

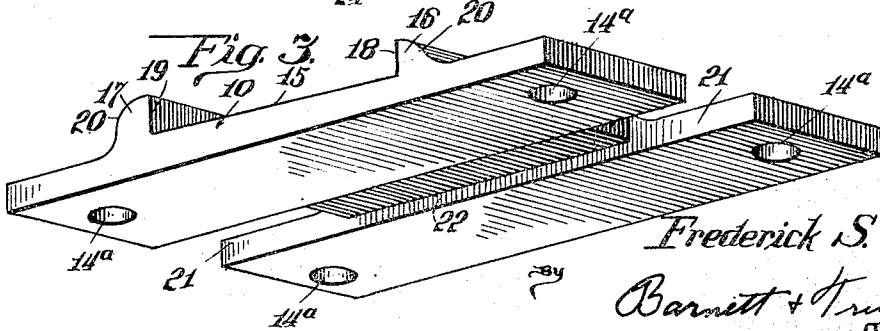
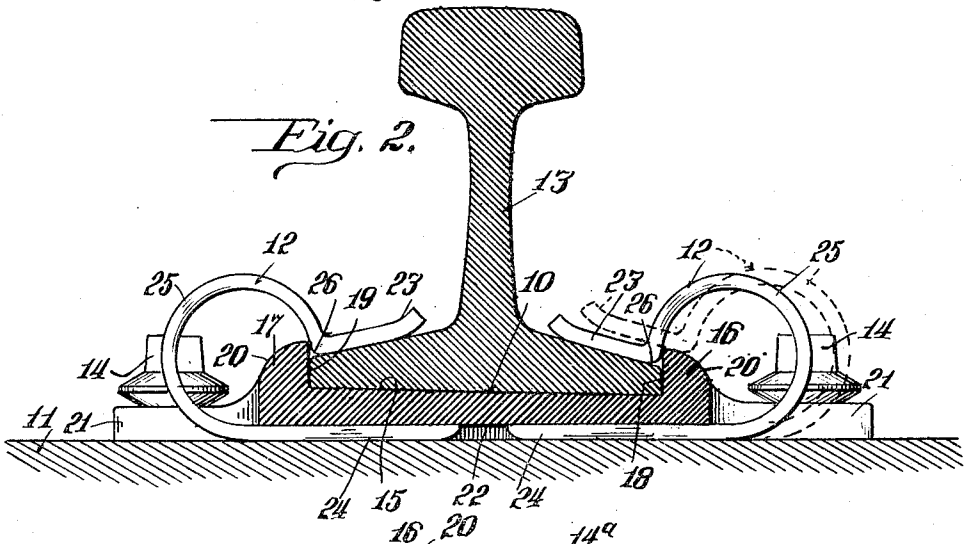
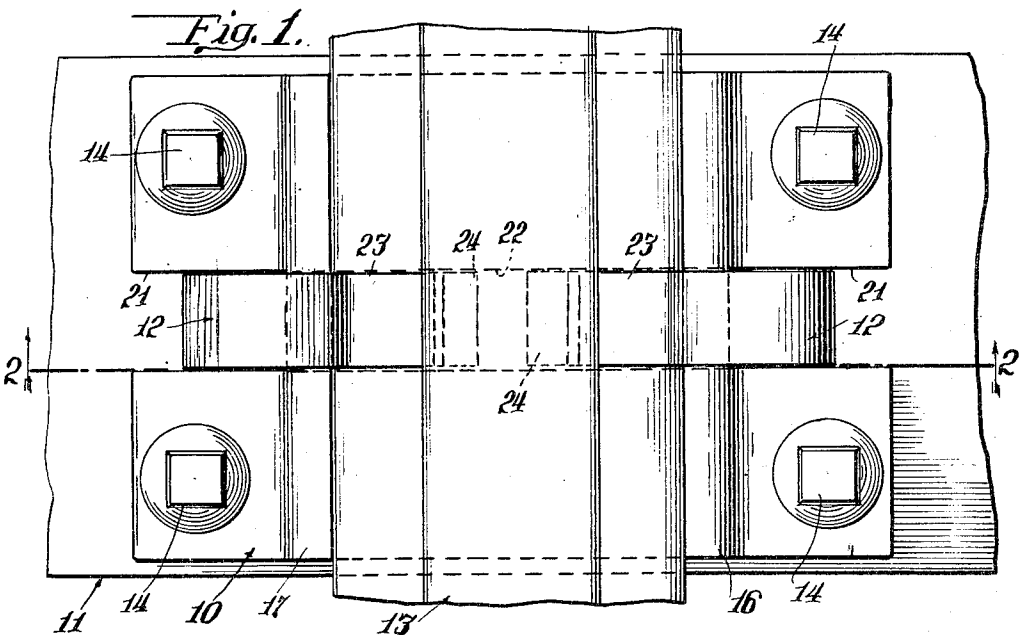
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RAILWAY TIE PLATE AND RETAINING CLIP

