

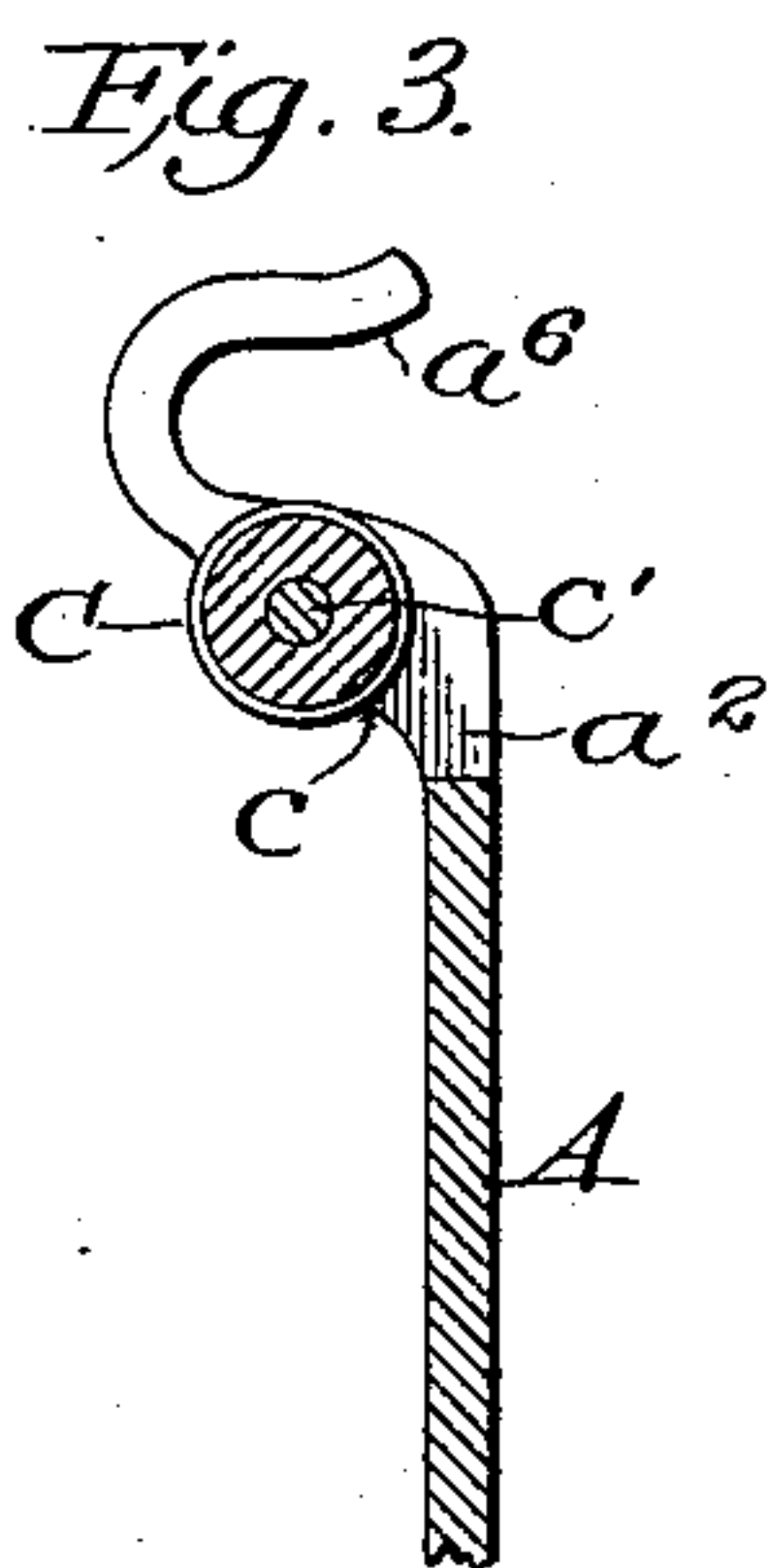
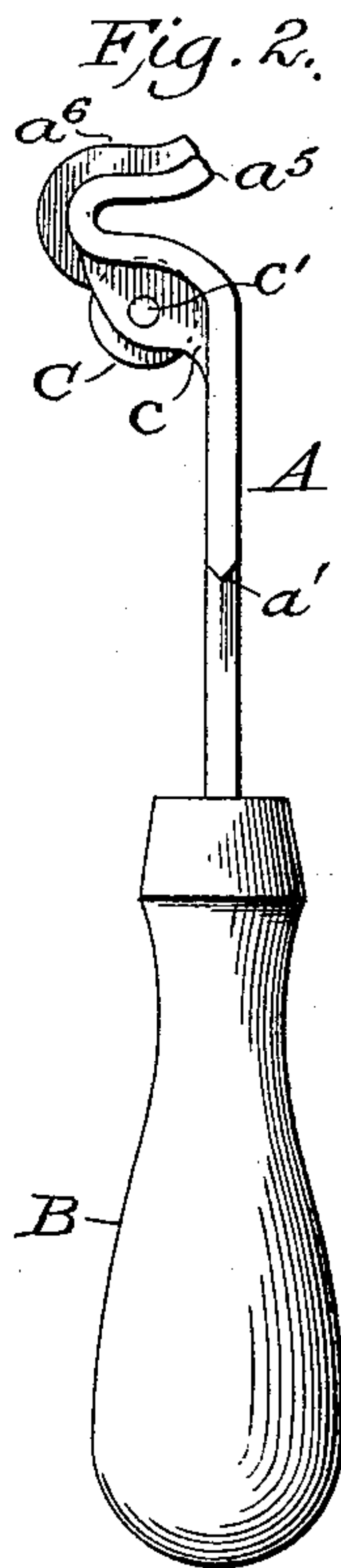
