Feb. 17, 1925. 1,526,862

S. MISKELLY

BONDING PIN

Filed Feb. 28, 1923

Fig. 1.

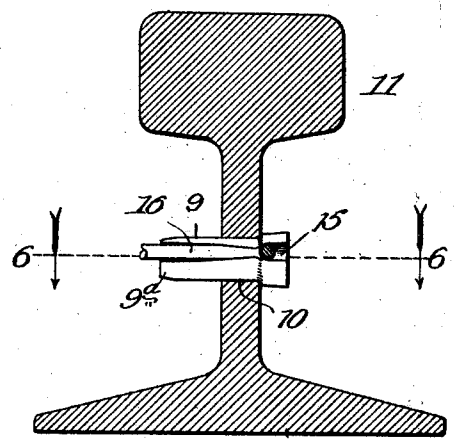


Fig. 2.

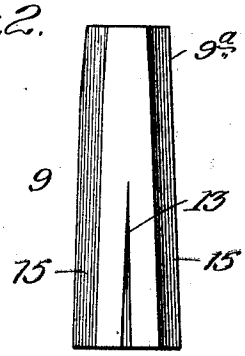


Fig. 3.

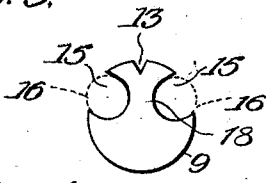


Fig. 5.

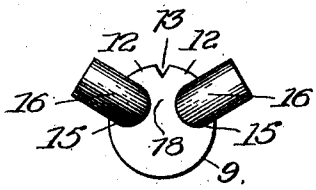


Fig. 4.

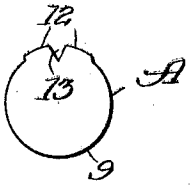


Fig. 6.

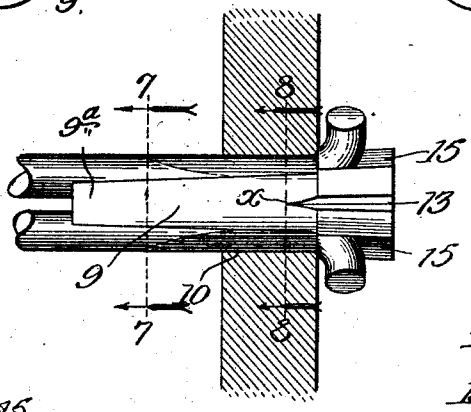


Fig. 7.

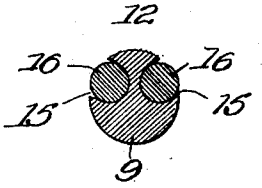
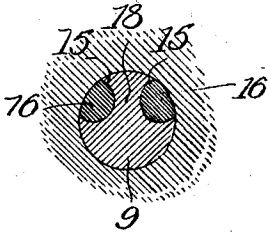


Fig. 8.



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UNITED STATES PATENT OFFICE.

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BONDING PIN.

Application filed February 28, 1923. Serial No. 621,783.

To all whom it may concern:

Be it known that I, SAMUEL MISKELLY, a citizen of the United States, residing at Downers Grove, in the county of Du Page and State of Illinois, have invented a new and useful Improvement in Bonding Pins, of which the following is a specification.

My invention relates to an improved construction of the connector known as a bonding-pin and which, among other uses, is extensively used in longitudinally-grooved tapering form as a plug for driving into holes through the end-portions of the webs of successive rails in a railway-track, to secure wires for electrically connecting the rails across the gap between them.

In the accompanying drawing—

Figure 1 is a transverse section through a railway-rail equipped with my improved wire-securing pin; Figure 2 shows the pin in elevation by an enlarged view; Figure 3 is an end view of the butt-end of the pin, showing the wires in its grooves by dotted representation; Figure 4 is a similar end view of the blank before providing therein the wire-receiving grooves; Figure 5 is a view like that presented in Figure 3, but showing the wires, broken away, by full-line representation; Figure 6 is an enlarged section on line 6—6, Fig. 1, and Figures 7 and 8 sections respectively on line 7—7 and 8—8, Fig. 6.

The blank A, shown in exaggerated size in Fig. 4, is of the usual shape of the pin 9 represented in Fig. 2, involving a gradual taper extending nearly to its narrower end, where it terminates in a sharper and relatively short-taper at 9^a to facilitate insertion of the pin, for driving it, into a hole 10 provided to receive it in the web of a rail 11. It is to be noted, as a feature of my improved construction that the section of the blank A represented at 12 is, for the purpose hereinafter explained, of enlarged radius relative to the remainder of the circumference, and a notch 13, shown to taper toward its forward end, is formed to extend lengthwise and centrally of the section 12 preferably short of the tapered end 9^a of the blank.

Similar wire-receiving grooves 15, 15 are formed to extend convergingly, as usual, longitudinally through the blank, but in that section thereof of relatively greater radius on the same side of a diametrical plane through the axis of the pin, and this for the wire-securing purpose hereinafter explained.

To apply my improved pin to its bonding purpose in a railway-track it is inserted, point-end, into a hole 10 in a rail 11 with a wire-end in each groove 15, and the pin is then driven, at its butt-end, through the hole to wedge it therein. Owing to the taper of the pin and slight widening of the hole by the initial driving, no transverse compression of the pin occurs until it has been driven to the extent of about one-third of its length. The progressive wedging effect of further driving is to so compress the pin that the section 12 is bent in opposite directions and more or less stretched crosswise of the respective wire-lengths in the grooves 15 to tightly hug and firmly secure the wires therein, making good electrical contact thereof with the pin. This bending is facilitated or induced by provision of the notch 13; and the stretch referred to is shown to result since the notch, by spreading of the metal at opposite sides thereof, disappears from its forward extremity to about the point x (Fig. 6, or, nearly to the outer side of the hole. The larger radius of the section 12 affords a surplus metal to so compensate for thinning it by the stretching as to prevent the edge-portions of the grooves from being thereby rendered unduly attenuate. However, the primary feature of my improvement lies in providing the grooves in the same side of a diametrical plane through the axis of the pin, whereby the metal at the groove-edges of that section is sufficiently weakened to readily bend and be pressed by the wedging drive over the wires to tightly hug them in the grooves.

The view presented in Fig. 8 shows how driving the pin through a hole 10 not only causes the wires that remain within its confines to be closely hugged in the pin-grooves, but conforms the outer surfaces of the wires within that area to the radius of the driven pin. The view presented in Fig. 7 shows the absence of any compression-effect on the pin toward its advance-end to have been produced by driving it into place, and no bending or stretching there over the wires of the notch-divided portions of the section 12, which has retained its original radius. As will be clear, the web or septum 18 between the grooves 15, which of course tapers cor-

respondingly with the pin, is not subjected toward either end to compression serving in any way to enhance hugging of the wires, this effect being caused solely by the bending produced by the driving wedging action hereinbefore described.

I realize that considerable variation is possible in the details of construction herein shown and described, and I do not intend to limit my invention thereto except as pointed out in the appended claim, in which it is my intention to claim all the novelty inherent in my invention as broadly as permissible by the state of the art.

I claim:

A solid bonding-pin of tapered form provided with a longitudinally-notched section of relatively large radius and containing longitudinal wire-receiving grooves both on the same side of a diametrical plane through the axis of the pin and extending in separated relation the full length of the pin.

SAMUEL MISKELLY.