(No Model.) 2 Sheets—Sheet 1.

W. F. GOULD.

RAILWAY TIE PLATE.

No. 594,249. Patented Nov. 23, 1897.

Fig. 1.

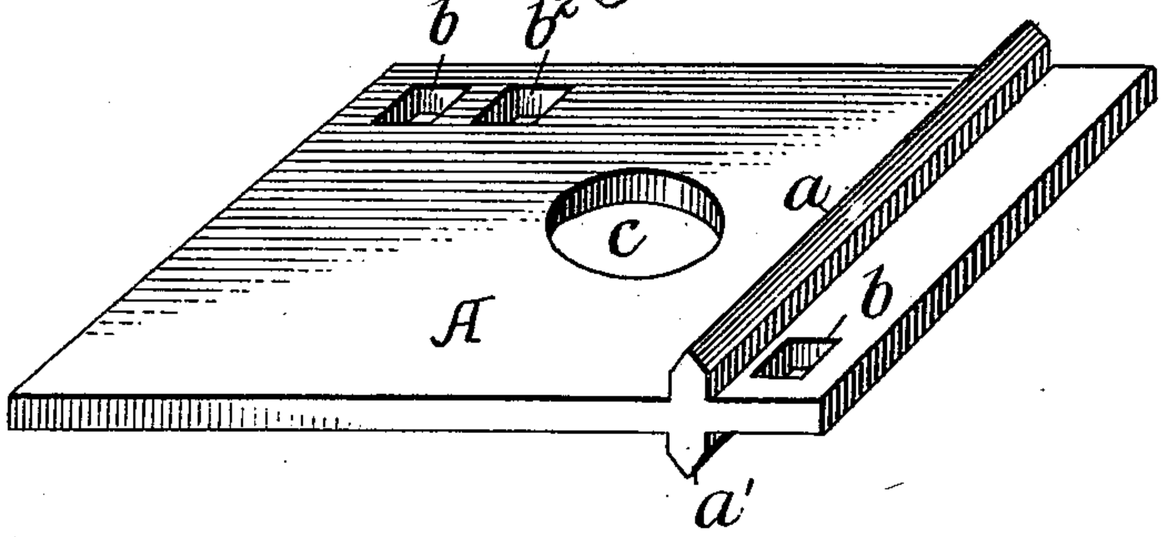


Fig. 2.

