May 29, 1934. G. S. COLBIE 1,960,331

RAIL CHAIR

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FIG-1

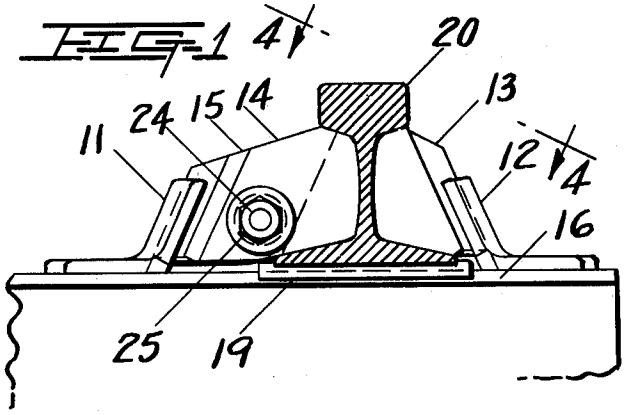


FIG-2

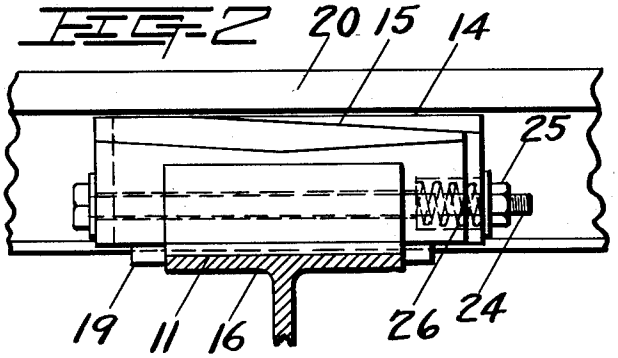


FIG-3

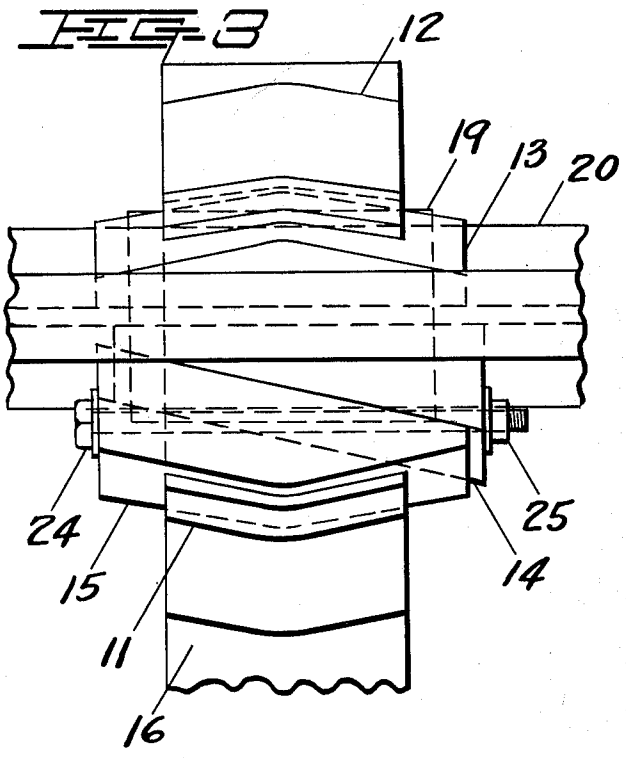


FIG-4

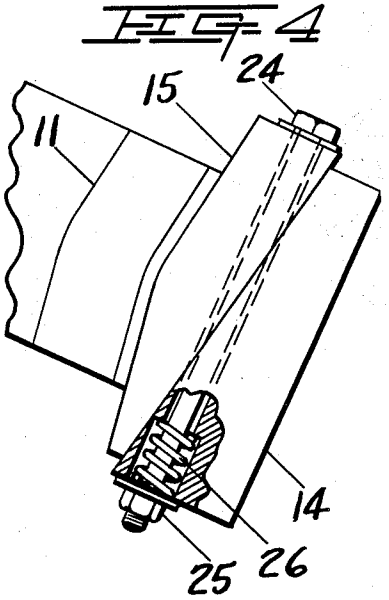
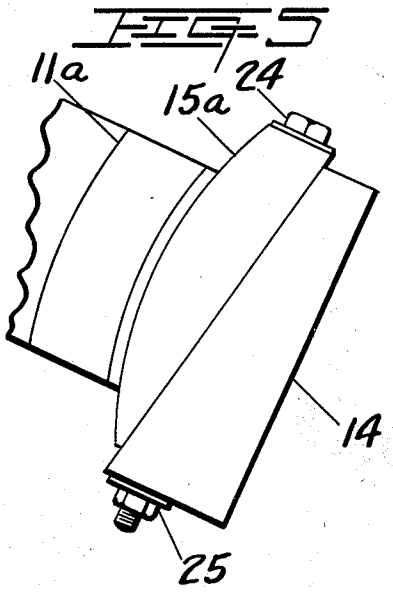


FIG-5



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FIG. 6

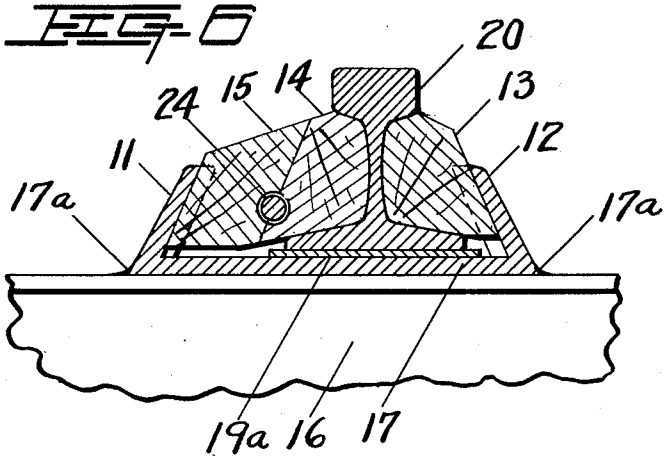


FIG. 7

