May 17, 1932. M. SCHWARTZ 1,858,284

ELECTRIC CURRENT CONDUCTING BOND

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Fig. 1.

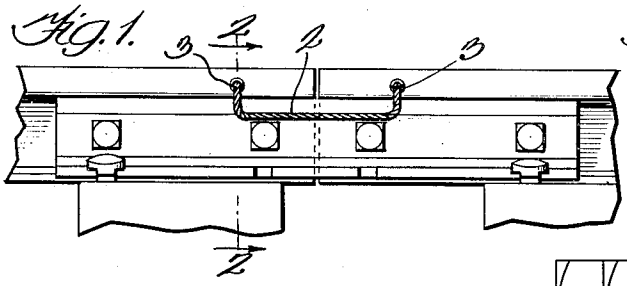


Fig. 2.

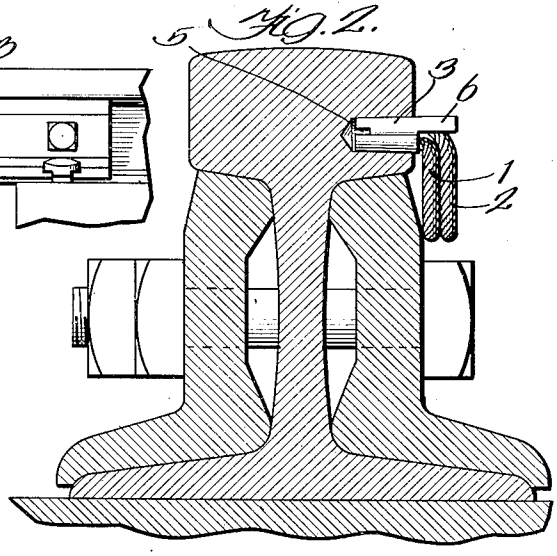


Fig. 3.

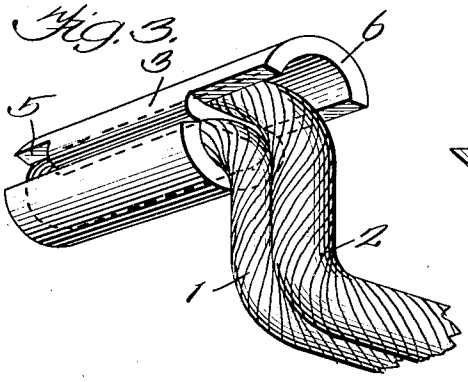


Fig. 6.

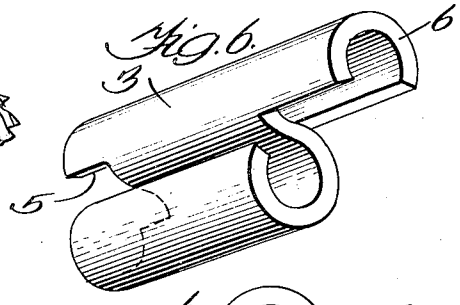
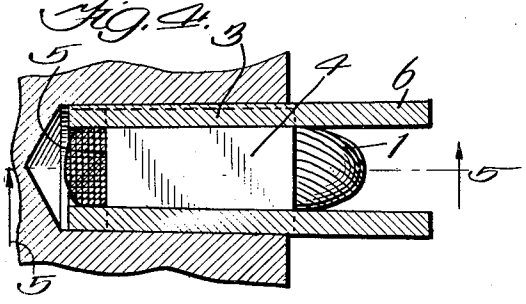


Fig. 4.



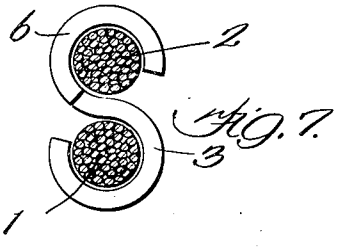
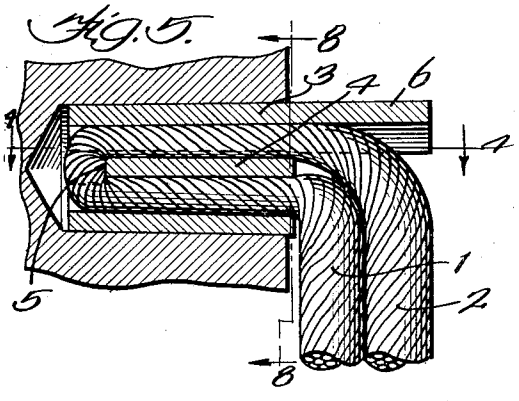


Fig. 7.