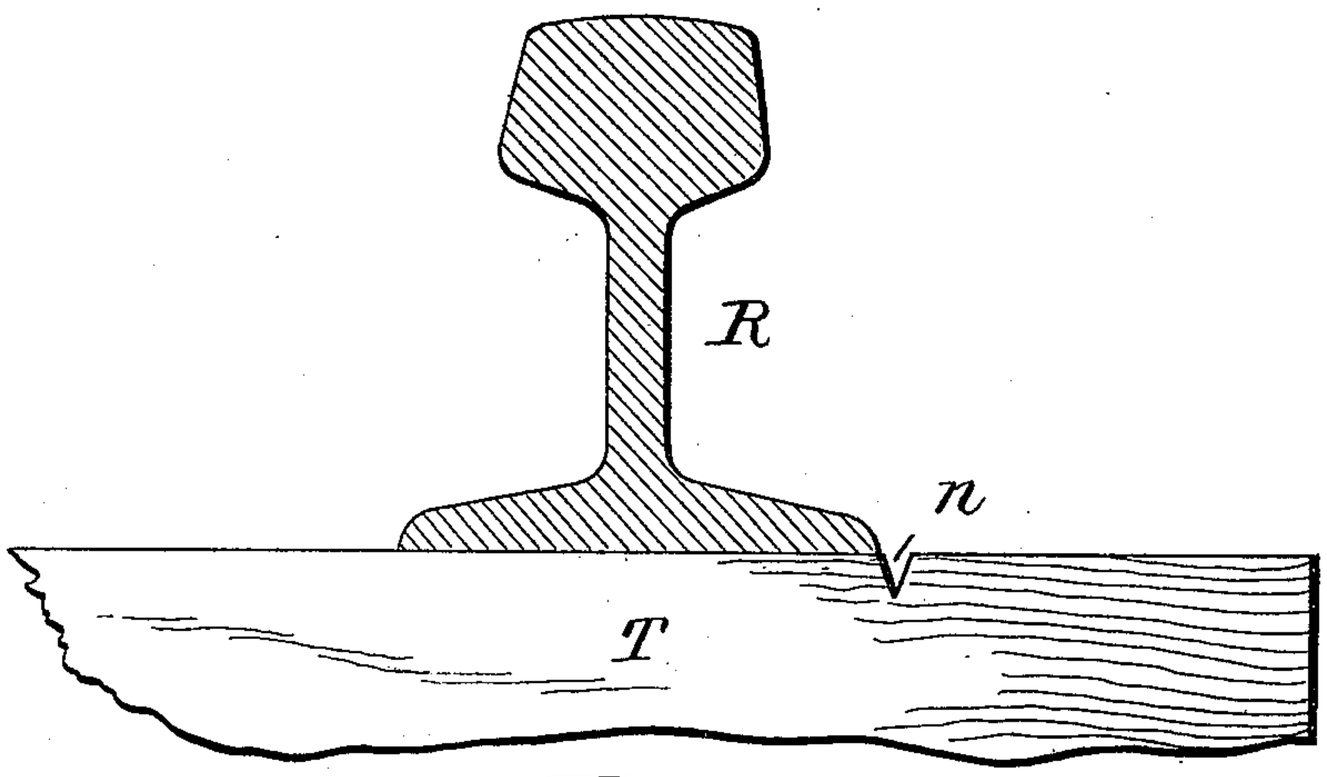
