A. B. COX.

WIRE TIGHTENER.

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1,167,050.

Patented Jan. 4, 1916.

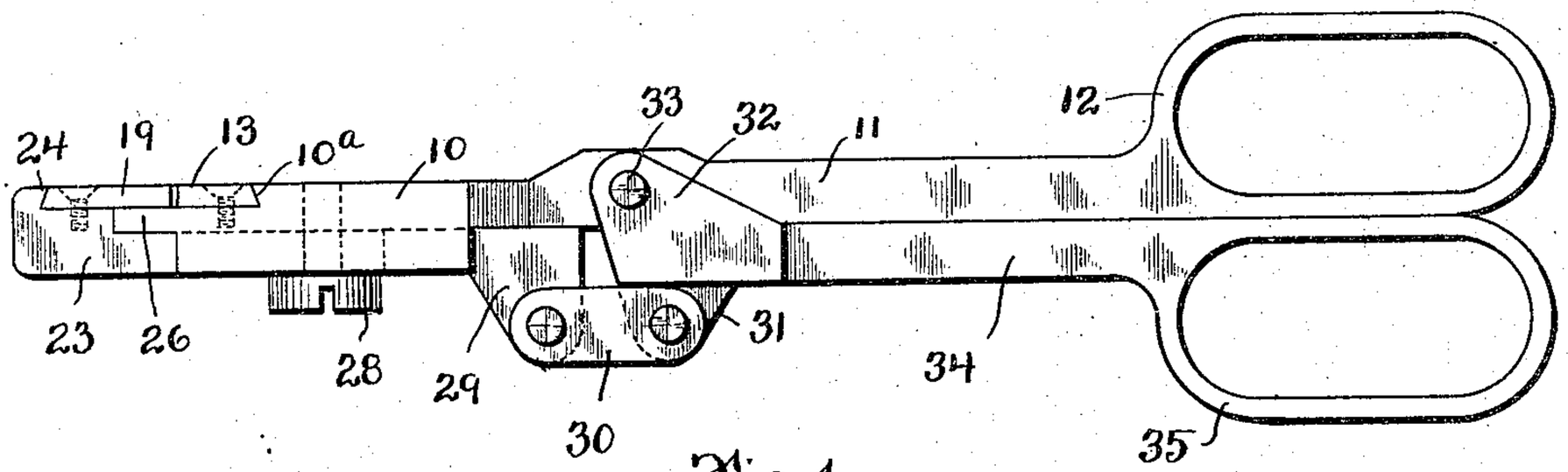

Fig: 1.

