J. TURNER.

Tie for Street Railway Tracks.

No. 197,299. Patented Nov. 20, 1877.

Fig. 1.

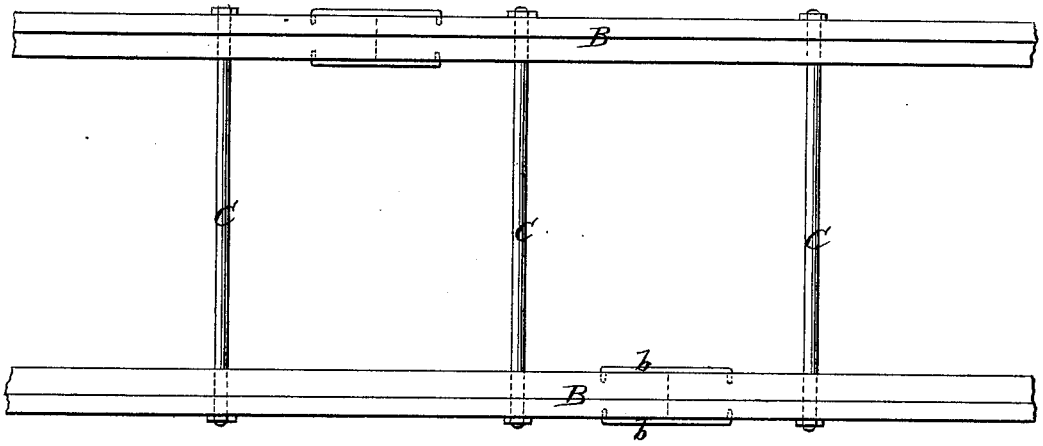


Fig. 2.

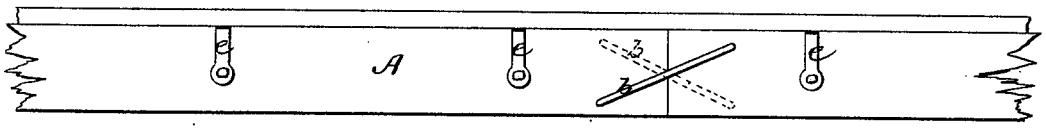
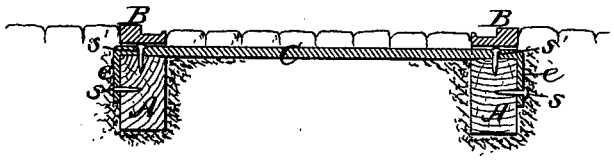


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN TURNER, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TIES FOR STREET-RAILWAY TRACKS.

Specification forming part of Letters Patent No. **197,299**, dated November 20, 1877; application filed September 11, 1877.

To all whom it may concern:

Be it known that I, JOHN TURNER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Ties for Street-Railroad Tracks, of which the following is a specification:

In the accompanying drawings, forming a part of this specification, Figure 1 represents a top view of a portion of a street-railroad track before the pavement is laid. Fig. 2 represents a side view of the same; and Fig. 3 represents a transverse vertical section, showing the track laid in the pavement.

Similar letters of reference in the different figures refer to like parts.

This invention relates to metallic ties which are employed for connecting the longitudinal wooden stringers of street-railroad tracks, in place of the ordinary wooden sleepers, said metallic ties extending across the track from one stringer to the other, and being secured at their opposite ends to the stringers by spikes.

In paving a street around a horse-railroad track, the paving material is placed close to the edges of the rails, and the surface of the pavement is about flush with the upper surfaces of the rails, the pavement being somewhat higher on the outer than on the inner sides of the rails, so that the outer sides of the raised treads of the rails will not project above the pavement and form an obstruction to vehicle-wheels passing onto the track. At the same time the inner edges of the treads of the rails must necessarily project to form walls or guides for the flanges of the car-wheels, and these walls present bearings and offer resistance to the wheels of vehicles passing off from the track, causing such wheels to exert a strong outward lateral pressure on the rails and the stringers on which they rest. The result of this outward lateral pressure is almost invariably the outward inclination or canting of the stringers, and consequently the spreading of the track to a greater or less extent. The spreading of a street-railroad track to the extent of even half an inch induces a lateral play or jerking motion of the cars passing over such track, which motion causes a rapid wear of the car-axles at the ends of the boxes in which they revolve, as is well known to those familiar with the practical details of street-railroad tracks. It is therefore of great importance that the stringers be rigidly held at their upper surfaces, so that the outward lateral pressure to which they are subjected will not cant or incline them so as to widen the track.

The metallic ties which have been employed heretofore for connecting the stringers have been so constructed as to be adapted to bear at their ends against the inner or proximate sides of the stringers, and to be spiked to the upper surfaces thereof. Ties constructed in this manner, while they brace the stringers and prevent them from being moved laterally toward each other, have no means for preventing outward movement of the stringers, excepting the spikes, which are driven vertically through the ties into the upper surfaces of the stringers, and these spikes are inadequate to bear the outward pressure that is constantly being exerted on the rails and stringers. Consequently stringers connected by such ties are liable to be inclined outwardly, as above described.

My invention has for its object to provide a tie adapted to overcome the difficulty above named, and secure the stringers transversely, so that their upper surfaces can be displaced outwardly only by the breakage of the tie.

To this end my invention consists in the peculiar form of the tie whereby it is adapted to bear against the outer sides of the stringers, and hold their upper surfaces securely against outward lateral pressure, as I will now proceed to describe.

In the drawings, A A represent the stringers of a street-railroad track, and B B the rails thereof, which are spiked to the stringers as usual.

C C represent my improved ties, each of which is composed of a straight metallic bar bent downwardly at about a right angle near each end, the length of the bar between the bent portions *e* being equal to the distance transversely of the track from the outer side of one of the stringers to the outer side of the other, so that when the tie is applied to the stringers its downwardly-bent ends *e e* will bear against the outer sides thereof, as shown in Fig. 2. The bent-ends *e* are provided with holes for the spikes *s*, which attach them to the sides of the stringers, and the ties are attached

to the upper surfaces of the stringers by spikes *s'*. The stringers are preferably recessed on their upper surfaces to receive the ties C, so that the upper surfaces of the latter will be a little below the rail-supporting surfaces of the stringers, as shown in Fig. 3.

It will be seen that the tie thus formed and applied is adapted to hold the stringers very securely against lateral separation, the entire strength of the tie being brought into use against outward lateral pressure along the plane of the upper surfaces of the stringers. Consequently the latter can only be inclined or displaced outwardly when the ties are broken or removed.

I prefer to apply the ties to the stringers at intervals of about five or six feet.

I secure the abutting ends of the stringer-beams together by means of diagonal metallic ties or bars *b b*, which are attached at their ends to opposite sides of the stringers, so as to extend across the joints between the abutting ends, as shown in Figs. 1 and 2, and are inclined in opposite directions, so that one will hold in one direction and the other in the opposite direction, their united strength making a stiff unyielding joint, and preventing either of the abutting ends of the beams from settling below the other. Each bar *b* is preferably bent at its opposite ends, the bent portions being driven into the sides of the stringers.

I claim as my invention—

The combination of the notched stringers A A, the metallic ties C, lying level with the upper faces of the stringers in the notches below the rails, having bent ends bearing against the outer sides of the stringers, and secured thereto by horizontal spikes *s* and vertical spikes *s'*, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN TURNER.

Witnesses:

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