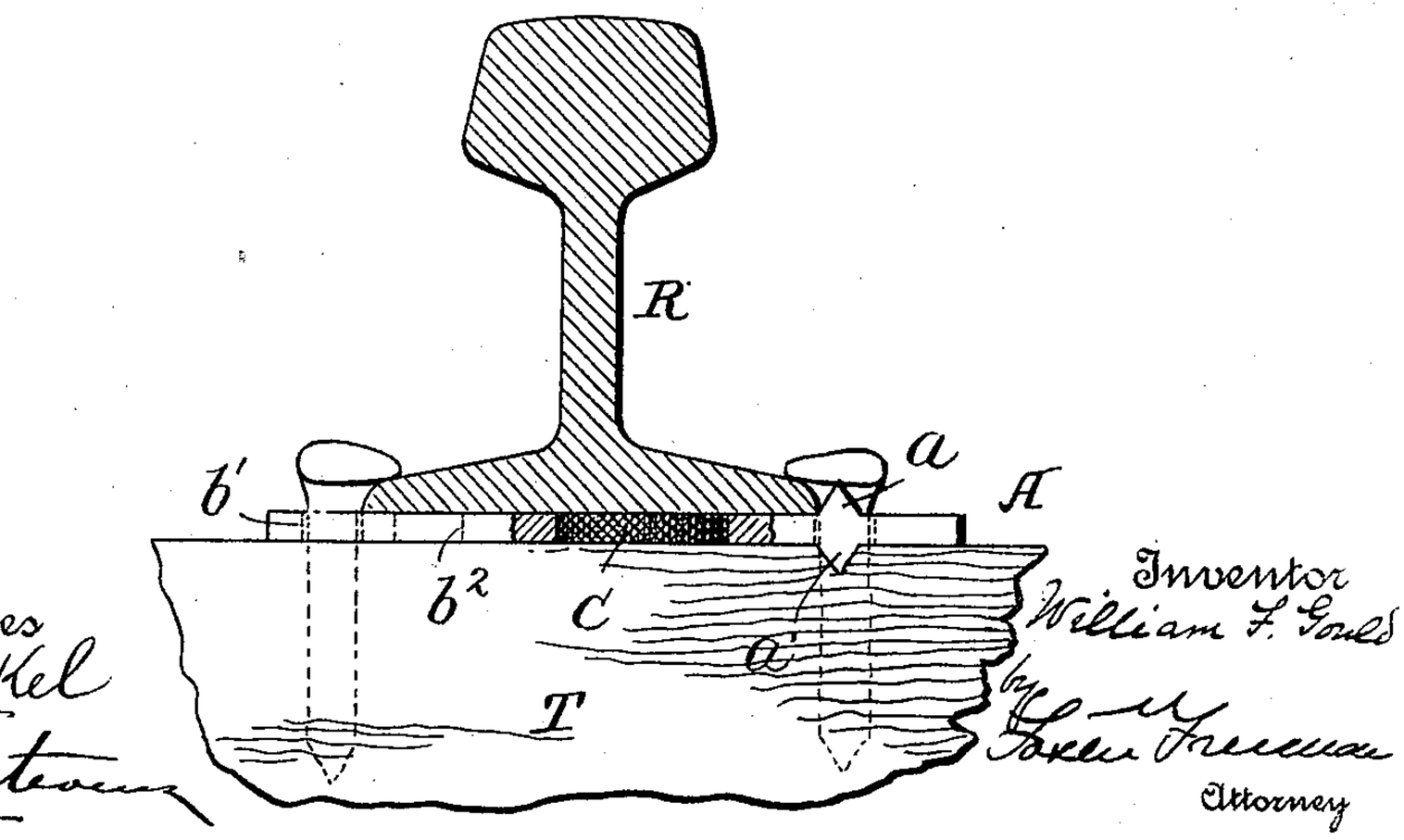


