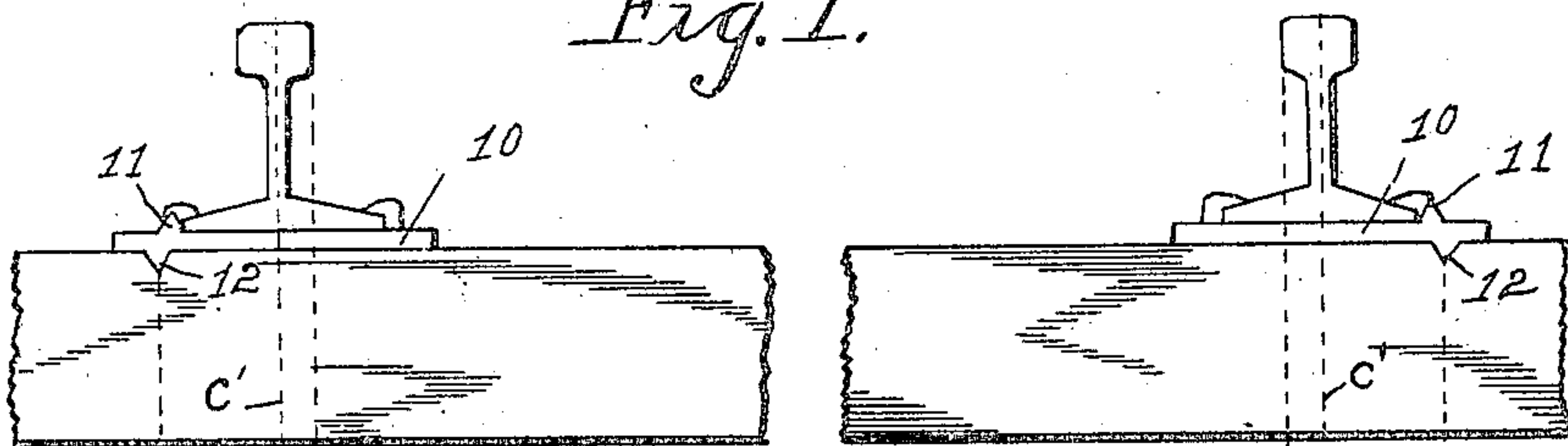


No. 838,618.

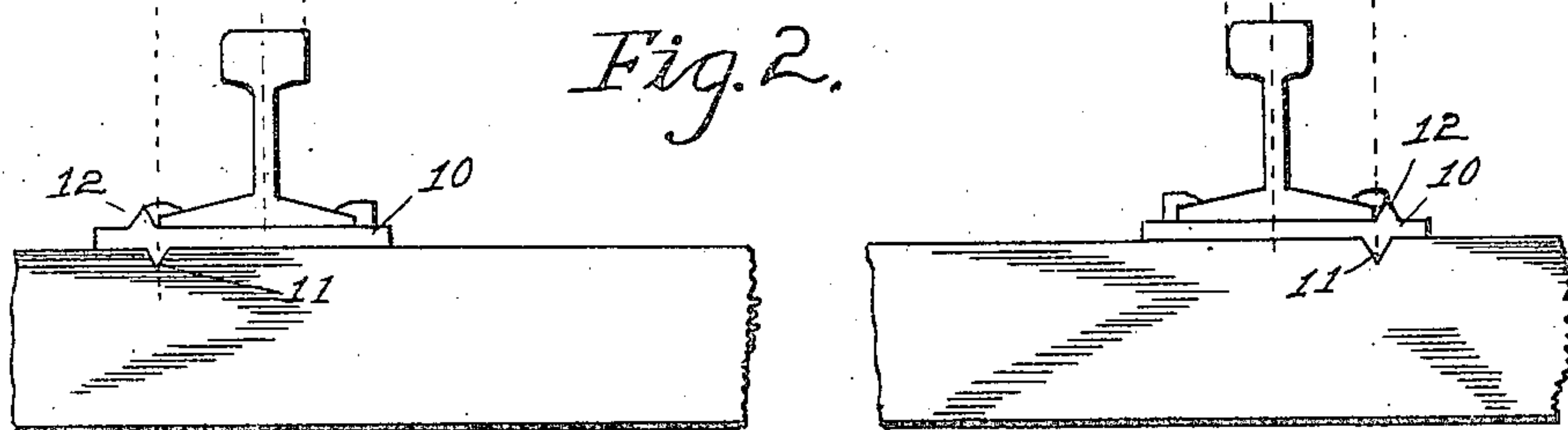
PATENTED DEC. 18, 1906.

