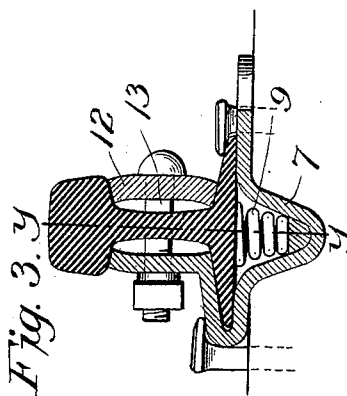
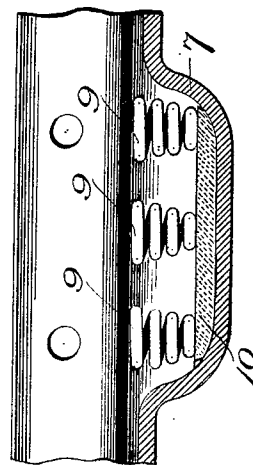
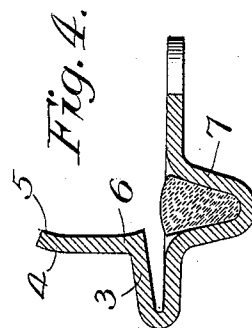
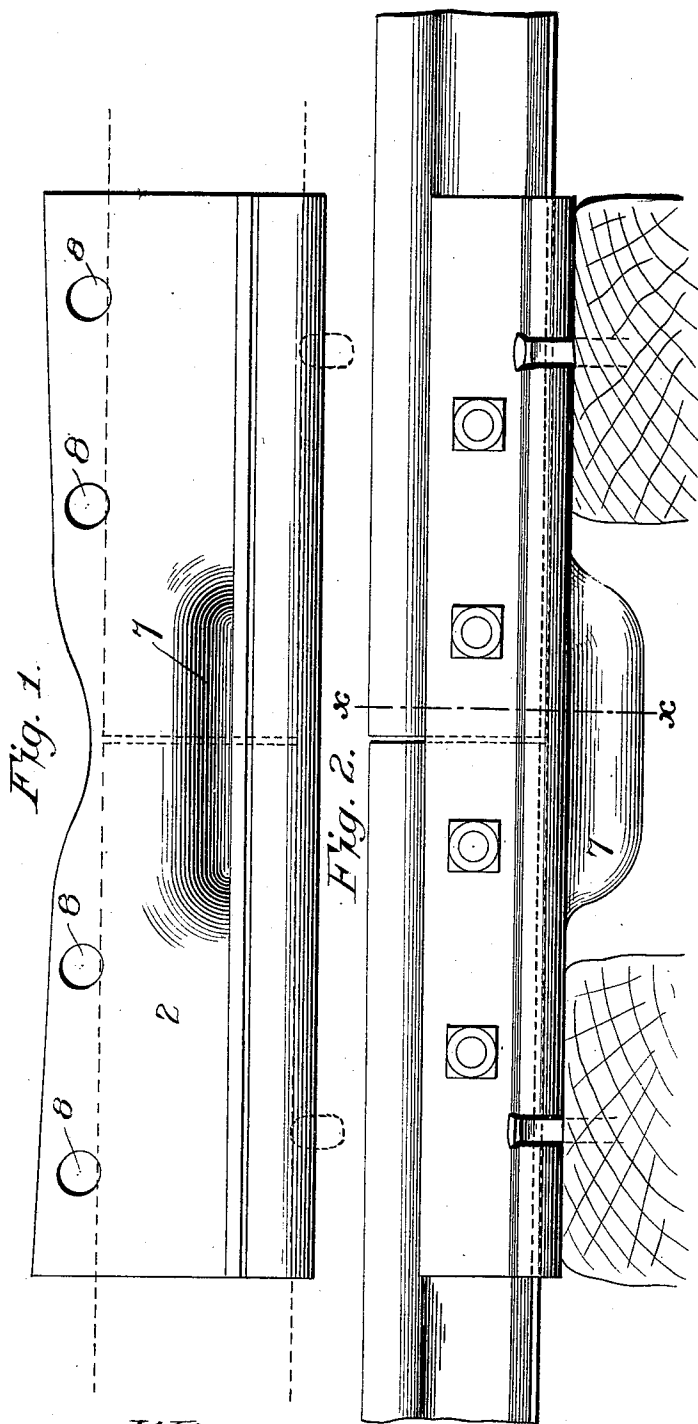


(No Model.)

E. P. CALDWELL.
RAIL JOINT.

No. 513,081.

Patented Jan. 23, 1894.



Witnesses:
C. E. Van Doren,
M. E. Goober

Inventor,
Edward P. Caldwell.
By Paul & Hawley
his Attys.

UNITED STATES PATENT OFFICE.

EDWARD P. CALDWELL, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE
HEATH RAIL JOINT COMPANY, OF SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 513,081, dated January 23, 1894.

Application filed August 7, 1893. Serial No. 482,592. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. CALDWELL, of the city of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

My invention relates to means for joining and supporting the ends of railroad rails, and in particular to a trussed rail plate and joint adapted to bind the rails together, to support them on the ties, and to prevent the sinking or depressing of the ends of the rails, thus making a practically continuous rail without noticeable breaks.

The object of my invention is to provide a complete rail joint, preferably of wrought metal, and which will firmly hold the rails in place, and a further object is to provide means for cushioning the ends of the rails.

