

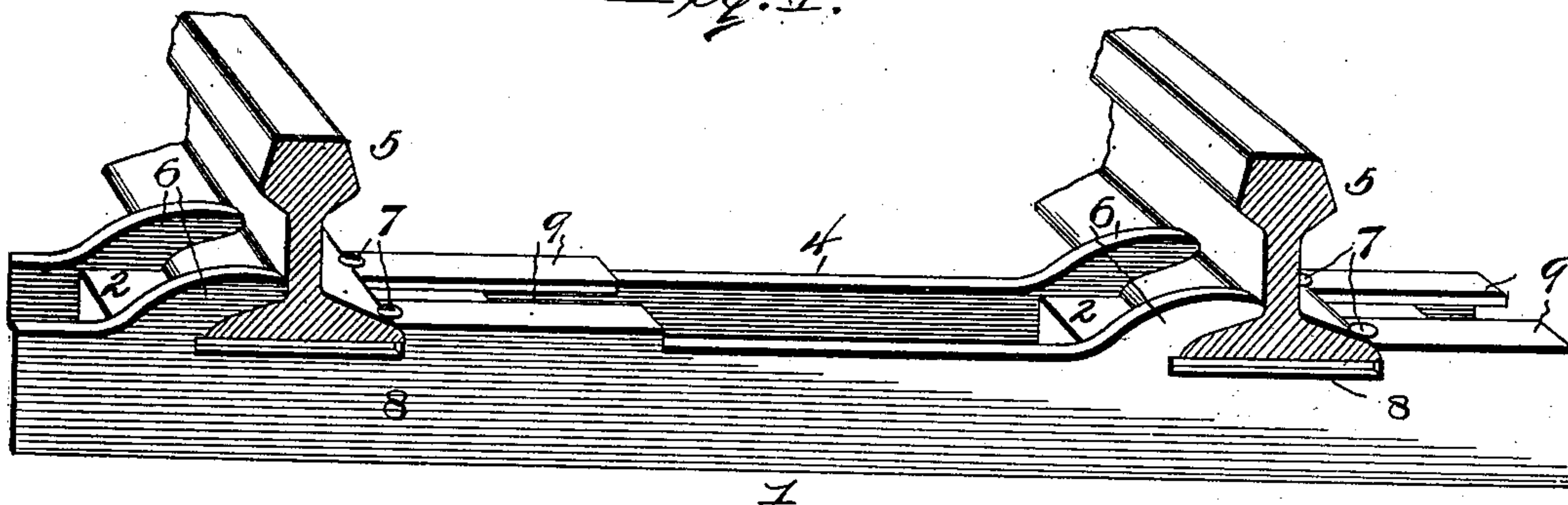
No. 742,675.

PATENTED OCT. 27, 1903.

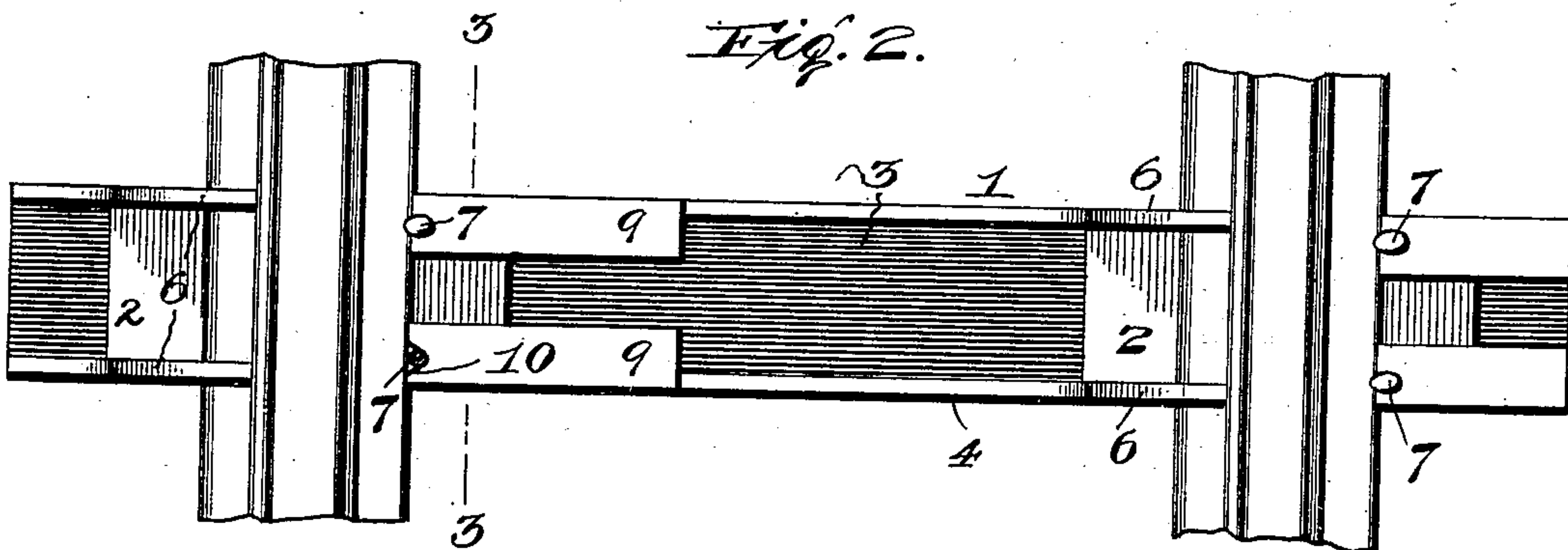
C. M. KIRK.  
RAILWAY TIE.  
APPLICATION FILED AUG. 21, 1903.

