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E. J. SABOL

2,074,810

BOND

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Fig. 2.

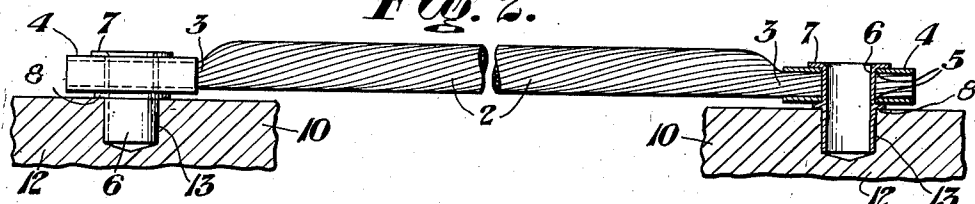


Fig. 4.

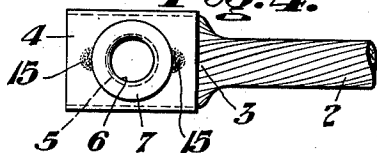


Fig. 5.



Fig. 6.

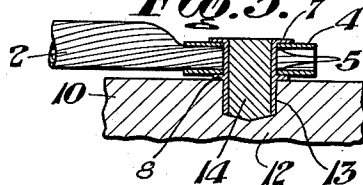


Fig. 7.

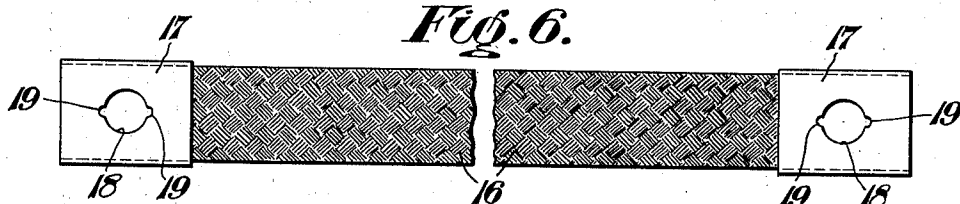


Fig. 8.

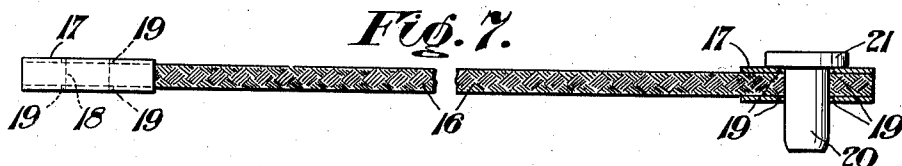
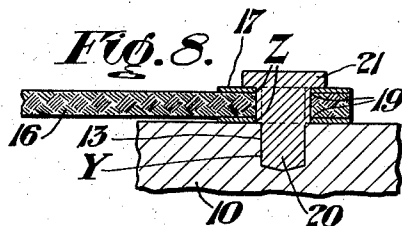
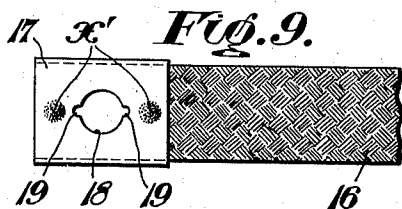


Fig. 9.



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UNITED STATES PATENT OFFICE

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2 Claims. (Cl. 173-280)

This invention relates to bonds, and more particularly to those of the "signal" type for conducting electricity between alined and adjacent rail ends, although not limited thereto.

It is among the objects of the present invention to provide a bond of the class described which may be cheaply and easily manufactured and installed, and one which will, at the same time, be capable of a high degree of conductivity.

This and further objects will be apparent from the drawing, in which:

Figure 1 is a plan of the device of the invention.

Figure 2 is an elevation of the device of Figure 1, showing one of its ends in section.

Figure 3 is a fragmentary sectional elevation of the device of the invention as applied to a rail.

Figure 4 is a fragmentary plan of a modification.

Figure 5 is an elevation of one of the details.

Figure 6 is a plan of a further modification.