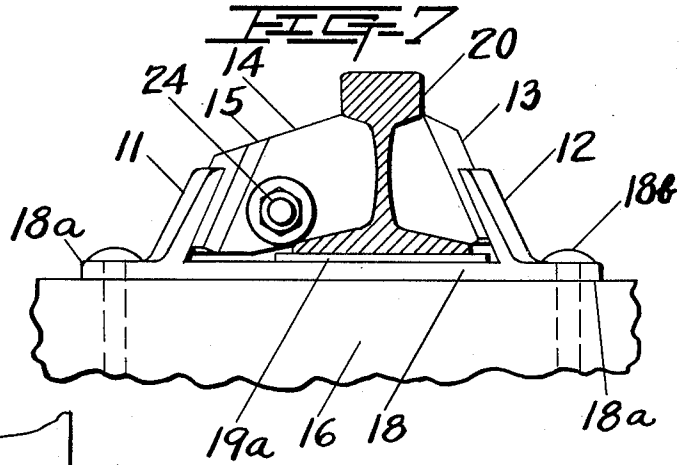
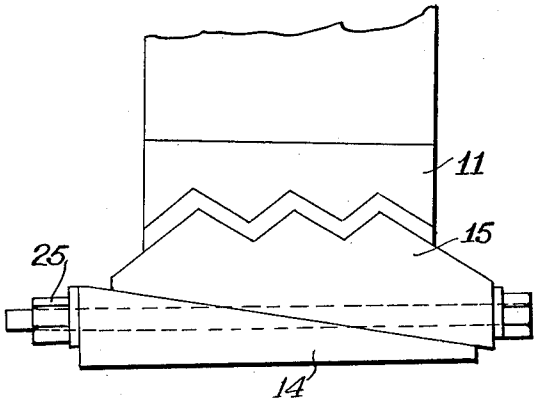


FIG. 8.



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UNITED STATES PATENT OFFICE

1,960,331

RAIL CHAIR

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Application March 13, 1931, Serial No. 522,469

9 Claims. (Cl. 238—362)

The present invention relates to a rail chair of a type to cushion and to secure the rail on the cross tie and to cushion and electrically insulate the rail from the cross tie.

