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J. CALVIN & H. A. BELL.

RAILROAD CROSS TIE.

APPLICATION FILED DEC. 31, 1907.

Fig. 1.

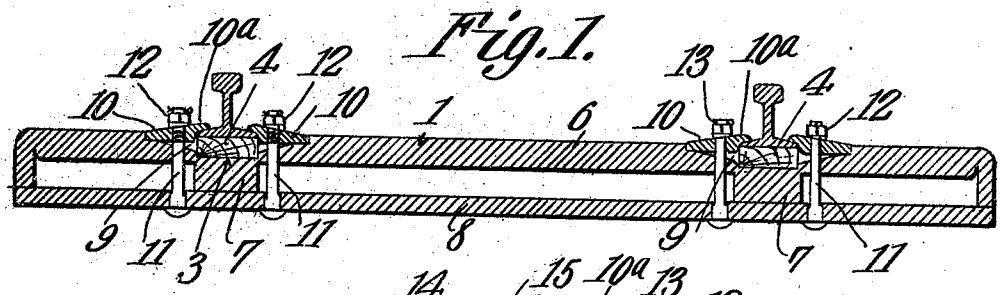


Fig. 2.

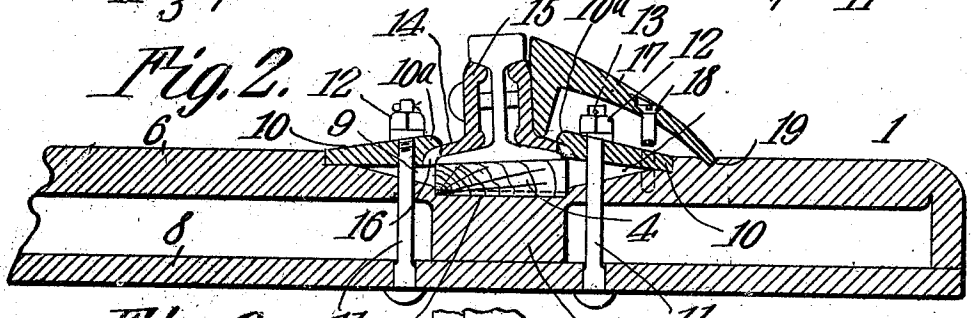


Fig. 3.

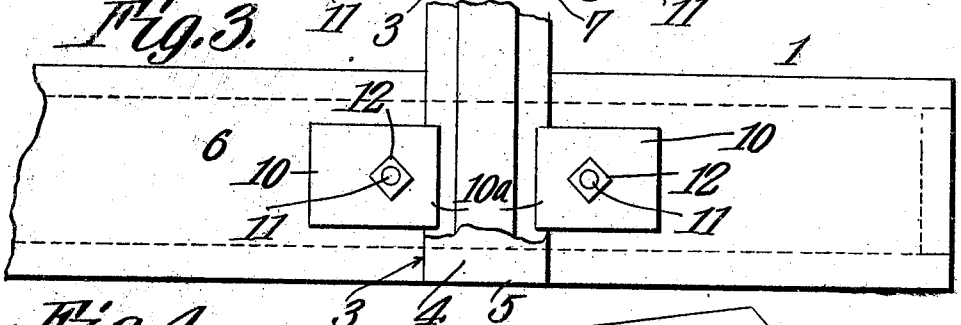
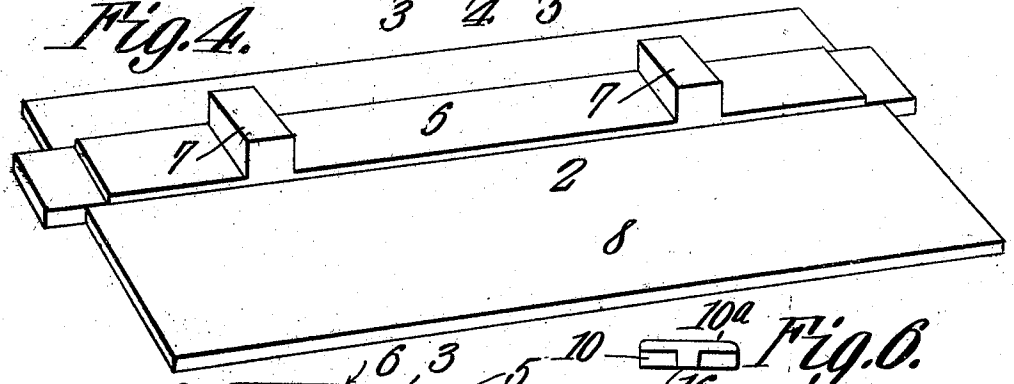


