Feb. 14, 1939. N. J. JOHNSON 2,147,042

WIRE SPLICING TOOL

Filed Jan. 24, 1938

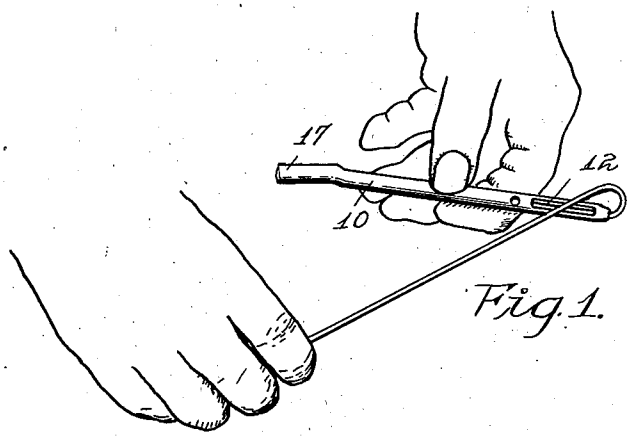


Fig. 1.

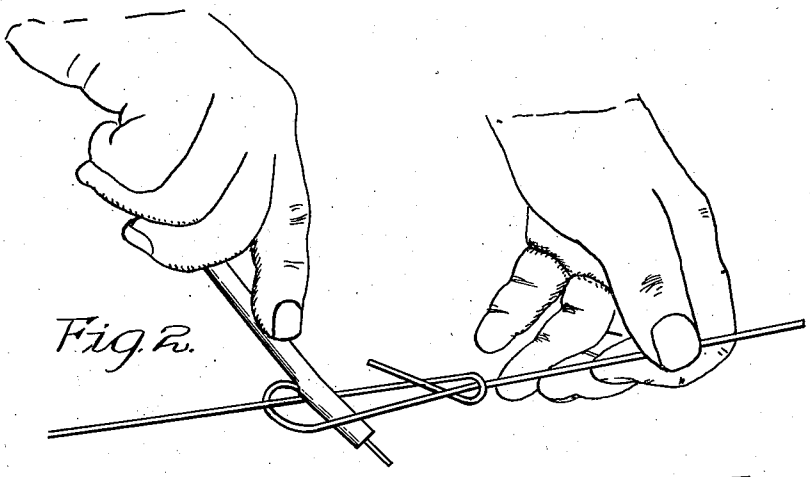


Fig. 2.

Fig. 3.

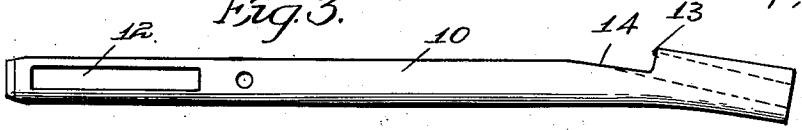


Fig. 4.



Fig. 5.

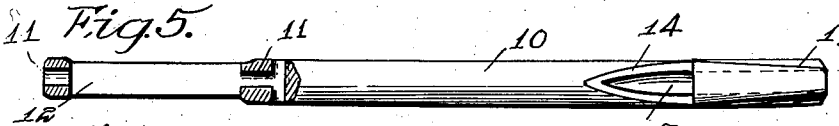


Fig. 6.



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WIRE SPLICING TOOL

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3 Claims. (Cl. 140—117)

At the present time it is customary to splice wires by twisting the end of one wire around the adjacent portion of the other wire in the form of a coil and then repeating this operation upon the end of the other wire. With this kind of splice, when relatively stiff wire is used it is difficult to coil the end of one wire tightly around the other wire, and when tension is applied to such spliced wire there is a tendency for the coils to open or become untwisted. Furthermore, when this method is used in splicing the wires of woven wire fences it is difficult to form the splices in vertical alignment, and frequently some of the spliced wires are longer than the others, hence, when the fence is stretched for securing it to posts, the spliced portion will have more tension on some of the wires than on others, and the fence will sag at the spliced portion.

The object of my invention is to provide a tool of simple, durable and inexpensive construction especially adapted for splicing stiff wires with a double knot which, when tension is applied to the wire, will tend to be drawn tighter instead of being loosened, and further to provide a tool of this class by which the operator may accurately measure the lengths of the loops formed in the wire before the knots are tied so that when splicing woven wire fence all of the spliced wires will be of uniform length to avoid sagging.

In the accompanying drawing Figure 1 shows a perspective view of my improved implement with a wire therein and illustrating the use of the implement in forming a measured loop in the wire.

Figure 2 is a similar view illustrating the use of the implement in extending one end of a looped wire through the space between the two wires in the manner required for forming a knot.

Figure 3 shows a side elevation of the implement.

Figure 4 shows an end view of the same.

Figure 5 shows a top view of the same; and

Figure 6 shows two wires spliced together with a double knot.

My improved implement comprises a body portion 10 preferably of steel and shaped to be conveniently grasped and held in an operator's hand.

