No. 684,600. Patented Oct. 15, 1901.

I. B. CHANTLER.

ELECTRIC RAIL BOND.

(Application filed Jan. 16, 1901.)

(No Model.)

Fig. 1.

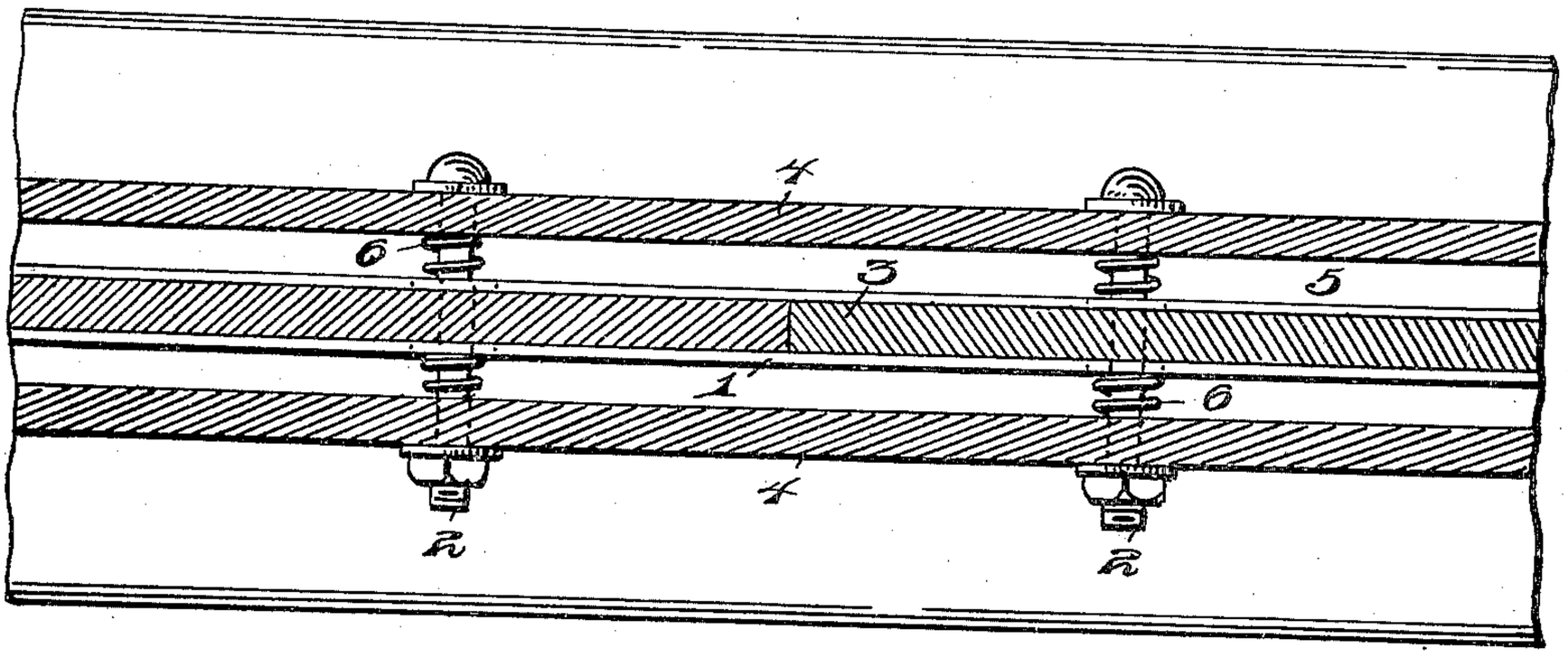

Fig. 2.

