(No Model.) 2 Sheets—Sheet 1.

R. MOFFLY.

RAILWAY TIE.

No. 306,090. Patented Oct. 7, 1884.

Fig. 1.

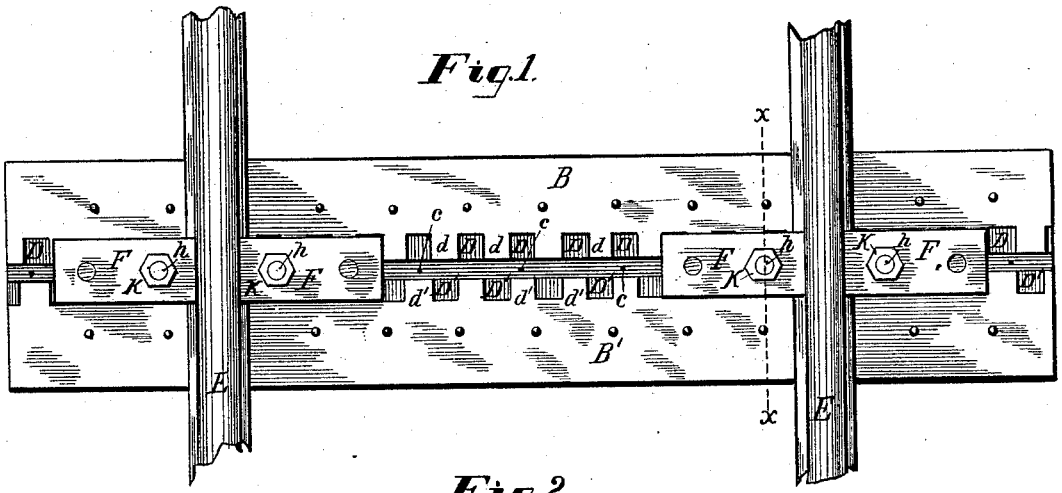


Fig. 2.

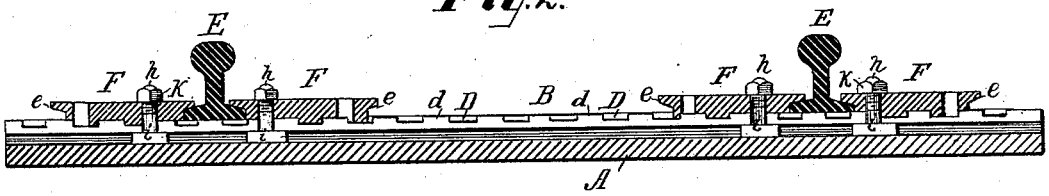


Fig. 4.

Fig. 3.

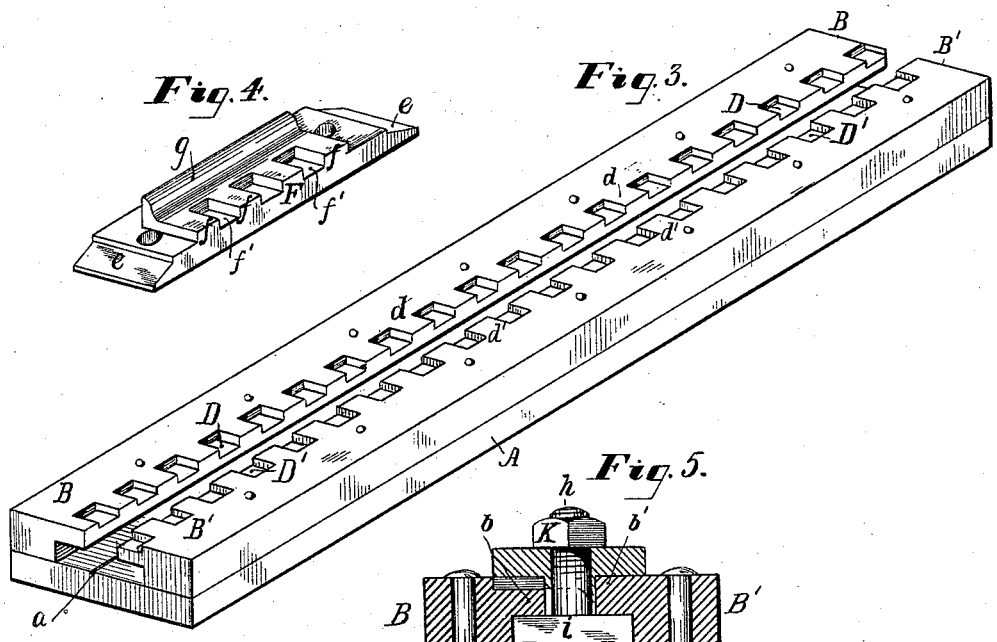
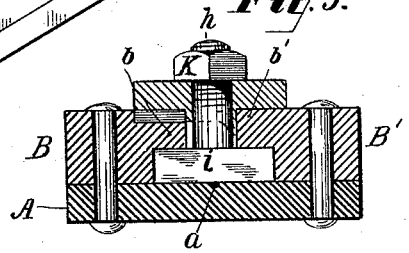


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

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RAILWAY TIE.

