

Nov. 18, 1924.

1,516,051

J. LUNDIE

TIE PLATE

Filed Nov. 5, 1923

Fig. 1.

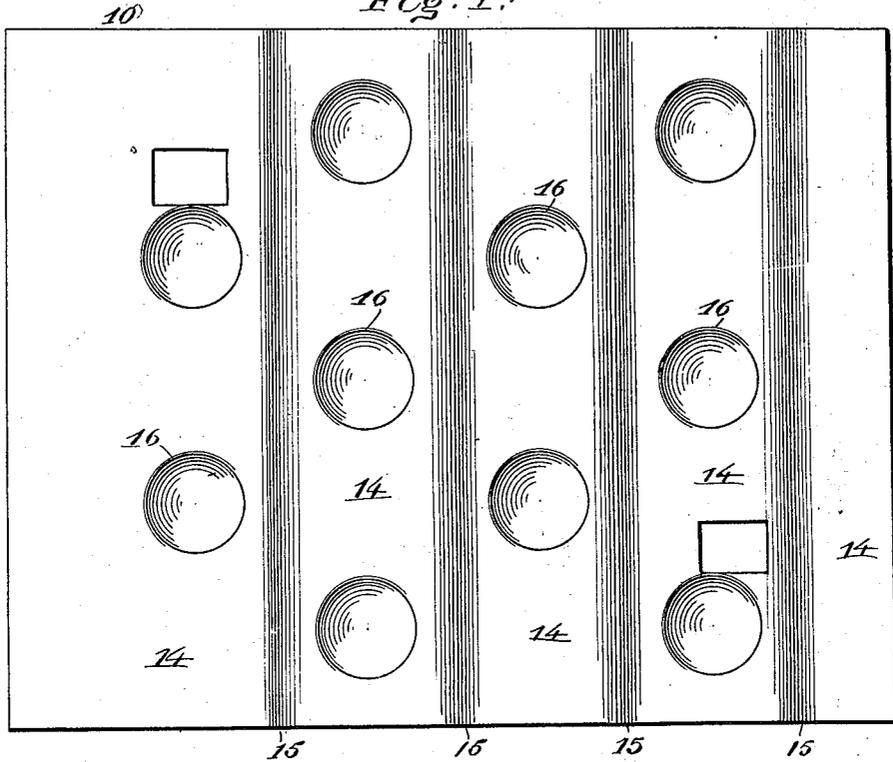


Fig. 2.

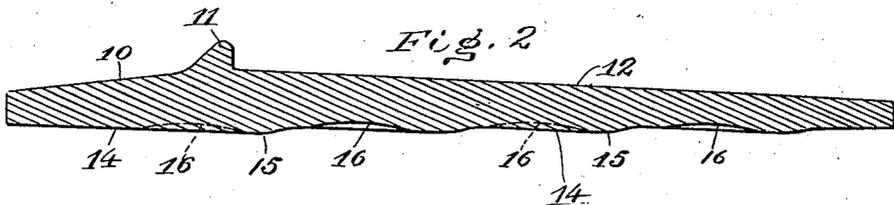


Fig. 3.

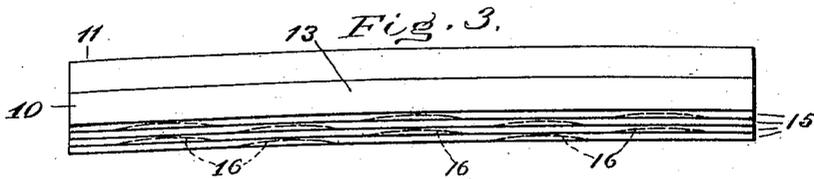
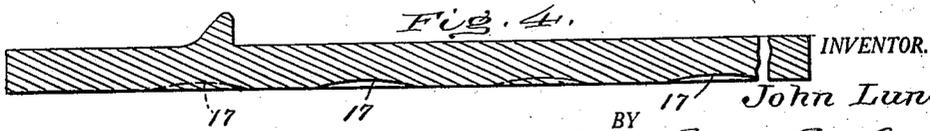


Fig. 4.



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TIE PLATE.

Application filed November 5, 1923. Serial No. 672,395.

To all whom it may concern:

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

This invention relates to improvements in tie-plates generally and is a specific improvement over the tie-plate of my Reissue Letters Patent No. 14,124, dated May 2, 1916, although capable of a broader application.

One of the objects of the present invention is to provide the bottom of a tie-plate with depressions indented therein, the depressions being so placed in the bottom of the plate that in view of large surrounding areas or portions of said bottom, the said depressions, which are slight, may act with a suction effect on a tie both before and after the plate is fully seated on the tie. This object is probably more fully gained in places where the wooden ties are constantly kept moist, as, for instance, in tunnels, or in other places where the ties are moist, although this suction effect is gained in connection with wooden ties generally.

Other objects of the invention are to provide tie-plates with depressions indented in the bottom surfaces thereof, which will assist very materially in the rolling of the plates, inasmuch as the protuberances on the rolls corresponding to the depressions would grip the bar as it passes through the rolls; to provide tie-plates with indented depressions which will not impair the strength of any plate but would reduce its weight somewhat; and, by reason of the indented depressions, to tend to prevent slippage of the plate not only crosswise of rail but at right angles to it.

