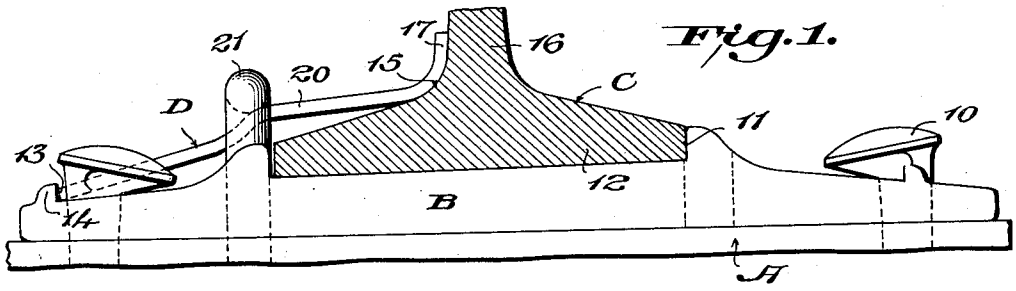
March 20, 1951 R. T. SCHOLES 2,546,046

ANTICREEPING DEVICE FOR RAILWAY RAILS

Filed April 25, 1947

Fig. 1.



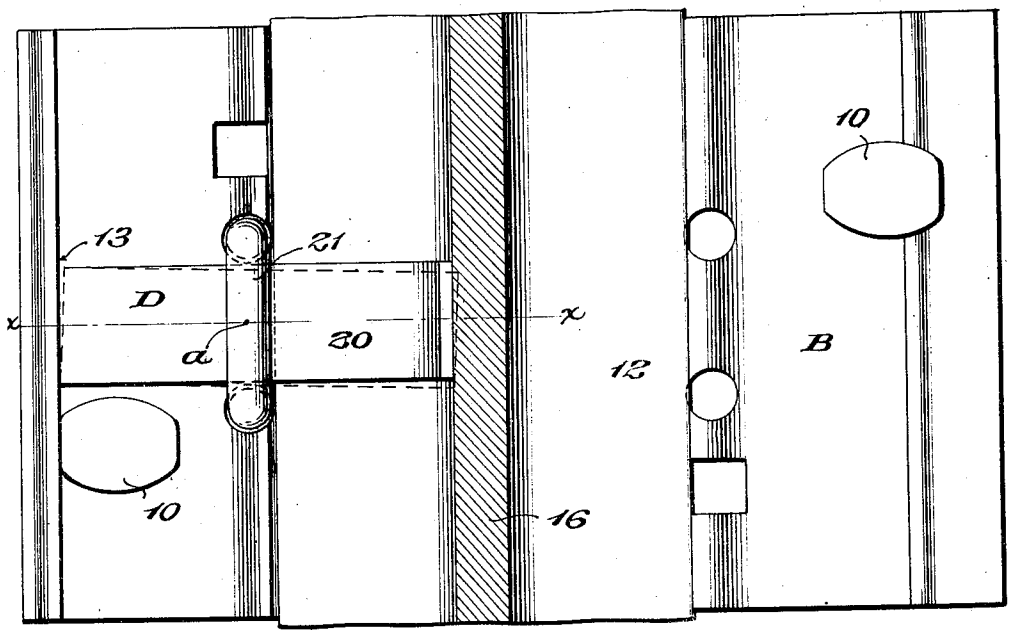
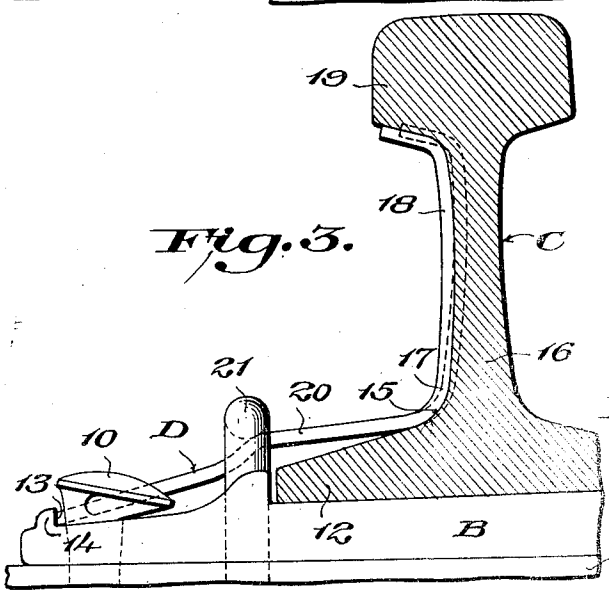




Fig. 2.

Fig. 3.