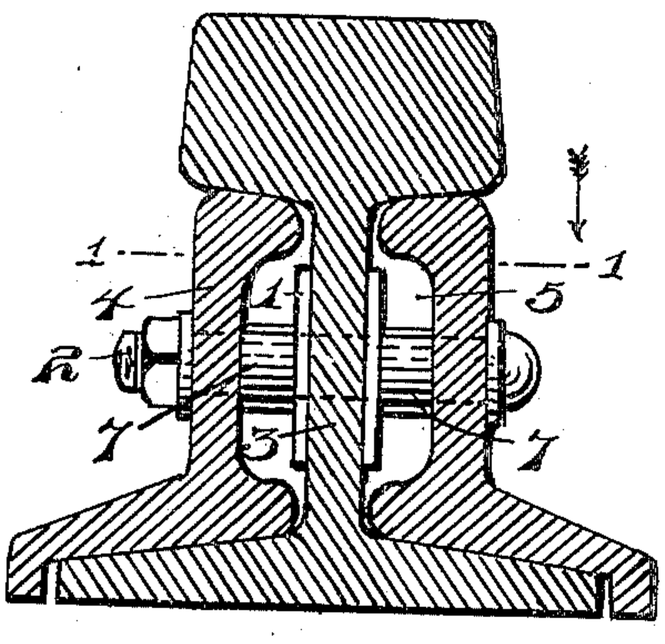

Fig. 3.

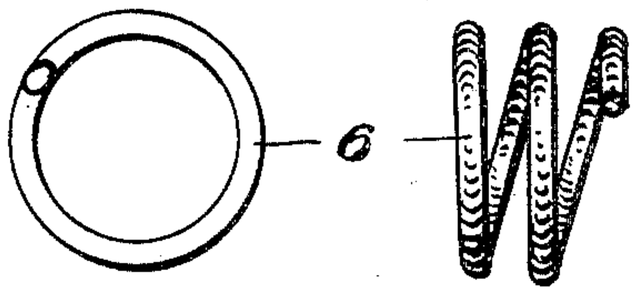

Fig. 4.

Fig. 5.

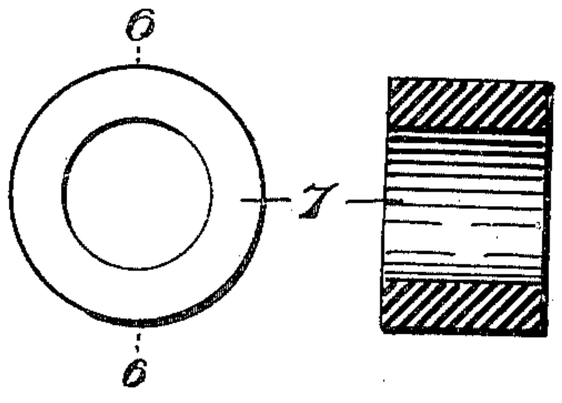

Fig. 6.

Witnesses:
P. Hopkinson,
C. E. Potter

Inventor
I. B. Chantler
By
H. Evarts Co
Attys

UNITED STATES PATENT OFFICE.

ISRAEL B. CHANTLER, OF SEWICKLEY, PENNSYLVANIA.

ELECTRIC RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 684,600, dated October 15, 1901.

Application filed January 16, 1901. Serial No. 43,496. (No model.)

To all whom it may concern:

Be it known that I, ISRAEL B. CHANTLER, a citizen of the United States of America, residing at Sewickley, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Electric Rail-Bonds, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in rail-bonds, the object of the invention being to provide a bond or conductor for the purpose of conducting electrical currents without break into the circuit at the joint between two meeting rails in a railway-track.

The invention has for its further object to dispense with all connecting-wires in connection with such a bond or tie and to provide in lieu thereof conducting strips or plates so arranged as to be held at all times in firm engagement with the web of the rail and which will also be through frictional engagement with the said web kept brightened, so as to at all times form an efficient conductor.

