

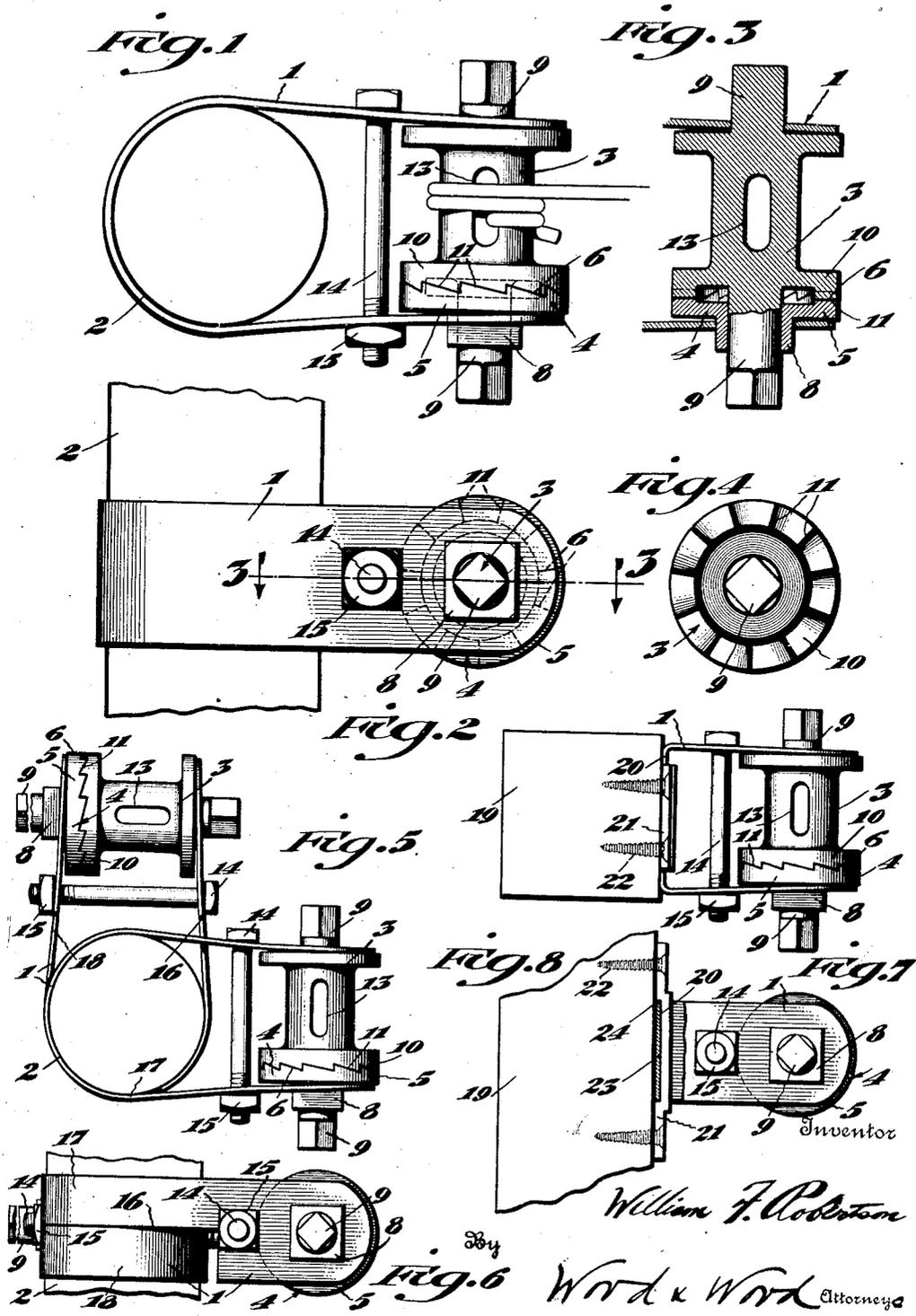
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WIRE STRETCHER

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UNITED STATES PATENT OFFICE

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WIRE STRETCHER

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This invention relates to wire tightening devices. It is particularly directed to an attachment device adapted to be affixed to posts of any sort for taking up and pulling taut, wires or cables extending therebetween.

It is an object of this invention to provide a tightening device of this nature in which a wire winding spool or reel is normally, positively held against backward or wire loosening movement and whereby upon any slight amount of tightening, backward movement of the spool is automatically and immediately prevented.

