

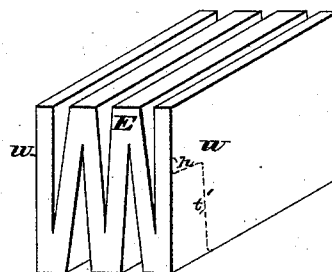
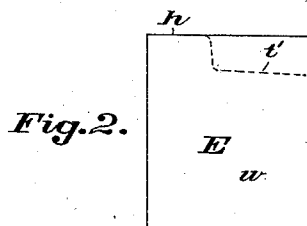
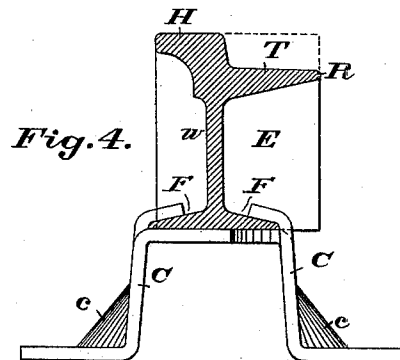
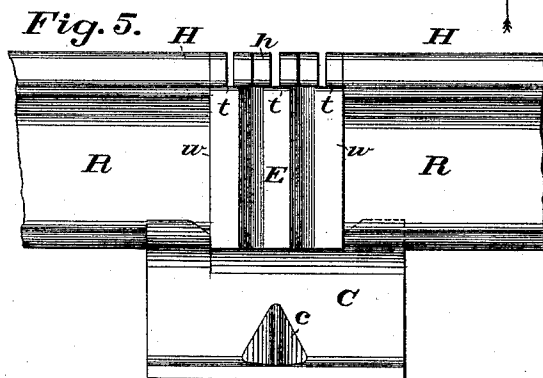
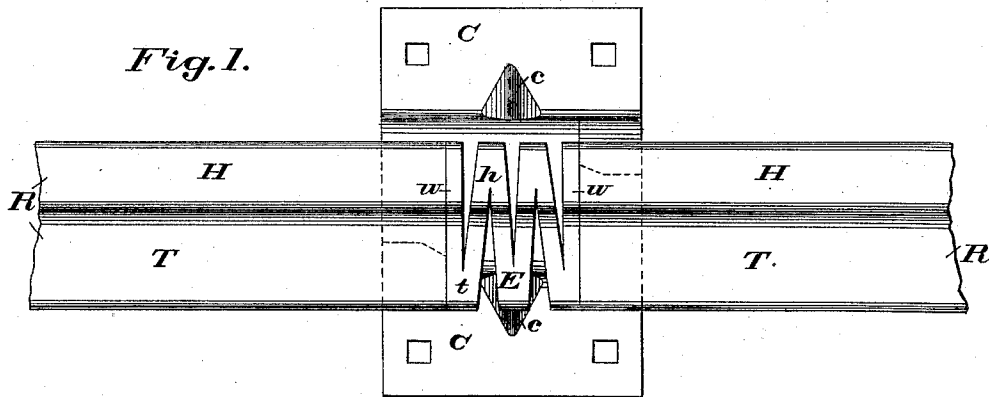
(No Model.)

2 Sheets—Sheet 1.

A. J. MOXHAM.
RAIL FOR RAILROADS.

No. 477,683.

Patented June 28, 1892.



WITNESSES:
Francis P. Riley,
W. F. Bruckel,

INVENTOR
A. J. Moxham,
BY A. M. Dorr,

ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

A. J. MOXHAM.
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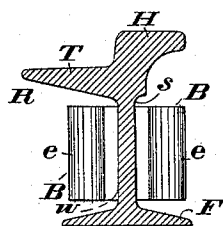


Fig. 6.

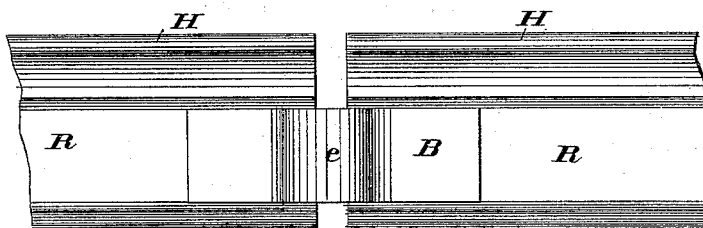


Fig. 7.

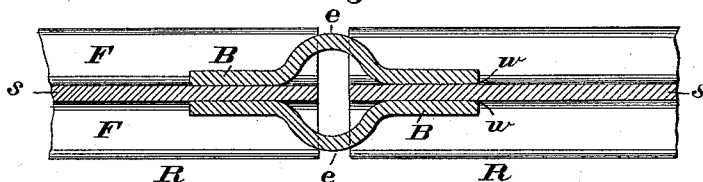


Fig. 8.

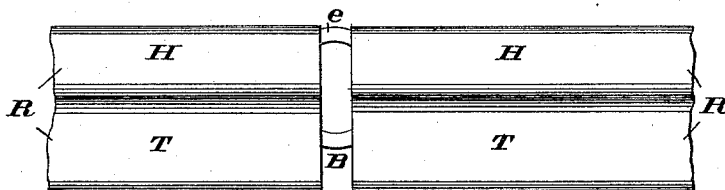


Fig. 9.

