Sept. 27, 1927. 1,643,755

T. G. STILES

RAIL BOND

Filed July 2, 1921

Fig. 1

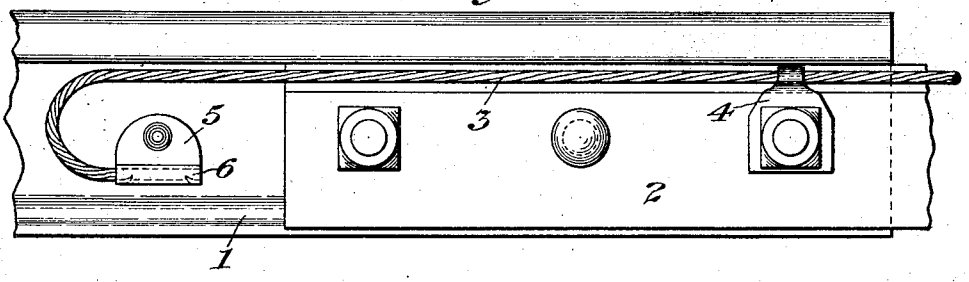


Fig. 2

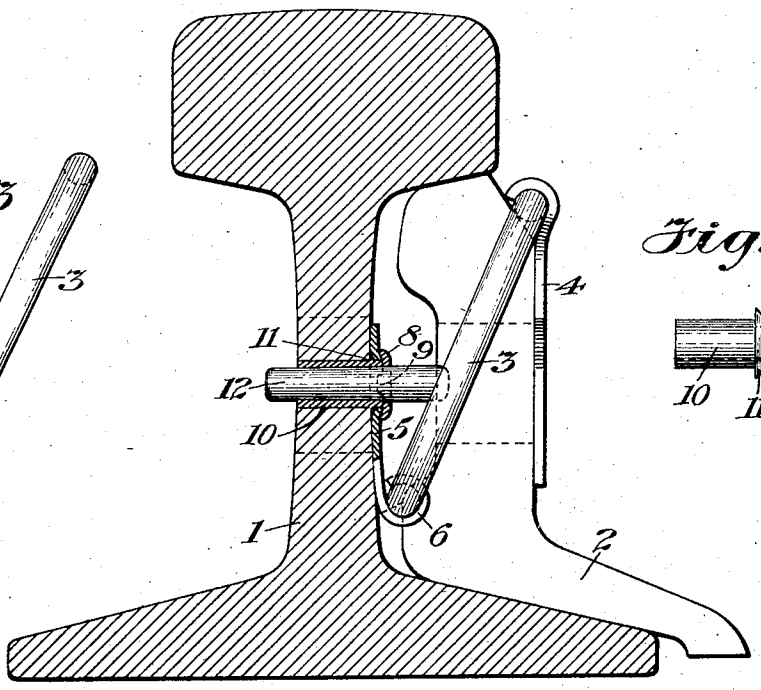


Fig. 3

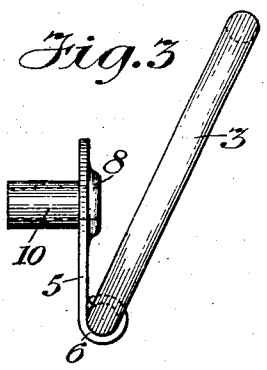


Fig. 6

Fig. 4

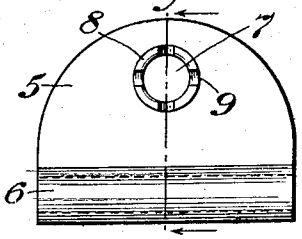
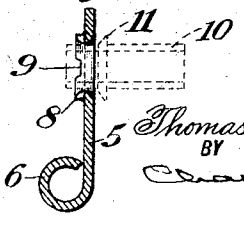


Fig. 5



INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS GEORGE STILES, OF ARLINGTON, NEW JERSEY.

RAIL BOND.

Application filed July 2, 1921. Serial No. 482,055.

This invention relates to certain improvements in rail bonds, and particularly to an improved means for securing the bond wire to the rail.

The particular object of the present invention is to overcome the various disadvantages and inherent defects of the present types of rail bonds in general use. According to the old method of making a rail bond, or the one in most general use, a tapered channel pin carrying the bond wire in the channel was driven into an opening in the rail, and usually in the web of the rail. This was found to be objectionable, owing to water getting into the joint, causing oxidation and a choking of the current, and it was for the purpose of eliminating these very undesirable conditions that the construction constituting my present invention has been devised.

