

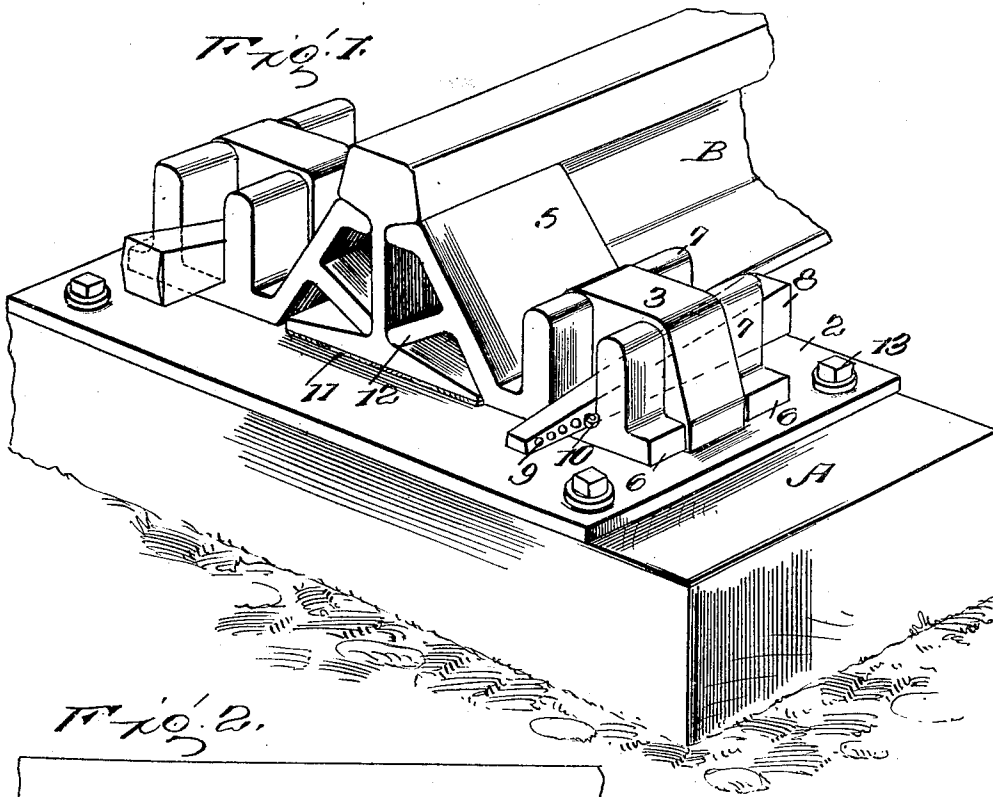
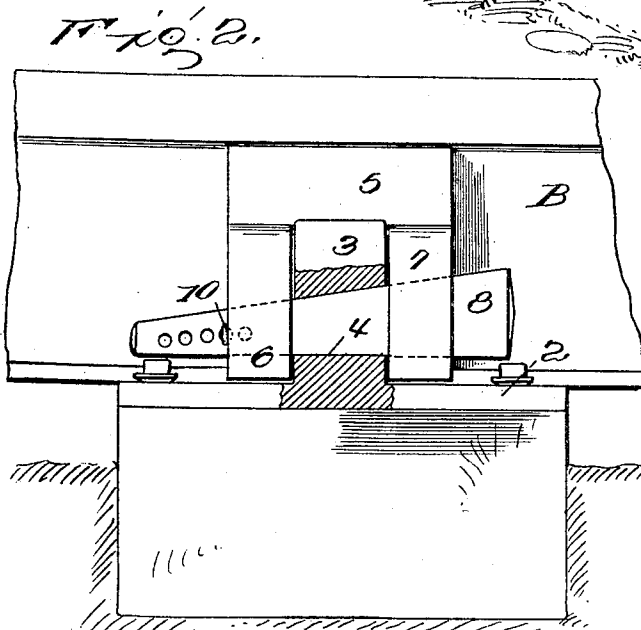
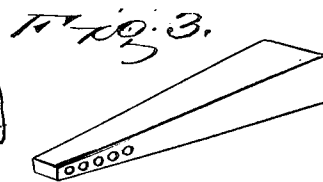
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RAIL CHAIR.

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1,126,508.

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RAIL-CHAIR.

