May 24, 1960 W. J. GREUTMAN ET AL 2,937,851

WIRE STRETCHER

Filed May 20, 1958

2 Sheets-Sheet 1

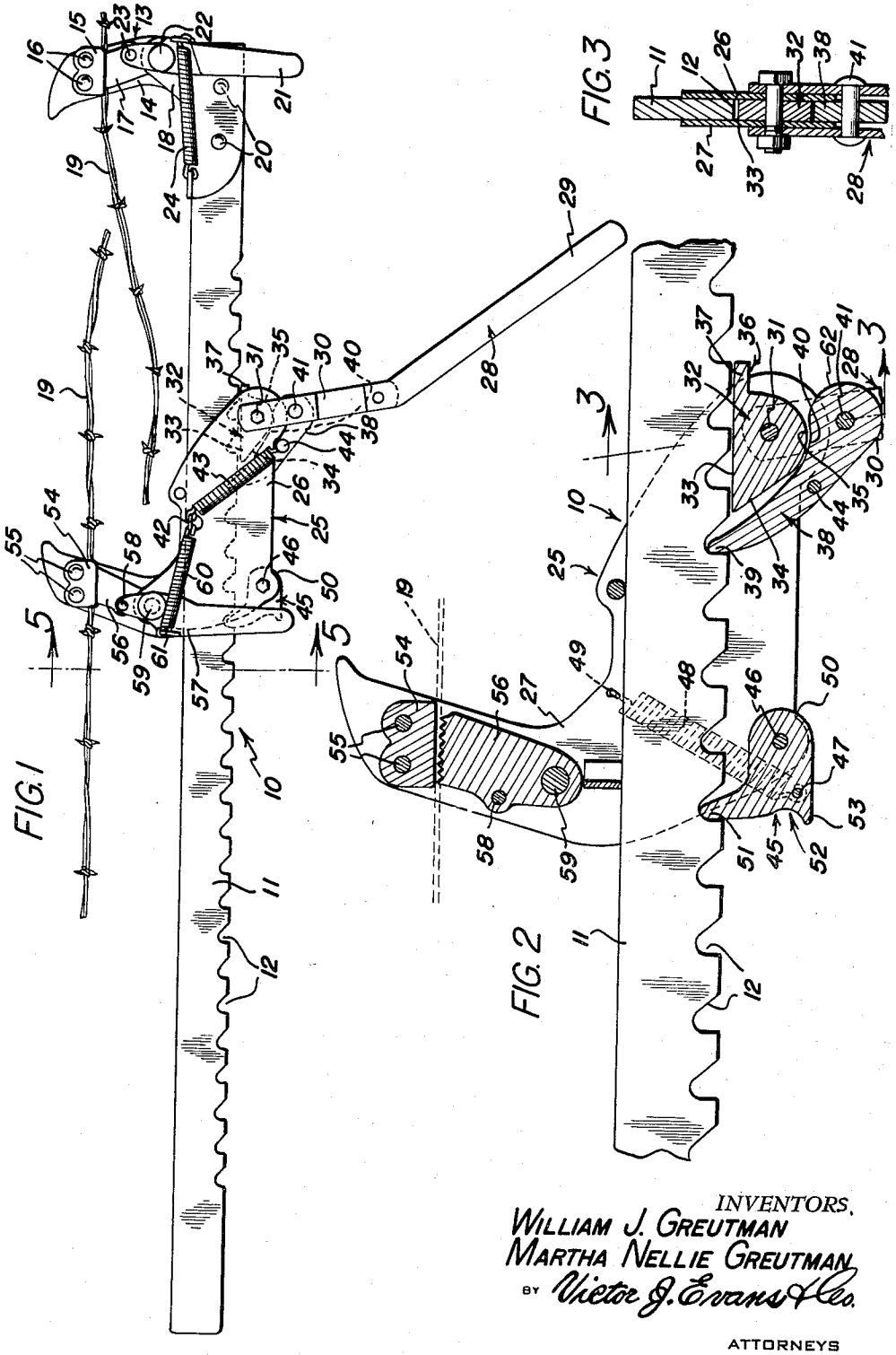


FIG. 1

FIG. 3

FIG. 2

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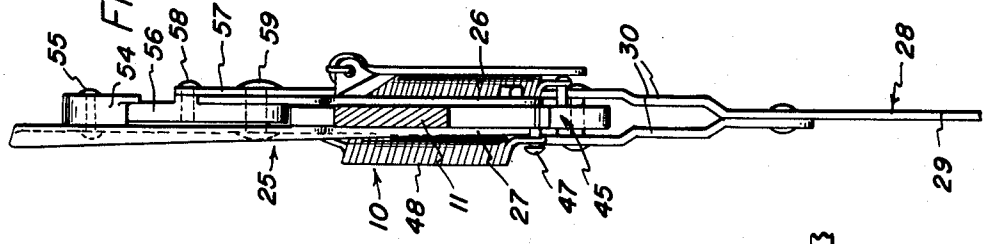
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FIG. 5



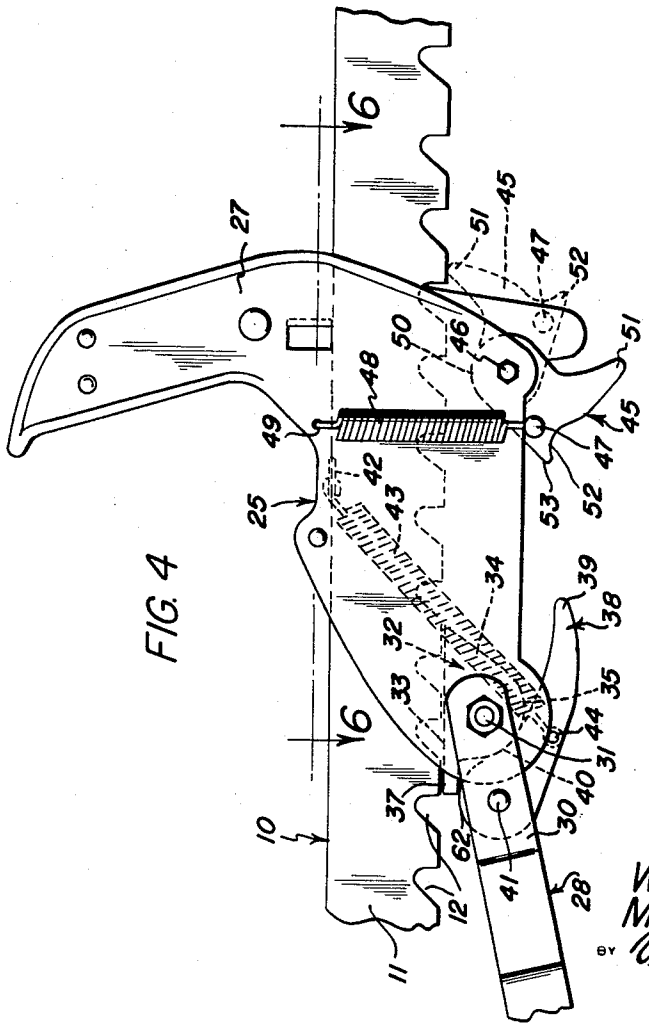


FIG. 4

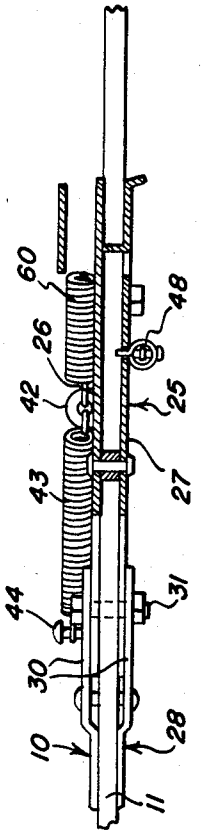


FIG. 6

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2,937,851

WIRE STRETCHER

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1 Claim. (Cl. 254—71)

This invention relates to a device for use in stretching wire such as barbed wire used in making fences or the like.

