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WIRE WRAPPING TOOL

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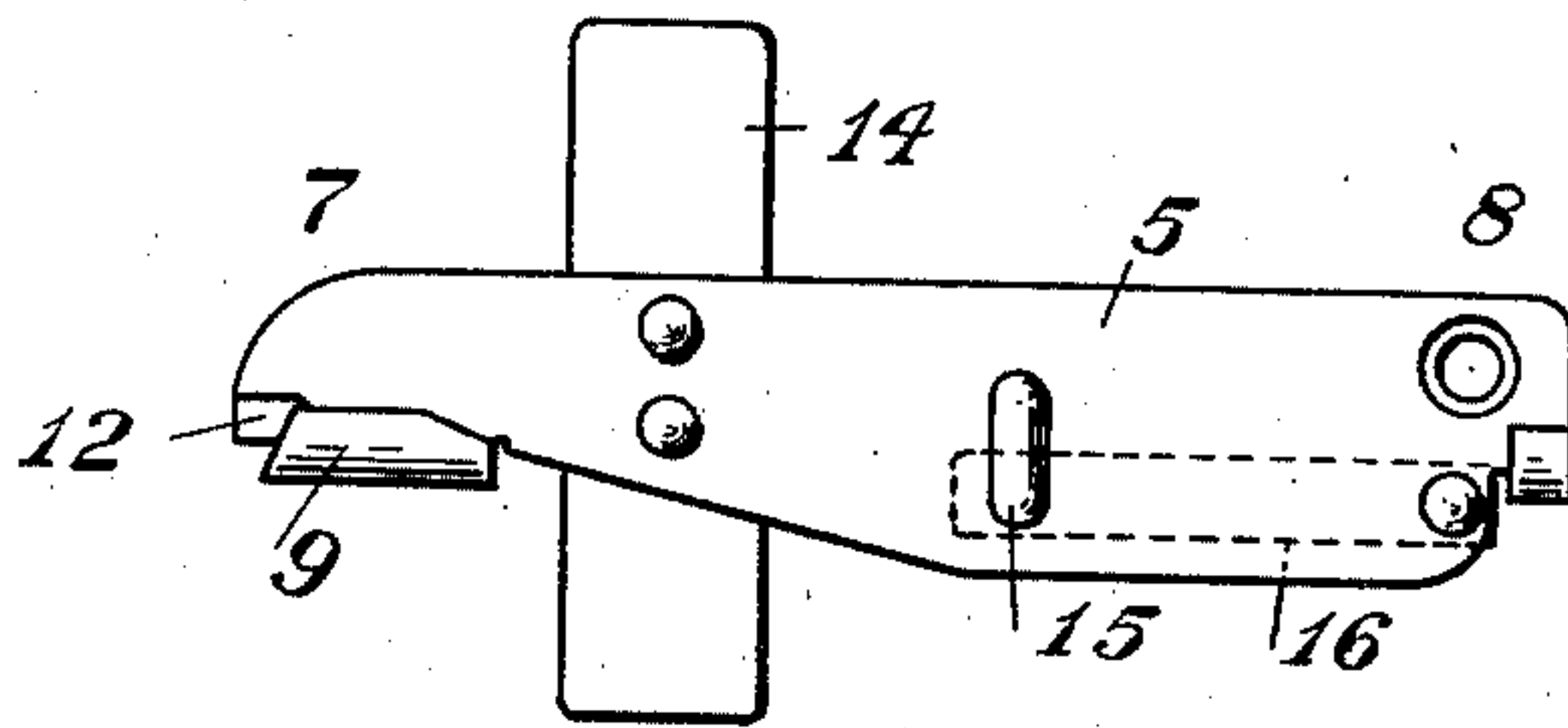


