

R. W. SMITH.
INSULATED RAIL JOINT.
APPLICATION FILED JAN. 13, 1908.

920,783.

Patented May 4, 1909.
2 SHEETS—SHEET 1.

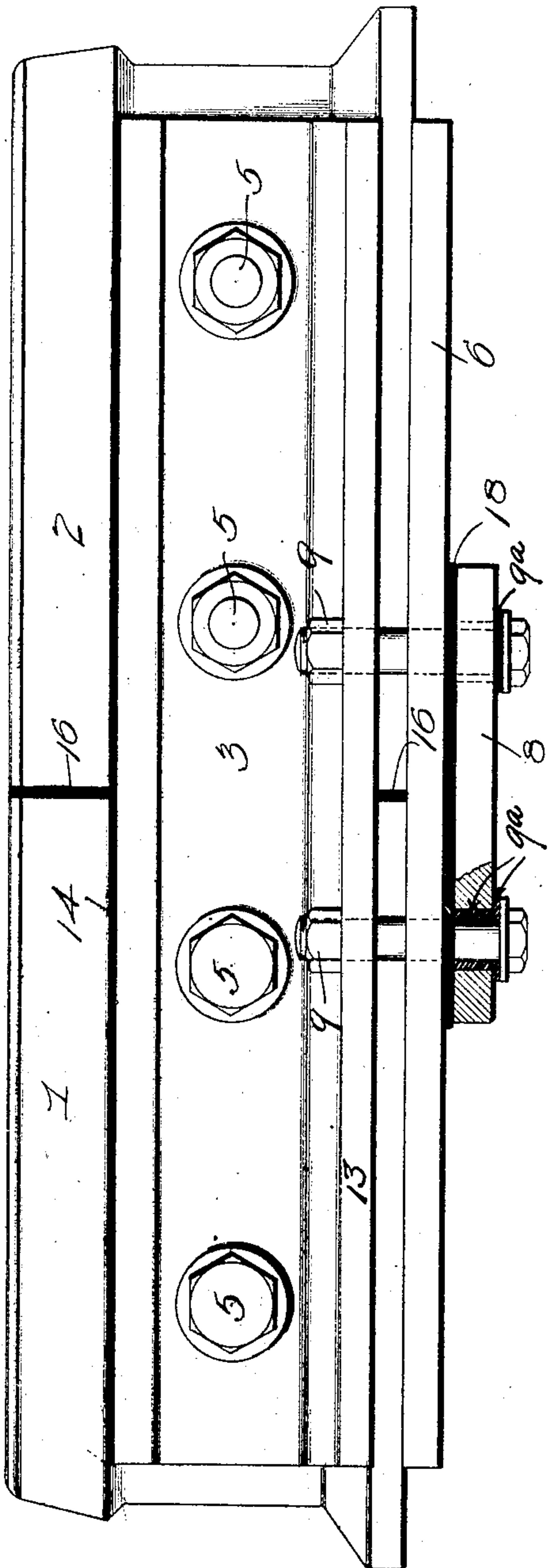


Fig. 1.

