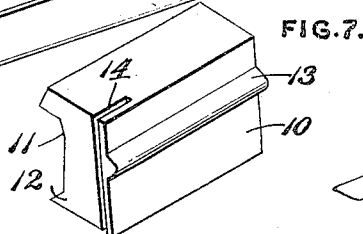
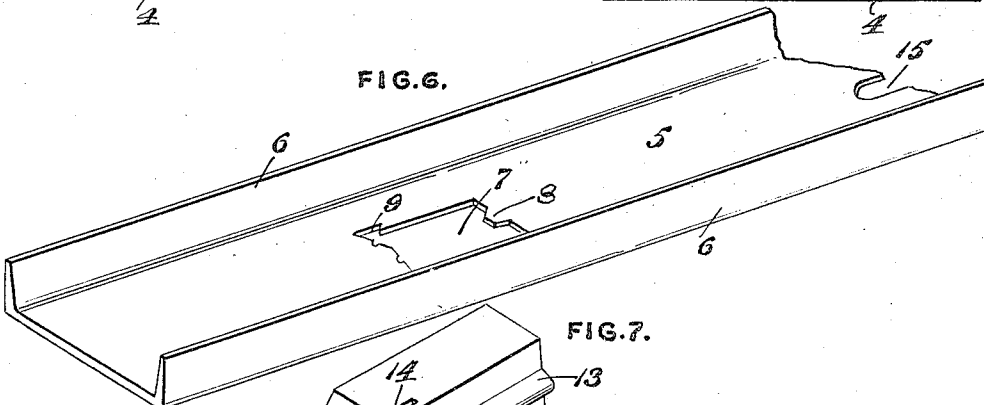
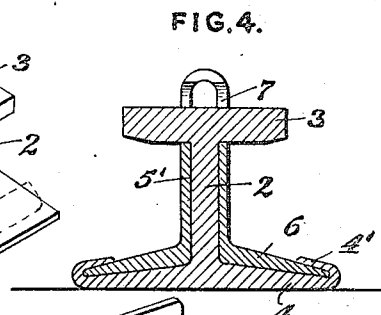
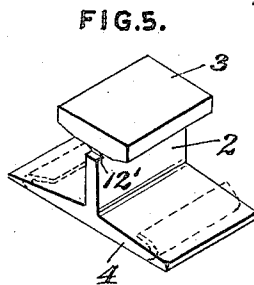
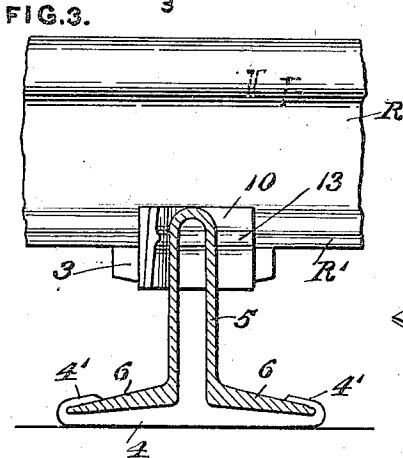
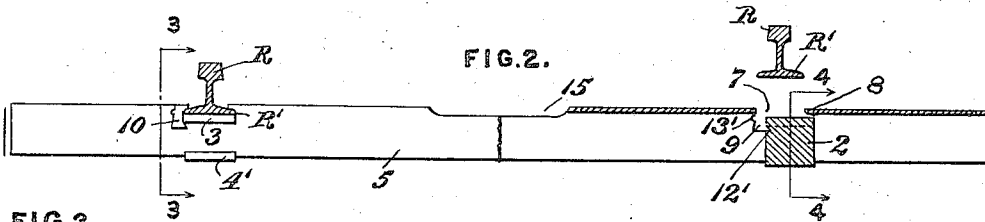
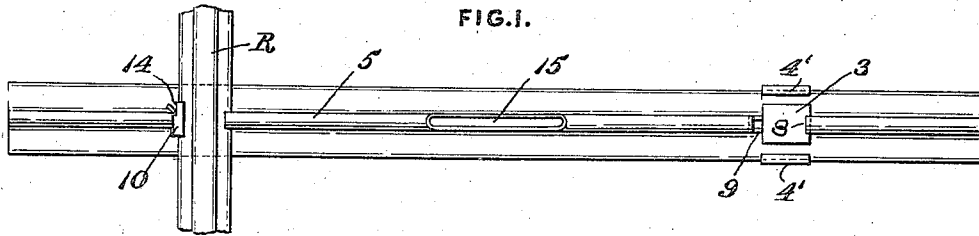


J. M. HEASLEY.
METALLIC RAILWAY TIE.
APPLICATION FILED AUG. 2, 1912.

1,045,705.

Patented Nov. 26, 1912.