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Fig. 6.

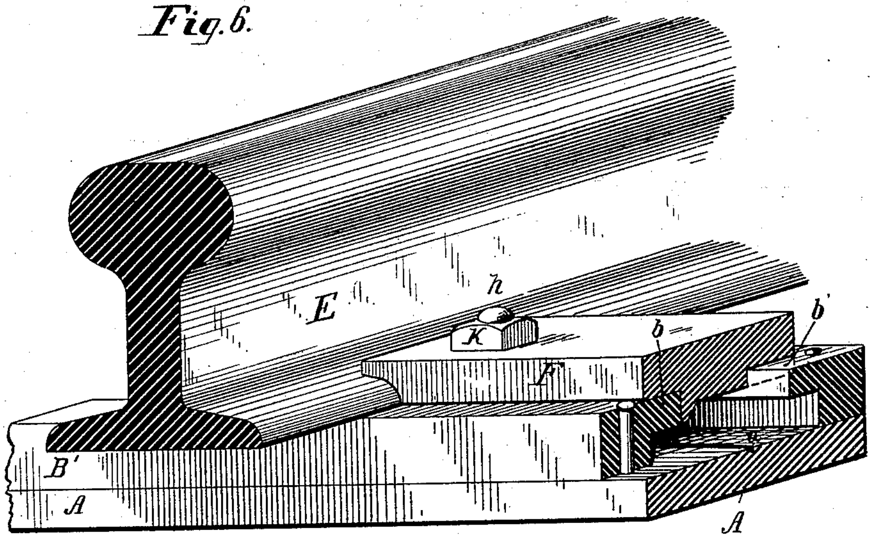
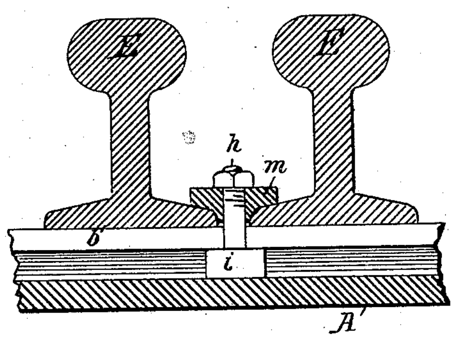


Fig. 7.



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UNITED STATES PATENT OFFICE.

ROBERT MOFFLY, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 306,090, dated October 7, 1884.

Application filed April 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MOFFLY, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Railway-Ties.

The following is a specification of my said improvements, reference being had to the accompanying drawings, wherein—

Figure 1 is a top or plan view of a tie embodying my invention and portions of the rails attached thereto. Fig. 2 is a longitudinal vertical section through the tie, showing the rails in cross-section. Fig. 3 is a perspective view of the tie, the rails being removed. Fig. 4 is a perspective view of the clamp-plate by which the rail is attached to the tie, said plate being represented bottom upward in order to show the details of construction. Fig. 5 is a view in cross-section upon the line *x x* of Fig. 1. Fig. 6 is a perspective view of the rail and a portion of the tie and clamp-plate adjacent thereto, the latter being also shown in cross-section; and Fig. 7 is a longitudinal section through a part of the tie, showing in cross-section two rails mounted close together thereon.

The scale of the last three figures is much enlarged.

The main object of my invention is to provide a means for readily attaching rails to metallic ties in such manner that the position of the rail and its angle to the tie may be varied to any extent, and that the juxtaposition of a number of rails upon the same tie may be permitted. My further aim is to simplify the mechanical construction of a tie having the above characteristics, in order that its manufacture may be commercially practicable. To these ends I make a longitudinal slot of inverted-T shape in the upper portion of the tie, throughout the whole or a portion of its length, and form upon the upper surface and at the adjacent edges of said slot a series of recesses of uniform size with each other and with the intermediate projecting portions of the tie-surface, the recesses upon one side alternating with those upon the other.