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RAILWAY TIE PLATE AND RETAINING CLIP

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2 Claims. (Cl. 238—349)

This invention relates to improvements in railway tie plate assemblies of the general type in which a railroad rail is held in its proper position on a tie plate member by means of one or more clip members which engage the plate and overlie a portion of the rail base.

In combination structures of the above general character, it is customary to secure the tie plate members rigidly to the cross ties and to provide separate rail retaining means adapted to provide a loose or non-fixed attachment of the rail on the plate. Such attachment permits the rail to move vertically of the tie plate during the vertical flexing or wave movement of the rail without imparting pumping movements to the cross ties or otherwise disturbing their positions in the ballast of the roadbed.

The principal object of the present invention is to provide a combination structure of the above character in which the tie plate member is so formed that it can be made by relatively simple, rolling and punching operations and in which various other simplified arrangements and constructions are provided whereby the rail retaining clip member, or members, as the case may be, can be readily and conveniently applied by driving the clip member bodily transversely of the rail. In this connection the invention contemplates the provision of a resilient clip member made from a steel strip of uniform width and thickness which is bent to form upper and lower jaws which embrace and preferably resiliently engage the top surface of the rail base and the bottom surface of the tie plate. The clip is held against displacement longitudinally of the rail by reason of the lower jaw extending into a groove or recess formed in the bottom surface of the plate. The clip is also formed with a portion which snaps over and interlocks with a portion of the tie plate, preferably, the upper edge of a rail base abutment shoulder which is made somewhat higher than the edge thickness of the rail base.

Other objects of the invention will be readily apparent from the detailed description herein of the embodiment of the invention shown in the drawing, wherein:

Fig. 1 is a plan view of a tie plate assembly comprising a tie plate member and a pair of rail retaining clips made in accordance with this invention.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1, and

Fig. 3 is a view in perspective of the tie plate

showing the slotted edge and grooved under surface thereof.

The embodiment of the invention illustrated in the drawing may be described generally as consisting of a tie plate member 10 supported on an underlying cross tie 11 and a pair of rail clip members 12—12 engaging the tie plate and overlying the base portion of the rail 13 to maintain the rail in its proper position on the plate.

The tie plate herein shown is provided with the usual openings for the reception of suitable devices for attaching the plate rigidly to the cross tie 11. The attaching devices 14 herein shown are the usual lag screws used for the above purpose. It will be obvious, however, that ordinary cut spikes or any other suitable attaching devices may be used instead of the screw spikes shown. The top surface of the plate 10 is formed with a suitable rail seat 15 and with upstanding ribs 16—17 at opposite sides of the rail seat. The said ribs 16—17 provide lateral abutments for the longitudinal edges of the rail base. The inner vertical faces 18—19 of the abutment ribs, together with the downwardly and outwardly curved upper surfaces 20—20 of the ribs provide a contour which can be formed by ordinary rolling operations now employed in connection with the manufacture of the old and well known forms of shouldered tie plates. The upstanding shoulders 16 and 17 are preferably of greater height than the edge thickness of the rail base, and preferably, though not necessarily, extend from edge to edge of the plate. The marginal portions of the plate adjacent said shoulders are formed with slots 21—21 which extend from the outer portion of the shoulders 16—17 to the outer edges of the plate. The slots 21—21 are connected by means of a groove or recess 22 formed in the bottom surface of the plate. The position of the groove 22 is such that it can be readily formed during the rolling of the plate. The slots 21—21 correspond in width to the width of the groove 22 and can be readily formed by punching operations at the same time the spike openings 14a are formed.

