

June 12, 1928.

1,672,939

A. E. HOENE

WIRE TWISTING TOOL

Filed Oct. 4, 1926

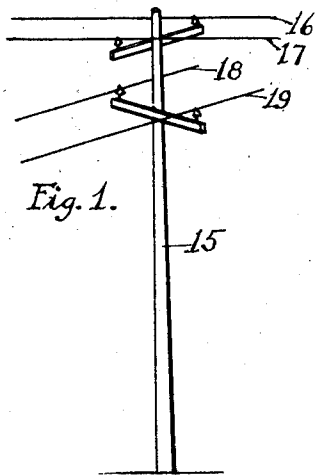


Fig. 1.

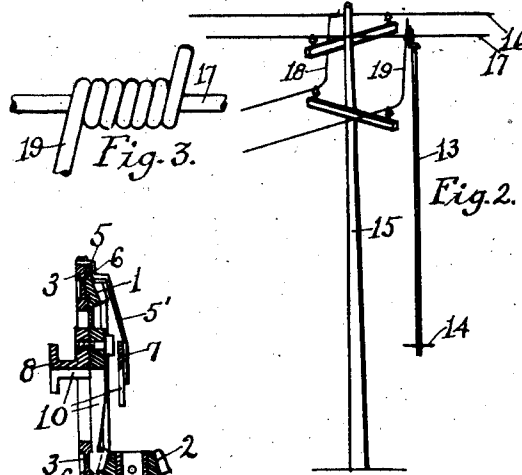


Fig. 2.

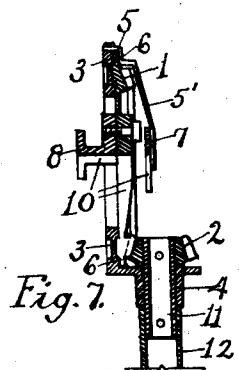


Fig. 3.

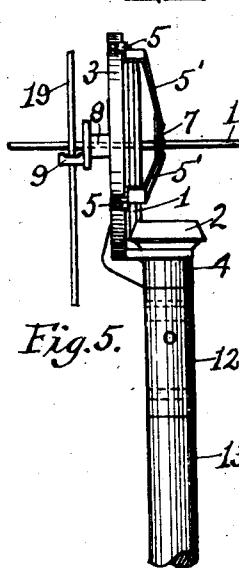


Fig. 4.

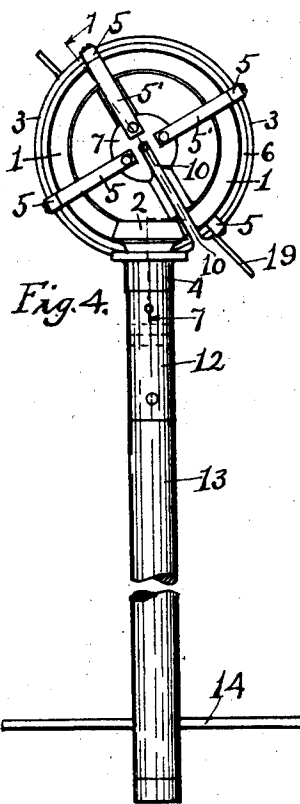


Fig. 5.

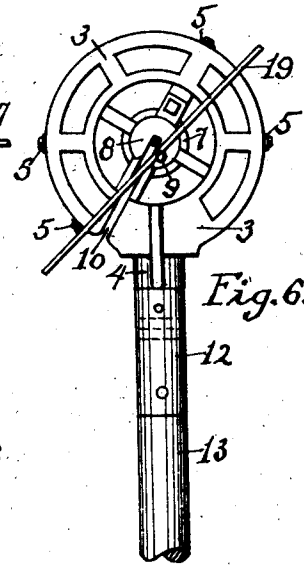


Fig. 6.

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UNITED STATES PATENT OFFICE.

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WIRE-TWISTING TOOL.

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My invention pertains to tools or devices used by linemen when connecting one electric wire with another, more particularly on pole lines where the wires carry a high electric voltage. It has for its objects, first, to provide a lineman's tool whereby the dead wires of a new circuit may be connected with the live wires of an established supply circuit, without having to cut off the electric current while making the connection; second, to provide a lineman's tool whereby the ends of the dead wires of a new circuit may be twisted about the live wires of a high voltage electric circuit for service connection therewith, and the lineman be protected from injury by shock from the electric current; and third, to provide a wire twisting tool whereby a lineman can connect live electric wires with safety to the lineman, a saving of time and expense and in a manner that will give durable and effective service.

I attain these objects by means of the device illustrated in the accompanying drawing, in which—

Fig. 1 represents an electric line pole on which is shown a pair of main service wires and a pair of new circuit wires to be connected therewith; Fig. 2 represents the same pole with one of the new wires connected with the live circuit wire and the second wire in position to be twisted onto the other live wire by my new wire twisting tool. Fig. 3 is an enlarged view of the new wire as twisted onto the live wire as done by my newly invented wire twisting tool; Fig. 4 is a face view of my invention; Fig. 5 is side or edge view the same as engaged on the wires for twisting together; Fig. 6 is a rear view of the same and Fig. 7 is a vertical section on the line 7—7 of Fig. 4 to show forth its construction and operation.

The connecting of live electric wires is attended with more or less danger to the lineman. For safety, the electric current has to be cut off while connections are being made and loss of time and suspension of service results. At times a lineman contacts a live wire, not knowing it is charged with electric current, and serious, if not fatal injury follows.

With my invention connections can be made with live wires without the loss of time or the suspension of service and the lineman can do the work with perfect safety.

