

UNITED STATES PATENT OFFICE.

CHARLIE JACOB KOPF, OF PADUCAH, KENTUCKY.

RAILWAY-TIE.

No. 828,219.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLIE JACOB KOPF, a citizen of the United States, and a resident of Paducah, in the county of McCracken and State of Kentucky, have invented a new and Improved Railway-Tie, of which the following is a full, clear, and exact description.

This invention relates to railway-ties, the object of the invention being to produce a metal tie provided with simple means for attaching rails thereto, and, further, provided with means for yieldingly supporting a rail upon the tie.

The invention consists in the construction and combination of parts to be more fully described hereinafter and definitely set forth in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

In the drawings, Figure 1 is substantially an elevation of a tie constructed according to my invention and showing the rails supported thereupon in cross-section. A portion of this tie is represented in section. Fig. 2 is a vertical section taken on the line 2 2 of Fig. 1. Fig. 3 is a plan of one extremity of the tie and showing a short section of a rail mounted thereupon. Fig. 4 is a cross-section on the line 4 4 of Fig. 1; and Fig. 5 is a cross-section on the line 5 5 of Fig. 1, but is upon a reduced scale.

Referring more particularly to the parts, 1 represents the body of the cross-tie, which is preferably constructed of metal and of substantially rectangular outline in cross-section. This body 1 is formed, preferably, with a longitudinally-disposed bore 2, which extends through the entire length thereof, and this bore is preferably of elliptical form, the major axis of the ellipse being horizontal. I prefer also to provide the under face of the tie-body with a longitudinal slot 3, which passes through, so as to communicate with the bore 2, as shown in Fig. 2.

At suitable points, determined by the gage of the road-bed, I provide the upper face of the tie with transverse recesses 4. The outer edges of these recesses present abrupt faces 5, while the inner edges of these recesses are formed with undercut tongues 6, which project over the inner sides of the flanges of the rails 7, as indicated. On the sides of the tongues 6 the upper face of the tie is cut

away, so as to form recesses 8, which constitute continuations of the transverse recesses 4. These side recesses 8, however, are not cut to the same depth as the transverse recesses aforesaid. The extremities of the transverse recesses 4 are preferably formed with upwardly-inclined faces 9, as indicated in Fig. 2, and in these recesses I provide blocks or rests 10, preferably composed of fiber or similar yielding material. As indicated, these blocks are cut so as to conform substantially in outlines to the form of the recesses in which they lie.

In the extremities of the tie beyond the rails 7 I provide longitudinally-disposed grooves 11 in the upper faces of the tie, and these grooves are preferably formed with undercut or beveled side edges 12, as indicated in Fig. 2. In addition to this I provide this part of the tie with a transverse groove 13, and this groove is likewise undercut and formed with beveled edges 14. In the grooves 11 I provide sliding plates or keepers 15, which have undercut forward extremities which are adapted to engage the flanges of the rails, as indicated most clearly at the right in Fig. 1. These keepers 15 are disposed opposite to the tongues 6 referred to above and cooperate with them to maintain the rails upon the fiber blocks 10. The keepers 15 are held in place by cotters 16, which are received in the transverse grooves 13. As indicated, these grooves 13 and the cotters therein are preferably tapered longitudinally, so that the cotters operate as wedges, which press against the rear faces or rear ends of the keepers 15, as indicated most clearly in Fig. 1.

I provide means for holding the cotters 16 in position after being driven in. Referring especially to Fig. 4, I provide their under sides with longitudinally-disposed recesses or grooves 17, in which I attach a leaf-spring 18, the same being secured at one of its extremities to the bottom of the groove by means of rivets 19 or similar fastening devices. At the free extremity of the spring 18 a retaining-head 20 is formed, which presents a shoulder 21, as indicated. By its own resilience this spring tends to assume a depressed position. When the cotter is being inserted, the spring 20 will be held up so as to enable it to lie in the groove 17 as it is passing transversely of the tie. When the cotter has been driven home, the head 20 will have passed beyond the edge of the tie

and will spring down into a position such as that shown in Fig. 4, so that the shoulder 21 projects over the upper edge of the tie. When held in this way, the cotters are evidently locked against being removed accidentally and can only be removed by raising the heads 20, as will be readily understood. In order to facilitate the removal of the cotters in the manner suggested, I prefer to provide the side faces of the tie-body with recesses 22, which facilitate the application of a bar or lever. In this connection it should be understood that the recesses 22 operate as a fulcrum for the lever, which operates as a lever of the second class to raise the extremity of the spring 18. The bore 2 in the body of the tie materially lessens the weight of the tie without materially decreasing its strength or durability. The slot 3 in connection with the bore 2 of each tie tends to overcome expansion and contraction.

Evidently with a tie constructed as described the rails may be readily placed in position or replaced by others when necessary. All the parts, excepting the blocks 10, are preferably constructed of metal. By reason of the fact that the blocks 10 are composed of fiber or similar material the shock and vibration of an all-metal tie is avoided, while its advantages remain.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A railway-tie having transverse grooves in the upper face thereof adapted to receive the rail-flanges, and having longitudinal grooves in the upper face thereof, keepers slidably mounted in said latter grooves, said tie further having transverse grooves disposed behind said keepers, cotters slidably

mounted in said last grooves and abutting against the rear extremities of said keepers to force the same against the rail, a resilient member attached to said cotters and presenting a head adapted to engage the edge of said tie to retain said cotters, and a fiber block supporting the rail on said body.

2. A railway-tie having a body with transverse grooves in the upper face thereof adapted to receive the rails and having projecting tongues adapted to engage the rail-flanges, said body having longitudinal grooves disposed opposite said tongues, keepers received in said grooves and engaging the rail-flanges, other grooves disposed transversely behind said keepers, cotters slidably mounted in said last grooves and affording means for holding said keepers against the rails, said cotters having grooves therein and springs carried in said grooves having heads adapted to engage the edges of said body to retain the said cotters.

3. A railway-tie having a body adapted to support the rails thereupon, keepers slidably mounted on the upper face of said body and adapted to engage the rails, cotters adapted to engage said keepers and having resilient retaining-tongues on the under sides thereof adapted to engage said body, said body having recesses in the faces thereof near said resilient members, facilitating the removing of said cotters.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLIE JACOB KOPF.

Witnesses:

WM. D. WATSON,
LAWRENCE P. RESON, Jr.,