NO MODEL.

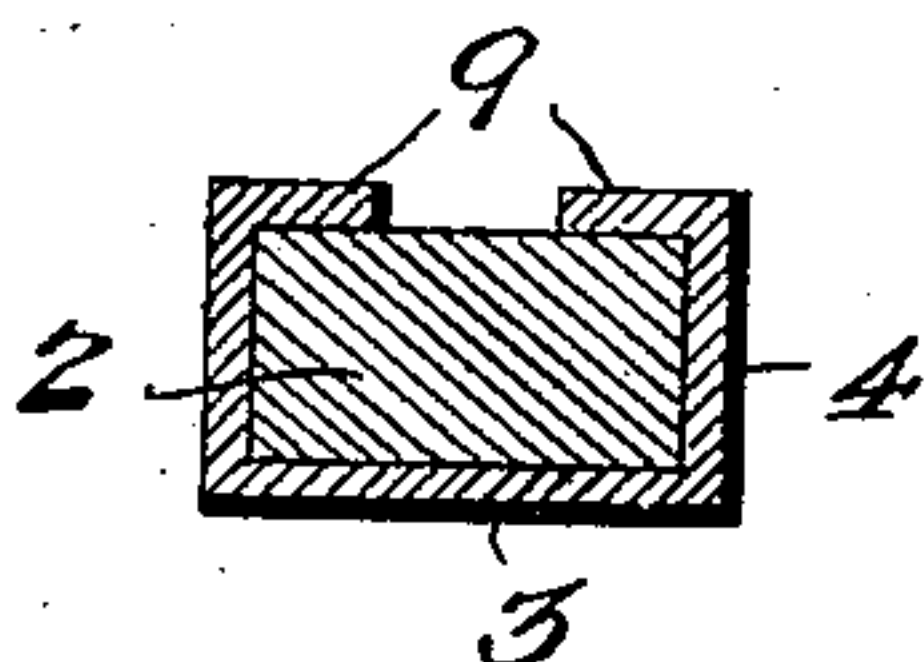
*Fig. 1.*



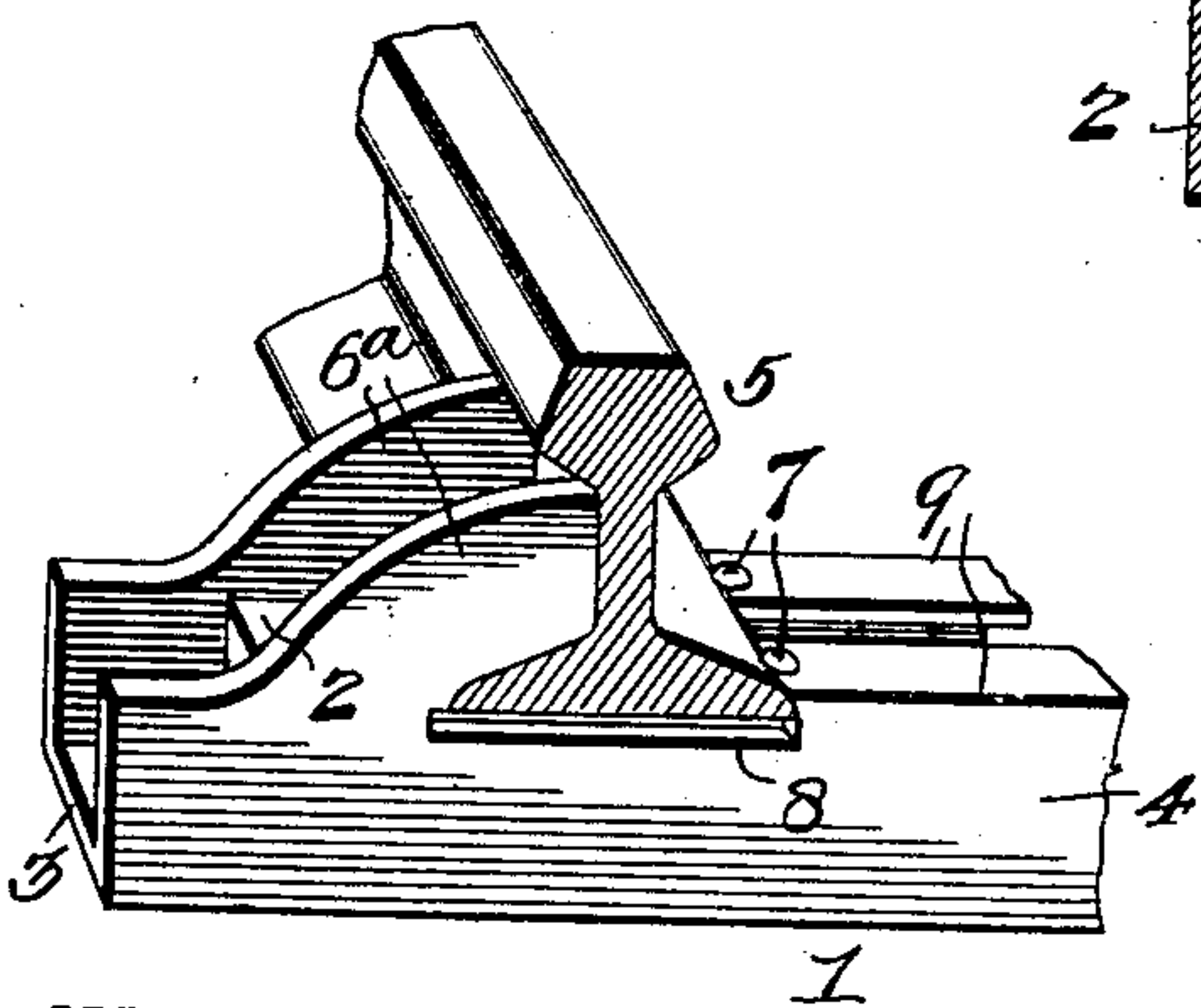