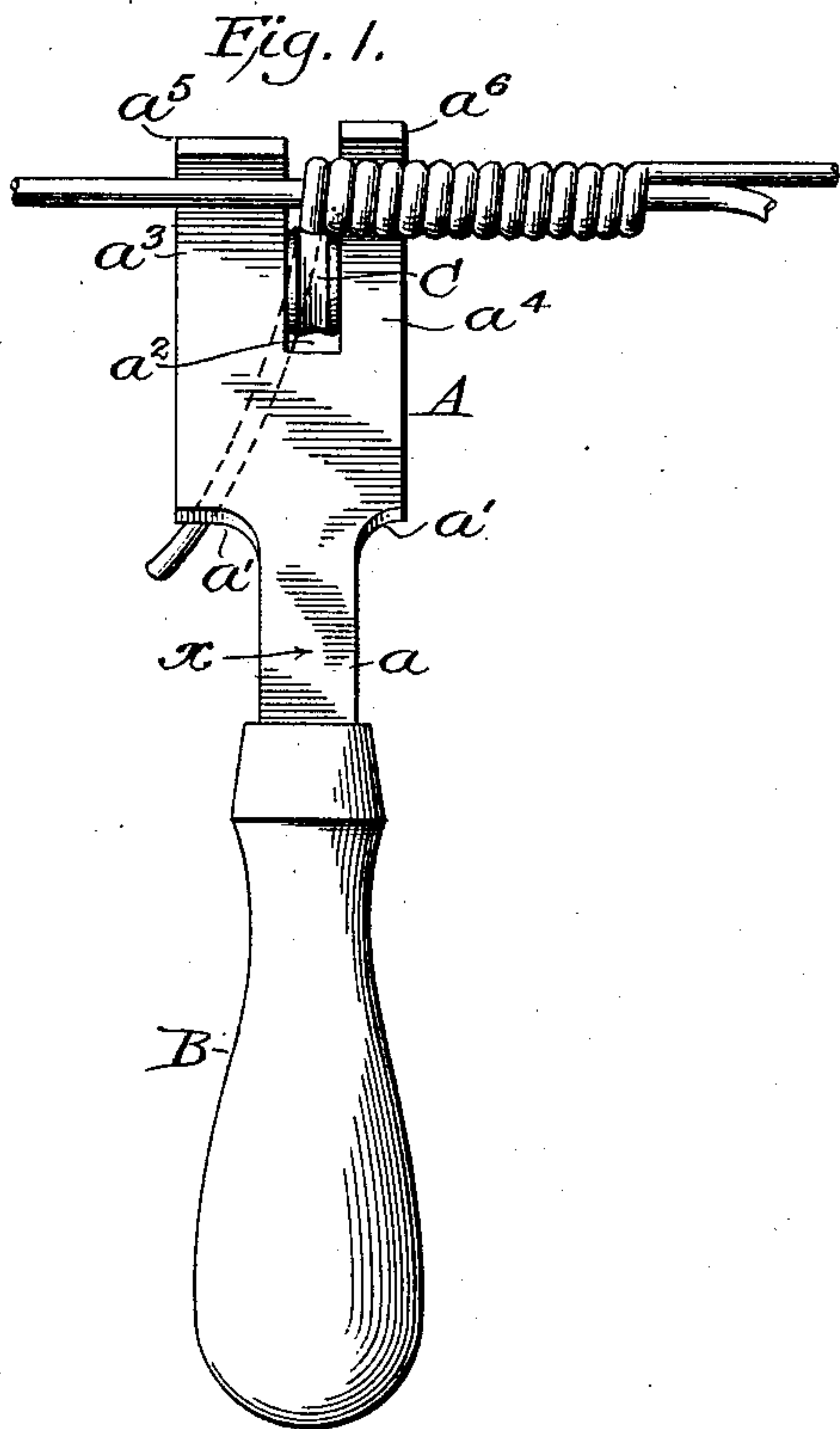
No. 608,467.

