

(No Model.)

2 Sheets—Sheet 1.

J. HOPKINSON.

RAILWAY CHAIR.

No. 306,617.

Patented Oct. 14, 1884.

Fig. 1.

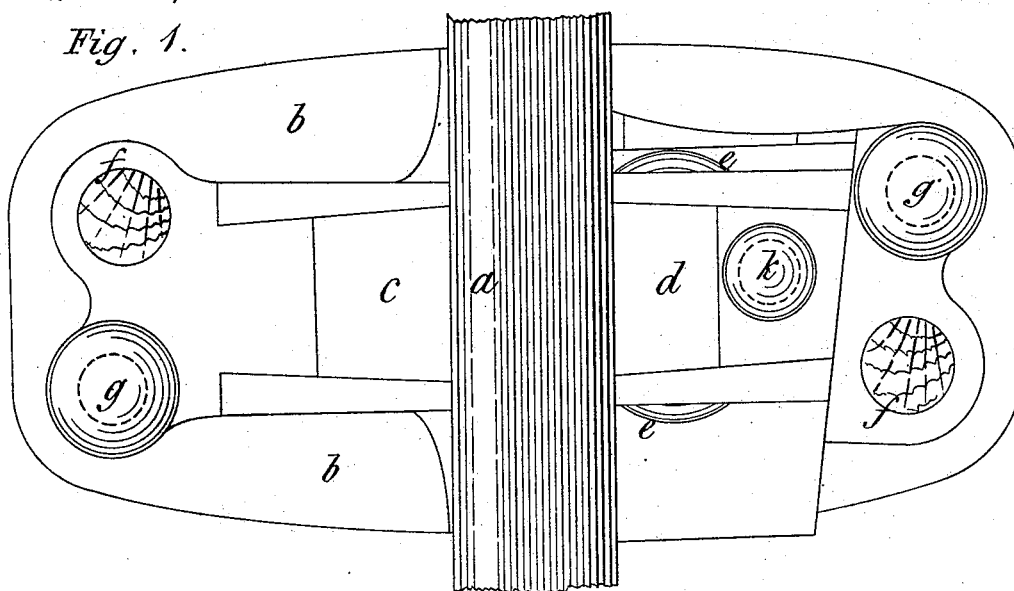
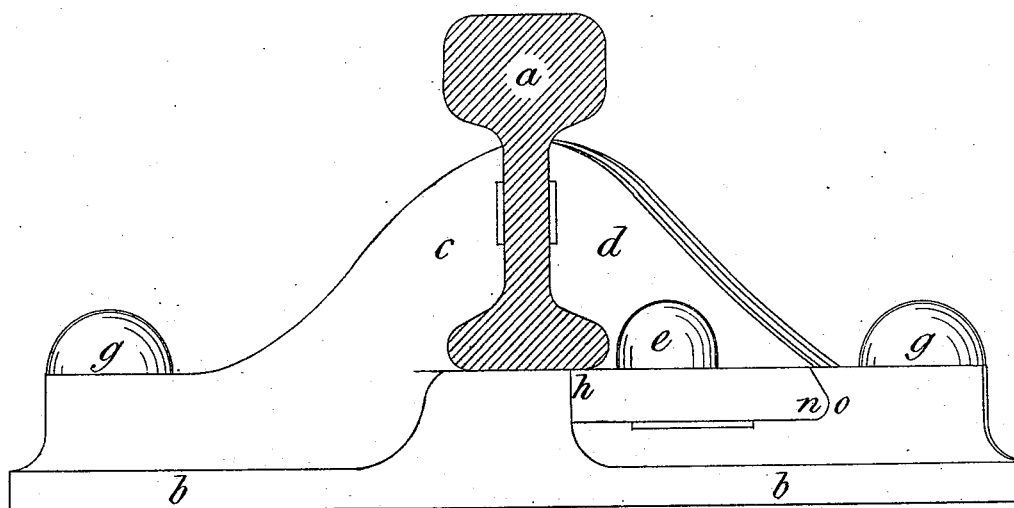


Fig. 2.



Witnesses,

George W. Rea.

Robert Everett

Inventor.

James Hopkinson.

By James L. Norris.  
Atty.

(No Model.)