W. F. GOULD.  
RAILWAY TIE PLATE.  
APPLICATION FILED APR. 25, 1906.

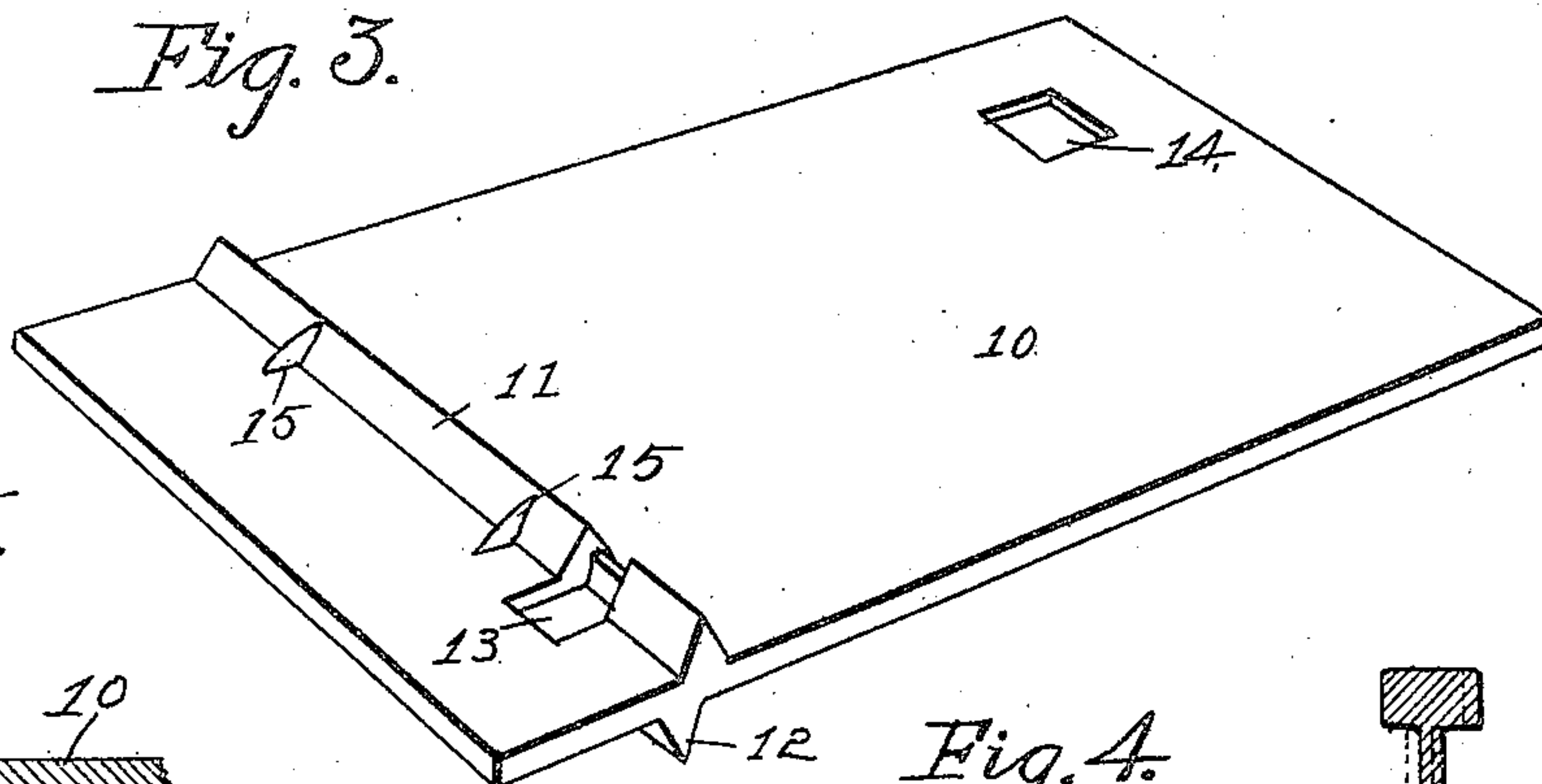
*Fig. 1.*



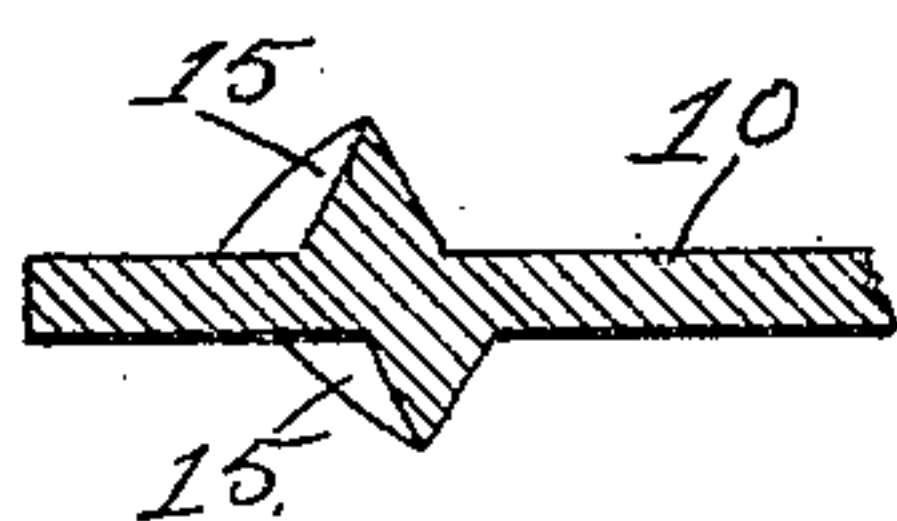