Witnesses
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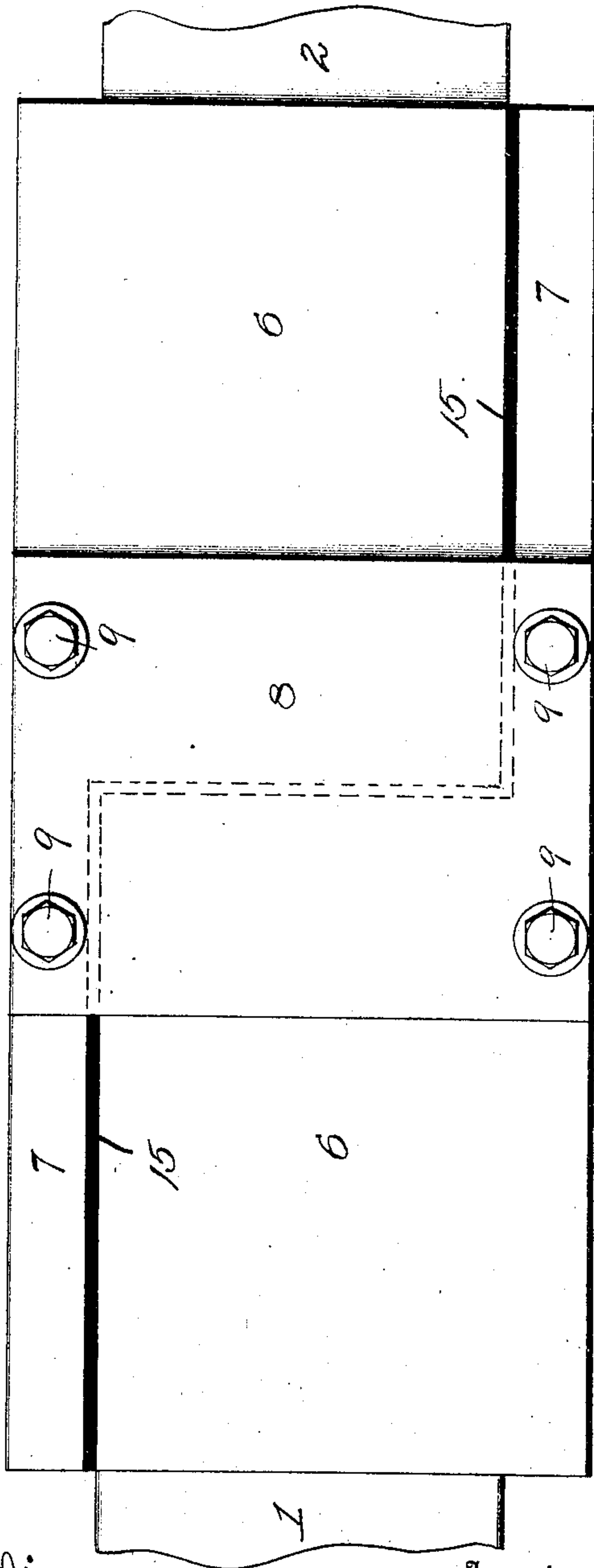


Fig. 2.

