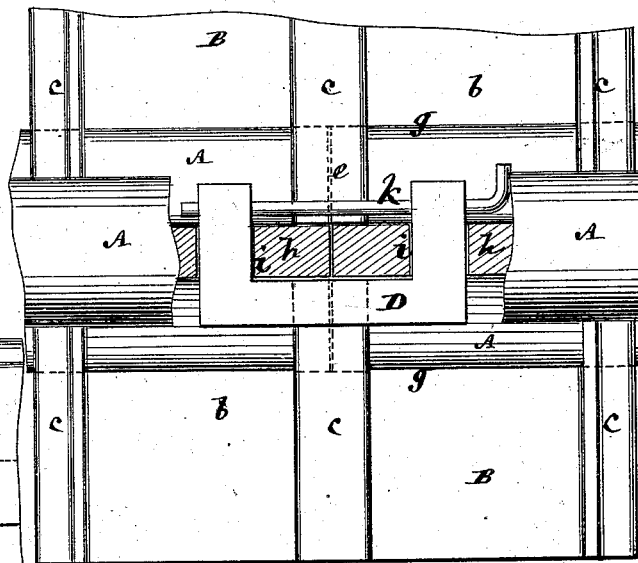
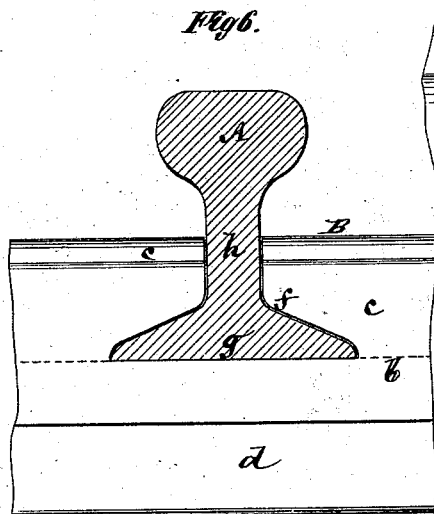
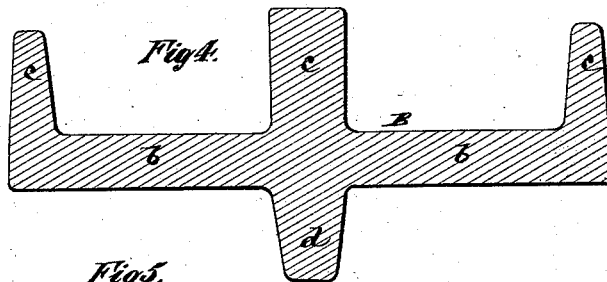
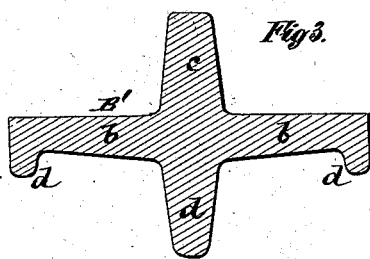
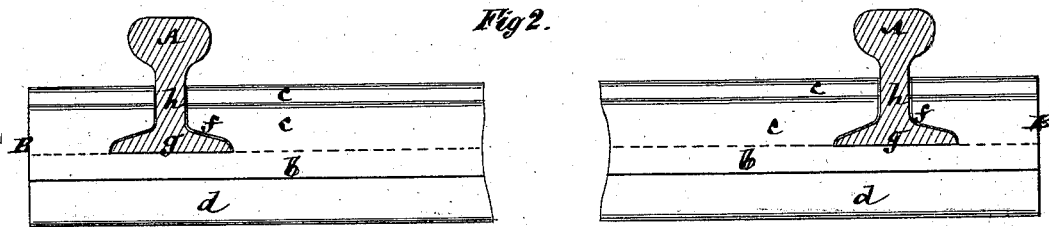
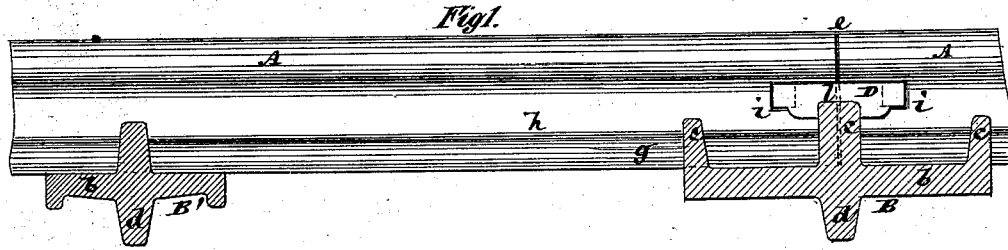


L. A. GOUCH.
Rail-Ties and Joints.

No. 216,846.

Patented June 24, 1879.



Witnesses:
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Edw. P. Jessup.

Inventor:
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By his Attorneys
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UNITED STATES PATENT OFFICE

LYMAN A. GOUCH, OF YONKERS, NEW YORK.

IMPROVEMENT IN RAIL TIE AND JOINT.

Specification forming part of Letters Patent No. **216,846**, dated June 24, 1879; application filed December 10, 1878.

