(No Model.)

B. REECE.

WEAR PLATE FOR RAILWAY TIES.

No. 488,662. Patented Dec. 27, 1892

Fig. 1.

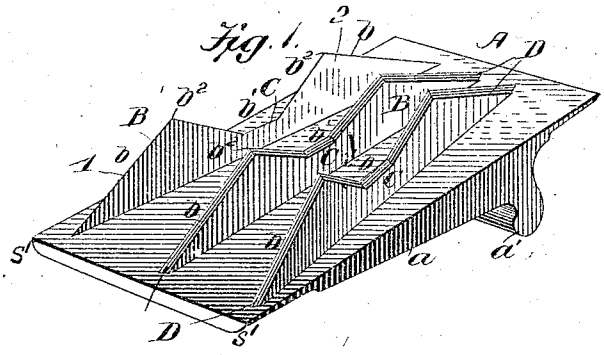


Fig. 2.

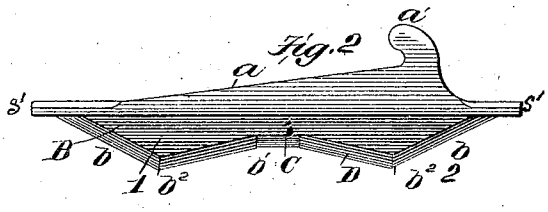


Fig. 3.

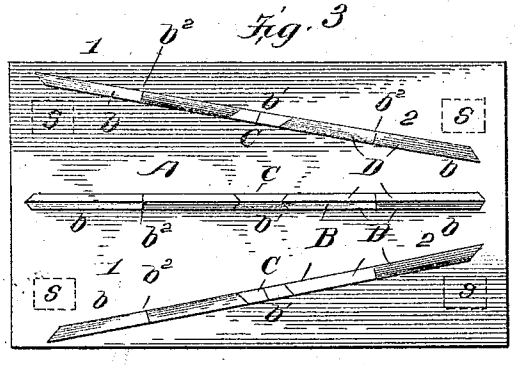


Fig. 4.

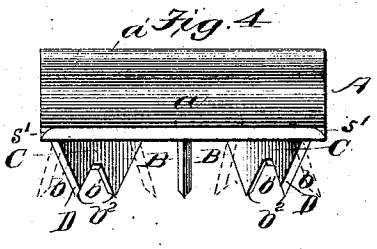
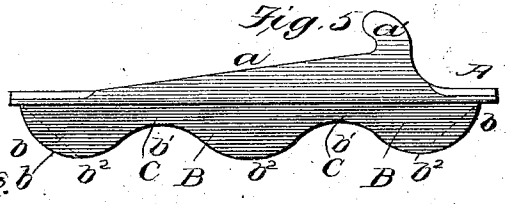


Fig. 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN REECE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE Q. AND C. COMPANY, OF SAME PLACE.

WEAR-PLATE FOR RAILWAY-TIES.

SPECIFICATION forming part of Letters Patent No. 488,662, dated December 27, 1892.

Application filed February 6, 1892. Serial No. 420,500. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN REECE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wear-Plates for Railway-Ties; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of the bottom or underside of a wear plate embodying my invention. Fig. 2 is a side elevation of such a wear plate. Fig. 3 is a bottom plan view of the same. Fig. 4 is an end view, and Fig. 5 is a side elevation of a modification.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of that class of devices commonly termed "wear plates" and which are, in track laying, interposed between the tie and the rail to prevent the rapid destruction of the tie by the vibration of the rail and the consequent breaking of the fiber of the tie whereby the tie becomes water soaked and decays at the point of support for the rail.

