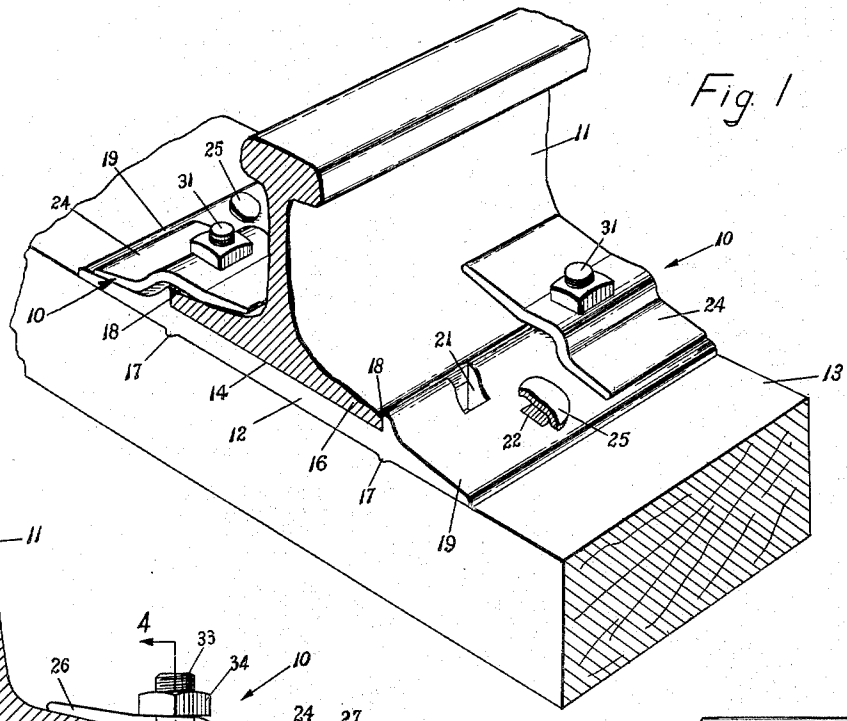
Oct. 17, 1950 G. F. CARPENTER 2,526,005

RAIL STABILIZER

Filed Feb. 17, 1947

Fig. 1



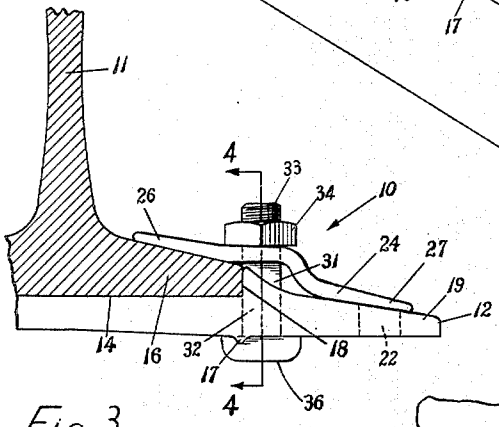


Fig. 3

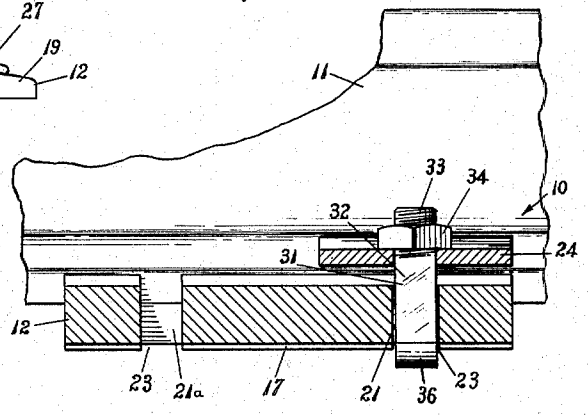


Fig. 4

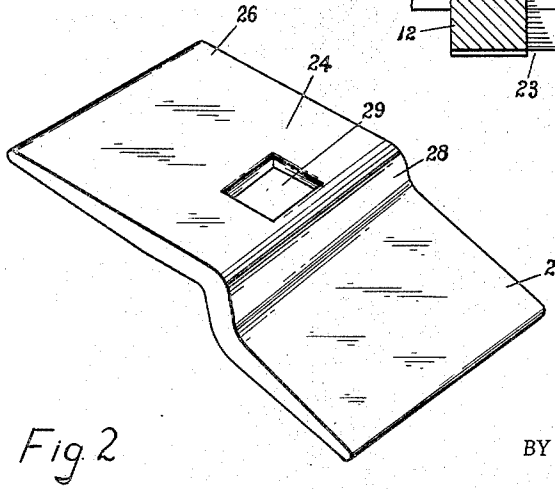


Fig. 2

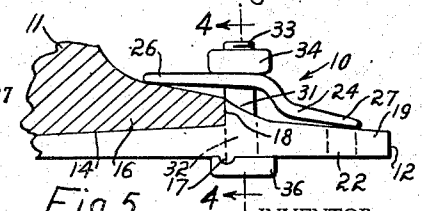


Fig. 5

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RAIL STABILIZER

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1 Claim. (Cl. 238—349)

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This invention relates generally to rail section assemblies in railroad track systems and in particular to a device for stabilizing the rail sections against becoming misplaced or loose during use.

