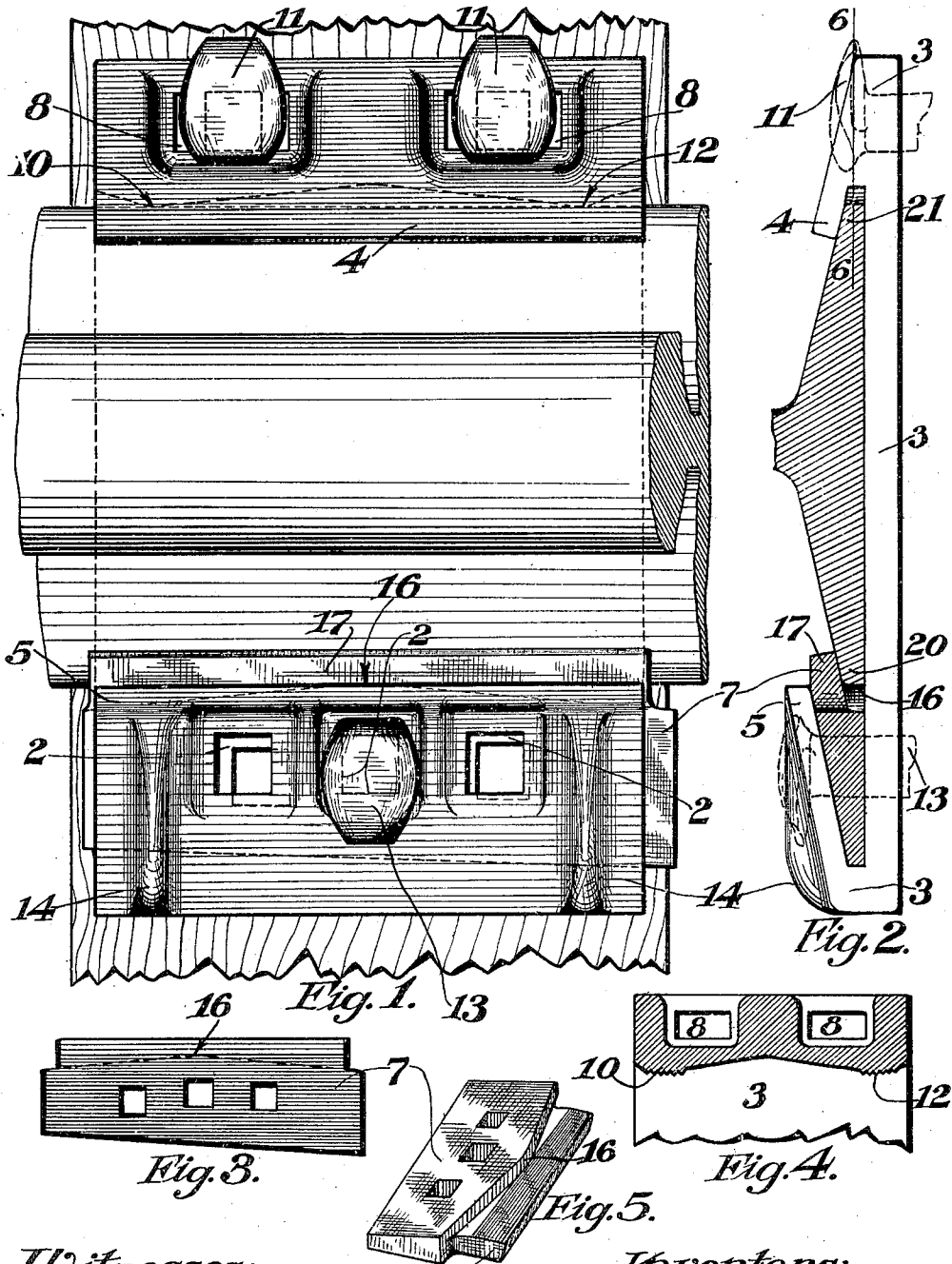


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RAIL HOLDING DEVICE.  
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# UNITED STATES PATENT OFFICE.