Fig. 3.



Witnesses
J. J. Hinkel
Langdon Stevens

Inventor
William F. Gould
by Baker Burlingame
Attorney

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

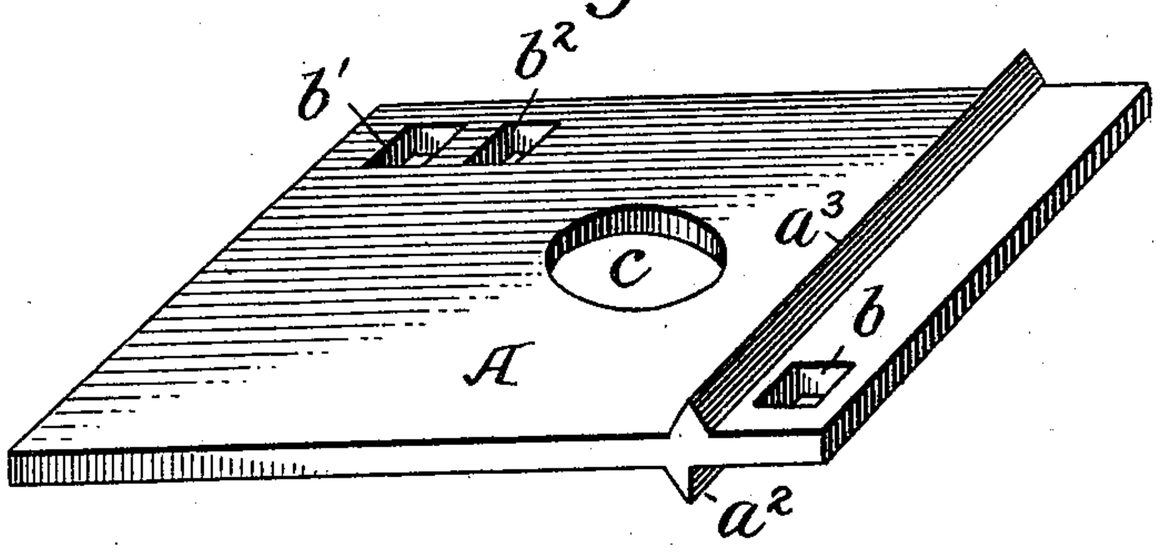


Fig. 5.

