No. 744,835. PATENTED NOV. 24, 1903.

G. A. WEBER.

RAIL JOINT.

APPLICATION FILED APR. 17, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

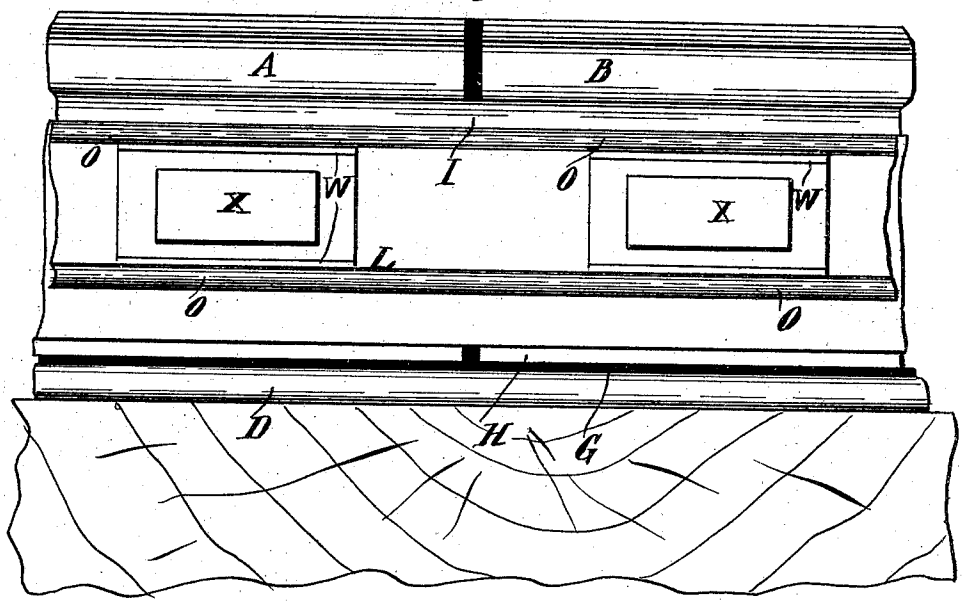
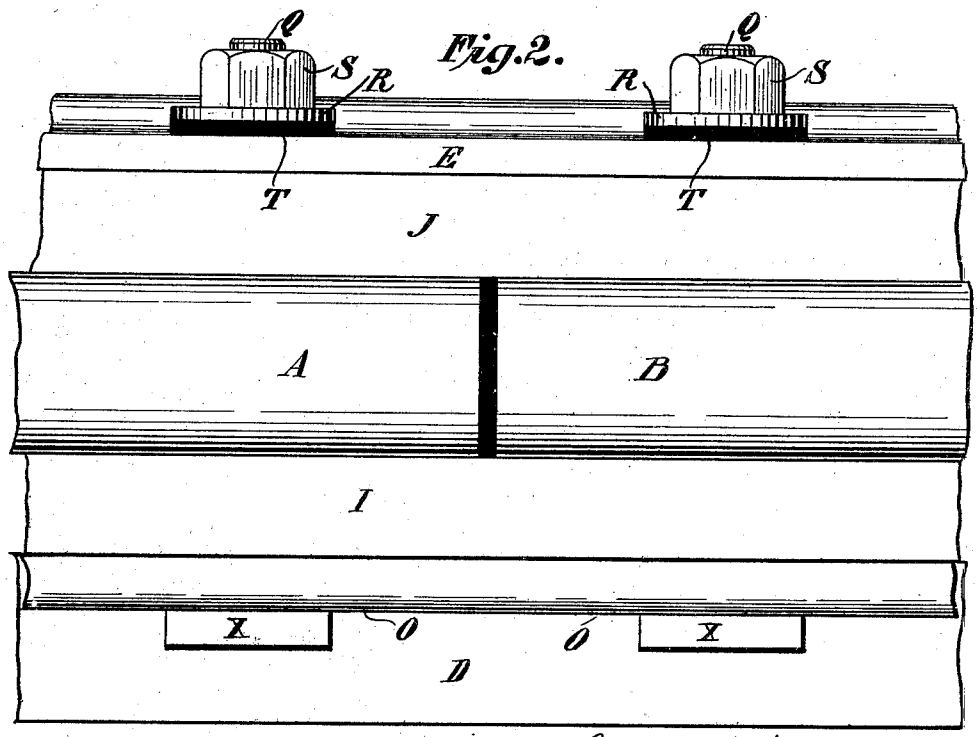


Fig. 2.