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METALLIC RAILWAY-TIE.

1,045,705.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB M. HEASLEY, a citizen of the United States, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

One object of the present invention is to provide a metallic tie that will effectively withstand the strains and wear to which cross ties are subjected, also one that will be securely held by the ballast.

A further and very important characteristic of the invention is the structural arrangement or make-up in the tie, the parts comprising the same being of conventional shapes that may be rolled and subsequently cut into requisite lengths, and comparatively little work is required for adapting and assembling them into tie form. The weight of a cross tie is an important factor, many designs heretofore proposed being too heavy for practical use, and increased weight usually means added cost. Hence the weight and cost factors have received careful consideration in developing the present invention.

A further feature of the invention is the means employed for fastening the rails to the tie, the fastening device also being preferably a piece of rolled section with the tie recessed to cooperate therewith for holding the rail.

In the accompanying drawings, Figure 1 is a view in top plan of a tie constructed in accordance with the invention, one rail being shown in place thereon and the other rail removed. Fig. 2 is a view of the tie, showing one-half thereof in side elevation and the other half in longitudinal section. Figs. 3 and 4 are vertical cross sections on lines 3—3 and 4—4, respectively, of Fig. 2. Fig. 5 is a detail of one of the rail supporting members of the tie, and Fig. 6 is a view in perspective of a portion of the blank from which the tie body is formed. Fig. 7 is a detail of one of the fastening devices.

Referring to the drawings, the tie consists primarily of a tie body and two rail supporting members, the body being so shaped and secured to said members as to form a substantially one-piece structure. Each of the two rail supporting members is of substantially I section, of which 2 is a central upright web portion, 3 the rail sup-

porting head, and 4 the flanged base, the latter being somewhat wider than head 3. The length of each support is substantially the same as the width of the base of rail R, being cut the required length from a rolled shape of the desired section.

The tie body consists of an upwardly arched central portion 5, open at the bottom as shown and formed at its longitudinal edges with flanges 6 which rest on the base flanged portion 4 of the rail supports, and in the preferred adaptation flanges 6 and 4 are secured together by bending the extremities of the latter upwardly and backwardly over flanges 6, as indicated at 4'. The tie body is formed with openings 7 through which heads 3 of the supports extend, the construction being such that the tie body fits snugly against web 2 between the flanged extremities 3 and 4 of the support, as indicated at 5', Fig. 4.

The walls of each opening 7 are of such form as to combine with a removable fastening device for securing the rail to the tie. The metal at one side of the opening is shaped to form tongue or lip 8 which overhangs one side of base flange R' of the rail, while at the opposite side opening 7 is enlarged as indicated at 9 to provide a passageway for key 10 movable longitudinally of the rail. This key, shown in detail in Fig. 7, is grooved longitudinally on one face at 11 to embrace the rail flange R', while beneath said groove the same face of the key is sloped or wedge shaped at 12 to fit undercut 12' at one extremity of head 3 of the rail support. The opposite longitudinal face of the key is formed with bead 13 which enter grooves or notches 13' of the channel-like tie body. Key 10 is simply a short piece of rolled section of the shape described, and the wedging action is obtained by forming a kerf 14 in one end of the key which permits it to compress sufficiently to enter the key recess when it is driven tightly into place, and then the portion of the metal at the outer side of the kerf is bent laterally for securing the key, as shown in Fig. 1.

While the tie body may be shaped by various procedures, in the preferred practice it is formed of a rolled channel, Fig. 6, in which openings 7 are cut, also preferably an opening 15 at the center of the tie. The channel blank is then bent on a central longitudinal line to form the upwardly arched

central body portion of the tie, while the channel flanges take their place on base flange 4, it being understood that the body-forming blank is bent into shape on or
5 around the rail supports with the heads of the latter projecting through openings 7. It will be understood, however, that the body may be formed of a flat piece or shape having its edges bent to provide the lateral
10 flanges 6.

From the foregoing description it will be seen that the rail supports and tie body and the rail fastenings are each formed of a rolled shape, so that blanks are produced by
15 simply cutting these shapes into requisite lengths. Thereafter comparatively little work is necessary in constructing the parts into a tie structure.

A tie of the embodiments here shown is
20 relatively light in weight and is very efficient. The open-bottom channel of the tie body permits the ballast of the road bed to enter, uniting the tie with the bed in such manner as to preclude creeping or displacement of any kind. The condition within the
25 bottom of a tie may be observed through opening 15, and this opening also serves to ventilate the tie channel. Said opening may be utilized for inserting any desired form of
30 ballast.

A characteristic of the invention is the communication of the pressure strains to all portions of the tie, the same being exerted
35 initially upon the rail supports and from the latter transmitted in either direction to the tie body. The rail supports provide a broad base beneath and around which the tie may be effectively tamped.