In the embodiment of the invention shown herein a pair of resilient rail retaining clips 12—12 are employed for holding the rail on the plate, preferably with capacity for vertical movement of the rail relative to the plate. It will be obvious, however, that the arrangement of the clips and the number of clips required may be varied. For example, in some situations it may be desirable to employ one or more of the clip members herein shown at one side only of the rail

and to use other means formed either integral or separate from the plate for engagement with the other side of the rail. The clip members 12—12 are identical in construction and are formed preferably from a spring steel strip of uniform width and thickness, the said metal strip being bent intermediate its ends to form upper and lower jaws 23—24 connected by means of a relatively large bend or loop portion 25 which permits the jaw 23 to be flexed over ribs 16—17 of various heights without danger of effecting permanent distortion of the clip. The lower jaw 24 extends into the recess 22 in the tie plate to substantially the center of the rail base and being of substantially the same width as the recess 22 is held against displacement longitudinally of the rail. The said jaw is also of a thickness corresponding to the depth of the recess 22 so as to provide suitable bearing on the cross-tie to support this portion of the plate. The said upper and lower jaws are normally spaced apart a distance less than the vertical thickness of the abutment shoulder and that portion of the plate engaged by the clip member. It is therefore necessary to spread the said jaws relative to each other, as indicated in dotted lines in Fig. 2, when the clip member is driven to its applied position transversely of the rail. The slots 21—21 facilitate the application of the clips by permitting them to be moved bodily transversely of the rail to bring their outer ends relatively close to the abutment shoulder and consequently minimize the length of their upper and lower jaws which move into embracing relation with the top surface of the rail base and the bottom surface of the tie plate. The upper jaw of each clip is formed with a shoulder portion 26 which snaps over and interlocks with an upper portion of the inner face of the rail abutment shoulder embraced.

The upper jaw 23 of the clip member bears with resilient pressure against the top surface of the rail base. The resiliency of the clip, however, is sufficient to permit the base portion of the rail to move vertically of the tie plate in response to

the wave motion of the rail. While the frictional engagement of one clip member may be insufficient to resist longitudinal or creeping movement of the rail, the combined force of the clips throughout the entire length of the rail provides an effective resistance to said creeping movements to the rail.

It will be obvious from the description of the above invention that various modified constructions might be made without departure from the spirit of the invention. It will be understood therefore that all such modifications are contemplated which come within the scope of the appended claims.

I claim:

1. In combination, a tie plate formed on its top surface with spaced upstanding ribs defining a rail base seat between them and having marginal portions slotted through the plate from the said ribs to the edges of the plate and having also a transverse groove in the bottom surface of the plate which connects said slots, and means for retaining the rail on said plate comprising a pair of resilient rail retaining clips having lower jaws adapted to be moved transversely of the rail in said slots and grooves and provided with an upper jaw for each clip adapted to snap over the upper edge of the said ribs of the tie plate to hold the clip members in their respective operative positions.

2. In combination, a tie plate formed on its top surface with a rail abutment shoulder and having a marginal portion slotted through the plate from the said shoulder to the adjacent edge of the plate and having a groove in the bottom surface of the plate which opens into said slot, and means for retaining the rail on said plate comprising a resilient rail retaining clip having a lower jaw adapted to be moved transversely of the rail in said slot and groove and provided with an upper jaw, adapted to snap over the said shoulder of the plate to hold the clip member in its operative position.

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