April 28, 1959 D. FORD 2,884,225

FENCE STRETCHER

Filed March 20, 1957 2 Sheets-Sheet 1

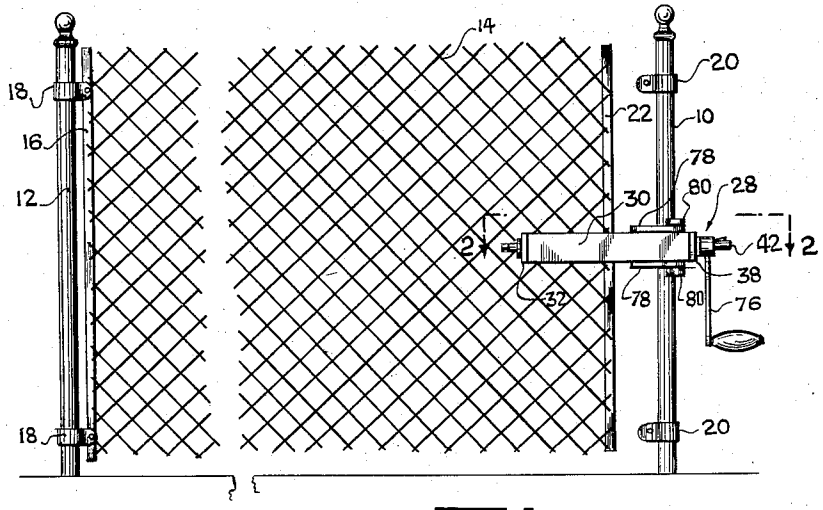


Fig. 1.

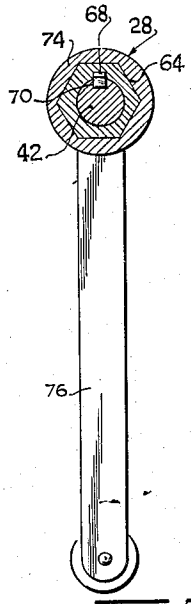


Fig. 5.

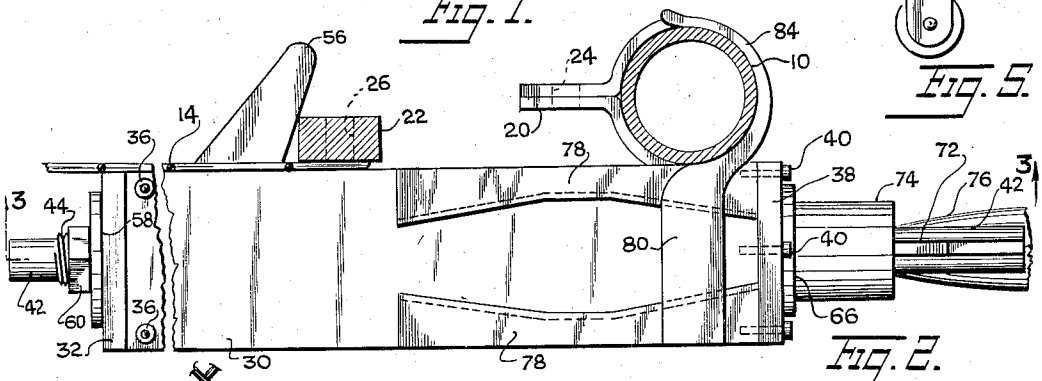


Fig. 2.