At one end is the loop-measuring and bending element. This comprises a wire-receiving opening 11 leading from the end of the body in a central longitudinal direction toward the transverse center of the body. The end of a wire to be spliced is inserted into said opening and extended to the end of the opening, and then the body is moved to position for bending a loop in the wire. All of the loops thus formed will be of uniform length and measured accurately by the depth of the wire-receiving opening.

I have provided a slot 12 in the body adjacent the wire-receiving opening through which the operator may see the wire. This is useful in some instances where it is desired to extend the wire into the wire-receiving opening only part way, hence, to make splices of uniform length under such circumstances, the operator may view the end of the wire through said slot and position successive wires with their ends at the same place.

At the other end of the implement is the knot-forming member. This comprises a notch formed in the side of the body near the end to form a shoulder 13 substantially at right angles to the body, and a flat surface 14 adjacent the shoulder. Upon this flattened surface there is a wire-guiding groove 15 leading to a wire-receiving opening 16 extended from said shoulder through the adjacent end of the implement. The end portion of the implement is tapered at 17 toward the end for convenience in inserting it between the wires of a splice.

In practical use, and assuming that it is desired to splice a woven wire fence formed of wire too stiff to be bent by hand, the operator first cuts all of the horizontal wires at the end of the fence section so that they will all be of the same length from the adjacent vertical wire. Then the operator places the implement in position on one wire with the wire inserted in the opening 11 and engaging the body 10 at the inner end of the opening. He then moves the body to position for bending the wire in the form of a loop as shown in Figure 1. When this has been completed in the same manner upon all of the wires to be spliced, obviously the loops will be uniform and at the same distance from the vertical fence wire. Then the straight wires to be spliced to these looped wires are extended through the loops. When this is being done each straight wire is extended through the loop on the side of the straight end portion beyond the loop, which side is opposite to that on which the straight portion of the previously looped wire is located. This is clearly illustrated at the right in Figure 2, and this loop is in knot formation. Then the operator repeats the loop-forming operation on the side of the wire, shown at the left in Figure 2. During this latter loop-forming operation it is not possible to make a knot forma-

tion because this entire loop is necessarily on one side of the other straight wire. The knot in this second loop is then formed as follows: With my implement held in the operator's hand as shown in Figure 2, the implement is easily and conveniently moved to position for placing the straight end of the wire in the guide groove **15** and into the wire-receiving opening **16**. When thus positioned, the implement is at an angle slightly divergent from the straight end of the wire, and since the knot-forming operation is a lateral bending movement and not a longitudinal movement, the wire binds within the opening **16** and the tapered edge of the implement is easily moved between the two straight portions of the wires beyond the loops. During this movement the straight end portion is held straight by the opening **16**, hence, after the completion of the knot the implement may be easily removed from the end of the wire, thereby forming a double knot. Then tension is applied to the wires, tending to move them apart, and by this means the knots are tightened to the position shown in Figure 6. Preferably, the projecting ends of the wires are cut off, as shown in Figure 6.

In actual practice I have demonstrated that with my improved implement a splice may be made with a permanent double knot which becomes tighter instead of looser when tension is applied, and that such operation may be performed in less time than is ordinarily required to form an ordinary coiled splice, and I have also demonstrated that in splicing woven wire fence, the splices are made so uniform that when the fence is stretched it will not sag at the splice. The wire-guiding groove is useful in receiving the end of a wire and guiding it into the adjacent opening.

I claim as my invention:

1. An implement for forming a double knot in a wire-splicing operation in which the wires to be spliced are formed with loops near their ends and with straight ends beyond the loops, and with each loop encircling the other wire, said implement comprising a handle portion and a knot-forming portion at one end thereof, said knot-forming portion comprising a body portion having a substantially straight wire-receiving opening extended from the side of the body to the adjacent end thereof to completely surround a wire in the opening, so that the handle may be moved laterally at any angle relative to a wire in the opening for bending the wire into a knot-forming position.

2. An implement for forming a double knot in a wire-splicing operation in which the wires to be spliced are formed with loops near their ends and with straight ends beyond the loops, and with each loop encircling the other wire, said implement comprising a handle portion and a knot-forming portion at one end thereof, said knot-forming portion comprising a body portion having a substantially straight wire-receiving opening extended from the side of the body to the adjacent end thereof to completely surround a wire in the opening, so that the handle may be moved laterally at any angle relative to a wire in the opening for bending the wire into a knot-forming position, said body portion at its end adjacent the handle being formed with a notch and a relatively flat shoulder substantially at right angles to and extended across the major portion of the opening.

3. An implement for forming a double knot in a wire-splicing operation in which the wires to be spliced are formed with loops near their ends and with straight ends beyond the loops, and with each loop encircling the other wire, said implement comprising a handle portion and a knot-forming portion at one end thereof, said knot-forming portion comprising a body portion having a substantially straight wire-receiving opening extended from the side of the body to the adjacent end thereof to completely surround a wire in the opening, so that the handle may be moved laterally at any angle relative to a wire in the opening for bending the wire into a knot-forming position, said body portion at its end adjacent the handle being formed with a notch and a relatively flat shoulder substantially at right angles to and extended across the major portion of the opening, and said handle portion being formed with a guide groove leading to the adjacent end of said opening.

NELS J. JOHNSON.