

No. 662,850.

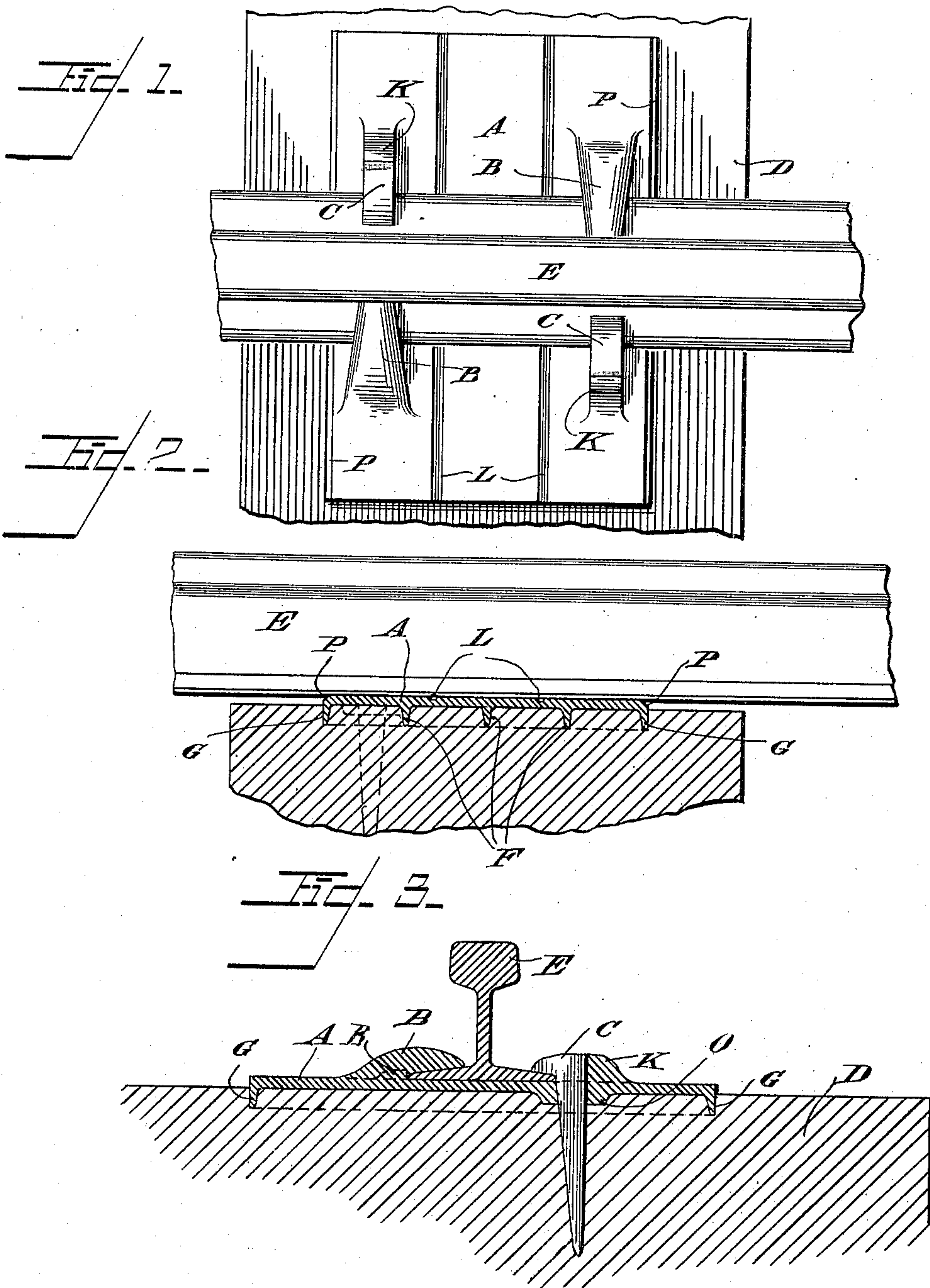
Patented Nov. 27, 1900.

H. W. AVERY.

TIE PLATE.

(Application filed Jan. 5, 1900.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

HENRY W. AVERY, OF CLEVELAND, OHIO.

## TIE-PLATE.

SPECIFICATION forming part of Letters Patent No. 662,850, dated November 27, 1900.

