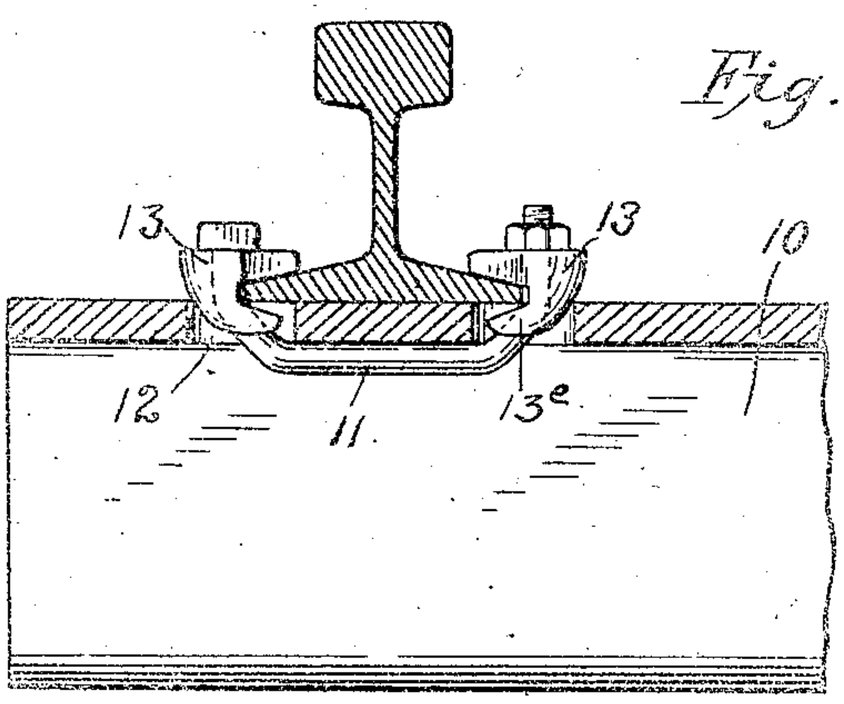
J. GALAMBOS.

METALLIC RAILROAD TIE AND RAIL CLAMP.

APPLICATION FILED DEC. 18, 1907.

975,520. Patented Nov. 15, 1910.

Fig. 1.



