R. W. SMITH.

INSULATED RAIL JOINT.

APPLICATION FILED JAN. 13, 1908.

920,782.

Patented May 4, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

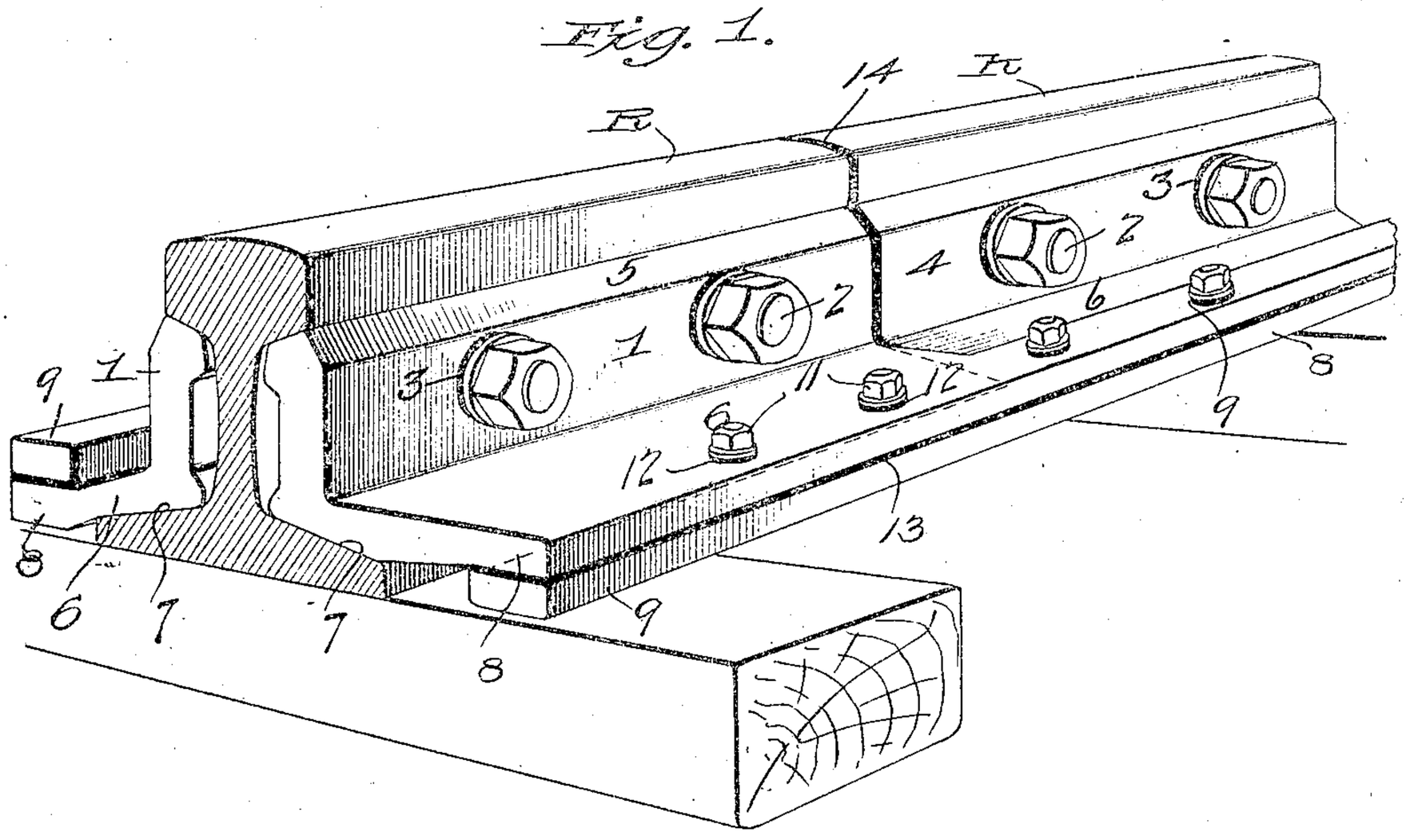
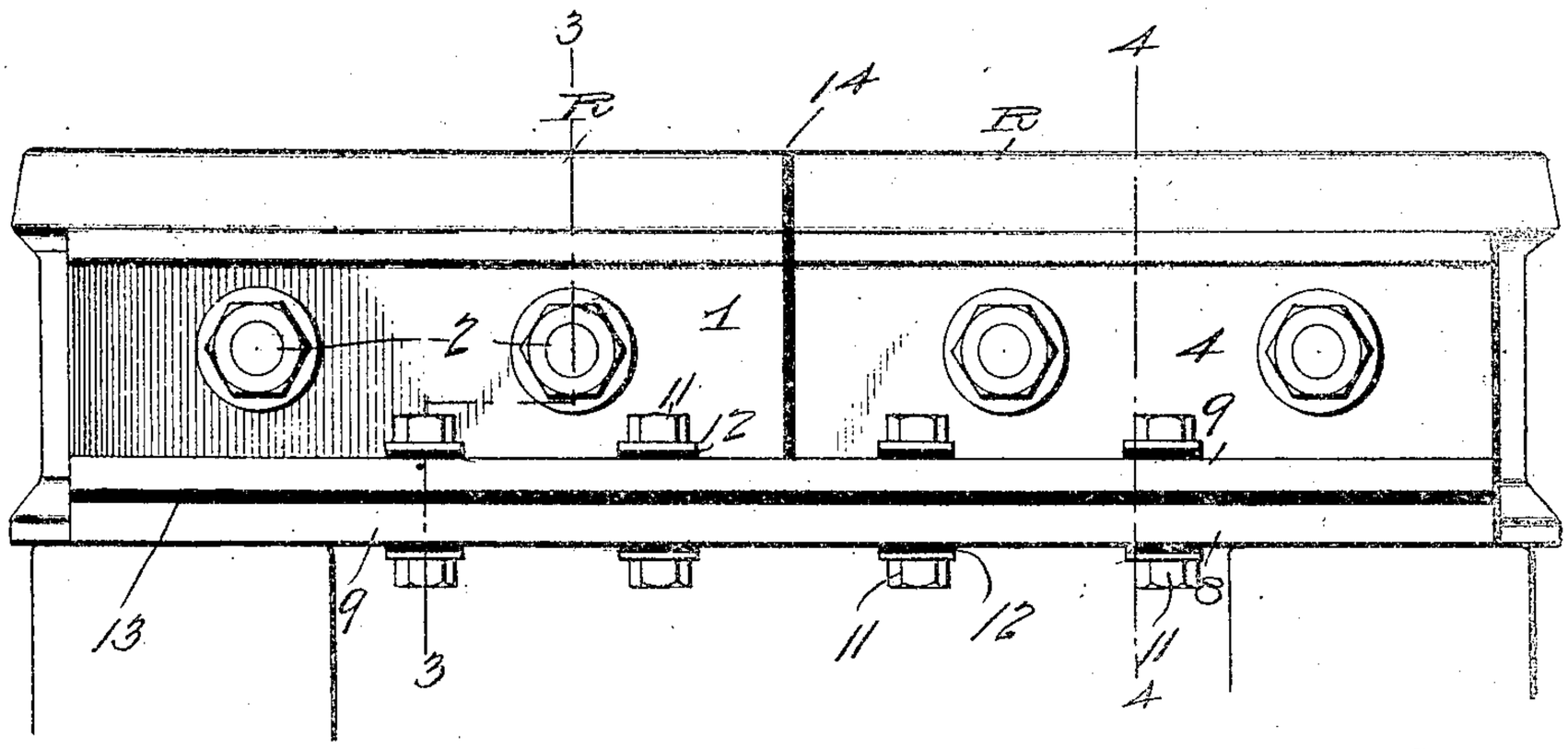


