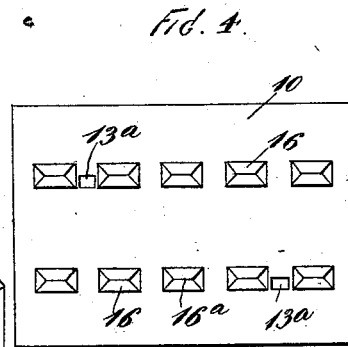
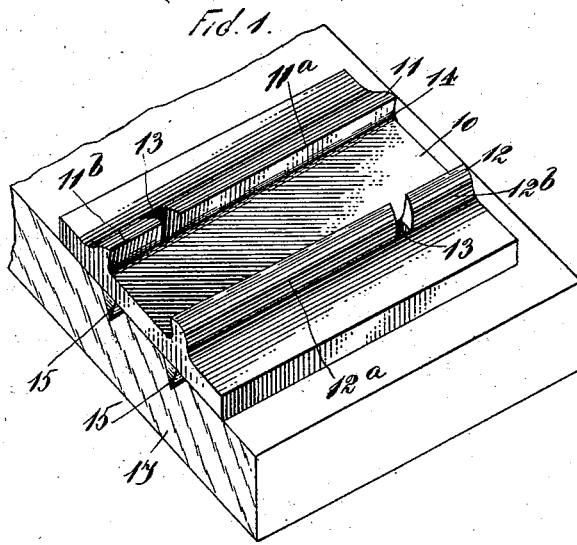
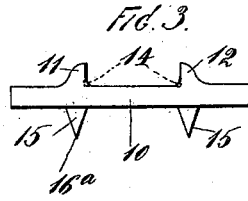
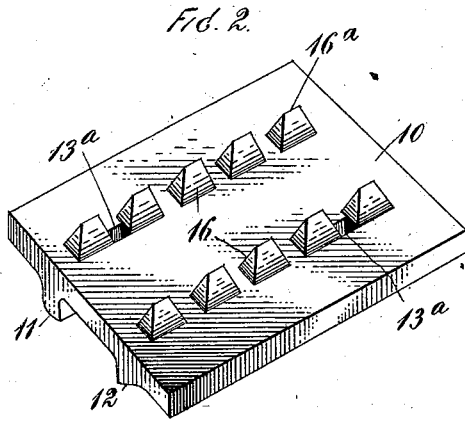


(No Model.)

J. CHURCHWARD.
WEAR PLATE.

No. 508,086.

Patented Nov. 7, 1893.



Witnesses:
John Buckler,
Percy J. Griffith

James Churchward,
 Inventor:
 By *Feld & Co.,*
 Attorneys

UNITED STATES PATENT OFFICE.

JAMES CHURCHWARD, OF BROOKLYN, NEW YORK.

WEAR-PLATE.

SPECIFICATION forming part of Letters Patent No. 508,086, dated November 7, 1893.

Application filed February 20, 1893. Serial No. 462,976. (No model.)

To all whom it may concern:

Be it known that I, JAMES CHURCHWARD, a subject of the Queen of England, and a resident of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Wear-Plates, of which the following is a specification.

My invention relates to railway appliances, and its object is to provide a plate to intervene the usual wooden tie and the rail, which will counteract any tendency of the rail to "creep" longitudinally or spread longitudinally particularly on curves, and which will prevent wear of the rail on the tie and otherwise conduce to its longevity.

The invention consists of a wear plate constructed as hereinafter described and claimed.

The accompanying drawings forming a part of this specification illustrate the invention, similar numerals of reference thereon indicating corresponding parts in the several views.

Figure 1 is a perspective view of a wear plate constructed in accordance with my invention, the tie appearing in dotted lines. Fig. 2 is an inverted perspective view of the plate. Fig. 3 is an end view of the same; and Fig. 4 is an inverted plan view.

In carrying my invention into effect, I construct the wear plate of metal, either iron or steel, in rectangular shape, and of any suitable and desired dimensions. The body of the plate 10, has formed upon its upper face preferably at points equidistant from its ends, two transversely-ranging parallel shoulders 11 and 12, each of which is divided transversely and at points diagonally opposite each other by a recess 13, in the base of which recess is formed a through aperture 13^a to receive a spike, the recess 13, as will appear by referring to Fig. 1 dividing the shoulders 11 and 12 into long sections 11^a and 12^a and short sections 11^b and 12^b. At the point of junction of the inner faces of the shoulders and the upper face of the plate, a fillet 14 is embedded by any suitable metal rolling machine. Said fillet is so introduced in order to strengthen the junction of the shoulders and plate and prevent fracture, and the faces of the fillets are concaved to correspond with the convexity of the edges of the base flange

of the rail. On the under face of the plate 10 and in vertical alignment with the shoulders 11 and 12, are formed one or more parallel ribs 15, comprising a series of divisions 16, five being shown in the drawings in each series, but their number may be increased if found desirable in practice. These divisions 16 are beveled equally on all their sides, and form a cutting edge 16^a and embrace near the ends of the series the spike apertures 13^a, as shown in Figs. 2 and 4. The divisions 16 of one rib may or may not be in transverse alignment as found desirable. In applying the wear plate, it is placed upon the tie 17, with its shoulders 11 and 12, and ribs 15, extending transversely of the tie and across the grain of the wood, the divisions 16 of the ribs 15 are forced into the tie until the plate body rests snugly thereon, the rail is inserted between the shoulders 11 and 12 and spikes are driven through the plate into the tie, thus binding the rail, plate and tie firmly together.

