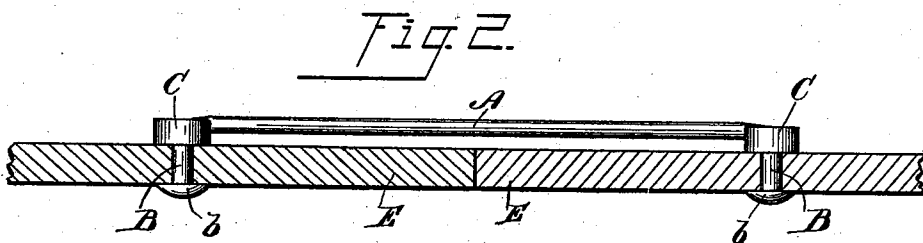
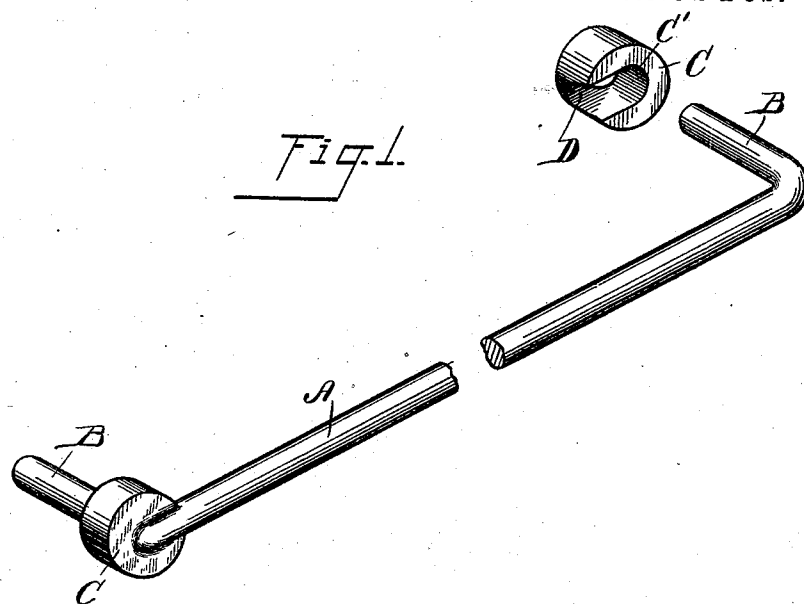


No Model.)

A. HOFFMANN & J. BROGAN.
BOND WIRE FOR ELECTRIC CONDUCTORS.

No. 514,714.

Patented Feb. 13, 1894.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBERT HOFFMANN AND JOSEPH BROGAN, OF MILWAUKEE, WISCONSIN.

BOND-WIRE FOR ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 514,714, dated February 13, 1894.

Application filed July 5, 1893. Serial No. 479,551. (No model.)

To all whom it may concern:

Be it known that we, ALBERT HOFFMANN and JOSEPH BROGAN, citizens of the United States, residing at Milwaukee, county of Milwaukee, State of Wisconsin, have invented a certain new and useful Improvement in Bond-Wires for Electric Conductors; and we 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to new and useful improvements in the construction of "bond wires" for electric conductors, and consists in the matters hereinafter described and more particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1. is a perspective view of a bond wire constructed in accordance with our invention, but showing the slotted washer at one end of the same, detached. Fig. 2. is a sectional view taken through the webs of the adjacent ends of a pair of rails, and illustrates the method of application of our improved bond wire thereto.

Referring by letter to the said drawings, A designates the main portion of the bond wire, which is provided with laterally bent ends B B, which are arranged to be passed through apertures in the webs of the rails to form electrical connections between the adjacent ends of the rails.

A pair of washers C C is arranged to be engaged with the opposite bent ends of the wire, said washers being each provided with a concentric aperture C' for the admission of the end of said wire, and in one of its faces, being provided with a radial groove or depression D, as illustrated more particularly in Fig. 1, of the drawings, and in the construction of our improved bond wires, the washers C C are slipped into position upon the ends of the wires, the angular ends thereof passing through the concentric apertures C' C' in said washers, and the wire adjacent to the angle or bend therein, entering the radial groove or depression D in the washer C, so as to lie practically flush with the outer face of said washer. When the washers have

been adjusted in position, they are preferably secured to the wire, by means of solder or otherwise, as may be desired.

Heretofore, several methods have been employed for making electrical connections between the adjacent ends of electric conducting rails, one method being to bend the ends of the bond wire, pass the bent ends through apertures in the ends of the rails, and then to drive wedges into said apertures to hold the ends of the wire. Another method heretofore employed, has been to provide suitable rivets adapted to pass through the apertures in the ends of the rails, and to bore transverse holes through the heads of said rivets, through which the ends of the bond wire are passed and then riveted or soldered in place. Another method has been to employ rivets which are passed through the apertures in the ends of the rails, and to form rings or loops in the opposite ends of the wire, for the admission of the shanks of the rivets, the said rings or loops being adjusted upon the rivets between the heads of the same and the webs of the rails when the joint is made. Still another method has been to coil the ends of the bond wire into the form of a helix, from the center of which the ends of the wire are arranged to extend laterally at right angles to the plane of the helix, and to pass these laterally extending ends of the wire through the apertures in the ends of the rails. With all of these forms of construction, however, there are found to be serious objections. In the first form, it is found that the joint made by driving the wedge into the aperture beside the bent end of the wire, is very insecure and unsatisfactory. A great objection to the use of the second form, is that in driving the rivets into the apertures, and heading them down, the ends of the wire are very liable to become loosened in the transverse apertures and the electrical connection thus destroyed. With the third form of construction, it is found that the contacts between the rings or loops at the ends of the wire, and the rivets, are often imperfect and unreliable. With the last form of construction, the helical coils at the end of the wire, do not bear firmly against the side of the rail, and hence, an imperfect contact is established.

With our improved form of construction, the ends B B of the bond wire, are inserted in the apertures in the webs E E of the rails, the washers C C being driven into firm contact with the faces of the webs of said rails, and the ends of the wire then headed down upon the opposite sides of the webs of the rails, as shown at *b b*, in Fig. 2. The faces of the washers which rest against the sides of the webs of the rails afford a broad contact or bearing surface, and the tighter the ends of the wire are driven into the apertures and riveted or headed down upon the opposite side, the more perfect will become the contacts. Inasmuch as the wires rest against the outside of the washers, there is no liability of the contact between the ends of the wires, and the said washers becoming broken or imperfect by reason of the hammering or pounding upon them in riveting them in place.

It will be understood, that any desired metallic conducting material may be employed for forming the bond wires and the metallic washers.

Our improved device is very simple and cheap of manufacture, and is found to give excellent satisfaction in practical use.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

A bond wire for electrical conductors, comprising a metallic conducting wire having laterally bent ends, and suitable washers provided with concentric apertures for the admission of said bent ends, and with radial grooves or channels for the admission of the portions of the wire next to the angles or bends therein, so as to permit said wire to lie substantially flush with the outer faces of said washers, substantially as described.

In testimony whereof we sign this specification in the presence of two witnesses.

ALBERT HOFFMANN.
JOSEPH BROGAN.

Witnesses:

JOHN E. WILES,
M. M. WILES.