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J. LUNDIE

TIE PLATE

Filed June 2, 1923

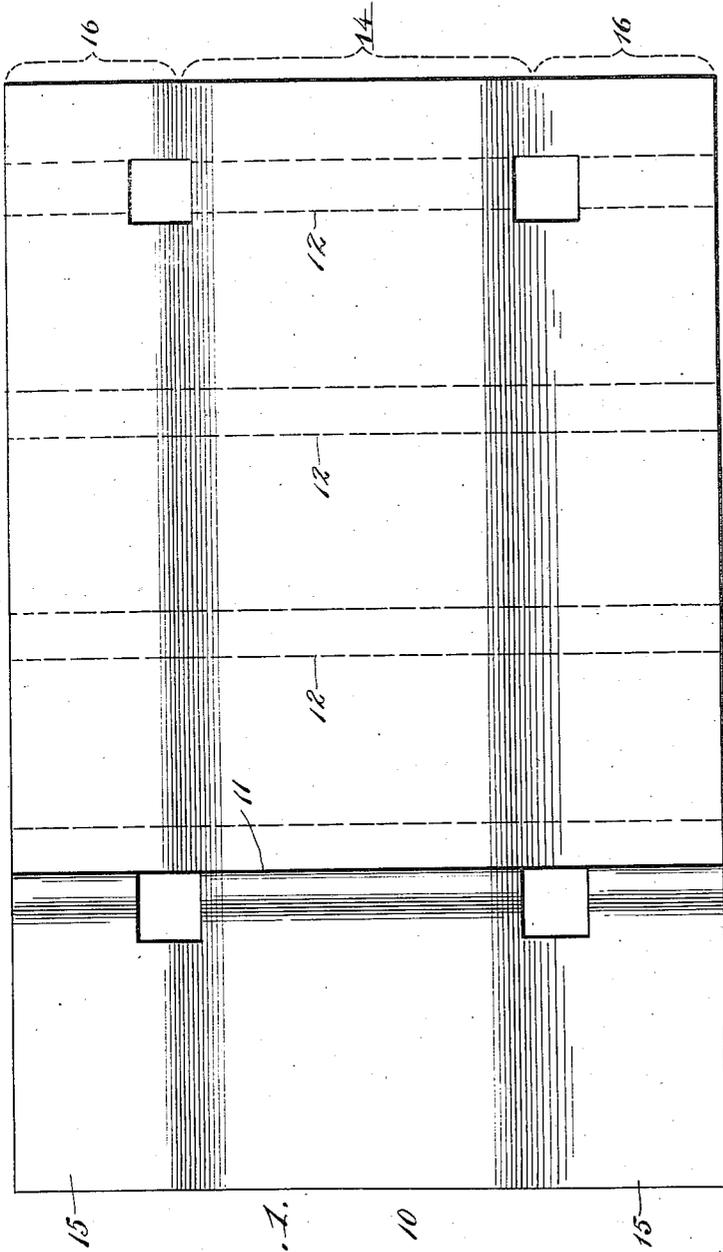


Fig. 1.

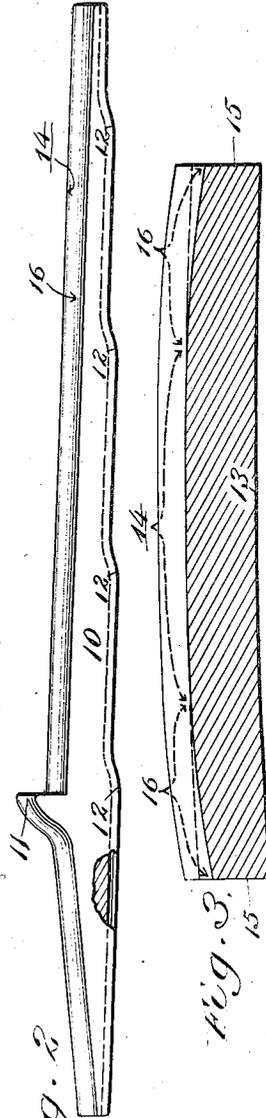


Fig. 2.

Fig. 3.

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TIE PLATE.

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To all whom it may concern:

Be it known that I, JOHN LUNDIE, a citizen of the United States, residing at New York, New York, have invented certain new and useful Improvements in Tie Plates, of which the following is a specification.

