E. C. ZIMMERMANN.

INSULATED RAIL JOINT.

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970,869. Patented Sept. 20, 1910.

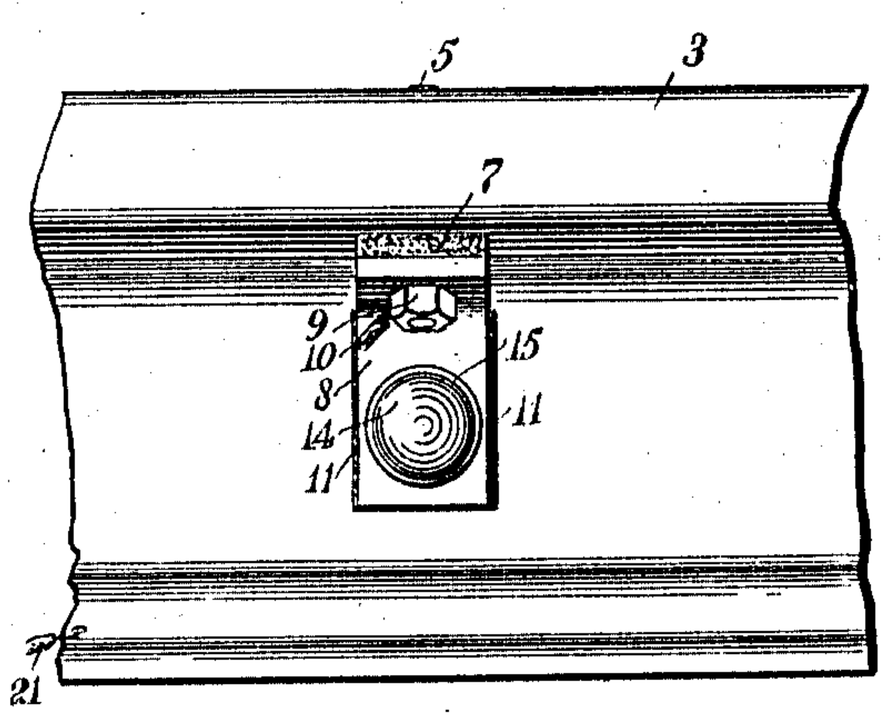

Fig. 1.

