

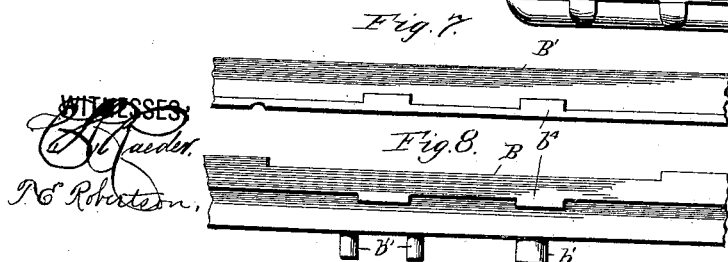
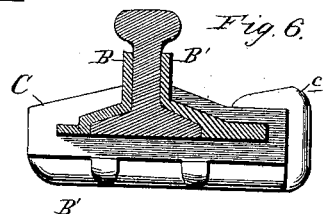
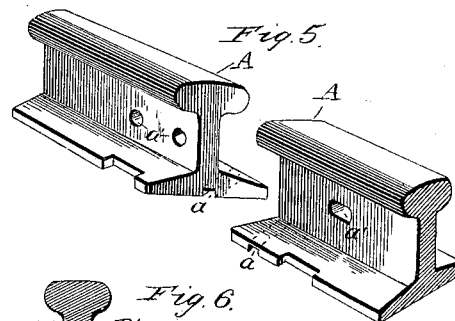
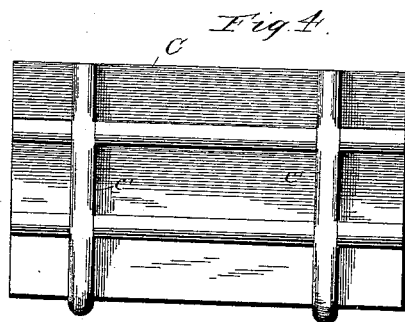
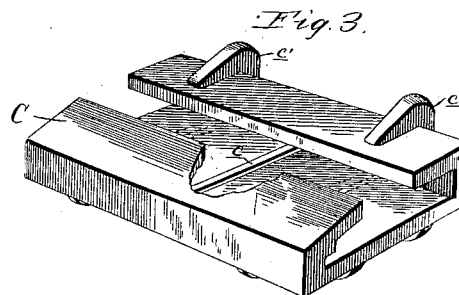
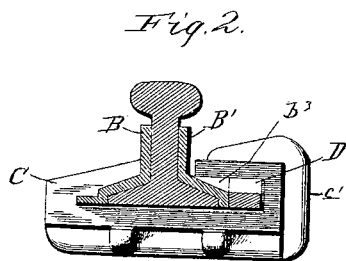
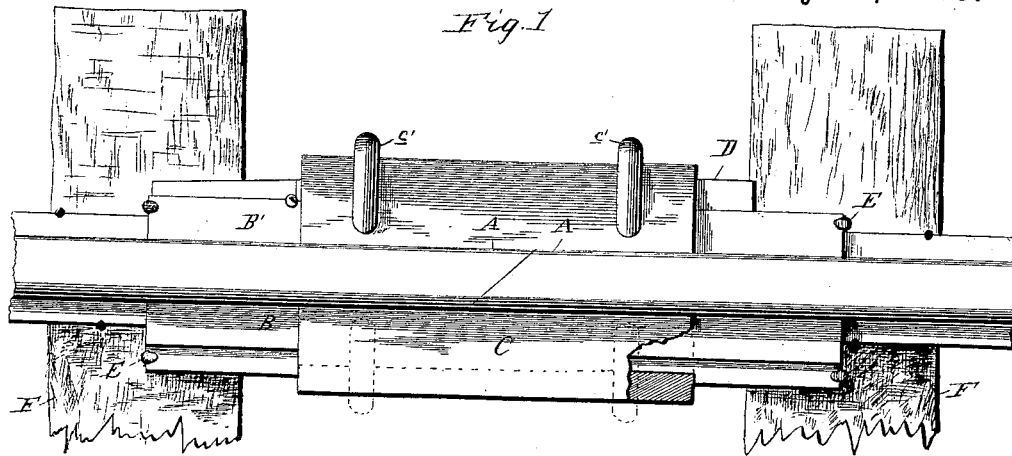
(No Model.)

P. BROWN.

RAIL JOINT.

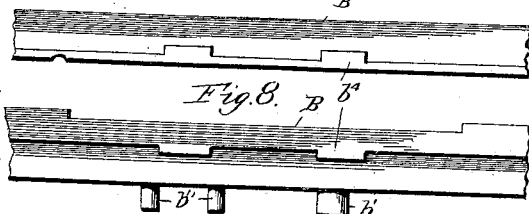
No. 386,452.

Patented July 24, 1888.



WITNESSES:
W. J. Lueder,
N. C. Robertson,

Fig. 8.



INVENTOR,
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BY *T. W. Robertson,*
ATTORNEY.

UNITED STATES PATENT OFFICE.

PERRY BROWN, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO DANIEL E. DOHERTY, OF SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 386,452, dated July 24, 1888.

Application filed February 16, 1888. Serial No. 264,216. (No model.)