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To all whom it may concern:

Be it known that I, AUGUST G. LIEBMANN, citizen of the United States, residing at Butte, in the county of Silverbow and State of Montana, have invented certain new and useful Improvements in Rail-Chairs, of which the following is a specification.

This invention relates to railway equipment and particularly to rail chairs.

It is the general practice of the railways of the United States to attach the rails to wooden ties by means of spikes. This is disadvantageous for many reasons. The spikes, under the action of passing trains, gradually become loosened and permit the rail to be shifted laterally or tipped under the stresses to which it is subjected. The constant redriving of spikes caused by the loosening thereof or shifting of the rail shortens the life of the tie, causes it to rot and splinter, and the consequent expense of upkeep is very great. Where the roads are new and the ballast is poor, there is a constant necessity for shimming the rail to thereby adjust it vertically. On some of the older roads of the United States, however, in the Southern and Atlantic Coast States, the necessity of shimming the rails has diminished, with the introduction of rock ballast and good drainage facilities. These roads require, therefore, a cheap type of rail chair of substantial construction and adapted to be used with hard wood timbers available in such localities, the rail chair, however, being so constructed as to resist vertical and lateral tipping thrusts and so constructed as to increase the life of the ties.

The primary object of my invention is to provide a rail chair which is adapted to be used on roads having rock ballast as a road bed and having hard wood timber ties.

A further object of the invention is to provide a rail chair of the character described so constructed as to provide for firmly holding the rails in place and yet provide for a vertical adjustment of the rails and rail supports whereby shims may be inserted beneath the rail.

A further object of the invention is to provide a rail chair of the construction set forth wherein the rail is firmly braced against lateral thrusts and vertical strains.

Other objects will appear in the course of the following description.

The invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of a portion of a tie and a rail with my improved chair in place thereon; Fig. 2 is an end elevation of the rail and chair shown in Fig. 1. Fig. 3 is a perspective view of the wedging member.

Referring to these figures, A designates a hard wood tie of the usual shape and B the rail which may be of standard form in cross section.

My improved rail chair comprises a bed plate 2 having a width preferably equal to the width of the tie whereby to afford an extended bearing area for the bed plate upon the tie.

Formed at opposite ends of the bed plate and extending upward therefrom are the abutments 3. These abutments extend parallel to the length of the bed plate 2 and transverse to the direction of the rail. The abutments have vertical inner end faces and outwardly and downwardly inclined outer end faces.

It will be seen that the bed plate has the form of an ordinary structural element of the T-bar type section and therefore may be readily rolled.

Each of the abutments is vertically slotted, as at 4, the slot extending transversely to the abutment. The rail B is supported on each side by rail braces 5, these rail braces at their upper ends bearing beneath the head of the rail and extending downward and outward therefrom. The base of each rail brace is extended horizontally, as at 6, this portion of the brace being bifurcated or cleft so as to engage on either side of the corresponding abutment 3. The engagement of the braces with the abutments is such as to permit the rail braces 5 to slide in a direction transverse to the direction of the rail but prevent any movement of the rail braces parallel to the direction of the rail.

The extensions 6 of each rail brace on each side of the corresponding abutment 3 are formed with the upwardly projecting pairs of lugs 7, two on each side of the abutment, each pair of lugs being spaced apart a dis-

tance equal to the width of the slot 4. Passing through each slot 4 is a wedge 8, the upper face and one side face of which is inclined so as to have wedging engagement with the upper wall of the slot 4 and the lugs 7. The under face of the wedge is flat and at its opposite ends bears against the upper faces of the extensions 6. Each wedge 8 when in place is disposed between the pairs of lugs 7 of the corresponding rail braces. Each wedge is formed at its smaller end with a plurality of perforations 9 adapted to permit the passage of a locking pin 10. This pin 10 may be of any desired type, such as a cotter pin, a bolt or a wedge-shaped pin. The pin 10 engages against the outer faces of the pair of lugs 7 adjacent the pin and holds the wedge from any longitudinal movement after it is adjusted.

