

A. O. McDONALD.
RAILWAY TIE PLATE AND RAIL FASTENER.
APPLICATION FILED JAN. 20, 1912.

1,047,824.

Patented Dec. 17, 1912.

2 SHEETS—SHEET 1.

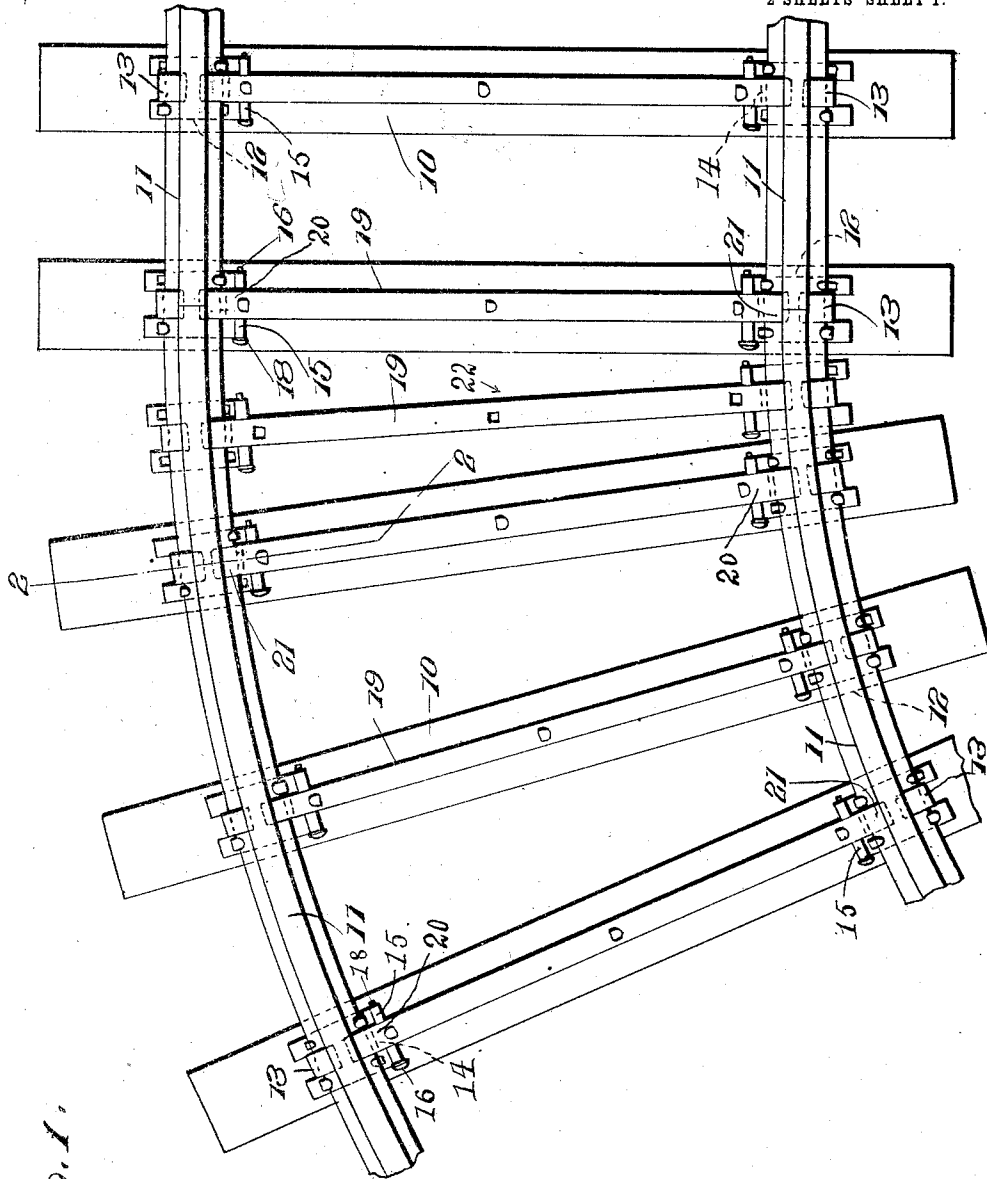


FIG. 1.