Briefly described, the invention comprises a metal strip or plate composed of copper or the equivalent conducting metal or other material, which is placed against the side or sides of the web of the rails at the joint. This strip or strips, as the case may be, is placed directly against the web of the rail and is consequently protected by the fish-plate employed in connection with the rail-joint, and between this fish-plate and the metal strip or strips is arranged a resilient means for retaining the plate in contact with the web of the rails at all times.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a longitudinal sectional view of the bond-tie constructed in accordance with my invention, said section being taken on the line 1 1 of Fig. 2. Fig. 2 is a transverse vertical sectional view of the bond-tie in position on the rails. Figs. 3 and 4 are detail side elevations of the coil-spring washer arranged upon the bolts between the conducting strip or plate and the fish-plate for holding the conducting-plates in engagement with the web of the rail. Fig. 5 is a detail side elevation of the flexible washer which may be employed in lieu of the coil-spring washer for the same purpose. Fig. 6 is a vertical sectional view of the same.

To construct a bond-tie in accordance with my invention, and thereby provide an unbroken circuit at the joint of the meeting ends of two rails, I provide a strip or plate 1, composed of copper or the like conducting metal, or this plate may be composed of any suitable conducting material. It may be of a length sufficient to reach but two securing-bolts 2 or of a length to reach all of the bolts employed for effecting a joint between the two rails. This strip or plate may be placed on one side of the web 3 of the rails or, as shown, may be placed on both sides thereof, the same being provided with apertures which register with the apertures in the web of the rail to receive the bolts 2. These bolts, as in the usual practice, secure the fish-plates 4 to the rails, and the metallic conducting strip or plate is placed upon the bolts between the fish-plates and the web of the rail. In the accompanying drawings the ordinary form of fish-plate is shown, which is provided on its inner face with a recess 5, which is of a sufficient depth to conveniently receive the conducting strip or strips. These conducting-strips, whether they are employed upon but one side of the rail or on both sides of the rail, are resiliently held against the sides of the web by interposing on the bolts 2, between the one face of the fish-plates and the conducting strip or plate, a suitable resilient washer. In Fig. 1 I have shown this washer in the form of a coil-spring 6, which is also shown in detail in Figs. 3 and 4, and in Fig. 2 I have shown a washer in the form of an ordinary gasket 7, which may be composed of rubber or other fibrous compressible material. The fish-plates being bolted together and these resilient washers being mounted on the bolts between the fish-plates and the conducting strip or plates, it will be observed that the pressure of the resilient washers will be exerted against the conducting strip or strips, serving to hold these strips at all times in firm engagement with the web of the rail, so as to insure an unbroken circuit. It is

common to employ a bond or tie of this description in connection with electrically-operated railways and also on steam-railways for use in the operation of electrically-controlled signals. In the latter connection it is an established fact that in the passing of a heavy train the rails are materially depressed at the joint, and I desire to call attention to the fact that where the bond or tie is constructed in accordance with my invention, as described, the depressing of the rails at the joint will cause a frictional contact between the web of the rail and the strip or strips, causing these two faces to wear against each other and maintaining at all times a bright surface upon the conducting strip or strips, so as to have at all times an efficient conductor. These washers, which are interposed between the fish-plates and conducting-strip, being resilient or compressible, it will be observed that upon the tightening of the joint the washers may be readily compressed and will not be in any wise affected or damaged by this tightening of the joint. To allow for the expansion and contraction of the rails, the conducting-strips are provided with elongated openings, as shown in dotted lines in Fig. 1, to receive the bolts, it being of course understood that the openings in the fish-plates also permit this expansion and contraction, as such is the usual construction of fish-plates.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

In a device of the character described, in combination with the rails, the fish-plates provided with recesses on their inner faces throughout their entire length, and bolts connecting said fish-plates to the rails, of flat elongated conducting-strips, said strips being provided with elongated apertures at suitable distances to register with the said bolts, and resilient washers mounted on each bolt between the fish-plates and the conducting-plates for holding said plates in close engagement with the web of the said rails.

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

ISRAEL B. CHANTLER.

Witnesses:
JOHN NOLAND,
A. M. WILSON.