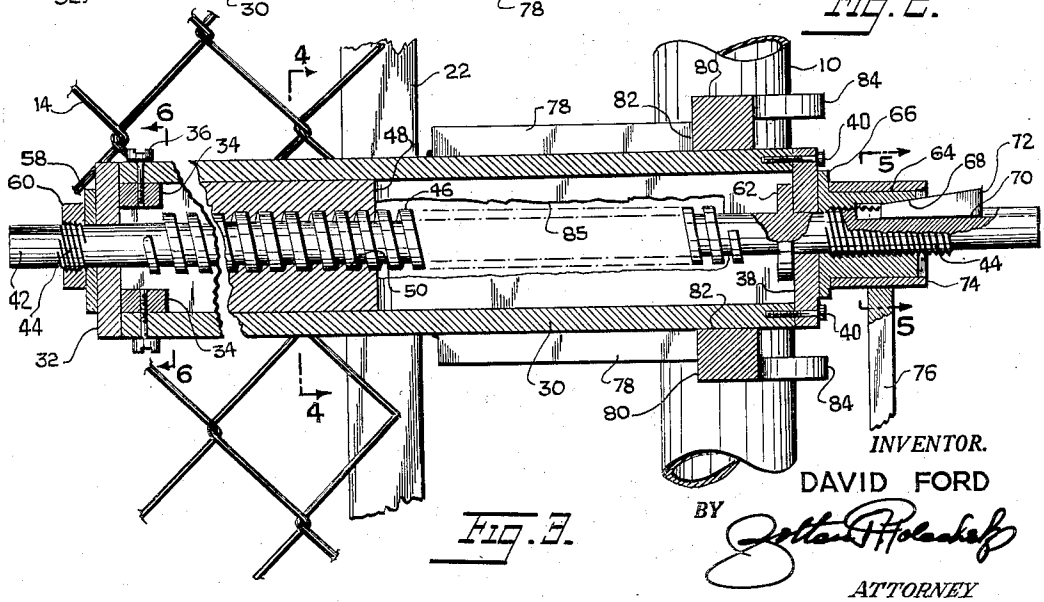


Fig. 3.

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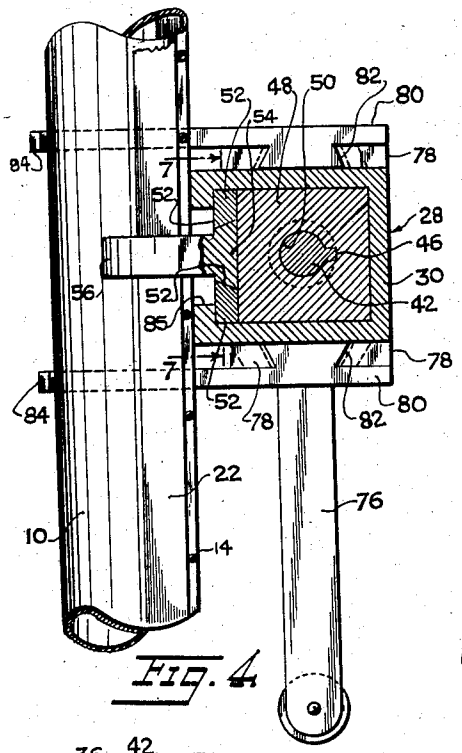


