

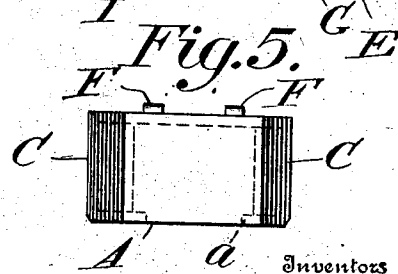
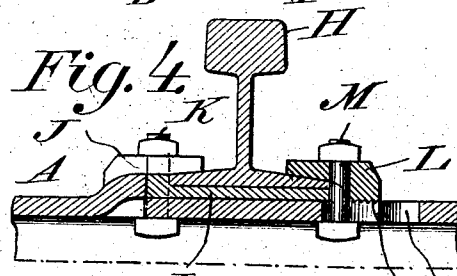
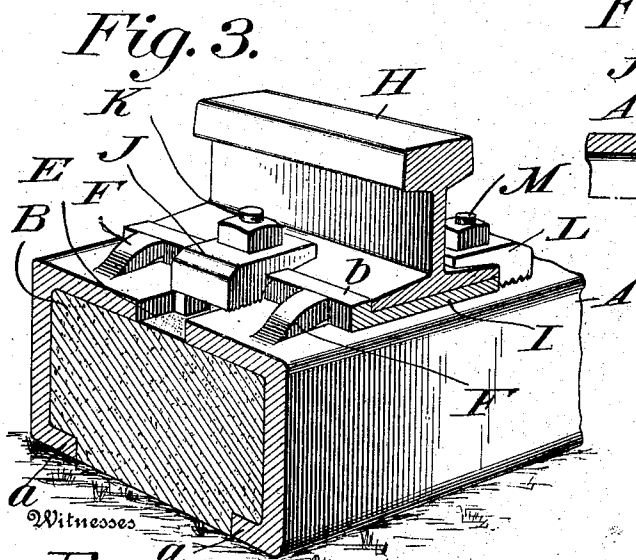
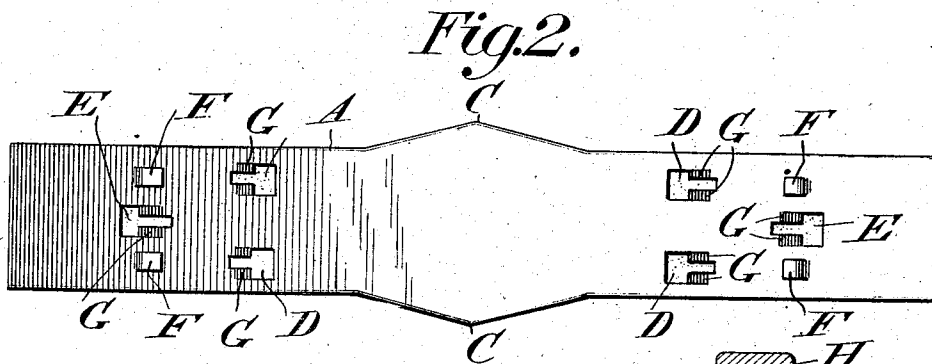
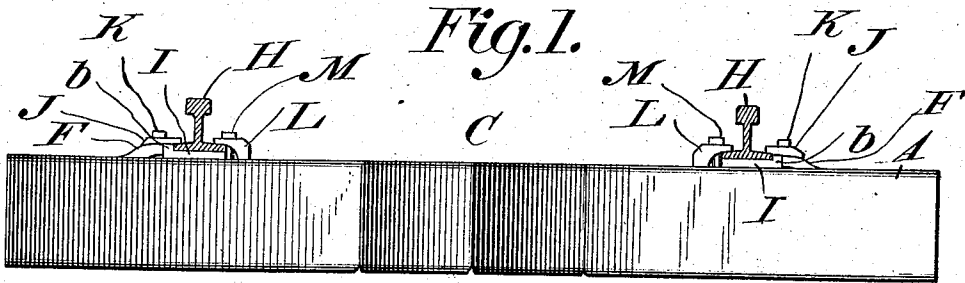
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P. M. CANTY & H. W. SCHOENFELT.

METALLIC RAILWAY TIE.