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

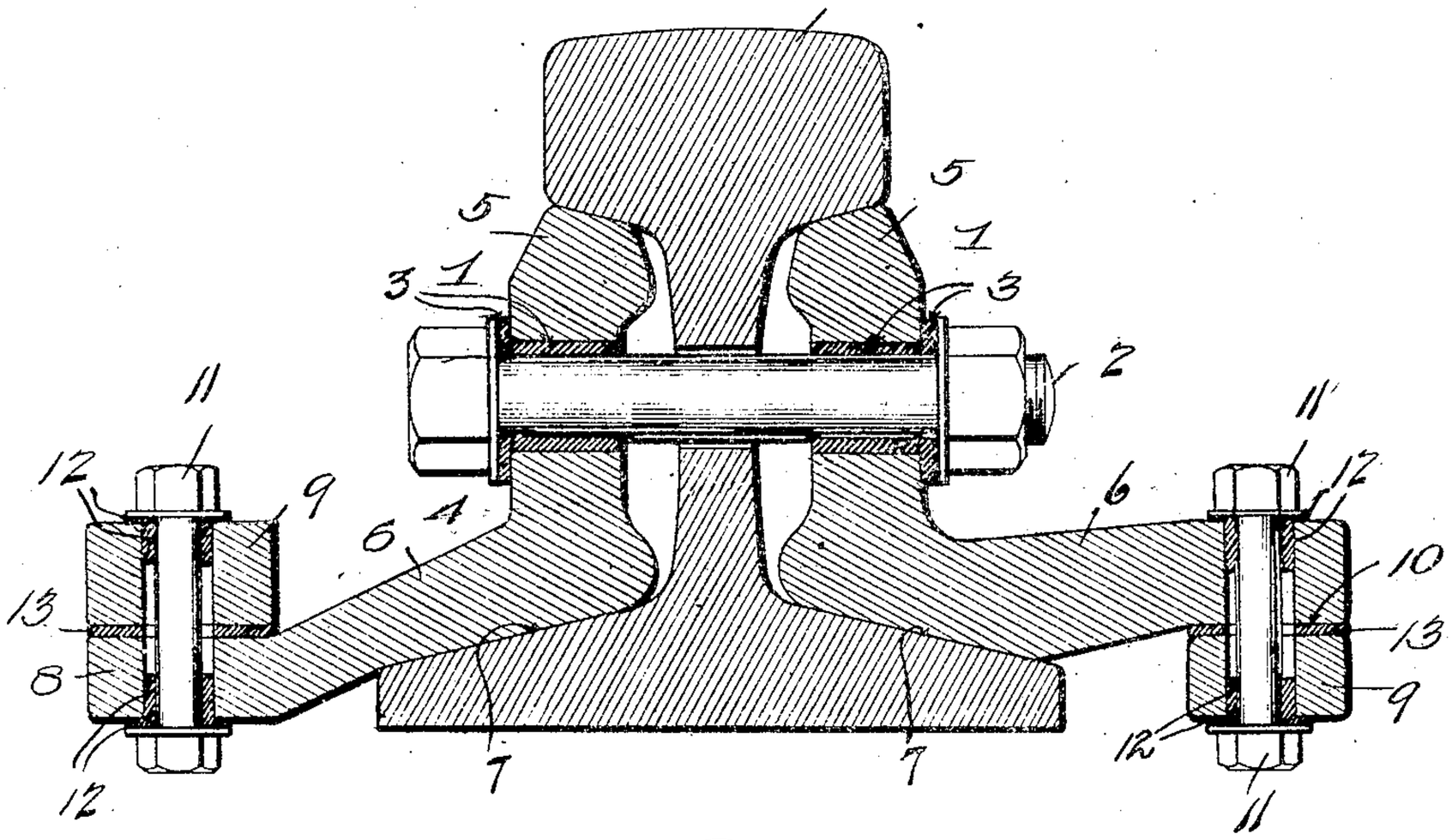
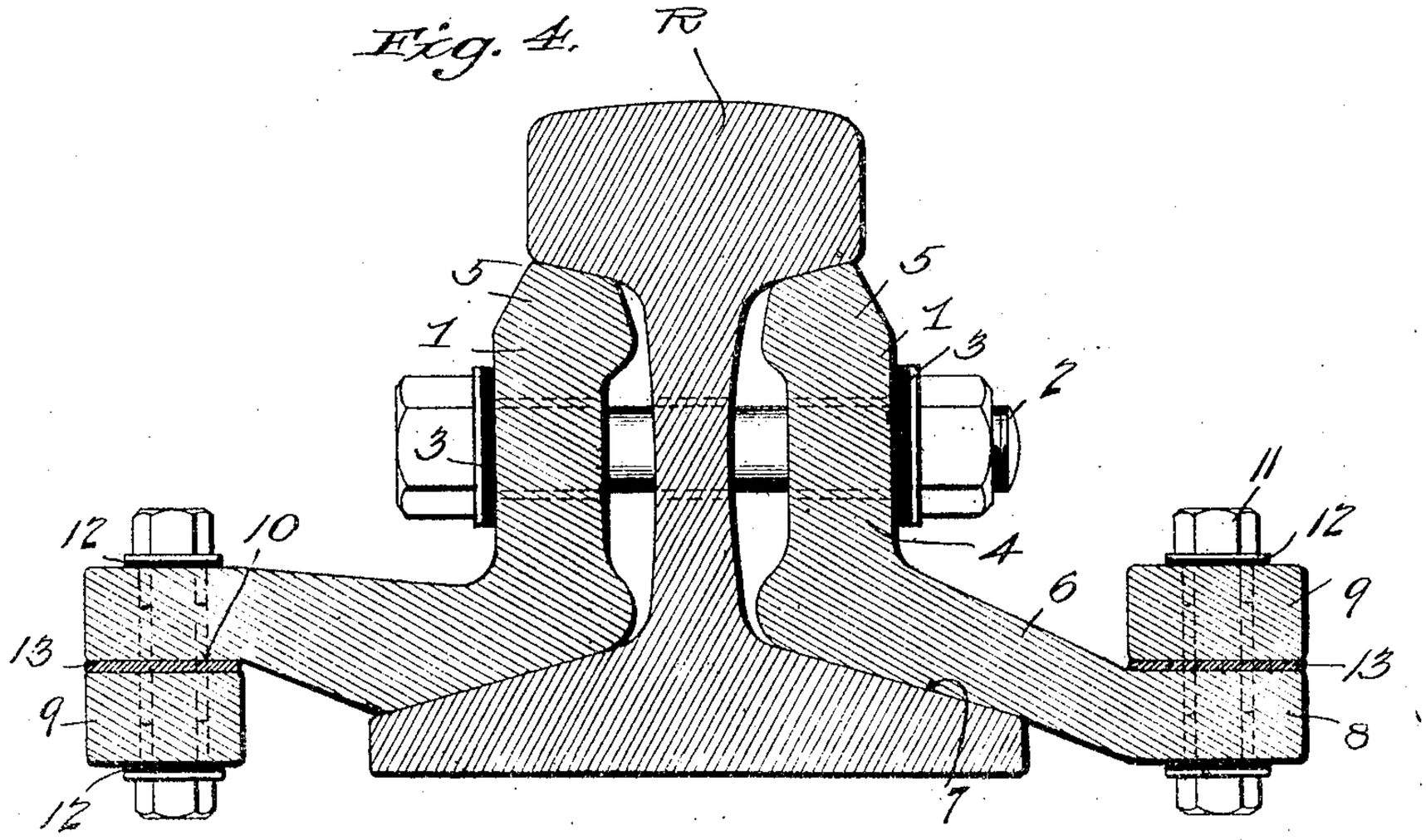