*Fig. 2.*



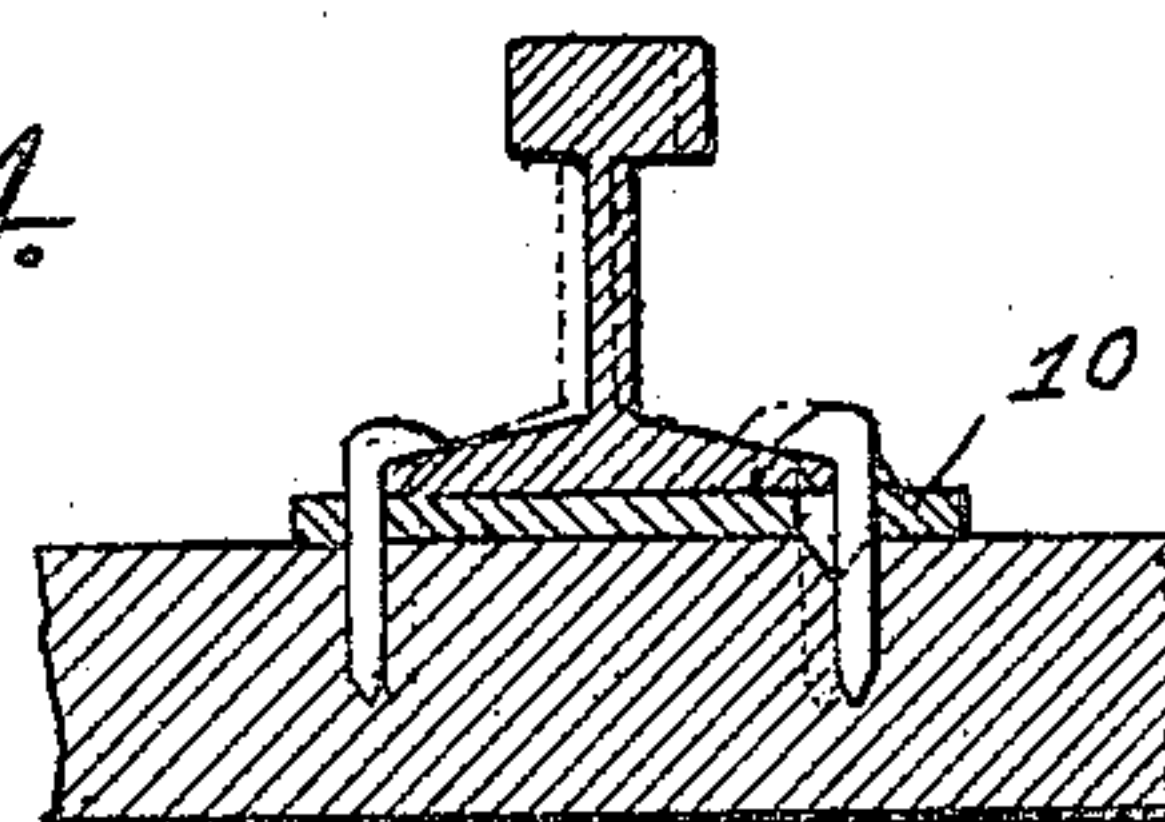
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM F. GOULD, OF DES MOINES, IOWA.