Fig. 4.



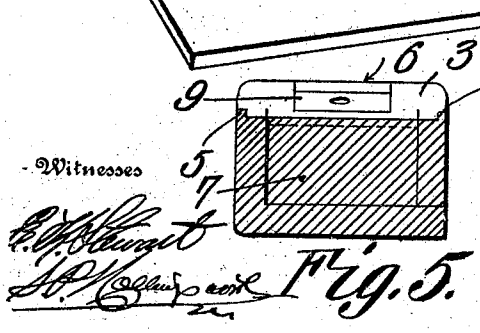


Fig. 5.

Fig. 6.

Witnesses

Inventors

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JOSEPH CALVIN AND HUBERT A. BELL, OF STANTON, MISSOURI, ASSIGNORS OF ONE-HALF TO WILLIAM A. JOHNSON, OF MORRELLTON, MISSOURI.

RAILROAD CROSS-TIE.

No. 893,051. Specification of Letters Patent. Patented July 14, 1908.

Application filed December 31, 1907. Serial No. 408,751.

To all whom it may concern:

Be it known that we, JOSEPH CALVIN and HUBERT A. BELL, citizens of the United States, residing at Stanton, in the county of Franklin and State of Missouri, have invented a new and useful Railroad Cross-Tie, of which the following is a specification.

This invention relates to railroad cross ties, and has for its object to provide a structure of metal having slightly resilient seat blocks for the track rails, which latter are held in place on the seat blocks by rail holding plates resting in recesses in the cross tie and firmly secured by bolts passing therethrough and through said cross tie.

Another object of the invention concerns the formation of the metal tie from a plate made of the proper size with the several recesses, projections and thicknesses, and then folded and pressed into a hollow, closed, trunk-like structure ready to be placed in position to receive the seat blocks and rails.

With these and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter described and definitely claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a longitudinal sectional view of the improved cross tie with the track rails secured thereto. Fig. 2 is a similar view, enlarged, of one end of the cross tie with a track rail thereon, the joint between two rails and their securing fish plates being shown, also the position of the rail when on a curve in the track, and the rail bracing block. Fig. 3 is a plan view of the right end of the cross tie illustrated in Fig. 1, on an enlarged scale. Fig. 4 is a perspective view of the blank from which the cross tie is formed, as seen from the side which will be inner most when folded. Fig. 5 is a cross section through the cross tie on a plane coincident with that of the center of the rail. Fig. 6 is a detail view of one of the rail plates.

Similar characters of reference indicate corresponding parts throughout the drawings.

The cross tie 1 is made of a plate 2 of metal, preferably malleable iron or steel, with all its depressions, recesses, differences in thickness and projections formed therein and thereon while in the flat form, see Fig. 4. The sides and ends are then folded and pressed by suitable machinery into a rectangular trunk-like closed hollow body of the correct length, height and width to form a railroad cross tie.

Near each end of the cross tie 1 is a transverse slot 3 extending wholly across the tie and of a width sufficient to receive a block 4 of slightly resilient material, such as wood, capable of supporting a track rail and the weight of passing traffic. At each end of the slot 3 is a small flange or rib 5 which prevents the supporting block 4 from moving endwise or creeping with the rail. Beneath each slot 3 and integral with the top plate 6 of the cross tie 1 is a foot piece or bearing rib 7 resting within the cross tie on the bottom plate 8 and forming a non-yielding support and brace for the cross tie under the stress of passing trains.