Fig. 1

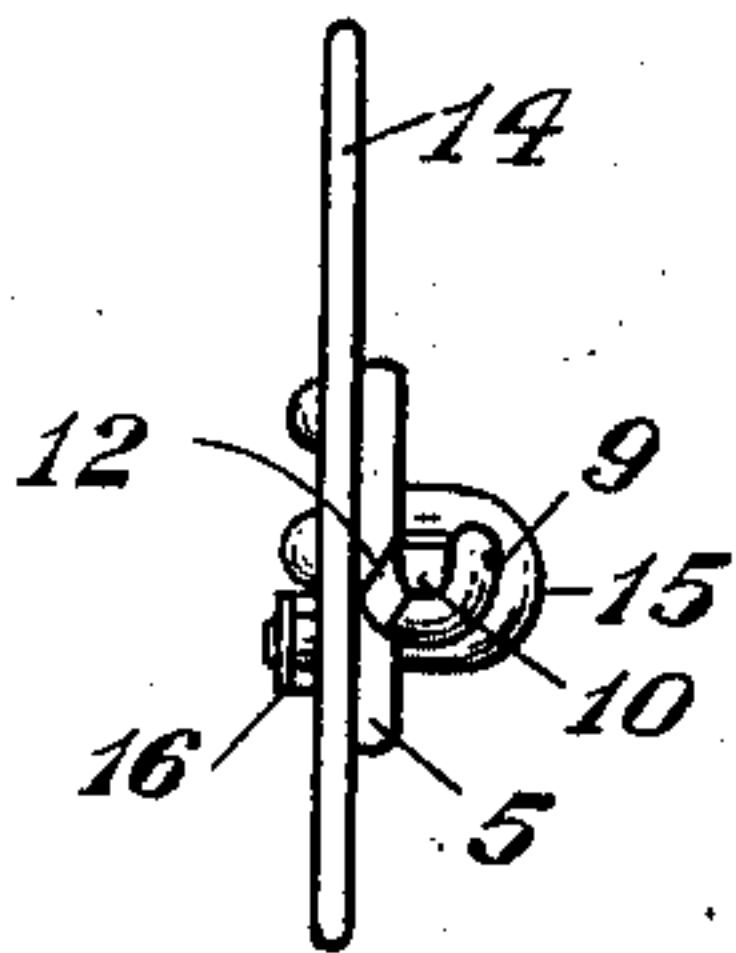


Fig. 2

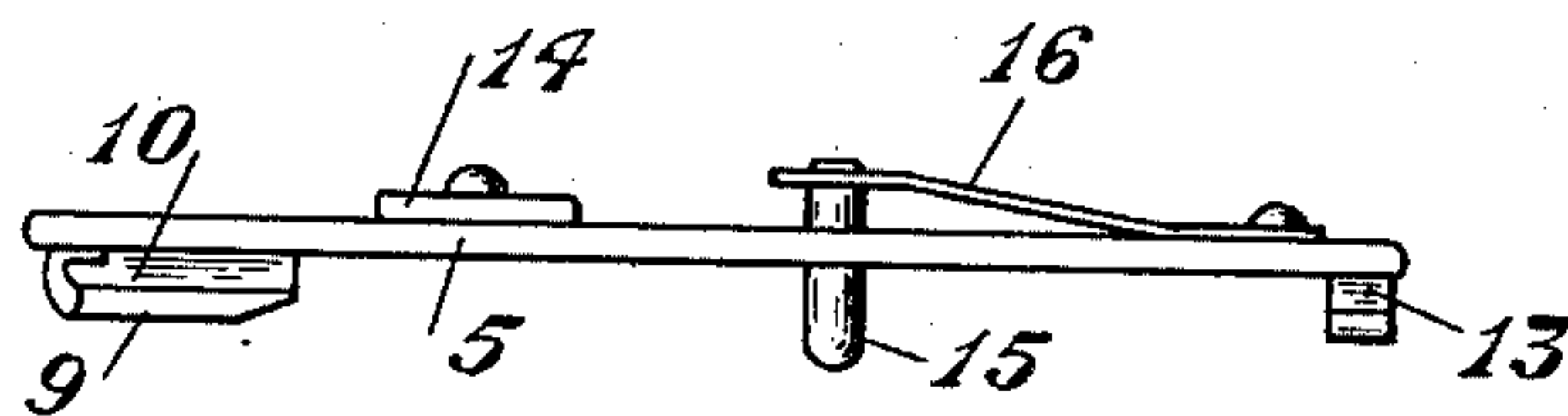


Fig. 3

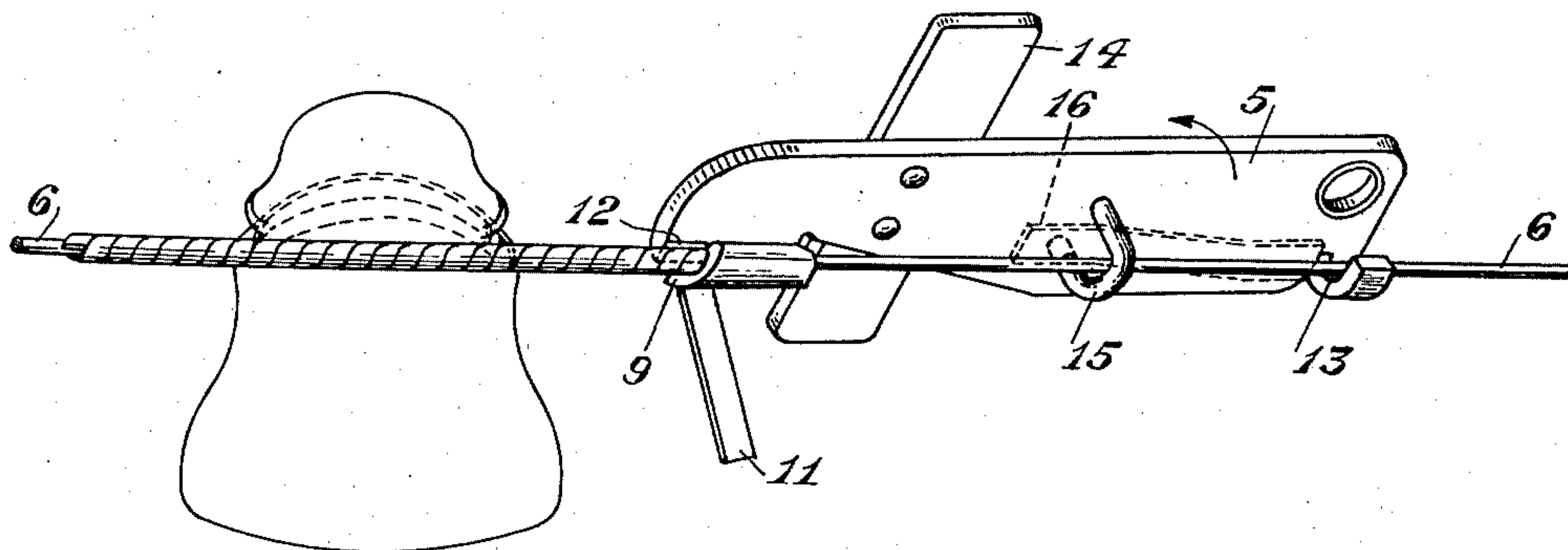


Fig. 4

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WIRE WRAPPING TOOL

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4 Claims. (Cl. 140—123)

This invention relates to hand tools and, more particularly, to wire tying tools or wrenches for securing line conductors to insulators.

The use of flat tie wires for securing line conductors to insulators of electric transmission lines has been found, in practice, to be particularly efficient and desirable. With the extended and general use of this form of tie wire it has become necessary, in order to facilitate tying operations, that suitable means be employed for performing this work expeditiously.

It is, therefore, one of the objects of this invention to provide a tool which will perform the above mentioned operations in an effective manner.

Another object is to provide a device having elements which so engage the line conductors as to prevent the displacement of the tool therefrom, and which elements will also cooperate in aligning the tool on the conductor.

A further object is to provide a wire tying tool of simple construction and by which a workman-like job may be produced in a minimum amount of time and with a minimum amount of labor.

These and further objects will be apparent from the following description when considered in connection with the accompanying drawing in which one embodiment of the invention is illustrated.

Referring to the drawing, Figure 1 is a plan view of the improved tool; Fig. 2 is a view from the left end of Fig. 1; Fig. 3 is a view showing one edge of the device, and Fig. 4 is a perspective view of the tool shown in position on a line conductor in the act of winding a tie wire about the line conductor.