## RAILWAY-TIE PLATE.

No. 838,618.

Specification of Letters Patent.

Patented Dec. 13, 1906.

Application filed April 25, 1905. Serial No. 257,388.

*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.

The objects of my invention are to provide an invertible tie-plate especially designed for use in cases where it is desirable to remove a set of rails of relatively narrow width and replace them with rails relatively wider, the tie-plate being so designed that the change from a rail of one width to another may be made by inverting the plate and placing the ribs of the plate in the same notches in the tie, thereby preserving the gage of the track while substituting a large for a small rail, or vice versa.

A further object is to provide a tie-plate of this class in which the spike at the inner end of the plate will tightly fit its spike-opening, and thus bear its portion of the strain upon the tie-plate when the tie-plate is used either with a large or small rail and the outer edge of the rail will engage one of the ribs on the tie-plate and not engage the shank of a spike in the outer end of the plate when the tie-plate is used for either a large or small rail, to thereby prevent the rail from cutting the shank of the outer spike and to thereby use both spikes for preventing outward movement of the tie-plate relative to the tie.

My invention consists in the construction of the tie-plate whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows an edge view of the tie with my improved tie-plates in position thereon and two rails having relatively narrow flanges mounted on the tie-plates, as in practical use. Fig. 2 shows a like view with the tie-plates inverted and rails of relatively greater width placed thereon, as in practical use. Fig. 3 shows a perspective view of one of the tie-plates. Fig. 4 shows a sectional view of a rail, a tie-plate, and a tie arranged in position for use. The dotted lines in said view indicate the position of a relatively narrow rail placed upon the tie-plate when inverted. Fig. 5 shows a detail sectional view illustrating the projections from the rail-engaging ribs of the tie-plate.

Referring to the accompanying drawings, I

have used the reference-numeral 10 to indicate the body portion of the tie-plate. On one face of the body portion I have provided a rail-engaging rib 11, extending transversely of the tie-plate near one end. On the other surface of the tie-plate I have provided a similar rib 12, arranged nearer to the outer end of the tie-plate than the rib 11. A spike-opening 13 is formed in the plate, said spike-opening running through the rib 12 and through the outer portion of the rib 11. Said spike-opening is of slightly-greater dimension longitudinally of the plate than transversely for purposes hereinafter made clear. At the diametrically opposite corner of the plate, near its inner end, is a spike-opening 14 of a size to accurately fit a spike. Formed on the ribs 11 and 12 are the lateral projections 15, designed to enter the fibers of a tie and prevent the plate from moving in a direction longitudinally of the rib.

In practical use and assuming that the plates are first used in connection with rails having flanges of relatively narrow width then the plates are placed upon the tie in the manner shown in Fig. 1, with the ribs 11 uppermost. (This is the rib that is farthest away from the outer end of the tie-plate.) Then the rail-flange is placed upon the tie-plate with one edge in engagement with the rib 11. Then a spike is passed through the opening 14, and in this way the tie-plate is prevented from moving in any direction relative to the tie. Then a spike is passed through the opening 13 against the end thereof farthest from the outer end of the plate, and the rail-flange is held on top of the plate by the heads of the spikes in the ordinary manner. This outer spike alone when in said position will prevent outward movement of the plate relative to the tie, because its shank engages the inner end of the spike-opening 13. When it is desired to use a rail having a wider flange, the tie-plate is inverted and the rib 11 is placed in the same notch in the tie that the rib 12 formerly occupied. Then a spike is passed through the spike-opening 14 and enters a part of the tie that had not been previously used, and a spike is inserted in the spike-opening 13, with its outer edge against the outer boundary of the opening 13 and its head overlapping the adjacent portion of the rail-flange. In this way the plate is prevented from moving in any direction on the tie by the spike-heads in the ordinary way. The outer spike alone would pre-



