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RAILWAY TIE PLATE.
APPLICATION FILED MAY 3, 1909.

933,038.

Patented Aug. 31, 1909.

Fig. 1.

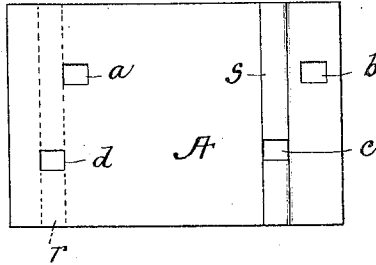


Fig. 2.

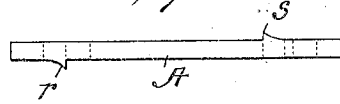


Fig. 3.

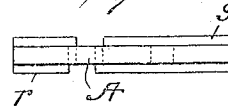


Fig. 4.

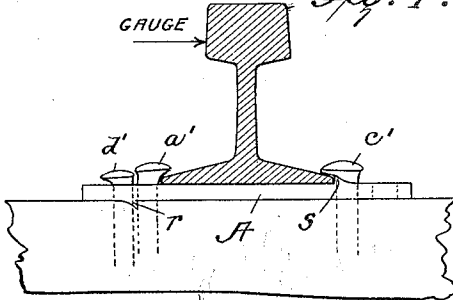


Fig. 5.

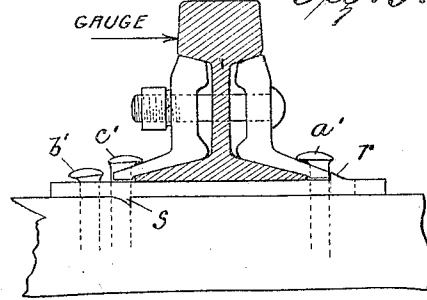


Fig. 7.

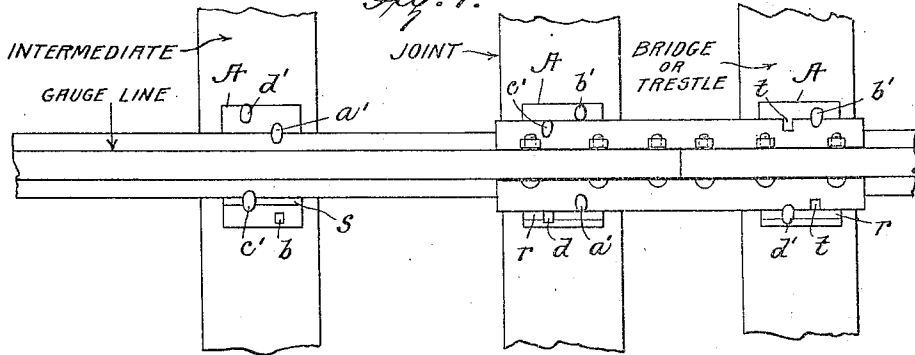
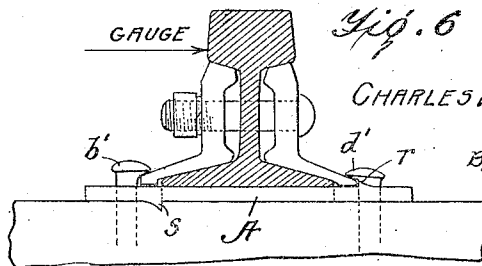


Fig. 6.



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UNITED STATES PATENT OFFICE.

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RAILWAY-TIE PLATE.

933,038.

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To all whom it may concern:

Be it known that I, CHARLES WYCKOFF JENNINGS, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Railway-Tie Plates, of which the following is a specification.

My invention is an improved railway tie-plate of simple and efficient construction designed to prolong the life of a railroad tie, or sleeper, and to support and maintain the rail in its proper position.

This tie-plate can be readily and economically used on ties under the rails, either as an intermediate tie-plate (that is a tie-plate under the rail at points between the ends of a rail and outside of the splice bars) or a joint tie-plate (which is a tie-plate used under the rails and splice bars at the ends of two abutting rails) and also as a bridge or trestle tie-plate, where it is necessary to secure the plate to the tie and splice bars in such a manner as to allow for the moving or creeping of rail and splice bars longitudinally, in order to avoid any tendency to move or split the fixed ties.

The holes for spikes in the plate are so arranged as to suit the bases of rails having various widths, and four spike holes in this improved plate are sufficient to secure the tie-plate in any one, or all three positions as hereinafter described, and also afford an independent fastening of the plate to the tie which will prevent the plate from becoming loose and rattling.