Application filed January 5, 1900. Serial No. 433. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. AVERY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Tie-Plates, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to railroad-tie plates; and its object is to provide a strong, durable, and efficient tie-plate which may be readily and cheaply manufactured.

In construction it consists, essentially, of a flanged plate forming approximately a shallow inverted box, which is provided with lugs to engage the rail-flange and spike-holes for fastening it to the cross-tie, all of which will be more fully described hereinafter and definitely set forth in the claims.

Figure 1 is a plan of a rail with my device applied as in practice. Fig. 2 is a vertical cross-section of the tie-plate and tie in the plane of the axis of the rail. Fig. 3 is a cross-section taken at right angles to the axis of the rail and passing through a lug and spike-hole.

The device is adapted to be formed of cast-iron.

In the drawings, A represents my tie-plate. It is a rectangular plate which may be flat or grooved on its upper side, and it carries two lugs B B, located at opposite sides of a central line of the plate and close to opposite edges thereof. These lugs may project toward the central line of the plate, as shown, in which case they are adapted to engage the flanges of the rail E and prevent a displacement of the rail. As to an exact shape of these lugs I do not confine myself. In some cases I may make the lugs simply vertical projections, as indicated by dotted lines in Fig. 3, to prevent lateral displacement only of the rail, or I may project the lug toward the rail, so as to give the cavity formed beneath it approximately the shape of the rail-flange to insure better engagement and to oppose any tendency of the rail to rise. The latter form is the one shown by full lines in the drawings. Holes are also formed in the

plate, preferably at points directly opposite the lugs, to receive the spikes C C, which are driven therethrough and into the cross-tie D.

On the under side of the tie-plate is formed a narrow marginal flange G, which projects vertically downward and extends completely around the tie-plate and has a more or less sharp lower edge. Extending from end to end of the plate are a plurality of parallel downwardly-extending webs F, which are approximately of the same depth and form as the marginal flange G and connect with it at their ends.

On the upper side of the plate may be formed a plurality of shallow depressions L, running at right angles to the direction of the rail and intended to facilitate the drainage of water from the plate. As will be seen from the drawings, I place the spike-holes close to the edges of the rail-flange, so that the spikes hold the rail against the lug B and in the recesses below the lug. I also form small lugs K upon the upper side of the plate, immediately back of the spikes, to brace them, and bosses O are made on the lower side, around the spike-holes, to give additional strength. The opposite edges of the plate lying at right angles to the rail are given a slight bevel B.

In applying my device to a rail one of the lugs B, if made as shown, will be hooked over the flange, the rail then lying in an inclined line between the other lug B and its opposite spike-lug. The plate is then swung around until the other lug B embraces the flange, the inner profile of the lugs B being such that the flanges will come to a snug fit in the position of the plate shown in the drawings. The spikes are now driven.

The advantages of the invention are evident. The vertical webs below the plate are really trusses across the rail whereby greater strength is given to the plate at the same time that the weight is decreased. The flanges and webs being forced into the cross-tie by the weight of passing trains effectually secure the plate against any lateral or longitudinal motion and the spikes are relieved of much of their side strain. At the same time the lugs B on the top of the plate, together with the spike-heads, make a secure fastening for

the rail. The marginal flange prevents the accumulation of water beneath the plate, which would rot the ties.

What I claim as my invention, and desire  
5 to secure by Letters Patent, is—

1. A railroad-tie plate having a pair of lugs, one on each side of the rail position thereof, said lugs being adapted to clasp a rail-flange, the points directly opposite said lugs hav-  
10 ing spike-holes with reinforcing-lugs for the spikes, substantially as described.

2. A railroad-tie plate having two lugs one on each side of the rail-line thereof, said lugs being adapted to clasp a rail-flange, spike-  
15 holes with reinforcing-lugs behind them opposite said lugs, and drain-gutters between said lugs passing from edge to edge of said

plate beneath the rail-flange, substantially as described.

3. A railroad-tie plate having upon its up- 20 per side a lug on each side of the rail-line thereof, said lugs projecting toward the said rail-line and adapted to confine a rail-flange beneath them, spike-holes with reinforcing-lugs behind them opposite said lugs, and a 25 marginal flange with transverse webs upon its lower side, substantially as described.

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

HENRY W. AVERY.

Witnesses:

ALBERT H. BATES,  
H. M. WISE.