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

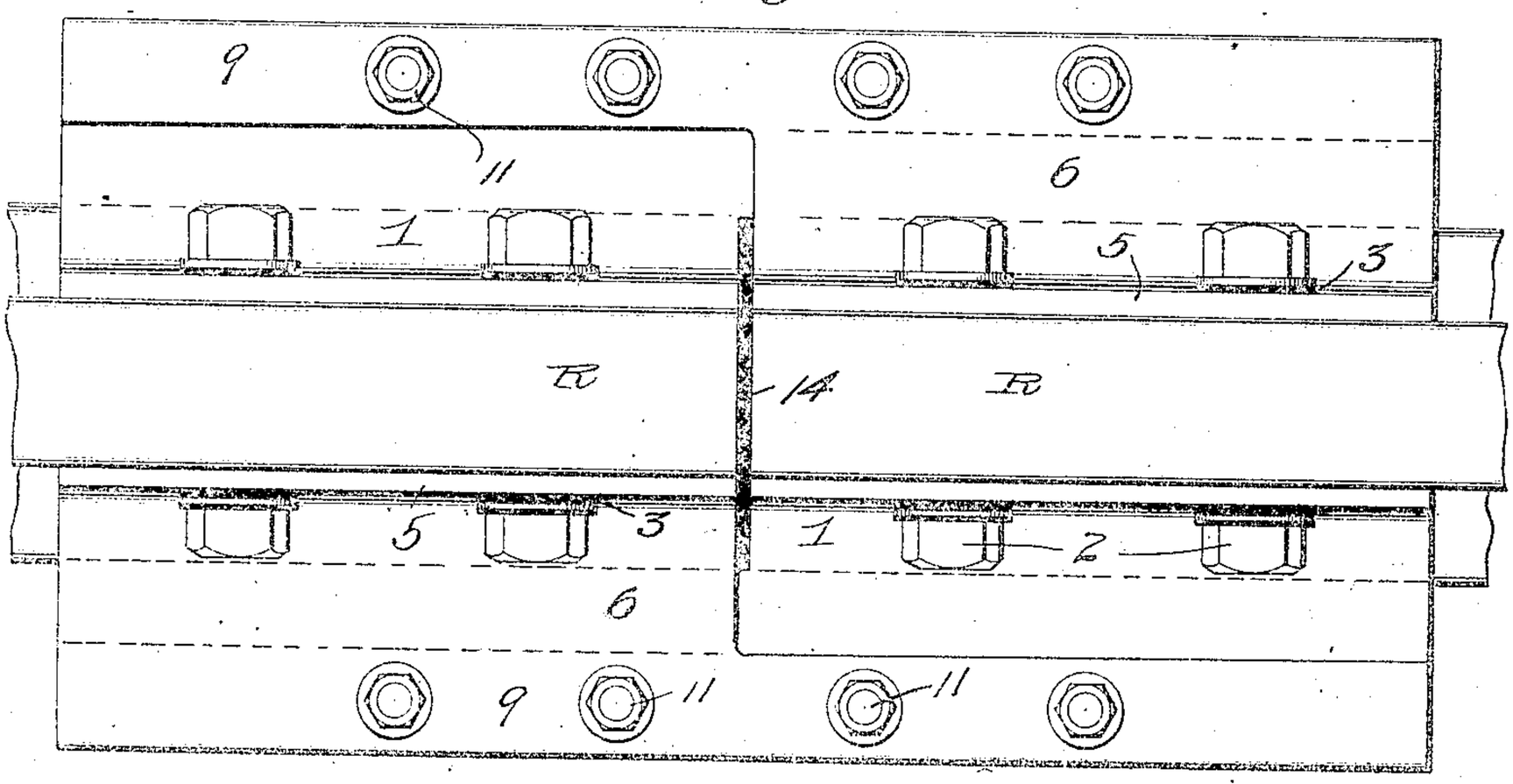
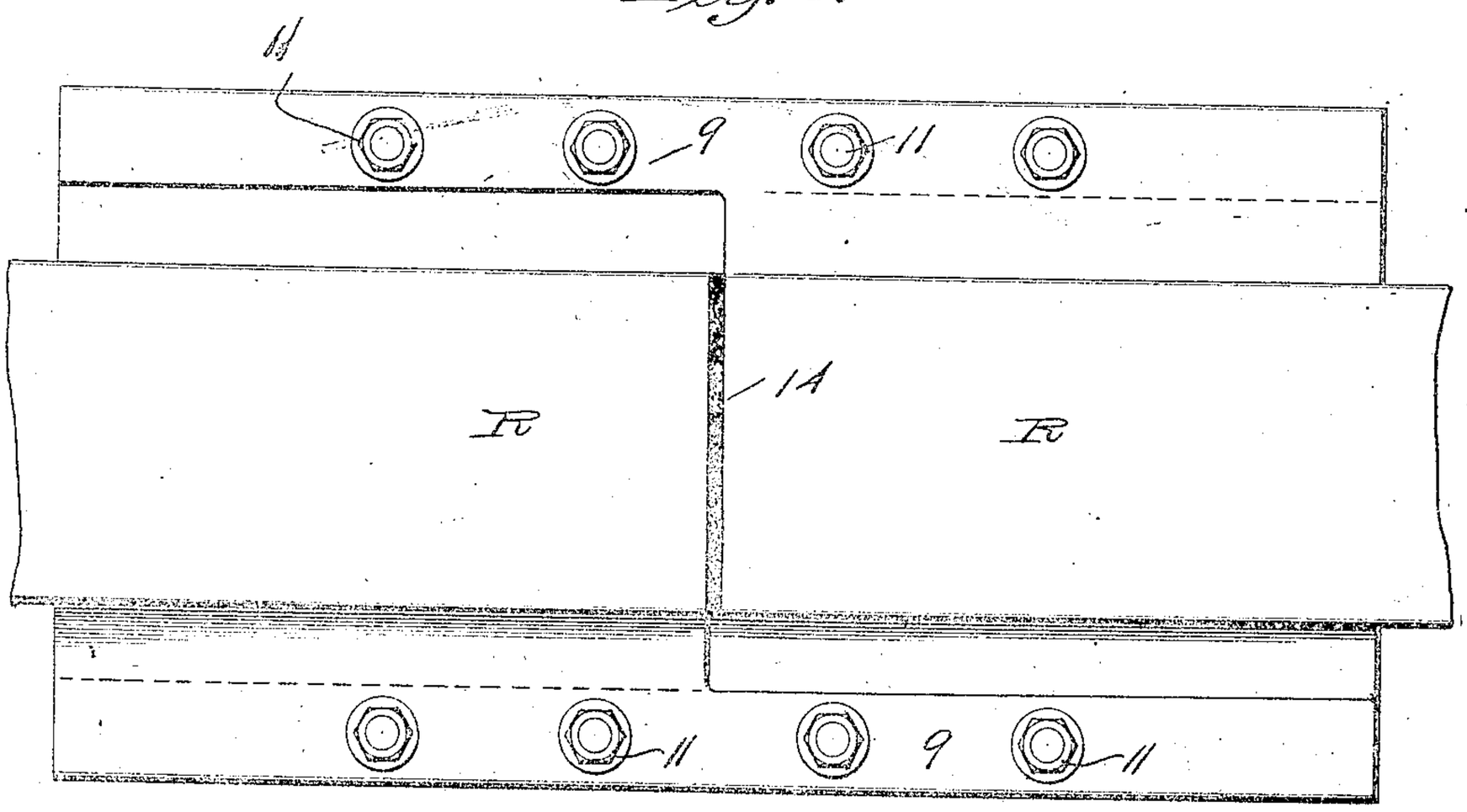