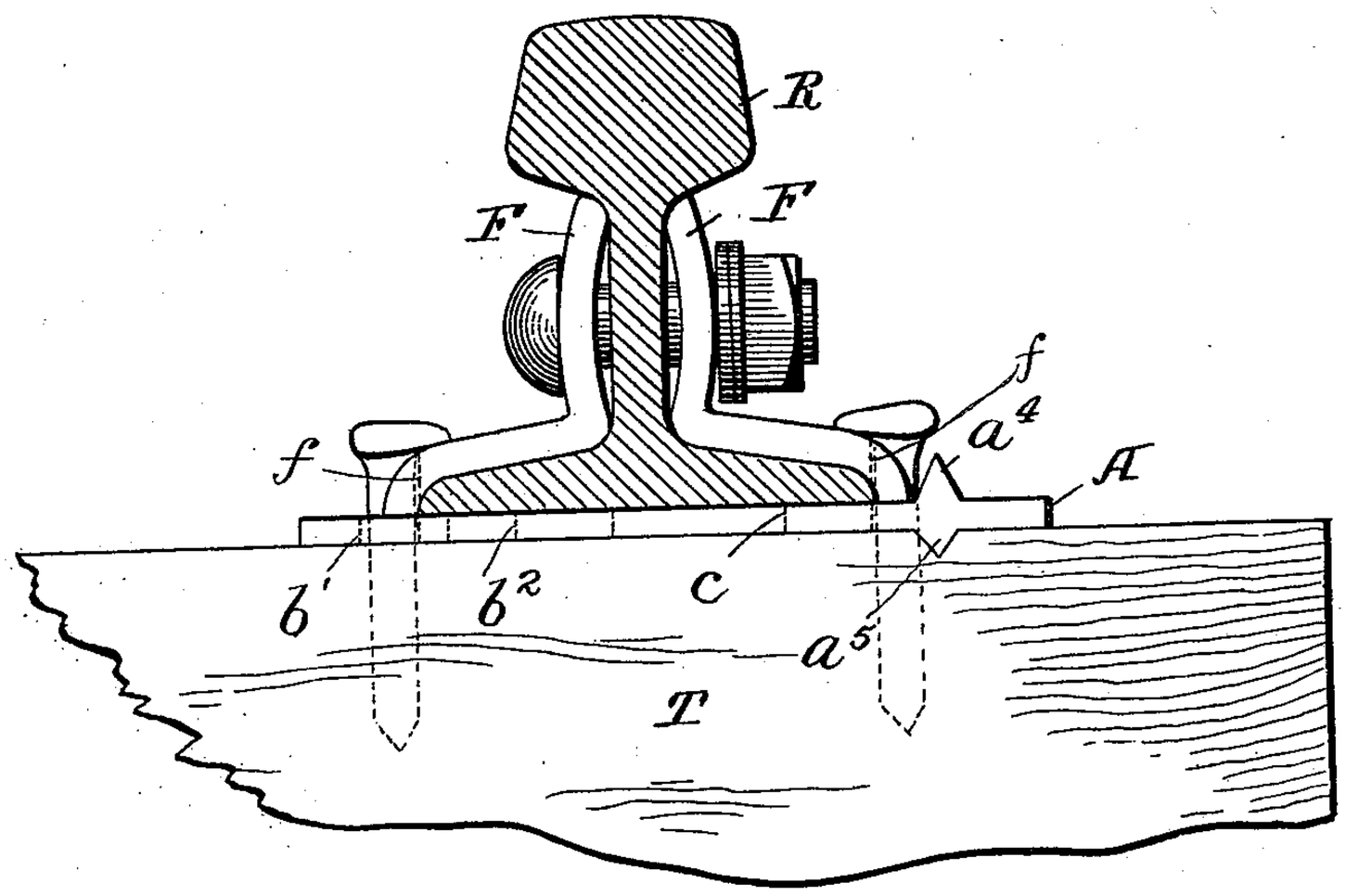
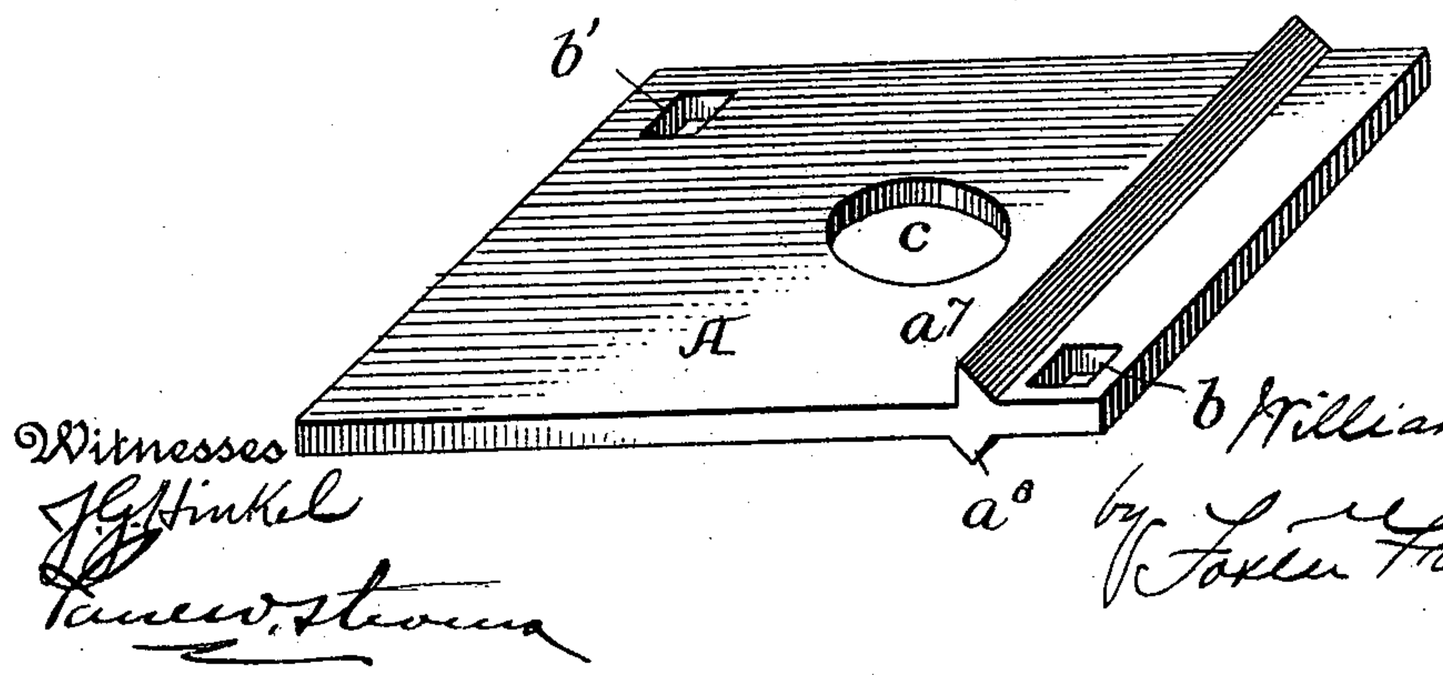


