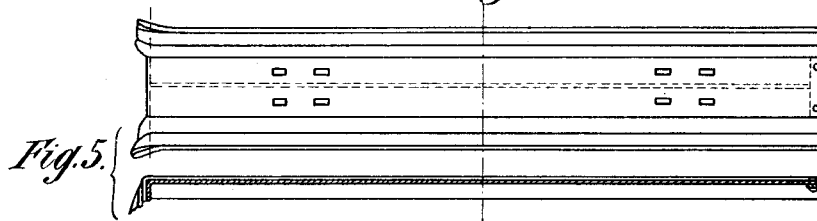
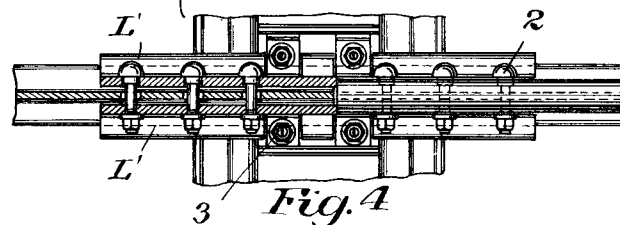
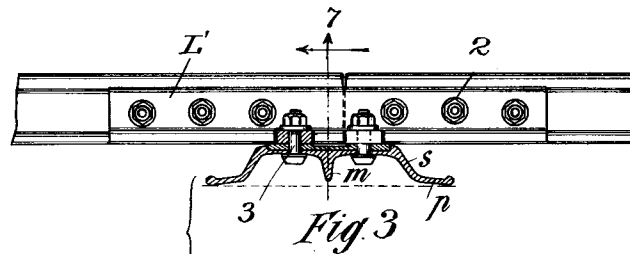
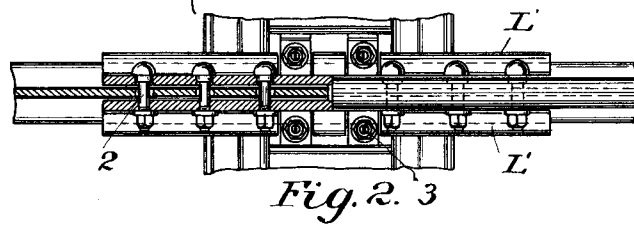
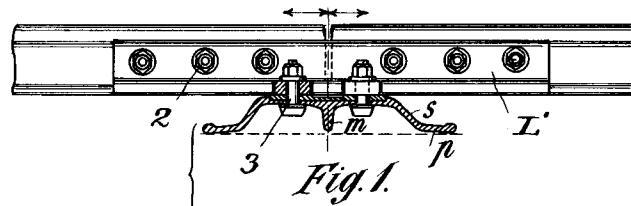


G. H. J. MAAS.
METAL CROSS TIE FOR RAILROAD RAILS.
APPLICATION FILED APR. 27, 1907.

1,034,389.

Patented July 30, 1912.