Witnesses
H. Mitchell
A. L. O'Brien

George A. Weber Inventor
By Dickerson, Brown
Raegener & Binney
attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

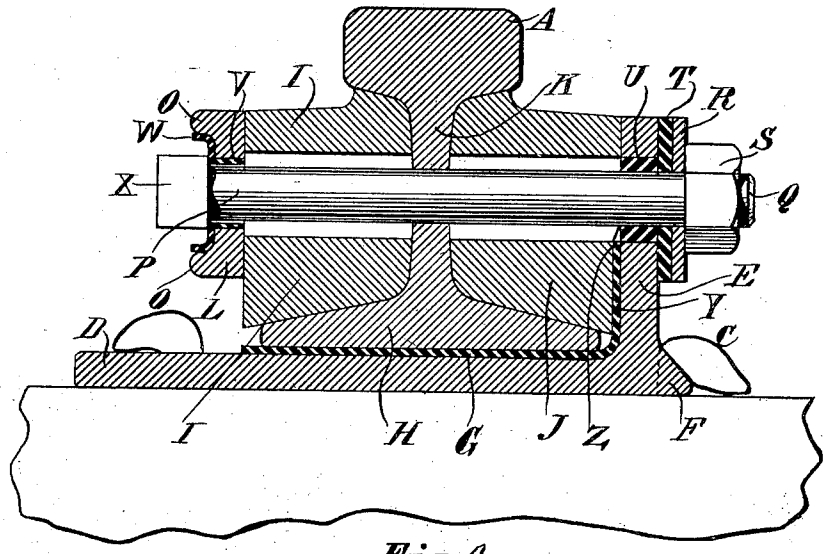


Fig. 4.

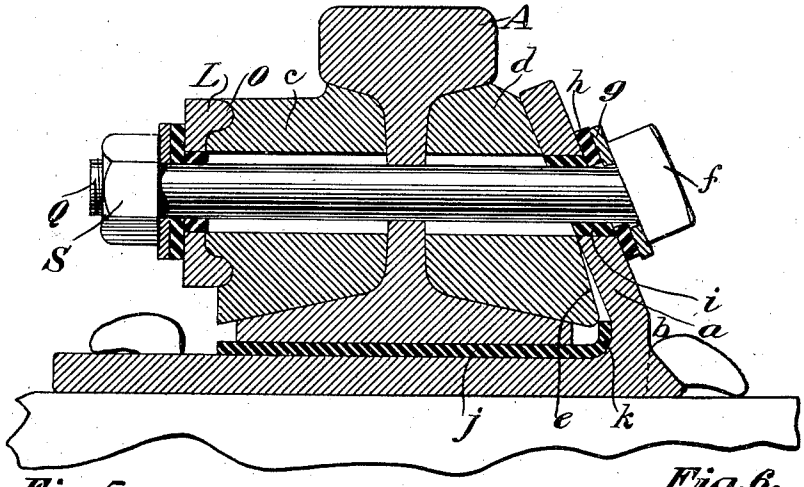


Fig. 5.

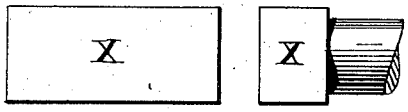
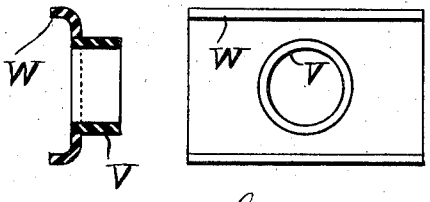


Fig. 6.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 7.

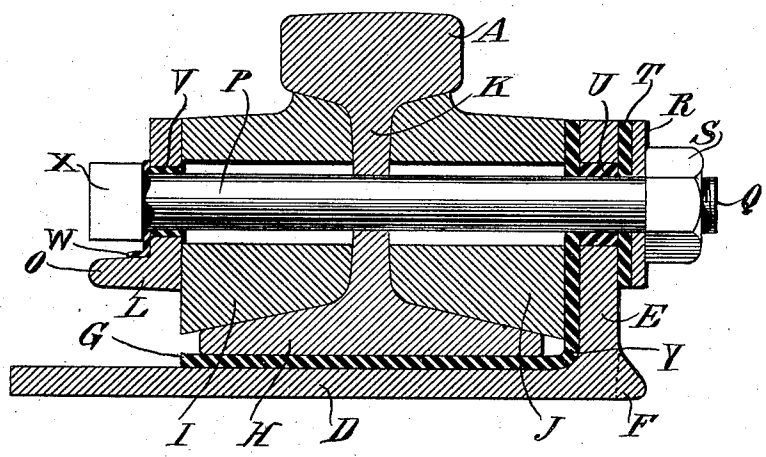
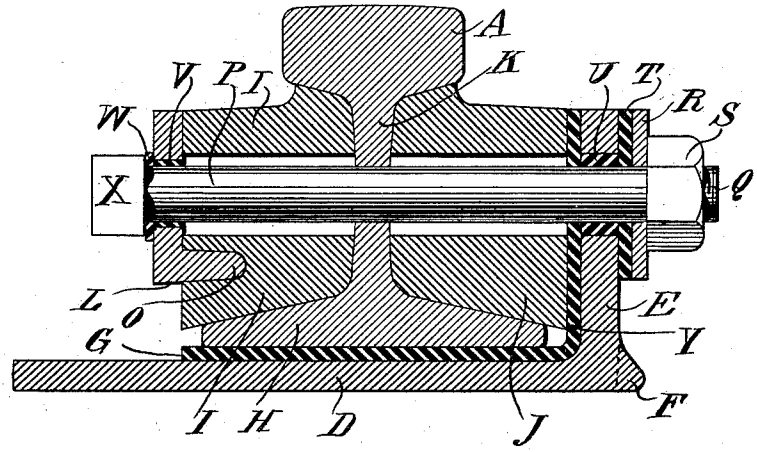