Fig. 6.



Witnesses
J. G. Hinkel
Lawrence Stevens

Inventor
William F. Gould
by Foster Freeman
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM F. GOULD, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO WEBSTER BISHOP, OF NEW YORK, N. Y.

RAILWAY-TIE PLATE.

SPECIFICATION forming part of Letters Patent No. 594,249, dated November 23, 1897.

Application filed February 13, 1897. Serial No. 623,305. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. GOULD, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Railway-Tie Plates, of which the following is a specification.

My invention relates to tie-plates, and has for its object to improve and simplify the construction of such plates and to provide for various features due to wear of the tie-plate and tie, as well as to facilitate the application of the plate; and to these ends my invention consists in the various features of construction, substantially as hereinafter pointed out.

In the accompanying drawings, Figure 1 is a perspective view of one embodiment of my invention. Fig. 2 is a sectional view of a portion of a rail and tie. Fig. 3 is a similar view showing the tie-plate in place. Figs. 4, 5, and 6 are perspective views illustrating modified features of the invention.

One of the distinguishing characteristics of my present invention consists in an invertible tie-plate in which the ribs or projections are arranged on opposite sides of the plate and in substantially the same vertical plane.

Another feature of my invention consists in making the ribs or projections on opposite sides of the plates of different shapes or sizes with relation to each other.

Other features of the invention will be pointed out more specifically hereinafter, and while all these features may be embodied in a single construction it is evident that some features of the invention may be used independently of others or in connection with other features of construction without departing from the spirit of my invention.

In the embodiment of my invention shown in Fig. 1 A is a tie-plate having ribs a a' on opposite faces of the plate and substantially in the same vertical plane. These ribs may be of any desired shape, size, or configuration and formed in any desired and well-known manner, but in all instances are on opposite sides of the plate and opposite each other, preferably near one end of the plate. The plate is also provided with spike-openings b b' b^2, the openings being arranged in such a position that when the plate is inverted they will not coincide with openings made in the tie by the spikes when the plate was previously secured thereto. I have shown openings b' b^2 at different distances from the ribs a a', so as to adapt the plate for rails the bases of which vary in width. I have also shown a central opening c for the reception of a piece of rubber or other fibrous or elastic material which may be interposed between the rail and tie to prevent noise or rattle.

One of the advantages due to the construction of a tie-plate according to my invention with the ribs on opposite sides and practically in the same vertical plane resides in the facility with which it may be applied to the rails, whether previously laid or being laid, and, further, in the fact that the recess or channel in the tie for the reception of the ribs is located outside the edge of the rail, so that it will not only perform its function of preventing lateral or outward movement of the rail, but will not weaken the tie, as it would if the notch or recess were inside the base of the rail; and, further, it is the most advantageous position for the notch, for if perchance the tie decays it will not interfere with the proper support of the rail or tie-plate.

In Fig. 2 I have shown a tie T and a portion of a rail R laid thereon and in proper position or alinement with the rail. Adjacent to the outside edge of the base of the rail I have shown a notch n. This can readily be made by any suitable tool after the rail has been adjusted in proper position, and in order to apply the plate it is only necessary to lift the rail slightly and slip the plate under the rail until the rib a or a', as the case may be, falls into the notch or recess n, when the upper rib will bear against the edge of the rail and serve to retain it in position and the under rib will fit in the notch and tend to hold the tie-plate in its position. The absence of any ribs on the portion of the plate which is slipped under the rail is a great advantage in this manner of applying plates, as it obviates the necessity of raising the rail to any considerable degree. When the plate is thus in position, it may be secured by proper spikes, and when through wear or otherwise it is desirable to invert the plate it is only necessary to remove the spikes, withdraw the plate, and insert it

the other side up, when the spike-holes will come opposite fresh portions of the tie, so as to receive and securely hold the spikes.

The cushion C may be of any desired form or material and may or may not be used in all the tie-plates, as deemed expedient; but it is arranged in the opening *c* so that it bears on the top of the tie and on the bottom of the rail and is held in position by the opening, so that it will prevent all noise or jar.