The improved tie-plate in its preliminary seating, especially adapts itself to creosoted ties, owing to the suction action which it would have on such ties.

These being among the objects of the present invention, the same consists of certain features of construction and combinations of parts to be hereinafter described and then claimed with reference to the ac-

companied drawings illustrating desirable embodiments of the invention and in which—

Fig. 1 is an under-side plan of the invention as applied to what is known as the "Lundie" type of tie-plate;

Fig. 2 is a longitudinal section thereof;

Fig. 3 is an end elevation of the same, the toe end of the plate being slightly raised out of the normal seating position of the plate so as to more fully disclose the relation of the indented depressions to the under-surface of the plate;

Fig. 4 is a longitudinal section of a true "flat" tie-plate or a "flat-bottomed" tie-plate.

Referring to Figs. 1, 2 and 3 of the drawings, the tie-plate 10 is shown as of the "Lundie" type. It is provided with a rail-retaining shoulder 11 and an inclined top 12 on which the rail rests so that it would be inclined. Preferably the inclination corresponds to the coning of the standard coned tread car wheel. Preferably the plate is truly cambered as indicated at 13, throughout the width of the plate, that is parallel to the rail-retaining or abutting shoulder 11. The under-side of the plate is provided with preferably flat parallel surfaces 14 which extend parallel with the rail-abutting shoulder 11 and which are parallel with the convex top surface 12 of the plate. These flats or flat surfaces 14 are stepped, as it were, so as to develop or form ribs 15 which extend transversely of the plate in the same direction as the shoulder 11.

As applied to the "Lundie" type of tie-plate the present invention resides in cuplike depressions 16 which are indented into the concaved bottom surface of the plate. The number of the depressions in the series may, of course, be varied, and preferably they are arranged in staggered relation to each other so that certain lines thereof extend diagonally of the plate. However the number of the depressions or the arrangement may be, each depression is preferably of circular form or approximately so and is small relatively to the surrounding tie-bearing area of the bottom of the plate. As applied to the plate shown it will be seen that the depressions 16 extend in rows transversely of the plate, there being one row preferably for each flat or transverse flat surface 14.

Preferably the edge of each depression is rounded off so as not to tend to injure the tie. It will be seen that a tie-plate provided with relatively small cup-shaped depressions in its bottom surface will tend to adhere to the tie by suction. The relatively large bearing surfaces and the shallow depressions indented in the bottom of the tie-plate define the profile of the bottom of the plate, and when the plate is being seated on the tie and after it has been fully seated thereupon it will have produced a reverse counterpart on the top surface of the tie in such way that the plate will be seated on the tie and will be subjected to use which will not tend to injure the fibres of the wood or damage the tie. At the same time the portions of the tie, which are molded, as it were, into the depressions, and the depressions themselves, tend to prevent slippage of the plate not only crosswise of the rail but at right angles to it. This action would lend itself acceptably to a tie-plate of the "Lundie" type.

However, the invention is not restricted to the type of tie-plate shown in Figs. 1, 2 and 3, inasmuch as the more or less scattered depressions may be indented into the bottom surface of a truly "flat" plate or into the bottom of a "flat-bottomed" tie-plate as indicated at 17 in Fig. 4. This and other modifications of the invention may be resorted to without departing from the spirit and scope thereof as defined in the claims.

I am aware that in the prior art it is old to provide depressions, which are more or less small in area, upon the bottoms of tie-plates, and which are located below the bottom surfaces thereof,—that is to say each depression, if such it may be called, is bounded by a tie-entering rib or flange; but so far as I am aware I am the first to suggest the idea of providing in, not on, the

bottom surface of a tie-plate a series of shallow depressions, each of which is bounded by a relatively large tie-bearing area of such bottom surface.

What I claim as new is—

1. A tie-plate having a concave-curved lower face for bearing upon a tie, and the concaved face having a series of scattered shallow depressions.

2. A truly-cambered tie-plate having a series of scattered shallow depressions in its concaved face.

3. A tie-plate, the lower face of which is indented with a series of shallow depressions, each of which depressions is surrounded by tie-bearing area of the lower face, which area is larger than that of the depression it surrounds.

4. A tie-plate, the lower face of which is indented with a series of shallow depressions, each having a circular-like area which is relatively small compared with adjacent tie-bearing portions of the lower face.

5. A tie-plate the lower face of which is ribbed, and is indented with a series of shallow depressions, each of which is surrounded by a tie-bearing area of the lower face, which area is larger than that of the depression it surrounds.

6. A tie-plate having an upper rail seat normal to the line of thrust of the standard coned tread car-wheel, and lower stepped surfaces parallel with said seat, the stepped surfaces having shallow depressions.

7. A tie-plate having an upper rail seat normal to the line of thrust of the standard coned tread car-wheel, and lower stepped surfaces parallel with said seat, the stepped surfaces having rows of shallow depressions extending longitudinally thereof.

JOHN LUNDIE.