(No Model.)

R. LONG, Dec'd.

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SPRING TRUSS SUPPORT FOR RAIL JOINTS.

No. 413,347. Patented Oct. 22, 1889.

Fig. 1.

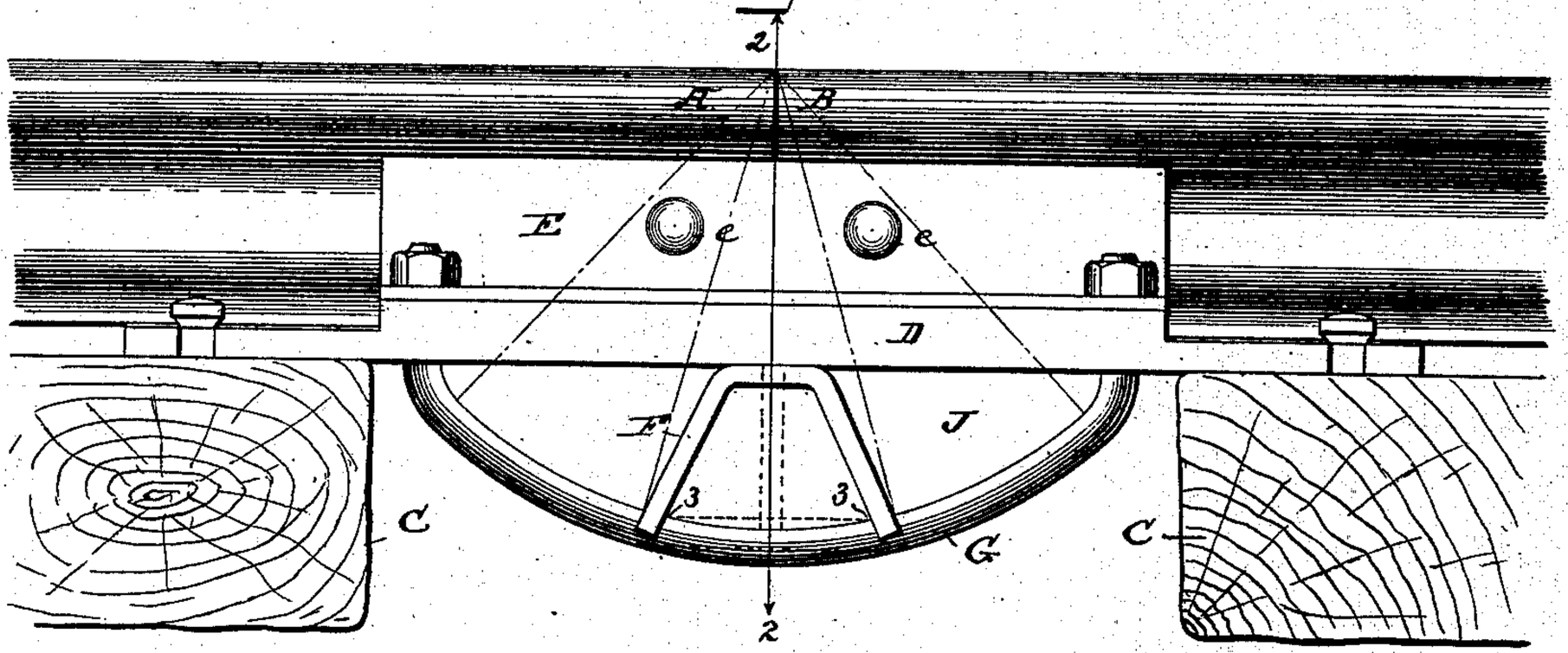


Fig. 2.