The tool is preferably made of metal, and steel of proper gauge has been found suitable for this purpose. As shown in the drawing, the tool is provided with a handle portion 5 which is preferably flat and of such contour as to provide a suitable gripping surface for the hand.

In practice, the tool is mounted on a line conductor 6 and is adapted to be rotated thereon. A nose portion 7 is provided at one end of the tool and a tail portion 8 is provided at the opposite end. The nose portion includes a turned-over flange 9, the inner portion of which forms a groove or slot 10 in which the line conductor 6 is seated. The flange 9 is cut away at its outer end to provide a sufficient surface on the flat portion of the tool against which the flat tie wire 11 may be placed in angular relation with respect to the axis of the tool. This flat portion 55 is provided with a beveled rolling edge which

forms a lip 12 for engaging and turning the flat tie wire as the tool is rotated. To further increase the area of this rolling edge a slot may be cut in the turned-over flange 9, as shown. The beveled surface or rolling edge 12 is cut on such an angle as to cause the tie wire to leave the tool in the proper angular direction to form progressive connecting spiral layers of tie wire about the line wire.

The tail portion 8 of the tool is shown as being provided with a groove or slot 13 which is in axial alignment with the groove or slot 10 in the nose portion of the tool. The line wire is seated in these grooves or slots, and the tool is adapted to be rotated about said wire.

A cross-bar 14 is applied to the handle 5 by welding or riveting or the like. This cross-bar may be engaged by the thumb and index finger to assist the hand in rotating the tool.

