(No Model.) 2 Sheets—Sheet 1.

T. BREEN.

RAILWAY CHAIR AND FISH PLATE.

No. 245,440. Patented Aug. 9, 1881.

Fig. 1.

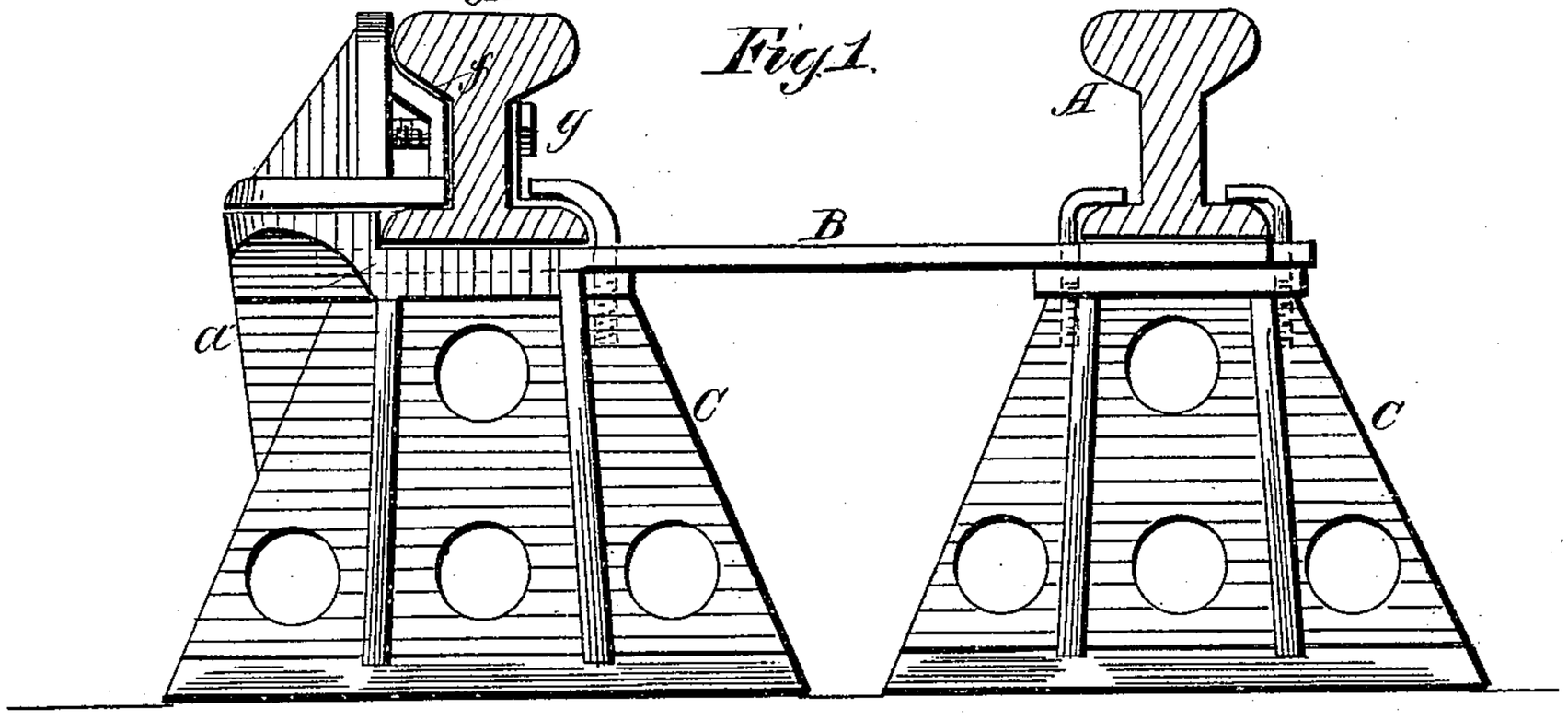
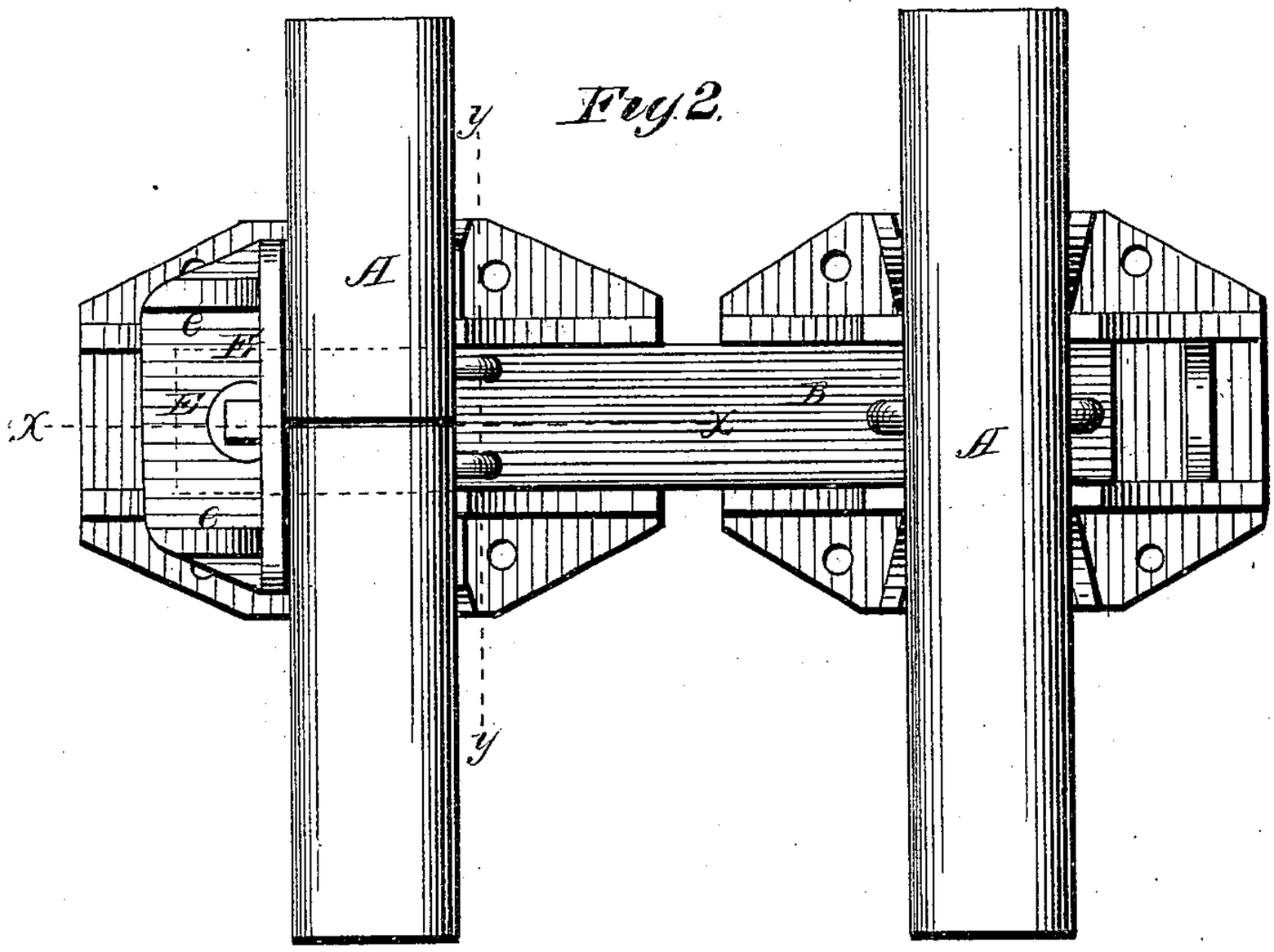


Fig. 2.