Fig. 8.



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Inventor
By Dickerson Brown
Ruegnes & Binney
attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 744,835. Patented November 24, 1903.

UNITED STATES PATENT OFFICE.

GEORGE A. WEBER, OF NEW YORK, N. Y., ASSIGNOR TO THE WEBER RAILWAY JOINT MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 744,835, dated November 24, 1903.

Application filed April 17, 1903. Serial No. 153,032. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. WEBER, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification, accompanied by drawings.

My invention relates to rail-joints; and its objects are to improve upon the construction of such joints and increase their efficiency with simplicity of parts and cheapness of manufacture.

Other objects of the invention are to increase the strength and rigidity of the joint.

Further objects of the invention will hereinafter appear; and to these ends my invention consists of a rail-joint for carrying out the above objects embodying the features of construction, combinations of elements, and arrangement of parts substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a side view of a rail-joint embodying my invention. Fig. 2 is a plan view. Fig. 3 is a transverse sectional view of the same. Fig. 4 is a transverse sectional view of a modification. Fig. 5 are detail views of one of the bolt-heads. Fig. 6 are detail views of one of the insulating-washers. Figs. 7 and 8 are sectional views of modifications.

My invention may be applied either to insulated or uninsulated rail-joints; but I have shown it in connection with an insulated rail-joint, although I am not to be understood as limiting myself to such construction, for the invention may be used wherever applicable.

Referring to the drawings, A and B represent the meeting ends of rail-sections supported upon the rail-chair C, which may consist, as shown, of the base D and upright or bolt-plate E, there being a strengthening-fillet F, forming a spiking-rib at the juncture of the base and upright. Suitable insulation G is placed beneath the bases H of the rails A and B, and insulating material, shown as blocks of wood I and J, are arranged at each side of the webs K of the rails. The block J, as shown, is between the webs of the rails and the upright E of the rail-chair, while outside of the block I is secured the metallic strengthening-bar L, extending across the joint and adding strength and rigidity to the joint.

One of the objects of my invention is to increase the strength of the joint, while at the same time reducing the metal necessary for the construction. According to my invention it will be seen that the strengthening-bar L is in the form of a channel-iron provided with the flanges O and the web portion P. By forming the bar L with the flanges O it will be seen that the bar may contain less metal than a bar of rectangular cross-section having the same strength. In other words, the web portion P of the bar L may be reduced in thickness, because the flange portions O provide the required strength.

Suitable bolts Q pass through the different parts of the joint to secure the whole together, and suitable means are provided for insulating the bolts from the rails and from the chairs and from the strengthening-bar L. As shown, metallic washers R are arranged beneath the nuts S, and washers T, of suitable insulating material, are arranged over the shanks of the bolts adjacent the washers R. Suitable insulating-sleeves U insulate the shanks of the bolts from the upright E of the rail-chair.

The shanks of the bolts are suitably insulated from the strengthening-bar L by means of insulating-sleeves V. It will be seen that the flanges O of the bar L afford provision for suitably securing the insulating-washers W firmly in position. As shown, the washers W are arranged over the shanks of the bolts adjacent the heads X of the bolts, and with a squared head, as shown, no metallic washers are necessary between the bolt-head and the insulating-washers W. The edges of the washers W may be bent to conform to the flanges O, and preferably said washers may be of elongated or rectangular construction, as shown in Fig. 6, which prevents them from turning and coming loose. The heads X of the bolts may also be of rectangular

construction, which aids in maintaining the bolts firmly within the channel formed by the flanges O.

