June 7, 1949. L. E. BENNETT 2,472,510

WIRE TWISTING DEVICE

Filed March 22, 1946

FIG. 1

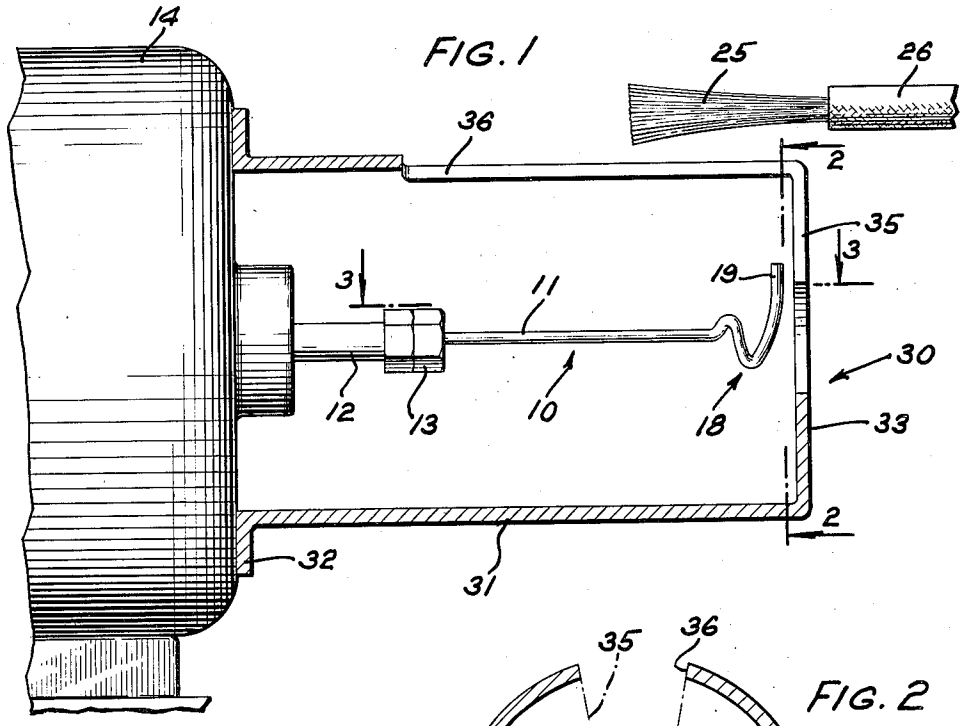



FIG. 2

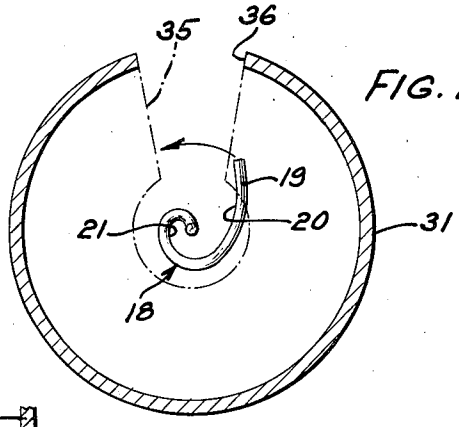



FIG. 3

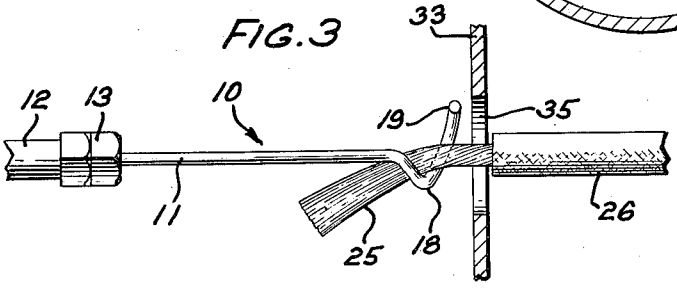
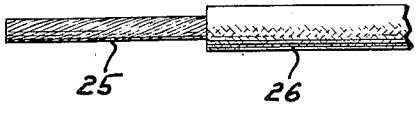



FIG. 4




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## WIRE TWISTING DEVICE

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5 Claims. (Cl. 140—149)

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This invention relates to a wire twisting device and more particularly to a device for twisting the bared ends of stranded wire conductors.

When the insulation on stranded electrical conductors is stripped from the ends thereof, the strands of the bared wires become untwisted during the stripping operation and have to be reformed into a twisted tip in order to facilitate their attachment to terminals and soldering lugs. When done by hand, this twisting operation is slow and inefficient.

It is an object of the present invention to provide a simple and effective device for quickly twisting the ends of stranded wire.

In one embodiment of the present invention, a rotary twisting member is formed from a relatively heavy wire and is fixed to and extends coaxially from a motor shaft and has its free end shaped into a spiral hook into which the untwisted end of the stranded conductor may be moved radially and withdrawn axially to have the strands thereof frictionally twisted together.

A more complete understanding of the invention may be had by reference to the following detailed description considered in conjunction with the accompanying drawing, wherein

Fig. 1 is a side elevational view of the wire twisting device showing a guide member thereon in section and showing a stranded conductor cord in position to enter the device;

Fig. 2 is a sectional view of the device taken on the line 2—2 of Fig. 1 showing the spiral hook of the wire twisting device in end elevation, the guide member in section and dot and dash lines, showing the outline of the radial guide slot in the guide member;

Fig. 3 is a fragmentary plan sectional view taken on the line 3—3 of Fig. 1 showing the wire twisting device and a stranded wire conductor associated therewith; and

Fig. 4 is an elevational view of one end of a stranded wire conductor showing the relation of the strands after they have been twisted on themselves by the twisting device.