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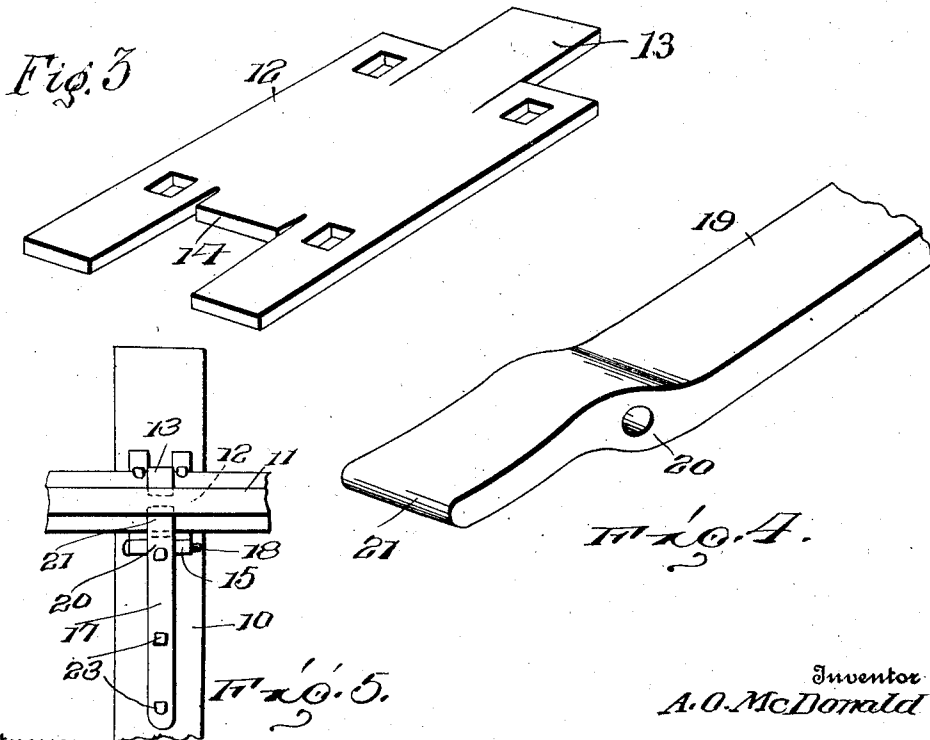
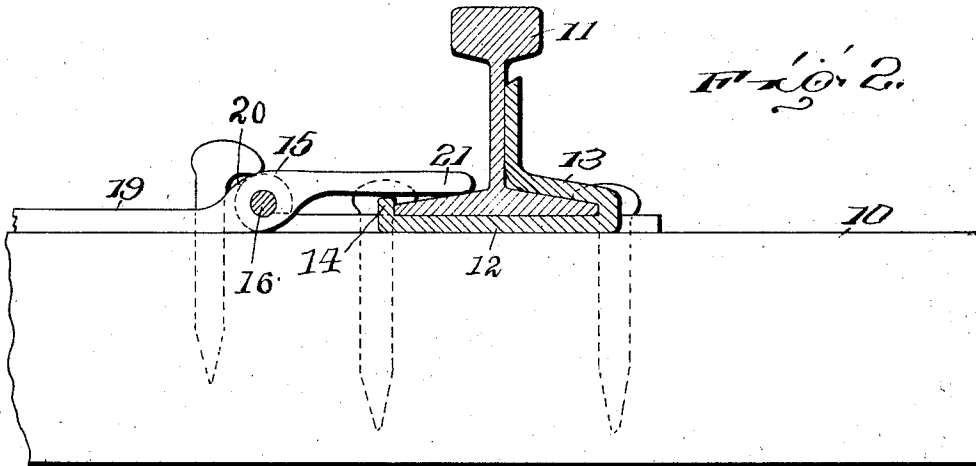
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ARTHUR O. McDONALD, OF McCOOK, NEBRASKA.

