This invention relates to wire fence splicers, and tools, and particularly to a plier type of wire fence splicer.

The main object of my invention is to provide a plier-type wire-working and fence-splicing tool which is automatically adjustable for various sizes of wire and consists of but two working parts.

Another object is to provide a wire fence splicer with semi-circular jaws having a series of peripheral wire-engaging teeth or projections for twisting and tying the wire being operated on.

A further object is to have a series of undercut, one-way wire-engaging teeth on the jaws of the wire-working tool which are effective to twist or tie the wire step by step without rotating the tool fully around the wire upon which the work is being done.

It is also an object to have such a wire and fence-splicing tool which is reasonably simple to make and very simple and convenient to use.

Other objects and advantages of my invention will appear in further detail as the specification proceeds.

In order to facilitate ready comprehension of this invention for a proper appreciation of the salient features thereof, the invention is illustrated on the accompanying drawing forming part hereof, and in which:

Figure 1 is a front elevation of a wire fence-splicer made according to the invention and embodying the same in a practical form;

Figure 2 is a side elevation of the same wire fence-splicing tool;

Figure 3 is another front elevation of the same tool with the jaws partly open;

Figure 4 is a transverse section of the jaws as taken on line 4—4 in Figure 1;

Figure 5 is a vertical section taken on line 5—5 in Figure 3;

Figure 6 is a vertical section taken on line 6—6 in Figure 3;

Figure 7 is a fragmentary side elevation illustrating a modification;

Figure 8 is a fragmentary elevation of a wire tie in a preliminary stage and indicating in broken lines the final stage forming a splice.

Throughout the views the same reference numerals indicate the same or like parts.

When attaching wire fences to corner posts, gate posts and the like, and also when splicing sections of wire fencing together, common pliers obviously are too limited for effecting satisfactory results in connection with such operations. Of course, various makeshifts have been attempted, but nothing in this line has gone into universal use.

After considering this problem, it has occurred to me that a wire-splicing tool should be available which is capable of being instantly applied, self-adjusting to any size of wire, of such form and character as to be capable of being brought close to the post to which the wire is to be permanently attached, and especially capable of twisting or tying the wire by means of a rocking movement of the tool, that is, by step-by-step operation. As a result, I have found it quite feasible to produce a wire-splicing tool of special convenience, and with the mentioned desirable characteristics, as will now be more fully described.

Hence, in the practice of my invention, and referring again to the drawing, a wire fence-splicing tool, generally indicated at 9, includes a pair of tongue-type handles 10, 11 having the upper corresponding recessed and crossed portions 12, 13 connected together by means of pivot pin 14. To the upper ends of the cross-portions 12, 13 are integrally secured semi-circular jaws 16, 17. The mentioned jaws are adapted to meet in closed position along a mutual straight line of cleavage formed by their mutual straight inner edges 18, 19, the straight inner edge 18 being provided with a semi-circular notch 20, and the other inner straight edge 19 being similarly provided with a corresponding semi-circular notch 21.

However, the two jaws 16 and 17 are of different thickness for a purpose which will now be explained. Upon the thicker jaw 17 are provided a pair of equal, relatively large, triangular guiding lugs 22 below the notch 21 and above the latter a pair of smaller, triangular guiding lugs are similarly provided at 23, in order to guide a wire being introduced between the jaws when open directly into notch 21, so that when the jaws are closed notch 22 in the opposite jaw 16 will accurately close on the wire. Due to the fact that the jaw 16 is thinner and in fact of no greater thickness than the thickness between the rear and forward lugs 22 or 23, these lugs overlap the straight edge 18 of the jaw 16 when the jaws are closed, as best seen in Figure 1. Due to the triangular form of the lugs 22 and 23, they will obviously guide relatively thick wire toward, if not entirely into, the notch 21, which will suffice to center the wire with respect to the notch 20 on the opposite jaw, the main point being that when a wire is inserted, the jaws can be at least nearly, if not completely, closed upon the wire so as to grip the same sufficiently to center the jaws upon the wire for twisting and tying operations.
When the jaws 16 and 17 are closed and the two together are viewed as a unit for the present purpose, the jaws together are provided upon the periphery thereof with equal numbers of one-way, angular undercut teeth 24, 24, 25, 25, 26, 26, 27, 27 on said teeth being directed clockwise with respect to the central opening formed by the two notches 28 and 21 when the jaws are closed, and the teeth rising solely from the nearer flat sides 28 and 29 of the jaws and exteriorly conforming to the generally circular contour of both jaws together.