The operation of my invention is apparent from the drawing. This particular form of rail chair permits lateral adjustment of the rail, as well as vertical adjustment thereof by the introduction of shims between the base of the rail and the upper face of the bed plate 2. A shim is illustrated as being disposed in this position and is designated 11. Shims of various heights may be used. When it is desired to raise the rail, the wedges 8 are loosened or withdrawn and shims are placed beneath the rail raising it to its proper elevation. The wedges 8 are again driven in place, forcing the rail braces 5 securely down and holding the rail securely down upon the shim. After the wedges have been inserted and driven home, they are locked in position by the pins 10. It will also be seen that this form of chair permits one side of the rail to be elevated higher than the other side when it is desired to incline the rail. The rail braces 5 may be of any suitable form but preferably have the downwardly and inwardly extending webs 12 which engage the rail at the junction of the base with the web. It will be seen that the rail is held securely in place from any tipping movement and that any tipping strain applied to the rail will be translated into a vertical stress delivered against the face of the bed plate. This stress is also resisted by the wedges 8 which pin the rail braces 5 securely to the bed plate.

Rail chairs of this type are simple in construction, may be economically manufactured and hold the rail solidly in position while permitting its vertical adjustment. It will be noted that the bed plate is held to the tie by means of screw spikes 13 which form the primary fastenings and that these primary fastenings need not be disturbed when the rail is adjusted, thus eliminating the disadvantages of the ordinary spikes, as now used to hold the rail directly to the tie. The use of this rail chair also eliminates the crushing and breaking action where the rail

rests directly upon the tie. If by any chance strain should be applied to the rail which would tend to shear the rail braces, the wedges 8 will give before the rail brace shears.

While I have illustrated and described the body of the chair or base plate as being as wide as the face of the tie, this need not be the case, as the chair is primarily designed for use with hard wood timber ties. With this class of ties and under circumstances where the necessity for vertical adjustment diminishes, it is desirable to provide a chair which can be cheaply made, wherein the amount of metal is reduced to a minimum and wherein provision is made for a greater lateral adjustment than vertical adjustment to suit the circumstances above referred to.

Having described my invention, what I claim is:

1. A rail chair comprising a bed plate having upstanding oppositely disposed abutments vertically slotted, rail braces disposed between the abutments and having lateral extensions embracing the corresponding abutments, the extension of each rail brace being formed with upstanding spaced lugs, and a locking member passing through the slot of each abutment and disposed between the adjacent vertically extending lugs.

2. A rail chair comprising a bed plate having oppositely disposed vertical abutments, said abutments extending parallel to the length of the bed plate and each abutment being vertically slotted, the upper end wall of each slot being inclined, rail braces disposed between the abutments, each having a slotted lateral extension adapted to embrace the corresponding abutment, the lateral extension on each side of the slot being formed with upwardly extending spaced lugs, and wedges passing one through each of the abutments and being disposed between the pairs of lugs of the corresponding rail brace.

3. A rail chair comprising a bed plate having oppositely disposed vertical abutments, said abutments being vertically slotted, the upper end wall of each slot being inclined, rail braces disposed between the abutments and each having a slotted lateral extension adapted to embrace the corresponding abutment, the lateral extension on each side of the slot being formed with upwardly extending spaced lugs, wedges passing one through each of the abutments and being disposed between the pairs of lugs of the corresponding rail brace extension, and means for locking the wedges in place.

4. The combination with a tie and a rail, of a bed plate attached to the tie and having vertical, oppositely disposed abutments extending transverse to the rail, each of said abutments being vertically slotted, the

upper end wall of each slot being inclined downwardly, rail braces engaging beneath the head of the rail and engaging with the base of the rail, each rail brace having
5 a slotted extension adapted to snugly embrace the corresponding abutment, each extension on each side of the slot being formed with a pair of upwardly extending lugs, wedges disposed in the slots of the abutments and projecting between said lugs,
10 and means for locking the wedges in place.

5. A rail chair comprising a base-plate having upstanding abutments adjacent its ends, rail braces adapted to engage between
15 the head and base flange of a rail and having lateral horizontal extensions slotted to embrace said abutments, and means for drawing the rail braces downward toward the base-plate.

20 6. A rail chair comprising a base plate having an upstanding abutment adjacent one end, a rail brace adapted to engage between the head and base flange of a rail

and having a lateral horizontal extension slotted to embrace said abutment, and means
25 engaging the extension of said rail brace for drawing the rail brace downward toward the base-plate.

7. In a rail chair, the combination with a tie, of a bed-plate having means for at-
30 tachment to the tie and provided with oppositely disposed upstanding abutments defining a seat, a rail resting on said seat or a shim and adjustable laterally and vertically with respect to the seat, rail braces
35 embracing the abutments and provided with spaced vertically disposed lugs, and fastening devices piercing the abutments and disposed between the adjacent lugs.

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

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."