(No Model.)

A. J. MOXHAM.

EXPANSION RAIL FOR RAILROADS.

No. 477,672. Patented June 28, 1892.

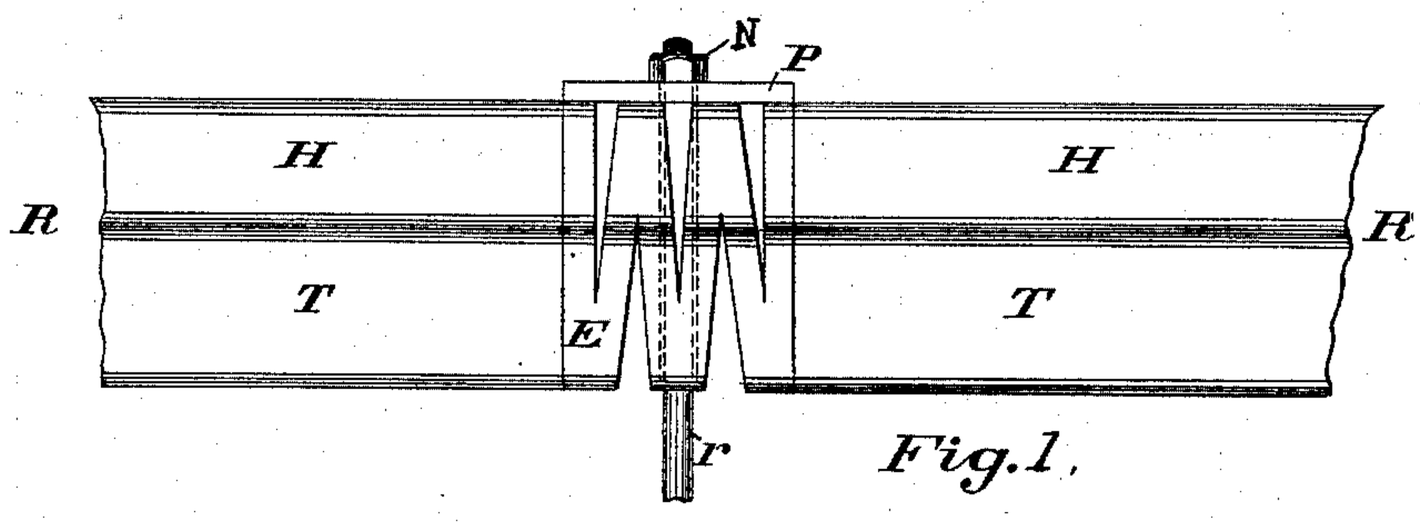

Fig. 1.

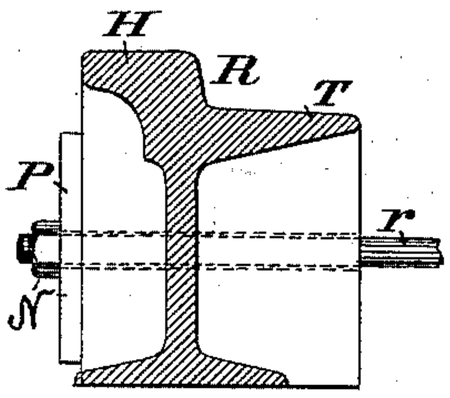

Fig. 2.

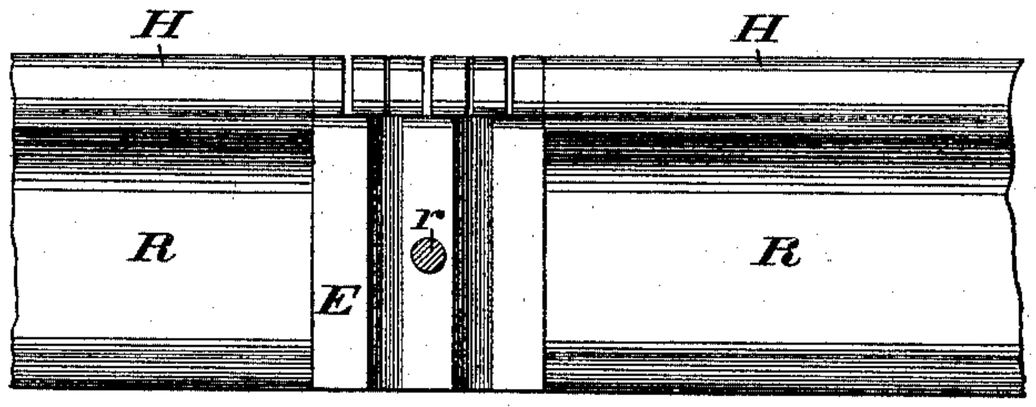

Fig. 3.