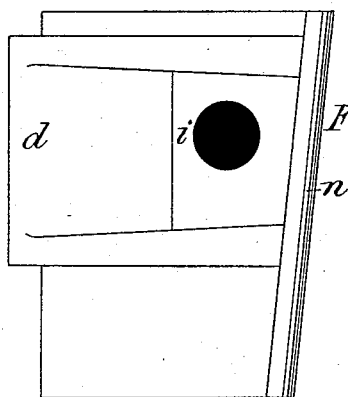
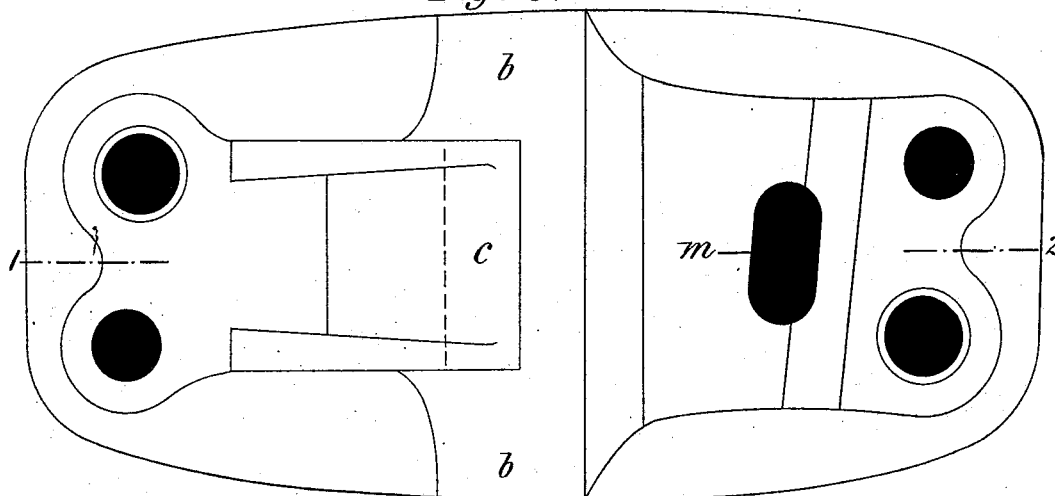
2 Sheets—Sheet 2.

J. HOPKINSON.  
RAILWAY CHAIR.

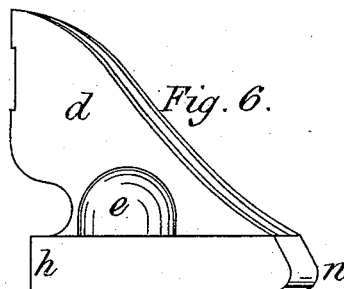
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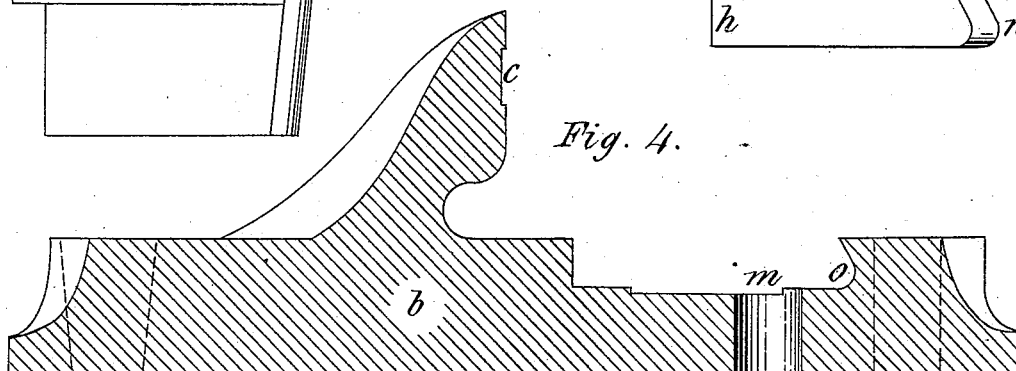
*Fig. 3.*



*Fig. 5.*



*Fig. 6.*



*Fig. 4.*

*Witnesses,*

*George W. Rea*

*Robert Everett*

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*James Hopkinson,*

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# UNITED STATES PATENT OFFICE.

JAMES HOPKINSON, OF ROWSLEY, COUNTY OF DERBY, ENGLAND.

## RAILWAY-CHAIR.

SPECIFICATION forming part of Letters Patent No. 306,617, dated October 14, 1884.

Application filed February 13, 1884. (No model.) Patented in England June 21, 1883, No. 3,086.

*To all whom it may concern:*

Be it known that I, JAMES HOPKINSON, a subject of the Queen of Great Britain, residing at Rowsley, in the county of Derby, England, farmer, have invented certain new and useful Improvements in Railway-Chairs, (for which I have obtained a patent in Great Britain, No. 3,086, bearing date June 21, 1883,) of which the following is a specification.