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RAIL-HOLDING DEVICE.

972,545.

Specification of Letters Patent.

Patented Oct. 11, 1910.

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*To all whom it may concern:*

Be it known that we, JAMES B. LATIMER and ARTHUR D. CLOUD, citizens of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented a new and useful Rail-Holding Device, of which the following is a specification.

Our invention relates to railway track appliances, and more particularly to that class of such appliances as are designed for preserving the right relation of the rails to the ties.

More specifically our invention belongs to that type of such devices which provides means to prevent the endwise or longitudinal movement of rails, known as "creeping."

The main objects of our invention are, first: to lessen the time, trouble and expense hitherto involved in the application and maintenance of devices of the character described, and, second: to effect the substantial combination of a tie or bearing plate, the same being an article of general and approved usage, and a simple, effective and inexpensive means to prevent "creeping" of rails, which combination shall serve all useful purposes of a tie or bearing plate, while involving, in its application and subsequent care, no more effort and expense than the forms of tie or bearing plates now in general use, and shall, with the minimum of extra labor and cost, be easily adaptable to serve the additional purposes of a means to prevent "creeping" of rails.

These objects we accomplish through the provision of the device which is hereinafter described and explained, and an approved form of which is set forth in the accompanying drawings.

Figure 1 of these drawings represents a plan view of a rail holding device of our invention, showing the same attached to a rail and resting upon a tie. Fig. 2 is a sectional view of the same, Fig. 3, a plan view of the wedge member thereof, Fig. 4, a sectional view of a part of the device taken along the line 6, 6, Fig. 2, and Fig. 5 is a perspective view of the wedge member.

Similar numerals refer to similar parts throughout the several views.

The device, in the preferable form now known to us, consists of a flat plate 3, of substantial and suitable material and construction, and of about the same general form and size of the most approved bearing plates or supports to prevent undue wear of rails upon the ties, which plates are known generally as tie plates, and lugs or shoulders, as 4 and 5, of various and suitable size and shape, and of ample and practicable construction and strength, upon said plates and rigidly attached thereto, and a wedge member 7, of suitable and substantial construction, size and shape, which is adapted to be inserted between the rail and the shoulder 5, substantially as shown in the drawings.

The lug or shoulder 4, is shaped to the general form of the edge of the lower or base portion of the rail, and is adapted to engage and bear upon the same; and the lug or shoulder 5, together with the surface of the plate 3, forms a suitable channel or recess to receive and engage the wedge member 7.

The plate 3, is provided on one side of the lower or base portion of the rail with vertical slotted openings or holes 8, 8, the longest dimension of which is in a direction parallel to the rail, and which allow of a sliding engagement with the means for holding the plate upon the tie.

In the drawing, Fig. 1, 11 designates a spike which represents the holding means. On the side of the plate opposite the vertical slotted openings are provided a number of symmetrically arranged holes, shown as 2, 2, 2, extending vertically through the plate 3, and the shoulder 5, and of a size and shape suitable to receive such fastening or holding means as a bolt, spike, or screw. This holding means is represented in the drawing, Fig. 1, by the spike 13. The projecting shoulder 5, carries a number of strengthening ribs 14, 14, to insure its permanent rigid connection to the plate 3. The channel or recess formed between the lower surface of the shoulder 5 and the upper surface of the plate 3, is of suitable width and depth to receive and contain the wedge shaped member 7, and has its inner edge set

and adapted to form an angle with the lengthwise dimension of the rail to maintain the wedging action of wedge member 7.

