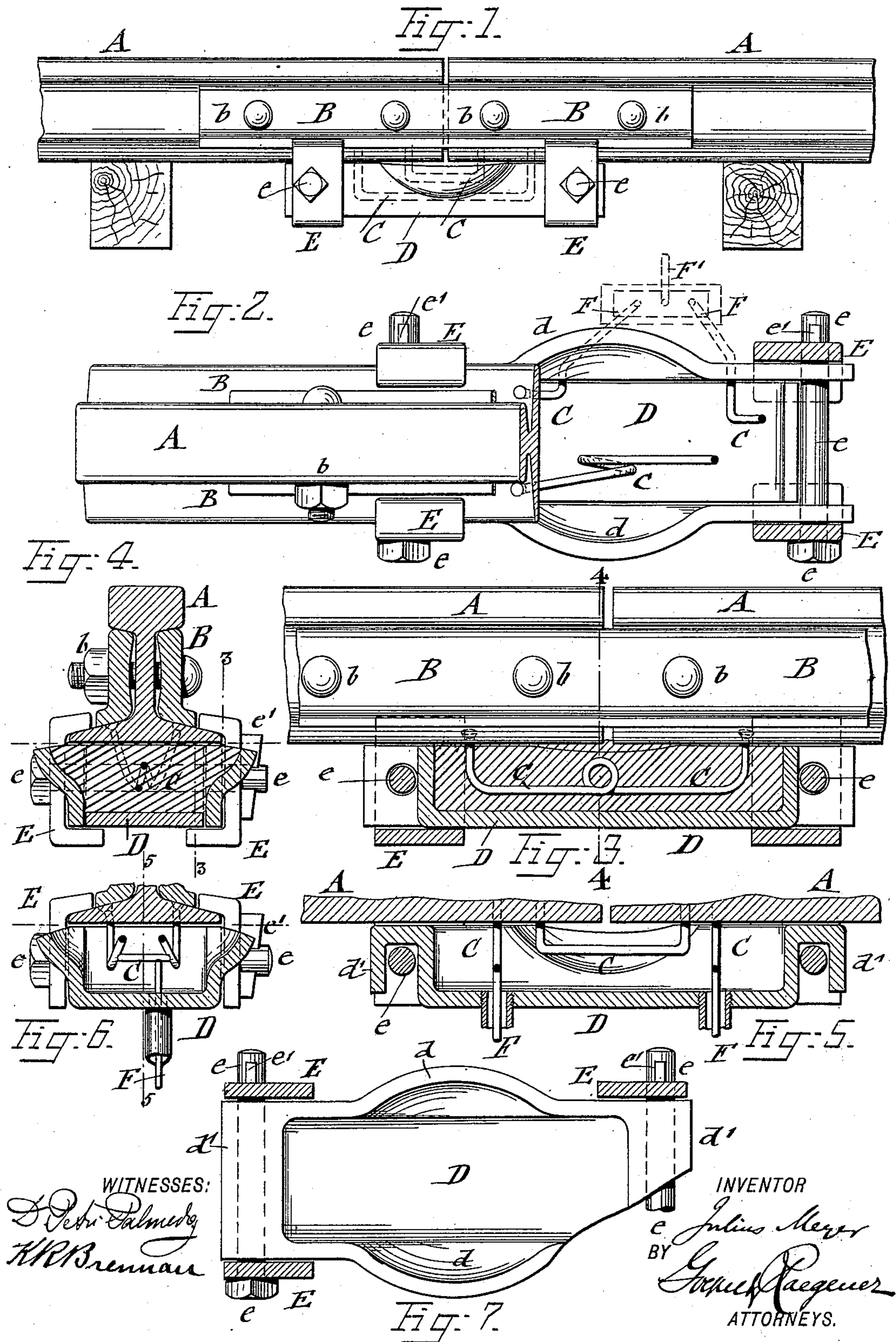


(No Model.)

J. MEYER.  
BOND FOR ELECTRIC RAILWAYS.

No. 518,414.

Patented Apr. 17, 1894.





# UNITED STATES PATENT OFFICE.

JULIUS MEYER, OF NEW YORK, N. Y.

## BOND FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 518,414, dated April 17, 1894.

Application filed January 18, 1894. Serial No. 497,276. (No model.)

*To all whom it may concern:*

Be it known that I, JULIUS MEYER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Bonds for Electric Railways, of which the following is a specification.

In electric railway practice, the necessity of a complete metallic circuit of adequate capacity from the source of power to the motors on the line and back to said source of power is fully recognized. The difficulty lies not in the making of such a circuit but in the maintaining of it. Its weakest part is the conductive connection, or so called "bond," between the several conductors composing the grounded part of the circuit, which conductive connection is exposed to mechanical injury as well as to electrolysis, rust and other corrosive influences. In order to permanently maintain intact this part of the metallic circuit means must be found of removing these deteriorating influences from the bonds and their connections with and their points of contact with the conductors.

The object of my invention is first, to thoroughly insulate the bond or bonds and their connections with and points of contact with the conductors and the protection of them all against injury. This is accomplished by fastening to the rails, beams, bars, castings, forgings or other conductors to be connected, a vessel, box, trough or other hollow container of such shape and in such a manner that an insulating material may be poured into the container so as to completely cover the bond or bonds and its connections with and their points of contact with the conductors which insulating material will protect them against the evils before mentioned.

