

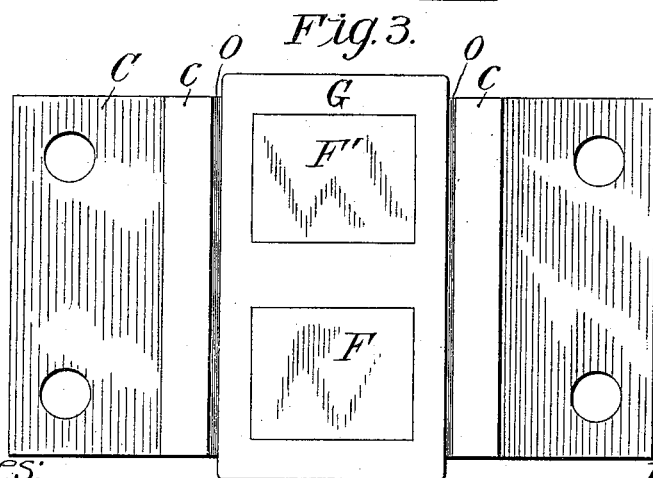
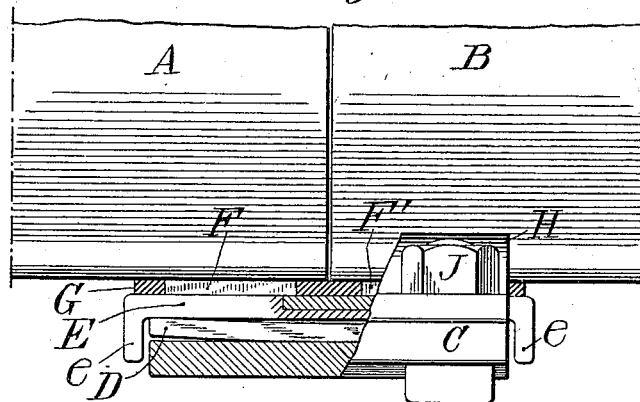
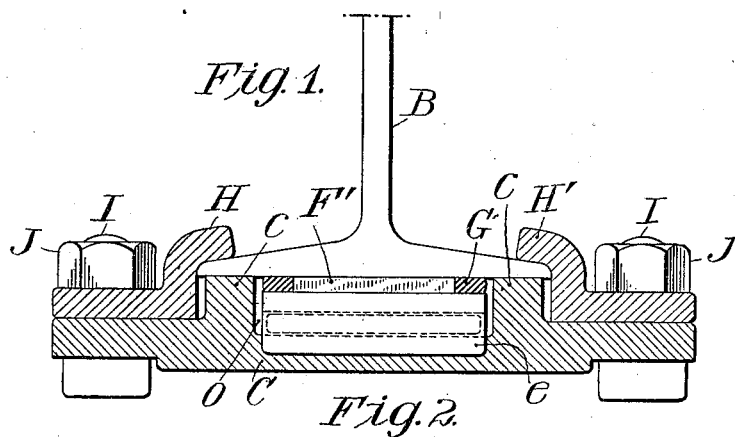
No. 648,082.

Patented Apr. 24, 1900.

C. F. DE REDON.
ELECTRIC RAIL BOND.

(Application filed Aug. 24, 1899.)

(No Model.)



Witnesses:

C. L. Belcher
H. H. Chapel.

Inventor
Constant F. de Redon
By
Charles A. Fenn
Attorney

UNITED STATES PATENT OFFICE.

CONSTANT F. DE REDON, OF NEW YORK, N. Y., ASSIGNOR TO THE
WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, OF
PENNSYLVANIA.

ELECTRIC RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 648,082, dated April 24, 1900.

Application filed August 24, 1899. Serial No. 728,255. (No model.)

To all whom it may concern:

Be it known that I, CONSTANT F. DE REDON, a citizen of the Republic of France, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Electric Rail-Bonds, (Case No. 2,) of which the following is a specification.

One object of my invention is to provide an improved rail-bond for use on electric railways; and the invention is specifically directed to obtaining such a bond for railway-rails as shall permit the free movement of the said rails so far as is necessary in railway traffic without sacrificing perfect electrical contact across the ends of the adjoining rails.

A further object of the invention is to provide a rail-bond which is very strong and durable and in which the contact-surfaces are protected from dust and atmospheric influences.