In the laying of rail sections, it is now common practice to support the base sections of the rails on tie or anchor plates which extend transversely of the rail, and longitudinally of the wooden ties for supporting the rails. The top surfaces of the tie plates are formed with transverse rail receiving grooves or depressions, and the opposite ends of the tie plates have holes therein through which usual anchor spikes are inserted for driving into the ties. This manner of laying rails is generally satisfactory. However, in use the anchor spikes become loosened, due to the traffic on the rails, and expansion and contraction of the rails, so that the rail and the tie plate are movable relative to each other and relative to the wooden tie. As a result, the stability of the rail section is reduced, and the mechanical wear on the rail base section and tie plate appreciably shortens their service life.

It is an object of this invention, therefore, to provide an improved stabilizing device for rail sections.

A further object of this invention is to provide a rail stabilizer which substantially holds the rail against movement relative to its corresponding tie plate, so as to appreciably increase the service life of such parts.

Another object of this invention is to provide a rail stabilizer which is adapted to effect a holding force on a tie plate counter to the force applied thereon, by the movement of a rail, tending to pull or loosen the anchor spikes from a tie.

A still further object of this invention is to provide a rail stabilizer adapted to permit expansion and contraction of the rail, while firmly holding the rail against the tie plate.

Yet another object of this invention is to provide a rail stabilizer adapted to be economically manufactured, efficient in operation to firmly hold a rail in assembly with a tie plate, and capable of being readily and easily applied to standard type rails and tie plates.

A feature of this invention is found in the provision of a rail stabilizer which comprises a flat clamp member of a spring material having its opposite end portions laterally offset and of a

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length such that one end portion is supported on the rail section, and the other end portion on the tie plate. A bolt, inserted through the tie plate and through the clamp member, intermediate the ends of the clamp member, is adapted to draw the clamp into frictional bearing engagement with the rail section and tie plate.

Further objects, features and advantages of this invention will appear from the following description when taken in connection with the accompanying drawings, in which:

Fig. 1 is a fragmentary perspective view of a rail section and a tie plate therefor, showing the stabilizing device of this invention in assembly relation therewith;

Fig. 2 is a perspective view of a clamp member forming part of the stabilizing device;

Fig. 3 is a fragmentary transverse sectional view of the rail showing the stabilizing device and an anchor plate in side elevation and in assembly relation with the rail;

Fig. 4 is a sectional view taken along the line 4—4 in Fig. 3; and

Fig. 5 is a sectional view illustrated similarly to Fig. 3, showing the stabilizing device in an unstressed condition.

With reference to the drawings, the stabilizing device of this invention, indicated generally as 10, is illustrated in Fig. 1 in assembly relation with a usual rail section 11, having a tie or anchor plate 12, which is supported on a usual wooden tie 13.

The anchor plate 12 is of a common type having in its top side a transverse groove or depression 14, for receiving the base 16 of the rail section 11. A pair of transverse ribs or projections 17 are arranged on the bottom side of the anchor plate at positions opposite the side walls 18 of the groove 14. The ribs 17 are pressed or forced into the top side of the wooden tie 13, by the weight of the rail 11 and the load carried thereby, to aid in holding the anchor plate against movement longitudinally of the tie.

Each end 19, of the anchor plate 12, is formed with a series of three openings 21 and 22 (Figs. 1 and 4), with a pair of openings 21 being generally used to receive rail holding spikes (not shown) and the third opening 22 an anchor spike 25. The pair of openings 21 are of a substantially square shape and extend through the side walls

18 of the groove 14, and the ribs 17. The third opening 22, also of a square shape, is spaced outwardly from a corresponding pair of openings 21 at a position intermediate the openings 21.

It is seen, therefore, that the ribs 17 are cut away at positions opposite the openings 21, as indicated at 23 in Fig. 4, so as not to interfere with the driving of the rail holding spikes through such openings to positions below the rail base 16.

The stabilizing device 10 includes a clamp member or plate 24 (Figs. 1, 2 and 3), composed of a spring steel material and of a generally flat shape. The clamp 24 is integrally formed with an end section 26 and an opposite end section 27, which sections are laterally offset from each other so as to lie in different planes longitudinally of the clamp. The end section 26 is of a longer length than the end section 27, and the junction of the two sections is defined by a bent section 28 of a substantially Z-shape in cross section. A square shape opening 29 is formed in the end section 26 adjacent to the connecting section 28 of the clamp.