Before proceeding to describe the manner of using the tool thus far outlined, it should be mentioned that, if desired, the one-way teeth may be provided not only upon the near sides, but also on the rear portions of the jaws, as particularly shown at 30, 30, 31, 31, 32, 32, 33, 33 in Figure 7 on the wire fence-splicer generally indicated at 34. Only a fragment 35 of the handles is shown, and the crossed portions 36, 37 thereof connected by pivot 38.

In other particulars the tool 34 of Figure 7 is the same as that already described in connection with the first six figures in the drawing.

When the tool is to be used, the wire 43 is looped about a post 48, for example, and the end of the wire initially bent over the straight portion 41 thereof, as indicated in broken lines at 42, the splicing tool 9 is first opened by separating the handles 10 and 11 so that jaws 16 and 17 will open into the mutually open position shown in Figure 3 and the tool placed in position with notch 21 on wire 41 and the bent-over end 42 still remaining in position, as already mentioned, the jaws of the tool then being closed by bringing together the handles 10 and 11. The tool is moved over to the depending end 42 until one of the teeth 25 or 24 engages therewith. Then the tool is partly rotated, as particularly shown in Figure 1, so that it is brought from an upper position indicated in broken lines at 15, down to the depending position of the handles, as shown in full lines, with the wire end 43, showing full lines, shifted by the lowest tooth 25 clockwise into the position indicated in broken lines at 44, when the tool is again swung back to the position indicated at 15, while allowing the wire end 44 to slip over tooth 25 onto one of the teeth 24, after which the tool is again swung down into the depending position shown in the full lines of Figure 1. This movement is repeated so that step by step the end 43 of the wire originally forming a simple end 42, as shown in Figure 2, will be wound upon the wire 41 as a series of turns 45 with the end 48 engaging first one tooth and then another step ahead, and so on around the entire group of teeth on both jaws without actually rotating the tool fully around the wire 41. When a pair of wires 46, 47, as shown in Figure 8, are to be spliced, the ends 48, 49 thereof are processed, as shown in said figure, and then while using an ordinary pair of pliers to hold the end 48 on wire 46, the splicing tool 9 is opened and then closed on wire 47 with the teeth 23 and 25 successively engaging against the end 49, and the tool again worked up and down or in merely partial rotation with the wire end 48 engaging first one tooth after another until the wire is rolled into a series of coils 50 about wire 47. Then the pliers are used to hold the coils 50 just made, and the tool turned over and mounted on wire 48 with the notches 20, 21 engaging the same, and the teeth then caused to engage the wire end 48 and the tool again worked up and down through an arc about the wire 45 when the wire end 48 will be engaged first with one tooth and then slipping over that will be engaged with the next tooth, and so around the circle until a second coil 51 is formed on wire 48 when the two wires 46 and 47 will be fully spliced together.

Manifestly, variations may be resorted to and parts and features may be modified or used without others within the scope of the appended claim.

Having now fully described my invention, I claim:

A wire splicing tool, comprising a pair of elongated crossed pivotally connected handles, and a pair of opposed generally flat semi-circular jaws secured to the crossed handles forwardly of their pivotal connection so that when the handles are spread apart the jaws are also spread apart to form a generally X-shaped construction, the opposed jaws being disposed in substantially the same plane and having inner opposed straight diametrical edges which abut when the jaws are completely closed, the opposed jaws forming a substantially circular head when closed, each jaw having a substantially semicircular shallow notch formed substantially in the longitudinal center of its straight diametrical edge and registering with the companion notch of the opposite jaw to form a substantially circular wire receiving opening when the jaws are closed, one of said jaws being thicker than the opposite jaw and having its opposite side faces projecting laterally outwardly of the side faces of the opposite jaw, the thicker jaw being provided upon opposite sides of the notch in its straight edge with pairs of spaced opposed tapered elements which straddle the side faces of the opposite jaw when the jaws are closed, the Inner sides of the tapered elements converging and leading into the notches of the jaw carrying them to form a guide for a wire entering such notch, each jaw being provided upon one side and adjacent to its periphery with a group of circumferentially spaced inclined teeth having undercut edges at one end for engaging a free end of the wire, the teeth of both jaws forming a circular group facing in the same direction and extending entirely about the circular head when the jaws are closed.

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