

L. B. TYNG.
Railway Rail Chairs.

No. 142,359.

Patented September 2, 1873.

Fig. 1.

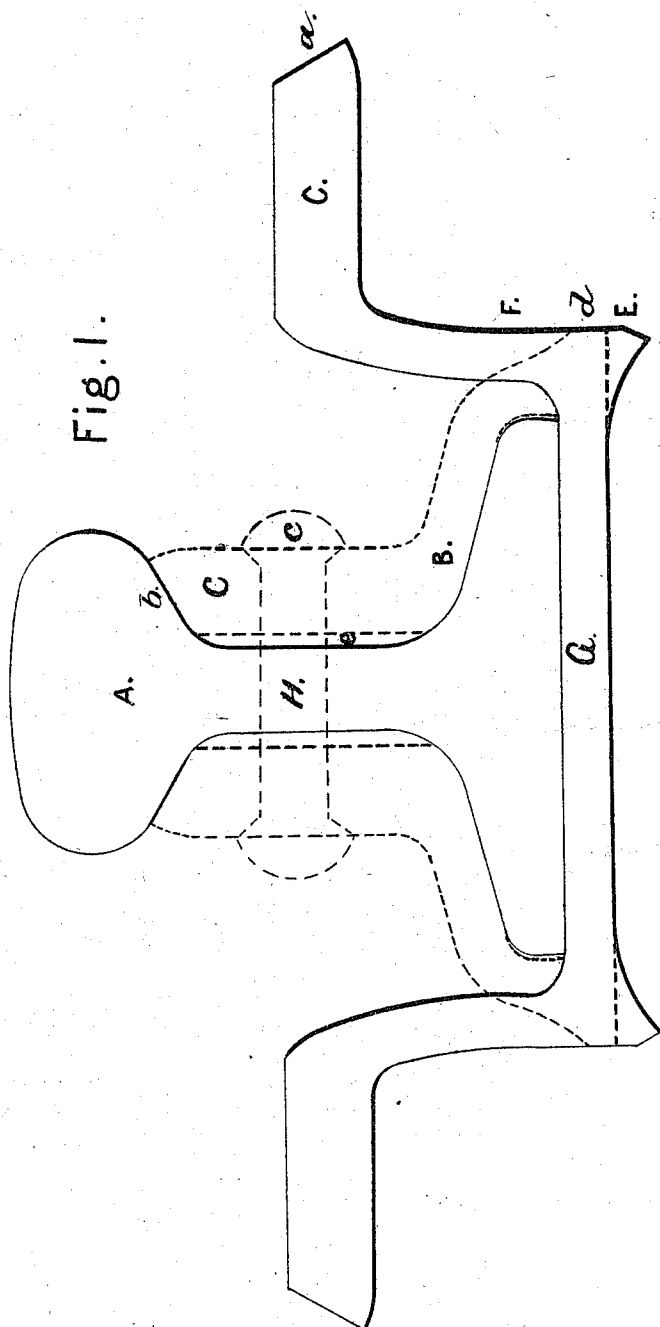
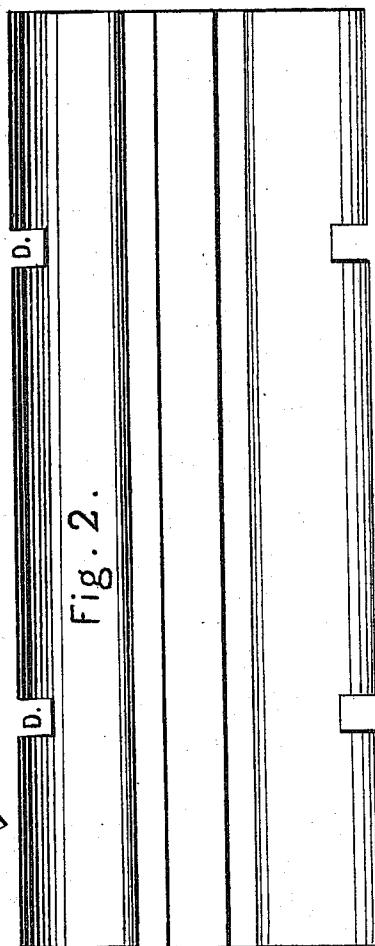


Fig. 2.



WITNESSES.

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IMPROVEMENT IN RAILWAY-RAIL CHAIRS.

Specification forming part of Letters Patent No. **142,359**, dated September 2, 1873; application filed July 23, 1872.

To all whom it may concern:

Be it known that I, LEVI BARTLETT TYNG, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Combined Railroad-Chair and Fish-Plate; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

In the present state of the art of railroad-building it has become essential to have the rails continuously bearing, so as to give ease of motion to the carriages, and, in order to effect this, to employ fish-plates to unite the rails, and dispense with chairs for that purpose. Moreover, to avoid vertical flexure of the rails, which lessens the speed of trains and makes greater power necessary in the traction-engines, it has become essential to make the rail of greater vertical diameter, and consequently it becomes more difficult of support against lateral pressure, and fish-plates alone are not sufficient for that purpose.