Referring to the drawing, my invention

comprises a bevel gear twisting wheel 1 engaged with and operated by a bevel gear pinion 2, as indicated in Figs. 4, 5 and 7. Since the wire twisting has to be done at the center or axis of the twisting wheel 1, this wheel cannot be mounted on a pivotal or central shaft in the manner usual to such mechanisms. I therefore mount the wheel 1 in an annular frame 3 so grooved to its periphery that it will revolve therein. This frame 3 is made an integral part with the bearing 4 in which the beveled pinion 2 is mounted. The beveled gear twisting wheel 1 is securely held within the grooved annular frame 3 by metal angle pieces 5 screwed to the outer edge of frame 3 which angle inward over the rim 6 of the wheel 1 extends outside the cogs of the gear wheel. Three of the metal angles have inward extensions 5' to a central disk 7 to which each is riveted or brazed. This disk 7 is so joined with the metal extensions 5' as to not only brace and strengthen the annular frame 3, but also to partly support the twisting tool when on the wire.

The twisting member of my invention comprises a small hub-like extension centrally fixed on the side of the bevel gear 1. This hub 8 has a stud 9 fixed to its outer rim. This stud 9 is concave on its inner side and is designed to engage and twist the wire to be connected with another fixed pole line wire.

In order to place my invention on the wire for operation, a radial slot 10 is cut in the bevel gear 1, the annular frame 3, the disk 7 and the hublike extension 8 to the central axis of each. This slot 10 passing between two cogs of the wheel 1, will be wide enough to admit the main wire therein.

The pinion 2 is mounted on a tubular shaft 11 extended through its bearing 4 and with its lower end fixed to a short tubular stem 12. In this tubular stem is fixed a wood pole handle 13 of any suitable length with a cross bar near its lower end by which it is turned to operate the wire twisting tool.

Referring to Figs. 1 and 2 the operation of my invention may be described. Fig. 1 indicates a standing wire pole on which is strung two high voltage electric wires 16 and 17 to which a circuit of two wires 18 and 19 are to be connected. Fig. 2 represents the same pole and wires with the end of wire 18 connected with its wire 16 and

wire 19 being twisted onto its wire 17 with my twisting tool. When the work is completed, each wire will be twisted about its respected main wire as indicated in the enlarged Fig. 3.

To perform this work the wire twisting tool is raised to the loose end of the wire to be connected and the concave side of the stud 9 is engaged therewith. The tool is then raised above the main wire till it engages the slot 10, then let down till its center rests thereon, as indicated in Figs. 2, 4, 5 and 6. The lineman now turns the pole handle 13 with the cross bar 14 thus turning the pinion 2 which slowly revolves the wheel 1 with its stud 9 around the main wire, smoothly twisting the loose end of the wire around it till a connection is made as shown in Fig. 3. The gear 1 is then turned back till the slot 10 in each of the parts are in alinement, when it is lifted from the main wire.

It is to be observed that the wood pole handle is nonconductive and a lineman can thus use my invention with safety. It is to be further observed that my invention is designed to be made of varied sizes for twisting light or heavy wires. In case the wires are on a high pole, the lineman can climb the pole till within reach of the main wires, then work the same as if on the ground. The twisting tool can be made light in weight by using aluminum for the frame and preferably brass for the bevel gears.

Having described my invention, I claim—

1. A wire twisting tool, comprising a bevel gear wheel mounted and fitted to revolve in an annular frame, an operative pinion gear engaged therewith, a wire twisting stud on the rear side of said bevel gear wheel, there being a radial slot in one side of said gear wheel and said annular frame wherein a pole line electric wire may be admitted and held for twisting a branch circuit wire thereon.

2. A wire twisting tool, comprising a bevel gear wheel mounted and fitted to revolve within an annular frame, an operative pinion bevel gear engaged therewith, there being a radial slot in one side of said gear wheel and annular frame wherein a pole line wire may be admitted and held at its

axis, and said bevel gear wheel having a central hublike extension on its rear side and said extension having a radial slot and a concave sided wire twisting stud to engage and twist a wire around the pole line wire held at the axis of said bevel gear wheel.

3. A wire twisting tool, comprising a bevel gear wheel mounted and fitted to revolve within an annular frame, an operative pinion gear engaged with said wheel, there being a radial slot in one side of said wheel and its said annular frame; a hublike extension having a radial slot in one side thereof and a wire twisting stud thereon, centrally fixt on one side of said bevel gear wheel, metal angle members fixt on said annular frame and engaging the rim of said wheel, and said angle members extended and fixt to a central disk having a radial slot in alinement with the said slot in said annular frame.

4. A wire twisting tool, comprising a bevel gear wheel mounted and fitted to revolve within an annular frame, a hublike extension having a wire twisting stud with concave side fixt on the back side of said wheel, a front central disk fixt on metal angle members from the said annular frame, there being a radial slot in one side of the said wheel, the said hublike extension, the said annular frame and the said front central disk, to receive and hold a wire at their central axis, an operative pinion gear to engage said bevel gear wheel, and the tubular shaft of said pinion gear having a wood pole handle extension with which to operate said wire twisting tool.

5. A wire twisting tool comprising a bevel gear wheel operated by a pinion gear engaged therewith, said bevel gear wheel mounted and revolved within an annular frame without a pivotal shaft, an inwardly concave stud mounted on one side of said gear wheel near its axis, a central disk rigidly supported on the opposite side of said gear wheel, there being a radial slot in one side of each of the said gear wheels, said annular frame, said rigidly supported disk and the said stud mounting, and said wire twisting tool held and operated by a nonconductive single handle of suitable length.

ALEXANDER E. HOENE.