Upon that edge of wedge member 7, which is adapted to engage and bear upon the edge of the lower or base portion of the rail, a shoulder 17, is provided to overlap the edge of the lower or base portion of the rail, and to conform, generally, in shape thereto. The wedge member 7, is fitted with a number of holes of suitable size and shape, extending at right angles to the lower surface of the wedge, substantially as shown in Fig. 3, and Fig. 5, which holes are arranged so that not more than one of them can at any one time conform to or coincide with any of the holes of corresponding shape and size which extend vertically through the plate 3, and shoulder 5, as shown in Fig. 1. In the drawing it will be observed that, of the holes shown, the middle one in the wedge 7, coincides with the middle one in the plate 3, while any other holes in the wedge do not coincide with or conform to any other holes in the plate. These holes in the wedge 7, are offset from the holes in the plate 3, and shoulder 5, to provide for an adjustment of the bearing of wedge 7, against the rail, as will be explained hereafter.

The application of this form of our invention to the rail is accomplished as follows: The plate 3, with wedge member 7, removed, is brought into contact with the bottom side of the lower or base portion of the rail, which, in preparation for the holding device, will have been raised clear of the tie. The recess or channel formed by the shoulder 5, and the plate 3, must first be placed over edge 20, of the rail, in order that in raising the opposite end of the plate 3, the shoulder 4, may clear the edge 21, of the rail. This is necessary as the distance between the edges of the shoulders 4 and 5, is less than the width of the lower or base portion of the rail. The plate 3, is then to be moved across the bottom of the rail until shoulder 4, and the recess or channel formed by plate 3, and shoulder 4, are in close and immediate contact, when the wedge member 7, is to be inserted. Upon being driven to a tight and snug fit, the wedge member 7, occupies the space between the rail and the shoulder 5, and by means of the shoulder 17, retains the rail in tight and rigid contact with the plate 3, and the parts thereof. The rail and rigidly attached plate are then lowered until the plate rests upon the tie, to which it is secured by suitable means, such as spikes, bolts, or screws, one of which is to be driven in the center of each of the slotted holes 8, 8, and one in such single one of the holes 2, 2, 2, on the side of the plate adjacent to the wedge as shall be found practicable.

It is evident that that part of our invention before described embodies a simple and effective tie plate, adaptable to the further objects and purposes of our invention as hereinbefore set forth, one of which objects is, specifically, to provide upon said tie plate, and in combination therewith, means for preventing the "creeping" of the rail. We accomplish this specific object as follows: It will be observed that the inner surface of the recess formed by the shoulder 4, and the plate 3, is in close and immediate proximity to one edge of the lower or base portion of the rail, and also that one edge of the wedge member 7, is in corresponding proximity to the other edge of the lower or base portion of the rail. These surfaces, which are in such relation, are cut away so that the contacts and engagements of the plate 3, and parts thereof, and wedge member 7, are accomplished by means of a number of points or surfaces in the form of upright rail-abutting shoulders, such as 10, 12, 16. This diagonal and opposite arrangement of the points of contact 10, 12, 16, together with the method of securing the plate 3, and parts thereof, to the tie by a securing or fastening means extending into the tie through a hole of a shape and size to snugly contain the same, on one side of the plate, and by a securing or fastening means extending into the tie through slotted holes of a shape and size to permit sliding movement of same within the slotted holes, upon the other side of the plate, constitute the main features of the device to prevent "creeping". This part of our invention is designed to operate in the following manner: Upon the manifestation of a tendency on the part of the rail to move in a longitudinal or endwise direction, or to "creep", the plate tends to move with the rail to which it is rigidly attached as described, but it is prevented therefrom by the fastening means represented by spike 13, which secures the side of the plate through which it extends, to the tie in a firm and substantial manner. The other side of the plate being secured by fastening means extending through slotted holes therein, is capable of more or less movement, allowing the plate to revolve or rotate in a horizontal plane around the vertical fastening means shown as the spike 13, as a pivot or axis. This turning movement of the plate instantly tightens or tends to tighten the hold of the pair of contact points 10 and 16, or exercises a like effect on the hold of the pair of contact points 12 and 16, by tending to decrease either the angle formed by the side of the rail adjacent to the contact point 16, and a line between the contact points 16 and 12, or the angle formed by the same side of the rail and the line between contact points 16 and 10. It will be noted

that the contact points 16 and 12, are adapted to prevent creeping in one direction, while the contact points 16 and 10, are adapted to prevent creeping in the opposite direction.