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UNITED STATES PATENT OFFICE.

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METALLIC RAILWAY-TIE.

No. 857,328.

Specification of Letters Patent.

Patented June 18, 1907.

Application filed April 8, 1907. Serial No. 387,080.

To all whom it may concern:

Be it known that I, PATRICK M. CANTY and HARRY W. SCHOENFELT, citizens of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

Our invention pertains to metallic railway ties; and it has for one of its objects to provide a tie of such formation at its sides that the tie is fixed with respect to ties at opposite sides of the same and is effectually held against endwise creeping or casual movement in ballast.

Another object of the invention is the provision in a metallic tie of rail fastening means embodying such a construction that lateral outward movement of the rails under the pressure of heavy trains is precluded without the imposition of undue strain on the connecting bolts and the consequent liability of the bolts being sheared or cut off, and also embodying means whereby expansion and contraction may be compensated for and the fastening means adapted to properly hold the rails under all conditions.

Other advantageous features of the invention will be fully understood from the following description and claims when the same are read in connection with the accompanying drawings, forming part of this specification, in which:

Figure 1 is a view illustrating the metallic tie constituting the present and preferred embodiment of our invention in side elevation and also illustrating two rails in transverse section as fastened in accordance with our invention to the tie body. Fig. 2 is a plan view of the tie body *per se*. Fig. 3 is an enlarged detail sectional perspective illustrating our novel rail fastening means. Fig. 4 is a longitudinal vertical section taken through the fastening means complementary to one rail. Fig. 5 is an end elevation of the tie body.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the metallic tie or tie body of our improvements. The said tie body is preferably

ably formed of rolled steel of suitable thickness, and is closed at its top, side and ends, and is provided with inwardly directed base flanges *a*, as best shown in Fig. 3. These flanges *a* have for their office to retain in the metallic tie or tie body a filling B designed to lend stiffness and strength to the tie body as well as to render the same a poor conductor of sound, and in the preferred embodiment of our invention the said filling is composed of coal ashes and cement in the proportion of 75 % of the former to 25 % of the latter, this composition being advantageous because it combines the advantages of lightness and strength, and is not liable to be deteriorated by the action of water. At the middle of its side walls the tie body A is provided with swells C, preferably of obtuse angle form in plan as shown in Fig. 2; and the said tie body A is also provided in its top wall at opposite sides of its middle with apertures D arranged in pairs and single apertures E located at points intermediate the apertures D and the ends of the tie body. The several apertures D and E are preferably of T-form and have their stems or reduced portions disposed as illustrated—that is to say, the stems or reduced portions of the apertures D are directed outward and the stems or reduced portions of the apertures E are directed inward. The tie body is further provided with abutments F which are preferably, though not necessarily, pressed upward from the top of the body and are located at opposite sides of the apertures E, as clearly shown in Fig. 2. At opposite sides of the stems or reduced portions of the several apertures D and E serrations G are formed; the said serrations extending transversely of the tie body and being designed to serve an important purpose hereinafter set forth in detail.

H H are rails arranged on and extending at right angles to the tie body A in the ordinary well known manner.

I I are chair plates disposed under the rails and having upwardly extending flanges *b* interposed between the outer edges of the rail bases and the abutments F.

J J are clamps arranged on the flanged portions of the chair plates I and the outer por-

tions of the rail bases and having serrations at their under sides opposed to and engaging the serrations G adjacent to the apertures E.

K K are bolts connecting the clamps J to the top wall of the tie body A.

L L are clamps arranged above and adapted to hold the inner portions of the rail bases and having serrations opposed to the serrations G at opposite sides of the apertures D, and M M are bolts extending through the reduced portions of the apertures D and the clamps L and connecting the said clamps to the top wall of the tie body A.

By virtue of the tie body A being provided at the middles of its side walls with swells C as described, it will be apparent that the tie is held against endwise creeping or casual movement in the ballast usually employed.