RAILWAY-TIE PLATE AND RAIL-FASTENER.

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To all whom it may concern:

Be it known that I, ARTHUR O. McDONALD, citizen of the United States, residing at McCook, in the county of Redwillow and State of Nebraska, have invented certain new and useful Improvements in Railway-Tie Plates and Rail-Fasteners, of which the following is a specification.

This invention relates to railways, and has for one of its objects to provide a simply constructed device for securing the rails to the ties and supporting the same from lateral movement especially on curves.

Another object of the invention is to provide a device of this character which is readily adapted to straight sections of track or curves without change in structure either of the rails or the ties and without change of structure in the fastening device.

Another object of the invention is to provide a simply constructed device whereby the two rails may be readily coupled and thereby mutually supported.

With these and other objects in view, the invention consists in certain novel features of construction as hereafter shown and described, and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention: Figure 1 is a plan view of a portion of a railway road bed including a section of a straight track and the adjoining section of a curved track with the improvement applied; Fig. 2 is an enlarged section on the line 2-2 of Fig. 1; Fig. 3 is a perspective view of the blank from which the improved rail plate is constructed; Fig. 4 is a perspective view of a portion of one of the rail coupling bars. Fig. 5 is a detail view representing a modification in the construction.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The improved device may be applied to any of the various forms of ties and rails in common use. When applied to ordinary wood ties the improved device will be secured to the ties by the ordinary railway spikes, but may be bolted or otherwise secured, and when employed in connection with metal ties or ties constructed from material other than wood, suitable clamp bolts

will be employed, but as the fastening means forms no part of the present invention it is not deemed necessary to illustrate the different forms of these devices employed. For the purpose of illustration a section of a conventional railway track is shown comprising the wood ties 10 and rails 11. The improved device is designed to be employed wherever rail plates are required and both upon curved and straight sections of track, and the same form of plate will be employed beneath the rails upon both straight and curved portions, the only difference being that the plates are differently secured and applied when used upon curved sections of track than when used upon straight sections of track, and for the purpose of illustration the device is shown connected in various ways to illustrate its operation and application.

The improved device comprises in general a main plate 12, preferably of less width than the tie 10, and bearing beneath the rail 11. The portion of the plate which is located beneath the rail is imperforate or solid and is formed with spaced clefts in the ends whereby a relatively long tongue is produced at one end of the plate and a relatively short tongue 14 at the other end. The shorter tongue 14 is bent up at right angles to the body of the plate and is designed to bear against the flange of the rail at one side, while the longer tongue 13 is designed to be bent over the rail flange at the opposite side and likewise bent to conform to and bear against a portion of the vertical web of the rail as represented in Fig. 2. The portions of the plate at the sides of the clefts are perforated to receive the holding spikes or other fastening devices, and generally four of the apertures will be employed as represented in Fig. 3. The portions of the plate at the end which contains the shorter tongue 14 are bent into loops or bearings 15 to receive a holding bolt 16, the latter being slotted at one end to receive a key 18, the object to be hereinafter explained. As before stated, the plate 12 is of less width than the tie 10 upon which it is employed so that the holding spikes or other fastening devices will enter the tie at a considerable distance from its edges, so that no danger exists of splitting