This invention is an improvement over the wire stretchers shown in prior Patents Nos. 2,519,832 and 1,792,535.

The object of the invention is to provide an improved wire stretcher wherein there is provided a means for permitting the device to be released so that the carrier or movable frame section can be let back one notch or tooth at a time or else the carrier can be released for movement along a plurality of the teeth or notches.

Another object of the invention is to provide a wire stretcher which is an improvement over the wire stretchers shown in prior Patents Nos. 2,519,832 and 1,792,535, in that there is provided a pawl which is mounted in a unique manner, and wherein there is further provided a member or piece for coaction with a movable dog so that the wire stretcher will operate more efficiently and will give better performance and longer use under field conditions.

A further object of the invention is to provide a wire stretcher which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same.

Figure 1 is an elevational view of the wire stretcher of the present invention showing barbed wire connected thereto.

Figure 2 is a fragmentary sectional view showing a portion of the wire stretcher of the present invention and illustrating the pawl and support piece or body member.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a fragmentary elevational view illustrating certain constructional details of the present invention.

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a sectional view taken on the line 6—6 of Figure 4.

Referring in detail to the drawings, the numeral **10** indicates the wire stretcher of the present invention, and it will be seen that the improved wire stretcher **10** includes a bar or rack **11** which is provided with a plurality of teeth or notches **12**, Figure 1. The numeral **13** indicates a clamp which is mounted on an end of the bar **11**, and the clamp **13** includes a stationary base **14** which is secured in any suitable manner to the adjacent end portion of the bar **11**. A stationary jaw **15** is secured as for example by means of securing elements **16** to the stationary base **14**, and a movable jaw **17** is mounted for movement towards and away from the stationary jaw **15** whereby wire such as the wire **19** can be gripped therebetween. The numeral **18** indicates a support piece that is secured to the bar **11** in any suitable manner, as

for example by means of securing elements **20**. A handle **21** is pivotally connected to the support piece **18** by means of a pivot pin **22**, and the handle **21** is connected to the movable jaw **17** as at **23**. The numeral **24** indicates a coil spring which has one end connected to the handle **21**, while the other end of the coil spring **24** is anchored to the support piece **18**, Figure 1.

There is further provided a carrier which is indicated generally by the numeral **25**, and the carrier **25** is adjustably or slidably connected to the bar **11**. The carrier **25** includes first and second spaced parallel plates **26** and **27**. The numeral **28** indicates a manually operable operator which includes a main hand engaging portion **29**, and the operator **28** further includes a pair of spaced apart legs **30** which straddle the plates **26** and **27**. The numeral **31** indicates a pivot pin which extends between or through the pair of legs **30** and through the pair of plates **26** and **27**, and the pivot pin **31** also extends through a body member **32**, Figure 2. The body member **32** is mounted between the pair of plates **26** and **27**, and it will be seen that the body member **32** includes a flat surface **33** which is arranged contiguous to the teeth **12**. The body member **32** further includes an inclined surface **34** and a rounded surface **35** which terminates in a cut-away portion **36** that defines a shoulder **37**. The numeral **38** indicates a dog which is mounted for coaction with the body member **32**, and the dog **38** includes an end portion **39** that is mounted for movement into and out of engagement with the teeth **12**. The dog **38** further includes a recessed curved portion **40** for coaction with the surfaces **35** and **34** of the body member **32** as for example as shown in the drawings. A pin **41** pivotally connects the legs **30** of the operator **28** to the dog **38**.

Extending outwardly from the plate **26** and secured thereto or formed integral therewith is a lug **42**, and a coil spring **43** has one end connected to the lug **42**, while the other end of the coil spring **43** is anchored to a pin **44** which extends from the dog **38**.