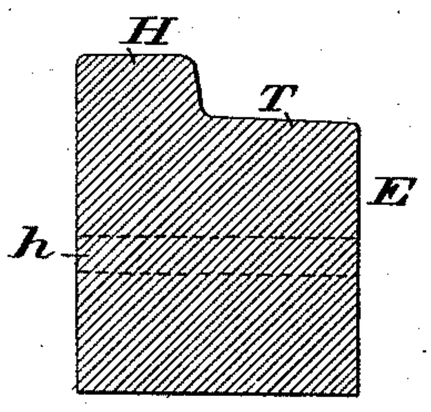

Fig. 5.

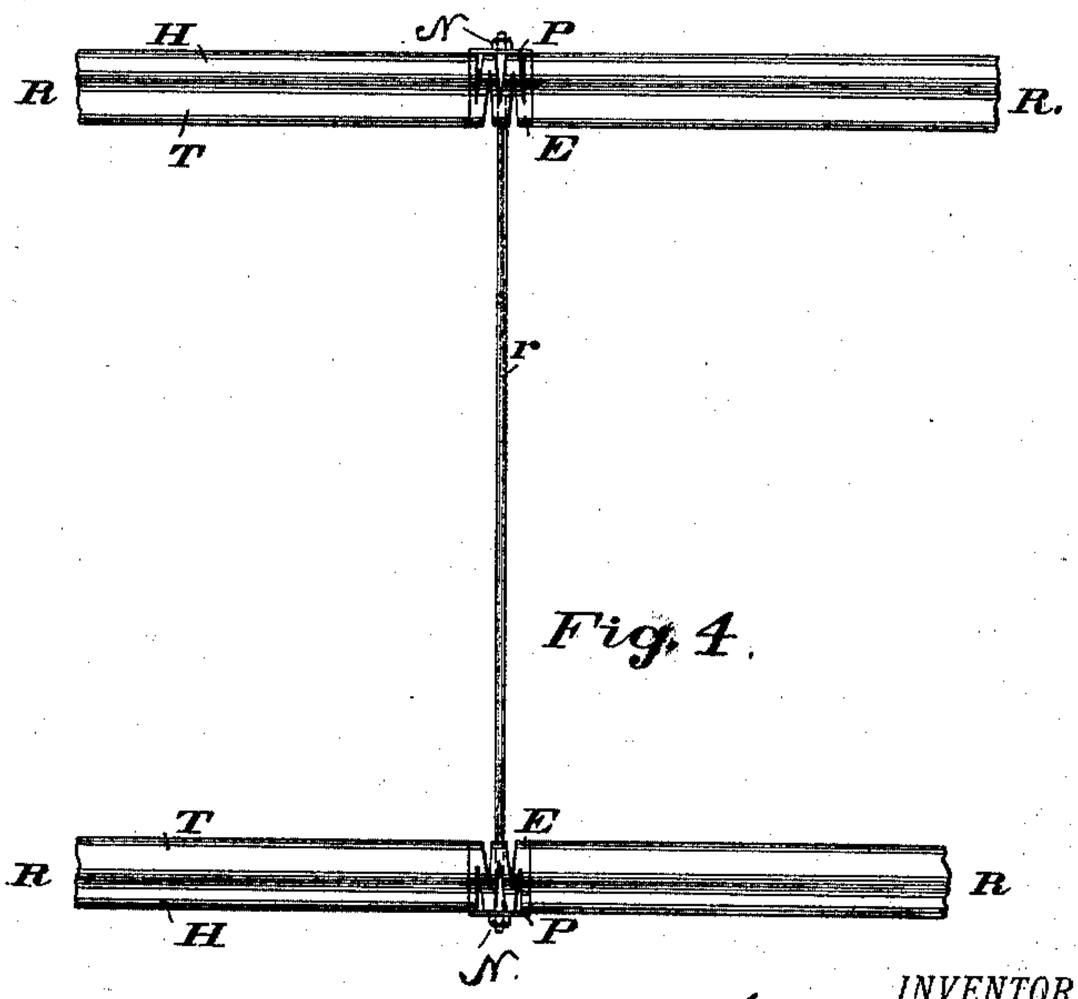

Fig. 4.