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Rail Joints, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates more particularly to that class of rail-joints in which a chair and fish-plates are employed in conjunction with a wedge which fastens them all together; and the invention consists in the peculiar construction, arrangement, and combinations of parts, as hereinafter more particularly described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of the ends of two rails united with my improved joint with part of the chair broken away; Fig. 2, an end view of the same, partly in section. Fig. 3 is a perspective view of the chair with part broken away. Fig. 4 is a bottom plan of the chair; Fig. 5, a perspective view of the ends of two rails, and Fig. 6 is a section showing one of the fish-plates and the wedge formed in one piece. Figs. 7 and 8 are bottom plans of the fish-plates.

Referring now to the details of construction, A A represent the adjoining ends of two rails, each having a recess, *a*, formed across the bottom of its foot and preferably cut diagonally, as shown.

B B' represent the fish-plates, the inner sides of which are made of such shape as to closely embrace the foot of the rail and the under side thereof and preferably touch the under side of the tread, and one of them (the left side in the drawings) also fits one side of the chair C. The other side of this chair is made rather wider, (reckoning from the center of the rail,) to allow of the insertion of a wedge, D, so that the right side of the chair is made of a shape to fit the fish-plate and the wedge when in place. The bottom of the inside of the chair has a ridge or bar, *e*, across the center; but, if preferred, two or more may be employed, (as shown in dotted lines in Fig. 3,) and has ribs *e'* extending under the bottom and over the right-hand side, as shown, but may, if pre-

ferred, be on the other side also, as indicated in dotted lines in Fig. 1.

The fish-plate B has a portion cut away at its lower outer edge, leaving a projection at each end to embrace the ends of the chair. It is preferably made with oblong lugs, as *b'*, or round ones, *b''*, to fit into holes *a'* in the ends of the rails.

I prefer to make the fish-plate B' with a right-angled raised portion, *b''*, so as to be parallel in cross-section at this point and to approximately fit the right-hand side of the chair, the inside of which is right-angled, as shown in Fig. 2. At the lower edge of both of the fish-plates I sometimes make lugs or projections *b'*, that fit into corresponding recesses in the ends of the rails.

With the construction so far described, and with one of the rails in place, the fish-plate B is set against the rail, then the chair is put on, after which the next rail is set in its place in the chair, and then the fish-plate B', after which the wedge D is forced in and a rivet driven into the hole formed by a notch in the fish-plate B' and one of the notches in the wedge, which securely holds the whole together.

Any mode of fastening the rail or chair to the ties may be employed; but I prefer to make notches in the ends of the fish-plates and drive in spikes E into the ties F. The notches in the end of the fish-plates have the advantage of preventing the joint from moving to either side, whereas if the notch is cut in the side of the fish-plate a spike will only prevent motion to one side if motion is not prevented by other spikes on the opposite side.

By the construction above set forth a very cheap joint is formed, that is not only easily put together without bolts and nuts, but one that is very strong and perfectly secure, and which, while allowing perfect freedom of expansion and contraction from changes of temperature, will not allow of the parts becoming loose accidentally. The ribs on the outside of the chair strengthen the same very materially, and the cross-ridge on the inside also adds to this effect.

The diagonal cut of the rail, besides preventing the thumping that ordinarily occurs when the wheels pass from one rail to another, also allows of both rails being held by a single
5 ridge in the bottom of the chair.

When the wedge and fish-plate are formed in one piece, the projections on the lower edge must be left off, and then the wedge and fish-plate are driven in place and fastened there by
10 spikes driven in the end notches, as before described.

What I claim as new is—

1. The combination, with a chair having a rib in the rail-seat extending across the seat,
15 of a rail provided with a recess in its foot to receive said rib, substantially as described.

2. In a rail-joint, the combination, with the diagonally-cut rails A A, having recesses in their bottoms, of a chair, C, having a central ridge
20 entering the recesses in both rails, substantially as described.

3. In a rail-joint, the combination, with a chair, C, and a fish-plate, B, having a recess embracing the chair at each end, of two rails
25 fitting in the chair, a second fish-plate set on the opposite side of the rails, and a wedge for securely locking the rails and fish-plates together, substantially as described.

4. In a rail-joint, the combination, with a
30 chair, C, and a fish plate, B, one having a re-

cess receiving a portion of the other and the fish-plate projections on its rail-side, of two rails having recesses, one part of which receives the projections on the fish-plate B, and a second fish-plate, B', having projections to
35 fit into other recesses on the rails, and a wedge for securely locking the whole together, substantially as described.

5. In a rail-joint, the combination of a chair having the inner top and bottom surfaces of
40 one side parallel, with a fish-plate fitting the opposite side of the chair, rails fitting against said fish-plate, and a second fish-plate fitting against the rails, having a portion of its top and bottom parallel, and a wedge for locking
15 the whole together, substantially as described.

6. In a rail-joint, and in combination with the ties and rails, fish-plates fastened to said rails and provided with notches in the parts
50 at right angles to the length of the rails to receive the spikes for fastening them to the ties, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of February, 1888.

PERRY BROWN.

Witnesses:

H. A. WILLETT,

CHARLES J. DOHERTY.