Referring to the drawing, wherein a preferred embodiment of the invention is illustrated, the wire twisting device comprises a wire twisting member 10 formed from a relatively heavy wire and having a straight shank 11 secured in coaxial relation to the end of a motor shaft 12 by a suitable chuck or collet 13. The shaft 12 projects horizontally from a motor 14, which is mounted in a convenient position on a suitable support. At its free end, the member 10 is provided with a spiral hook or finger 18 and is

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adapted to be rotated about the axis of the shaft 12 and the shank 11.

To form the hook 18, the wire is bent laterally in a curved path, which gradually recedes from the axis of rotation and advances progressively axially and angularly relative thereto to form substantially one complete convolution with the end 19 thereof spaced a substantial distance from the axis. It will thus be seen that the hook 18 has a snail-shaped configuration and a strand-engaging surface 20, and toward the end 19 it has a relatively large curvature, which gradually decreases as it progresses inwardly to form a loop 21 adapted to snugly engage a portion of the periphery of the stranded wire. The twisting device 10 rotates in a counter-clockwise direction, as indicated in Fig. 2, and the end 19 of the hook 18 thereof, during its rotation, encircles a substantial area around the axis of rotation.

To guide the movement of a stranded end of a conductor cord radially into the hook 18, a guide member 30 is provided which also serves as a guard to prevent accidental engagement of the hook by the operator. The guide member comprises a cylindrical housing 31 secured to the motor 14 by a flange 32 and having an end wall 33 adjacent the hook 18. A radially extending keyhole guide slot 35 is provided in the end wall 33, as indicated in Fig. 1, and in dot and dash lines in Fig. 2, and a slot 36, forming a continuation of the slot 35, is formed in the top portion of the cylindrical housing 31.

In a wire twisting operation, the strands 25 of a bared end of a stranded conductor cord 26 may be positioned above the rotating twisting device, as indicated in Fig. 2, and moved radially through the slots 35 and 36 of the guide member 30 into the path of the hook 18. The strands 25 will be engaged by the curved surface 20 of the hook member 18 and will be moved toward the axis of rotation and into the loop 21 and by frictional engagement therewith will be carried along and twisted on themselves. The free ends of the strands 25 will be revolved about the shank 11 of the rotating twisting member 10 and the portions of the strands engaging the hook 18 and to the right of the hook will be twisted about themselves, as indicated in Fig. 3. As the conductor 26 is moved to the right and the strands 25 are withdrawn from the hook 18, successive portions thereof will be twisted so that when the strands 25 are entirely withdrawn, they are reformed into the proper twisted shape, as indicated in Fig. 4.

What is claimed is:

1. A device for twisting the ends of stranded

wire comprising a member rotatable about a fixed axis and having a strand-engaging surface with one end thereof spaced from the axis of rotation, and drive means for rotating said member, said strand-engaging surface being formed in a decreasing spiral inwardly around and toward the axis of rotation and having a portion thereof forming a loop terminating at the inward end of the decreasing spiral and conforming substantially to a portion of the desired curvature of the stranded wire whereby the strands of the stranded wire, when moved into engagement with the spirally formed surface of the twisting device, will be directed inwardly thereby toward the axis of rotation and into the loop thereof, where they will be frictionally engaged and twisted about each other.

2. A device for twisting the ends of stranded wire comprising a member rotatable about a fixed axis and having a strand-engaging surface with one end thereof spaced from the axis of rotation, drive means for rotating said member, said strand-engaging surface being formed in a decreasing spiral inwardly around and toward the axis of rotation and having a portion at the inner end thereof forming a loop conforming substantially to a portion of the desired curvature of the stranded wire whereby the strands of the stranded wire, when moved into engagement with the spirally formed surface of the twisting device, will be directed inwardly thereby toward the axis of rotation and into the loop thereof, where they will be frictionally engaged and twisted about each other, and a guard around said rotatable member and having a slot therein for guiding the stranded wire into engagement with the rotatable member.

3. A device for twisting the ends of stranded wire comprising a member rotatable about a fixed axis and having a strand-engaging surface with one end thereof spaced from the axis of rotation, and drive means for rotating said member, said strand-engaging surface being formed from the free end thereof spirally inwardly around and toward the axis of rotation and having a portion at the inner end thereof forming a loop eccentric with respect to the axis of rotation and conforming substantially to a portion of the desired curvature of the stranded wire whereby the strands of the stranded wire, when moved into engagement with the spirally formed surface of the twisting device, will be directed inwardly toward the axis of rotation and into the loop thereof, where they will be frictionally engaged and rotated about the axis of rotation of the device and twisted about each other.



4. A device for twisting the ends of stranded conductors comprising a wire member having an elongated shank portion and a spiral hook portion formed on one end thereof, and drive means at the other end of said wire member and in spaced relation to said hook for rotating said wire member about a fixed axis, said spiral hook portion being formed with each successive portion thereof starting at the juncture with the shank portion curving progressively longitudinally forward and transversely away from and circumferentially around the axis of rotation.

5. A device for twisting the ends of stranded conductors comprising a wire member having an elongated shank portion and a spiral hook portion formed on one end thereof, and drive means at the other end of said wire member and in spaced relation to said hook for rotating said wire member about a fixed axis, said spiral hook portion being formed with each successive portion thereof starting at the juncture with the shank portion curving progressively longitudinally from said juncture and transversely away from and circumferentially around the axis of rotation, and a guard member around said spiral hook having a slot therein for guiding said stranded conductors into engagement with the rotatable hook.

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