Figure 7 is an elevation of the modification of Figure 6.

Figure 8 is a fragmentary sectional elevation of the device of the modification of Figures 6 and 7 as applied to a rail.

Figure 9 is a further modification of the embodiment of Figures 6 and 7 and 8.

Referring more particularly to the drawing, the numeral 2 designates a round stranded conductor which is flattened on both of its ends, as at 3. A rectangular sleeve 4 is disposed on each of the flattened ends 3 of the conductor 2. Each of these sleeves 4 is provided with an aperture 5, preferably by punching, which extends through the flattened ends 3 of the conductor. A tubular rivet or ferrule 6, having an annular flange 7 on one of its ends, is disposed in each of the apertures 5 with the flange in contact with the adjacent sleeve. Each of the tubular rivets 6 is preferably provided adjacent the sides of the sleeves 4 which are remote from the annular flanges 7 with an exterior flange 8. The exterior flanges 8 of the rivets 6 contact the adjacent sleeves 4 in the manner of the flanges 7.

The device of the invention is adapted for use between the ends of an alined pair of rails, as shown at 10. The heads 12 of the ends of the rails 10 are recessed, as at 13, to accommodate the tubular rivets 6.

In installing the bond, the rivet 6 on each end of a conductor 2 is disposed in one of the recesses 13. A soft metallic pin 14 is placed in each

of the tubular rivets 6 and compressed, or upset, in any suitable manner, thus forming a rigid union between rivet and rail head.

Referring to Figure 4 of the drawing, a modified form of the invention is shown as comprising the spot-welding of the flanges 7 of the tubular rivets 6 to the adjacent surfaces of the sleeves 4, and on opposite edges thereof, as shown at 15.

Referring to Figures 6, 7, 8 and 9, a further modification comprises a braided or flat stranded conductor 16 which is provided on each of its ends with a sleeve 17. Each of the sleeves 17 is apertured, as at 18, in a manner to extend through the conductor. The sleeves 17 are recessed on each side of their apertures 18, as shown at 19. A pin 20 is provided for each of the apertures 18 and each has an enlarged head 21 on its end adjacent the recesses 19. In installing this embodiment of the device of the invention the pins 20 are upset on both of their ends, those within the recesses 13 of the rails 10 expanding, as at Y, while the heads thereof fill the recesses 19 on each side of the apertures 18 of the sleeves 17, as shown at Z.

It will be apparent to those skilled in the art that the sleeves 4 and 17 may be secured to the conductors 2 and 16, respectively, by immersion in molten solder, in lieu of the spot-welding previously mentioned. In this event the wires of the conductor will be effectively prevented from extending into the apertures 5 and 18.

Referring to Figure 9 of the drawing, a further embodiment of the device of Figures 6, 7 and 8 is shown as comprising a spot-weld X' between each of the sleeves 17 and the ends of the braided or flat stranded conductor 16 at positions spaced from the apertures 18.

Whichever embodiment is used, a rigid union is formed between the conductor and rail head 12.

While I have shown and described several specific embodiments of my invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of my invention, as defined in the following claims.

I claim:

1. In combination, a rail having a recess therein, a conductor, a sleeve on an end of said conductor, said sleeve and the end of said conductor having a continuous aperture, a tubular rivet extending through said aperture and into the recess in said rail, a pair of spaced exterior flanges on said tubular rivet, said flanges being in contact with the adjacent surface of said sleeve, and a pin in said tubular sleeve, said pin

being upset to snugly occupy the bottom of the recess in said rail and to occupy the interior of said tubular rivet.

2. In combination, a rail having a recess therein, a conductor, a sleeve on an end of said conductor, said sleeve being secured to said conductor, said sleeve and the end of said conductor having a continuous aperture, a tubular rivet extending through said aperture and into the

recess in said rail, a pair of spaced exterior flanges on said tubular rivet, said flanges being in contact with the adjacent surface of said sleeve, and a pin in said tubular sleeve, said pin being upset to snugly occupy the bottom of the recess in said rail and to occupy the interior of said tubular rivet. 5

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