Fig. 5.



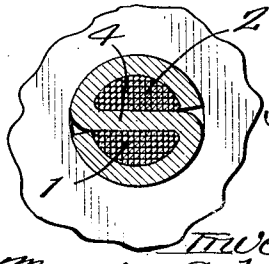


Fig. 8.

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Fig. 9.

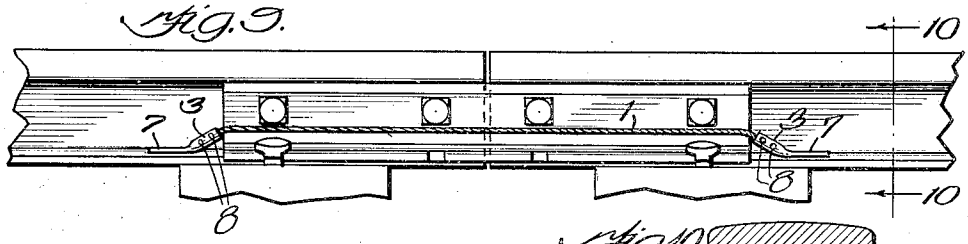


Fig. 10.

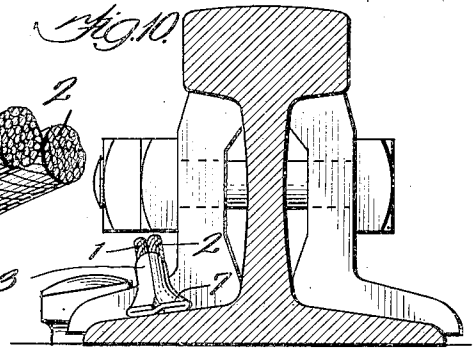


Fig. 11.

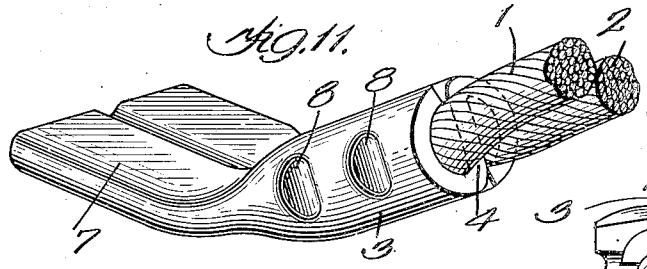


Fig. 12.

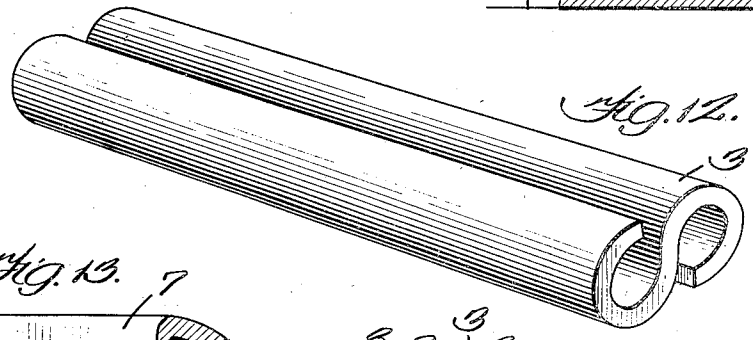


Fig. 13.

