No. 817,821. PATENTED APR. 17, 1906.

G. A. WEBER.

RAIL JOINT.

APPLICATION FILED MAR. 31, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

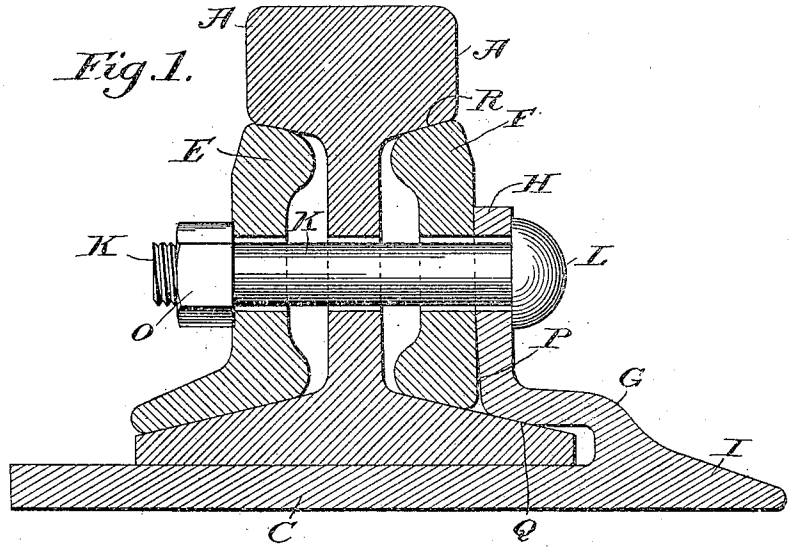
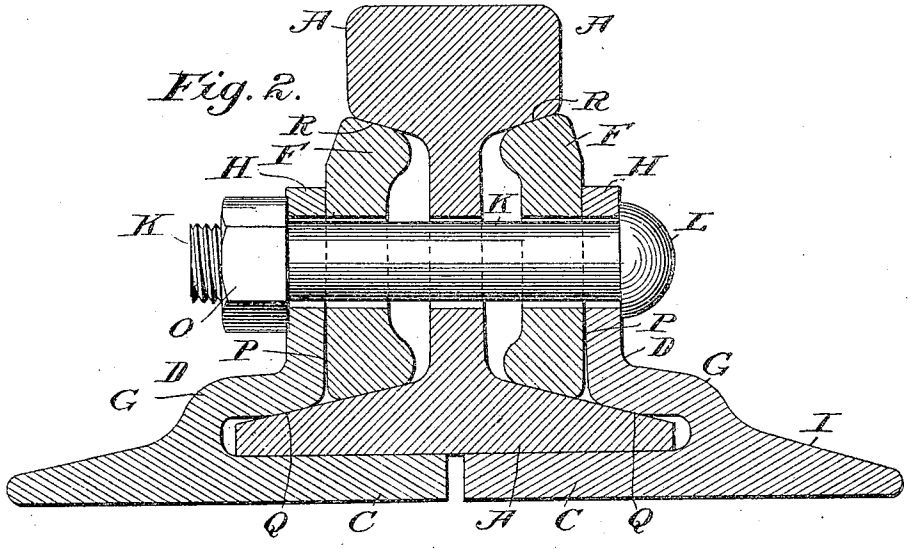


Fig. 2.



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3 SHEETS—SHEET 2.