My invention consists, secondly, in connecting the conductors by way and by means of the insulated bonds with supplemental conductors or feeders outside of the container by insulated conductors from bond to feeder and vice versa or by bringing the bonds to a point of connection with the feeders outside of the container or the feeders to a connection with the bonds inside of the container.

The invention consists furthermore in certain details of construction which will be fully

described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figures 1, 2, 3, and 4 represent one way of carrying out my invention with a containing vessel composed of three parts, while Figs. 5, 6, and 7 show the containing vessel made in one piece, Fig. 1 being more especially a side-elevation of a rail-joint connected by my improved system of insulated electric conductors or bonds. Fig. 2 is a plan-view of Fig. 1, with part of the rails removed showing two different kinds of bonds, one consisting of one piece running inside of the container from rail to rail and the other consisting of two pieces which are connected to a feeder at the outside of the containing vessel, shown diagrammatically. Fig. 3 is a vertical longitudinal section on line 3—3, of Fig. 4, showing one form of construction of the containing vessel in which the bonds are located and insulated. Fig. 4 is a vertical transverse section on line 4—4, of Fig. 3. Fig. 5 is a vertical longitudinal section on line 5—5, of Fig. 6, showing a containing vessel formed of one piece and bonds leading through this vessel to an outside connection with each other. Fig. 6 is a vertical transverse section on line 6—6, of Fig. 5, showing the insulated connection of a feeder with the bonds in the container, and Fig. 7 is a plan of the one-piece container with the rails removed, and showing the means by which the same is attached to the rails in horizontal section.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A A are rails or generally speaking, conductors of electricity which are to be conductively connected. These rails or conductors are mechanically connected by plates B B and bolts *b*. The rails or conductors A A are furthermore conductively connected by a bond or bonds C, the ends of which are fastened to the rails A A in any approved manner.

Below the rails A A is arranged a vessel, trough or container D which can be formed in a variety of ways, two of which are shown: one container consisting of three pieces, a plate having bent-up ends forming the central part of the container D, and two plates having outwardly-bulging portions *d* forming



the sides, as shown in Figs. 2, 3 and 4; the other container D consisting of one piece in the nature of a drop-forging or casting which is provided at its side-walls with outwardly-bulging portions and its ends with downwardly-bent parts or inverted hooks *d* to which latter the different means for fastening the container to the rails are applied as shown in Figs. 5, 6 and 7. The material of the container D may be metal or any other suitable material. The means for fastening the container D to the rails are formed of clamps E, the ends of which engage respectively the base of the rails and the bottom of the container, as shown in Figs. 1 and 4. Any other kind of fastening may be used, as I do not desire to confine myself to the special forms shown. The clamps E are connected with the container D by any known fastening device, for instance by means of transverse bolts *e* which pass respectively through holes in the side-plates of the container, as shown in Figs. 2 and 3, or below the hook-shaped ends of the container, as shown in Fig. 5, said transverse bolts being provided with heads at one end and, for instance, slots at the opposite ends, through which wedge-shaped keys or other locking devices *e'* are applied. After the bonds are connected to the rails, the container D is placed in position and applied by the fastening devices described to the rails. The outwardly-bulging portions of the side-walls of the container D are preferably wider than the rail so as to permit of the running in of a suitable soft or plastic insulating material that may get hard to fill the cavity of the container D, surround the bonds located in the same and their connections with, and their points of contact with the rails and protect all the parts covered by the insulating material.

It is obvious that the metallic conductors may be rails or any other metallic conductor of the electric current employed in electric railways and that the connection of the same by means of bonds may be made in the manner described. The bonds C may also be passed through holes in the side-walls or bottom of the container D to the outside of the same and to a connection F with each other for testing purposes, or to a connection with supplemental conductors or feeders F' wherever this would be desirable, as shown diagrammatically in Figs. 2, 5 and 6, so that current may be fed into or taken off the conductor or conductors by means and by way of the bonds.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric railway, the combination, with conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductors, and insulating material in the container for insulating the bond or bonds and its or their connection with and points of contact with the conductors, substantially as set forth.

2. In electric railways, the combination, with conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductors, said container being provided with outwardly-bulging side-portions, and insulating material in the container, substantially as set forth.

3. In electric railways, the combination, with conductors, of a bond or bonds, one end of which is connected to the conductors, a container, means for fastening the same to the conductors, insulating material in the container insulating the bond or bonds and its or their connection with and points of contact with the conductors, the bonds continued through the container and brought to a connection with each other outside of the container, substantially as set forth.

4. In electric railways, the combination, with a conductor or conductors, of a bond or bonds connecting the same, a container, means for attaching the container to said conductor or conductors, insulating material in the container insulating the bond or bonds and its or their connection with and points of contact with the conductor or conductors, and a supplemental conductor or feeder outside of the container and connected with the bond or bonds or with the conductor or conductors inside of the container, substantially as set forth.

5. In electric railways, the combination, with a conductor or conductors, of a bond or bonds one end of which is connected to the conductor or conductors, a container, means for fastening the same to the conductor or conductors, insulating material in the container insulating the bond or bonds and its or their connection with, and points of contact with the conductors, the bond or bonds continued through the side-walls or the bottom of the container, a supplemental conductor or feeder outside of the container and a connection of the bond or bonds with the feeder or feeders outside of the container, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS MEYER.

Witnesses:

PAUL GOEPEL,  
GEO. L. WHEELLOCK.