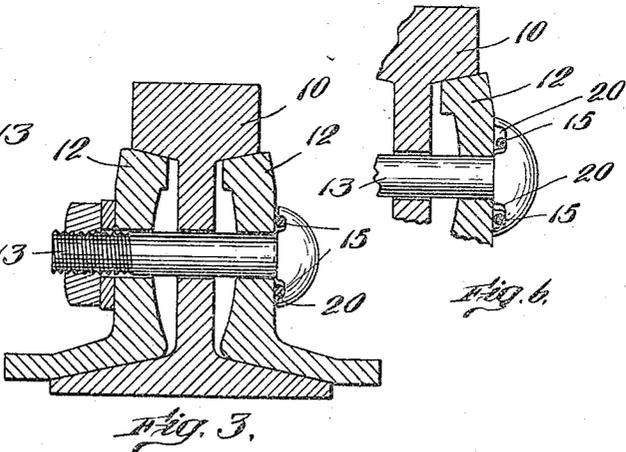
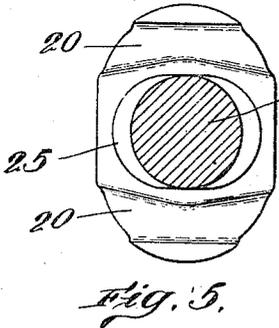
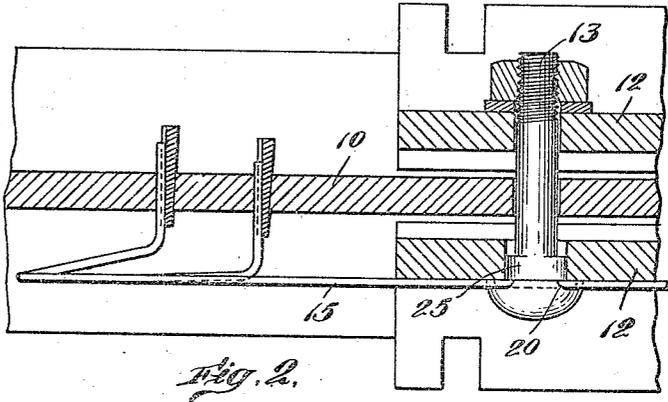
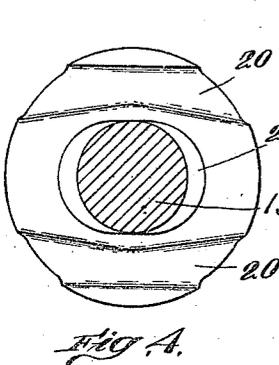
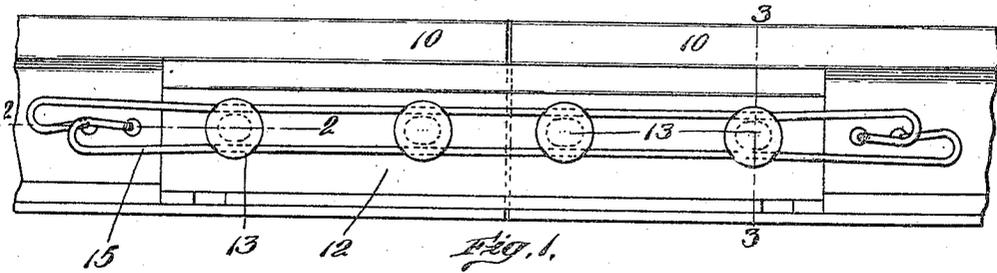


A. A. ZIEGLER.
 BONDING DEVICE FOR RAILS.
 APPLICATION FILED JUNE 23, 1913.

1,154,903.

Patented Sept. 28, 1915.



Witnesses:
 H. B. Davis.
 C. Doyle.

Inventor:
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 Attys

UNITED STATES PATENT OFFICE.

ALFRED A. ZIEGLER, OF BOSTON, MASSACHUSETTS.

BONDING DEVICE FOR RAILS.

1,154,903.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed June 23, 1913. Serial No. 775,276.

To all whom it may concern:

Be it known that I, ALFRED A. ZIEGLER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Bonding Devices for Rails, of which the following is a specification.