*Fig. 2.*



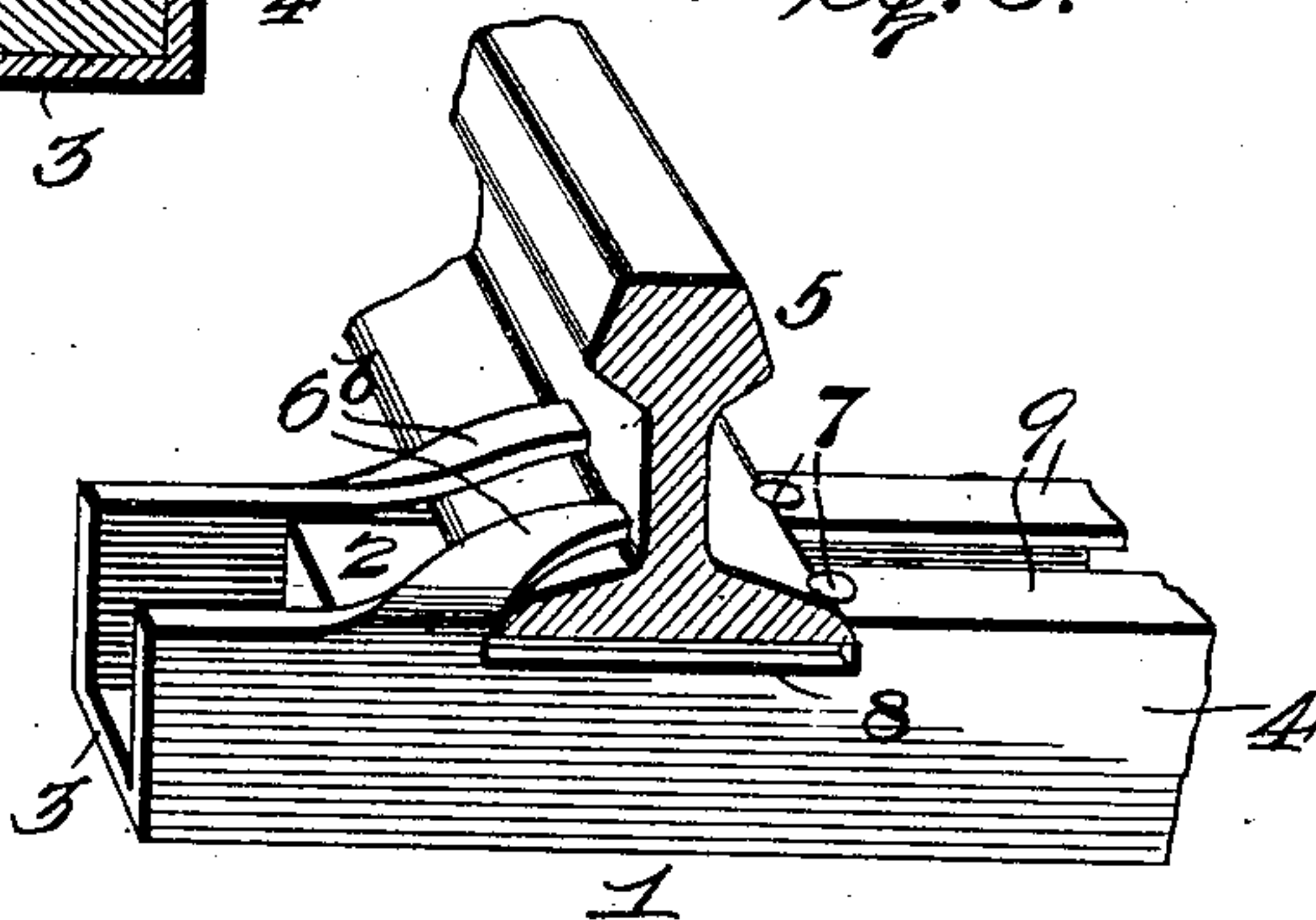
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