5 This revolving of the plate and consequent tightening of the holding points upon the lower or base portion of the rail effectually prevent creeping, and at the same time permit of the full usefulness of the plate as a tie plate, or bearing or support of the rail upon the tie.

To apply the same device to the various sizes of rail, the wedge 7, is adapted to be made of varying widths as shall be found 15 advisable, the relations and uses of the several parts of the device remaining the same for all ordinary sizes, shapes, and weights of rail. In order to compensate for slight variations in the width of the base of any rail, and also to take up the variation and loss of rigidity in the connection, due to vibration and wear or to any other cause, an adjustment is provided whereby the wedge 7, may be tightened as shall be found necessary. As shown in the drawing, Fig. 1, the fastening means, shown as spike 13, is to be driven in the first holes which present vertically matched and coincident surfaces during the inserting of the wedge 7; but when 30 such driving of the holding or fastening means represented by the spike 13, does not secure rigid engagement of the three points 10, 12, and 16, with the edge of the lower or base portion of the rail, the wedge 7, may be forced farther into the slot or recess provided to contain it, until another hole therein presents matched and coincident surfaces with a corresponding hole in the plate 3, and shoulder 5, when a fastening or holding 40 means, as a screw, bolt, or spike may be driven through these matched and coincident holes into the tie. The driving of the wedge 7, farther into its slot or recess, tightens the hold of the points 10, 12, and 16, upon the lower or base portion of the rail. In case a second adjustment furnishes less than the required or desired degree of tightness in the contacts of points 10, 12, and 16, upon the lower or base portion of the rail, a third adjustment, to be effected substantially in the same manner as the second, is 50 provided for. Means are also provided whereby the wedge 7, may be forced against the lower or base portion of the rail by the driving in of the holding means represented by spike 13, Fig. 1. Certain offsets in the openings or holes, in a direction at right angles to the rail enable the holding or securing means to force the wedge 7, against 60 the lower or base portion of the rail by widening the distance between certain vertical surfaces presented by the offsets in the holes or openings.

As an array of small tooth-like projec-

tions upon any or all of the contact points 65 such as 10, 12, and 16, tends to enhance the holding power of the points, provision is made to apply the same to any or all of the contact points as may be considered proper or advisable. The manner of application 70 of these projections is substantially shown in Fig. 4.

It will be readily understood from the nature of our invention, that it is applicable with the same ease and facility to either 75 side of the base or lower portion of the rail and to either or any rail of a railway track or tracks.

Those skilled in the art may readily conceive other specific forms of construction of 80 this device within the principle of our invention, upon acquaintance with the style herein shown, and therefore we do not desire to limit the manufacture of the device to the above particular form, but consider 85 as our invention any forms or details thereof or construction of the same, which may be covered by or fall within the spirit and scope of, the claims which follow:

We claim as our invention:

1. In a device of the character described, in combination with a rail and a tie, a tie plate, means to anchor the tie plate to the tie, said means being adapted to permit movement of said tie plate about one point 95 on the tie as a center upon the creeping of the rail, and a locking member adapted to lock the tie plate to the rail flange, said tie plate and said locking member being each provided with an upright, rail-abutting 100 shoulder, and said shoulders being arranged upon opposite sides of the rail.

2. In a device of the character described, in combination with a rail and a tie, a tie plate, means adapted to anchor the tie plate 105 to the tie, arranged to permit movement of said tie plate about one point on the tie as a center upon the creeping of the rail, a locking member adapted to lock the tie plate to the rail flange, said tie plate and 110 said locking member being each provided with an upright, rail-abutting shoulder, and said shoulders being arranged upon opposite sides of the rail in staggered relation with reference to each other. 115

3. In a device of the character described, in combination with a rail and a tie, a tie plate, means adapted to anchor the tie plate to the tie arranged to permit movement of said tie plate about one point on the tie as a 120 center upon the creeping of the rail, and a locking member adapted to lock the tie plate to the rail flange, said locking member being provided with an upright, rail-abutting shoulder, and said tie plate being provided 125 opposite the locking member with a plurality of upright, rail-abutting shoulders.