With the tie thus constructed I combine a clamp-plate, upon one side of which are projections and recesses adapted to engage with the recesses and projections of the tie-surface, said plate being provided with means for securing it at any point in the length of the T-shaped slot, and having one or both of its ends adapted to embrace the bottom flange of the rail.

The details of mechanical construction will be now described. The bottom portion of the tie A, I prefer to construct of a flat plate of rolled iron having a shallow central drainage-groove, *a*, and perforated also with drip-holes *c* at proper intervals. To this plate are bolted securely two top strips, B B′, also of rolled iron, which are structurally counterparts of each other. The upper edges, *b b′*, of these strips B B′, when placed in position, overhang and form a T-shaped longitudinal slot in the upper face of the tie. Uniform recesses D D′, preferably rectangular in shape, are formed along the adjacent edges of the strips, the intermediate projecting parts, *d d′*, of the edge being of the same dimensions as the recesses. The strips B B′ are so arranged that the recesses D upon one shall be opposite to the projections *d′* upon the other, and vice versa. In the drawings the scale of the recesses and projections, for convenience of illustration, is much exaggerated, it being my intention to make them in practice about one-fourth of an inch in width and depth. The rails E, being laid across the ties, are secured by means of clamp-plates F, constructed and applied in the following manner: The clamp-plate F is considerably wider than the distance between the edges of the strips B B′, and is beveled preferably at both ends, as shown at *e e*, to fit over and clamp the bottom flange of the rail. The under side of the clamp-plate F is formed with projections *f*, with intermediate recesses, *f′*, these projections and recesses conforming in size and shape with those upon the strips B B′. A longitudinal flange, *g*, is formed along the under side of the plate F, the distance from the farthest side of said flange to the front end of projection *f* being just equal to that between the back end of a recess D and the face of the opposite strip B′ upon the tie. At proper points the plate F is pierced for the insertion of bolts *h*, whose T-shaped heads *i* fit snugly in the lower portion of the slot formed by the overhanging edges *b b′*. The plates F being placed with one end bearing down upon the bottom flange of the rail, and with the flange *g* in contact with one edge, *b′*, of the strip B′, the

projections and recesses *ff'* interlock, respectively, with the recesses and projections D *d*, and when the nuts K are screwed home the plates F are clamped firmly in position to secure the rail. The longitudinal displacement of the plates F is prevented by the interlocking of the recesses and projections, and its lateral displacement by the flange *g* on one side, and by the abutment of the respective ends of projections and recesses upon the other. The purpose of the double series of recesses alternately arranged upon the tie is to permit a very minute adjustment of the plates F, since, the recesses being one-fourth of an inch in width, by turning the plate F and applying it to the opposite strip B, its distance from the first point of attachment will be one-fourth of an inch. It is for this reason that I construct each end of the plate F with a bevel adapted to engage over and clamp the rail-flange.

Where it is desired to lay rails obliquely to the tie, the ends of the plates F may be correspondingly united, or may be tapered toward the center. When two rails are to be laid in close proximity, (see Fig. 7,) it is only necessary to place between them a single T-headed bolt, *h*, having a washer, *m*, whose under surface conforms to the bottom flange of the rails, and to arrange upon the outside of each rail a plate, F, in the manner above described. This feature I deem of great value where switches are to be placed, as the only limit to approach of the rails is the thickness of the bolt *h*. It is of course obvious that the shape of the recesses and projections upon the tie and plates F may be varied from that shown, and that if capacity for minute adjustment is not required only one edge of the slot may be provided therewith; hence I do not limit my claim to the precise arrangement shown, but desire to secure by Letters Patent—

1. The combination, with the tie having a longitudinal slot formed in the upper portion thereof, and having overhanging edges and a series of recesses upon the edge of said slot, of a clamp-plate having a surface adapted to engage with said recesses, and a fastening device for said clamp-plate adjustable longitudinally in said slot, the whole operating substantially as set forth.

2. The combination, with the bottom plate, A, of the strips B B', secured thereto and forming a longitudinal T-shaped slot, the recesses upon said strips arranged to alternate upon the opposite sides of the slot, and the reversible clamp-plate adapted to engage with the recesses upon either edge and provided with a suitable fastening device, substantially as set forth.

3. The combination, with the tie having a longitudinal slot and recesses along the edges of said slot, of a clamp-plate having a bottom surface adapted to engage with said recesses, and a flange, *g*, arranged relatively to said recesses and slot, substantially in the manner and for the purposes set forth.

ROBT. MOFFLY.

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