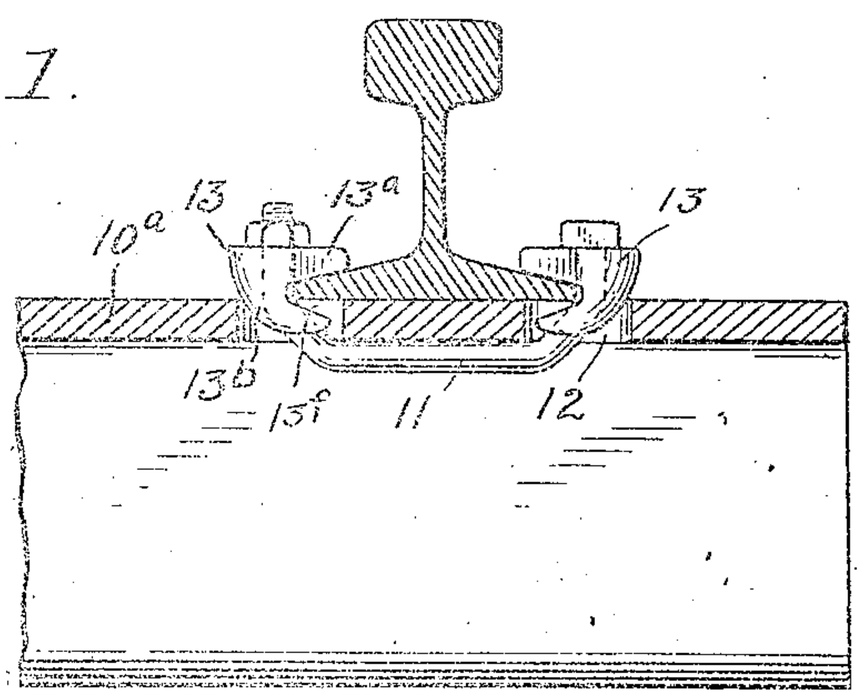
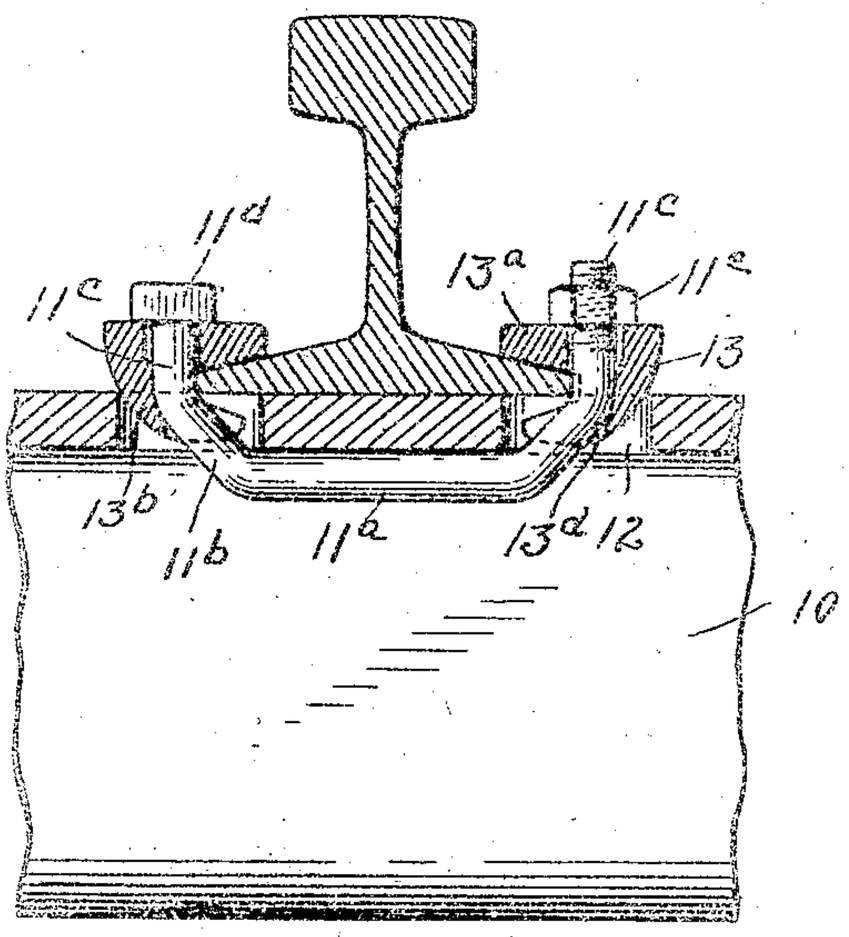


Fig. 2.

Fig. 3.



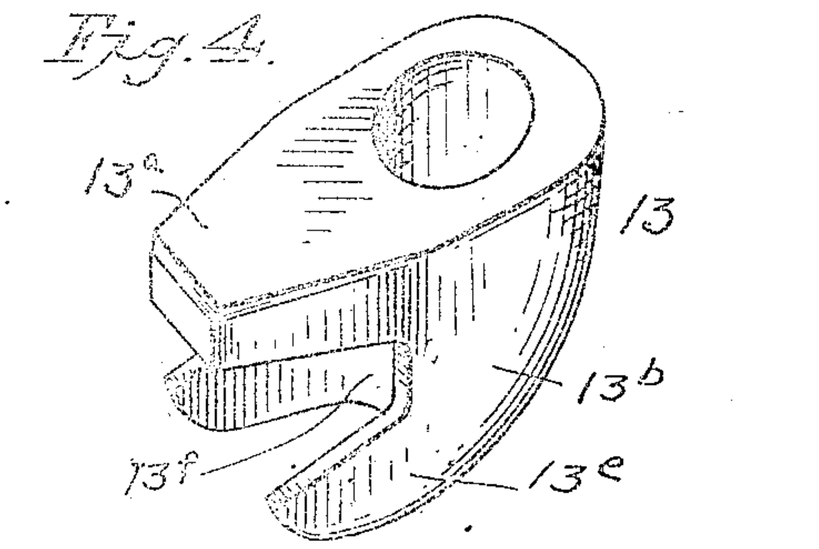


Fig. 4.