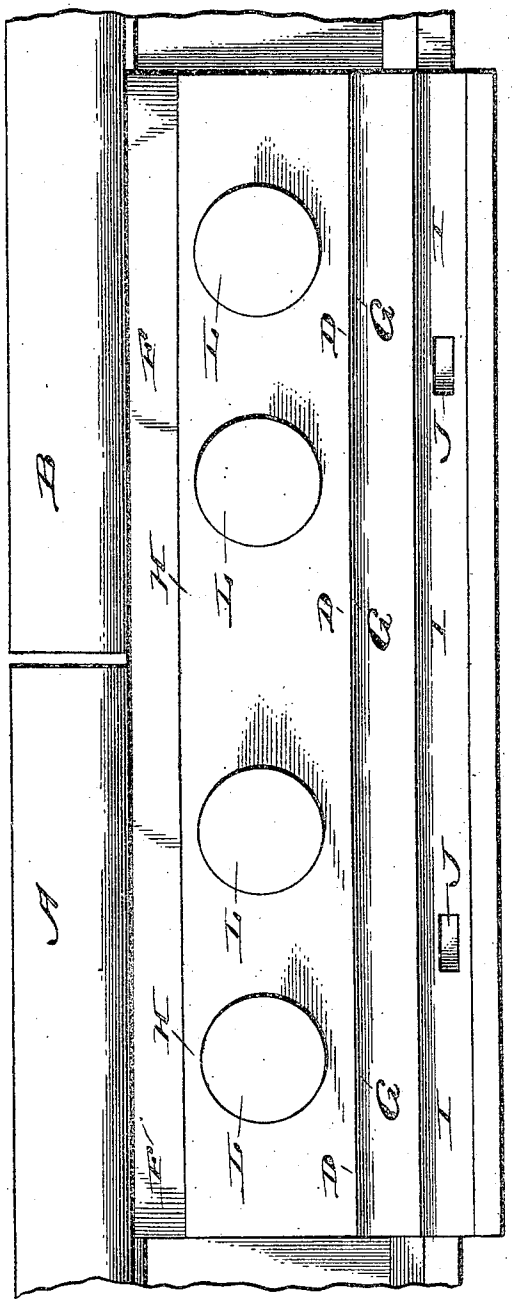

Fig. 3.

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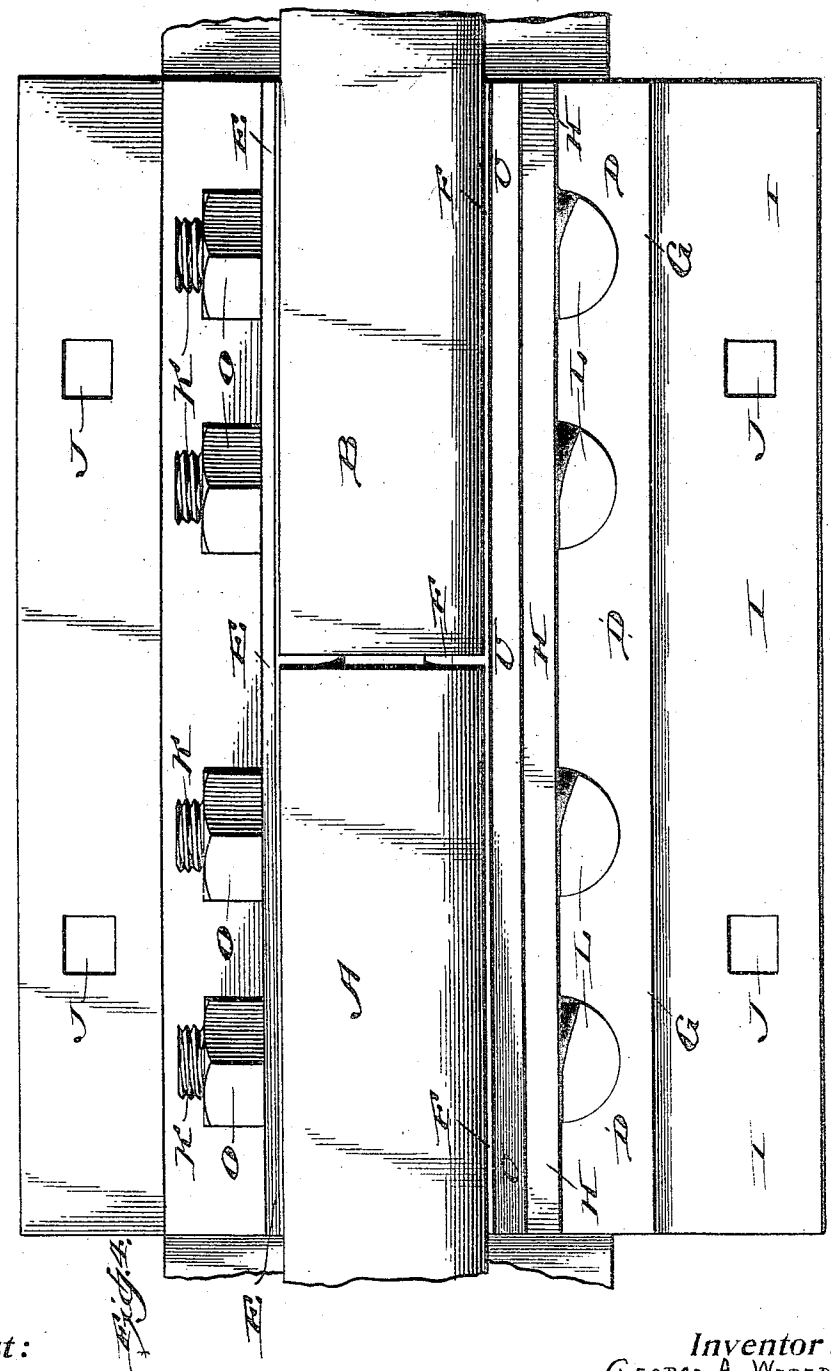
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