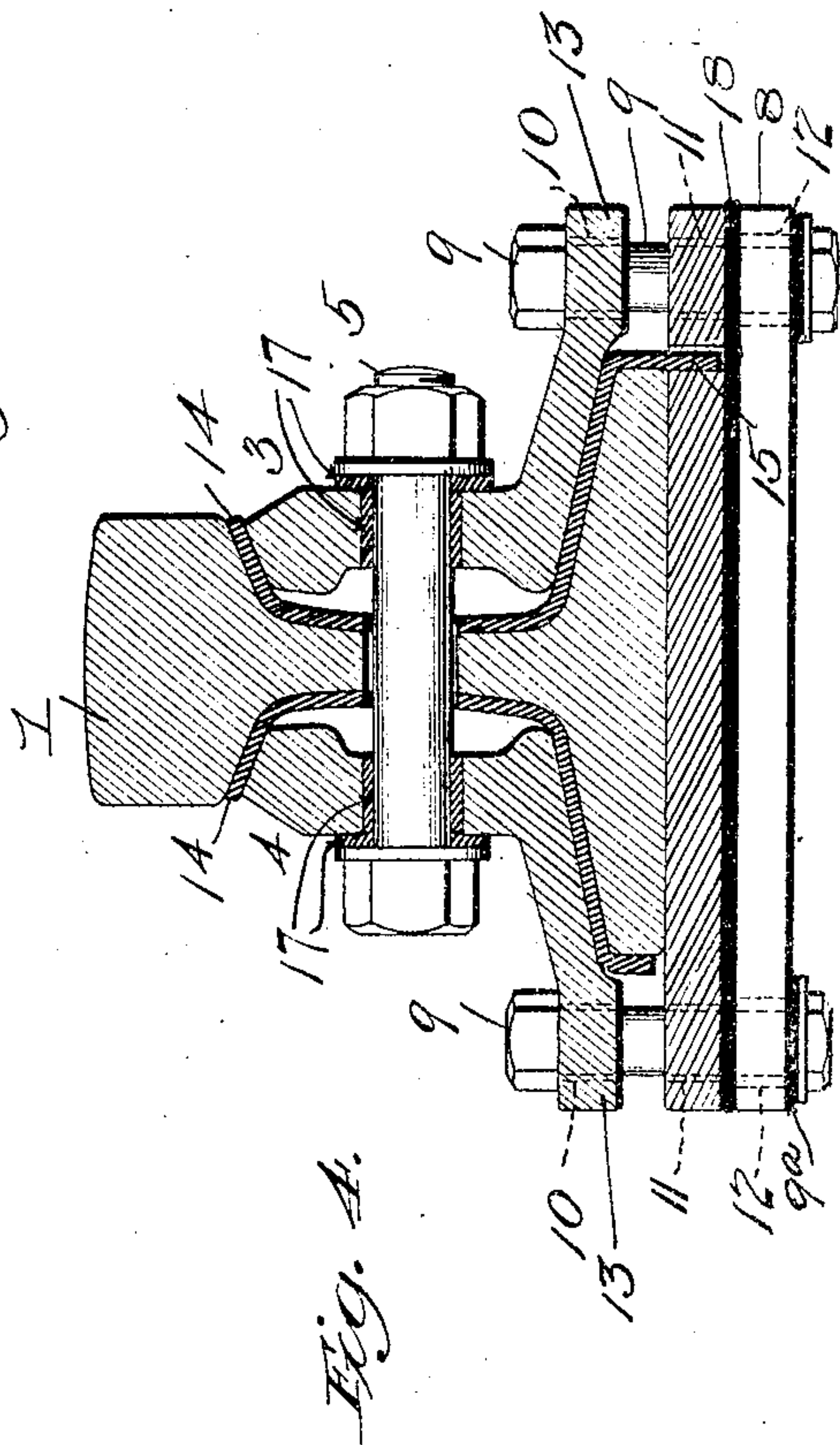
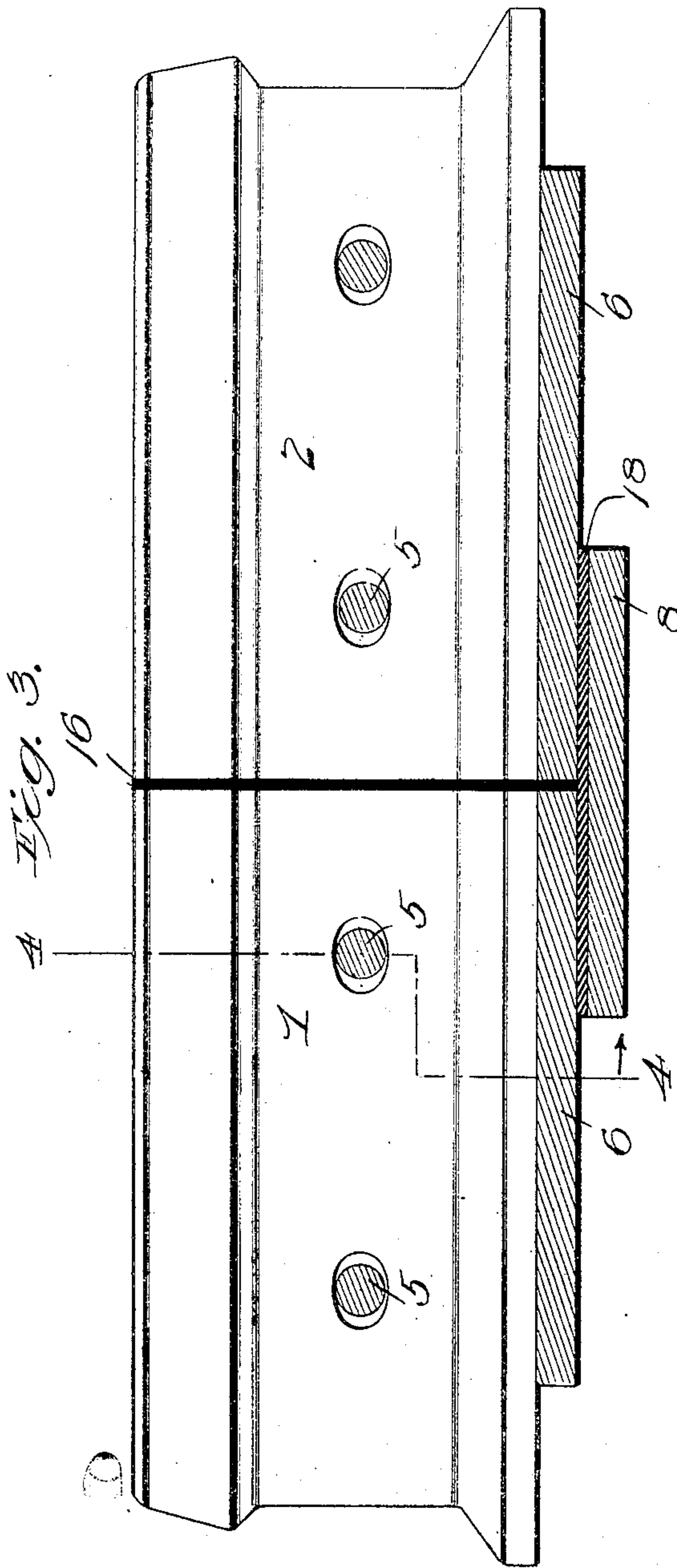
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UNITED STATES PATENT OFFICE.