Witnesses:

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UNITED STATES PATENT OFFICE

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METALLIC RAILROAD-TIE AND RAIL-CLAMP.

975,520. Specification of Letters Patent. Patented Nov. 15, 1910

Application filed December 18, 1907. Serial No. 406,988.

To all whom it may concern:

Be it known that I, JOHN GALAMBOS, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Metallic Railroad-Ties and Rail-Clamps, of which the following is a specification.

This invention relates to rail ties particularly hollow metallic ties and rail holders or clamps for use with such ties.

One of the objects of the invention is to provide a tie of the above type, which is strong, durable and can be easily and cheaply manufactured.

A further object is to provide a rail clamp which will hold the rail firmly to the metallic tie, and which will be easily placed in position without requiring its insertion from the open end of the tie.

My invention consists in certain novel details of construction and combination and arrangement of parts, which will be described in the specification and set forth in the appended claims.

For a better understanding of my invention reference is had to the accompanying drawings in which—

Figure 1 is a section taken transversely of the rails and longitudinally through a tie showing my improved clamp in side elevation, parts being broken away; Fig. 2 is a transverse section of the tie showing the clamp in end elevation and a portion of the rail in side elevation; Fig. 3 is a section taken transversely through the rail and clamp, the parts being slightly enlarged; and Fig. 4 is a perspective view of one of the clamping members.

Referring now to the figures of the drawing, 10 represents my improved railroad tie which is hollow and is formed of a single sheet or plate of metal. The top 10^a and bottom 10^b of the tie are parallel and the sides 10^c and 10^d are inclined outward. The bottom is not continuous but is formed by bending the opposite sides toward each other to the center where said parts engage. The free ends 10^e and 10^f of the sheet or plate are within the tie, extending from the bottom upward and outward and engaging respectively in the two angles formed by the top and the two inclined sides. The angles formed by the sides 10^c and 10^d and the free ends 10^e and 10^f with the bottom are preferably equal so that the interior of the tie is divided into three substantially equal isosceles triangles. Thus it will be seen that a braced and trussed tie of great strength is formed from a single sheet or plate of metal, since the free end portions within the tie serve as struts to sustain the weight on the tie equally with the sides.

The rail holders or clamps each consists of a bolt 11 which extends within the tie across the bottom of the rail and has its ends projecting upward on opposite sides thereof through suitable openings or slots 12 in the top of the tie, and clamping members 13 mounted on the ends of the bolt. The clamping members 13 are each provided with a lug or projection 13^a which extends over and bears upon the flange of the rail and below the lug or projection with a portion 13^b which extends downward into the opening. The back or rear side of the clamping member is preferably rounded and this rounded portion bears upon the tie, preferably on the edge of the opening therein. The top of the clamping member is provided with a slightly elongated opening through which the end of the bolt extends and this opening is continued in the lower portion 13^b in the form of a slot or passageway which is open toward the rail, and inclines slightly inward the bottom of the slot forming a seat 13^d for the bolt. The clamping member 13 has two substantially parallel sides 13^e which have notches or recesses 13^f which receive the flange of the rail.

The bolt 11 is provided with a straight horizontal central portion 11^a which bears against the lower face of the top of the tie, with two portions 11^b which extend at angles of about 45 degrees, and with end portions 11^c which extend substantially vertically upward through the top of the tie. One of these ends is in this case, provided with an integral head 11^d which bears upon the upper face of the clamping member and the other is threaded and receives a nut 11^e

which also bears on the face of the corresponding clamping member. With this construction it is unnecessary to insert the bolt from the end of the tie, but after slipping one clamping member thereon, the threaded end is inserted in the opening on one side of the rail, and by pivoting said clamping member about the end of the lug or projection 13ª on the flange of the rail, the opposite end of the bolt can be easily swung upward through the opposite opening, the rounded portion of the clamping member permitting such movement of the bolt. The other clamping member can then be inserted on the free end of the bolt and the whole tightened in position by tightening the nut.