Suitable means are provided for securing and maintaining the insulation G beneath the bases H of the rails, it being understood that the insulation G extends beneath the base of at least one of the rails, although it may extend beneath the bases of both rails, if desired. As shown, in order to secure the insulation in place and prevent it from slipping from beneath the bases of the rails by vibrations a portion of the insulation Y is turned upwardly along the inside of the upright E and securely clamped between the block J and the upright. In this instance the block J is rabbeted at Z to accommodate the thickness of the insulation and permit the block to be clamped firmly between the webs of the rails and the upright E. The rail-chair D is suitably spiked to the ties.

In Fig. 4 the upright *a* of the rail-chair *b*, as shown, is bent inwardly toward the rails. Blocks *c* and *d* are arranged adjacent the webs of the rails, the block *d* being beveled at its lower edge *e* opposite the lower portion of the inner face of the upright *a* in order to prevent a fulcrum being formed at this point against the upright when the joint is tightened. In this instance a strengthening-bar L is placed against the block *c* in a position the reverse of that shown in Fig. 3. In other words, the flanges O bite into the block *c* and lie in longitudinal grooves therein. The advantages of increased strength and rigidity of the joint are obtained by this construction, and, as before, the bolts Q are suitably insulated from the metallic parts of the joint. In this instance the heads *f* of the bolts are formed at an angle to the shanks of the bolts to conform to the angle of the upright *a* of the rail-chair, while the nuts S at the other ends of the bolts serve to tighten up the joint and hold the parts securely together. Metallic washers *g* are arranged adjacent the heads of the bolts and the nuts S, while insulating-washers *h* insulate the heads and nuts from the rail-chair and from the strengthening-bar L. Suitable insulating-sleeves *i* insulate the rail-chair and strengthening-bar L from the shanks of the bolts. Suitable insulating material *j* is arranged beneath the base of at least one of the rails, and the end may be bent upwardly, as at *k*, to aid in maintaining the insulation in position. Suitable insulating material *p* may be placed between the ends of the rails A and B to insulate the faces of the rails from each other.

In Figs. 7 and 8 transverse sectional views are shown of rail-joints in which the strengthening-bars are each provided with but one flange instead of two. This construction is also found desirable and efficient.

Obviously some features of my invention may be used without others, and my invention may be embodied in widely-varying forms.

Therefore, without limiting myself to the construction shown and described, nor enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. An insulated rail-joint, comprising the meeting ends of rails, insulating filling-blocks arranged along the webs of the rails, an upright or bolt-plate, and a strengthening-bar arranged outside of said blocks at each side of the joint, said strengthening-bar extending across the joint and being provided with one or more longitudinal flanges, and insulated bolts for securing the parts of the joint together, for substantially the purposes set forth.

2. An insulated rail-joint, comprising the meeting ends of rails, supported upon a rail-chair having a base and an upright, suitable insulating filling-blocks arranged at each side of the webs of the rails, a strengthening-bar extending across the joint outside of the blocks at one side of the rails, said bar being provided with a web portion and one or more longitudinal flanges, and insulated bolts for securing the parts of the joint together, for substantially the purposes set forth.

3. An insulated rail-joint, comprising the meeting ends of rails, insulating filling-blocks arranged along the webs of the rails, an upright or bolt-plate and a strengthening-bar outside of said blocks, one at each side of the joint, said strengthening-bar extending across the joint and being provided with longitudinal flanges projecting outwardly, and insulated bolts for securing the parts of the joint together, the heads of said bolts being squared and lying within the channel formed by the flanges of said strengthening-bar, for substantially the purposes set forth.

4. An insulated rail-joint comprising the meeting ends of rail-sections supported upon a rail-chair having a base and an upright, the base of at least one of said rails being insulated from the base of the chair by suitable insulation, suitable insulating filling-blocks arranged at each side of the webs of the rails, a strengthening-bar extending across the joint outside of the blocks at one side of the rails, said bar being provided with a web portion and one or more longitudinal flanges, and bolts for securing the parts of the joint together, said bolts being insulated from the rails and from the upright of the rail-chair and the strengthening-bar by suitable insulating washers and sleeves, for substantially the purposes set forth.

5. An insulated rail-joint, comprising the meeting ends of rails, and insulating means for supporting them in surface, a bolt-plate at one side of the joint and a flanged solid strengthening-bar at the other side of the joint and extending across the same, both insulated from the rails, and insulated bolts for securing the parts of the joint together, for substantially the purposes set forth.

6. An insulated rail-joint, comprising a rail-chair having a base and an inwardly-bent upright, filling-blocks at each side of the

webs of the rails, the block on the side toward the upright of the chair being chamfered at its outer and lower edge portion, a flanged strengthening-bar opposing the upright of the chair, and insulated bolts for securing the parts of the joint together, for substantially the purposes set forth.

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

GEORGE A. WEBER.

Witnesses:
A. L. O'BRIEN,
E. VAN ZANDT.