No. 817,821. Specification of Letters Patent. Patented April 17, 1906.

Application filed March 31, 1905. Serial No. 253,122.

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.

This invention relates to rail-joints; and one of its objects is to hold the rails in position under the passage of a train and prevent the rail ends from moving upward when the wheels are passing from one rail to another.

Another object of the invention is to secure a firm downward hold upon the base-flanges of the rails.

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

Figure 1 is a transverse sectional view of a rail-joint embodying the invention having one rail-chair. Fig. 2 is a transverse sectional view of a joint having two rail-chairs. Fig. 3 is a side view, and Fig. 4 is a plan view, of the joint shown in Fig. 1.

Referring to the drawings, A and B represent the meeting ends of rails resting upon the base C of the rail-chair D. Extending across the joint at one side of the rails is an angle-plate E, while at the other side is a fish-plate F. The rail-chair D is provided with an inwardly and upwardly bent portion forming a bolt-plate. As shown, the chair is provided with an inwardly-bent portion G, adapted to bear for a portion of its length on the upper surface of the base-flanges of the rails and out of contact therewith for the remainder of its length to a point beyond the edges of the base-flanges. The chair also has an upright H, with a nose or spiking-rib I, provided with spiking-holes J. The base of the chair is also provided with spiking-holes J, which may be in the form of slots.

In forming the rail-chair with the inwardly and upwardly bent portion it will be seen that the bend which extends up and around from the base C of the chair is prolonged in a vertical direction, forming a substantially straight portion at the point C′, which is preferably longer or higher than the edge of the small end of the base of the rail. The object in so constructing the rail-chair with an enlarged and thickened portion at the first bend above the base is to strengthen the chair and provide a girder effect. It will be seen that the portion C′ referred to acts as an additional girder portion in the chair. A clearance is also provided at the bend for the entrance of the smaller end of the rail-flanges. Extending through the webs of the rails, the angle-plate E, the fish-plate F, and the upright H are the bolts K, having heads L and nuts O.

As shown, there is a slight clearance P between the inner face of the upright H of the chair and the outer face of the fish-plate F, so that when the joint is tightened up the upright H will be drawn firmly against the fish-plate. The act of drawing the upright H against the fish-plate will also insure a snug fit between the under side of the inwardly-turned portion G and the upper surface of the base of the rail. As shown in the drawings, only a portion of the under side of the inwardly-turned portion G bears upon the base of the rail, and preferably the extent of the bearing-surface Q should about equal the extent of the bearing-surface R between the upper side of the fish-plate F and the under side of the head of the rail. When the joint is tightened, a strong upward pressure is obtained beneath the heads of the rails and a strong downward pressure upon the bases, with about the same amount of bearing-surface underneath the heads and on the bases. One of the advantages of this construction resides in the fact that inequalities in rolling the flanges of the rails or the angle-bars is taken care of by the compensating fit afforded between the lower portion of the upright of the chair and the angle-bar. If the rail-flanges or flanges of the angle-bars are either thicker or thinner than required or if the space between the base of the chair and the inwardly-turned portion is larger or

smaller than required, due to inequalities in rolling, these differences are taken care of and compensated for by the construction of the chair, which adjusts itself to the parts when the joint is tightened. The clearance-space between the lower portion of the outer face of the angle-bar and the upright of the chair may be entirely eliminated on tightening up the parts, and the chair will adjust itself against the angle-bar as the bolts are tightened.

In Fig. 2 the bases of the rails are shown resting upon the bases C of two rail-chairs D, one of these rail-chairs being substituted for the angle-plate E. (Illustrated in Fig. 1.)

