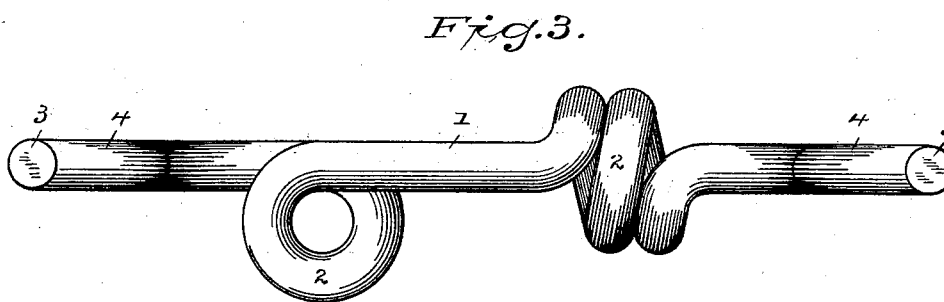
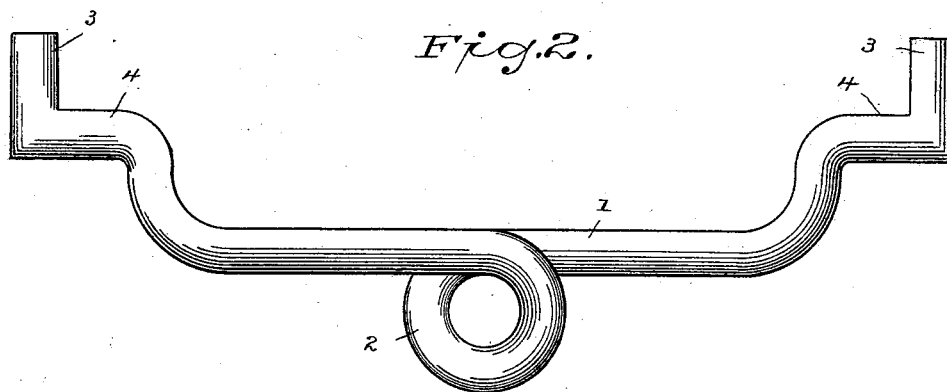
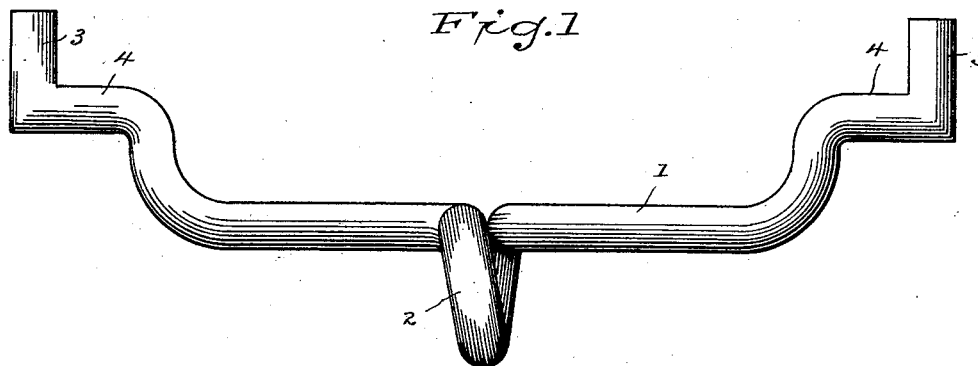


(No Model.)

J. G. HALLAS.
ELECTRIC RAIL BOND.

No. 523,278.

Patented July 17, 1894.



WITNESSES

H. A. Lamb
S. V. Richardson

INVENTOR

James G. Hallas
By *A. M. Wooster*
att'y.

UNITED STATES PATENT OFFICE.

JAMES G. HALLAS, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE BENEDICT & BURNHAM MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRIC RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 523,278, dated July 17, 1894.

Application filed May 1, 1894. Serial No. 509,705. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. HALLAS, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Electric Rail-Bonds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a bond for the rails of electric railroads which shall be inexpensive to produce and which shall be so constructed as to expand and contract with the expansion and contraction of the rails and which shall have sufficient spring quality to permit it to yield should the rails be unevenly laid or become loosened in use and furthermore to prevent the metal of the bond from becoming crystallized from the continual pounding of the wheels of the cars. With these ends in view I have devised the novel electric rail bond which I will now describe referring by numbers to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are elevations, and Fig. 3 is a plan view illustrating slightly different modes in which I have carried my invention into effect.

My novel bond is formed from a single piece of copper wire formed to the required shape.

1 denotes the body of the bond which is provided intermediate its ends, with one or more coils 2 formed from the wire of the bond itself. The exact location, arrangement and number of these coils are not of the essence of my invention, the gist of which consists in providing the bonds with coils so as to give sufficient resiliency to the bond to

give it durability in use by permitting the bond to yield with the expansion and contraction of the rails and by preventing crystallization of the bond itself.

In Fig. 1 I have shown the bond as provided with a single coil lying in a plane transverse to the plane of the bond.

In Fig. 2 the bond is shown as provided with a single coil which lies substantially in the longitudinal plane of the bond and in Fig. 3 I have shown the bond as provided with coils both in the transverse and horizontal planes and in the transverse plane have shown two coils instead of one coil as in Fig. 1. Near the ends of the bond they are bent upward then outward again the ends 3 thereof being turned upward at right angles thereby forming angular shoulders 4 which in attaching are set up close against the under sides of the rails the ends being passed through holes in the rails and headed down in the usual manner the entire bond however being of uniform size.

Having thus described my invention, I claim—

A bond for the rails of electric roads consisting of a body of uniform size having one or more coils formed from the metal of the bond, ends 3 adapted to be passed through adjoining rails, angular shoulders formed by bending the metal at a right angle, and which are adapted to be set up against the under sides of the rails, and the ends of the bonds to be headed down on the upper sides thereof.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES G. HALLAS.

Witnesses:

G. C. NUTTALL,
W. H. THOMPSON.