Fig. 4

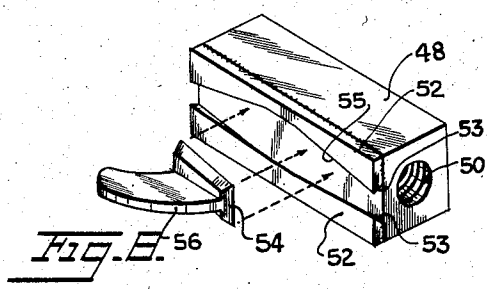


Fig. 8

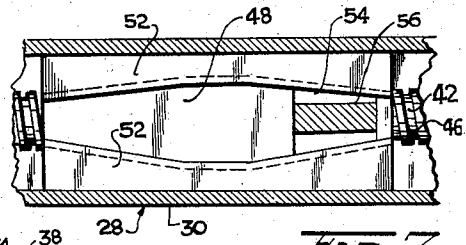


Fig. 7

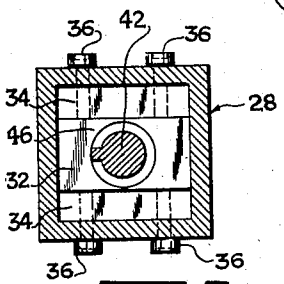


Fig. 6

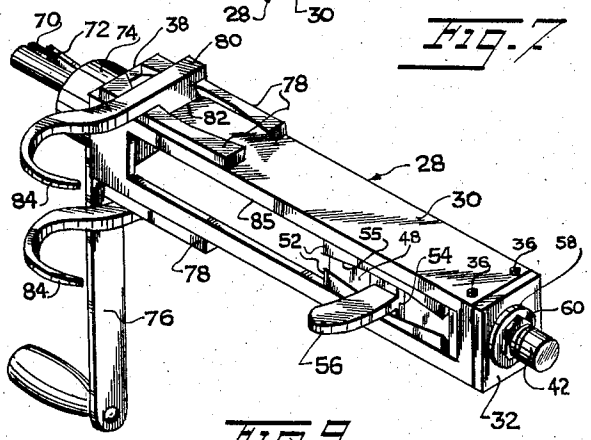


Fig. 9

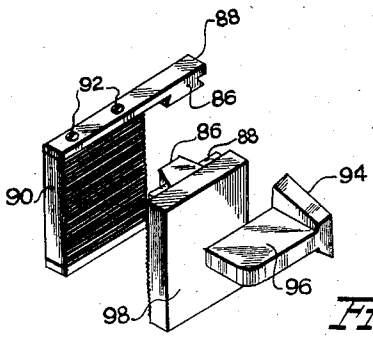


Fig. 10

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2,884,225

FENCE STRETCHER

David Ford, Jamaica, N.Y.

Application March 20, 1957, Serial No. 647,228

1 Claim. (Cl. 254—67)

This invention relates to devices for stretching wire or chain link fencing. More particularly, the invention has regard to a device so designed as to engage a stretcher bar connected to one end of a length of wire fencing, with the device being adapted to also engage an adjacent post to which the stretcher bar is to be connected following stretching or tensioning of the fence wire.

The device, summarized briefly, includes a removable means engageable about the post and mounted upon an elongated, tubular casing. Rotatable in the casing is a screw, adapted to be turned by a hand crank or by a power device such as an electric motor. A follower block is engaged with the screw or threaded shaft, and includes a removable arm or finger adapted to project laterally from the casing for engagement with the fence stretcher bar. On rotation of the shaft, the follower block is shifted longitudinally of and within the casing, two tension the fence wire and shift the stretcher bar to a position in which it can be connected to the post.

One important object is to provide a device of the character stated that will be adapted to be swiftly engaged with a fence post and stretcher bar, and operated with maximum speed and ease for the purpose of tensioning the wire.

Another object is to provide removable elements on the device engageable with the post and stretcher bar respectively. In accordance with the invention, said elements can be selected according to the particular type of fencing to be stretched, and according also, to the particular type of fence post. In this way, the device is universally usable for stretching wire fencing, regardless of the type of fencing or the type of fence posts on which the wire fencing is to be mounted.

Another object is to provide, in a device of the character stated, a construction such that not only can the device be utilized for stretching fencing, but also, can be utilized as a work clamp for bench or field use, or for any other purposes in which work is adapted to be performed by shifting relatively movable, work-engaging elements toward or away from each other.

Another object is to provide a particularly improved construction for a device of the character stated, such that the shaft can be rotated with maximum ease and speed, while still being adapted to apply a heavy pulling force to the wire being stretched. In this way, it is proposed to adapt the device for both light and heavy duty use, thus increasing measurably the various uses to which the device can be advantageously put.

Still another object is to so form the device that the assembly or disassembly thereof can be effected with a minimum amount of difficulty and expense. In this way, it is proposed to not only reduce the cost of manufacture of the device, but further, facilitate its maintenance and repair by the user thereof.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings,

and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is an elevational view showing the device applied to a fence that is being stretched, the fence being illustrated only fragmentarily.