Generally stated, the invention comprises a metal plate for attachment to the rail, formed with an upturned edge providing a loop in which one end of the bond wire is secured, and with an opening in its body portion having an annular struck-up flange the outer edge of which is provided with one or more notches, and a ferrule of copper or other relatively soft metal having an annular tapered shoulder or flange near one end thereof, said ferrule being secured within said opening in the metal plate. In assembling the device, one end of the ferrule is inserted through the opening in the plate until the shoulder or flange of said ferrule engages the inner tapered or inclined surface of the struck-up flange on the plate, leaving a portion of the ferrule projecting through said plate, after which the projecting portion of the ferrule is swaged or turned over the notched flange of the plate to force the shoulder of the ferrule in close contact with the inner side of the flange of the plate, and to also cause the swaged-over portion of the ferrule to be pressed into interlocking engagement with the notched edge of said flange, thus forming an interlocking connection between the ferrule and the plate and preventing any relative movement of the parts. After the plate and ferrule have been thus assembled, the rear projecting end of the ferrule is inserted into an opening in the rail and locked therein by a tapered pin which is driven into the ferrule.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

Fig. 1 is a side elevation of a half-section of a rail joint having the invention applied thereto.

Fig. 2 is an enlarged end view, partly in section, illustrating the various parts in assembled relation.

Fig. 3 is a side elevation of the bracket with the bond wire attached thereto.

Fig. 4 is a front elevation of the plate.

Fig. 5 is a vertical section thereof, and

Fig. 6 is a side elevation of the ferrule.

Referring to the drawings, 1 represents an end portion of a rail adjacent a rail joint to which the invention is adapted to be applied, and 2, a section of the fish plate associated therewith. The rail bond wire 3 is adapted to span the joint in the customary manner and its intermediate portion is supported by one or more clips 4, preferably secured to the fish plate 2, as shown.

For the sake of convenience in illustration and description, only a half-joint is shown, but it is of course to be understood that both ends of the bond wire 3 are secured to the adjoining rail sections in a similar manner. This is accomplished by a novel form of bracket comprising a plate 5 of sheet steel or other suitable metal having a lower upturned loop 6 in which the end of the bond wire is secured. The upper intermediate portion of the plate 5 is provided with an opening 7 having a struck-up flange 8, the outer edge of said flange being provided with one or more notches 9. Adapted to be secured within the opening 7 of the plate 5 is a soft metal ferrule 10, preferably of copper, having formed adjacent one end thereof a tapered annular shoulder 11, which shoulder, when the ferrule 10 is inserted in the opening 7 of the plate 5, will engage the inner tapered or inclined surface of the struck-up flange 8.

To firmly secure the ferrule 10 in this position to the plate 5, that portion of the ferrule projecting through the opening 7 is swaged or turned back over the notched flange 8 to force the annular shoulder 11 of the ferrule in close contact with the inner inclined surface of the flange 8 and the swaged over portion of the ferrule into interlocking engagement with the notches 9 of said flange 8, this interlocking connec-

tion between the ferrule 10 and the plate 5 preventing any relative movement between the parts.

After these parts have been thus assembled, the projecting portion of the ferrule is inserted in an opening formed preferably in the web of the rail and secured therein by a driven tapered pin 12, which will force the soft metal of the ferrule into the grain of the metal of the rail and thereby provide a water-tight connection between said bracket and rail.

With the above arrangement and construction a triple-locked device is produced. The shoulder 11 formed on the ferrule first engages the plate on one side, the turned over end of the ferrule engages the plate on the opposite side, and the tapered pin, in addition to securing the bracket to the rail, also acts as an additional means for locking the various parts together. It is to be noted also that aside from assisting in securing the ferrule 10 to the plate 5, the shoulder 11 performs another function. When it is desired to remove the bracket from the rail, the lock pin 12 is driven out, and as the ferrule 10 is forced outward the shoulder 11 will cause the bracket plate 5 to move outwardly with it without imposing any strain on the bracket, the said parts being maintained in their interlocked relation.

What I claim is:—

1. A rail bond, comprising a two-part bracket including a plate having a wire-engaging loop at one edge, said plate also having an opening and an annular flange surrounding said opening formed with an inner tapered face, a ferrule mounted in said opening having an annular shoulder adjacent one end thereof engaging the inner tapered face of the annular flange on the plate, an outer end turned back over said flange and a projecting inner end adapted to be inserted in an opening in a rail, and a tapered pin for wedging the ferrule in the latter opening.

2. A rail bond, comprising a two-part bracket including a plate having a wire-engaging loop at one edge, said plate also having an opening and a notched annular flange surrounding said opening formed with an inner tapered face, a ferrule mounted in said opening having an annular shoulder adjacent one end thereof engaging the inner tapered face of the annular flange on the plate, an outer end turned back over said notched flange and a projecting inner end adapted to be inserted in an opening in a rail, and a tapered pin for wedging the ferrule in the latter opening.

3. A rail bond connector, comprising a plate having an opening therein surrounded by a flange provided with a notched rim, and a wire receiving loop at one edge of said plate; a ferrule mounted in said opening having an annular flange engaging the plate at the peripheral edge of said opening, an outer end turned back over said flange and interlocking with the notched edge of the latter, and an inner end adapted to engage an opening in a rail; and means for wedging the ferrule in the latter opening.

Signed at New York, in the county of New York, and State of New York, this 29th day of June A. D. 1921.

THOMAS GEORGE STILES.