The improved wire stretcher of the present invention further includes a pawl which is indicated generally by the numeral **45**, and the pawl **45** is pivotally mounted between the pair of plates **26** and **27** by means of a pivot pin **46**. The pawl **45** has a shank **47** extending outwardly therefrom, and a coil spring **48** has one end connected to the shank **47**, while the other end of the coil spring **48** is anchored to the plate **27** as at **49**. The pawl **45** is shaped to include a curved end portion **50** and a pointed end **51**, and the pointed end **51** is mounted for movement into and out of engagement with the teeth **12**. The pawl **45** is also provided with an arcuate recess **52** which defines a finger-engaging section or piece **53** whereby the pawl **45** can be readily manually shifted to the desired position.

The wire stretcher of the present invention further includes a stationary jaw **54** which is secured as by means of securing elements **55** to the plate **27**, and a movable jaw **56** is arranged for coaction with the stationary jaw **54**. For moving the jaw **56** into or out of opened or closed position there is provided a manually movable lever **57**. The lever **57** is pivotally connected to the plate **26** by means of the pivot pin **59**, and the lever **57** is secured to the movable jaw **56** as at **58**. The numeral **60** indicates a coil spring which has one end connected to the lever **57** as at **61**, while the other end of the coil spring **60** is anchored to the lug **42**, Figure 1.

From the foregoing, it is apparent that there has been provided a wire stretcher which is an improvement over the wire stretchers shown in prior Patents Nos. 2,519,832 and 1,792,535. According to the present invention, wire such as the barbed wire **19** is adapted to be clamped between the jaws **15** and **17**, and the spring **24** maintains the jaw **17** in clamping engagement as shown in

Figure 1. However, when it is desired to release the wire from the clamp 13, the handle 21 can be pivoted about the pin 22 so as to free or move the jaw 17 away from the jaw 15 whereby the wire 19 can be released from the jaws 15 and 17. Another portion of the wire 19 is adapted to be clamped between the stationary jaw 54 and the movable jaw 56, and these various jaws may be provided with teeth so as to increase the gripping ability thereof. With a portion of the barbed wire 19 between the jaws 54 and 56, it will be seen that the spring 60 will urge the jaw 56 into clamping or locking relationship with respect to the jaw 54 so that the wire 19 will not accidentally work loose from between the jaws 54 and 56. Then, to tighten the wire, as for example when a fence is being constructed, it is only necessary to manually move the operator 28 and this movement of the operator 28 is accomplished by gripping the portion 29 and working the operator 28 back and forth. It is to be noted that the operator 28 is pivotally connected to the plates 26 and 27 of the carrier 25 by means of the pivot pin 31, and the dog 38 is arranged so that as the operator 28 is manually oscillated and moved back and forth, the pointed end 39 of the dog 38 will engage the teeth or notches 12 so that the carrier 25 will be shifted along the bar 11 and this will have the effect of tightening the wire 19 which is clamped between the jaws.

It will further be seen that according to the present invention the pawl 45 is provided, and the pawl 45 is retained immobile in either the solid line position shown in Figure 4 or the dotted line position shown in Figure 4 by means of the coil spring 48. Thus, the spring 48 functions as an off-center spring so as to retain the pawl 45 stationary in either of its adjusted positions. The spring 43 retains the pointed end 39 of the dog 38 in engagement with the teeth 12. It is to be noted that when the carrier 25 is to be backed off, as for example when tension on the portion of the wire 19 between the jaws 54 and 56 is to be released, then it is only necessary to shift the pawl 45 from the solid line position shown in Figure 4 to the dotted line position shown in Figure 4 whereby the operator 28 can be moved to a position contiguous to the bar 11 so that the end of the dog 38 will move out of the teeth 12 whereby the carrier 25 can be shifted along the bar 11 away from the clamp 13.

The pawl 45 is set so as to include the pointed end 51 which engages the teeth 12 when the pawl 45 is in the position shown in Figure 2. The pawl 45 is further provided with the recessed area 52 which defines the finger-engaging portion 53 and this finger-engaging portion 53 provides the means whereby the pawl 45 can be readily shifted back and forth about the pivot pin 45, as for example the pawl 45 can be moved to either of the solid or dotted line positions shown in Figure 4 as desired.