*J. L. Hochman*  
*Wm. D. Deane*

INVENTOR

*Charles M. Kirk,*

BY

*H. C. Carman*  
*Attorney*



# UNITED STATES PATENT OFFICE.

CHARLES M. KIRK, OF ROSEMONT, OHIO.

## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 742,675, dated October 27, 1903.

Application filed August 21, 1903. Serial No. 170,355. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. KIRK, a citizen of the United States, residing at Rosemont, in the county of Mahoning and State of Ohio, have invented new and useful Improvements in Railway-Ties, of which the following is a specification.

This invention relates to railway-ties, the object in view being to provide a cheap, durable, and effective tie constructed in the main of metal and having combined therewith cushion-blocks of wood or its equivalent so arranged within the body portion of the metallic tie as to directly bear the weight of the rails which rest thereon. While the rails rest directly on the cushion-blocks, they are braced by the metal tie itself, and all of the parts of the tie are so combined that they mutually support and brace each other and at the same time form an effective foundation and brace for the rails.

A further object of the invention is to so construct the body of the metal tie that it may be placed beneath the rails and brought into operative relation thereto without disturbing the adjacent tie, thus enabling the road to be repaired without disturbing the rails.

With the above and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, as will be hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a cross-section through a railway road-bed, showing one of the improved ties applied thereto and shown in elevation. Fig. 2 is a plan view of the same. Fig. 3 is a cross-section through the tie and one of the cushion-blocks, taken on the line 3 3 of Fig. 2. Fig. 4 is a detail perspective view of one end portion of the tie-body, showing a modification in the form of the lugs or braces. Fig. 5 is a similar view illustrating another modification of the lugs or braces which take over the rail-bases at one side.

Like reference-numerals designate corresponding parts throughout the several figures of the drawings.

The tie contemplated in this invention comprises a metallic member 1 and cushion-

blocks 2, arranged within the hollow body of the tie and secured in the manner hereinafter described. The metallic portion of the tie comprises a flat bottom 3 and the oppositely-arranged sides 4, extending upward from the bottom and arranged at a suitable distance apart, the upper edges of the sides being substantially in line with the bottoms of the rails, as shown in Fig. 1. The metallic portion of the tie is made of any suitable length to extend beneath the rails, (shown at 5,) and at suitable points the sides 4 are extended upward to form lugs or braces 6, which fit over the base-flanges of the rails, as shown in Fig. 1, and brace said rails against lateral movement in one direction. All of the lugs or braces 6 are preferably arranged to extend in the same direction, thereby enabling the tie to be inserted beneath the rails without the necessity of disturbing the rails themselves, thus greatly facilitating repairs to the road-bed.