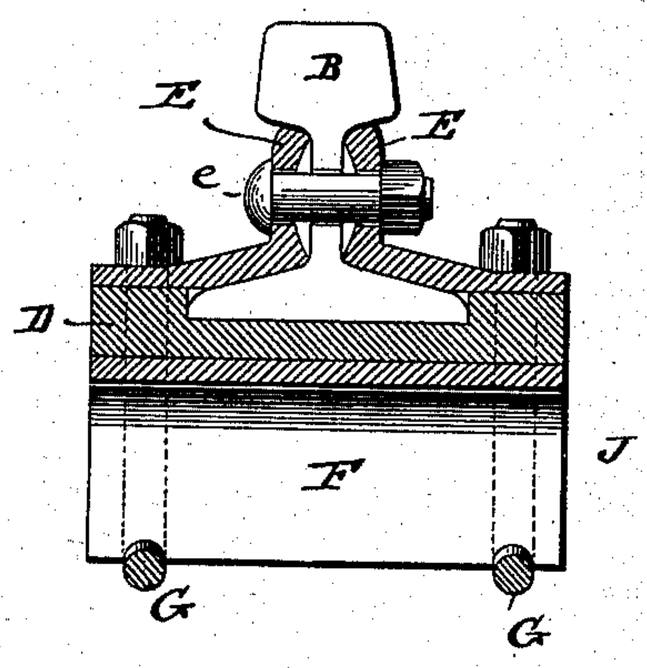
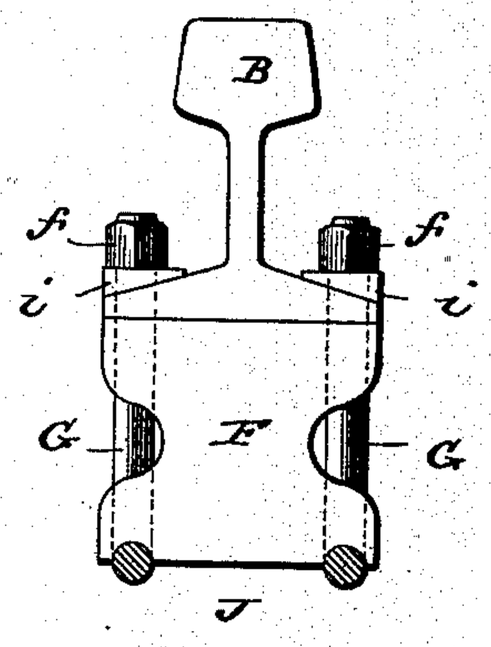


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

RICHARD LONG, OF CHICAGO, ILLINOIS; JAMES M. JOHNSON, ADMINISTRATOR OF SAID RICHARD LONG, DECEASED, ASSIGNOR TO THE LONG SPRING TRUSS JOINT COMPANY, OF SAME PLACE.

SPRING TRUSS-SUPPORT FOR RAIL-JOINTS.

SPECIFICATION forming part of Letters Patent No. 413,347, dated October 22, 1889.

Application filed February 1, 1889. Serial No. 298,403. (No model.)

To all whom it may concern:

Be it known that I, RICHARD LONG, a citizen of the United States, residing at Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Spring Truss-Supports for Rail-Joints, of which the following is a full, clear, and exact specification.

In that class of rail-joint supports in which a spring-truss is employed to support the meeting ends of the rails such spring-support has heretofore been made of substantially two members—that is, a rigid member suspended directly or indirectly from the rails themselves, and an elastic member supported by the rigid member and supporting the ends of the rails.

My invention is an improvement in the class of rail-joint supports above described; and it consists of a support in the form of a truss having substantially two members, as in the support above described; but in my improvement the spring member is supported directly or indirectly from the rails, while the more rigid member is interposed between the spring-support and the rails, or an attachment thereto, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a side view showing one embodiment of my invention. Fig. 2 is a transverse section on the line 2 2, Fig. 1. Fig. 3 is a transverse section illustrating a modification.

A B represent the meeting ends of two adjacent rails, which extend over and meet between the ties C C, as usual.

J represents the spring-truss, which constitutes the support for the meeting ends of the rails, and which consists, in addition to the rails or base-plate, of two members F and G, the latter being a spring member, and consisting, as shown, of one, two, or more curved steel blades, bars, or rods suspended below the rails from points a short distance from the meeting ends thereof and supporting the other member F, which, as shown in Figs. 1 and 2, consists of a plate of wrought metal bent to the form of an inverted V, the limbs resting upon the spring member at separated points, while the apex is below the meeting ends of the rails. The members of the truss may be in direct contact or connection with the rails themselves, as shown in Fig. 3, which represents a construction in which each flange of each rail is perforated for the passage of one of the ends of one of the rods constituting the spring member, each end of each rod being threaded to receive a nut *f*, which bears upon a wedge-like washer *i*, of such a shape as to afford a level bearing for the nut, and the apex of the rigid member F is in direct contact with the under sides of the rails. Instead of this construction shown in Fig. 3, the other two members of the truss may be indirectly connected with the rails through the medium of a base-plate D, suitably bolted or otherwise secured to the rails, and perforated or otherwise formed for the attachment of the spring member of the truss, and channeled to receive the rails, and resting with its lower face below the meeting ends of the rails upon the member F.