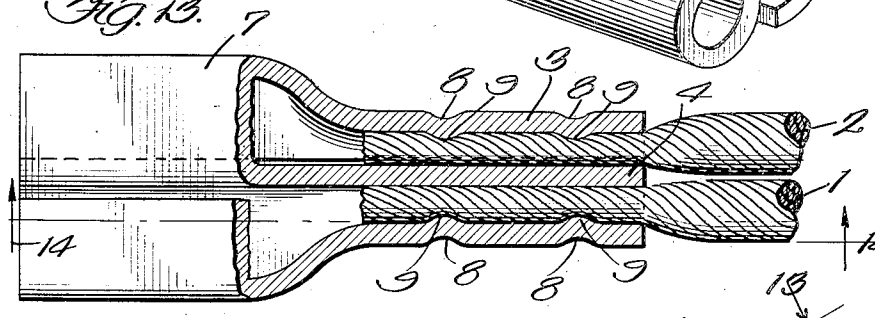


Fig. 15.

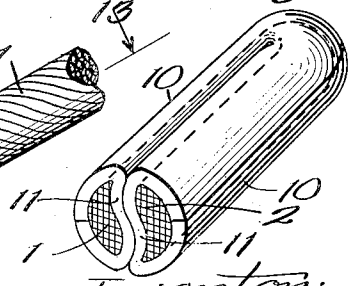
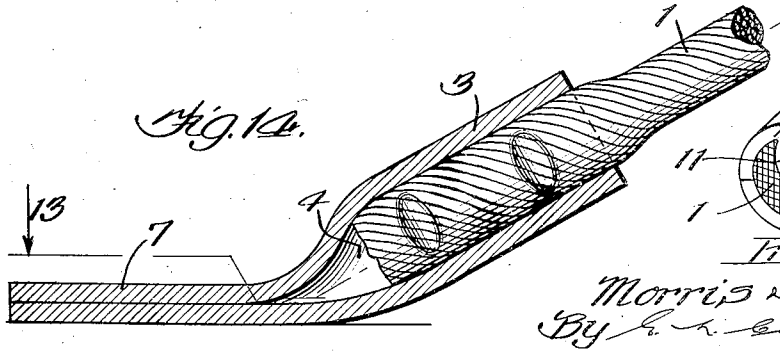


Fig. 14.



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Patented May 17, 1932 1,858,284

UNITED STATES PATENT OFFICE

MORRIS SCHWARTZ, OF CHICAGO, ILLINOIS

ELECTRIC CURRENT CONDUCTING BOND

Application filed March 17, 1926. Serial No. 95,302.

My invention relates to electric current conducting bonds, such as are used in electrically connecting railway rails.

The invention has for its object the provision of a construction whereby very firm mechanical and electrical union is effected between the current conducting metallic rod portions of such bonds and the metallic current conducting terminals provided upon the ends of the rods. These terminals may be formed to constitute plugs that may be driven into socket openings provided in the rails or may be so shaped as to enable them to be welded upon the rails.

The electric current conducting bond of my invention is inclusive of an elongated metallic shell having a partition dividing its bore into two rod receiving spaces and preferably integrally continuous at its longitudinal edges with contiguous portions of the shell, and two metallic rods, one tightly held by the shell in each of said receiving spaces. In the preferred embodiment of the invention the shell is formed of sheet metal folded to constitute the shell having the two spaces, the shape of the shell being desirably in the form of an 8, in cross section.

The invention will be more fully explained in connection with the accompanying drawings in which Fig. 1 is a side view illustrating the adjacent ends of two railway rails mechanically coupled in any usual or preferred manner and electrically connected by a bond formed in accordance with my invention, the bond illustrated in this figure being inclusive of a rod element equipped with terminal plugs; Fig. 2 is a sectional view on line 2—2 of Fig. 1, on a larger scale; Fig. 3 is a perspective view illustrating one end of the bond that is shown in Fig. 1; Fig. 4 is a sectional view on line 4—4 of Fig. 5; Fig. 5 is a sectional view on line 5—5 of Fig. 4; Fig. 6 is a perspective view of the shell as it appears before it is placed about the rod element of the bond; Fig. 7 is an end view of the shell with two rods partially surrounded thereby and before the shell is collapsed into tight engagement with the rod; Fig. 8 is a sectional view on line 8—8 of Fig. 5; Fig. 9 is a view somewhat similar to Fig. 1 with the exception that the current conducting rod element there shown is equipped with terminals that are welded into mechanical and electrical engagement with the flanges of the two adjacent railway rails; Fig. 10 is a sectional view on line 10—10 of Fig. 9, on a larger scale, Fig. 11 is a perspective view of one end of the bond that is shown in Fig. 9; Fig. 12 is a perspective view of one shell of Fig. 9 before it is assembled with the current conducting rod portions of the bond; Fig. 13 is a view partially in plan and partially in section of the bond shown in Fig. 9, the sectional portion being taken on line 13—13 of Fig. 14; Fig. 14 is a sectional view on line 14—14 of Fig. 13; and Fig. 15 is a perspective view illustrating another modification.