REUBEN W. SMITH, OF MARIETTA, PENNSYLVANIA, ASSIGNOR TO THE RAIL JOINT COMPANY,
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INSULATED RAIL-JOINT.

No. 920,783.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed January 13, 1908. Serial No. 410,668.

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 type embodying a rail supporting base, and has in view the provision of a rail joint structure wherein the different elements, and particularly the base parts, are so related and combined as to maintain a firm bearing contact between the various members constituting the joint, especially at the center of the latter.

A further object in this connection is to provide what may be characterized as a double-base for supporting the rail ends, which base is intended to secure an effective stiffening and bracing of the base at the central portion of the joint, and to resist and correct any tendency of the main rail supporting base section or sections from being forced or sprung away from a firm bearing contact beneath the rail ends.

The improved double-base construction contemplated by the present invention is designed to have special utility in connection with that class of insulated rail joints embodying a two part or sectional supporting base for the rail ends, whereby a separate, individual supporting base section is provided for each rail end, thereby admitting of such a disposition of the insulation that there is no insulating material required to be interposed between the rail bottoms and their supporting base sections. Furthermore, in this type of insulated rail joints, the present invention is intended to generally improve the reinforcing and stiffening of the joint, while at the same time preserving the two part or divided supporting base wherein each base section affords one rail end the support of the ties on both sides of the meeting point of the rails, without contact with the corresponding base section carried by the other joint bar.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, 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 above indicated are necessarily susceptible to a variety of structural modifications without departing from the scope thereof, but certain preferred embodiments of the invention are shown in the accompanying drawings, in which:

Figure 1 is a side elevation of an insulated rail joint constructed in accordance with the present invention. Fig. 2 is a bottom plan view thereof. Fig. 3 is a longitudinal section of the joint, showing the rails in elevation. Fig. 4 is a cross sectional view of the joint, the line of section being on the line 4—4 of Fig. 3.

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

As indicated, the present invention is specially applicable to those types of insulated rail joints embodying a two part supporting base for the rail ends, and wherein each base section affords a support for one rail end. Hence, various forms of insulated rail joints involving said feature may be provided with the special reinforced base structure claimed herein. Likewise, the improvements claimed, may be associated with side joint bars of various designs, irrespective of whether these joint bars constitute the upright members of joint shoes or chairs, or are in the form of the conventional angle bars or splice bars arranged over the rail bases and disposed beneath the rail heads. However, a practical embodiment of the invention is illustrated by the type of joint shown in the drawings, and the latter will now be particularly referred to. In said illustrated embodiment of the invention the joint shown includes in its construction the service rails 1 and 2, the opposite side joint bars 3 and 4, the usual series of joint bolts 5, and the two part or divided rail supporting base comprising the separate, individual or single base sections 6, each of which is arranged to provide a support for one rail end on both sides of the meeting point of the rail ends without contact with its corresponding or complementary base section. In this construction, it will be observed that the two part or divided base 6—6 is a detached base, that is, sepa-

rate from the side joint bars 3 and 4 in the sense of not being permanently formed therewith or united thereto, thereby admitting of an adjustment and clamping action for the joint parts which is of a practical value in holding and maintaining the same in firm bearing contact with the rails.

In addition to the feature of having each of the individual or single base sections 6 of such dimensions as to afford a wide and substantial supporting base for one rail end, each of said sections is formed at one side with an integral supporting arm extension 7, which is preferably continued out to the opposite end of the joint from the section of which it is a part so as to find a supporting rest on the opposite tie or sleeper, thereby carrying out the function of each base section affording one rail end the support of the ties on both sides of the meeting point of the rails. This function is a characteristic of the two part or divided supporting base referred to, but in addition to such function, the said supporting arm extensions 7 of the opposite base sections 6 afford means for admitting of a supporting fastening connection between each of said sections and one of the side joint bars of the joint.