WITNESSES

Wm. B. Mahoney Jr.

Fred. L. Dieterich

By Attorneys

INVENTOR

Thos. Breen

Myers & Co.

(No Model.) 2 Sheets—Sheet 2.

T. BREEN.

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Fig. 3.

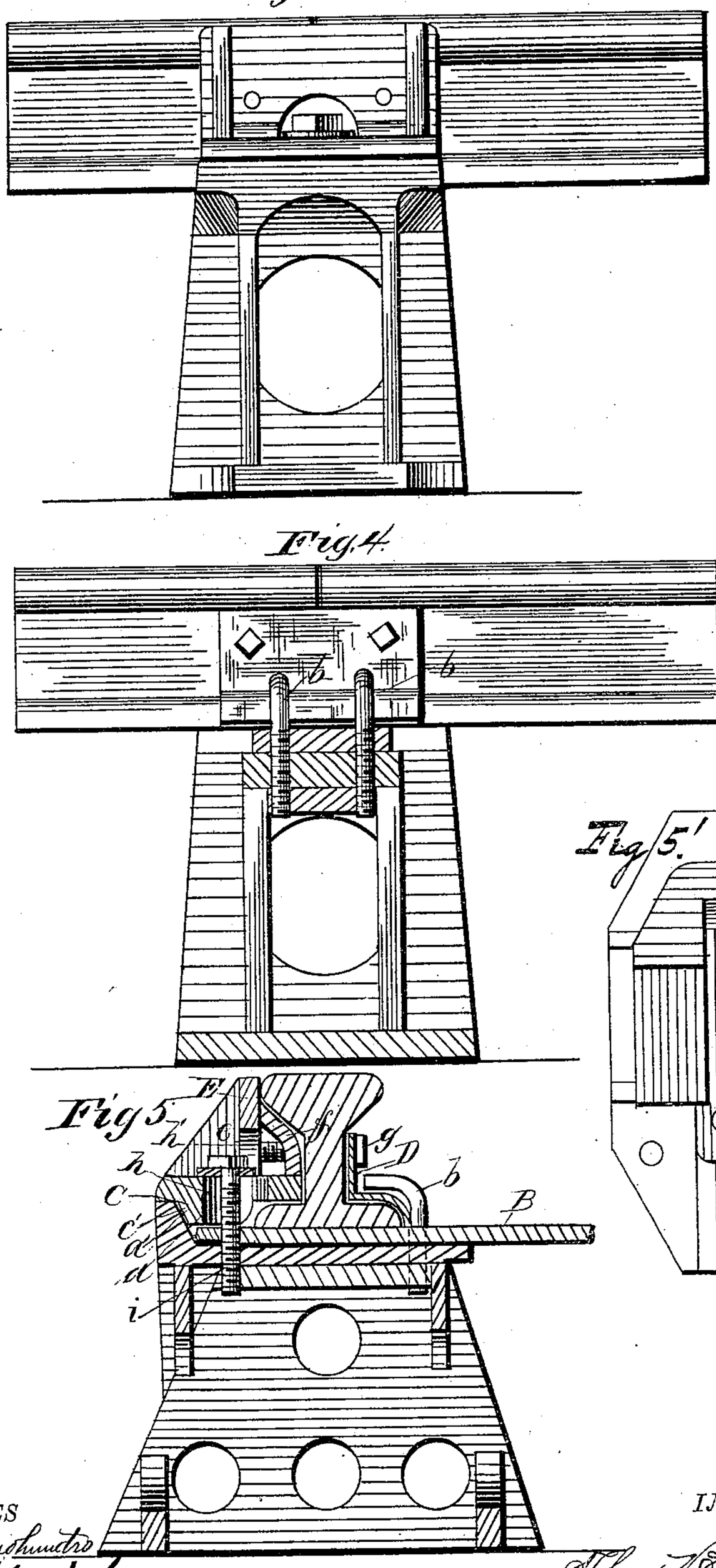
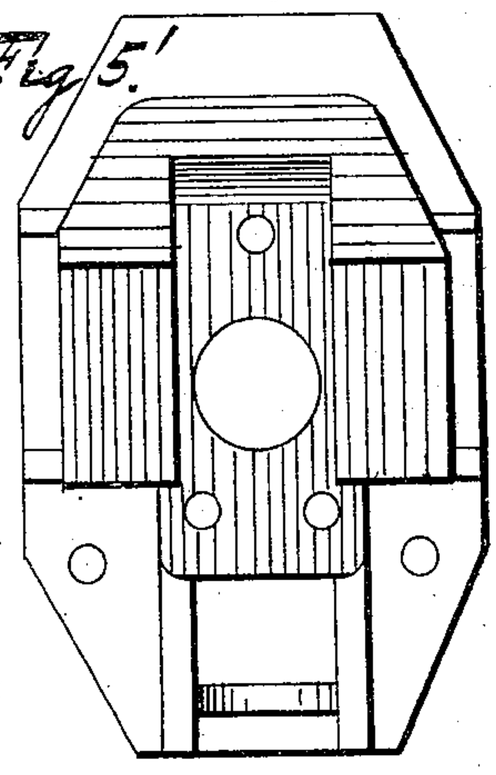