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ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

EXPANSION-RAIL FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 477,672, dated June 28, 1892.

Application filed September 22, 1891. Serial No. 406,492. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Expansion-Rail for Railroads, which invention is fully set forth and illustrated in the following specification and accompanying drawings.

The object of this invention is to provide rails which when laid shall form continuous track-rails, having suitable provision at the same time for expanding and contracting under changes of atmospheric temperature.

I will now describe one embodiment of my invention.

In the accompanying drawings, Figure 1 is a view in plan of an expansion-piece inserted between the ends of two rails, or of a severed rail, embodying my invention. Fig. 2 is an end view of Fig. 1. Fig. 3 is a side elevation of Fig. 1. Fig. 4 is a view in plan of parallel rails forming a railroad-track embodying my invention. Fig. 5 shows in cross-section a detail hereinafter described.

In said figures the several parts are respectively indicated by reference-letters, as follows:

The letters R, Figs. 1 and 3, indicate two contiguous rails; H, their heads, and T their side trams.

The letter E indicates a piece or block of metal serrated or partially cut through from opposite sides or otherwise formed of the desired shape. The upper surface of said piece conforms to the shape of the adjoining rails, as shown in Fig. 5, and said piece is inserted between the contiguous ends of the rails R, and is preferably welded to said rail ends, though any other suitable means of securing it in place may be employed. The piece E is provided with a transverse hole *h*, Fig. 5, through which hole is passed one end of a transverse tie-rod *r*, said rod being secured by means of a nut N and washer P.

Fig. 4 is a view in plan showing the tie-rod *r*, tying together the parallel rails of a railroad-track at their expansion and contraction portions E, said rod being secured at each end by nuts N and washers P.

It is obvious that in case expansion-pieces should not, for any reason, be placed opposite each other in track, any tie-rod, instead of connecting two expansion-pieces, may connect one with a suitable point in the opposite rail, or at some other suitable point in the track.

By means of the expansion and contraction portion E a continuous rail may be formed which is free to elongate and shorten when expanding or contracting, the serrations in said piece approaching each other as the rail expands and receding from each other as the rail contracts under changes of atmospheric temperature.

In order to prevent danger of the track spreading or the rails bending or being bowed at the points at which the expansion-pieces E are inserted, due to the absence of the metal cut out at said points, the transverse tie-rods *r* are secured to said expansion-pieces. Thus while the rails are free to elongate and shorten transverse stiffness is secured and the expansion portion strengthened.

The openings in the expansion-pieces E, at the junctions of the head and tram, are so small that no jar will be felt by the passage of the car-wheels across them. With an expansion-piece E inserted between the ends of rails in track, the spaces or openings in such expansion-piece will cause much less jar than the forms of joints at present in use—that is, each cut in the expansion-piece will be but a fraction of the space or single opening heretofore left between two contiguous rails for a similar purpose. In practice, however, it may be sufficient to directly weld the ends of several rails together, and at, say, every two hundred or three hundred feet, or at whatever distance is found best, insert one of the expansion-pieces above described.

I do not confine myself to the form of rail shown, as it is obvious that my invention is applicable to any form of rail, whether a girder rail or not; nor do I confine myself to the precise form of expansion-piece shown.

Having thus fully described my said invention, I claim—

1. The combination of railway-rails, an expansion and contraction piece secured between the ends of said rails, and a transverse tie-rod secured to said piece.

2. The combination of railway-rails, an expansion and contraction piece welded to the end of said rails and a transverse tie-rod secured to said piece between said ends.

3. The combination of railway-rails, a serrated expansion and contraction piece secured between the ends of said rails, and a transverse tie-rod passing through said piece and secured thereto.

4. The combination, with parallel rails of a railroad-track having expansion and contraction portions secured thereto, of a transverse tie-rod secured to said portions and tying said rails together.

5. The combination, with parallel rails of a railroad-track having expansion and contraction portions welded thereto, of a transverse tie-rod passing through said portions and tying said rails together.

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