Within the hollow portion of the metal tie thus far described are placed the cushion-blocks 2, above referred to. These blocks are preferably formed of wood and are made of greater length than the width of the rail, so as to receive the spikes 7. Each rail rests directly upon one of the cushion-blocks 2, and in order to provide for shrinkage of the cushion-block the sides 4 are cut away or notched, as shown at 8, so as to allow the base of the rail to settle downward. This prevents the placing of any strain or weight upon the sides 4 of the tie and causes all the strain and weight to be borne directly by the cushion-blocks, while also obviating the difficulty universally experienced in attempting to rigidly and firmly secure metal to metal. The notches 8 are preferably of somewhat greater length than the width of the base of the rail. The sides 4 are also extended to form flanges 9, which are bent inward, as shown in Figs. 2 and 3, over the cushion-blocks 2. The flanges 9 lie in a substantially horizontal plane and abut snugly at their extremities 10 against the adjacent edge of the base of the rail, as clearly shown in Figs. 1 and 2. The flanges 9 are also provided at their abutting extremities with spike-notches 11 large enough to receive the body portion or shank of the spike, which is driven through the notch into the cushion-block.



From the foregoing description it will be seen that the rails are braced on one side by means of the lugs 6 and on the opposite side by the flanges 9 and also the spikes 7. The spikes also serve to hold the cushion-blocks in place and prevent them from working out from beneath the rails, thus doing away with the necessity of using any extra bolts for fastening the cushion-blocks to the metallic portion of the tie. At the same time the spikes do not interfere with the settling of the rails due to the shrinkage of the cushion-blocks or other reason. There is therefore no possibility of the spreading of the rails, and consequent derailment of the cars. By removing the spikes 7 the tie may be quickly disconnected from the rails and moved outward from beneath the same. New cushion-blocks may be substituted for the old ones whenever needed.

Modifications of the structure described may be resorted to and still preserve the essential features of the invention. One suggested modification is illustrated in Fig. 4 and consists in providing lugs or braces 6<sup>a</sup> of a widened form, so as to be of a sufficient height to reach up to the under side of the head of the rail, while at the same time taking over the base-flange in the same manner as in the construction already described. This modified form of lug or brace 6<sup>a</sup> necessarily provides an extending bracing at the side of the rail; but in connection with this modification it should be observed that where the widened lugs 6<sup>a</sup> are employed the same are only provided where they engage the outer side of the rail, as a widened lug at the inner side of the rail would interfere with the flange of the wheels. However, by the employment of widened lugs or braces 6<sup>a</sup>, such as suggested in Fig. 4, the same would have a tendency to prevent the turning of the rail, especially at a curve, in which arrangement the tie would be placed in position from the outside of the curve to bring the lug 6<sup>a</sup> on the outside of the rail.

Another modification (indicated in Fig. 5) is that of providing holding lugs or braces 6<sup>b</sup>, deflected or bent inwardly from the sides of the tubular body, but also reaching over the base-flange up to the web of the rail to secure an effectual bracing of the latter.

Other modifications may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A railway-tie comprising a metallic body having a flat base or bottom, sides extending

upward therefrom and located at a suitable distance apart, lugs or braces forming extensions of the sides and adapted to engage the rails at one side, inturned flanges forming extensions of the sides and adapted to bear against the opposite edges of the bases of the rails, and cushion-blocks located between the sides of the tie and beneath the rails and inturned flanges, said flanges being provided with notches for the reception of spikes which lie in contact with the edge of the base of the rail.

2. A railway-tie comprising a metallic body having a flat base, sides extending upward therefrom at a distance from each other and having their upper edges cut away in line with the bases of the rails, braces or lugs extending upward from the sides of the tie and adapted to engage the base-flanges of the rails at one side, inturned flanges forming extensions of the sides and having their extremities arranged to form abutments for the edges of the bases of the rails, said flanges being provided with spike-receiving notches in their extreme edges, and cushion-blocks located between the sides of the tie and beneath the rails, the rails resting directly on said cushion-blocks, substantially as described.

3. A railway-tie comprising a metallic body portion having a flat base and substantially parallel sides, lugs extending upward from the sides and adapted to engage the rails at one side, inturned flanges at the opposite sides of the rails and forming abutments therefor, cushion-blocks arranged between the sides of the tie and extending beneath the rails and inturned flanges, and spikes driven through notches in the abutting portions of the inturned flanges and engaging the bases of the rails, substantially as described.

4. A railway-tie comprising a tubular metallic body having upstanding lugs or braces adapted to engage over the rail-bases at one side, and also provided with inturned flanges adapted to bear against the rail-bases at the opposite side thereof, and cushion-blocks confined within the tubular body beneath the rails and said inturned flanges, the latter being arranged to admit of spikes between the abutting portions thereof and the adjacent edge of the rails.

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

CHARLES M. KIRK.

Witnesses:

E. W. BURRELL,  
W. R. STEWART.