The object of my said invention is to effect improvements in railway-chairs by rendering unnecessary the use of wood keys or wedges, lessening the cost of construction and maintenance of the permanent way, rendering the connection of the rails and chairs more secure than at present, providing for equal expansion and contraction, and otherwise, as hereinafter mentioned. In the construction of ordinary chairs the two jaws are cast in one with the chair, the rail is dropped into its position, and pressed tightly against one jaw by a wooden wedge or key, which requires frequent attention on account of changes of weather and swelling and shrinking of the key. In the construction of my improved chair I cast one jaw (usually the outer one) in one with the chair itself. The other jaw is made separately, and is hereinafter referred to as the "loose" jaw. The loose jaw is cast with its upper part to fit the rail without any wood key; but it may have a small piece of yielding material, if found necessary. The foot of the loose jaw is formed as a compound wedge, (that is to say, a longitudinal and transverse wedge in one piece,) which fits into a corresponding recess formed in the chair. When the loose jaw is driven "home," the longitudinal wedge presses the loose jaw against the rail and the transverse wedge holds the loose jaw down. The inner side of the loose wedge has a projecting tongue, which projects under the rail and acts as a fulcrum to resist any inner tendency to recede from the rail. The chair is attached to the sleeper, in the usual manner, with pegs and spikes; but the loose jaw has a vertical hole through its foot, and a corresponding hole is formed in the chair, the latter, however, being elongated to allow of adjustment. Through these holes a spike is driven, which keeps the loose jaw in its place. The duty of this spike is merely to

prevent longitudinal movement of the loose jaw. This spike passes through the hole in the foot of the loose jaw, then through the slot in the chair, and next into the sleeper, which fixes the position of the compound wedge-foot. When it is necessary to remove a rail, the last-named spike is withdrawn, the loose jaw is then driven out of the wedge-bed or provision in the chair, and the rail is free for removal. Projections are cast upon the loose jaw for the hammers to strike against, in order to drive the loose jaw in either direction.

My said invention is applicable not only to the ordinary chairs, but to all intermediate crossing-point and check-rail chairs.

My improved chairs are of about the same weight as ordinary chairs; but the rail is held thereby in a much firmer manner than the ordinary chair with wood keys, and the rail does not work loose through changes of weather, as, the whole being formed of metal, the expansion and contraction from changes of temperature are equalized, and breakages from cold weather will not occur.

My said invention enables the plate-layers to remove and replace any single chair without removing the rail or the ballast—an operation which cannot be effected with ordinary chairs. It also affords great facility for laying rails in a curve; and in order that my said invention may be fully understood, reference is hereby made to the accompanying drawings, in which similar letters of reference indicate corresponding parts in the several figures.

Figure 1 is a plan view of my improved chair complete with a portion of the rail in position. *a* is the rail. *b* is the chair. *c* is the fixed jaw; *d*, the loose jaw. *ee* are the striking-pieces. *ff* are the wooden pegs, and *gg* are the spikes, for holding the chair in position.

Fig. 2 is an elevation of the chair complete transversely to the rail.

On reference to Figs. 1 and 2 the compound wedge will be seen, whereby the loose jaw *d* is pressed against the rail *a*, which it holds firmly without the intervention of the usual wooden key or wedge. I do not, however, exclude the use of a small piece of yielding material, if deemed necessary, between the loose jaw and the rail; but I do not anticipate that it will be found necessary in practice. The foot *h* (shown

in Fig. 2) projects under the rail, which foot acts as a fulcrum to resist the strain at the upper end of the loose jaw.

Fig. 3 is a plan view of the improved chair with the fixed jaw, but with the spikes, pegs, loose jaw, and rail removed. Fig. 4 is a longitudinal section on the line 1 2 of Fig. 3. Fig. 5 is a plan view of the loose jaw, and Fig. 6 is a side view of the same.

The hole *i* in the loose jaw is provided for the insertion of the spike *k*, Fig. 1. An elongated hole or slot, *m*, Figs. 3 and 4, is provided for the spike *k* to pass through into the sleeper below. When the loose jaw has been inserted, the compound wedge *n* enters the corresponding recess, *o*, and is driven tightly therein. The foot *h* passes under the rail, and when the loose jaw has thereby become fixed and the rail firmly held the spike *k* is driven through the loose jaw and chair into the sleeper, to prevent the loose jaw from receding by vibration or otherwise.

Having thus particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I claim—

1. The combination, with an ordinary T-rail, of a chair having a fixed jaw at one side

and a longitudinal and transverse wedge-shaped recess at the other, and a loose jaw of correspondingly wedge shape and having a projecting tongue fitting beneath the base of the rail, substantially as described.

2. The combination of the chair *b*, having the fixed jaw *c* at one end and the longitudinal and transverse wedge-shaped recess *o* at its opposite end, and provided with an elongated opening, *m*, between the fixed jaw and the recess, with the loose jaw *d*, formed integral with the longitudinal and transverse wedge-shaped outer edge, *n*, and the tongue *h* on its inner edge to pass under the rail, said jaw having the perforation *i* passing through its body between the tongue and the wedge-shaped edge, substantially as described.

In testimony whereof I have hereto set my hand this 21st day of December, 1883.

JAMES HOPKINSON.

Witnesses:

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