4. In a device of the character described,

in combination with a rail and a tie, a tie plate adapted to anchor the rail to the tie, said tie plate being movable about one point on the tie as a center, upon the creeping of the rail, and a locking member adapted to lock the tie plate to the rail flange, said locking member having one point of contact with the edge of one rail flange, and there being formed on the opposite side of the tie plate a flange having two points of contact with the edge of the other rail flange, said last two mentioned points of contact being arranged in advance of and behind respectively the point of contact of said locking member.

5. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange with the inner face of the groove formed by it having a plurality of points of contact with the rail flange edge, a wedge member located in the groove formed by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail flange, and having a point of contact with the rail flange edge, means for securing said wedge member to the tie plate, and said tie plate to the tie, the means of attaching the tie plate to the tie being adapted to permit the tie plate to move on the tie about a point in the wedge member as a center.

6. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange with the inner face of the groove formed by it having at least one point of contact with the rail-flange-edge, a wedge member located in the groove formed by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail-flange, and having a point of contact with the rail-flange edge, means for securing said wedge member to the tie plate and said tie plate to the tie, said means being adapted to permit the tie plate to move on the tie about a point in the wedge member as a center.

7. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange with the inner face of the groove formed by it, having two points of contact with the rail-flange-edge, a wedge member located in the groove formed

by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail flange and having a point of contact with the rail flange edge, said three points of contact being arranged in staggered relation to each other, means for securing said wedge member to the top tie plate and said plate to the tie, said means for securing the tie plate to the tie being adapted to permit the tie plate to move on the tie about a point in the wedge member as a center.

8. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange, with the inner face of the groove formed by it having spaced points of contact with the rail-flange-edge, a wedge member adapted to engage in the groove formed by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail flange, and having a point of contact with the rail-flange-edge, spike holes formed in the wedge member and in the tie plate adapted to register with each other when the wedge member is in proper position, elongated spike holes formed in the opposite side of the tie plate, and spikes adapted to pass through said before mentioned spike holes to secure the tie plate to the tie.

9. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange with the inner face of the groove formed by it having two spaced points of contact with the rail-flange-edge, elongated spike holes formed in the tie plate on the side where are located said two points of contact with the rail flange edge, a wedge member located in the groove formed by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail flange and having one point of contact with the rail-flange-edge, a spike hole passing through said wedge member and through the tie plate and spikes adapted to secure said tie plate to the tie.

10. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the tie, said tie plate having oppositely disposed flanges engaging the top of one rail flange with the inner face of the grooved formed by it having two spaced points of contact with the rail-flange-edge, elongated spike holes formed in the tie plate on the side where are located said two points of contact with

the rail-flange-edge, a wedge member located in the groove formed by the opposite tie-plate-flange, said wedge member having a flange adapted to engage the top rail-flange-  
 5 edge, a plurality of pairs of spike holes located, respectively, one of each of said pairs in said wedge member, and the other in said tie plate, one of said pairs being adapted to register when said wedge member is in locking position, and spikes adapted to secure  
 10 said tie plate to the tie.

11. In a device of the character described, in combination with the tie and the rail, a tie plate adapted to anchor the rail to the  
 15 tie, said tie plate having oppositely disposed flanges forming longitudinal grooves above the tie plate, one of said flanges engaging the top of one rail flange with the inner face

of the groove formed by it having a plurality of points of contact with the rail flange  
 20 edge, a wedge member located in the groove formed by the opposite tie plate flange, said wedge member having a flange adapted to engage the top of the rail flange, and having a point of contact with the rail-flange-  
 25 edge, and means for securing said wedge member to the tie plate, and said tie plate to the tie, said tie plate, when secured to the tie, being adapted to swing about one point as a center upon the creeping of the rail.

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