One object of the present invention is to provide a rail chair having novel and improved means of positioning and securing the rail in all directions on the cross tie and improved means of cushioning and electrically insulating the rail from the cross tie. Other objects are to provide a rail chair of inexpensive, easily applied, simple, strong, rugged and durable construction.

Further objects, features and advantages will more clearly appear from the following detailed description when taken in connection with the accompanying drawings which form a part of this application and which illustrate a preferred form of the present invention, and also illustrate different methods of constructing the present invention and different applications of the same.

To overcome the loosening, shearing or breaking of the rail fastening means, heretofore employed in the use of metal ties, I have provided novel means of positioning and securing the rail to the metal cross ties as shown on the drawings.

On the drawings Fig. 1 is an end elevation of a rail chair and a cross section of a rail held therein, which embodies the present invention in one form.

Fig. 2 is a side elevation of a rail chair, a partial side view of a rail held therein and a cross section of the supporting cross tie.

Fig. 3 is a plan view of the construction shown in Figs. 1 and 2.

Fig. 4 is a projection in the direction of the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 4 of a somewhat modified construction of a rail chair.

Fig. 6 is a central cross section of a modified type of unitary rail chair adapted to be used on a metal cross tie embodying the present invention, and

Fig. 7 is an end elevation of a rail chair adapted to be used on a wood tie.

Fig. 8 is a partial plan view of a modified form of the device drawn along the lines of Fig. 4.

On the drawings the present invention as shown in one form comprises a rail chair having spaced apart oppositely disposed substantially vertical extensions, 11 and 12, which are suitably inclined towards each other at the top. Said side members are formed and positioned in a manner to make a space therebetween, of greater dimension intermediate the ends of said side members to retain the rail positioning member 13 and securing wedges 14 and 15 and to resist the creeping or longitudinal movement of the rail 20. The side walls 11 and 12 may be in some cases formed or corrugated as shown in Fig. 8. The corrugations may be made comparatively large and the members 13 and 15 made to correspond, or the side wall corrugations may be made quite small and the members 13 and 15 made with a flat surface. In the latter case, the corrugations will be pressed into the members 13 and 15 as pressure is applied during assembly.

Among other purposes, the special form given the side members 11 and 12 is to provide means of positioning and holding the interior parts and to strengthen said side members against vertical and lateral thrust.

The members 11 and 12 are welded or otherwise suitably secured to the cross tie 16. The bottom of the rail chair shown on the drawings in Fig. 1 is formed by the top of the cross tie 16.

I may in some applications of the present invention provide a construction where the said side members 11 and 12, are joined together at the bottom to form a unitary structure 17. Such unitary structure may be applied to a suitable metal cross tie as shown in Fig. 6 by welding as shown at 17*a* or by bolting or otherwise fastening to the cross tie, or the unitary structure may be provided with suitable appurtenances 18*a* to adapt it for spiking to a wood cross tie by spikes 18—*b* as shown in Fig. 7.

I provide a suitable shim 19 between the bottom of the rail and the top of the cross tie as a means to vary the vertical position of the rail. The said shim 19 may be provided with shoulders extending upwardly on each side of the rail as well as shoulders extending downwardly on each side of the cross tie as shown in Figs. 1, 2 and 3, or the said shim may be a plain flat plate as shown at 19*a* in Figs. 6 and 7. The said shim 19 is easily removed from its position in the rail chair, and I contemplate using shims of a suitable thickness to shim the rail to the correct height.

When it is desired to electrically insulate the rail from the rail chair, I would construct the positioning member 13, locking wedges 14 and 15 and shim 19 of insulating material. When it is desired to cushion the rail, the above said members 13, 14, 15 and 19, would be made from cushioning material the members 13, 14 and 15 being preferably made from wood, but may be made from any other material having similar characteristics. When it is desired to electrically insulate and to cushion the rail, the above mem-

bers would be made from a material having both insulating and cushioning qualities.