the tie, but insuring a strong holding grip in the tie by the spikes. When employed upon straight sections of the track, two spikes only will generally be required, and located in diagonally opposite spike apertures, and then in event of the spikes working loose under the severe strains to which the road bed is subjected, new spikes may be driven through the unoccupied apertures, and thus renew the "life" of the fastener. When employed upon curved sections of track where the track is subjected to severe lateral strains each plate will generally be provided with four of the holding spikes. When the improved device is employed upon curved sections of track, the longer tongues 13 will be located externally of the outside rail and internally of the inside rail, as represented in Fig. 1. By this arrangement the bolts 16 will both be located between the rails, and are utilized to support tie bars whereby each opposite pair of the plates are coupled. Each tie bar is formed from a single piece and comprises a main body portion 19 with bearings 20 near the ends and with the portions 21 of each bar externally of the bearing extended over the upper face of the flange of the rail to assist in holding the same upon the tie. By this simple means the tie plates are coupled and the holding force of the tie plate and inside rail utilized to assist in holding the tie plate with the outside rail, and thus effectually preventing displacement under the severe lateral strains to which they are necessarily subjected under the impact of the locomotive moving at high speed from a straight section of track upon a curved section of track. If required extra sets of the plates may be employed between the ties as represented conventionally at 22 in Fig. 1, and when thus employed holding spikes will not be required, the plates being held at one side by the relatively long tongues 13 and at the other side by the projecting terminals 21 of the bars. The plates and bars may be of any suitable thickness, but will generally be of the same thickness and about one-half or five-eighths of an inch and preferably of steel and cut and bent into the required shape. It will thus be obvious that the rails are firmly supported from spreading or creeping, especially when employed upon curved portions of the track where the severest strains always occur. The improved device firmly braces the rails from both sides and thereby effectually prevents any tendency of the rails to spread or break under the impact of the rapidly moving locomotive.

Another advantage gained by the improved device is that by employing the improved fastening device the rails may be coupled together without reference to the ties, as for instance in constructing tempo-

rary track around wrecks to enable the traffic to proceed while the wreckage is being cleared away.

Another advantage of the improved device is that the switch rails may be readily coupled and firmly supported and all danger of displacement prevented.

If required, the bars 19 may be provided with a plurality of spike apertures to enable them to be firmly connected to the ties in localities where abnormal strains are liable to be encountered. Under other circumstances relatively short bars 17 may be employed with the bearing 20 and extension 21 at one end only and providing the shortened bars with apertures to receive holding spikes as represented at 23, as shown in Fig. 5.

Having thus described the invention, what is claimed as new is:

1. As a new article of manufacture, a tie plate having an imperforate intermediate portion and with a plurality of longitudinally directed tongues at the ends, the intermediate tongues being bent to form rail-engaging braces and the outer tongues apertured to receive fastening devices, said apertured tongues being further bent into bearings to receive holding rods.

2. A rail fastener comprising tie plates adapted to engage beneath the opposite rails and with longitudinally directed tongues, the intermediate tongues being bent to form rail-engaging braces and the outer tongue apertured to receive fastening devices and with holding rod-receiving bearings, and a tie member connected to each opposite pair of said holding rods.

3. A rail fastener comprising tie plates adapted to engage beneath the opposite rails and with longitudinally directed tongues, the intermediate tongues being bent to form rail-engaging braces and the outer tongues apertured to receive fastening devices and with holding rod-receiving bearings, and a tie member adapted to bear at the ends upon the tie flanges of the opposite rails and with apertured lugs engaging said holding rods.

4. A rail fastener comprising a tie plate having a brace adapted to engage against a rail at one end and with a bearing at the other end, and a bar adapted to bear upon a tie and extended for engagement over the tie flange of a rail, said bar being pivoted to said plate bearing.

5. The combination with a railway track including the rails and ties, of tie plates bearing between the ties and rails and with bearings at one end and rail braces at the other ends, and bars pivoted to said bearings and extended at the ends to bear over the tie flanges of the rails.

6. The combination with a railway track including the rails and ties, of tie plates bearing between the ties and rails and with

bearings at one end and rail braces at the other ends, bars pivoted to said bearings and extended at the ends to bear over the tie flanges of the rails, and means for securing said bars to the tie.

5 7. A rail fastener comprising a tie plate having braces adapted to engage against a rail and with a bearing extending from one end, and a bar adapted to bear upon a tie

and extended for engagement over the tie 10 flange of a rail, said bar being pivoted to said plate bearing.

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

ARTHUR O. McDONALD.

Witnesses:

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