To all whom it may concern:

Be it known that I, LYMAN A. GOUCH, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Railway-Tie and Rail-Joint, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention consists in a wrought-iron railway tie which is provided with a broad base and one or more longitudinal ribs or flanges, transversely through which are punched openings conforming to the base and part of the web of the rail, which openings closely fit against the upper surface of the base and portions of the opposite surfaces of the web, whereby is produced a railway-tie requiring no fastening devices to secure the rail upon it, and upon which the rail is free to contract or expand, and to run or change its position in its seat on the tie, owing to the rapid travel and weight of cars, without danger of displacing the tie.

The invention also consists in a combination, with a metal railway-tie having one or more upper longitudinal ribs or flanges and holes through the latter for reception of the base portions of the rails, of the rails or rail-sections carried by said tie, and a staple-like joint-piece constructed to couple the meeting ends of the rails and to engage with said tie.

In the accompanying drawings, Figure 1 represents a side elevation of two sections or lengths, in part, of a railway bar or rail with my improved tie and means applied thereto for securing the rail at its joint. Fig. 2 is a longitudinal elevation of one of the ties applied to the two rails of the track; Figs. 3 and 4, transverse sections, upon a larger scale, of two of the ties. Fig. 5 is a plan, also upon a larger scale, of two sections or lengths of a rail, in part, with my improved tie and means of securing the rail at its joint applied; and Fig. 6, a longitudinal elevation of one of the ties, in part, and transverse section of a rail carried by said tie.

A A indicate the rails, which may be of the ordinary or any suitable construction, and which are carried by the ties B B'. These

ties are of wrought-iron rolled to form a plate or base, *b*, with one or more longitudinal ribs or flanges, *c*, on the upper surface of the plate, and, if desired, with one or more longitudinal strengthening ribs or flanges, *d*, on its lower surface.

In the drawings, the tie B, which carries the rails at their joint *e*, is represented as having three upper ribs or flanges, *c*, while the tie B', which supports the rails between the joints, is shown as having only one upper rib or flange; but the invention is not restricted to any particular number of such ribs or flanges. After said ribbed or flanged ties have been rolled into shape, as described, slots or openings *f*, corresponding in shape to the base *g*, and also the lower portion of the web *h* of the rail, are punched transversely through the ribs or flanges *c*, at suitable distances apart, in direction of said ribs or flanges, to receive through them the bases or bases and lower portions of the webs of the rails of a track. These openings *f* are of such shape that the rails can only be entered transversely through them relatively to the length of the ties, or, in other words, the ties be slipped onto and over the ends of the bases of the rails in direction of the length of the latter, and so that when said ties are slipped to their places on the rails the latter cannot be lifted out of them.

This rolled and punched flanged tie provides for the rails being firmly secured to the tie without spikes or screw-bolts, and the rails are at liberty to move longitudinally without disturbing the tie on or from its bed, thus providing alike for the expansion and contraction of the rails, and for their longitudinal movement or displacement by the motion of engines and trains over them. Furthermore, by the use of said tie, not only are increased security and durability afforded, but repairs are diminished, the line or track is not materially changed by expansion, and a track may be rapidly laid and kept in line at a small expense. Such a tie also offers great security against a mob tearing up the track, as well as in case of fire, and against the washing away of the track. It likewise provides for the safe running of trains at a high rate of speed. The rails may be made lighter at their base without detri-

ment or risk; and the whole track, rails and ties alike, may be constructed at the rolling-mill ready for shipment and use.

D is a staple-like bar or joint-piece, constructed to bear against one side of the webs of the adjacent rails or rail-sections at their meeting ends, and to pass loosely or freely at its bent terminations through holes *i i* in said webs, on the opposite side of which latter said joint-piece is secured by a locking-pin, *k*. This staple-like bar or joint-piece D is furthermore constructed with a recess, *l*, on its under side, whereby it is made to straddle and is supported by the upper rib or flange, *c*, of the tie B in line with the joint between the rails. By means of this joint-piece fish-bars are dispensed with, and, taken in connection with the ribbed or flanged tie with which it engages, the rails are securely locked at their joint without restricting the expansion or contraction of the rails, and affording every facility for uncoupling the rails or rail-sections when necessary to remove them for repair or renewal.

Heretofore a rolled wrought-iron railway-tie has been constructed with a broad surface to rest upon the road-bed, and a longitudinal central projection on its upper side, constructed with a seat for the flange or base of the rail, the rail resting on a packing at the bottom of said seat, and being held or confined firmly in place by means of a wedge or key arranged to rest upon the upper side of the base of the

rail, and projecting down around one edge between one side of the seat and the base of the rail, and filling the rail-seat when driven in.

A pillar for supporting a railroad-rail has also been formed at its upper ends with two horns or flanges, so constructed as to afford a seat for the rail, the flanges closely embracing the base and portion of the web of a rail.

I claim—

1. A wrought-iron rolled railway-tie formed with a base, *b*, and one or more longitudinal ribs or flanges, *c*, transversely through which ribs or flanges are punched openings conforming to the base and portion of the web of a railroad-rail, said transverse openings closely fitting the upper portions of the base and portion of the web of the rail, whereby fastening devices between the rails and ties are dispensed with and the rail is free to expand longitudinally, as and for the purpose described.

2. The combination, with a metal railway-tie having one or more longitudinal ribs or flanges on its upper surface and holes through said flanges for reception of the rails, of the rail-sections carried by said tie, and a staple-like joint-piece constructed to pass through and secure the meeting-end portions of the rails or rail-sections and to engage with the tie, essentially as described.

LYMAN A. GOUCH.

Witnesses:

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