The object of my invention is to provide a rail-joint which shall unite the advantages of the chair and of the fish-plate, giving both vertical and lateral support, and which may be made at a cost which will permit its introduction into general use; and my invention consists in the peculiar construction of my combined chair and fish-plate, in which thick and rigid sides are combined with a thin and somewhat elastic seat and connections, made in one piece.

In the drawings, Figure 1 is a cross-section of a rail with my device shown in position in connection with the rail, in dotted lines, and in the same figure my device is shown in black lines in the form in which it issues from the rolls. Fig. 2 is a plan view from above of my device.

Like letters denote similar parts in each figure.

A represents a railroad-rail of well-known form, and B the combined chair and fish-plate, which is made out of suitable metal in one piece, by rolls and other machinery which I have invented, and which will be the subject of a separate application for Letters Patent. In the construction of this chair and fish-plate

the same will be rolled out in the form shown in the black lines of Fig. 1, and at as great a length as possible, and afterward cut off into the lengths required for use, which in rails of ordinary size will be about fifteen inches. It will be observed that in this shape the parts marked C, which are the fish-plates proper, are very much thicker than the other parts, and in actual use are made at least three-fourths of an inch thick. The outer ends *a* of these parts are beveled at an angle to make them fit closely under the shoulder *b* of the rail. The bottom G of the chair and fish-plate is made in use about three-eighths of an inch thick, and at either end of said bottom are the wings E, of the form shown in Fig. 1, and quite thick, and between said wings and the plates C the plate shown by the letter F is drawn quite thin, or about three-eighths of an inch in thickness. After my device, as shown in Fig. 1 in black lines, is rolled out and cut off, as before named, it is punched, as at *c*, for the bolts, which will be commonly four in number, or two to each rail, and then bent in rolls—also, of my invention, but not yet patented—which turns the wings up into the position shown in the dotted lines in Fig. 1, one of the black lines of the wings assuming a horizontal position and making a portion of the bottom of the chair; the other black line assuming a vertical position and making the outer edge *d* of said chair, the part F assuming a shape corresponding to and intended to fit closely to the top of the foot of the rail, and the fish-plate C taking a vertical position and intended to have its upper beveled end *a* fit closely to the shoulder of the rail, while its lower end fits also closely to the top of the foot of the rail. It will be seen that in this vertical position of the fish-plate there is a space, *e*, between the inner side of this plate and the web of the rail. This shape, however, as it comes from the machine, is not precisely like that shown in the dotted lines, as the fish-plates are intended to be sprung a little into place when the nuts to the bolts are set up, and the parts are then drawn closely to the corresponding portions of the rails. After my device is thus shaped rectangular slots D are punched out of the edge *d* of the bottom of the chair in solid metal, not penetrating the interior

of the chair, and my device is ready for application. In use the ends of two rails are slipped into it, or it is driven upon them and the rails secured to the same by bolts H in the usual manner, and the chairs are spiked down to ties by spikes passing through the slots D.

Among the advantages of my device are the following, viz: The close fit of the parts to the rail and the fastening of the device to the tie prevent the rails from "running" or moving in the direction of their length, which is a serious difficulty in railroads having heavy grades, and is now remedied by notching the rails for the spikes, which method has been found objectionable, particularly in steel rails, which are liable to break at such points. The thinness of the bottom of the chair gives a spring to the same, which enables it to receive two rails without cutting away any part of the rail or the chair, which is an important matter in practice, as rails rolled in the same rolls differ a little in size. The thickness of the fish-plate portion of my device, its vertical position, and its close fit serve to hold the rail strongly in its vertical position, while it is assisted in preventing lateral flexure by the strength of the chair and by the chair being fastened to its tie. By the springing of the parts a little together to embrace the rail the nuts to the bolts are less liable to work

loose, and the objectionable pounding of the rails found in the use of the ordinary chair is provided against, because the rail is held firmly to my device without play, and yet my chair has a certain elasticity upon its tie. The advantage of slots in the solid metal for spikes is obvious upon inspection.

Having thus described my invention and some of its advantages, I wish to disclaim the invention, broadly, of a wrought-metal combined chair and fish-plate made in one piece; but

What I do claim as my invention, and wish to secure by Letters Patent, is—

The combination, in a combined chair and fish-plates made of wrought metal in one piece, of thick rigid side pieces to serve as fish-plates, and their elastic connections extending from the bottom of said side pieces entirely around the foot of the rails to support and secure said side pieces and to serve as a chair, being constructed with side-projecting base with spike-notches cut therein, as and for the purpose described.

This specification signed and witnessed this 22d day of July, 1872.

LEVI BARTLETT TYNG.

Witnesses:

S. J. NOYES,

EDM. F. BROWN.