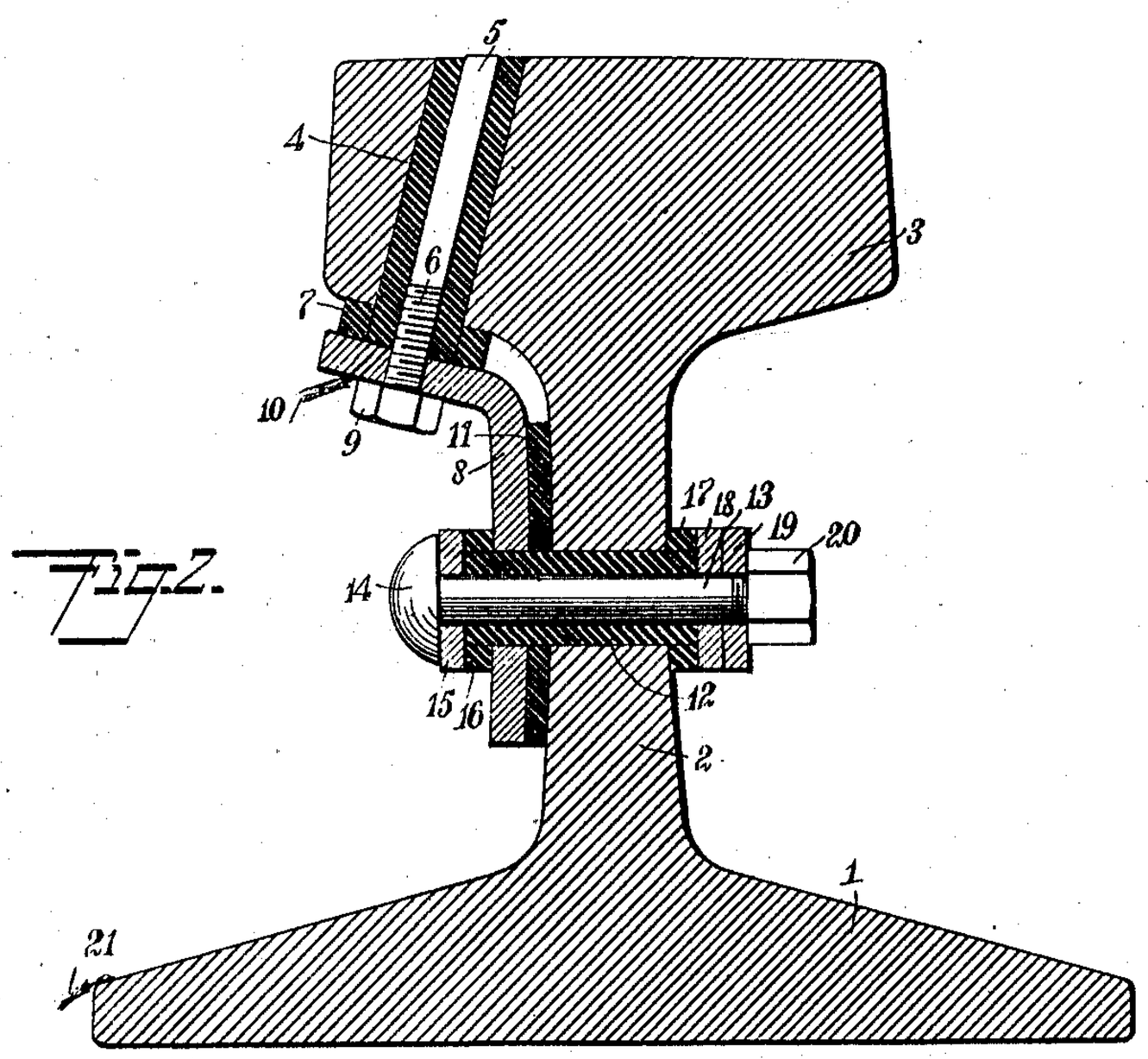

Fig. 2.

WITNESSES:

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INSULATED RAIL-JOINT.

970,869. Specification of Letters Patent. **Patented Sept. 20, 1910.**

Application filed March 10, 1910. Serial No. 548,496.

To all whom it may concern:

Be it known that I, EMIL C. ZIMMERMANN, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented a certain new and Improved Insulated Rail-Joint, of which the following is a full, clear, and exact description.

My invention relates to insulated rail joints, my more particular purpose being to provide means for connecting together two adjacent rail ends by aid of a metallic plate insulated therefrom, that this metallic plate may be used for forming a part of an electric circuit used in signaling and associated with the rails.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the figures.

Figure 1 is a fragmentary side elevation showing a rail and mechanism associated therewith for the purpose of forming the joint above mentioned; Fig. 2 is a substantially central vertical section through the mechanism shown in Fig. 1.

A rail base 1 supports a web 2, which carries a rail head 3, these parts being integral with each other. A hole is bored obliquely through the rail head 3 and a tube 4 of insulating material such as a fiber or hard rubber, is placed within this hole. Extending through the tube 4 is a bolt 5 having its upper end beveled slightly and brought substantially flush with the top of the rail head. The bolt 5 is provided with a threaded portion 6 and encircling the tube 4 is a washer 7, also of insulating material.

At 8 is a metallic plate which is bent to an obtuse angle as indicated in the figure. A nut 9 engages this plate and is revolubly fitted upon the threaded portion 6 of the bolt. A wire 10 is secured between the nut 9 and the metallic plate 8, thus serving as a binding post. Parallel with the web 2 and engaging the same is a plate 11 of insulating material, which is clamped against the web by pressure of the metallic plate 8. Extending crosswise through the web 2 is a tube 12 of insulating material, and extending through this tube is a bolt 13 provided with a head 14. A metallic washer 15 encircles the bolt 13 and is engaged by the head 14. An annular washer 16 of insulating material encircles the tube 12 and is engaged by the metallic washer 15. Another annular washer 17 encircles the tube 12 and engages the web 2 but is disposed upon the side of the web opposite the plate 11. Metallic washers 18, 19, encircle the bolt 13, and clamped against these washers is a nut 20.

It will be noted that the bolt 5 is connected directly to the plate 8 and that this plate is insulated from the rail 2 and from the bolt 13; hence the plate 8 may be used for conveying current from the bolt 5 to any other point with which the plate 8 is in metallic communication. Such current cannot escape into the rail either directly or indirectly.

The device above described is used mainly in signaling, in instances where it is desirable to send a current down through the bolt 5 and through the plate 8 to some signal to be energized. A momentary contact takes place between the upper end of the bolt 5 and a shoe or other conducting member carried by the train, thus establishing communication between the conductor carried by the train and the plate 8, and any electrical mechanism with which said plate may be connected. If the rail base 1 be insulated, it may serve as a conductor for a current and for this purpose a wire 21 is connected with it.

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

1. In a rail joint, the combination of a rail member, a plate of conducting material supported thereby and insulated therefrom, and a bolt connected with said plate of conducting material and provided with a contact portion, said bolt being insulated from said rail.

2. The combination of a rail member provided with a hole, a tube of insulating material mounted within said hole, a contact member extending through said tube to a point substantially flush with the tread surface of said rail, a metallic plate connected with said contact member, and means for insulating said plate from said rail.

3. The combination of a rail member provided with a head having a hole therethrough, a tube of insulating material mounted within said hole, a contact member fitted into said tube and provided with a surface substantially flush with the surface of

said head, and electric connections for said contact member.

4. A device of the character described, comprising a rail provided with a tread surface, and further provided with a hole extending to said tread surface, a contact member mounted within said hole and extending substantially flush with said tread surface, means for insulating said contact member from said rail, a metallic plate connected with said contact member, and means for insulating said metallic plate from said rail.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL CARL ZIMMERMANN.

Witnesses:
GEORGE H. BROOKE,
WALTER H. DUKE.