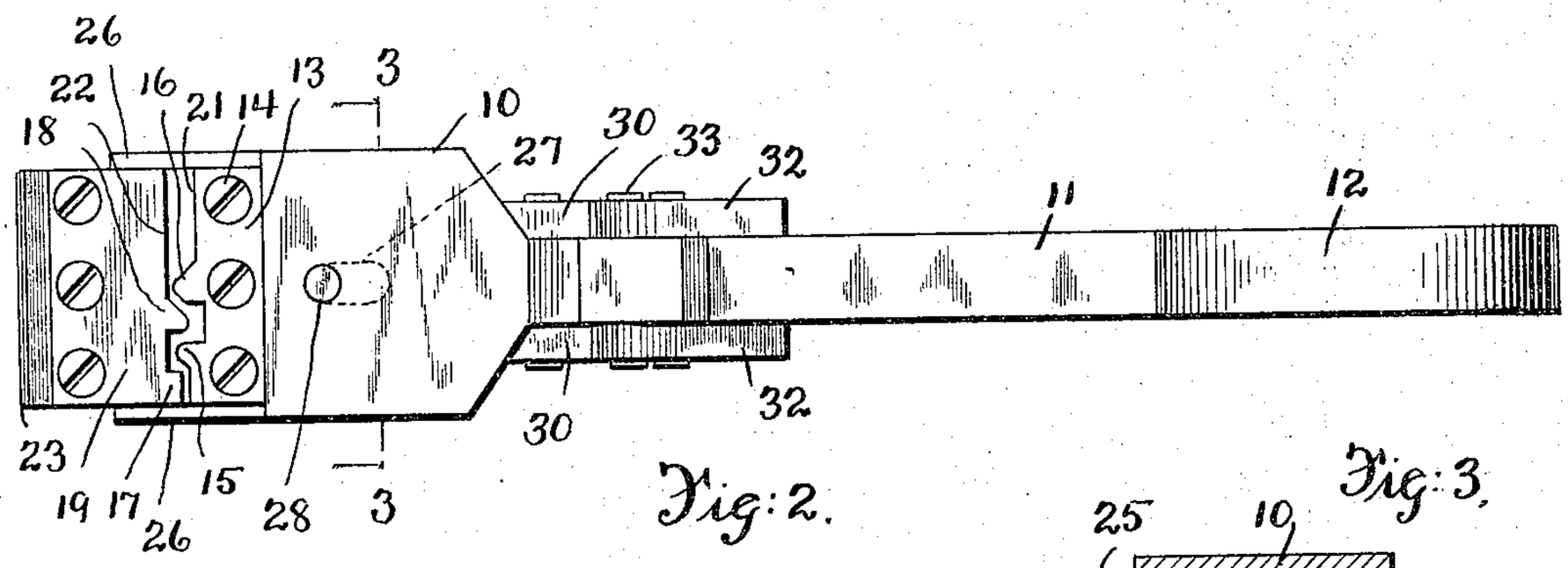

Fig: 2.

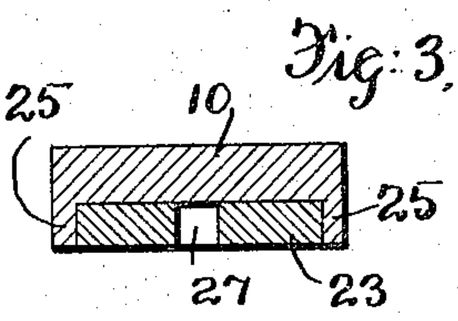

Fig: 3.

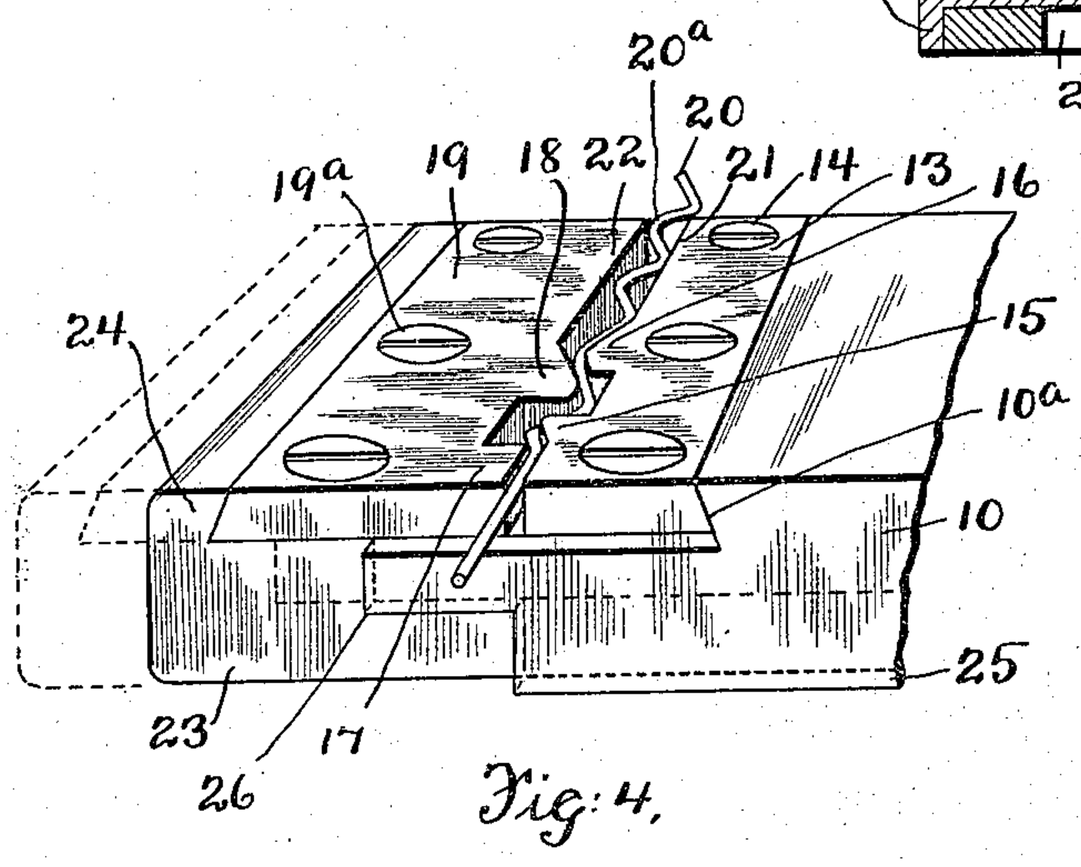

Fig: 4.

