

E. S. THOMAS.
RAILWAY STRUCTURE.
APPLICATION FILED FEB. 14, 1906.

Fig. 1.

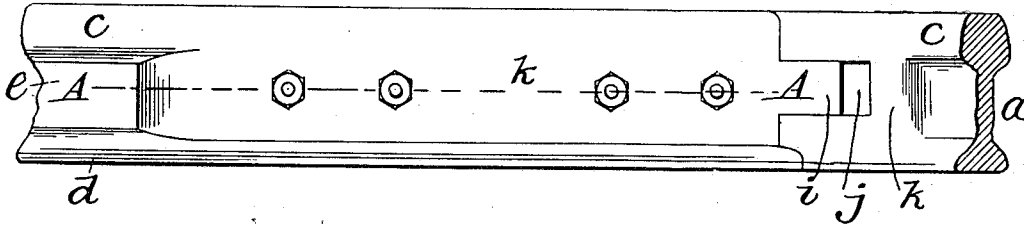


Fig. 2.

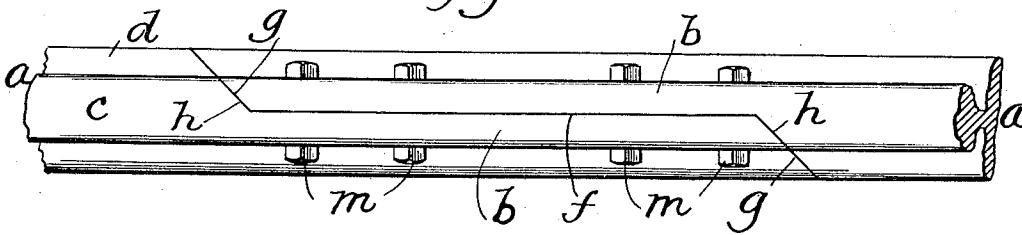


Fig. 3.

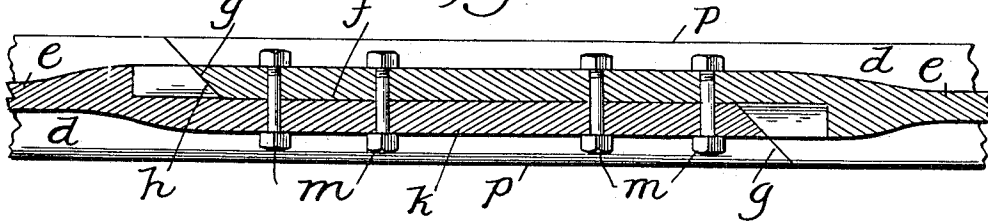


Fig. 4.

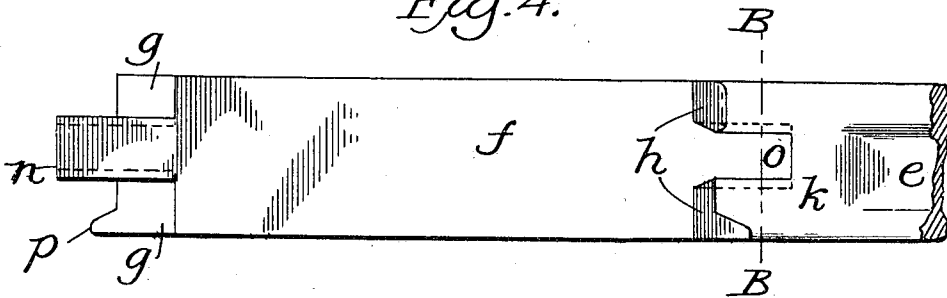
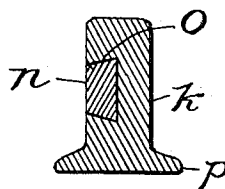


Fig. 5.



WITNESSES:

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RAILWAY STRUCTURE.

No. 818,800.

Specification of Letters Patent.

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Application filed February 14, 1906. Serial No. 301,026.

To all whom it may concern:

Be it known that I, EDWIN SETH THOMAS, a citizen of the United States, residing in Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Railway Structures, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to railway structures, and particularly to the construction of the joint connecting the end portions of abutting rails.