The present invention relates to railway tie-plates, of the type shown in my Reissue Letters Patent No. 14,124, dated May 2nd, 1916. The plate of the present invention is an improvement over that type of plate in that while it is slightly resilient when under load and has upper and lower curved surfaces to provide a convex top and a concave bottom, the curvature of the middle portion of its upper surface is preferably on a given radius, and the opposite surfaces of the edge portions of the plate converge away from said middle portion, having mainly in view the object of saving unnecessary metal and thus lightening the plate without impairing the efficiency thereof.

With this and other objects in view, as will appear herefrom, the present invention consists of certain novel features to be hereinafter described and then claimed with reference to the accompanying drawings, illustrating one embodiment thereof, and in which—

Fig. 1 is a plan, parts being indicated by dotted lines;

Fig. 2 is an edge view with the top of the bottom concavity indicated by dotted lines; and

Fig. 3 is a transverse section.

Referring to the drawings, the body 10 of the plate has a rail-abutting shoulder 11 and ribs or steps 12. The plate is composed of metal such as steel, for example, and is so formed as to act resiliently under a train load.

The bottom of the plate is curved, preferably on a radius of about ten feet, so as to make it somewhat resilient and to form a slight concavity 13 which extends from one side edge to the other side edge of the plate, which are those side edges that extend transversely of the tie on which the plate is to ultimately seat, and the ribs or steps 12 depend from that concavity, and are preferably small enough so that they will not cut or damage the tie, but will yet tend to wear a seat for the concaved bottom without injuring the fibres of the tie and sufficiently act to hold the plate seated on the tie.

The middle portion 14 of the top surface

of the plate is curved transversely of the plate so as to provide a convexity, and the curvature is preferably on the same radius as the curvature of the bottom of the plate. The curvature 14 affords sufficient bearing for the rail to rest and rock on when a train passes over the rail.

The opposite surfaces of the edge portions 15 of the plate, at both sides of the curvature 14, converge away therefrom to save unnecessary metal, and thus to lighten the plate, while retaining and not impairing its efficiency. The arcs of curvature extend transverse of the tie on which the plate is to ultimately seat. Preferably, the whole top surface of the plate is curved convexly in such way that the curvature is held, at the radius of the bottom curvature, through a great portion of its length, as at 14, while the ends of said top curvature are of decreased radius, as at 16, so that if, for example, the plate has a curve of a ten foot radius at 14, the radius at 16 would be less, say six feet. In effect, the general inclination of the surfaces at 16 is greater than the intermediate surface at 14.

Consequently, under the present invention tie-plates having the same specifications for the metal as the other type mentioned and of corresponding size may be made cheaper and of less weight, without impairing their efficiency.

It is obvious that slight changes may be made in the tie-plate shown and described without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. A tie plate, which is free from tie penetrating or splitting parts, and has upwardly but slightly curved top and bottom surfaces extending from edge to edge of the plate, the curvature extending in an arc transverse of the tie on which the plate is to ultimately seat, the top curvature being held through the greater portion of its length, each end of the curve of the said top surface being on a less radius than the intermediate portion of that curve and the bottom curvature being maintained on a given radius from edge to edge of the plate.

2. A tie plate having upwardly curved top and bottom surfaces, the curvature of both of the surfaces being approximately on a ten foot radius and extending in arcs transverse of the tie on which the plate is to ultimately seat, except that the upward top cur-

vature is on a decreased radius at the edge portions of the plate which are at the ends of said arcs.

3. A tie plate having a bottom which is 5 concavely curved from edge to edge of the plate and a top with its middle portion convexly curved to the same degree as the bottom, both curvatures extending in arcs transverse of the tie on which the plate is to ultimately seat, and the opposite surfaces of the 10 edge portions of the plate which are at the ends of said arcs converging away from said middle portion.

4. A tie plate, which is slightly curved 15 on its under-face and at the middle of its upper-face so as to provide a convex top

and a concave bottom, the said middle top curvature and the entire bottom curvature each being on a radius of approximately ten feet and extending in arcs transverse of the tie on which the plate is to ultimately seat, 20 and the opposite surfaces of the edge portions of the plate which are at the ends of said arcs converging away from said middle top curvature, the bottom of said plate having slight bottom ribs which extend across 25 and between said edge portions, and the plate being resilient from edge to edge under a train load and forming, throughout its bottom surface, its own seat on the tie without injuring the fibres of the tie. 30

JOHN LUNDIE.