I claim:—

40 1. A tie body of inverted channel form having openings spaced apart the distance between the two rails of a track, rail supports within and embraced by the channel-like body with their upper portions extend-
45 ing through the body openings and with the rail sustaining surfaces of the supports beneath the plane of the top extremity of the body with the body at opposite sides of each support adapted to receive fastenings for
50 the rails which rest on the supports.

2. The combination of two rail supports each having a flanged base, a tie body adapted to embrace the supports, and means located at the base of the tie for securing the
55 tie to the flanged base of each support.

3. The combination of two rail supports each having a head portion on which the rail rests, a hollow metallic tie body having openings to embrace the supports with the support heads extending through the openings,
60 and means for securing the tie to the supports.

4. The combination of two flanged rail supports, a tie body adapted to embrace the
65 supports for holding them fixed relatively

to each other with the extremities of the support flanges bent to secure the tie body thereto.

5. The combination of two rail supports each having a headed top portion for sustaining the rail and a flanged base portion,
70 the head and base portions connected by an intermediate web portion, a tie body shaped to embrace the supports above their base portions with the support heads projecting from
75 the body, the body being flanged to bear upon the flanged base with the extremities of the latter bent over the tie body flanges for confining the body.

6. The combination of two rail supports,
80 a tie body of channel form open at the bottom and shaped to embrace the rail supports for holding them fixed relatively to each other, and means for securing the tie body to the supports.

7. The combination of two rail supports each having a flanged base and a headed rail-sustaining top with the head and base connected by a vertical web, and a tie body
90 of channel form open at the bottom and embracing the support webs and formed with openings through which the heads of the rail supports project, and means for securing the tie body to the flanged base portions of the supports.

8. The combination of two rail supports each having a flanged base and a headed rail-sustaining top and an interposed vertical web, a tie body of channel form open
100 from below with the lower edges thereof flanged laterally and adapted to rest on the base portions of the supports, the support webs extending upwardly through the body channel and the latter formed with top
105 openings through which the rail sustaining heads of the supports project, and means for securing the body flanges to the base of each support.

9. The combination of two rail supports each having a rail-sustaining top portion
110 and a flanged base, and a tie body formed of a blank of plate metal provided with openings through which the rail-sustaining portions of the supports project, the blank bent on a line extending longitudinally thereof
115 to form an open bottom channel with the rail-sustaining portions of the supports extending through said openings and with the bottom longitudinal edges of the channel extending laterally and bearing on the flanged
120 base of each rail support, and means for securing the tie body to the supports.

10. The combination of two rail supports each consisting of a flanged base a rail-sustaining head and an interposed web, and a
125 tie body formed of a blank of plate metal having openings through which the rail-sustaining heads project, the plate metal blank bent on a line extending longitudinally thereof to form a channel open at the
130

bottom and with the opposite walls of the channel embracing the web portions of the supports, the channel flanged outwardly at its longitudinal edges where it rests on the flanged base portions of the supports, and means for securing the tie body to the supports.

11. The combination of two rail supports each adapted at its upper end to sustain a rail, and a tie body secured to the supports and extending above the latter and formed with openings to expose the rail-sustaining surfaces thereof, one wall of each opening overhanging the top surface of the support and undercut to embrace the base flange of a rail, and the opposite wall of each opening and the adjacent face of the support shaped to receive a rail fastening.

12. The combination of a tie body arched upwardly in cross section and with an opening in the crown of the arch for each rail, a grooved key movable longitudinally of the rail and adapted to embrace the base flange thereof and with a longitudinal bead on the face of the key opposite its rail-embracing face, the opening in the tie crown enlarged to receive the key and formed with a groove to embrace the key bead.

13. The combination of a cross tie arched upwardly in cross section and with openings in the crown of the arch to receive the

rails, a grooved key movable longitudinally of the rail and adapted to embrace the base flange thereof and with a longitudinal bead on the face of the key opposite its rail-embracing face, the opening in the tie crown enlarged to receive the key and formed with a groove to embrace the key bead, the key formed at one end with a longitudinal kerf whereby it may be compressed when driven into place with the portion of the key at the outer side of the kerf bent to hold the same.

14. The combination of two rail supports each of substantially I section, a tie body formed of a blank of channel form having openings to embrace the upper rail-sustaining heads of the supports, the blank bent on a line extending longitudinally thereof to form an open bottom channel with the opposite sides of the channel embracing the web portions of the supports and with the flanges of the channel blank bearing on the base flanges of the supports, and means for securing the tie body to the supports.

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

JACOB M. HEASLEY.

Witnesses:

J. W. NESBIT.

F. E. GAITHER.