As shown in the different figures, the ribs on opposite sides of the plate may be either of the same shape or differ from each other in shape, size, or configuration. Thus in Fig. 1 the ribs have parallel sides and inclined faces and are practically the same on both sides of the tie-plate. In Fig. 3 the ribs have inclined sides and are practically of the same size and shape. In Fig. 4 the rib a^2 is shown as having one side (and that the outside) substantially at right angles to the plate, while the rib a^3 has inclined sides and the base is of greater width than the base of the rib a^2, although the outer edges of each are in substantially the same plane. The advantage of this latter construction is that if, for instance, the plate is used in the position shown in Fig. 4 the recess in the tie will conform more or less closely to the form of the rib a^2, and if the recess becomes worn or compressed toward the outside or end of the tie under the strain on the rail the plate may be inverted and the outside inclined face of the rib a^3 will tend to center the plate in its original position and thereby restore the rail to its proper alinement. Practically the same result will be accomplished by the ribs of the form shown in Fig. 5, where their contour is substantially the same, but the upper rib a^4 is higher than the lower rib a^5, and consequently enters farther into the recess if perchance it is worn. In Fig. 6 another form is shown in which the under rib a^6 has converging sides, while the upper rib a^7 has substantially one vertical side. (Shown somewhat exaggerated.) In this construction the outer edges of the respective ribs are somewhat out of the same vertical plane to take up any wear in the recess, while the main bodies or bases of the ribs are practically in the same vertical plane.

In Fig. 5 I have shown the use of my invention in connection with fish-plates F, the lower edges of which bear on the tie-plates, and the outer one is located between the rib in the tie-plate and the outer edge of the rail. In ordinary railroad construction these fish-plates F are usually provided with spike-holes *f*, so that the spike will impinge upon the edge of the flange of the rail, and these spike-holes are usually arranged staggered with relation to each other to each rail.

In the ordinary reversible tie-plate in order to adapt it for use with either rail it has been necessary to make four spike-openings, two of which are used with one of the rails and two with the other rail; or else it has been necessary to make what are known as right and left handed tie-plates having only two openings each, but differently arranged to fit the different rails.

By the use of my invertible tie-plate it will be seen that I avoid the necessity of making rights and lefts or of making four openings for spikes, as the two spike-openings will come in proper relation to the openings *f* in the fish-plates, so that under whichever rail it is used the openings will be in proper position. Thus in Fig. 5 I have shown the spike-hole adjacent the rib and inside thereof, between the rib and the flange of the rail, and the other spike-hole *b'* in a staggered relation to the first hole. This feature of my invertible tie-plate is true whether the ribs are arranged in substantially the same vertical plane or in different vertical planes.

Other features of adaptability of my invention need not be pointed out herein, as they will be readily appreciated by those skilled in the art.

While I have thus described and shown certain embodiments of my invention and adaptations of its use, it will be understood that I do not limit myself to the precise construction and arrangement shown, as these may be varied to suit the exigencies of any particular case.

While I have shown the ribs as extending completely across the tie-plate, it is evident that they may be made sectional or otherwise, as this forms no essential part of my invention.

What I claim is—

1. An invertible tie-plate provided with a rib on its opposite faces, the ribs being in the same vertical plane, substantially as described.

2. An invertible tie-plate provided with a rib on its opposite faces, the ribs differing from each other in cross-section, substantially as described.

3. An invertible tie-plate having a rib on each of its faces the ribs being in the same vertical plane and having a number of spike-openings in different positions with relation to the ribs to adapt the plate for rails of various sizes, substantially as described.

4. A tie-plate provided with an opening, and a cushion adapted to said opening and arranged to bear on the tie and rail, substantially as described.

5. The combination with a rail, of a tie having a recess along the outer edge of the rail, and an invertible tie-plate having ribs in the same vertical plane one entering the recess and the other bearing against the outer edge of the rail, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. GOULD.

Witnesses:
MILLIGAN L. SILLIMAN,
ROBERT S. HUSTON.