In order to obtain the best results in the construction of wear plates—they should be of such a character that they can be so applied to the tie as to have uniform bearing thereon at the time of application, to avoid any subsequent rocking of the plate which would tend to loosen the rail spikes and break the fiber of the tie: and it is also desirable that they should be of such a construction as to prevent any lateral movement or creeping of the plate, so that a solid and stable rail bearing is obtained adapted to sustain the concentrated weight and thrust imposed on the rail by a passing train. Heretofore, in the construction of this class of devices two general methods have predominated, viz: first, the formation of a wear plate with continuous ribs or flanges on its under surface and longitudinal therewith, said flanges adapted to enter the tie parallel with the grain of the wood, thus separating the fiber without injury thereto: and second, the formation of the wear plate with transverse serrated flanges on its under surface, which flanges bisected the grain of the wood. In the first construction, when the wear plate is driven home, there is always a tendency of the plate to rock or vibrate on its transverse center, until such time as the repeated blows of passing trains have settled the plate at its center, and such rocking or vibration of the plate not only tends to loosen the spikes, but also to part the fiber of the tie at the edges of the wear plate. It also prevents the proper application of the spikes in the first instance. As to the second construction, viz: the notched or serrated transverse flanges, while intended to prevent the lateral movement or creeping of the plate on the tie, act to sever the fiber of the tie and increase the liability of the wood to absorb moisture, with all the evils incident thereto. These prevailing types of tie plates have also revealed fundamental defects as follows:— where the plates have been made sufficiently light to preserve the flexibility of the tie, they have been found too weak to resist the strains impinging on the plate under the edges of the foot flange of the rail, which weakness tended to bend, buckle or break the plate immediately under the margin of the foot flange of the rail. Where the tie and wear plate have been made sufficiently strong and heavy to resist buckling and fracture on the line of contact with the edges of the foot flange of the rail, the flexibility of the tie is lost, and the heavy chair acts as an anvil to receive the blow of the moving load upon the rail.

The object of my present invention is to overcome these defects, and consists primarily, in providing a wear plate with a rib or ribs of V or other underneath truss forms beneath the margins of the foot flange of the rail, and adapted to truss the rail at that point, which construction, while preserving the flexibility of the tie, will at the same time afford ample stiffness and strength to overcome the tendency of the plate to buckle and bend upward at the point of contact with the edges or margins of the foot flanges of the rail.

A second feature of the invention resides in providing the wear plate on its under surface with serrated longitudinal flanges or ribs, or flanges of unequal depth at different points,

whereby the wear plate will sink uniformly at all points under the settling blows, and apply itself equally to the face of the tie, whereby all subsequent rocking of the wear plate is obviated, and I arrange the flanges on the under surface of the wear plate generally in the line of the longitudinal axis of the plate, or so as to enter the tie substantially in line with the fiber of the wood, but preferably somewhat obliquely to the said axis, whereby the resiliency of the fiber of the wood is utilized to clamp the flange and prevent the endwise movement or creeping of the wear plate, which construction or its equivalent embodies one feature of my invention.

There are other minor features of my invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the wear plate of general wedge form, or having its wearing face *a* somewhat inclined to present the rail head properly to the tread of the passing wheel, said incline terminating above in an abutment or shoe *a'*, against which one flange of the rail impinges.

