(No Model.)

N. NEWMAN.

RAIL CHAIR AND FISH PLATE.

No. 304,659. Patented Sept. 2, 1884.

Fig. 1.

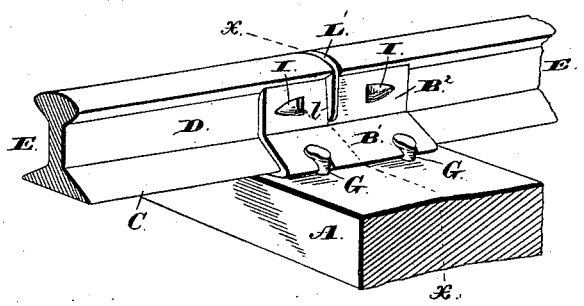

Fig. 2.

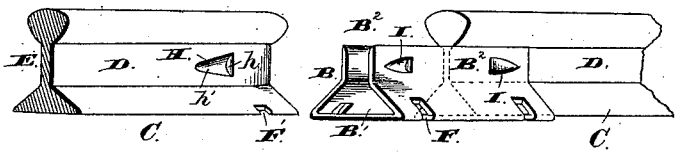

Fig. 3.

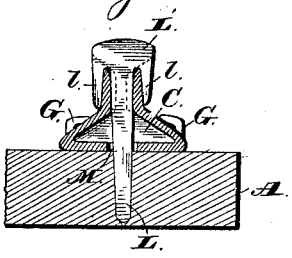

Fig. 4.

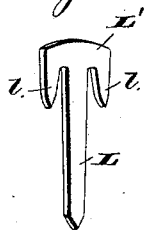

Fig. 5.

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UNITED STATES PATENT OFFICE.

NELSON NEWMAN, OF SPRINGFIELD, ILL., ASSIGNOR TO WILLIAM McCAGUE, JASPER N. REECE, AND EMELINE NEWMAN, ALL OF SAME PLACE.

RAIL-CHAIR AND FISH-PLATE.

SPECIFICATION forming part of Letters Patent No. 304,659, dated September 2, 1884.

Application filed March 4, 1884. (No model.)

To all whom it may concern:

Be it known that I, NELSON NEWMAN, of Springfield, in the county of Sangamon, and in the State of Illinois, have invented certain new and useful Improvements in Combined Rail-Chairs and Fish-Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of the ends of two rails joined together and held by my improved combined rail-chair and fish-plate; Fig. 2, a similar view of the chair and fish-plate detached, with the rail-ends separated; Fig. 3, a sectional view on line *x x* of Fig. 1; Fig. 4, a detail view of the peculiar shaped pin for holding the fish-plates against the sides of the rail, and Fig. 5 a detail view of the key or wedge for forcing the fish-plates apart to allow of the removal from or insertion of the rail-ends between them.

The object of my invention is to provide an improved means for holding and fastening in place the adjacent ends of rails for railroads; and to this end it consists in the construction, arrangement, and combination of devices and parts, as hereinafter set forth, and more specifically pointed out in the claims.

In the drawings, A designates one end of a tie or sleeper upon which my combined chair and fish-plate B is fastened. This latter is, as shown, made of such a shape as to receive the foot C and embrace on both sides the web D of the rails E E. The chair portion B′ is, as usual, provided with notches or recesses F F in its edges, corresponding in position and number with similar notches or recesses, F′ F′, in the outer edges of the rail-foot C. The spikes G G are driven into the sleeper so as to engage and set into these notches in the chair and rail-foot in the ordinary way. The web of each rail is, near the end thereof, provided on each side with an elongated depression or recess, H, the end *h* of which, toward the rail-end, is made abrupt and square, or substantially at a right angle to the face of the web, while its other end, *h′*, is made inclined or sloping out to the web-face. Said notch or depression is then ratchet-shaped.

The fish-plate portions B^2 of my rail connecting and holding device are on each side driven or set in with a punch at I. The portions driven or set in are, as shown, ratchet-shaped, and so situated that they fit into and engage the ratchet-shaped notches or depressions H in the rail-web. They will then, obviously, hold the rail-ends positively from pulling apart as long as they are in engagement with such depressions in the rail.