This improved tie-plate is constructed with parallel flanges on its opposite faces and near its opposite ends. One of these flanges forms a shoulder against which the outer base of the rail abuts when the plate is used as an intermediate tie-plate; or against which the outside edge of the splice bar abuts when the plate is used as a joint tie-plate, or a bridge, or trestle, tie-plate. This shoulder relieves lateral thrust against the spike and the shearing of spike heads. The flange on the opposite side from the shoulder is a rib adapted to be embedded in the tie, which counteracts lateral thrust and will hold the rails to gage and prevent spreading.

I will more fully illustrate my invention and its application by accompanying drawings in which like numbers and like letters

of reference designate like and corresponding parts in the several views.

Figure 1 represents a top view of the tie-plate showing the position of spike holes *a b c d* with reference to rib *r* and shoulder *s*. Fig. 2 is an edge view of the tie-plate, showing the form and arrangement of rib *r* and shoulder *s*. Fig. 3 is an edge view of the tie-plate from one end, showing the interrupted rib *r* and shoulder *s* as cut away at the spike holes. Figs. 4, 5 and 6 are views taken endwise the rail, showing in Fig. 4 the application of my plate as an intermediate tie-plate, and in Fig. 5 as a joint tie-plate, and in Fig. 6 as a bridge or trestle tie-plate and Fig. 7 is a top plan view on a smaller scale showing at the three ties the three applications represented in Figs. 4, 5 and 6 respectively.

In the drawing A represents the plate having on its opposite faces and near its opposite ends integral flanges *r* and *s*, whose faces next the middle of the plate are at right angles to the plane of the plate and whose other sides are inclined to a sharp edge. These flanges form alternately a shoulder for the base of the rail and a rib to bury in the tie. There are two pairs of spike holes through this plate. One pair *a c* of which are a distance apart equal to the width of the rail base, and the other pair *b d*, of which are a distance apart equal to the width of the rail base plus the width of the two splice bars. Of the inner pair of holes one of them *c*, intersects and cuts away the flange *s* while the other one *a* is entirely inside of the other flange *r*. Of the other pair of spike holes, *d* intersects and cuts away the flange *r*, while *b* is entirely outside of the other flange *s*.

Fig. 4 shows an end elevation of a rail and the tie plate when used as an intermediate plate in service, the outer base of the rail abutting against shoulder *s* of the tie-plate which receives the lateral thrust and spikes *a'* and *c'* holding the rail to the tie and plate. Spike *d'* is driven the reverse of spike *a'* and properly secures the plate to the tie and forces rib *r* into the tie. Rib *r* holds the plate to its proper position and prevents spreading of rail when shoulder *s* receives the lateral thrust and, by reason of the broken continuity of rib *r*, due to the spike hole *d*, prevents any longitudinal moving or creeping of the plate. When the plate is so secured to tie, it will give a

smooth and even bearing to the rail base and likewise to the tread of wheels upon the head of the rail, which counteracts the tendency of the rail to cant. Spike d^1 is an independent fastening for the plate to the tie, which will also prevent the plate from becoming loose and causing an undesirable rattle.

Fig. 5 is an elevation of the end of a rail and splice bars showing the plate used as a joint tie-plate. In using the plate here it is simply necessary to invert the intermediate plate and reverse ends. The position of the spike holes a and c in the plate is made to coincide with slots t in the flanges of the splice bars so that the spikes may pass through both. Shoulder s of the intermediate tie-plate will then perform the functions of rib r as described in aforesaid Fig. 4 and rib r of the intermediate tie-plate will act as shoulder s .

The tie-plate is so constructed that rib r of the intermediate tie-plate, when plate is used as a joint tie-plate will act as a shoulder against splice bar and perform the same functions as does shoulder s in Fig. 4. Spike b^1 is driven the reverse of spike c^1 and serves to hold the plate securely to the tie and performs the same function as does spike d^1 in Fig. 4.

Fig. 6 represents an end elevation of a rail and splice bars showing the plate used at a joint on a bridge or trestle where any movement or tendency to dislodge ties is very much to be avoided. The plate is applied to the ties in this situation exactly as the joint plate in Fig. 5, and spikes d^1 and b^1 are used in holes d and b in place of spikes a^1 and c^1 . Spikes d^1 and b^1 engage the splice bars outside of the spike notches t of the splice bars, as seen on the right of Fig. 7, allowing the longitudinal movement of the splice bars and rail without moving the fixed ties. Rib r engages the outside edge of one splice bar and receives the lateral thrust while shoulder s being embedded in tie, resists this thrust and holds the plate in place and prevents the spreading of the rail.