Inventor
Richard T. Scholes,
By Emery L. Orloff
Attorney

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## ANTICREEPING DEVICE FOR RAILWAY RAILS

Richard T. Scholes, Hinsdale, Ill.

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6 Claims. (Cl. 238—315)

1

This invention relates to railway track appliances, and has particular reference to improvements in rail anti-creeping devices; i. e., devices for holding rails against longitudinal movement relative to the cross ties upon which they are supported.

Generally speaking, the object of the invention is to provide a simple, practical two-way rail anti-creeping device adapted to resist movement of the rail in either direction and which may be produced economically; readily and easily installed in track, and which is thoroughly reliable and highly efficient in the performance of its function.

With the foregoing general object in view, the invention consists in a rail anti-creeping device embodying the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the accompanying drawings, wherein like characters of reference denote corresponding parts in the different views:

Figure 1 is a fragmentary transverse section through a rail illustrating means in accordance with one practical embodiment of the invention to hold the rail against creeping longitudinally.

Figure 2 is a top plan view of the structure shown in Figure 1, the rail being shown in horizontal section; and

Figure 3 is a view similar to Figure 1, illustrating an alternative embodiment of the invention.

Referring to the drawing in detail, A designates a portion of a cross tie, B designates a tie plate seated thereon, and C designates a rail seated on said tie plate.

The tie plate B is, of course, secured to the cross tie A against any possibility of superficial movement with respect thereto, as, for example, by means of spikes 10 in accordance with usual practice. Moreover, the tie plate is provided, as usual, with at least one shoulder 11 against which one edge of the base flange 12 of the rail C abuts, whereby the rail is held against lateral movement in one direction.

In accordance with the invention, the tie plate B is suitably provided, at a point spaced outwardly from the opposite edge of the rail flange 12, with an abutment in the form of an inwardly facing abutment 13. As illustrated in the drawing, this shoulder is constituted by the inner face of a rib 14 projecting upwardly from the tie plate. It may, however, equivalently be constituted by the outer face of a hole formed through or a depression formed in the tie plate.

2

Between the shoulder 13 and the adjacent side of the rail C is interposed an anti-creeping member in the form of a spring steel plate D of suitable thickness and width, the outer end of which abuts the shoulder 13 and the inner end of which may abut either or both the base fillet 15 and the web 16 of the rail. In this connection, and as illustrated in Figures 1 and 2 of the drawing, the inner end of the plate D is formed with an upwardly curved portion 17 to seat against the base fillet 17 of the rail and also against the rail web a limited distance above the base fillet 15. On the other hand, as illustrated in Figure 3 of the drawing, the inner end of the plate is formed not only with an upwardly curved portion 17 to seat against the base fillet 15 of the rail, but also with an upward extension 18 of said portion 17 to seat against the rail web throughout its height as well as against the under face of the head 19 of the rail. Otherwise, the form of the plate D illustrated in Figure 3 is the same as the form of said plate illustrated in Figures 1 and 2.

Each form of the plate D includes a lower, substantially horizontally disposed portion 20 which is upwardly arched and which is adapted to be fastened under downward flexure to cause said plate to act, toggle-like, to urge the rail laterally against the tie plate shoulder 11 and to hold it against lateral movement in the opposite direction. This, in turn, insures ample frictional contact between the inner end of the plate D and the rail so that the inner end of said plate will tend to shift laterally in response to any tendency of the rail to creep longitudinally.

The plate D is fastened, not only with its portion 20 under downward flexure, but in such manner that it may partake of at least a small amount of rotary movement in a horizontal plane about a point of contact of its outer end with the shoulder 13. A staple 21, the upper or bight portion of which straddles the plate D intermediate its ends and the legs of which extend through holes in the tie plate B and are driven into the tie A to either side of the portion 20 of said plate, from the edges of which portion they are suitably spaced, constitutes a simple, practical means of fastening the plate D in the manner stated and is particularly desirable because it does not require that said plate be perforated. Said plate may, however, have a perforation through which a bolt or other fastening element may extend.

When the plate D is installed its inner end is engaged with the rail C to either side of a vertical

plane, designated as $x$—$x$, which extends transversely relative to the track. On the other hand, the outer end of said plate D may be engaged only at a single point with the abutment 13 in the plane $x$—$x$, or, like the inner end of said plate and as shown, may engage the shoulder 13 to either side of the plane $x$—$x$. In any event, since the inner end of said plate, due to its frictional contact with the rail, will tend to shift laterally in reponse to any tendency of the rail to move longitudinally, even a small amount of longitudinal movement of the rail will result in sufficient rotation of said plate about its point of contact with the shoulder 13 to cause said plate to bind tightly between the abutment 13 and the rail and thus prevent any appreciable longitudinal movement of the rail. The reason for this is, of course, that when the plate D rotates, it assumes a diagonal position relative to the rail and its diagonal dimension is greater than the distance between the shoulder 13 and the portion of the rail with which the inner end of said plate is engaged.