Fig. 2 is an enlarged view substantially on line 2—2 of Fig. 1, the device being illustrated in top plan, portions of the device being broken away.

Fig. 3 is a longitudinal sectional view on the same scale as Fig. 2, taken substantially on line 3—3 of Fig. 2.

Fig. 4 is a transverse sectional view on the same scale as Fig. 3, taken substantially on line 4—4 of Fig. 3.

Fig. 5 is a transverse sectional view on the same scale as Fig. 3 taken substantially on line 5—5 of Fig. 3.

Fig. 6 is a transverse sectional view on the same scale as Fig. 3, taken substantially on line 6—6 of Fig. 3.

Fig. 7 is a fragmentary longitudinal sectional view on the same scale as Fig. 4, taken substantially on line 7—7 of Fig. 4.

Fig. 8 is an exploded perspective view, still further enlarged, of the follower block and the removable stretcher-bar-engaging element.

Fig. 9 is a perspective view on the same scale as Fig. 8, of the stretching device per se.

Fig. 10 is an exploded perspective view showing other removable elements mountable on the block for adapting the same for use as a work clamp.

Referring to the drawings in detail, designated at **10** is a fence post. Spaced from post **10** is a post **12**, while between the fence posts there extends a length of wire fencing, such as chain link fencing, designated at **14** and connected at one end to a support bar **16** connected by clamps **18** to the post **12**.

Carried by the post **10** are clamps **20**, and connected to the other end of the fencing **14** is a stretcher bar **22**. Referring to Fig. 2, clamps **20** have openings **24** while the stretcher bar has openings **26** registrable with the openings **24** to receive bolts or equivalent fastening elements, not shown.

The stretcher constituting the present invention has been generally designated at **28** and is used for shifting the stretcher bar **22** toward post **10**. This stretches or tensions the wire fencing **14** and when the openings **24, 26** are brought into registration, the chain link fencing will have been fully tensioned, so that it thereafter becomes merely necessary to extend bolts through the registered openings to complete the tensioning of the fencing and the connection of the same between the posts **10, 12**.

The stretcher **28** includes an elongated, hollow casing **30** of rectangular cross section, formed open at its opposite ends. At one end, the casing is closed by an end plate **32** the inner surface of which is integral or otherwise made rigid with parallel connecting bars **34** (Fig. 3), having threaded openings receiving screws **36** that extend through smooth-walled openings formed in opposite side walls of casing **30**, thus to fixedly connect end plate **32** to the casing.

At its other end the casing **30** is closed by an end plate **38**, having a peripheral series of smooth-walled openings receiving screws **40** threadable into end recesses formed in the casing **30**.

An elongated shaft **42** is formed adjacent its opposite ends with threads **44**. Within the casing the shaft **42** has coarse threads **46**. The shaft extends through openings formed in the end plates **32, 38** and is adapted to be rotated for the purpose of shifting a follower block **48** longitudinally of and within the casing.

Block **48** (see Fig. 8) is of a cross-sectional shape complementing that of the casing. Formed in the block is an end-to-end threaded bore **50**, and welded or otherwise

fixedly secured to one side surface of the block 48 are oppositely but identically formed guide plates 52. These extend longitudinally of the block 48, fully from end to end thereof. The guide plates 52, as shown to particular advantage in Fig. 8, are formed medially between their ends with narrow portions. Plates 52 are progressively increased in width from their midlength portions to their respective ends, with the inner side surfaces of the plates 52 being oblique to the length of the casing. As will be noted, at one end the plates 52 have inner side surfaces converging toward the adjacent extremity of block 48, while at their other ends, the plates 52 have inner side surfaces that are similarly convergent in the direction of the opposite extremity of the block 48.

The inner side surfaces of the guide plates 52 are undercut as at 53, and there is thus provided at the side of the follower block a dovetail recess or groove 55 extending the full length of the follower block and progressively narrowing in width in a direction from its midlength point towards its opposite ends.