To this end my invention consists in a rail-joint comprising a rail or base-plate, and an integral angle iron bar portion, said base plate portion being provided with the central depressed part pocket-like in form and making a very strong truss; in a filling or elastic cushion; and further, my invention consists, in various details of construction and in combinations all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a rail joint embodying my invention, the rails being removed and the outline of the base thereof being alone shown in dotted lines. Fig. 2 is a side elevation of the rail joint, with the rails in place therein. Fig. 3 is a cross section on the line $x-x$ of Fig. 2. Fig. 4 is a similar cross section with the rails and other parts removed and showing a different form of cushion in the trussed pocket. Fig. 5 is a vertical longitudinal section on the line $y-y$ of Fig. 3, the rail being removed.

As shown in the drawings, my rail-joint is made of a simple rectangular sheet of wrought metal hot or cold formed in suitable dies. When so formed the main portion of the joint comprises a number of integral parts, namely;

the rail or tie plate 2, of sufficient length to extend over two ties and forming a flat surface for the rail or rails. At the edge of this plate the remainder of the original sheet is bent upwardly and inwardly to form the angle iron or bar portion consisting of the inwardly inclined part 3 and the vertical part 4. The upper and lower edges 5 and 6 of the vertical part 4 are extended inwardly, the upper one being beveled to fit the under side of the tread or ball of the rail. The under edge or surface of the angle iron is arranged to snugly fit the top of the flange of the rail. These parts are preferably of the same length, and in the center of that portion of the plate 2 upon which the rail bases rest, I provide a depending truss 7, made by a depression, pocket-like in form, and, preferably of as great a length as possible to be admitted between two ties. The walls of this pocket are inclined and the bottom thereof curved to obtain the greatest possible strength and, as will be particularly noticed in Figs. 1 and 4, the outer edge of the plate 2, is, in the process of manufacture, drawn inwardly, sufficient metal being thus furnished to avoid the stretching of the middle part of the plate, with the consequent result of making the walls of the pocket or hollow truss of the same thickness throughout and substantially of the same thickness as the rest of the plate.

Incident to the above construction the rail joint is made to possess a most important advantage in that in drawing in the edge of the plate an opening is left on the inside of the joint between what would otherwise be the straight edge thereof and the ground, thus permitting free drainage beneath the joint and between the ties.

Near the edge of the plate 2 I provide a number of holes 8, through which the spikes are driven close to the edge of the rail base and into the tie. These spikes effectually prevent lateral movement of the rail and also the shifting of the joint. Upon the opposite side one or more spikes are driven into each tie close to the thick rounded edge of the joint, the heads of the spikes being driven down snugly upon the top of the part 3 of the angle iron. Within the pocket formed in making the truss, I preferably arrange a fill-

ing which preferably has an elastic or springy nature to form a cushion beneath the rails. The filling, material or device employed may be of a varied nature. I may use one or more strong steel springs 9 like unto the springs shown in Figs. 3 and 5. With any such spring or springs I preferably employ a footing bar or stick 10 in the lower part of the pocket. In place of the springs I may use elastic material of any other kind, such as a simple block of wood, or wood pulp or of rubber (see Fig. 4) which, when first placed in position projects slightly above the surface of the plate, to be pressed down by the rails or weight upon the rails. The joint is preferably completed by the employment of a fishplate 12 with bolts 13 passing through the same, through the web of the rail and through the integral angle iron.

My rail-joint possesses the pre-eminent advantage of having no cut or broken edges from which cracks or flaws may start, and in addition, the joint being preferably made of wrought or sheet metal is extremely light and yet strong, the strength thereof being greatly increased by the employment of the uncut truss and the uncut rounded edge made by turning up the angle iron.

The elastic cushion where employed renders the joint noiseless.

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

1. As a new article of manufacture, a rail-joint comprising a rail or tie plate provided with an integral angle iron and having a central depressed portion pocket like in form and forming a strong truss, substantially as described.

2. As a new article of manufacture, a rail-joint, comprising a rail or tie plate, having an integral angle iron, and the center of the plate

being depressed to form a depending truss and a pocket for a filling, the joint being composed of wrought metal, substantially as described.

3. As a new article of manufacture, a rail-joint, composed of wrought metal and comprising a rail or tie plate, an angle iron integral therewith, and an integral hollow depending truss formed centrally in the bottom of said plate, the edge of the plate being drawn in at the middle and the walls of the truss being of the same thickness throughout, substantially as described.

4. The combination, in a rail-joint, of a rail plate, provided with an integral angle iron, and having a depending truss formed by a depressed central portion of the plate, and an elastic cushion arranged within the pocket of the truss, substantially as described.

5. The combination, in a rail-joint, of a plate whereon the rail is adapted to rest, and provided with an integral angle iron, said plate having a central depressed portion forming a hollow uncut truss, a cushion filling provided in the hollow or pocket in the truss, a fishplate, and short bolts passing through the same and through the vertical part of said integral angle iron, substantially as described.

6. As a new article of manufacture, a rail or base plate, having an integral hollow depending truss formed centrally in said plate, the edge of the plate being drawn in at the middle and the walls of the truss being of the same thickness throughout, substantially as described.

In testimony whereof I have hereunto set my hand this 31st day of July, 1893.

EDWARD P. CALDWELL.

In presence of—

C. G. HAWLEY,
M. E. GOOLEY.