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WIRE-TIGHTENER.

1,167,050. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed February 19, 1915. Serial No. 9,278.

To all whom it may concern:

Be it known that I, ABRAHAM B. COX, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and useful Improvement in Wire-Tighteners, of which the following is a full, clear, and exact description.

My invention relates to improvements in wire tighteners such as are used to shorten and tighten a wire.

My invention is particularly applicable for use in tightening fencing wires, though obviously it can be used for tightening any wire which has become slack.

The object of my invention is to produce a simple, inexpensive and efficient tool which has jaws movable in relation to each other, and constructed so that when closed upon the wire they will crimp it or impart to it a series of lateral bends, thus tightening the wire.

Another object of my invention is to produce a device of this character having means for crimping and shortening a wire, and adapted also to slide along the wire which is being operated on, without releasing it from the wire, thus enabling the tool to be worked rapidly.

Another object of my invention is to produce a device of this kind in which the wire is crimped, that is given a series of lateral bends or convolutions, and in which provision is made for making these bends all of a size or height, so that after it is operated on, it will have a symmetrical appearance.

My invention is also intended to produce a device of a character which is not likely to get out of order, and which in general is efficient and easily operated.

Another object of my invention is to produce a tool which can be clamped upon a wire at any desired point without reference to posts or supports, and without the necessity of removing any of the supporting staples, and operated to shorten the wire by crimping it.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a side elevation of the wire tightener embodying my invention. Fig. 2 is a plan view thereof. Fig. 3 is a cross section on the line 3—3 of Fig. 2, and Fig. 4 is a broken perspective view showing the position of a wire between the clamping jaws, and the shape imparted to the wire by the jaws.

The tool has one member 10 which is preferably flat as shown, and which at one end merges into a shank 11, and this terminates in a handle 12. At the other end the member 10 is recessed and under-cut as shown at 10^a, so that the jaw 13 can be secured thereon and fit against the under-cut portion so as to be firm upon the base member 10. This jaw is secured by screws 14, or equivalent fastenings, and is provided with projecting bosses 15 and 16 adapted to impart a lateral bend to the wire to be operated on as presently described. Two of these bosses are shown, but obviously more may be used if desired. These bosses 15 and 16 are offset with relation to bosses 17 and 18 on the sliding jaw 19, so that the bosses 15 and 16 loosely intermesh with the bosses 17 and 18, and thus a wire 20 clamped between the jaws 13 and 19 will be engaged by the bosses and given lateral bends or crimps as shown at 20^a in Fig. 4. This it will be seen will tend to shorten the wire, and by sliding the tool along a wire and operating the jaws, it will be seen that as many crimps or bends as desired can be given to it until the wire is sufficiently taut.

By reference to Fig. 2 it will be seen that the bosses 15, 16 and 18 are rounded off at their extremities, and that they loosely engage so that as they close upon the wire the first action will be to bend the wire, and at the same time permit the wire to slip through between them. This is very important because it is this slipping action that really tightens the wire as a whole, and where devices are used which firmly grip the wire at all points of engagement, it will be seen that the tendency is to stretch the wire at certain points, thus weakening it, and at the same time preventing the taking up of the slack to the best advantage.

It will be noticed by reference to Figs. 2 and 4 that the jaws 13 and 19 have parallel faces 21 and 22 which are opposed and spaced apart, the distance corresponding to the desired height of the bends or crimps 20^a, so that as the wire is bent by the action of the jaws, the bends already made will be squeezed slightly, to the end that when they emerge from the tool they will be all of a height, and the wire will have a symmetrical

appearance. This is desirable, as by some means of bending wires, crimps or bends of different sizes would be made, thus giving to the wire an ugly appearance. The jaw 19 is secured to the face of a sliding member 23, and lies flush with the top of said member, which is under-cut as shown at 24 so that the jaw may be seated firmly on the member 23, and the jaw is secured by screws 19ª or equivalent fastenings.