Patented Aug. 2, 1898.

H. L. MAITLAND.  
TOOL FOR SPLICING WIRES.

(Application filed Dec. 5, 1896.)

(No Model.)



WITNESSES

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# UNITED STATES PATENT OFFICE.

HOWARD LANSING MAITLAND, OF NANTUCKET, MASSACHUSETTS.

## TOOL FOR SPLICING WIRES.

SPECIFICATION forming part of Letters Patent No. 608,467, dated August 2, 1898.

Application filed December 5, 1896. Serial No. 614,620. (No model.)

*To all whom it may concern:*

Be it known that I, HOWARD LANSING MAITLAND, a citizen of the United States, residing at Nantucket, in the county of Nantucket and State of Massachusetts, have invented certain new and useful Improvements in Devices for Making Joints in Wire, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to linemen's tools, and more particularly to a tool or device for forming joints or unions in telegraph and telephone wires.

It has long been the practice to form a joint or union between the meeting ends of wires; and particularly telegraph and telephone wires, by overlapping the ends of the wires and coiling the free ends of each wire around the opposite wire, such coiling in order to make a secure and sightly joint being close and even. Such joints are extremely difficult to make by the use of the ordinary hand-pliers, inasmuch as the wires are usually quite stiff and not easily bent. Various special tools have heretofore been proposed for assisting in the coiling of the wires in making these joints, but in none of them, so far as I am at present advised, has it been proposed to provide an efficient bending device to bend the wire and a setting or finishing device to act upon the coil following the bending device, whereby a perfectly smooth coil will be produced.

The object of the present invention is to produce a simple and efficient tool which will enable a close and compact coil to be produced in making the union or joint in the meeting ends of wires.

To the above end the present invention consists of the devices and combination of devices which will be hereinafter described and claimed.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 represents the tool in front elevation as it appears when being operated to form the joint. Fig. 2 represents a side elevation of the tool removed from the wires,

and Fig. 3 represents a longitudinal section through the operating end of the tool.

Similar letters of reference designate corresponding parts throughout the drawings.

In the drawings, A represents the main or body portion of the tool, which may be provided with any suitable handle or device arranged to be grasped by the hand of the operator in operating the tool, such handle in the present invention, as illustrated in the drawings, comprising an ordinary tool-handle B, into which the shank  $\alpha$  of the body portion A is inserted in a manner common to tools of various kinds.

The body portion A of the tool is preferably made of steel or any suitable metal, and the forward portion thereof is relatively wider than the rear portion, the rear portion being cut away, as shown at  $\alpha$ , to form the shank  $\alpha$ . As shown in the drawings, the shank  $\alpha$  is inserted in the handle B to such an extent as to leave the shoulders formed by cutting away the body portion A to form said shank projecting or removed some distance beyond the end of the handle B, and said shoulders are beveled off or sharpened, as shown at  $\alpha'$ , so as to produce scraping edges or blades adapted for scraping off the insulating-covering when the joint is being made in insulated wires or for scraping off and brightening the ends of an uncovered wire or conductor at the ends which are to be united for the purpose of forming a perfect electrical as well as a mechanical union between the wires.