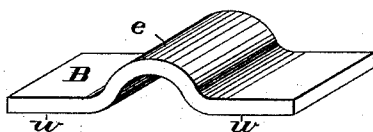


Fig. 10.

WITNESSES:

Francis P. Riley,
W. A. Brückel,

INVENTOR

A. J. Moxham
BY P. M. Toole

ATTORNEY

UNITED STATES PATENT OFFICE.

ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

RAIL FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 477,683, dated June 28, 1892.

Application filed September 22, 1891. Serial No. 406,493. (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 new and useful Rails 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 method of carrying out my invention.

In the accompanying drawings, Figure 1 is a view in plan of a rail embodying my invention seated upon a chair. Fig. 2 is an end view of an expansion-piece hereinafter described. Fig. 3 is a view in perspective of the expansion-piece shown in Fig. 2. Fig. 4 is a transverse sectional elevation of Fig. 1. Fig. 5 is a side elevation of Fig. 1 looking in the direction of the arrow. Fig. 6 is a sectional end elevation of another form embodying my invention. Fig. 7 is a side elevation of Fig. 6 looking to the left. Fig. 8 is a view in sectional plan of Fig. 7. Fig. 9 is a view in plan of Fig. 7. Fig. 10 is a view in perspective of a detail hereinafter described.

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

Referring first to Figs. 1 to 5, inclusive, the letter R indicates two contiguous rails; H, their heads; T, their side trams, and F their lower flanges. Said rails are shown as seated and supported upon a chair C, having braces c formed on its vertical sides; but any other approved form of chair may be substituted for the chair shown. These rail-sections may be made of any length desired and deemed proper. The letter E indicates a piece or block of metal serrated or partially cut through from opposite sides or otherwise formed to the desired shape, which by reason of such forming, serrations, or cutting out of metal is rendered flexible, so that when the several serrations made close or open they thus compensate for the elongation and shortening of the rails between which said piece E is to be inserted and to which it is to be secured. Said expansion-piece is first formed into the shape shown in Figs. 2 and 3, and the portion above the

dotted line *t'* is then cut away, leaving the upper surface *h t*, Figs. 1 and 5, of the same shape as the head and tram portions H T of the rails. Said piece E is inserted between the contiguous ends of the rails R, and its ends *w* are welded to said rail ends, which welding is preferably done during the laying of the track. By this means a continuous rail is formed which is free to elongate and shorten when expanding or contracting without distortion of the track, the contraction and expansion being taken up by the flexibility of the section E. The cuts in the expansion-piece E are so small that no jar will be felt by the passage of the car-wheels across them. Assuming an average elongation and contraction of one quarter of an inch in a rail thirty feet in length, then if one expansion-piece E be inserted between the ends of such 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 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 to insert one of the expansion-pieces above described.

In Figs. 6 to 10, inclusive, is illustrated another embodiment of my invention. In this construction two expansion-pieces B are used, which are made of such shape as to permit them to spring and so alter their shape as to compensate for the elongation and contraction of the rails. Said expansion-pieces are curved, as shown at *e e*, and their flat sides *w* are preferably welded to the webs *s* of the rails R, which rails are of the same shape as those shown in Fig. 1. If the construction shown in Figs. 6 to 10, inclusive, be used, the expansion-pieces B would preferably be secured to each rail of thirty feet in length, as with rails of sixty feet in length or longer the openings between the rail ends when using these expansion-pieces would be so great as to cause an objectionable jar upon the passage of the car-wheels over the same.

I do not confine myself to the form of rail shown, as it is obvious that my invention is applicable to an ordinary T or railroad rail

- or to any form of rail, whether a girder-rail or not, nor do I confine myself to any particular form of expansion-piece. Neither do I confine myself specifically to welding the expansion-piece to the rails, as said piece may be secured in any other suitable manner analogous to welding whereby a permanent union is made between the rail and joint independent of bolts, nuts, or rivets.
- 10 The shape of the expansion-piece may be varied so long as it does not interfere with its compensatory flexible character under changes of temperature. By my improved construction the position and relation of the
- 15 rails is retained constant, the flexibility of the joint taking up the contraction and expansion.

Having thus fully described my said invention, I claim—

1. A railway-track provided at intervals with flexible expansion and contraction portions integral with the rails of said track.
2. A railway-track provided at intervals with flexible expansion and contraction portions welded to the rails of said track.
- 25 3. A railway-track provided with serrated

expansion and contraction pieces integral with the rails of said track.

4. In combination with two railway-rails, a flexible expansion and contraction portion integral with said rails.

5. In combination with two railway-rails, a flexible expansion and contraction portion welded to the ends of said rails.

6. In combination with two railway-rails, a serrated expansion and contraction piece integral with said rails.

7. A railway-track provided with serrated expansion and contraction pieces secured to the rails, said serrated pieces forming a surface for the wheels of the vehicle to run upon.

ARTHUR J. MOXHAM.

Witnesses:

OLIVER IMRAY,
Patent Agent, 28 Southampton Buildings,
London, W. C.

JNO. P. M. MILLARD,
Clerk to Messrs. Abel & Imray, Consulting
Engineers and Patent Agents, 28 Southampton Buildings, London, W. C.