2 SHEETS-SHEET 1.



Witnesses:
C. H. Taylor
J. J. McCarthy

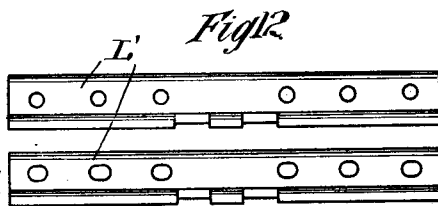
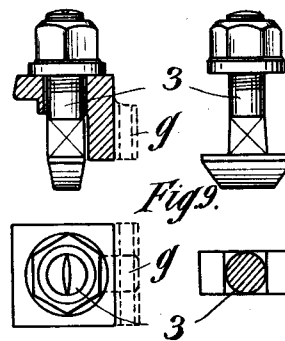
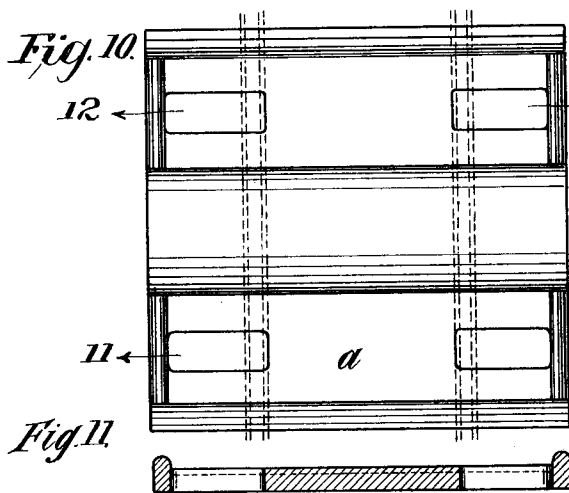
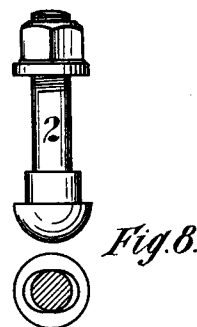
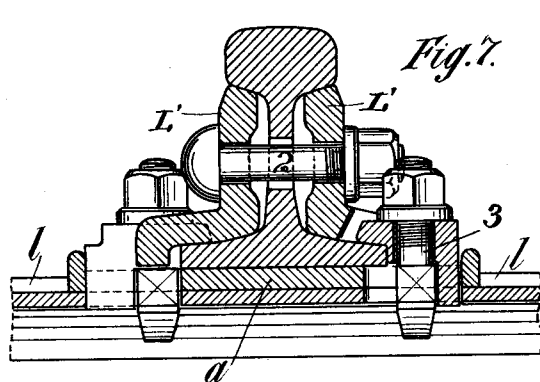
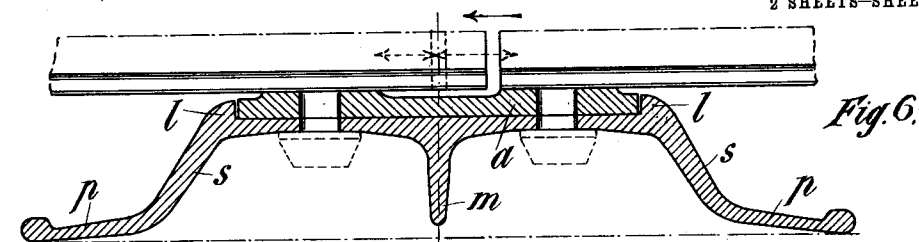
Inventor
G. H. J. Maas
by John F. Mattern
att'y

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2 SHEETS—SHEET 2.



Witnesses:
C. H. Taylor
J. J. McCarthy

Inventor:
G. H. J. Maas
by Foster Freeman Stearns
Attys.

UNITED STATES PATENT OFFICE.

GOTTFRIED HEINRICH JACOB MAAS, OF BERLIN, GERMANY.

METAL CROSS-TIE FOR RAILROAD-RAILS.

1,034,389.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed April 27, 1907. Serial No. 370,708.

To all whom it may concern:

Be it known that I, GOTTFRIED HEINRICH JACOB MAAS, a subject of the King of Prussia, German Emperor, and a resident of 5 Askanischer Platz, in the city of Berlin, Kingdom of Prussia, and German Empire, have invented certain new and useful Improvements in Metal Cross-Ties for Railroad-Rails, of which the following is a specification.

The particular embodiment of the invention herein illustrated relates to the support of a rail joint by one tie of the class illustrated in Letters Patent granted to me, November 24th, 1903, No. 744,868, and to certain improvements in the construction of the parts thereof as set forth hereinafter and illustrated in the accompanying drawing, in which:

Figure 1 is a sectional elevation of a support of the rail joint showing the parts arranged for running the trains in both directions; Fig. 2 is a sectional plan of Fig. 1; Figs. 3 and 4 are a sectional elevation and plan showing the parts adjusted for running the trains in one direction; Fig. 5 illustrates in plan and longitudinal section one of the ties; Fig. 6 is an enlarged sectional elevation of a tie with the rails arranged for running the trains in one direction; Fig. 7 is a longitudinal enlarged section through the tie on the line 7, Fig. 3; Figs. 8 and 9 are detached views of the bolting devices; Fig. 10 is a plan of one of the detachable bearing plates; Fig. 11 a section on the line 12—12, Fig. 10; Fig. 12 illustrates side views of the fish-plates.