A work-engaging element is removably connectable to the block 48. This includes a base 54, which is formed with side surfaces that converge toward one end of the base, said side surfaces being so formed as to provide a dovetail tongue complementing the groove 55. Integral with the base 54, and projecting laterally outwardly from the block, is a finger 56 which is inclined obliquely to the length of the casing as shown in Fig. 2.

The wider, midlength portion of the groove 55 is adapted to receive the base 54, when the work-engaging element is to be connected to the block. Then, the base 54 is shiftable toward one end of the groove, and is adapted to thus wedge within the groove. The greater the pulling force exerted during use of the device, the tighter the wedging action of the base within its associated groove.

In assembly of the parts so far described, the follower block 48 may be inserted through the left-hand end of the casing, viewing the same as in Fig. 3. The shaft 42 is then inserted from the left in Fig. 3 and is threaded through the bore 50, after which the plate 32 is slipped onto the shaft. A washer 58 is then applied to the projecting, left-hand end of the shaft, bearing against plate 32. A nut 60 is then threaded onto the shaft, to bear against the washer.

Inwardly from its other end, shaft 42 is integrally formed with a collar 62 abutting against the end plate 38. End plate 38 is positioned on the right-hand end of the shaft, viewing the same as in Fig. 3, after which a nut 64, having at its inner end a circular shoulder or collar 66, is threaded onto the shaft, bearing against the plate 38. Formed in the threaded wall of the nut is a longitudinal wedging groove 68 adapted to be registered with a longitudinal groove 70 formed in the shaft 42, to receive a wedge-shaped key 72. Key 72 is inserted through the groove 70, and is tapped into place after application of the nut to the shaft.

It will be understood that the nuts are not threaded so tightly against their adjacent surfaces as to prevent free rotation of the shaft 42.

The nut 64 (see Fig. 5) is adapted to receive a sleeve 74 removably applicable to the nut and having a noncircular bore complementing the external configuration of the nut. Integral or otherwise made rigid with the sleeve is a crank handle 76 adapted to be rotated by a user during stretching of the fence. It will be understood that any means can be employed for rotating the shaft. For example, instead of a hand crank one may utilize an electrical means such as a motor having a driving connection to the shaft. Alternatively, a heavy-duty electric drill, having a chuck adapted to receive the nut 64 or shaft 42, can be utilized.

At the end of the casing that receives the crank there are provided, on opposite side walls of the casing, means for engaging the post 10. On the top and bottom walls

of the casing there are mounted pairs of guide plates 78, the plates of each pair being similar to the guide plates 52 of the follower block (see Figs. 2 and 9). Extending transversely of the guide plates of each pair is a crossbar 80 integral with a dovetail tongue 82 engageable wedgingly in the guide groove defined between the guide plates.

The crossbars 80 project laterally outwardly from the casing, at the same side as the finger 56 (see Fig. 9) and at their projecting ends are formed with hooks 84 engageable about the post 10 and opening toward the finger 56, said finger being inclined toward the hooks as shown in Fig. 2.

The side wall of the casing from which the finger 56 projects has an elongated, wide slot 85 through which the finger extends, said slot being of a width such that the base 54 can be readily positioned through the slot for engagement in the groove 55.

The construction, as will be apparent, permits a selected pair of post-engaging elements to be wedgingly engaged in the guide grooves defined between the guide plates 78 at the top and bottom of the casing. Further, the construction permits a selected stretcher-bar-engaging element to be similarly wedged in the guide groove 55. One can thus select post-engaging means according to the particular post that is to be engaged by the device. One can then select a particular stretcher-bar-engaging member, according to the particular type of stretcher bar that is to be moved toward the post.