Another object is to provide devices of this nature in which the frames may be disposed around the post as the anchorage for the devices and in the mounting of which a pair of devices may be superimposed in mated anchorage position for disposing wires extending from the posts at various angles in the same plane.

Still another object is to provide a means for permanently setting the spool in locked position after a wire or cable has been suitably drawn up.

Another object is to provide a body or frame for the device having inherent spring characteristics for forcing together ratchet elements as automatic setting means for the spool.

Another object is to provide a device which may be attached to and used in combination with any shaped post.

Another object is to provide a conveniently operated wire stretcher of simple construction held in assembly by the spring characteristics inherent in the frame of the device and in which the spool can be rotated from either side of the device.

Other objects and certain advantages will be more fully set forth in a description of the accompanying drawings, forming a part of this specification, in which:

Figure 1 is a top plan view of the wire tightening device showing it mounted on a circular post.

Figure 2 is a side elevation of Figure 1.

Figure 3 is a sectional view taken on line 3-3, Figure 2, detailing the journaling of

the spool and the ratchet arrangement at one end thereof.

Figure 4 is an end view of the spindle showing the teeth thereof.

Figure 5 is a top plan view showing a pair of the devices superimposed and mated on a circular post for stretching wires disposed at different angles from the post in the same plane.

Figure 6 is a side elevation of Figure 5 showing the notched construction of the frames of the devices for permitting the disposition of the wires in the same plane.

Figure 7 is a top plan view showing a modified type of frame for the device, attached to a square post.

Figure 8 is a side elevation of Figure 7 taken part in section, to show the manner of securing the frame to the post.

Referring to the drawings, the body or attaching frame 1 of the device is illustrated as U-shaped, the bight of the U being adapted to surround the circular post indicated at 2. The winding spool 3 is mounted at the outer end of the U-shaped frame, being rotatably journaled in and traversing the arms of the U-shaped frame. A ratchet element 4 concentrically associated with the spool, is mounted for engagement with one end of the spool. The ratchet element comprises a circular flange 5, having closely arranged teeth 6 concentrically disposed on its inner face side and a squared hub 8 extending from its outer side and engaged in a squared orifice in the arm of the U-shaped frame. The spool 3 has bearing spindles 9 extending outwardly from each end thereof. The spindle 9 at the opposite end of the spool from the ratchet element is rotatably journaled in an arm of the U-shaped frame whereas the opposing spindle is rotatably journaled within a central bore formed in the ratchet element and extends out beyond the outer end of the ratchet element hub. Thus the spool is rotatably journaled at both ends and has its respective spindles squared at their outer ends for engagement by a wrench or any other suitable gripping means for rotating the spool. The outer face of the flange 10 of the spool adjacent the teeth of the ratchet element is

provided with teeth 11 concentrically arranged around the margin of the flange and adapted to mate and register with the teeth of the ratchet.

5 The frame of the device is formed to provide spring action, it being necessary to force apart the ends of the frame to insert the spool and ratchet element therein. This spring tension on the outer end of the spool and upon
10 the outer face of the ratchet element engaging against the other end of the spool is a means for causing the respective teeth to register sharply and positively.

An elongated aperture 13 is provided in the
15 reduced portion of the spool, this aperture being diametrically disposed therethrough. In practice the wire or cable which the operator desires to draw up has its end inserted through this aperture and the spool is there-
20 upon rotated in a tightening direction for reeling the wire or cable about the spool. As the spool is moved in relation to the stationary ratchet element, the arms of the U-shaped frame are spread apart against
25 spring tension and immediately upon the rotation of the spool the length of a tooth, all teeth are again engaged. The teeth are formed comparatively short in length so that the slightest take-up of the wire around the
30 spool is immediately held by the ratchet. In order that the spool may be permanently set after taking up the slack in the wire a bolt 14 is provided for accomplishing a permanent setting. This bolt traverses the arms of the
35 U-shaped frame at a point intermediate of the reel and post, and when the nut 15 is drawn up sufficiently any possible spreading of the arms of the U-shaped frame is prevented.

