

UNITED STATES PATENT OFFICE.

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TRUSS-RAIL-JOINT FASTENING.

SPECIFICATION forming part of Letters Patent No. 474,126, dated May 3, 1892.

Application filed January 16, 1891. Serial No. 377,958. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. HEATH, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Truss-Rail-Joint Fastenings, of which the following is a specification.

This invention relates to improvements in fastenings for the joints of railroad-rails; and the objects I have in view are to provide, first, a truss-fastening that shall firmly support the meeting ends of the rails; second, a fastening by which the ends of the rails may be secured without the use of bolts extending through the rails; third, an improved supporting-plate for supporting the rails at the joint. I secure these results by the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of my improved rail-joint fastening. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse vertical section on line $x x$ of Fig. 2. Fig. 4 is a side elevation of the truss-plate. Fig. 5 is a plan of the same. Figs. 6, 7, and 8 are detail transverse sections of the truss-plate. Figs. 9 and 10 are details of the tie-plates.

In the drawings, 2 represents the truss-plate. This plate is arranged to support the meeting ends of two rails and is provided with the truss 3, preferably formed as a rim on the under side of the plate. This truss gradually increases in depth from each end toward the center and consists of the web 5 and the rim 3. This truss is preferably formed integrally with the plate 2 and the deepest part of the truss is directly under the center of the plate and under the joint between two of the rails. The truss is stiffest at the center, gradually increasing in stiffness and strength from each end toward the center. This is of importance, as the fastening is thus made of greatest strength and rigidity at the point directly under the meeting ends of the rails, so that as the weight on the rail approaches the joint and tends to bend the end of the rail downward the downward movement of the rail is resisted slightly at first and then more and more as the weight

approaches the end of the rail. By this means I provide a fastening or support that makes the joint as strong as any other part of the truss. I also provide means for securing the rails to each other and to the plate without forming any hole through the rail. The truss-plate is provided at each end with the chairs 11, adapted to rest upon the ties and to be secured thereto by spikes that bear upon the beveled upper surface of the chairs, as shown in Fig. 2. The chairs 11 are preferably formed integrally with the plate 2, as shown particularly in detail in Fig. 8. The plate 2 is also provided with the upwardly-projecting lips or flanges 13, and these flanges engaging the base of the rail prevent any lateral or sidewise movement of the rail. The plate 2 is also provided with the raised portions 15, upon which the bases of the rails rest. The plate 2 is also provided at or near its ends with the upwardly-projecting lug 16, one of which at each end of the plate projects inward partially across the top of the plate, as shown in Fig. 5.

The rails 21 are adapted to rest upon the plate 2, bearing upon the raised portions 15, and each rail is provided with a notch or recess that is engaged by the lug 16 on the plate. This lug prevents the rail from moving longitudinally in the plate, while permitting a slight movement of the rails as they expand and contract. This movement, however, is limited, so that the rails cannot creep off from the plate 2. I also provide means for securing the rails upon the plate 2. This consists, preferably, of one or more plates 25, that are arranged to pass between the base of the rail and the top of the plate, the raised portion 15 on the plate carrying the bottom of the rail sufficiently high above the plate to permit the plate 25 to pass between the rail and the plate 2. The center plate 25 is formed in two parts, as shown in Fig. 10, and extends upon each side of the central raised portion 15 on the plate 2. The plates 25 are provided at one end with the flanged head 27, that is adapted to fit under the edge of the plate 2 and over the edge of the base of the rail, as shown in Figs. 1 and 2. The other ends of the plates 25 are reduced and made into bolt form and threaded, as shown in Figs. 3 and 10, these

parts being marked 28 in the drawings and adapted to receive the nuts 31. Flanged head-plates 33 are adapted to fit upon the threaded portion 28 of the plates 25, their flanges extending under the plate 2 and over the top of the base of the rail, as shown in Figs. 1 and 3. By this means the rails are securely clamped to the plate 2, and any lateral motion thereof is precluded. It will be seen that by this means I provide a truss-fastening that is simple and inexpensive in construction, that securely supports the rails at the joint, and that does not require the making of any holes through the rails for the purpose of securing them. If it is necessary therefore to cut off a rail or use a short piece thereof, this can be done without the labor and expense of drilling a series of holes through the rail. All that it is necessary to do to the rail to adapt it to be used with this fastening is to cut the notch or recess 23 in the base for the purpose of interlocking it with the projection 16. The raised portions 15 of the plate 2 are of greater height than the thickness of the plates 25, so that said plates 25 are free to move slightly for the purpose of adjusting themselves to bear firmly upon the base of the rail and upon the under side of the plate 2. The center raised portion 15 is also preferably slightly

higher than the others for the purpose of cambering the rail.

I claim as my invention—

1. The plate 2, provided with seats upon its upper surface to receive the ends of the rails, and formed with chairs at its ends adapted to rest upon and be secured to the ties, and provided with a truss formed integrally there-with and arranged on its under surface between said chairs, substantially as described.

2. The plate 2, provided with the truss-rib and web upon its under surface, the plate portions 11 at its end, and the upwardly-projecting flanges 13, and the lugs 16, substantially as described.

3. The combination, with the rails, of the trussed plate 2, provided with the raised portions 15, the upwardly-projecting flanges 13, and the plates 25, passing between said plate 2 and the base of the rail in the spaces between said raised portions 15, and provided with the head 27, and the flanged head-plates 33, substantially as described.

In testimony whereof I have hereunto set my hand this 31st day of December, 1890.

FREDERICK H. HEATH.

In presence of—

BESSIE BOOTH,

A. C. PAUL.