During the assembling of the parts comprised in our novel rail fastening means, it will be apparent that the heads of the connecting bolts may be passed downward through the enlarged portions of the apertures D and E and may then be adjusted to positions below the stems or reduced portions of the apertures; and it will also be apparent that because of the construction and arrangement of the chair plates I, clamps J and clamps L, the sole function of the connecting bolts is to hold the clamps and the rails down on the tie body A, and consequently there is no liability of the bolts being sheared or broken when the rails are subjected to the pressure exerted by passing trains. In other words the engagement of the serrations of the clamps with the complementary serrations of the tie body prevents movement of the clamps with respect to the tie body without the imposition of lateral strain on the bolts, and the chair plates I also assist in the attainment of this end so far as the outer bolts K are concerned inasmuch as their flanges b are interposed between the rail bases and the abutments F and hence place the outward thrust of the rails against the abutments F integral with the tie body A. The chief function, however, of the chair plates I is to assure the maintenance of a track of proper gage, since it is clear that when the rails H are found on test to be too close together, plates I having flanges b of a less thickness than the flanges illustrated, may be substituted for the plates I shown, and when the rails H are found to be too far apart, plates I having flanges of a greater thickness than the flanges shown may be used in lieu of the illustrated plates. In this way, as will be readily appreciated, our improved tie and rail fastening means may be suited to various conditions of service, and the usefulness of the structure as a whole may be materially prolonged.

As will be gathered from the foregoing our improvements are simple, practical and inex-

pensive, and hence are adapted to be employed throughout the length of a railway, and by reason of the construction described it will be seen that there is no liability of the outer rails at curves being casually moved outward incident to the great lateral pressure exerted by passing trains, this because the fixed abutments b and the flanges of the chair plates I preclude outward movement of the rails with respect to the tie body A.

In addition to the practical advantages hereinbefore ascribed to our improvements, it will be noted that the rails may be expeditiously and easily fastened to the tie body and this in such manner that there is no liability of the rails being casually released from the tie body during service.

The construction herein shown and described constitutes the preferred embodiment of our invention, but it is obvious that in practice such changes or modifications may be made as fairly fall within the scope of our invention as defined in the claims appended.

Having described our invention, what we claim and desire to secure by Letters-Patent, is:

1. A metallic tie having a top wall and side walls depending therefrom and also having swells of obtuse angle form in plan at the middles of its side walls, and straight hollow end portions.

2. In a tie, a metallic tie body, closed at its sides, top and ends and having swells of obtuse angle form in plan at the middles of its side walls, and straight hollow end portions, and also having inwardly directed base flanges, and a plastic filling retained in the said tie body by the base flanges thereof.

3. The combination in a tie, of a metallic tie body closed at its sides, top and ends and having swells of obtuse angle form in plan at the middles of its side walls, and straight hollow end portions, and also having openings in its top and inwardly directed base flanges, a plastic filling retained in the tie body by the base flanges thereof, rails arranged on the tie body, and means extending through the openings in the top of the tie body and connecting the rails and the said body.

4. The combination of a metallic tie provided at its top with abutments, rails arranged above the said tie, chair plates removably interposed between the tie and the rails and having upwardly directed flanges resting between the abutments and the outer edges of the rail bases, and means for holding the said rails and chair plates down upon the tie.

5. The combination of a metallic tie provided on its top with abutments and in its top with openings and also provided on its top with serrations extending in the direction of the width thereof, rails arranged above the

said tie, chair plates removably arranged between the tie and the rails and having upwardly directed flanges interposed between the abutments and the outer edges of the rail bases, clamps resting on the rail bases and having transverse serrations opposed to those of the tie, bolts connecting the clamps and the tie and extending through the openings in the top of the latter.

6. The combination of a metallic tie provided on its top with integral abutments and in its top with openings of T-form and also provided on its top at opposite sides of the stems or reduced portions of the T-shaped openings with transverse serrations, rails arranged above the said tie, chair plates removably arranged between the tie and the rails

and having upwardly directed flanges interposed between the abutments and the outer edges of the rail bases, clamps resting on the rail bases and having transverse serrations opposed to those of the tie, bolts extending through the clamps and the reduced portions of the openings in the tie top and having heads disposed below said top, and nuts mounted on the bolts above the clamps.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

PATRICK M. CANTY.
HARRY W. SCHOENFELT.

Witnesses:

G. A. ICKES,
H. J. HOAR.