The present invention relates to railroad tracks and especially to railroad tracks wherein the ties are formed from metal, each tie being characterized by the fact that it comprises two rolled bars, such as for example, two lengths of worn track rail, fastened rigidly in spaced relation to each other, and providing rectangular openings spaced so as to be located at each side of the bottom flanges of the track rails, such openings being adapted to receive fasteners for attaching the rails to the metal tie.

At the points between rail lengths, it is necessary to provide splice bars for fastening the rails together, and the object of my present invention is to provide an improved construction and arrangement of fastening means for fastening a rail to the metal tie at points where splice bars are located.

For a consideration of what I believe to be novel and my invention, attention is directed to the accompanying description and the claims appended thereto.

In the drawing, Fig. 1 is a perspective view, partly in section, of a construction embodying my invention, the arrangement being adapted for use with wide splice bars: Fig. 2 is a sectional view of the construction shown in Fig. 1, and Fig. 3 is a view similar to Fig. 1 of a modified form of fastening means adapted for use with narrow splice bars.

Referring to the drawing, the track tie illustrated comprises two lengths of worn rail 5 and 6 connected together at their ends by angle bars 7. Extending transversely of worn rail lengths 5 and 6 are tie plates 8, one adjacent to each end of the tie, the same being located in positions such that the base flanges of the track rails rest on them. In each tie plate 8 are rectangular slots or openings 9 adapted to receive rail fasteners, the openings being spaced apart a distance such that they are on opposite sides of the rail base flange.

10 and 11 indicate ends of adjacent track rails connected together by splice bars 12 held in place by bolts 13. In Figs. 1 and 2, wide splice bars are shown and it will be seen that their lower outer edges 14 project over slots or openings 9.

For fastening the rails and splice bars to the tie, I provide fasteners each comprising two members 15 and 16, which are clamped to the edge of the tie plate by a bolt 17. Member 15 has a lip 18 which projects into opening 9 and a second lip 19 which stands in spaced relation to the edge of plate 8. Lip 18 serves to anchor member 15 against sidewise movement. Lip 19 serves to provide with the edge of plate 8 a socket 20. Member 16 has a lip 21 which depends into socket 20, thus interlocking with lip 19, a vertical surface 22 which engages the edge of the splice bar and a nose 23 which projects over the top surface of the splice bar.

When members 15 and 16 are clamped to the edge of tie plate 8 by bolt 17, they are held rigidly in place against movement in any direction and present to the splice bar the fixed vertical surface 22 and the nose 23 which serve to hold the rail in position. Surface 22 and nose 23, however, do not clamp tightly the edge of the splice bar but have preferably, a small amount of clearance to permit of a wave action in the rail due to heavy loads passing over it without subjecting members 15 and 16 to excessive stresses.

The members 15 and 16, it will be seen, are of rolled rectangular section which means that they can be manufactured at low cost. They may be made by being cut from long bars rolled to the required section.

Between the rail and the tie is an insulating member 24 comprising a laminated metal structure, the laminations being insulated from each other in suitable manner.

It will be seen that lip 19 of member 15 cooperates with the edge of tie plate 8 to form a socket 20 which in substance and when viewed from one aspect, may be considered as providing a slot of the nature of slot 9 except that it is spaced further from the track rail flange, and it is this slot which receives the track rail fastening means and serves to hold it against sidewise movement. The bolt 17 cooperates with tie plate 8 to hold the track rail fastening means against vertical movement. Thus I provide a fastening means adapted for use with the tie structure as disclosed and capable of utilizing the slot already provided in the tie structure.

In Fig. 3, I have illustrated a modified form of fastening means adapted for use with the metal tie when narrow splice bars are used so that rectangular slots 9 are not covered by the lower outer edges of the splice bars. The fastening means comprises a fastener 30 which fits in one of the openings 9 and a fastener 31 which fits in the other
opening 9. Fastener 30 has a shoulder 32 which engages the top surface of tie plate 8 and a hole 33 in which is located a keeper 34. Fastener 31 has a shoulder 35 which engages the top surface of tie plate 8 and a hole 36 in which is located a keeper 37. Keepers 34 and 37 are driven in under tie plate 8 and serve to hold fasteners 30 and 31 firmly in position. Fasteners 30 and 31 have noses 38 which project over the splice bars and serve to fasten the track rail to the tie after the manner explained already in connection with the construction shown in Figs. 1 and 2. With the construction shown in Fig. 3, fastener 30 may be first put in place, the track rail then forced over against it after which fastener 31 is put in place. As will be noted in connection with this construction also, fasteners 30 and 31 and keepers 34 and 37 are of rectangular section which enables them to be manufactured at low cost in that they may be cut from rolled bars.

In accordance with the provisions of the patent statutes, I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention may be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States is—

1. The combination with a metal tie comprising a rail supporting plate provided with slots adapted to receive rail fasteners, of adjacent rail ends on said supporting portion, splice bars connecting such ends, rectangular sectioned fasteners for fastening the lower outer edges of the splice bars to the tie, said fasteners each comprising a member having a lip located in one of said slots and a part which defines a socket with a part of the tie, and a second member which has a lip located in said socket and a part which fits over the edge of a splice bar.

2. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of rail ends connected by splice bars on said plate, and fastening means comprising members clamped over the edge of said plate for fastening the rail to the tie, said members having a part which lies in one of said openings to hold the members against side-wise movement.

3. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of rail ends connected by splice bars on said plate, a fastening member having a part which overlaps the splice bars, a second fastening member which is located beneath the tie plate, and means whereby said members are fastened to each other and to the tie plate.

4. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of rail ends connected by splice bars on said plate, a fastening member having a part which overlaps the splice bars, a second fastening member which is located beneath the tie plate and is provided with a lip located in one of said openings, and means for clamping said members together and to the tie plate.

5. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of rail ends connected by splice bars on said plate, a fastening member having a part which overlaps the splice bars, a second fastening member which is located beneath the tie plate and is provided with a lip located in one of said openings, and means for clamping said members together and to the tie plate, said members having interlocking lips for holding the first-named fastening member against side-wise movement.

6. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of rail ends connected by splice bars on said plate, a fastening member located beneath the tie plate and having a lip located in one of said openings and a second lip located in spaced relation to the edge of the tie plate, a second fastening member having a part for holding the track rail and a part which engages said second-named lip, and means fastening said members to the tie plate.

7. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of a rail on said plate, a fastening member having a part which overlaps the flange of the rail, a second fastening member which is located beneath the tie plate and has a part located in one of said openings, and means whereby said members are fastened to each other and to the tie plate.

8. The combination with a metal tie comprising a rail supporting plate provided with openings adapted to receive rail fasteners, of a rail on said plate, and fastening means for the rail comprising members clamped over the edge of said plate, said members having a part which lies in one of said openings to hold the members against side-wise movement.

In witness whereof, I have hereunto set my hand this 8th day of April, 1926.

WILLIAM DALTON.