The advantage of the form of the ribs 15 as herein shown and described over a continuous and unbroken sharp flange having square ends, is, that such flange in making a cut in the tie at a right angle with the plate, leaves an opening or check at its ends and affords a receptacle for water, and the water which is invariably drawn between the plate and tie by capillary attraction, passes to the center of the tie and causes rot; whereas the divisions 17 of the ribs 15, as they cut their way into and across the grain of the tie, plug or cork up the holes they make and compress the wood all around themselves, so that the water cannot percolate to the center of the tie, and rot and decay of the tie are prevented.

A further advantage of the form of rib herein shown, is that the divisions of the rib are so tapered that on entering the tie they compress the timber and virtually form a band on the upper surface of the tie, thus preventing the same from cracking or splitting. The importance of this may be understood from the fact that it is quite common to find railroad ties, in track, which have gaping cracks of an inch or more diameter, caused by the heat of the sun's rays drying out the sap. While this splitting and cracking may be prevented by the use of a wear-plate provided with the divided rib, it is apparent that

a plate having a continuous rib would not effect the same result.

By providing the wear plate with two parallel shoulders on its upper face, it is of especial advantage upon curves of a railway track. As for instance, where the curve is elevated for a fast train, the wheels of the train act to push the rail against the outer rib, the latter counteracting lateral spreading of the rail in that direction and protecting the spike. When a slow train takes the curve, its wheels meet with too great an elevation, and consequently hug inward and have a tendency to draw the rail with them, and in this event the inner rib counteracts displacement of the rail and also prevents abrasion of the spike.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A wear plate for railways formed on its upper face with one or more transversely ranging divided shoulders, and on its under face with one or more transversely ranging divided ribs, substantially as shown and described.

2. A wear plate for railways, formed on its upper face with one or more transversely ranging shoulders comprising a short section and a long section, and formed on its under face with one or more transversely-ranging divided ribs, substantially as shown and described.

3. A wear plate for railways formed on its under face with one or more transversely ranging knife-edged ribs, divided into a series of short sections rectangular in cross section, and beveled on all their sides, substantially as shown and described.

4. A wear plate for railways formed on its under face with one or more transversely ranging knife-edged ribs, divided into a series of short sections rectangular in cross section, beveled on all their sides, and elongated longitudinally to the direction of the rails above the plate, substantially as shown and described.

5. A wear plate for railways formed on its under face with one or more transversely ranging knife-edged ribs, divided into a series of short sections beveled on all their sides, the end divisions of the said ribs being situated within the edges of the said plate, substantially as shown and described.

6. A wear plate for railways formed on its under face with two transversely ranging parallel knife-edged ribs each divided into a series of short sections beveled on all their sides, substantially as shown and described.

7. A wear plate for railways, formed on its upper face with one or more shoulders, and on its under face with two transversely ranging parallel knife-edged ribs, each divided into a series of short sections beveled on all their sides, substantially as shown and described.

8. A wear plate for railways formed on its

upper face with one or more transversely-ranging divided shoulders, and on its under face with one or more transversely-ranging ribs comprising a series of divisions beveled on all sides to form a cutting edge, substantially as shown and described.

9. A wear plate for railways formed on its upper face with one or more transversely-ranging shoulders, comprising a long section and a short section, and formed on its under face with one or more transversely-ranging ribs, comprising a series of divisions beveled on all sides to form a knife edge, substantially as shown and described.

10. A wear plate for railways formed on its under face with one or more transversely-ranging ribs and on its upper face with one or more transversely-ranging shoulders, with diagonally opposite spike-holes extending through the plate and one or more of the said shoulders, substantially as shown and described.

11. A wear plate for railways, formed on its under face with one or more transversely-ranging ribs, comprising a series of divisions and on its upper face with one or more transversely-ranging shoulders, with diagonally-opposite spike-holes extending through the plate and one or more of the said shoulders, substantially as shown and described.

12. A wear plate for railways formed on its under face with one or more transversely-ranging divided ribs, and on its upper face with one or more transversely-ranging shoulders with diagonally-opposite spike-holes extending through both the said shoulders and the ribs, substantially as shown and described.

13. A wear plate for railways, consisting of a flat body having two transversely-ranging parallel shoulders on its upper face, each formed of a long section and a short section and having on its under face one or more transversely-ranging ribs, comprising a series of divisions beveled equally on all its sides, substantially as shown and described.

14. A wear plate for railways, consisting of a flat body, two transversely ranging parallel shoulders on the upper face of said body, each formed of a long section and a short section, a fillet at the junction of the inner faces of said shoulders and the body of the plate, and one or more transversely-ranging ribs on the under face of said body, comprising a series of divisions beveled equally on all sides, producing a cutting edge, spike apertures intersecting the shoulders and ribs, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 16th day of February, 1893.

JAMES CHURCHWARD.

Witnesses:

M. A. CASSIDY,
M. V. CRONIN.