It will be seen that when the nut is tightened, not only will the lugs or projections 13ª be brought down tightly upon the flanges, but on account of the rounded backs of the clamping members, there is a wedging action which forces the clamping members inward until the faces of the bolts tightly engage the flanges of the rail so that lateral play of the rail is eliminated. The fact that the flanges of the rail bear against the ends of the bolt rather than the clamping members is a decided advantage for the reason that the lugs or projections 13ª can be brought down on the flanges of the rail and at the same time the sides or edges of the flanges of the rail are tightly clamped regardless of whether the holes or slots in the tie are accurately located or whether the clamping members are of uniform size or shape.

It will be seen that with the clamping means above described the rails will be held tightly to the ties and that there can be no lateral or vertical play. It will also be seen that the parts can not become loose by a downward pressure or sagging of the rail caused by the weight of a passing train as a downward movement of the rail will only draw the clamping members and bolts more tightly against the rail. It will not be necessary that the clamping members 13 be arranged directly opposite each other, but they may be staggered or diagonally arranged. It will also be apparent that the above clamping means can be employed for holding in position frogs or other special constructions, a longer bolt only being necessary.

I do not desire to be confined to the exact details shown but aim in my claims to cover all modifications which do not involve a departure from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent is:

1. A hollow metallic tie formed of a single sheet of metal and having parallel top and bottom portions, sides inclined outwardly from the top, and free side portions in the tie and inclined upwardly and outwardly into the angles formed by the top and sides.

2. A hollow metallic tie formed of a single plate or sheet of metal and having parallel top and bottom portions, side portions inclined outward toward the bottom and free side portions in the tie, said free side portions being bent from the bottom outward and upward and engaging the top in the angles formed by the latter and the inclined sides.

3. In combination with a hollow metallic tie, a rail resting thereon, a rail clamp comprising a bolt having a portion extending across the bottom of the rail within the tie and end portions extending through the top of the tie on both sides of the rail, clamping members having portions extending over the flanges of the rail, and portions extending into the top of the tie, said clamping members having slots or grooves which receive the end portions of the bolt and the walls of which form seats therefor, the backs or rear portions of the clamping members being inclined to the surface of the tie whereby when the clamp is tightened the clamping members on the ends of the bolt are drawn inward toward the flanges of the rail.

4. In combination with a hollow metallic tie, a rail resting thereon, a rail clamp comprising a bolt having a straight portion bearing against the inner face of the top of the tie and end portions extending through the top on each side of the rail, and clamping members on the ends of the bolt, said clamping members having lugs or projections which extend over the flanges of the rail and portions extending into the top of the tie the last named portions having slots or grooves which receive the end portions of the bolt and have bottom walls which form seats for the bolt, the backs or rear portions of the clamping members which bear against the top of the tie being curved or rounded.

5. In combination with a hollow metallic tie, a rail, and rail clamp comprising a bolt extending across the bottom of the rail within the tie and bent upward at its ends through the top of the tie on each side of the rail, clamping members on the ends of said bolt, each of said clamping members having a portion extending over the flange of the rail and a portion extending into the top of the tie, said last named portion having a passageway for the bolt open toward the rail and forming a seat for the bend of the corresponding end portion of the bolt, and means for drawing the clamping members and bolt against the flange of the rail.

6. In combination with a hollow metallic tie having openings in the top, a rail, and a rail clamp comprising a bolt having a por-

tion extending beneath the rail and ends extending outward through said openings, and clamping members on the ends of the bolt, said clamping members having portions extending over the flanges of the rail and portions extending into said openings said last named portions having open grooves forming seats for the bolt, the backs of said clamping members being curved or rounded and bearing against the tie, and means for forcing said seats against the bolt and the bolt against the flanges of the rail.

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

JOHN GALAMBOS.

Witnesses:
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