B B indicate flanges or ribs on the under surface of the wear plate A and at right angles thereto, said flanges, (of which there may be any number according to the width of the plate) standing at right angles to the plane of the wear plate and extending longitudinally thereof so as to enter the tie substantially parallel with the grain of the wood. In order to avoid exposed "checks" (or separation of the fiber) in the tie, these flanges are preferably less in extent than the wear plate, so that the ends of the wear plate shall extend beyond or overhang the flanges, and said flanges are also inclined at both ends as at *b b*. In addition thereto, the longitudinal flanges are serrated or reduced in width at intervals as at *b'* to form a series of entering points b^2 which cause the plate to sink uniformly at all points under the settling blow by which they are applied to the tie. Usually the serrations or serrations of the flange at *b'* is not extended down to the plate, sufficient of the flange being by preference left to form a bridge C which maintains the stiffness of the wear plate and prevents the buckling thereof which might otherwise occur. It is also desirable in order to facilitate the insertion of the flanges in the tie without injury to the fiber, that the edges of the flanges should be beveled, and if different sections of the length of the flange (as for instance 1 and 2, Fig. 3) are reversely beveled, there will be a tendency of the said beveled portions to spring in reverse directions (see Fig. 4 dotted lines) and this of itself will prevent the longitudinal movement or creeping of the wear plate. This effect can be increased by arranging the flanges, either in part or in whole, slightly oblique to the longitudinal axis of the plate (see Fig. 3) and in case two or more parallel longitudinal flanges are used, one flange may be beveled in one direction, the rest in opposite direction, as indicated in Fig. 1 of the drawings. The bevel of each edge, in case of continuous flanged, is preferably on the outside, so that the spring of the flanges is toward each other, thereby confining and compressing the intermediate fiber, while the fiber to the outside of the flange retains its normal position. The confining and compressing of the intermediate fiber, especially in the case of the oblique arrangement of the flanges, renders the support of the plate more solid and is of material advantage at that portion of the plate immediately beneath the outer flange of the rail where is concentrated the weight and thrust of a passing train. Furthermore, the flanges upon the under side of the plate coact with the plate and inclined rail seat so as to reinforce the plate and prevent its buckling at the foot of the incline without destroying the desirable flexibility of the plate which would result if the plate was thickened up to support the increased strain at said point.

In order to ease the wear plate and obviate any tendency of the marking or checking of the rail which might induce fracture thereof at such point, and also to avoid any tendency of the plate to embed in the tie to the injury of the fiber, the wear plate is slightly beveled along its longitudinal edges as at *s' s'*.

The varying depth of the flange not only prevents the rocking of the plate on its transverse center, but if the bridge sections C are retained, they maintain the rigidity of the plate as effectively, as if a flange of equal depth throughout was employed.

The wear plate hereinbefore described may be employed either with or without rail spikes, (as indicated in dotted line S S in Fig. 3) or other suitable fastenings in manner well known to those skilled in the art.

There are several methods of forming the construction hereinbefore set forth, but in practice I have found it satisfactory to cast the same, forming it of malleable iron or steel, or other suitable metal, and in this instance, the construction can be conveniently changed by forming the shoe or abutment *a'* straight to permit an easy draft, or should it be desired to retain the overhanging ledge, a core print will be found useful.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A wear plate for railway ties provided on its under side with a longitudinal rib or ribs formed with an underneath trussed portion beneath the margin of the foot flange of the rail and adapted to truss the plate at that point, substantially as and for the purposes described.

2. A wear plate for railway ties provided on its under face with a rib or ribs of V or other underneath truss form beneath the margin of

the foot flange of the rail, said rib adapted to truss the plate at that point, substantially as and for the purposes described.

3. A wear plate for railway ties provided with one or more serrated longitudinal flanges, the different sections of said flange or flanges having reversely beveled edges: substantially as and for the purposes specified.

4. A wear plate for railway ties having one or more longitudinal flanges composed of entering points connected by bridges of less width than the flange at the entering points: substantially as and for the purposes specified.

5. A wear plate for railway ties having one or more obliquely arranged serrated flanges: substantially as and for the purposes specified.

6. A wear plate for railway ties having on one face an inclined rail seat, and on the other face a rib or ribs formed with an underneath trussed portion beneath the margin of the foot flange of the rail; substantially as and for the purposes described.

7. A wear plate for railway ties having on one side a rail seat, and on the opposite face one or more serrated flanges obliquely disposed to the longitudinal axis of the plate, substantially as and for the purposes described.

8. A wear plate for railway ties having on one face an inclined rail seat, and on the opposite face one or more serrated flanges arranged obliquely to the axis of the plate: substantially as and for the purposes specified.

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

BENJAMIN REECE.

Witnesses:
F. W. RITTER, Jr.,
M. P. CALLAN.