When the selected elements have been mounted in the manner shown in Fig. 9, the follower block is disposed a sufficient distance away from the hooks 84 to permit the finger 56 to be readily engaged against the stretcher bar 22, at the side of the stretcher bar remote from the fence post (see Fig. 2). Then, with the hooks 84 extended about the post, one need merely turn the crank 76 in a direction to shift the follower block toward the post. The inclined formation of the finger 56 causes the stretcher bar to be held tightly against the adjacent side of the casing, while still being moved longitudinally of the casing. The arrangement, as will be apparent from Fig. 2, so locates the stretcher bar that it will move into engagement with one sde of the clamps 20, to register the openings 24, 26 at a time when the fence wire 14 has been fully tensioned. The stretcher bar is then connected to the clamps in the manner previously described herein.

The device thus is adapted to be used with maximum ease and speed, and it will be apparent that it can be employed for stretching any type of fence wire. The element 56 can be of any shape, according to the wire being stretched, and the same is true of the post-engaging means.

Referring now to Fig. 10, there is here shown a pair of work-engaging members, adapted to be mounted on the device in place of the finger 56 and the hooks 84, to adapt the device for use as a clamp such as may be employed on bench work of any type. In this instance, there are provided dovetail tongues 86 adapted to engage in the gooves in place of the dovetail tongues 82 of the first form of the invention. Integral with the tongues 86 are elongated crossbars 88, adapted to embrace a rectangular work-engaging plate or jaw 90, having a serrated face to prevent slippage thereof relative to the work. Screws 92 or equivalent fastening elements are adapted to be extended through the crossbars 88 so as to fixedly mount the jaw 90 between said crossbars.

The jaw 90 is in confronting relation to a similarly formed jaw mounted upon a dovetail tongue 94 engageable in the groove 55. Integral with and projecting laterally outwardly from the tongue 94 is a member 96, to which is rigidly secured a jaw 98 having a serrated face opposing the correspondingly formed face of the jaw 90.

By reason of this arrangement, the device can be used for clamping a work piece between the serrated faces of the jaws, either in the field or in the shop. As a result, the stretching device has considerable versatility, being

adapted not only for stretching wire fencing but also for shop work of various types.

It will be understood that various other types of removable work-engaging members can be employed in place of those illustrated and described herein. The device, accordingly, may be considered to have a general utility, in any situation in which it is desired to shift one member toward another member, or in various other situations in which it may be desired to clamp a work piece securely while various work operations are performed thereon.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claim.

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

A device engageable between a fence post and a stretcher bar for stretching wire fencing connected to the bar, comprising an elongated, hollow casing, a threaded shaft journalled therein, means to rotate the shaft, a follower block threadedly engaged with the shaft within the casing for movement longitudinally of the casing responsive to rotation of the shaft, means having a detachable connection to the follower block for engaging said bar to shift the same with the follower block, and means having a detachable connection to the casing and engageable with the post for holding the casing thereagainst during said movement of the follower block, said bar-engaging means including a finger projecting laterally outwardly from the casing to bear against one side of the stretcher bar, said post-engaging means including a

pair of hooks projecting laterally outwardly from the casing in the same direction as the finger, and extendable at least partially about the post, said bar-engaging and post-engaging means respectively further including guide plates arranged in pairs with one pair upon the follower block, and the remaining pairs upon opposite walls of the casing, the guide plates of each pair defining therebetween wedging grooves, the plates of each pair of plates being formed medially between their ends with narrow portions, said plates being each progressively increased in width from its midlength portion to its respective ends with an inner side surface of each plate being oblique to the length of the casing, each pair of said plates having opposed inner side surfaces converging toward each other at opposite ends of the plates, said inner side surfaces being undercut to provide dovetail recesses extending the full length of said plates, said recesses progressively narrowing in width in directions from their midlength points towards the opposite ends of the plates, the finger and hooks including bases wedgably engageable in the grooves, said hooks further including crossbars extending transversely of the casing and rigid with the base of the hooks, the crossbars merging into hook portions forming the parts of the hooks engageable about the post, whereby said bases are wedged with increasing force in said recesses in both directions of movement of said block toward and away from hooks.

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