According to the constructions shown and described, in each case a base-support is provided for the rails, with a fishing-bar or bolt-plate at one side of the joint and a chair having an inwardly and upwardly bent portion at the other side of the joint, forming a bolt-plate. The bent portion of the chair is of sufficient strength in each case to hold the rails down. According to the constructions described, there are three bearing-surfaces in the joint at which it is desired to obtain a good fit—that is, under the heads of the rails, under the bases of the rails, and on top of the outwardly-extending flange of the angle-plate in that case in which an angle-plate is used between the upright of the chair and the webs of the rails. In those cases in which a plain fish-plate is used the fit is obtained upon the upper surfaces of the base-flanges of the rails.

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

Therefore, without limiting myself to the constructions shown and described or enumerating equivalents, I claim, and desire to obtain by Letters Patent, the following:

1. A rail-joint comprising the rails and a rail-chair, side bars arranged at each side of the joint, said rail-chair being provided with a base underneath the rails, and an inwardly and upwardly bent portion adapted to bear for a portion of its length upon the upper surface of the base-flanges of the rails and out of contact therewith for the remainder of its length to a point beyond the edges of the base-flanges, while the upwardly-bent portion is adapted to bear against the outer portion of one side bar, and suitable bolts for securing the parts of the joint together.

2. A rail-joint comprising the rails, and a rail-chair, side bars arranged at each side of the joint, said rail-chair being provided with a base underneath the rails, and an inwardly and upwardly bent portion adapted to bear for a portion of its length upon the upper surface of the base-flanges of the rails and out of contact therewith for the remainder of its length to a point beyond the edges of the base-flanges, while clearance is provided between the lower portion of the side bar and the upwardly-bent portion of the chair to provide a compensating fit whereby when the joint is tightened a fit over the base-flanges of the rails is insured.

3. A rail-joint comprising the rails and rail-chairs, side bars arranged at each side of the joint, said rail-chairs being provided with bases underneath the rails, and inwardly and upwardly bent portions adapted to bear for portions of their lengths upon the upper surface of the base-flanges of the rails and out of contact therewith for the remainder of their lengths to points beyond the edges of the base-flanges, while the upwardly-bent portions are adapted to bear against the outer portions of the side bars, and suitable bolts for securing the parts of the joint together.

4. A rail-joint comprising the rails and rail-chairs, side bars arranged at each side of the joint, said rail-chairs being provided with bases underneath the rails and inwardly and upwardly bent portions, a compensating fit being provided between the outer portions of the side bars, and the upwardly-bent portions of the rail-chairs, and suitable bolts for securing the parts of the joint together.

5. A rail-joint comprising the rails and rail-chairs, side bars arranged at each side of the joint, said rail-chairs being provided with bases underneath the rails, and inwardly and upwardly bent portions, the inwardly-bent portions of the chair being adapted to bear for portions of their lengths only, upon the upper surface of the base-flanges of the rails where such length is over the rail-flanges, while clearance is provided between the lower portions of the side bars and the upwardly-bent portions of the chairs to provide a compensating fit whereby when the joint is tightened a fit over the base-flanges of the rails is insured.

6. A rail-joint comprising the rails and rail-chairs, side bars arranged at each side of the joint, said rail-chairs being provided with bases underneath the rails, and inwardly and upwardly bent portions adapted to bear upon the upper surface of the bases of the rails and against the outer portions of the side bars, the rail-chairs being provided with heightened or prolonged bends in a vertical direction adjacent the base of the rail thereby affording increased strength.

7. A rail-joint comprising the rails and rail-chairs, side bars arranged at each side of the joint, said rail-chairs being provided with bases underneath the rails and inwardly and upwardly bent portions, the rail-chairs also being provided with thickened and vertically-extended portions between the bases of the chairs and the inwardly-bent portions to provide increased strength.

8. A rail-joint comprising the rails and rail-chairs, side bars at each side of the joint, said rail-chairs being provided with bases un-

derneath the rails and inwardly and upwardly bent portions adapted to bear upon the upper surface of the bases of the rails and against the outer portions of the side bars, the inwardly-turned portions of the chairs being integrally connected to the base by upwardly-extended portions.

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

GEORGE A. WEBER.

Witnesses:
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A. L. O'BRIEN.