A bolt 31 (Figs. 3 and 4) is formed with a shank 32 of a substantially square shape in transverse cross section and of a size adapted to be received through the opening 29 in the clamp 24, and one of the openings 21 in the anchor plate 12. The end 33 of the shank 32 is of a round shape and externally threaded for connection with a nut 34. The head 36, of the bolt 31, is of a substantially rectangular shape and of a size adapted to be received within a cut away portion 23 in a rib 17. The engagement of the bolt head 36 with the adjacent ends of a rib 17 at an opening 21 thus holds the bolt 31 against rotation for a purpose which will appear later.

In the assembly of the stabilizing device 10 with a rail 11, the bolt 31 is initially inserted upwardly through one of the openings 21 and the anchor plate 12 is placed in a usual manner on the tie 13. Since the bolt head 36 projects downwardly from the lower side of the anchor plate 12, the top surface of the tie 13 is cut away to form a depression or cavity (not shown) capable of receiving the bolt head 36 therein, so that the anchor plate lies flat on the tie.

The clamp member 24 is then positioned such that the bolt shank 32 extends upwardly through the opening 29, and the end sections 26 and 27 rest on the rail base 16 and on the anchor plate 12, respectively, as illustrated in Figs. 1 and 3. The nut 34 is then tightened against the clamp member 24 to clamp or draw the end sections 26 and 27 into frictional bearing engagement against the rail base 16 and anchor plate 12, respectively.

By virtue of the clamping action of the nut 34, the clamp member 24 is placed under tension so as to apply a downward force or pressure against both the rail base 16 and the anchor plate 12. It is contemplated that a pair of the stabilizing devices 10 be used with each anchor plate 12 and arranged diagonally opposite each other, as illustrated in Fig. 1. The anchor spike 25 is driven in a usual manner, and a rail spike for the free opening, indicated as 21a in Fig. 4, may or may not be used, depending upon the particular track-laying job.

In the use of the stabilizing device 10, expansion and contraction of the rail section 11 is permitted by virtue of the rail being movable relative to the end section 26, while still being acted upon by the pressure applied by the clamp 24. Any lateral tipping movement of the rail 11 is against the downward pressure applied through the sections 26 on the rail base 16.

Thus, for example, assume that the rail 11 tends to tip toward the left, as viewed in Fig. 3. The clamp section 26, which acts to hold the base 16 against the tie plate, will resist such tipping movement. Concurrently with the lateral tipping movement of the rail section 11 to raise the end section 26, the opposite corresponding end section 27 of the clamp 24 is pressed downwardly more firmly against the anchor plate 12. This increase in the pressure applied on the anchor plate 12 by the end section 27 more firmly holds the anchor plate against pulling upwardly on the anchor spike 25. As a result, the lateral tipping movement of the rail 11 is accommodated by the spring action in the clamp 24 so that when the rail assumes its normal position it is again firmly clamped with the tie plate 12. Further, the action of the clamp 24 to restrain the tilting movement of the rail 11 substantially reduces any mechanical wear between the rail base 16 and the anchor plate 12. The stabilizing device thus operates to appreciably lessen the degree of relative movement between the anchor plate 12 and the base section 16, and the loosening of the anchor plate 12 relative to the tie 13.

In one embodiment of the invention, the clamp member 24 is three inches wide and has a normal length when in its unstressed condition shown in Figs. 2 and 5, of four and three-eighths inches. The relative inclination of the clamp sections 26 and 27, relative to the base section 16 and anchor plate 12, respectively, is such as to provide for a total bearing surface between these parts of about nine square inches.

On tightening of the nut 34, to develop a pressure of about two thousand pounds per square inch in the clamp member 24, the length of the clamp member its stressed condition shown in Fig. 3 is increased to about four and five-eighths inches. With a pair of clamping devices arranged on opposite sides of the rail, a balanced pressure is provided on the rail and on the tie plate 12 for holding the rail against running either because of traffic or due to expansion or contraction thereof.

From a consideration of the above description, it is seen that the invention provides an improved stabilizing device for a rail section which is of a simple and rugged construction, and capable of being applied to standard type rails and anchor plates. The clamping device firmly holds the rail in assembled position on the anchor plate, so as to appreciably reduce the mechanical wear on both the plate and the rail. Further, the action of the device to press more firmly against the anchor plate, as a result of any lateral tipping movement of the rail lessens the degree of relative movement between the anchor plate and tie so as to minimize the mechanical wear on that portion of the tie 13 located below the anchor plate 12.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications can be made therein which are within the full intended scope of this invention, as defined by the appended claim.

I claim:

A stabilizing device for a rail having a tie plate comprising a spring clamp member integrally formed with laterally offset flat end portions of different lengths, with the shorter one of said

end portions being supported on said tie plate, and a clamp means extendible through the longer one of said end portions and said tie plate at a position adjacent to the base section of the rail for clamping said clamp member against said base section and tie plate, with said end portions being relatively inclined to said rail base and tie plate respectively such that when said clamping means is tightened, said clamping member is extended longitudinally to provide for substantially equal surface areas on said end portions being moved into frict onal bearing engagement with said base section and tie plate, whereby balanced holding pressures are applied by said clamp member on said base section and tie plate.

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