The outer end of the body portion A is provided with a supporting and guiding hook, which is arranged to engage the end of the wire around which the end of the opposite wire is to be coiled for the purpose of supporting and guiding the tool in forming the coil, and a supporting and finishing hook, which is arranged to engage over the coiled end of the wire as the coil is formed, and intermediate of these hooks is a bending or coiling device, all as will be hereinafter particularly set forth.

As shown in the drawings, in the formation of the hooks the main or body portion A at its forward end is bifurcated by a slot  $\alpha^2$ , said slot being preferably arranged as shown, so as to leave a broad arm  $\alpha^3$  and a narrow arm



$a^4$ . These arms are bent to form the hooks  $a^5$  and  $a^6$ , the shanks of said hooks being disposed at an angle to the main or body portion A, as shown in the side elevation, and the bills thereof terminating in substantially the same plane and arranged parallel to the shanks. As shown in the drawings, the hook  $a^5$  is smaller than the hook  $a^6$ , the shank and bill of the hook  $a^5$  being arranged substantially parallel to the shank and bill of the hook  $a^6$ , and the hook  $a^5$  in the operation of my device is arranged to fit the end of the wire about which the end of the opposite wire is to be coiled and support and guide the tool in the formation of such coil. The larger hook  $a^6$  is designed to engage the coil which is being formed, and, while assisting in supporting the tool during the formation of the coil, it acts upon said coil immediately following the coiling device and tends to set and smooth and give a proper finish to such coil.

The bending or coil-forming device may be the base of the slot  $a^2$ ; but, as shown in the drawings, such coiling device is preferably formed by a wheel or roll C, which is fitted in the slot  $a^2$  upon a pin  $c'$ , said wheel C being held to loosely revolve upon pin  $c'$ .

The wheel C is preferably grooved, as shown, to perfectly engage the end of the wire being coiled, and it may be supported upon the body portion A in any suitable manner. As shown in the drawings, the body portion A is provided with webs  $c$ , between which the wheel C is supported.

In the operation of the invention the two ends of the wires to be joined may be first cleaned or scraped by the beveled edges  $a'$  for a distance which is deemed necessary by the operator to form an efficient electrical connection. Then such wires are securely held with their ends overlapped by a line-man's vise or other suitable tool and the end to be first coiled is given a partial twist or bend around the opposite wire, said end being left projecting at substantially a right angle to the length of the wire. The tool is then placed upon the wire, the smaller hook  $a^5$  being engaged with the wire about which the coil is to be formed and the end of the wire which is to be coiled within the slot  $a^2$  and against the grooved wheel C, the large hook  $a^6$  embracing the wire upon the opposite side of the wheel C. The tool is now properly supported and is grasped by the operator by the handle B and revolved around the wires, which causes the wheel C to bend and closely coil the projecting end of the wire around the

opposite wire, and as said coil is formed the tool will move along said wires, the smaller hook moving in advance of the coil and the larger hook following the coil and acting to smooth and properly set the same. After one coil has been formed said tool is removed and the end of the opposite wire is correspondingly coiled.

It is to be noted that by this device the unions or joints which are commonly made in joining the ends of wires can be made with ease and rapidity, the coil being close and compact, forming an efficient electrical and mechanical connection between the wires.

It is of course to be understood that in forming the hooks  $a^5$  and  $a^6$  they may be made of a size suitable for producing the best results and that they may be bent at a different angle with relation to the body portion A than that shown in the drawings.

Having described the construction and mode of operation of my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. A tool for forming coiled joints or unions between the ends of wires, said tool comprising a supporting and guiding hook, a supporting and smoothing hook, and a bending or coiling device located between said hooks, said hooks having substantially parallel shanks and bills the supporting and guiding hook arranged to support and guide the tool in advance of the coil being formed, and the supporting and smoothing hook arranged to act upon the coil as said coil is formed, substantially as described.

2. A tool for forming coiled joints or unions in the meeting ends of wires, said tool comprising relatively large and small hooks arranged side by side with their shanks and bills parallel to each other, and a coiling-wheel located between said hooks, substantially as described.

3. A tool for forming coiled joints or unions, said tool comprising a plate having a bifurcated end, said bifurcated end being bent to form a supporting and guiding hook, and a supporting and smoothing hook, said hooks being of different diameters, and a bending or guiding wheel journaled between said hooks, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HOWARD LANSING MATTLAND.

Witnesses:

WM. T. DEVLAN,  
 F. B. DEVLAN.