The object of my invention is to provide a joint of the kind just referred to which will do away with the disagreeable clicking sound made by the car-wheels as they pass over the joints now in common use, which will prevent the relative vertical motion between the ends of the abutting rails as the weight of the train passes over the joints now in common use, and which will add to the life of the rails and promote the comfort of travel. By my invention hereinafter more particularly described these objects are accomplished without the sacrifice of strength at the joint, and the rail-sections which form my new joint are more readily assembled, more cheaply manufactured, and more efficient in operation than are those heretofore provided for the accomplishment of the objects above set forth.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a side elevation of so much of a railway-joint as is necessary to illustrate my invention. Fig. 2 is a plan view of what is shown in Fig. 1. Fig. 3 is a sectional view on the line A A of Fig. 1. Fig. 4 is an elevation showing the inner face of one of the rail members or extensions; and Fig. 5 is a sectional detail illustrating a modification.

Each rail *a* is formed at each end with a longitudinal extension *b*, the outer side face *k* of which lies in a vertical plane through the edge of the top *c* of the rail, metal filling in the open space in the body portion of the rail between the top *c* and the base *d* at the side of the web *e*. This gives to the joint a sufficiency of metal to insure its having the requisite strength and allows the rail to be made at a cost much less than that attending the production of the complicated shapes heretofore used in joints having like objects in

view. Again, the simple and regular shape of my rail end does away with the stresses due to unequal expansion and contraction of more complicated shapes. The opposed inner faces *f* (see Fig. 4) of the rail extensions *b* lie in a plane parallel with the web *e* and coincident with the central line of the web. This construction serves to add strength to the structure and avoids the weakness of structures in which the inner faces of the joint are beveled throughout their length, and the ends of the rail extensions are thin and liable to be broken by the sudden and severe shocks to which these structures are subjected in their ordinary use.

The very extremity of the rail extension is slightly beveled at *g* and is thereby adapted to fit into the beveled shoulder *h* of the cooperating rail extension, and from this extremity projects a longitudinal tenon *i*, which engages in a mortise *j*, formed in the outer side face *k*—that is, each rail extension *b* is formed at its tip end with a tenon *i* and at its other end with a slightly-beveled shoulder *h*, near which, in one of the outer side faces *k*, is formed a mortise *j*. The rails are assembled by inserting the tenon *i* of each rail extension in the mortise *j* of the cooperating rail extension and bringing the beveled extremity *g* into a close fit with the shoulder *h* at both ends of the joint. The inner opposed side faces *f* will then lie in a plane passing vertically and lengthwise through the midline of the web *e*, and each rail extension *b* will have a thickness equal to the half-width of the rail-top *c*, as is clearly shown in the drawings. The tenon-and-mortise construction serves to resist shearing stress and to give solidity to the joint, and thereby prevent relative vertical motion between the cooperating members forming it. The shape of the rail extensions is such that they may be readily manufactured and that they afford plenty of strength to the joint.

Along the bottom of the outer faces *k* extends a flange *p*, by which the rail extensions may be spiked to the ties. The rail extensions may be further suitably secured together by bolts *m*.

In Fig. 5 there is shown a sectional detail illustrating a modification wherein the tenon *n* is dovetailed into the mortise *o*, as will be readily understood without further explanation.

The parts of my new joint allow for expansion-

sion and contraction due to temperature variations without affecting the strength of the structure.

What I claim is—

5 In a railway structure, a railway-joint made up of two abutting rails each having a body portion comprising a top and a base connected by a web, and projecting from said body
10 portion a lengthwise-extending rail extension formed at one end with a mortise in one of its outer faces and with a shoulder into which fits the extremity of the cooperating rail extension, and at its other end with a longitudinally-projecting tenon which fits into the
15 mortise formed in the cooperating rail extension; said mortise-and-tenon connection serving to resist shearing stress and prevent rela-

tive vertical movement between the cooperating rail extensions; the outer side faces of the rail extensions lying in a vertical plane 20 through the edges of the top of the body portion and the opposed inner side faces of the rail extensions lying in a vertical plane through the central line of the web, said rail extensions having each a thickness equal to 25 half the width of the top of the body portion and a flange projecting outwardly from the outer side faces along the base; and the top of the rail extensions lying in prolongation of the top of the body portion of the rail.

EDWIN SETH THOMAS.

Witnesses:

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CARL EMIL CARLSON.