D. HORRIE.

Railway Cross-Tie.

No. 198,618. Patented Dec. 25, 1877.

Fig. 1

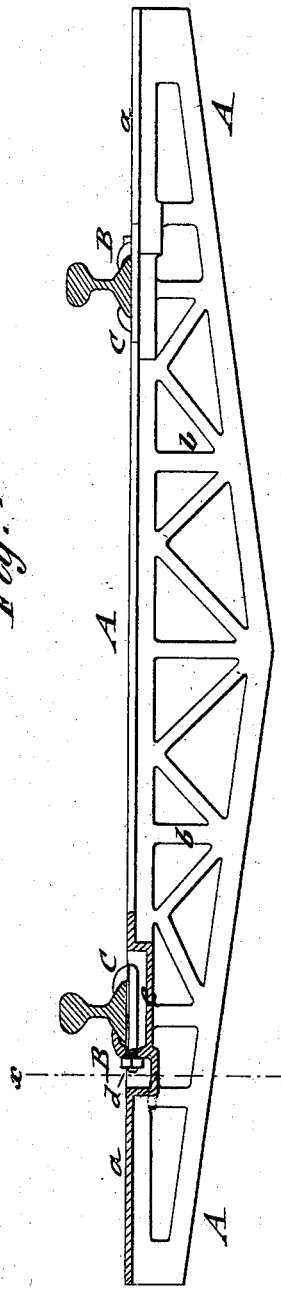
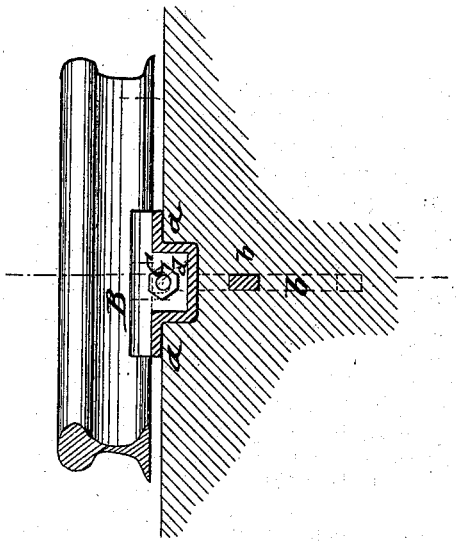



Fig. 2




WITNESSES:

C. Neveux

J. H. Scarborough.

INVENTOR:

D. Horrie.

BY Munn & Co

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

DAVID HORRIE, OF KEOKUK, IOWA, ASSIGNOR TO HIMSELF AND JAMES H. WHEELER, OF SAME PLACE.

## IMPROVEMENT IN RAILWAY CROSS-TIES.

Specification forming part of Letters Patent No. **198,618**, dated December 25, 1877; application filed November 20, 1877.

*To all whom it may concern:*

Be it known that I, DAVID HORRIE, of Keokuk, in the county of Lee and State of Iowa, have invented a new and Improved Railroad-Tie, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side elevation of my improved railroad-tie; and Fig. 2 is a vertical transverse section of the same on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved metallic railroad-tie that supports the rails securely in position, the tie being so constructed as to be prevented from bending or breaking, and so as to securely retain the rails in position thereon.

The invention consists of a cast or wrought iron tie, made of a broad bearing-surface and center bottom rib or truss, and with lateral top flanges, that bind on the base of the rails and firmly secure the same, in connection with straight screw-bolts having spiked heads, that pass in grooves of the tie across the bottom of the rail.

Referring to the drawing, A represents my improved tie, which is made of wrought or cast iron, with a broad top flange or bearing-surface, *a*, and a central bottom rib, *b*, that is broken out in suitable manner, and diminished in height from the center to the ends, so as to form a truss for the top flange. The truss may also be made of regular bottom pieces, that are braced by vertical and diagonal bars, as shown in the drawing. The truss *b* strengthens the tie sufficiently to prevent its bending or breaking, while the openings in the truss let the earth through and help to hold the tie in place in the road-bed, so as to prevent the track from moving out of line, and giving more bearing-surface to the tie. The top of the tie is provided at the points where the rails rest upon it with lateral flanges B, that bear on the outside of the base of the rail, while the inside of the rail is taken hold of by a fastening-bolt, C, whose inner head is made in the shape of a spike or hook, and fitted over the base, while the threaded opposite end passes through a hole of the flange B, and is provided with a nut, *d*, for fastening the bolt rigidly to the rail and flange B. The bolt C runs across the bottom of the rail in a groove, *e*, of the tie, provided for this purpose. The rails are thereby firmly secured to the tie, and by the tie supported in strong, durable, and reliable manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A metallic tie having broad top part, with grooves passing across under the base of the rails, and fixed cross-flanges, in combination with the rails and fastening-bolts having spiked heads, connecting the cross-flanges and the bases of the rails, substantially in the manner set forth.

DAVID HORRIE.

Witnesses:
JOHN RANDOLPH,
I. B. MINNIS.