(No Model.)

R. MORRELL.

METALLIC RAILWAY TIE.

No. 457,517. Patented Aug. 11, 1891.

Fig. 1.

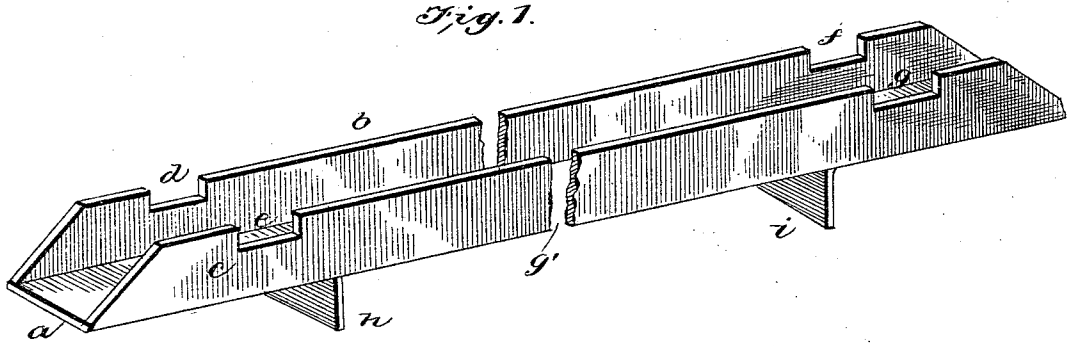


Fig. 2.

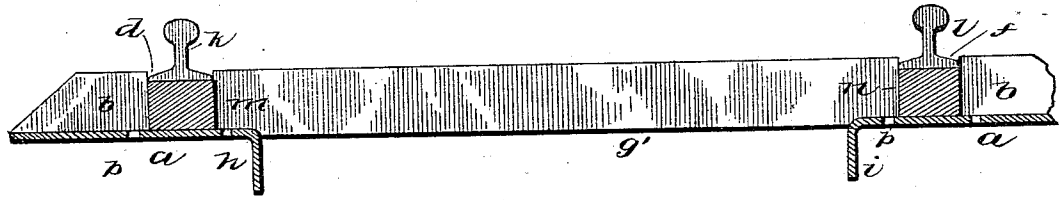
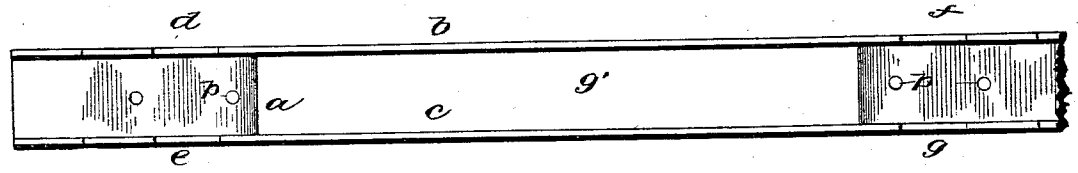


Fig. 3.



Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE MORRELL METALLIC RAILWAY TIE COMPANY.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 457,517, dated August 11, 1891.

Application filed November 11, 1890. Serial No. 371,008. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MORRELL, a citizen of the United States, residing at Summit, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Metallic Railway-Ties; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to metallic cross-ties for railways, and has for its objects to simplify and cheapen their construction and render them more effective in operation.

With these objects in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a tie constructed in accordance with my invention. Fig. 2 is a longitudinal vertical section through the same, showing the rails in position. Fig. 3 is a top plan view thereof.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

My improved tie is made of rolled or hammered sheet metal and is essentially of trough shape, *a* being the base and *b* and *c* being the sides thereof, the sides standing vertically and at substantially right angles to the base. In the upper edge of each side near each end thereof is cut a notch for the reception of the base of the rail, such notches being marked *d e f g*. The central portion *g'* of the base *a* midway between the rails is cut out from side to side, leaving nothing but the sides to form a large opening in the base and permit a solid junction of the ballast above and below the base, and the adjoining portions *h i* are bent downward at substantially right angles to the base to project downward into the earth, and thus prevent lateral movement of the tie and at the same time decrease the weight thereof and facilitate the placing of the ballast in direct contact with the roadbed. Under each rail *k l* and resting upon the base *a* is placed a block of wood, compressed paper, or other pulp, or any other material suitable to the purpose, (marked *m* and *n*,) upon which the rail rests, thus obviating the objections due to metallic contact. Suitable bolt-holes *p* are provided in the base, through which the bolts which secure the rails are passed.

From the foregoing description it will be seen that my tie comprises in its structure the following: first, a metallic body of sufficient length to support both rails of the track; second, suitable means (the notches in which the rails rest) to prevent spreading of the rails on the ties; third, bed-blocks upon which the rails rest and by which metallic contact between the tie and the base of the rail is prevented; fourth, suitable means (the cutting away of the central portion of the base) whereby the rail is lightened without detracting from its necessary strength and proper placing of the ballast is permitted, and fifth, suitable means (the downward-bent portions of the base at each end of the opening) whereby the ties and rails when secured together are held from lateral displacement due to side-thrust, especially on curves.

The cutting away of the base of the tie from side to side between the rails is a very important provision. As before stated, the tie is made lighter thereby, and the ballast above the base of the tie forms a substantially solid continuation of that below the base. There being no angle-iron at the side of this opening, (which there would be if any portion of the base were allowed to remain connected with the sides,) the tie is made elastic, so that it will give slightly to any extra strain brought upon it. The opening being sufficiently large for a solid body of ballast, the tendency of the ballast under the tie to form a fulcrum over which the tie would rock or be strained or bent is also obviated.

It will be noticed that only a small portion of the base is used in the formation of the lips, and that the formation of such lips is but a secondary purpose of the cutting of the base,

the primary objects being as hereinbefore stated.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A metallic railway-tie provided with a base *a* and sides *b c*, projecting upward from the sides thereof substantially at right angles thereto, formed by bending a plate of rolled or hammered metal, the central portion of the base from side to side of the tie midway between the rails being removed and the adjoining portions of the base turned downward to form flanges to project into the earth at right angles to the length of the tie, for the purposes set forth.

2. A metallic railway-tie provided with a base *a* and sides *b c*, projecting upward from the sides thereof substantially at right angles thereto, formed by bending a plate of rolled or hammered metal, the central portion of the base from side to side of the tie midway between the rails being removed and the adjoining portions of the base turned downward to form flanges to project into the earth at right angles to the length of the tie, and notches *d e f g* being provided in the upper edges of the sides near their ends to receive the bases of the rails, for the purposes set forth.

3. A metallic railway-tie provided with a base *a* and sides *b c*, projecting upward from the sides thereof substantially at right angles thereto, formed by bending a plate of rolled or hammered metal, the central portion of the base from side to side of the tie midway between the rails being removed and the adjoining portions of the base turned downward to form flanges to project into the earth at right angles to the length of the tie, and notches *d e f g* being provided in the upper edges of the sides near their ends to receive the bases of the rails, and bed-blocks *m n*, of suitable material, being provided for the rails to rest upon, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT MORRELL.

Witnesses:
SHIPLEY BRASHEARS,
SHIPLEY BRASHEARS, Jr.