By reference to Fig. 3 it will be noticed that the base member 10 has side flanges 25 which serve as guides for the sliding members 23, and these flanges are prolonged at one edge as shown at 26. This arrangement just disclosed insures an accurate movement of the sliding jaw 19 with relation to the fixed jaw 13.

Movement can be imparted to the sliding jaw in any approved way, but I have shown a preferred means which is efficient, powerful, and accurate. The member 23 is slotted longitudinally as shown at 27 so as to slide on a screw 28 which screws into the member 10, and at its rear end the member 23 merges in a lug 29, and this is pivotally connected by means of links 30 with a lug 31 on one side of the shank or lever 34, and on the side opposite the lug 31 this shank or lever has ears 32 which straddle the shank 11 of the member 10, to which they are pivoted as shown at 33. The shank or lever 34 terminates in a handle 35, but it is obvious that any suitable handle arrangement can be used for guiding the tool and operating the sliding jaw. It is important, however, that the jaws move in relation to each other, that the intermeshing bosses are shaped so as not to cut the wire, that the construction is made so as to permit the tool to slide along the wire, and that the tool be provided with means for securing uniformity in the height of the crimps or bends in the wire.

It will be noticed that by opening the handles 12 and 35, the jaws 13 and 19 can be placed over a wire, and by closing the shank 34 against the shank 11, the jaws are forced together so as to crimp the wire. The handles are then opened and moved along the wire to engage a new part thereof, and when again closed, new crimps will be formed and the walls 21 and 22 will regulate the height of the crimps already made. It will be further noticed that this device can be clamped to a wire at any desired point, without reference to the posts or supports, and that it is not necessary to remove any supporting staples on the wire to use the tool with the desired effect. It will also be observed that the jaws 13 and 19 are removable so that others of different shape and size can be substituted readily if desired. Attention is also called to the fact that the space between the face of the boss 17 and the opposite jaw 13, corresponds to the thickness of the wire to be bent, and if the tool were applied to a thicker wire, these parts would act as a gage which would prevent the wire from being seriously cut by the intermeshing bosses.

I claim:—

1. A device of the kind described comprising opposed jaws moving back and forth with relation to each other and shaped to impart a crimp or corrugation to a wire, the crimping means being constructed so as to permit the slipping of the wire during the crimping operation, and the sliding of the tool along the wire as it is operated, and means for opening and closing the jaws.

2. A device of the kind described comprising opposed jaws slidable with relation to each other and adapted to impart a lateral crimp or corrugation to a wire, said crimping means being disposed so as to permit the sliding of the tool along the wire, and means operating in connection with the crimping device to act on the formed crimps or corrugations to regulate their height.

3. A device of the kind described comprising opposed jaws slidable with relation to each other, and having loosely intermeshing bosses to crimp a wire, said bosses being shaped to permit the wire to slip between them as they close upon it, means for operating the jaws, and means operating in conjunction with the jaws and following the crimping means whereby the height of the crimps or corrugations is determined.

4. A device of the kind described comprising opposed jaws sliding back and forth with relation to each other, said jaws having loosely intermeshing bosses or projections and opposed walls following the bosses to engage the crimps previously made by the bosses, and means for operating the jaws.

5. A device of the kind described comprising a fixed jaw having projecting bosses and an abutting wall at one side of the bosses, a sliding jaw opposite the fixed jaw, having bosses loosely intermeshing with the bosses of the fixed jaw and a crimp engaging wall opposite the corresponding part of the fixed jaw, and means for operating the fixed jaw.

6. A device of the kind described comprising a fixed member having at its forward end a jaw with projecting bosses thereon, said fixed member merging at one end in a shank and handle, a second member sliding on the fixed member and provided at one end portion with a jaw arranged opposite the first jaw and with bosses loosely intermeshing with those of the first jaw, a shank and handle pivotally connected with the fixed member, and a link connection between the pivoted shank and the sliding member.

7. A device of the kind described comprising a fixed member having parallel flanges on the back side forming a way, said fixed member merging at one end into a shank

and handle and having at the other end a jaw with projecting bosses thereon, a sliding member movable between the flanges of the fixed member and having on one face a jaw moving opposite the fixed jaw and with projecting bosses loosely intermeshing with the bosses of the fixed jaw, a shank and handle pivoted to the first mentioned shank, and a link connection between the pivoted shank and the sliding member.

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