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

REUBEN W. SMITH, OF MARIETTA, PENNSYLVANIA, ASSIGNOR TO THE RAIL JOINT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INSULATED RAIL-JOINT.

No. 920,782. Specification of Letters Patent. Patented May 4, 1909.

Application filed January 13, 1908. Serial No. 410,667.

To all whom it may concern:

Be it known that I, REUBEN W. SMITH, a citizen of the United States, residing at Marietta, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Insulated Rail-Joints, of which the following is a specification.

This invention relates to rail joints of the insulated type, and has special reference to a novel and practical joint of this character comprising means for providing a solid metallic bearing support at the under sides of the rail heads, and also maintaining a complete and effective insulation throughout the entire joint.

As a general object, the invention has in view a construction wherein no insulation is interposed between the heads of the rails and the metallic bars next to the same. This admits the heads of the rails taking a solid and direct bearing on the joint bars, while also permitting of such a disposition of the insulating material as to relieve the same from the pressure of the load without detracting at all from the efficiency of the insulation. In other words, the invention provides a structure in which a solid metallic bearing is secured for the rail heads, and a complete insulation of the joint is effected by an arrangement of insulation upon which practically no fiber strain is imposed.

With these and many other desirable objects in view which will readily appear to those familiar with the art as the nature of the invention is better undertood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated and claimed.

The essential features of the invention are susceptible to embodiment in different kinds of structures and in different ways without affecting the scope of the invention, but a preferred embodiment of the latter is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of an insulated rail joint constructed in accordance with the present invention. Fig. 2 is a side elevation thereof. Fig. 3 is a cross sectional view on the line 3—3 of Fig. 2. Fig. 4 is a similar view on the line 4—4 of Fig. 2. Fig. 5 is a top plan view showing the preferable arrangement of the insulation, and the relation of the splice arms of the separate angle bars. Fig. 6 is a bottom plan view of the joint.

Like references designate corresponding parts in the several figures of the drawings.

A rail joint constructed according to the design and plan of the present invention embodies in its organization the service rails R, the side joint bars 1, and the usual series of joint bolts 2. These joint bolts are fitted with any of the approved bolt insulating expedients 3 such as usually resorted to for insulating the bolts from the joint bars, but the characterizing feature of the present invention resides in the employment of joint bars having a direct metallic bearing with the rails, and which bars are discontinuous, that is terminate at or near the meeting ends of the rails, and therefore do not extend continuously throughout the joint as do the ordinary angle bars or splice bars commonly employed in rail joint structures both of the standard and insulated types. It will therefore be observed that the joint is provided with what may be termed two-part or divided joint bars, so that there are separate joint bars or joint bar sections for each rail, the same being arranged respectively upon opposite sides of the rails and thoroughly insulated from one another in a manner to be presently explained.

As indicated, the separate joint bars for each rail are of lengths approximately equaling one-half the length of the joint so as to terminate at or near the joint between the meeting ends of the rails, and in the carrying out of the invention these separate joint bars may be of any conventional or approved design according to the type of rail joint to which the invention is applied, but in the practical use of the invention, the said joint bars are preferably and usually of the angle bar design shown in the drawings. Hence, in the illustrated embodiment of the invention, each joint bar consists of the main upright section or girder 4 formed at its upper edge with the usual thickened bearing head 5 having a direct metallic bearing against the under side of the rail head. At its lower edge the upright section or girder 4 of each angle bar 1 has formed integrally therewith an outturned foot flange 6 overlying the rail flange and formed with an inclined bearing face 7 having direct metallic contact with the inclined upper face of said rail flange.

In addition to the conventional angle bar features, above referred to, of the joint bars, each of the latter has its bottom foot flange 6 formed with a lateral or offset flange extension 8 which projects beyond the edge of the rail flange, and at what may be termed its inner end (that is the end next to the joint between the meeting ends of the rails) the extension part 8 of the foot flange of each angle bar is provided with an integral or rigid splice arm extension 9. The said splice arm extension 9 of each joint bar is continued from the end of such bar (next to the meeting ends of the rails) out to the end of the joint and bears a lapping relation to the opposite joint bar on the same side of the joint. In order to secure a proper flush arrangement of the joint bars themselves, and at the same time provide for an effective splicing connection between the separate joint bars at opposite sides of the joint, it will be observed by reference to the drawings that one of the joint bars at each side of the rails receives and accommodates the splice arm 9 projecting from the other joint bar at the same side of the rail, while the splice arm 9 of said joint bar overlies and is arranged flat upon the upper side of the foot flange extension 8 of the said other joint bar at the same side of the rails. Hence, it is to be noted that the separate joint bars proper preserve a flush relation with each other in the fishing spaces of the rails, while the splice arm extensions 9 thereof maintain a lapping relation, the splice arm 9 of one bar overlapping the foot flange of an adjacent bar, while the splice arm of said adjacent bar underlaps the foot flange of said other bar, all of which is very plainly shown in the several figures of the drawings.