My invention provides an improved tie-plate with a new and additional use, that is as a joint tie-plate for bridges or trestles where the bridge ties are firmly fixed to the bridge structure, or in any case where it is necessary that ties be immovable. That is to say on bridges, or trestles, my tie-plate is a joint tie-plate which by reason of the novel arrangement and shape of shoulder and rib in relation to the spike holes allows the splice bars and rail to move or creep along the top surface of plate without the slightest tendency to split or move the ties, it being bad practice to spike, as is customary, in the slots provided for this purpose in splice bars, because the creeping of the rails and

splice bars in such case dislodges or splits the fixed ties.

The novel arrangement and shape of rib r and shoulder s prevents the rail from spreading by reason of the rib r receiving the lateral thrust of the outside edge of the splice and the shoulder s being embedded in the tie, counteracts the lateral thrust and holds the rail to gage. Shoulder s also, by reason of being embedded in the tie, and by the break in its continuity effectually prevents any longitudinal movement of the plate. Spikes are protected in every case by either rib r or shoulder s , from the lateral thrust, when the plate is used either as an intermediate, joint, or bridge, or trestle tie-plate.

My invention is an improved joint plate with a novel arrangement and shape of shoulder and rib. Rib r holds the outer and lower edge of splice bar and receives the lateral thrust, and the shoulder s beneath the plate and on the opposite side of the rail is embedded in the tie and by its position and shape counteracts the tendency of the rail to spread outward or forward. Spike b^1 is an independent fastening of plate to tie, holding the plate securely to the tie and preventing it from becoming loose and causing an undesirable rattle.

The tie-plate has a novel arrangement of spike holes in relation to the notches of the splice bars allowing the spikes to be driven through the notches in the lower flanges of the splice bars, engaging the lower flanges of the splice bars at and over the edges of rail flange and holding the rail and splice bars securely to the tie.

My invention is also an improved intermediate tie-plate with a novel arrangement of shoulder and rib. Shoulder s on top of the plate holds the outer edge and receives the lateral thrust, while the rib r beneath the plate and on the opposite side of the rail is embedded in the tie and by its position and shape counteracts the tendency of the rail to spread outwardly and also prevents the plate from moving longitudinally with the creeping of the rail. Spike d^1 is an independent fastening of the plate to the tie, and forces the rib r into the tie, thus securing the plate firmly to the tie and prevents it from becoming loose and causing an undesirable rattle. The spikes a^1 and c^1 are driven so that the spike heads directly engage the base flange of the rail and secure the rail firmly to the tie-plate and tie.

In defining my invention with greater clearness, I would state that I am aware that it is not broadly new to provide a reversible tie plate in which ribs or flanges are arranged upon opposite faces of the plate, and near opposite ends, so that one such rib or flange forms a shoulder bearing for the rail base,

while the other rib buries in the wood of the tie. In my invention, however, I have provided two pairs of holes arranged in such relation to the ribs or flanges, and to each other, as to permit a single plate to be used for any one or all of three different applications; *i. e.* for intermediate ties between the ends of a rail, also for joint ties at the abutting ends of two rails where the splice plates come and further for joint ties on a bridge or trestle where the ties are bolted to the substructure and are liable to be split by the longitudinal creeping or expansion and contraction of the rail, and which is prevented by my construction of tie plate, making it universal in its application.

I claim.

1. A railway tie-plate having in its opposite faces and near its opposite ends oppositely projecting and parallel flanges, and having also four spike holes through said plate arranged in two pairs, one pair having its holes arranged on opposite sides of the middle line a distance apart equal to the rail base, one hole of said pair having its inner edge in line with the inner face of one of the flanges and the other spike hole of this pair being entirely inside the flange of the opposite side of the plate, and the two holes of the other coacting pair being arranged a distance apart equal to the width of the rail base plus the two splice plates, one of said holes having its inner face in line with the inner edge of one flange and the other hole

of said pair, on the other side of the middle line, arranged entirely outside of the flange on the face opposite the first named flange.

2. A railway tie-plate having on its opposite faces and near its opposite ends parallel stop bearings for the rail and tie and a plurality of pairs of holes, one pair having one of its holes through the line of one of the stop bearings and the other hole inside the line of the other stop bearing, and the other pair of holes having one of its holes through the line of one of the stop bearings and the other of its holes outside the line of the other stop bearing.

3. A railway tie-plate constructed to adapt it to intermediate ties, joint ties, and joint ties on bridges and trestles consisting of a plate with parallel shoulders on its opposite ends and faces and two pairs of spike holes through it, one pair being set apart a distance to receive the rail base with one hole in the line of a shoulder on one side and the other hole inside the shoulder on the other side, and the other pair of holes being wider apart with one hole in the line of the shoulder on one side and the other hole outside the line of the shoulder on the other side.

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

CHARLES WYCKOFF JENNINGS.

Witnesses:

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BYRON GRIGG.