vent outward movement of the tie-plate, because its shank engages the plate and the rail engages the integral rib 12 of the plate. If it is desired to adapt a tie-plate for use in connection with either a rail having a four-and-one-half inch flange or a rail having a five-inch flange, then the inner edges of the ribs 11 and 12 are placed one-fourth of an inch apart from each other, and the tie-plate may be used in connection with either sized rail, and spikes passed through the same openings will hold the plate from movement relative to the tie and will also hold the rail firmly to the plate and to the tie. In reconstructing a railway-track with wide rails that had first been laid with relatively narrow rails I proceed as follows: The tie-plates are inverted and the rail-engaging ribs are placed in the same notches in the ties formed by the rail-engaging ribs which first enter them. This feature is clearly illustrated in Figs. 1 and 2, in which the dotted lines show a line drawn from the notch shown in the tie in Fig. 1 to the notch in the tie in Fig. 2, showing that the plate has been inverted and bodily moved outwardly. Then the rails having flanges of greater width are placed on the inverted tie-plates, as shown in Fig. 2. These rails are provided with head portions of greater width than the rails shown in Fig. 1, and by this arrangement the inner edges of the head portions of the rails are spaced apart exactly the same distance as the inner portions of the narrower rails previously used. The dotted lines B in Figs. 1 and 2 illustrate this feature. In the same figures the dotted lines *c* and *c'* show that the central portions of the rails are not spaced apart exactly the same distance, as the said dotted lines overlap each other between the figures.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. A railway-tie plate, having a rail-engaging rib on its upper face and a rail-engaging rib on its under face out of vertical alignment with the first rib and a spike-opening passed through the plate and through said ribs, said opening of a size and shape to permit a spike to enter from the side having a rib farthest from the outer end of the plate, and stand wholly outside of the inner edge of the rib on said side, and also to permit a spike to enter from the side nearest the outer end of the plate and stand wholly outside of the inner edge of the rib on said side.

2. A railway-tie plate, having a rail-engaging rib on its upper face and a rail-engaging rib on its under face out of vertical alignment with the first rib and a spike-opening

passed through the plate and through said ribs, said opening of a size and shape to permit a spike to enter from the side having a rib farthest from the outer end of the plate, and stand wholly outside of the inner edge of the rib on said side, and also to permit a spike to enter from the side nearest the outer end of the plate and stand wholly outside of the inner edge of the rib on said side, the inner end of the tie-plate provided with an opening to accurately fit a spike.

3. A railway-tie plate, having a rail-engaging rib on its upper face and a rail-engaging rib on its under face out of vertical alignment with the first rib and a spike-opening passed through the plate and through said ribs, said spike-opening of a width to fit the sides of a spike and of a length to extend from a point near the inner edge of the inner rib to a point where it will admit a spike wholly outside of the inner edge of the outer rib.

4. A railway-tie plate, having a rail-engaging rib on its upper face and a rail-engaging rib on its under face out of vertical alignment with the first rib and a spike-opening passed through the plate and through said ribs, said spike-opening of a width to fit the sides of a spike and of a length to extend from a point near the inner edge of the inner rib to a point where it will admit a spike wholly outside of the inner edge of the outer rib, the inner end of the tie-plate provided with an opening to accurately fit all sides of a spike.

5. The combination of a railway-tie having a notch near each end, two invertible tie-plates, each having on one surface a rail-rest portion to receive a relatively narrow rail and a rib at the outer side of the rail-rest portion to engage the flange of said rail, said plate also provided on its other face with a rail-rest portion of relatively greater width and a rib at the outer side of said rail-rest portion designed to engage a rail, said latter rib nearer the adjacent end of the plate than the first-mentioned one and said ribs on the under surfaces of the plates inserted in the notches in the tie, each plate also provided with a spike-receiving slot near its outer end arranged to receive a spike that will stand wholly outside of the inner edge of the rib nearest the end of the plate and each plate also provided with an opening near its inner end designed to accurately fit a spike.

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Witnesses:

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