The overlapping and underlapping arrangement of the splice arms as above described is alternated on opposite sides of the joint as best shown in Figs. 5 and 6 of the drawings, thereby securing a strongly braced effect, and in order to complete the splicing of the separate joint bars, the overlapping elements of said bars, upon both sides of the joint, are securely coupled or fastened together through the medium of a plurality of vertically arranged fastening bolts 11, which bolts are provided with any suitable or conventional bolt insulation 12 to prevent the transmission of electric current therethrough, and thus serving to assist in the insulation of the joint.

To provide for the complete and thorough insulation of the joint, it is only necessary to supplement the bolt insulation by inserting insulating sheets 13 between the overlapping elements of the separate joint bars at both sides of the joint, and by employing an end post insulation 14 between the contiguous rail ends and also between the contiguous ends and flange portions of the angle bars as plainly illustrated in Figs. 5 and 6 of the drawings. As shown in these figures of the drawings, it is preferable to continue the insulation between the overlapping elements of the joint bars from one end of the joint to the other as shown in Figs. 1 and 2.

From the foregoing it will be apparent that the invention possesses the distinct advantages already pointed out besides providing a construction which can be very easily repaired and adjusted, and in which the individual parts can be replaced or interchanged to advantage.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. In a rail joint, the rails, and separate joint bars for each rail, each of said joint bars having a longitudinal splice arm extension coupled with the other joint bar at the same side of the joint.

2. In a rail joint, the rails, separate discontinuous joint bars for each rail, each of said bars being of a length approximately equaling one-half the length of the joint, and provided with a longitudinal splice arm coupled to the adjacent joint bar.

3. In a rail joint, the rails, separate discontinuous joint bars for each rail, each of said joint bars having a longitudinal splice arm coupled to the adjacent joint bar, and means for insulating one rail from the other.

4. In a rail joint, the rails, separate half-length joint bars for each rail, each of said joint bars being provided with a horizontal splice arm extended longitudinally from its inner end portion and coupled to the adjacent joint bar.

5. In a rail joint, the rails, separate discontinuous joint bars for each rail having a direct metallic bearing against the under side of the rail head, each of said joint bars being provided with a longitudinal splice arm lapping the adjacent joint bar and coupled thereto.

6. In a rail joint, the rails, separate discontinuous joint bars for each rail, the joint bars at each side of the joint being provided with horizontal longitudinally disposed overlapping coupled splice extensions.

7. In a rail joint, the rails, separate discontinuous joint bars for each rail, the joint bars at each side of the joint being provided with horizontal longitudinally disposed overlapping coupled splice extensions, and means for insulating one rail from the other.

8. In a rail joint, the rails, separate discontinuous joint bars for each rail, the joint bars at each side of the joint being provided with longitudinal splice arms extended from their inner ends and respectively overlapping and underlapping the adjacent bars.

9. In a rail joint, the rails, separate angle bars for each rail having longitudinal splice arms projected from the inner ends of their foot flanges, the joint bars at each side of the joint having their splice arms lapping and coupled to the adjacent joint bar.

10. In a rail joint, the rails, separate discontinuous angle bars for each rail, each of said angle bars being provided with a longitudinal splice arm projected from the inner end of its foot flange and coupled to the adjacent joint bar, and means for insulating one rail from the other.

11. In a rail joint, the rails, separate discontinuous angle bars for each rail, each of said angle bars being provided with a splice arm projected from the inner end of its foot flange to the opposite end of the joint and coupled to the adjacent joint bar, insulation interposed between the lapping elements of the joint bars, and insulation between the rail ends, and between the ends of the joint bars.

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

REUBEN W. SMITH.

Witnesses:
BENJA. WOLHAUPTER
JAMES A. GREER.