Fig. 4.

Fig. 5.

Fig. 5'.



WITNESSES

Will C. Eichmeyer

Fred. L. Dieterich

By Attorneys

INVENTOR

Thos. Breen

Myers & Co.

UNITED STATES PATENT OFFICE.

THOMAS BREEN, OF KNOWLTON, PENNSYLVANIA.

RAILWAY CHAIR AND FISH-PLATE.

SPECIFICATION forming part of Letters Patent No. 245,440, dated August 9, 1881.

Application filed May 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BREEN, a citizen of the United States of America, residing at Knowlton, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Railway Chairs and Fish-Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is an elevation of my improvement in railways. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation thereof. Figs. 4 and 5 are sections taken, respectively, on the lines *y y* and *x x* of Fig. 2; and Fig. 5′ is a detail view thereof.

This invention contemplates improvements in railways, having reference more particularly to the construction of the chair and the fish-plate, its object being, among other things, especially to dispense with nuts, and consequently locking mechanism therefor, to transfer the weight of the passing locomotive and train from the rail feet or web to the solid bed below, to prevent the tendency of the locomotive or car wheel distorting the line of the rails or pushing one rail more or less out of line with its fellow adjoining rail, and to facilitate the removal or replacing of a rail; and it consists in the details of construction and arrangement of the parts substantially as hereinafter more fully set forth and claimed.

Referring to the accompanying drawings, A A are the rails, constructed in the usual T form and resting upon the ties B.

C C are the cast-metal chairs, which are adapted to be bolted or anchored in position, as shown in Figs. 1 and 2. One or both of the chairs are grooved, as at *a*, to receive the end of the tie B, it, with the fish-plate D, being secured in position by the right-angled curved bolts *b*, the upper horizontal portions of the bolts *b* clamping the base of the fish-plate down upon the foot of the rail, as clearly seen in Fig. 5. The bolt *b* screws down into the chair C. Upon the opposite side of the rails is a peculiarly-constructed fish-plate E. Upon the under side of the fish-plate E is a cleat or downwardly-projecting shoulder, *c*, which sets in an upward extension, *a′*, of the groove *a*, preferably upon the tie. Both the groove *a′* and the side edge of the cleat or shoulder *c* are beveled, as at *c′*, Fig. 5, to permit the fish-plate to be readily slid or slipped into the groove and inserted at the same time under the top or tread of the rail. The upper side of the fish-plate has a perpendicular plate or elevation, E′, strengthened near its ends by bracing-plates *e*, and reaching up about in a plane flush with the top surface of the rails, as clearly seen in Figs. 1 and 5.