To positively hold the rail 20 against the rail positioning member 13 and to securely fix the rail to the cross tie, I provide a set of two oppositely disposed wedges, 14 and 15, one (14) of which has a surface conforming to the side of the rail and a suitable inclination on the opposite side. The other (15) of said wedges has an inclined surface to correspond with the mating surface of the said first wedge (14), and on the opposite side the surface corresponds to the inwardly inclined vertical extension 11.

The pair of wedges, 14 and 15, are held in relative position and adjusted by means of the bolt 24 and the nut 25 thereon which engages these wedges. Beneath nut 25, there is a spring member 26, disposed in a recess in the wedge 14, and this spring member tends to keep the wedges, 14 and 15, at all times in adjusted position, although some wear or shrinkage may take place in the wedges themselves. A suitable washer may be provided under the head of the bolt 24 and under the nut 25. I may in some cases omit the spring 26 and I do not limit myself to the bolt and nut arrangement but I may in certain cases use any other suitable means to the same end. The vertical extensions, 11 and 12 form a retaining space smallest at its three open sides whereby the rail positioning and securing means are securely held in the rail chair. The angle or inward inclination of the side walls 11 and 12 may vary from a nearly vertical position to any desired angle.

In Fig. 4 is shown one form of retaining space consisting of an inner side wall bulged outwardly at the center.

In Fig. 5 I have shown a construction giving the same general result and consists of an arcuate inner side wall and a corresponding rail retaining wedge.

While the invention has been described in detail and with respect to a present preferred form thereof it is not to be limited to such details and forms since many changes and modifications may be made in the invention without departing from the spirit and scope of the invention in its broadest aspects. Hence it is desired to cover any and all forms and modifications of the invention which may come within the language or scope of any one or more of the appended claims.

What is claimed is:

1. In a rail chair, a construction comprising formed side walls between which a rail is adapted to be positioned, a cushioning member disposed between one of said formed side walls and the rail on one side of the rail, an adjustable rail securing and cushioning unit on the other side of the rail disposed between the rail and the other formed side wall, said unit comprising a two-piece wedge element, one wedge member of said element conformed to the shape of the side of the rail and the other wedge member of said element having a surface conformed to the formed side wall of the chair, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

2. In a rail cushioning device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereto, a second member conforming on one face to said inclined face on said first member and a substantially opposite face formed to the shape of the adjacent side wall and positive means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

3. In a rail cushioning device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereto, a second member conforming on one face to said inclined face on said first member and a substantially oppostie face formed to the shape of the adjacent side wall and means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

4. In a rail insulating device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereto, a second member conforming on one face to said inclined face on said first member and a substantially opposite face formed to the shape of the adjacent side wall and means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

5. In a rail cushioning device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereto, a second member conforming on one face to said inclined face on said first member and a substantially opposite face formed to the shape of the adjacent side wall and means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length

of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

6. In a rail insulating and cushioning device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereon, a second member conforming on one face to said inclined face on said first member and a substantially opposite face formed to the shape of the adjacent side wall and resilient means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

7. In a rail insulating and cushioning device comprising formed side walls between which a rail is adapted to be positioned, a rail positioning member on one side of the rail, said positioning member having a surface to conform substantially with the lateral face of the rail and a substantially opposite face formed to the shape of the adjacent side wall, on the opposite side of the rail a divided clamping element comprising one member adjacent and conforming to the lateral face of the rail and a substantially opposite face inclined thereto, a second member conforming on one face to said inclined face on said first member and a substantially opposite face formed to the shape of the adjacent side wall and positive and resilient means to apply said clamping means, said side walls having inner faces adjacent the rail sloping in at least two directions with respect to the length of the rail whereby creeping of the cushioning and clamping elements and the chair rail in either direction is prevented.

8. In combination, a tie of substantially I-beam cross section, integral upturned portions on said tie forming means to locate and positively maintain position of rail positioning and securing means in all directions.

9. In combination, a tie of substantially I-beam cross section, integral upturned portions on said tie forming side walls of a rail chair, a rail disposed between said side walls, said side walls formed to positively locate and maintain position of rail positioning and securing means in all directions.

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