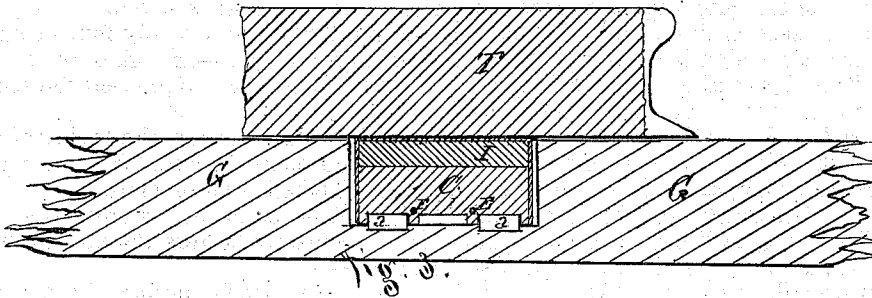
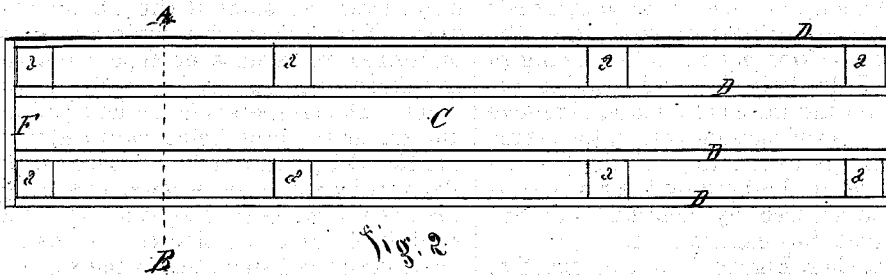
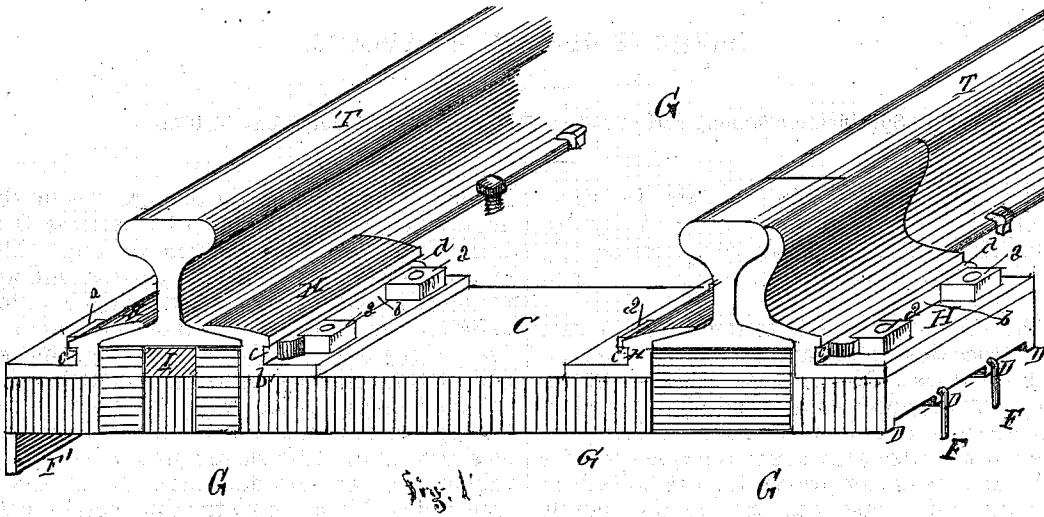


JOSEPH H. CONNELLY.

## Improvement in Railways.

No. 126,787.

Patented May 14, 1872.



Witnesses { Francis L. Clark  
Garrett Wheeler

Inventor Joseph H Connelly

# UNITED STATES PATENT OFFICE.

JOSEPH H. CONNELLY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH C. TILTON, OF SAME PLACE.

## IMPROVEMENT IN RAILWAYS.

Specification forming part of Letters Patent No. 126,787, dated May 14, 1872.

Specification describing certain Improvements in Railroad Tracks, invented by JOSEPH H. CONNELLY, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania.

This invention relates to the rolled or cast iron cross-ties which are used in connection with railways laid lengthwise of wooden sleepers. The invention consists in such a tie when formed with turned-down ends for holding the sleepers and also with ribs running lengthwise of its under side, for preventing the bolts from turning which fasten to the tie the clamps that secure the rails to the sleepers. The invention also consists in the means whereby the said clamps are enabled to discharge their said office of securing the rails to the ties; the object of this part of my invention being to secure the rail firmly to the tie by the clamps, and, by interposing the elastic plate, to relieve the tie of the jar of passing trains, the securing of the clamps to the tie, and the prevention of the loss of the nuts by their unscrewing, which is secured by holding both nut and bolt so that they cannot turn.

In the drawing, Figure 1 is a perspective view of my railroad; Fig. 2, a view of the under side of the tie; and Fig. 3, a cross-section through the section line A B of Fig. 2.

C is the cross-tie, which is made of iron and is formed either by casting in a mold or by rolling, the rolled ties being lighter than the cast ones. D D D D are ribs formed on the lower side of the tie. The heads of the bolts which secure the clamps to the tie are sunk between these ribs, which prevent them from turning. When the tie is cast it is strengthened by having round bars of rolled iron cast in or under these ribs, as shown at E E. These bars project beyond the end of the tie and are turned down, as shown at F. The end of the tie is turned over as shown at F', Fig. 1. These turned-over ends grasp the sleepers G G on their outer edges and prevent the track from spreading. H H H H are clamps fitting over the flange of the rail T. They are bolted securely to the tie by the bolts *a*, &c. The

heads of these bolts fit in the grooves on the under side of the tie formed by the ribs D D D D, which prevent them from turning. The nuts are screwed on over the clamps, and are prevented from unscrewing by the key *b*, which is driven into the groove C of the clamp H back of the nuts. This key has a head on one end, which prevents its being driven past the nut, and is prevented from working out by having the end turned over on the other nut, as shown at *d*. The elastic plate I is made of rubber or other suitable material. It is covered and held in place by the thin metal sheath which lies between it and the lower side of the rail, the ends of the metal being turned down over the sides of the tie for that purpose. The clamps are easily removed, when it is desired to replace or repair the rails, by knocking out the key *b* and unscrewing the bolts. The sleepers G G are laid parallel with and under the rails, being mortised to receive the ties C C. The rails are secured to these sleepers by spikes or screws, as shown. The road-bed is made several feet wider than the road itself, and the line can be easily raised by driving the ballast under the sleepers G G.

By building a road in this way more than one-half the timber is saved.

It is intended to use only four or six ties to each length of rails—enough to bind the sleepers firmly together and prevent the track from spreading.

I do not claim as new the laying of sleepers under and parallel with the rails; nor do I claim the elastic pad or plate.

What I do claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The cross-tie C, having the turned-down ends F' and the ribs D, as specified.
2. The clamp H, having the groove *c*, and combined with the rail T, tie C, key *b*, and bolts *a*, as described.

JOSEPH H. CONNELLY.

Witnesses:

ANDREW HUMBERT,  
FRANCIS L. CLARK.