40 The frame of the device is formed substantially a width equal to the diameter of the flange of the spool, this providing engagement of the arms with the spool and ratchet outer
45 faces over a fairly large area. As herein-after described, and as shown in Figures 5 and 6, provision has been made, where the device is being used on an intermediate post or a corner post, for disposing the wires extending to the post in the same plane. In
50 order to provide for this, half the width of the bight of the U-shaped frame is cut away, as at 16. When two of the devices are thus used together the lower half of the upper device 17 is cut away and the upper half of
55 the lower 18 is cut away in a similar manner, so that when superimposed on the base, the centers of the respective spools or reels are in the same plane and the wires being drawn
60 up will obviously be in the same plane. With a pair of devices thus notched out it is possible to dispose the wires extending up to the post to which the devices are attached at any desired angle, this being of especial value
65 where the wires are being drawn up to a cor-

ner post or to posts as a part of the fencing of an irregular lot.

As illustrated in Figures 7 and 8 the frame 1 instead of being semi-circular at its attaching
70 end, may be squared for attachment to the side of a square post 19, this squared end being indicated at 20. An attaching plate 21 is vertically disposed on the post and held
75 thereto by screws 22, this plate disposed across the squared end of the frame for anchoring the same. The plate at its rear surface may be indented or notched out the thickness of
80 the metal of the frame, as at 23, the shoulders 24 of the notched portion engaging the upper and lower edges of the frame, preventing twisting of the same with the attaching faces
85 of the plate lying flat against the post for a more rigid mooring.

Having described my invention, I claim:

1. A tightening device, comprising, a U-
85 shaped frame, a ratchet element non-rotatably mounted in the outer end of one arm of the U-shaped frame, a spool having trunnions journaled within the ratchet element and the
90 other arm of the U-shaped frame, concentrically disposed registering teeth formed on the respective adjacent faces of the spool and the ratchet element for preventing unwinding rotation
95 of the spool, and the U-shaped frame having inherent spring tension therein compressing the arms thereof against the outer face of the spool and the outer face of the ratchet element for providing spring locking
100 engagement of the teeth.

2. A tightening device, comprising, a U-
100 shaped attaching frame, a spool journaled between the outer ends of the arms of the U-shaped frame, and a ratchet engaging one end of the spool for controlling rotation of the
105 spool, the frame having inherent spring tension therein for compressing its respective arms against the spool end and the ratchet for operating the ratchet.

3. A tightening device for drawing up a
110 wire to a post, comprising a U-shaped frame, the bight of the U-shaped frame adapted to be secured to the post, a spool journaled for winding rotation in said frame, a ratchet for controlling said spool, the arms of the U-
115 shaped frame under inward spring tension for operating the ratchet, and a draw bolt traversing the arms of the U-shaped frame intermediate of the spool and the post for setting the spool in permanent position by preventing ratchet operation.

4. A tightening device for drawing up a
120 plurality of wires to a post from various angles in the same plane, comprising, U-shaped frames, surrounding the post in superimposed
125 relation, the bights of the U-shaped frames half notched out across the widths thereof from adjacent sides, for a nesting engagement, and means mounted at the outer ends of the arms for drawing up and maintaining the wires in taut condition.

5 5. A tightening device for drawing up a plurality of wires to a post at various angles in the same plane, comprising, U-shaped frames, the bights of the U-shaped frames notched out so as to dispose the frames in the same plane in superimposed relation, and ratchet controlled winding spools journalled in the outer ends of the arms for drawing up and maintaining the wires in taut condition.

10 6. A tightening device, comprising, a U-shaped frame, a spool journalled in the outer ends of the arms of the U-shaped frame, teeth formed on the end face of said spool, a ratchet element non-rotatably secured in one arm of the U-shaped frame and adapted to engage the teeth of the spool for preventing unwinding rotation thereof, the arms of said U-shaped frame compressing respectively against the end of the spool and the ratchet element for operating the ratchet, and the bight of the U-shaped frame half notched out across its width, adapting the same for inter-engagement with the frame of another device similarly notched out for disposing the associated devices in the same plane.

15 20 25 7. A tightening device, comprising, a frame, a ratchet element non-rotatably mounted in said frame, a spool journalled within the ratchet element and the frame, and the respective adjacent faces of the spool and the ratchet element having concentrically disposed registering teeth formed thereon for preventing unwinding rotation of the spool, said frame under spring tension acting against the spool and the ratchet element for providing spring locking engagement of the teeth.

In witness whereof, I hereunto subscribe my name.

40 WILLIAM F. ROBERTSON.

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