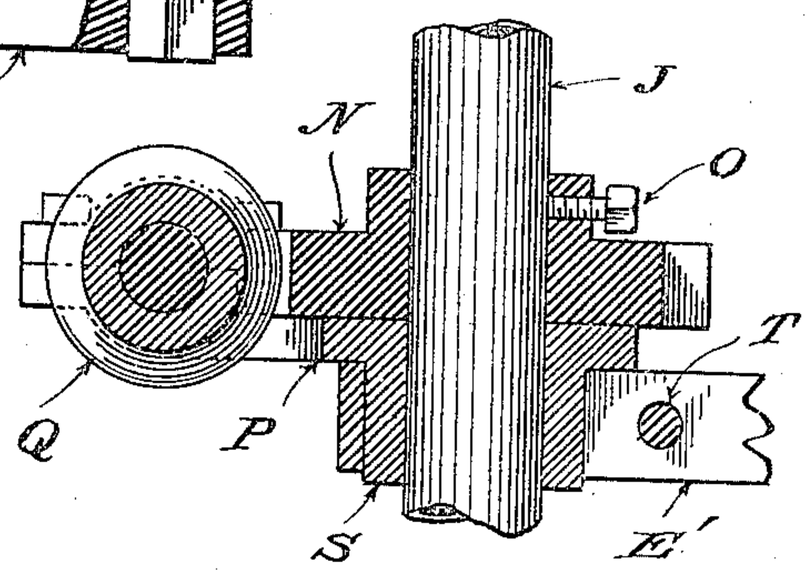


FIG. 4.



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UNITED STATES PATENT OFFICE.

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STRETCHING DEVICE.

952,241. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed December 23, 1908. Serial No. 468,909.

To all whom it may concern:

Be it known that we, JOHN G. ECKHART and HARRY M. FISHER, citizens of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Stretching Devices; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a wire stretching device and pertains more particularly to a device for stretching wire fencing but can be adapted for other uses where means for taking up slack in any flexible member can be utilized to advantage.

The invention also relates to a revoluble member to which any means to be tightened is connected, and on which, also, means is adapted to wind and which in winding causes the first said means to be stretched; there being included a driven and a driving device by which the winding operation may be accomplished. In the present instance the said revoluble member has in connection therewith a fence to be stretched.

To the end that the invention may be clearly understood I have provided the accompanying drawing, in which—

Figure 1 is an elevation of a portion of a wire fence and a post showing my stretcher in connection with both. Fig. 2 is a plan of the same. Fig. 3 is a plan of part of the operating portions of the invention and Fig. 4 is a vertical section of the same on line *x x*.

A indicates the fence to be stretched. Preferably a suitable clamp is provided for holding the ends of the wires of which the fence is composed and as an example of such a clamp I have shown in the drawing a bar B upon which the ends of the said wires are placed and have also shown a bar C to be placed thereon and clamped to it by means of bolts D so that the wire will be firmly and positively held. Secured to the clamp thus provided, near each end, is an arm E, as, for instance, by means of bolts F. The ends of the arms extend laterally from the clamp and are bent upon themselves to form the loops G, Fig. 2, to constitute bearings for a revoluble member to be described presently, their extremities being secured, as for instance, by means of bolts H this being clearly shown in Fig. 2. A rod or pipe indicated by J is provided its extremities being held in the loops G of the arms E just described. Extending through the member J near each extremity is an eye-bolt K or similar device to each of which is attached one end of a chain L or other suitable like member the opposite end of each of which is looped around or otherwise secured to a fixed or stationary member as, for instance, a post M. It will be observed that if the member J were turned on its axis the chains L would be wrapped around it with the result that the fence A would be drawn in the direction of the post. Some means must be provided by which this may be done and such a means I have shown in the drawing. A worm wheel N is secured to the member J in any suitable manner so as to turn the latter there being shown a set screw O for this purpose but other means may be used in lieu thereof. Adjacent to said worm wheel is a member P having two extremities in which a worm Q is carried to mesh with the worm-wheel and adapted for driving the same there being suitable provision for preventing movement of the worm longitudinally and a crank R is provided for the worm but other equivalent means may be used for operating the latter. The under side of the member P is provided with a boss S through which the member J extends, and a clamping arm E′ similar to the arms E is provided one end having attachment to the bar B before described, as by means of a bolt E^2 indicated in broken lines in Fig. 1 the opposite end serving to support the member P in position adjacent to the worm-wheel and to prevent said member from turning being clamped upon said boss S by a bolt T the form of clamp being similar to that shown in Fig. 2 at G. We have not entered into detail as to the manner of carrying the worm in the member P nor as to the relation existing between the worm-wheel and the said member and with regard to the latter it is only necessary that the worm-wheel be properly centered with relation to the worm so that the proper driving relation will exist. A mechanism of this form readily provides

for producing great power in the hands of an operator so that the fence can be stretched to the desired extent and in addition thereto the worm provides for holding the worm-wheel in any position it may be left so that the fence after having been tightened to the desired degree cannot relax.