While only one tie plate shoulder 11 has been referred to and only a single anti-creeping device described, it is apparent that the tie plate may have two shoulders as shown and that the anti-creeping devices may be employed at each side of the rail.

If the plate D is provided at its inner end with an upward extension such as the extension 18 illustrated in Figure 3 of the drawings, said extension may be formed so that it must be flexed outwardly from its dotted line position shown in said figure in order to engage the rail. By such flexure, it will have energy stored therein which will insure at all times effective frictional contact with the rail so that it will move with the rail whenever the latter tends to move longitudinally, thus insuring the described mode of operation of the plate D. Moreover, because of the top of the portion 18 engaging the under face of the rail head 19 and thus preventing any possibility of said portions riding upwardly on the base fillet of the rail, positive gripping action between said portion 20 and the rail is assured in response to any tendency of the plate D to rotate.

Without further description it is believed that the construction and operation of the present anti-creeping device will be clearly understood and its advantages appreciated. It is desired to point out, however, that said device is susceptible of various modifications within the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a railway track, a cross tie, a tie plate seated on and fastened to said cross tie, said tie plate having a shoulder against which one edge of the rail flange is engaged to hold the rail against lateral movement in one direction, said tie plate further having an abutment spaced from the other edge of the rail flange, a plate member engaged at its outer end with said abutment and at its inner end with the adjacent face of the rail web, and fastening means for said plate member, said plate member being engaged at its inner end with the rail web to either side of the longitudinal axis of said plate member and being rotatable in a substantially horizontal plane about a point of contact of its outer end with said abutment and having sufficient frictional cooperation at its inner end with the rail web so that it is rotated about its said point of contact with said abutment in response to longitudinal movement of the rail, thereby to bind tightly between said abutment and the rail web and thus resist longitudinal movement of the rail.



2. A railway track structure as set forth in claim 1 in which the plate member is inherently resilient and arched and secured under downward flexure by its fastening means to cause its inner end to be urged inwardly into firm frictional engagement with the rail web.

3. A railway track structure as set forth in claim 1 in which the plate member includes a substantially vertically disposed inner end portion engaged at its top with the under side of the rail head, whereby the inner end portion of said plate is held against upward movement relative to the rail.

4. In a railway track, a cross tie, a tie plate seated on and fastened to said cross tie, said tie plate having a shoulder against which one edge of the rail flange is engaged to hold the rail against lateral movement in one direction, said tie plate further having an abutment spaced from the other edge of the rail flange, a substantially rectangular plate member engaged at its outer end to either side of its longitudinal axis with said abutment and at its inner end to either side of its longitudinal axis with the adjacent face of the rail web, and fastening means for said plate member, said plate member being rotatable in a substantially horizontal plane about the point of contact of either of its two outer corners with said abutment and having sufficient frictional contact at its inner end with the rail web whereby it is rotated in response to longitudinal movement of the rail, thereby to bind tightly between said abutment and the rail web and thus resist longitudinal movement of the rail.

5. In a railway track, a cross tie, a tie plate seated on and fastened to said cross tie, said tie plate having a shoulder against which one edge of the rail flange is engaged to hold the rail against lateral movement in one direction, said tie plate further having an abutment spaced from the other edge of the rail flange, and a member engaged at its outer end with said abutment and at its inner end with the adjacent face of the rail web, said member being engaged at its inner end with the rail web to either side of the longitudinal axis of said member and being rotatable in a substantially horizontal plane about a point of contact of its outer end with said abutment and having sufficient frictional cooperation at its inner end with the rail web so that it is rotated about its said point of contact with said abutment in response to longitudinal movement of the rail, thereby to bind tightly between said abutment and the rail web and thus resist longitudinal movement of the rail.

6. In a railway track, a cross tie, a tie plate seated on and fastened to said cross tie, said tie plate having a shoulder against which one edge of the rail flange is engaged to hold the rail against lateral movement in one direction, said tie plate further having an abutment spaced from the other edge of the rail flange, and a member engaged at its outer end to either side of its longitudinal axis with said abutment and at its inner end to either side of its longitudinal axis with the adjacent face of the rail web, said member being rotatable in a substantially horizontal plane about the point of contact of either of its two outer corners with said abutment and

having sufficient frictional contact at its inner end with the rail web whereby it is rotated in response to longitudinal movement of the rail, thereby to bind tightly between said abutment and the rail web and thus resist longitudinal movement of the rail.

RICHARD T. SCHOLES.


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