An opening is provided through the handle portion 5 at a point intermediate the nose end 7 and the tail end 8. This opening is adapted to receive the shank of a clasp 15 which moves back and forth therein. This clasp is of substantially J-shaped formation and one of its ends may be welded or otherwise attached to a flat spring 16 positioned and suitably affixed to one side of the handle. The J-shaped portion of the clasp lies on the opposite side of the handle and its extremity abuts the surface thereof. This abutting relation of this extremity and the flat surface on one side of the handle is maintained by means of the tension exerted by the spring 16 in an obvious manner. The J-shaped portion of the clasp is so arranged and positioned that the space between its shank portion and its extremity, which is held against the surface of the handle, lies in alignment with the groove or slot in the nose portion 7, and also in alignment with corresponding groove or slot in the tail portion 8. The clasp therefore, co-operates with these grooves or slots in the alignment of the tool on the line conductor. When the tool is in position, the line conductor 6 passes through the closed loop or J-portion of the clasp, and the displacement of the tool from the conductor is prevented in an obvious manner.

The tool is applied to the line conductor 6 to wrap the flat tie wire 11 about it, as more clearly illustrated in Fig. 4. In this operation the line conductor is engaged in rotatable position in the groove or slot in the nose portion 7 of the tool and also in the groove or slot in the tail portion 8 of the tool. As previously described, the line conductor is engaged and held in the closed loop of

the J-shaped portion of the clasp which lies intermediate the nose end and tail end. The flat tie wires are cut in lengths sufficient for the purpose of tying the line conductor to an insulator. The tie wires are bent before being applied to the line wires so that two parallel portions of each tie wire are formed, one portion being slightly longer than the other. When so bent, one tight turn of the latter length of tie wire is made around the line wire adjacent to the insulator. The improved tool or wrench is now placed in position upon the line wire and the longer length portion of the tie wire is inserted in the beveled and angular slot in the nose portion of said tool. The short length portion of the tie wire is held by the left hand, while the longer portion is wrapped about the line wire upon the rotation of the tool in the direction of the arrow, as shown in Fig. 4 of the drawing. The wrapping of the longer portion of the tie wire by the tool is continued until the required number of turns have been taken about the line wire. The remaining or extended ends from the long portion and also from the short portion of the tie wire should normally be about the same length after the tie wire has been wrapped the required number of turns as pointed out above, and these ends should point in the same direction with respect to the line wire. The wrench or tool may be now removed temporarily from the line conductor and the wrapped section of the tie wire may be advanced or pushed along the line wire until the middle of the wrapped section is opposite the vertical center of the insulator. The section of the wrapped tie wire at this point is placed in the groove at one side of the insulator. The opposite ends or free tail ends of the length of tie wire are then twisted a quarter turn and bent back by hand so that they pass each other, one end being bent in one direction and the other end being bent in the opposite direction. When so reversed the tie wires are seated in an arcuate portion of the insulator groove opposite that in which the wrapped section is seated, as just outlined. These free ends are then drawn taut and wrapped, by means of the present invention, about the line

conductor at the respective ends of the wrapped section which had already been applied about the line conductor, as previously pointed out. The line wire is thus tightly secured to the insulator.

While the arrangements of this invention have been illustrated as embodied in a certain specific form which has been deemed desirable, it will be understood that they are capable of embodiment in many and widely varied forms without departing from the spirit of the invention as defined in the appended claims.

What is claimed is:

1. A tie wrench for wrapping flat wire about a line conductor to secure it to an insulator, a handle having end portions for rotatably engaging the line conductor, and a spring-actuated member for engaging the line conductor to prevent the accidental displacement of the wrench therefrom.

2. A tie wrench for wrapping flat wire in progressive spiral layers about a line conductor to secure it to an insulator, a handle portion having a nose end and a tail end for rotatably engaging the line conductor, and a spring-actuated clasp associated with the handle portion intermediate its ends for engaging the line conductor to prevent the accidental displacement of the wrench therefrom.

3. A tie wrench for wrapping flat wire in progressive spiral layers about a line conductor to secure it to an insulator, a handle portion having a nose end and a tail end for rotatably engaging the line conductor, and a spring-actuated member cooperating with the nose end and the tail end to align the wrench on the line conductor.

4. A tie wrench for wrapping flat wire in progressive spiral layers about a line conductor to secure it to an insulator, a handle portion having a nose end and a tail end for rotatably engaging the line conductor, and a spring-actuated clasp for engaging the line conductor to prevent accidental displacement of the wrench therefrom and also for cooperating with the nose end and the tail end to align the wrench on the line conductor.

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