In the specification of my Letters Patent No. 744868 of November 24th, 1903, I describe the connection of two adjacent joint-ties to one broad tie, on which the two supporting plates are lying, and the breadth of which is depending on the distance of the two supporting plates from center to center, in such a manner, that the ballast beneath the tie is pressed in the whole breadth of the tie and that a turn and tilt of the tie is impossible. This construction has the disadvantage, that the pressure beneath the tie is an irregular one, which is triangular or a trapezium, as is illustrated in Figs. 9 and 10 of my aforesaid Letters Patent. The pressure is a maximum at the ends of the transverse section of the tie, now at either end when at the other, if the train runs over it, and the vertically projecting ends of the

tie do not afford a proper support. To disperse this maximum of the pressure I make instead of the sharp vertical ends the flat base-flanges *p*, Figs. 1, 3 and 6. The basal-flanges *p* of the tie are made slightly ascending inward, for the purpose to facilitate boxing the ballast in the hollow space between the central rib *m* and the sides *s*. The deep position of the basal-flanges has furthermore the advantage, that a greater quantity of the ballast lies upon the tie.

In the upper face of the tie is a recess formed by the ribs 11, which recess is adapted to the reception of a detachable bearing plate, Figs. 6, 7, 10 and 11, which plate has separated bearing faces or elevated portions upon it upon which the rails may be placed. In the construction shown in my aforesaid Letters Patent the adjacent ends of both, the giving-off rail and the taking up rail, project over the space or depression separating the bearing faces on the plate *a*. Referring to the accompanying drawings, however, it will be seen, that in accordance with the present invention the extreme end of the giving-off rail rests upon one of said faces, while the adjacent end of the taking-up rail projects over the intermediate recess, as shown in Figs. 3, 4 and 6, this arrangement being adopted when the trains are to run in one direction. I have found that with the rail ends arranged and supported in this manner, when the rails are properly fastened to the tie, there is no possibility of the taking-up rail end being elevated above the end of the giving-off rail and thereby the producing of the shock or jar is avoided which is commonly experienced, when the wheels of a car pass from one rail to another. This results in reducing the wear on both the rails and cars of a railroad. When the trains are to run in both directions both ends of the rails are shorter and suspended above the recess between the bearing faces, as illustrated in Figs. 1 and 2. The rail has the vertical position and is fastened with the small iron fittings as it is used in the United States, Figs. 7—9.

The particular form of the basal flanges *p* of my improved cross tie constitutes an important feature of the invention. By it there is avoided the undesirable penetration into the ballast which can be avoided if the basal flanges at the outside of the tie have curved bearing surfaces. As will be evident the strain or force exerted on such

a tie, acts to turn or rock the tie about its longitudinal axis and is applied in the direction of the length of the rails. When the flanges at the base of a cross tie have curved surfaces bearing against the ballast such turning action is not resisted as by broad flat basal flanges at both outside edges of the transverse section of my tie, the flanges of which are oppositely inclined upward from their free edges. By making such flanges in the form herein shown and described, the ballast may be securely packed and more closely compacted in the interior of the tie and the strain exerted in the direction of the length of the rails effectually resisted.

I claim as my invention:

1. The combination in a support for rail joints of the character described, of a metallic tie having basal-flanges (*p*) flaring outward and slightly ascending inward, and a single detachable plate (*a*) supporting both

rail-ends and having two raised bearing faces and an intermediate recess, rails resting on said bearing faces.

2. The combination in a support for rail-joints of a metallic tie and a detachable plate, having on its upper face two raised bearing faces separated by a recess and two rails resting respectively on said bearing faces and suitably secured to the roof of the tie, the extreme end of the giving-off rail resting entirely on the bearing face thereof and the adjacent end of the taking-up rail projecting from the bearing face thereof over more or less of the recess separating said bearing faces.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

GOTTFRIED HEINRICH JACOB MAAS.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

It is hereby certified that in Letters Patent No. 1,034,389, granted July 30, 1912, upon the application of Gottfried Heinrich Jacob Maas, of Berlin, Germany, for an improvement in "Metal Cross-Ties for Railroad-Rails," errors appear in the printed specification requiring correction as follows: Page 1, line 69, for the reference-numeral "11" read reference-letters *l l*; and same page, line 108, for the word "undersirable" read *undesirable*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of October, A. D., 1912.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.

It is hereby certified that in Letters Patent No. 1,034,389, granted July 30, 1912, upon the application of Gottfried Heinrich Jacob Maas, of Berlin, Germany, for an improvement in "Metal Cross-Ties for Railroad-Rails," an error appears in the printed specification requiring correction as follows: Page 1, line 109, for the word "can" read *cannot*; and that the proper correction has been made in the files and records of this office and is hereby made in the said Letters Patent.

Signed and sealed this 6th day of January, A. D., 1914.

[SEAL.]

J. T. NEWTON,
Acting Commissioner of Patents.