The combined chair and fish-plate is preferably so formed that the sides thereof will spring inward, so that the ratchet projections on the inside of the plates will normally engage the notches in the rail-web; but I do not intend to rely upon such inward springing alone to keep the projections in the notches. I therefore use the flat pin L, with the arms *l l* extending downward from each end of its head L′. This pin, as shown in Fig. 1, is to be driven in between the ends of the rails, its point and shank passing down through the hole M in the bottom of the chair and into the tie. Each of the arms *l l* of the pin extend outside of one of the plates B^2 B^2, and serves to force and hold said plate inward against the face of the rail-web, so that the projections on the inside of the plate will be caused to enter and be positively held in engagement with the respective notches or depressions in the web. The inner sides or faces of the arms *l l* are inclined slightly inward toward the upper end of the shank of the pin, so that as the pin is driven home the plates will be pressed inward against the rail. As shown, it is intended that the head of the pin shall be substantially flush with the upper face of the rail, or at least only a trifle below it, so that the pin cannot work up and out so as to lose its grip on the plates B^2 B^2. If by any chance it should be forced upward, the first passing wheel of a train would set it home firmly again. When it is desired to remove a rail, the spikes are drawn from the tie and the pin L taken out. The key or flat wedge N is then driven down between the rail-ends, so as to force the plates B^2 B^2 apart far enough to disengage the projections on their inner faces from the notches or depressions in the rail-webs. The chair and plates can then be slid off of one rail onto the other, and the rail can be removed as desired, and another inserted in its place. The chair and plates can then be slid back

into place so as to embrace and hold the end of the new rail, and the pin L and the spikes can be again driven into place. Obviously any desired number of depressions or notches can be made in the rail-webs with a corresponding number of engaging projections on the plates.

If desired, the ratchet-shaped projections on the inner sides of the plates B^2 B^2 can be formed in any other way; but I prefer that shown and described. Where they are punched or set in as shown, the strain upon them in the pulling apart of the rails comes in the direction of their greatest power of resistance.

The recesses or depressions in the rail-webs are to take the place of the ordinary bolt-heads; but where said holes have already been made in the rail they need not in any way interfere with the formation in the faces of the web of the ratchet-shaped depressions either coinciding with the bolt-holes in position or differently placed. If desired, the shape of the depressions or recesses in the rail-webs can be changed and a corresponding change be made in the engaging projections.

Instead of the key or wedge shown, any other suitable tool can of course be used to spring the fish-plate apart to allow of the removal or placing of a rail.

Having thus fully set forth the nature of my invention, what I claim is—

1. As a means for connecting rail-ends, a fish-plate provided with projections adapted to engage recesses in the rail-webs, said projections and recesses having squarely-abutting faces, so as to be adapted to positively hold the rails from separating, substantially as shown and described.

2. The fish-plate provided with ratchet-shaped projections, with their abrupt faces or ends toward each other and the middle of the plate, adapted to enter and engage correspondingly-formed recesses in the rail-web, substantially as and for the purpose described.

3. In combination with the fish-plates provided on their inner faces with projections, made abrupt on the sides toward the middle of each plate, adapted to enter and engage recesses in the rail-webs, means for forcing and holding the plates against the web, so as to insure and maintain the engagement of the projections and recesses, substantially as and for the purpose set forth.

4. The fish-plate provided with projections engaging recesses in the rail-webs, a pin adapted to be driven into the sleeper between the rail-ends, and provided with arms adapted to press against the outer faces of the fish-plates and force and hold them against the rail-webs, substantially as shown and described.

5. As a means for connecting the ends of rails, the fish-plates having portions punched or driven in to form projections on their inner faces adapted to engage depressions or recesses in the rail-webs, substantially as shown and described.

6. The combined rail-chair and fish-plate having projections on the inner faces of the fish-plate portions adapted to engage squarely the abrupt ends of suitably-shaped recesses or depressions in the rail-webs, so as to positively hold the rails from separating, substantially as shown and described.

7. The combined rail-chair and fish-plate, consisting of the portion adapted to receive and support the foot of each rail, and the plates embracing the rail-webs, and provided with internal projections engaging depressions in the latter, in combination with the pin adapted to be driven into the sleeper between the rail-ends, and provided with arms engaging and pressing against the outer faces of the fish-plates, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of February, 1884.

NELSON NEWMAN.

Witnesses:
R. W. HAYNES,
WM. MCCAGUE.