This invention relates to bonding-devices for rails. It is the common practice to attach the ends of the bond-wires to the rails and to form large loops which extend over the tie-plates. These loops are unsupported except at their ends and are very objectionable on account of the liability of being broken, and in such event the signal-circuit is disrupted. Heretofore means have been devised for supporting the bond-wire loops between their ends, but either the wires are concealed for a substantial portion of their length and hence do not admit of immediate inspection, or they are connected with the tie-plate or with the attaching-means for the tie-plate in such manner as to interfere therewith and cause trouble, particularly between the men who have charge of the track, and the men who have charge of the signal-system, and, so far as I am aware no support for a bond-wire loop has ever been adopted.

This invention has for its object the construction of an improved form of support for a bond-wire loop which is adapted to support the loop in such manner that it is exposed throughout its length for inspection, and while not interfering with the tie-plate or the attaching-means therefor, may serve to hold the bond-wire in electrical engagement with the tie-plate for additional security.

My invention includes a special form of attaching-bolt which is utilized as a support for the bond-wire loop, said bolt having formed entirely across the under side of its head one or more grooves adapted to receive the bond-wire and admit of a slight turning movement of the bolt, and having formed on its shank below its head an elongated boss adapted to enter the elongated hole in the tie-plate to prevent turning of the bolt when the nut is tightened or loosened.

Figure 1 is a front elevation of the end-portions of a pair of rails, a tie-plate, attaching-bolts for the tie-plate embodying this invention and bond-wires. Fig. 2 is an enlarged transverse longitudinal section

taken on the dotted line 2—2, Fig. 1. Fig. 3 is an enlarged transverse vertical section taken on the dotted line 3—3, Fig. 1. Fig. 4 is an under side view of the head of the attaching-bolt. Fig. 5 is an under side view of a modified form of attaching-bolt. Fig. 6 is a detail of a modification to be referred to.

10, 10 represent the end-portions of the rails; 12 the tie-plate which is secured thereto by attaching-bolts 13, and 15 the bond-wire which is attached at its ends to the end-portions of the rails, and which is formed as a loop. The head of the attaching-bolt has one or more grooves 20, see Fig. 4, extended entirely across its under side, said grooves being made at least as wide as the diameter of the wire at its middle, and much wider at its ends, so as to loosely receive the wire, and also admit of a slight turning movement of the head when the wire is arranged in the groove. Said grooves are made of a depth corresponding approximately to the diameter of the wire; and in Fig. 3 they are shown as of a slightly less depth than the diameter of the wire, and in Fig. 6 of a slightly greater depth than the diameter of the wire. When the grooves are made of a slightly less depth than the diameter of the wire the head impinges upon the wire and affords an additional contact with the wire and holds the wire in firm engagement with the tie-plate, thereby establishing an electrical connection which is of importance in case the wire breaks at a point beyond or between the attaching-bolts. When the grooves are made of a slightly greater depth than the diameter of the wire the bond-wires may be removed for the purpose of repairing them or new bond-wires may be placed in position without disturbing the attaching-bolt. To prevent the bolt from being turned while the nut is being tightened or loosened an elongated or oval-shaped boss 25 is formed on the shank of the bolt beneath the head which substantially corresponds in size and shape with the elongated or oval-shaped hole in the tie-plate, thereby to admit of its entering said hole in the tie-plate. The bond-wire, when thus supported, will be exposed substantially throughout its length.

I claim:—

1. A support for bonding wires intermediate their terminal rail connections, including tie bolts for securing the fish plates in rail engaging position, the heads of one

or more of said bolts being formed in the surface next the fish plate with channels to receive the intermediate portions of said bonding wires, the surface with which the heads of the bolts engage closing said channels to form a bond wire receiving opening open only at the ends and through which the wires may be threaded without disturbing the bolts.

10 2. A support for bonding wires intermediate their terminal rail connections, including tie bolts for securing fish plates in rail engaging position, the heads of one or more of said bolts being formed in the sur-

faces next the fish plates with channels to receive the intermediate portions of said bonding wires, one wall of each of said channels being of irregular formation to increase the size of the channel ends with respect to the central portion thereof. 20

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALFRED A. ZIEGLER.

Witnesses:

B. J. NOYES,
H. B. DAVIS.