As shown in Figs. 1 and 2, angle-plates E E are used as means of connection between the base-plate and the rails, each angle-plate being secured to the base-plate by bolts, or by means of the rods constituting the spring member of the truss, as shown, and being also secured to the sides of the rails by means of a transverse bolt or bolts *e*.

In the construction shown in Figs. 1 and 2 the base-plate is spiked to the ties, and there are two cross-bolts *e*, both passing through elongated openings in the angle-plates, so as to permit expansion and contraction of the rails without strains upon any portions of the truss.

The rods, bars, or strips constituting the spring member of the truss are composed of metal which has a slight elasticity—as, for instance, of steel slightly tempered—so that it will tend to maintain the form in which it is applied to the rail, while capable of yielding to a slight extent. As a train passes over the track, and as the weight is brought upon the rails at their point of meeting, any depression of the end of either rail

will be transferred to the other rail through the medium of the angle-plates, so that one end cannot be depressed while leaving the other projecting upward, and such depression will result in bending downward the base-plate to a slight extent at its center and in corresponding downward movement of the member F of the truss; but as the ends of the spring member of the truss are fixed at points on the rail or base-plate that are comparatively stationary the said member cannot descend bodily with the other member, but will yield thereto—a result which is possible, owing to the form of the said spring member, inasmuch as the curved portion thereof will tend to straighten or flatten under strain, permitting the descent of the other member, but with a constantly-increasing resistance, until after a short movement the spring member ceases to yield and the truss becomes practically rigid and constitutes thereafter an inflexible support for the weight which is upon the rail, and after the removal of the weight the spring member will recover its former form and the rails will be supported horizontally in line, as before.

The curved form of the spring member is not essential to the operation above described, inasmuch as it may be made in different forms, provided that at least a portion thereof is normally non-coincident with the line of strain when the rails are loaded, so that the pressure of the load will bring such portion into or toward a straight line coinciding with such line of strain. Thus the portion of the spring member between the bearings 3 3 of the member F may be straight, as shown in dotted lines, Fig. 1, or the other portions may be straight and the portion only between the bearings 3 3 may be curved. The member F, instead of being in the form of a bent plate, may consist of a solid standard or series of standards, as shown in dotted lines, Fig. 1, and in Fig. 3.

By threading the portions of the spring member which extend upward through the support and providing the same with nuts the said member may be adjusted to apply any desired tension when setting the truss in position, while its application and removal are facilitated.

The member F, although termed and relatively a "rigid" member, need not be absolutely unyielding, as it may operate effectively if it should spring to a slight extent.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A rail-joint support consisting of a spring member suspended below and from the bases of the rails at opposite sides of the meeting-point, and a second member interposed between the spring member and the rails at the meeting-point thereof, substantially as set forth.

2. The combination, with the ends of two meeting rails, of a truss consisting of a member suspended below and connected with the rails and having parts out of coincidence with the lines of strain, and a second member supported by the first beneath the ends of the rails, substantially as set forth.

3. The combination, with the rails, of a spring-truss consisting of two members, one of which is a spring member, and adjusting devices for regulating the tension of the spring member, substantially as set forth.

4. The combination, with the ends of meeting rails, of a truss consisting of two members, one a curved spring plate, bar, or bars, and the other a standard interposed between the said curved member and the rails, substantially as set forth.

5. The combination of the rails, adjustable curved spring-bars suspended below the rails, and intermediate standard of an inverted-V shape, substantially as described.

6. The combination of the rails, a truss consisting of a spring member suspended below the bases of the rails, and an intermediate standard, and side plates bolted to the rails, substantially as set forth.

7. The combination of the rails and truss consisting of a curved spring member, and a standard having the form of an inverted V, substantially as set forth.

8. The combination of the rails, base-plate, and spring-truss, consisting of a spring member suspended below the base-plate, and a standard bearing upon the spring member and supporting the base-plate, substantially as set forth.

9. The spring-truss for rail-joints, consisting of curved steel rods suspended below the bases of and longitudinal to the rails, and a standard supported by the rods, substantially as set forth.

10. The combination of the rails, suspended curved rods, and an interposed standard resting at separated points upon the rods, substantially as set forth.

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

RICHARD LONG.

Witnesses:
J. S. BARKER,
W. S. MCARTHUR.