The fastening connection referred to is preferably utilized in connection with side joint bars of the conventional angle bar formation, and with what may be termed a supplemental supporting sub-base 8 cooperating with the separate individual base sections 6—6 in the manner to be now explained. This supplemental supporting sub-base 8 preferably consists of an extra base plate section arranged horizontally beneath the main base sections 6—6 at the central part of the joint, and of such dimensions as to extend the full width of the joint so as to be coextensive with the width of the two part base made up of the sections 6—6, while also extending a material distance to both sides of the meeting point between the rail ends, thereby bridging the joint between the adjacent inner ends of the separate base sections 6—6 and acting as a stiffening and bracing support for such ends of said base sections. This construction provides the double base referred to, wherein the main base 6—6 for the rail ends is supplemented by another centrally arranged sub-base 8, and the several elements comprising this double-base are maintained in their proper relation through the medium of the said fastening connection, which serves to couple the main base to the side joint bars 3 and 4.

The fastening connection may consist of any suitable and practical expedients that will subserve the necessary functions, but is usually provided for by the employment of a plurality of vertically arranged fastening bolts 9 located at each side of the joint and passing through aligned bolt holes 10, 11, and

12, respectively provided in the side joint bars, the individual base sections 6—6, and in the opposite end portions of the sub-base 8. In connection with this fastening, it will be noted that the same is rendered specially effective by reason of the side bars 3 and 4 being of angle bar formation so that the same may be formed at their lower edges with the horizontally arranged foot flanges 13 projecting beyond the base flanges of the rails. This admits of the fastening bolts 9 being located beyond the base flanges of the rails and serving to draw the parts together with a sufficient spring clamping action to insure the holding of the base sections 6 in firm contact with the rail bottoms, and the sub-base 8 in firm supporting engagement beneath the inner adjacent ends of the base sections 6 at the center of the joint.

The insulation of the joint herein described includes the side insulating sheets 14—14 interposed between the joint bars and the rail sides, and each of which sheets is continued at the bottom, along one end portion thereof, into a bottom apron extension 15 which is dropped into the gap between the side edge of one base section 6 and the supporting arm extension 7 of the other base section. Also, the insulation of one base section 6 from the other at the center of the joint, may be conveniently provided for by the usual insulating end post 16, whose base is widened so as to project below the rail bases into the interval between the base sections 6. Any of the conventional bolt insulating expedients may be resorted to for insulating the bolt shanks and the heads and nuts of the bolts from the side joint bars 3 and 4, while the insulation of the base sections 6—6 from the sub-base 8 may be provided for by the interposition, between these parts, of a base insulating sheet 18. Also, suitable bolt insulation 9^a is provided for the bolts 9 and is preferably arranged between the same and the sub-base 8 as plainly shown in Fig. 4. Of course, other insulating expedients could be resorted to without affecting the invention.

While one form of joint has been described and illustrated to exemplify the invention, it will be understood that the same may be embodied in other designs of joints, and also various changes in the form, proportion, and minor details of construction resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

I claim:

1. In a rail joint, the rails, the side joint bars, a two part base each section of which affords a support for one rail end on both sides of the meeting point of the rail ends, and a sub-base arranged beneath and bridging said base sections.

2. In a rail joint, the rails, the railsplices, a two part base each section of which affords a

support for one rail end on both sides of the meeting point of the rails, and a sub-base arranged beneath and bridging the separate base sections.

3. In a rail joint, the rails, the side joint bars, a two-part rail-supporting base each section of which affords a support for one rail-end, a sub-base arranged beneath the two-part base at the center of the joint, and fastening bolts connecting each joint bar with the sub-base and with one of the sections of the two-part base.

4. In a rail joint, the rails, side joint bars, a separate supporting base section for each rail end, a supplemental sub-base arranged beneath and bridging the separate base sections, and a fastening connection between each joint bar, the said sub-base, and one of the separate base sections.

5. In a rail joint, the rails, side joint bars, a separate supporting base section for each rail end, a supplemental sub-base arranged beneath and bridging the separate base sections, and fastening bolts connecting each

joint bar with the sub-base and one of the separate base sections. 25

6. In a rail joint, the rails, side joint bars, a separate supporting base section for each rail end, a supplemental sub-base arranged beneath and bridging the separate base sections, and means for insulating one rail from the other, said means including insulation interposed between the sub-base and the separate base sections. 30

7. In a rail joint the rails, side joint bars, a separate supporting base section for each rail end, a supplemental sub-base arranged beneath and bridging the separate base sections, and means for insulating one rail from the other, including insulation between the sub-base and the other base sections. 40

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

REUBEN W. SMITH.

Witnesses:

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CHAS. A. COOL.