As a matter of fact we do not confine ourselves to the exact construction or arrangement of parts described herein used for carrying the worm and worm-wheel since other arrangements may be employed that will serve in the same capacity.

The device herein described is distinguished by its simple construction as to the few parts entering thereinto and the ease by which it may be applied to a fence or other member to be stretched. By having the rotatable shaft J of a length substantially equal to the height of the fence we are enabled to attach the arms E, in which the shaft has its bearings, near the top and bottom and at the middle of the fence portion or its clamp B, C, so that the pull or strain is distributed evenly to all the longitudinal wires of the fence. Also by attaching the two chains L to the post M or other fixture, one above and one below, to be close to the ends of the shaft, and to the upper and lower arms E, the pull is evenly distributed upon the shaft. By such an arrangement the fence being stretched is drawn in a perfectly straight line toward the post the clamp being maintained in a perfectly vertical position, there being no chance for the fence to become twisted, buckled or to sag as occurs in a device using but a single chain pulling at the middle of the fence. As the pull is evenly distributed by means of the said chains L and the arm E better results are therefore obtained and no uneven strain on any part of the arrangement can result. Our device in addition to these advantages is of light weight, is compact in form and can be transported in a very small compact bundle and is distinguished by a worm wheel carried upon a single shaft preferably at the middle of the length thereof, and a worm to engage the worm-wheel supported upon the fence-clamping-members.

Having thus described our invention, we claim:—

1. In a fence stretching device the combination with the fence to be stretched, of a member to clamp and hold the same, a stationary member, a shaft interposed between the members, a device attached to one of the members near each end to carry the shaft, means attached to the other of the members near each end and adapted to wind upon the shaft, said device and said means being also interposed between and directly pulling upon both members in opposite directions through said shaft, a worm-wheel carried by the shaft, a worm to engage the worm-wheel, and a support carried by one of the said devices to carry the worm.

2. In a fence stretching device the combination with the fence to be stretched, of a member to clamp and hold the same, a stationary member, a shaft interposed between the two members, arms attached to one of the members to carry the shaft, a device attached to the other of the members and adapted to wind upon the shaft, said device and said arms being also interposed between and directly pulling upon both members in opposite directions through said shaft, a worm wheel carried by the shaft, and a worm carried by one of the arms to engage the worm-wheel.

3. In a fence stretching device the combination with the fence to be stretched, of a member to clamp and hold the same, a stationary member, a shaft interposed between the two members, a device attached to one of the members near each end, and one at the middle of its length to carry the shaft, means attached to the other of said members and adapted to wind upon the shaft, a worm-wheel carried by the shaft, and a worm carried by one of the said devices to engage the worm-wheel.

4. In a fence stretching device the combination with a fence to be stretched, of a clamping-member detachably secured to the fence, a stationary member, a vertically disposed shaft substantially equal in length to the height of the fence, an arm attached to and near the top and bottom of the clamping-member to carry the shaft and forming bearings for the same, a device attached to and near each end of the said shaft and adapted to wind thereon and attached to the stationary member, a worm-wheel secured on the shaft, a worm to engage and drive the worm-wheel, and means carried by the clamping-member to carry said worm.

5. In a fence stretching device the combination with the fence to be stretched, of a clamp comprising two members to inclose the wires of the fence, means to clamp the members thereon, a post, a vertically disposed shaft interposed between the clamp and the post, the same extending substantially the full height of the fence, an arm secured near each extremity to one of the clamping members to carry the shaft, and in which said shaft is adapted to turn, separate means attached near each end of the shaft and adapted to wind thereon, their other ends being attached to the post, a worm wheel secured on the shaft, a worm in driving engagement therewith, and means carried by one of the members of the clamp to carry said worm.

6. A fence stretching device comprising a member constructed to clamp and hold a fence, arms attached to said member one near each end and a shaft journaled in two of said arms, means arranged to wind upon the shaft adapted when in use to be attached to a stationary member near each end, said arms and said means being also interposed, in use, between and directly pulling upon both members in opposite directions through said shaft, and an operating gear connected between said shaft and one of said arms.

In testimony whereof we affix our signatures, in presence of two witnesses.

JOHN G. ECKHART.
HARRY M. FISHER.

Witnesses:
L. M. THURLOW,
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