There is further provided according to the present invention the body member 32 which has the flat surface 33 that bears against the teeth 12 so that there will be less wear on the parts such as the dog and teeth. In other words the body member 32 is shaped to include the rounded surface 35 which coacts with the recessed surface 40 of the dog 38 so that a highly efficient bearing surface is provided between the dog, body member and teeth so that movement of the parts along the bar 11 is greatly facilitated and the operation of the device is made more smooth. Thus, the member 32 functions as a bearing member and provides a fulcrum for the dog 38 as the dog works back and forth on its pivot pin 41.

When the wire 19 is to be released from the jaws 54 and 56, the lever 57 can be pivoted on the pin 59 whereby the jaw 56 will move away from the jaw 54 sufficiently so as to permit the wire to be loosened or removed.

The pawl 45 permits greater control of the device when it is being used, and this pawl permits the device to be backed off gradually and permits easier release. If the wire is too tight, the pawl 45 permits release of the device a small amount at a time. The pawl 45 is provided with the counterbalance spring 48 and the provision of the pawl 45 insures that the wire will not be too tight so that damage to fences or the like will be prevented when the wire is being installed. The device locks itself automatically and can be readily released and it is safe to use. With the pawl 45, the wire stretcher can be let back one notch or tooth at a time or else it can be released all at once. In use, the surface 40 coacts with or engages the surface 35 when the stretcher is being released. Also, when the stretcher is being released the end 62 of the dog 38 strikes the shoulder 37 as shown in Figure 4 so that the dog does not hit or strike the bar 11 as is the case in the prior patents. The parts are constructed so that the end 62 strikes the shoulder 37 before the operator's hand hits the bar 11. As long as the wire is being engaged, the tension of the wire insures proper rotation or movement of the parts.

Thus, it will be seen that there has been provided a device which can be used for handling wire such as barbed wire, and the present invention can be used as a stretcher and splicer. Thus, the device can be arranged in engagement with wire as shown in Figure 1 for example, so that it will take up slack on the wire and wherein the wire will be held in place so that a splice can be made, or the device can be used for stretching wire or for placing wire around a post or for any other desired purpose.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

We claim:

In a wire stretcher, a bar provided with a plurality of teeth, a clamp on one end of said bar and said clamp including a base secured to the end of the bar, a stationary jaw secured to the outer portion of said base, a movable jaw for coaction with said stationary jaw, a support piece secured to said bar, a spring pressed handle connected to said movable jaw and pivotally connected to said support piece, a carrier adjustably connected to said bar, said carrier including first and second spaced parallel plates arranged on opposite sides of the bar, an operator including a main hand engaging portion, said operator further including spaced apart legs straddling a portion of said plates, a pivot pin extending through said legs and plates, a body member interposed between said pair of plates and having said pivot pin extending therethrough, said body member including a flat surface arranged contiguous to said teeth, said body member further including an inclined surface and a rounded surface terminating in a cut-away portion defining a shoulder, a dog having one end pivotally connected between said legs and said dog having an end mounted for movement into and out of engagement with the teeth on said bar, said dog including a recessed curved portion for engagement with the rounded portion of the body member, an end of said dog being mounted for movement into and out of engagement with the shoulder on the body member, a lug extending outwardly from said first plate, a coil spring having one end connected to said lug and its other end connected to said dog, a pawl movably mounted between said pair of plates, a pivot pin extending through said plates and pawl, a shank extending outwardly from one side of the pawl, a coil spring having one end connected to said shank and its other end connected to said second plate, said pawl including a curved end portion and a pointed

end, said pointed end of the pawl being mounted for movement into and out of engagement with the teeth of said bar, there being an arcuate recess in said pawl defining a finger-engaging section, a stationary jaw secured to said second plate, a movable jaw for coaction with said last named stationary jaw, a lever pivotally connected to said first plate, and said lever being connected to said last named movable jaw, and a coil spring

having one end connected to said lever and its other end anchored to said lug.

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