The invention will be first described more particularly in connection with the construction shown in Figs. 1 to 8 inclusive. The current conducting rod element of the bond is illustrated, in these figures, as being inclusive of two rod portions 1 and 2 placed abreast. These rod portions may be discontinuous or they may be formed in one piece folded at its mid portion to constitute the two parts that are located abreast, as illustrated. The rod element may be flexible in which case it is formed of strands, this formation being preferred where the rod element is equipped with plugs at its ends. Metallic connecting plugs 3 are assembled with the rod element of the bond. These connecting plugs are desirably formed of sheet metal of substantially uniform thickness, the metal sheets being curled to form shells that are 8-shaped in cross section. Each shell is only partially formed, as illustrated in Figs. 6 and 7, in order that the rod portions 1 and 2 may be inserted in the spaces provided thereby. The rod portions are next assembled with the shell as illustrated in Fig. 7 whereafter the shell is collapsed as indicated in Fig. 8 to tightly hold the rod portions within the two spaces of the shell, whereby a firm mechanical and electrical union is effected between the shell and said rod portions. The shell, thus formed, is sinuous and 8-shaped in cross section, the shell consequently having a par-

tition 4 dividing its bore into two spaces. This partition is preferably integrally continuous at its longitudinal edges with contiguous portions of the shell. Each shell is desirably initially cut away at 5 whereby such shell extends inwardly beyond the current conducting rod portions 1 and 2 to serve as a guard for the rail entering ends of these rod portions. Each shell is outwardly extended as indicated at 6 on one side of the rod element of the bond to enable such element to receive hammer blows without injuring the rod element of the bond. If desired, each plug shell may be slightly tapered toward the rail entering end thereof.

The structure shown in Figs. 9 to 14 inclusive has many characteristics in common with the construction shown in Figs. 1 to 8 inclusive, similar parts being given similar characters of reference. The terminals in the structure of Figs. 9 to 14 inclusive are not in the form of plugs, as in the other construction, but are flattened, as indicated at 7 to enable them to be welded upon the flanges of the rails, the shells being made longer for this purpose than when they are formed to serve as plugs. Each shell may be indented upon its sides as indicated at 8 to produce bulges 9 that are pressed into the rod portions 1 and 2 to further guard against the withdrawal of said rod portions.

In the structure of Fig. 15, a tubular shell, which may be formed of sheet metal, substantially uniform in thickness, curled into a cylinder, is bent upon itself, the two portions 10 of the shell, with the rod portions therein, being pressed together to tightly hold the rod portions in firm mechanical and electrical union therewith. The partition between the rod receiving spaces of the shell is double as indicated at 11, each partition portion 11 being integrally continuous at its longitudinal edges with contiguous portions of the shell. The shell, in each of the embodiments of the invention illustrated, is substantially uniform in thickness.

Having thus described my invention, I claim:—

An electric current conducting bond including a metallic shell constituting a terminal plug and having a partition dividing its bore into two receiving spaces, this partition terminating short of the entering end of the plug; and a metallic rod element bent at the entering end of the plug, to be received in both receiving spaces, the rod, where bent, being surrounded by the shell to be guarded thereby.

In witness whereof I hereunto subscribe my name.

MORRIS SCHWARTZ.