In the present instance I apply the bond to the ends of adjacent rails at the bottom thereof, so that my device constitutes at the same time a seat for the rail ends and a means of electrical connection between the said ends. At the same time the union which I thus provide for electrical purposes is also mechanically strong and durable and tends to prevent the effects of the pounding of the car-wheels upon the rail ends as the car moves along. It is so arranged that the usual expansion and contraction of the rails under the influence of different temperatures may take place without injury to the bonding device and without any interruption of the electrical connections. By attaching my rail-bond to the bottom of the rails I avoid all connection with the fish-plates, which are therefore entirely independent of the bond. It is a feature of this invention, as well as of other inventions of mine in the same field, that the contacts are held against the rails by constant pressure without being bolted or riveted to the rails. The connection with the rails is very close and intimate and is protected in such a manner as to prevent the access of water, dirt, or other foreign substance and so to keep the contact clean.

My invention will be understood by ref-

erence to the accompanying drawings, in which—

Figure 1 is an end view of a railway-rail, showing my bonding device attached thereto. Fig. 2 is a side elevation of the lower portion of a pair of rails having my bonding device applied thereto, the said rails being broken away and the bonding device being also partly shown in section for the sake of clearness; and Fig. 3 is a plan of my bonding device.

In the drawings, A and B are the adjoining ends of two railway-rails. Below the said rails I arrange a plate C of metal, the said plate being preferably of rectangular form and having upwardly-extending lugs or projections *c c*, as shown. Between these lugs or projections is a depression *o* in the middle of the plate C, and in this depression I support the parts which make contact with the adjacent ends of the rails. In the bottom of said depression I first place a spring D, of steel, which is substantially as long as the plate C is wide. A metallic plate E rests above the spring D and is provided with flanges *eee*, which extend down over the ends of the spring D and the sides of the plate C and prevent the dislodgment of the plate E. The spring D is formed from a plate of steel, which is slightly curved or bent so as to form a spring-seat for the plate E. The plate E carries the contact elements F F', which are preferably plates of copper secured to the said plate E. Between and around the said copper plates F F', I place a frame G of some soft metal, such as lead or of leather or some other similar substance. The outer surface of the soft metal or of the leather, as the case may be, is flush with the outer surfaces of the plates F F'. The function of the said frame is to protect the contacts F F' from the entrance of dirt or moisture.

The parts E, F, F', and G, above described, being in position within the depression *o*, the bonding device is placed under the rail ends, so as to bring one of said ends in contact with the plate F and the other end in contact with the plate F'. In this position the flat lower portions of the rails rest upon the lugs *c c*, the frame G, and the contact-plates F F', so as to make a water and dust proof joint

when the bond has been tightened in position, as will presently be described. In this manner a good and stable electrical connection is brought about between adjacent rail ends. I now clamp the bonding device in place by means of the clamps H H' on opposite sides of the rails. These clamps, it is seen, are shaped so as to fit upon the upper straight surfaces of the plate C at the outer ends thereof and are provided with bent or curved portions, which extend over the lugs c c at such a distance above the lugs as to cover the outer edges of the rails A B. The clamps are secured to the plate C by means of bolts I and nuts J, the relations being such that when the said nuts are screwed tight the clamps press firmly upon the rail ends and form a close union between the said rail ends and the bonding device.

With the described construction I am enabled to bring about what is practically a very firm connection between the ends of adjacent railway-rails and my bonding device to such an extent that the said rails and the said bonding device are practically one structure after the clamps have been tightened into place. Nevertheless the rails may expand and contract longitudinally without being too strongly resisted by the bond.

The described structure not only furnishes a good railway-bond, electrically considered, but also assists in preventing the injurious effects of pounding in the railway-service.

I claim as my invention—

1. The combination with the ends of adjacent railway-rails, of contact plates or pieces held flexibly against the underside of the said rail ends, and protectors for the said contact

devices adapted to keep out moisture and dust, the said protectors consisting of frames of softer material surrounding the contact plates or pieces.

2. The combination with the ends of adjacent railway-rails, of a rigid clamping device for attachment to the under side of the said rails, a plate carrying contact-pieces in contact with the bottom of the said rails, and a spring interposed between the said clamping device and the contact-carrying plate, the said contact-carrying plate being provided with flanges which extend over the ends of the spring and the sides of the clamping device.

3. The combination with the ends of adjacent railway-rails, of a clamping device having lugs on which the rail ends rest, and spring-pressed contact devices held between the said clamping device and the rail ends and also located laterally between the said lugs.

4. The combination with the ends of adjacent railway-rails, of a clamping device having lugs on which the rail ends rest, and a spring-pressed contact device between the said clamping device and the rails, and also located laterally between the said lugs, the said clamping device having as one element a plate which extends above the rail-foot, and means for compressing the said rail-foot between the said plate and the said lugs.

Signed in the city, county, and State of New York by me this 4th day of August, 1899.

CONSTANT F. DE REDON.

Witnesses:

WM. H. CAPEL,
GEORGE H. STOCKBRIDGE.