The bottom of the fish-plate rests upon the bolted or anchored chair, while its upper surface, flush with the same surface of the rails, covers the joint on one side between the rails, and thus serves a twofold purpose: first, to prevent the distorting of the rails out of line with each other by the action of the flanges of the locomotive or train wheels, which would tend to throw it from the track; and, secondly, to transfer the weight of the passing locomotive or train from the comparatively slender surface of the rail feet or web to the solid foundation upon which the fish-plate stands below.

The inner side of the fish-plate E has a shoulder, *f*, preferably cast hollow, as seen in Figs. 1 and 5, which fits under the top and against the sides of the rails, breaking joint with their meeting ends. The bolts *g*, inserted through and fastening the fish-plate D on the opposite side against the rails, pass and screw into screw-threaded apertures in both the shoulder *f* and the fish-plate E itself, thus entirely dispensing with nuts, and consequently locking mechanism therefor.

It will have been noticed that at every point of fastening, in carrying out my invention, nuts have been omitted, they not being required, which is a great desideratum, especially in constructing railways. It will be further noticed that the intermediate space between the shoulder *f* and the fish-plate E itself exposes the screw-threaded portions of the bolts *g* to the corroding action of the weather or atmosphere, and thus serves to lock the bolt as against its possible or accidental turning.

In the base of the fish-plate E is an elongated aperture or slot, *h*, which meets an aperture,

h', above in the vertical portion of the said plate. *i* is a bolt for securing the fish-plate E in place and passing through the slot *h*. By loosening the bolts *g* or withdrawing them from the fish-plate E and its shoulder *f* and unscrewing the bolt *i*, which movement of the screw is permitted by the aperture *h'*, the fish-plate is capable of being moved with its shoulder *c* partially or sufficiently out of the depression or hollow *a'* in the chair C to free its shoulder *f* from, and permit of the ready removal of, the the rails. By this adjustment of the fish-plate E a substitute rail can be as readily inserted or the same rail be replaced.

Among other and numerous advantages attained by this method of constructing improvements in railway chairs and fish-plates, which comprises the elevation of the track above the ordinary plane of railroad-tracks, is that such elevation will wholly obviate the necessity for the removal of snow or admit the removal of a much less amount of snow after snow-storms than heretofore. Besides, unless the fall of snow exceeds a depth of about nine inches, the employment of snow-plows will then be unnecessary.

Another advantage is due to the fact that its peculiar construction—chiefly that of the cross-ties—debars pedestrians and cattle from walking within the limits of the track, and will thereby prevent accidents resulting in loss of life and property.

Having thus fully described my invention, I claim and desire to secure by Letters Patent—

1. In a railway-fastening, the combination, with the fish-plate D, of the screw-threaded bolt *b*, having the curved right-angled head, substantially as and for the purpose set forth.

2. In a railway-fastening, the combination, with the chair C, having the groove or depression *a'*, of the fish-plate E, having the shoulder *c* upon its under side, the elongated slot *h* through its base, and the vertical part E', having the aperture *h'* and the bolt *i*, substantially as and for the purpose set forth.

3. In a railway-fastening, the combination, with the rail A and the fish-plate D, having the bolts *g*, of the fish-plate E, having the hollow shoulder *f*, provided, both it and the plate itself, with screw-threaded apertures, substantially as and for the purpose set forth.

4. In a railway-fastening, the combination of the chair C, having the groove or seat *a a'*, tie B, rails A, bolts *b i g*, fish-plate D, and plate E, having the shoulder *c* upon its under side, the elongated slot *h* through it, the vertical portion E, having the aperture *h'*, and the hollow shoulder *f*, having the threaded apertures for the bolts *g*, substantially as and for the purpose specified.

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

THOMAS BREEN.

Witnesses:
GEO. R. HERRICK,
JAS. BAXTER.