In the longitudinal center of the cross tie and on opposite sides of each slot 3 is a recess 9 the bottoms of which recesses incline downwardly toward the slots opening into them a short distance above their bottoms. Within these recesses are placed the track holding plates 10, each plate having a lip 10^a on its inner end to overlie the base flange of the rail and, by means of a bolt, hold the rail firmly on its seat block 4, and the rail plate rigid in its recess. The bolts 11, which hold the track plates 10, pass up through the cross tie from the bottom and through openings in the plates and are fastened by nuts 12 above the plates. The bolts have a polygonal shape adjacent their heads which fit similarly shaped holes in the bottom of the cross tie to prevent the bolts rotating when the nuts 12 are applied to or removed from them. The nuts are prevented from working off the bolts by pins 13 fitted to holes in the bolts above the nuts. Where the tracks curve, the upper faces of the seat blocks 4 are inclined, as indicated in Fig. 2, to tilt the rails inwardly towards the center of curvature. This tilting, in connection with the elevation given the outside rail, supplies a more effective base and safer track than when the rails stand perpendicular to the cross ties. Where joints in the rails rest on a cross tie, the bottom flanges 14 of the fish plates 15 are notched to admit lugs 16 on the inner ends of the rail plates 10 below the lip 10^a, as indicated in Figs. 2 and 6.

At wagon road crossings metal castings or blocks 17 are placed against the outside of the rails to assist the wheels of vehicles over

the rails. These castings or blocks are as high as the rails on their sides adjacent said rails and incline downward as they recede, each block ending in a flange which is seated in a transverse notch 19 in the cross tie. The blocks or castings 17 are fastened to the cross ties by screws 18 having countersunk heads, the screws passing through the blocks into the cross ties.

Cross ties constructed as above described are strong, firm, and give the necessary yielding support to the rails fastened thereto. Any wear or compression of the blocks which would tend to cause the rail plates 10 to loosen can be quickly corrected by tightening the nuts 12 with a suitable wrench. When it becomes necessary to renew a block, the rail plates are removed, and the rail elevated sufficiently to permit the block being lifted over the flanges or ribs 5 at the ends of the slots 3.

We claim:—

1. A hollow metal cross tie formed of a folded plate of metal having its upper side thickened from end to end, and an integral lug near each end of and within said tie projecting downwardly from said thickened top and resting on the bottom of said tie to support a superimposed rail.

2. A hollow metal cross tie formed of a folded plate of metal having its upper side thickened from end to end, thinner end projections to be folded down for closing the end of the tie, integral lugs depending from said thickened top and resting on the bottom of the tie to support superimposed rails, and transverse slots each provided with a flange at each end made in the thickened top above said lugs.

3. A hollow railroad cross tie having transverse slots each provided with a low flange at each end, a rail seat block fitted to each slot between said end flanges, rail plates seated in recesses on opposite sides of said slots and having lips for holding the rails on the seat blocks, the bottoms of said recesses being inclined downward towards said slots, bolts projecting upwardly through the cross tie and rail plates, and nuts on said bolts bearing on said rail plates.

4. A hollow railroad cross tie having transverse slots each provided with a low flange at each end and a recess on each side of each of said slots with an inclined bottom, a rail seat block fitted in each slot between said end flanges, rail plates in said recesses each plate having an overhanging lip and a lug below it adapted to engage with and hold a fish plate, and fastening means for holding said rail plates in their recesses.

5. A hollow metal cross tie formed of a folded plate of metal thickened on its upper side and having integral lugs depending therefrom and resting on the bottom to support superimposed rails, transverse slots in said thickened upper side over said lugs, recesses in said upper side at right angles to said slots, and means for securing to said tie a rail inclined to a perpendicular to said tie.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JOSEPH CALVIN.
HUBERT A. BELL.

Witnesses:
H. T. ELLIOTT,
J. R. ASAHELEAN.