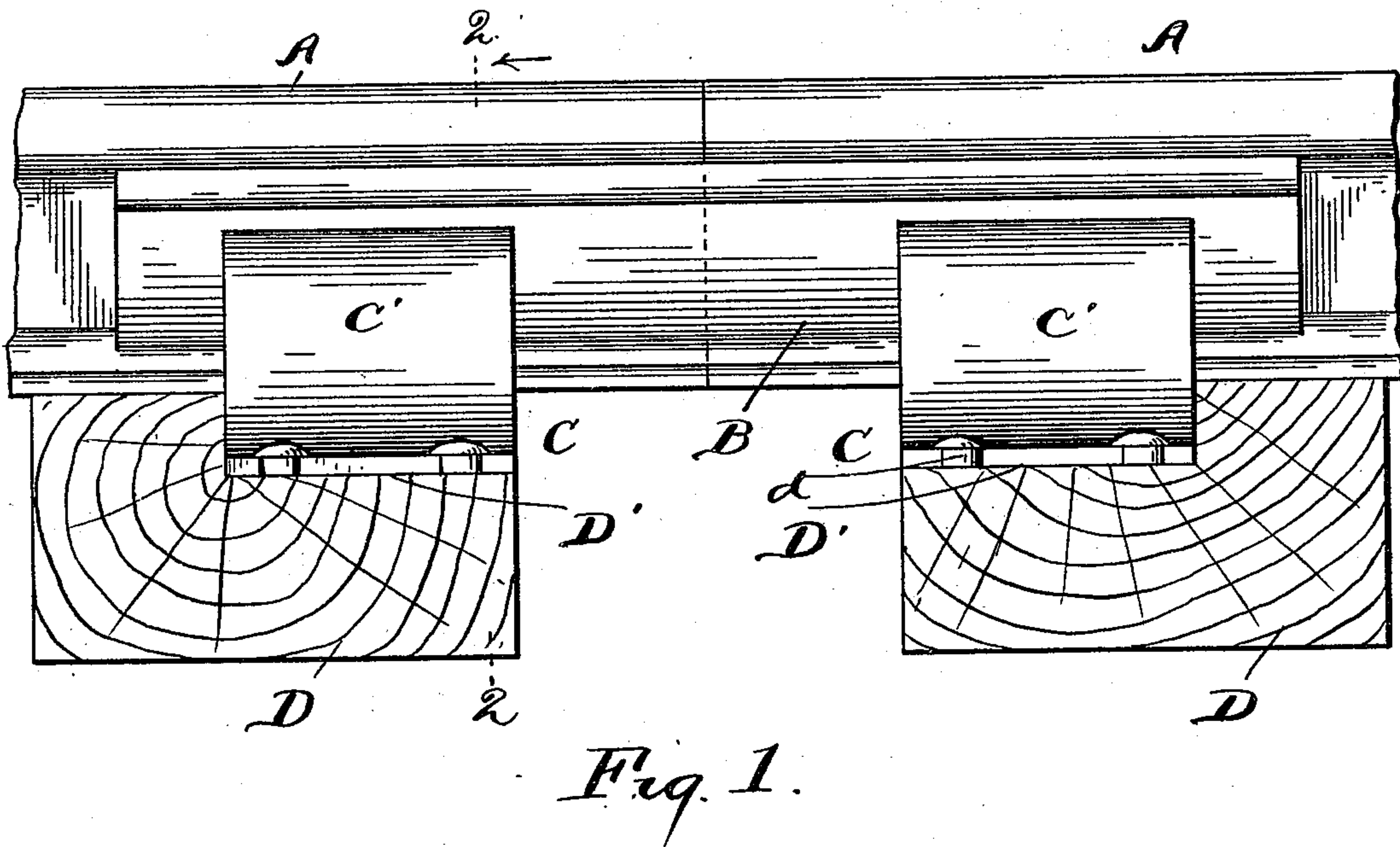
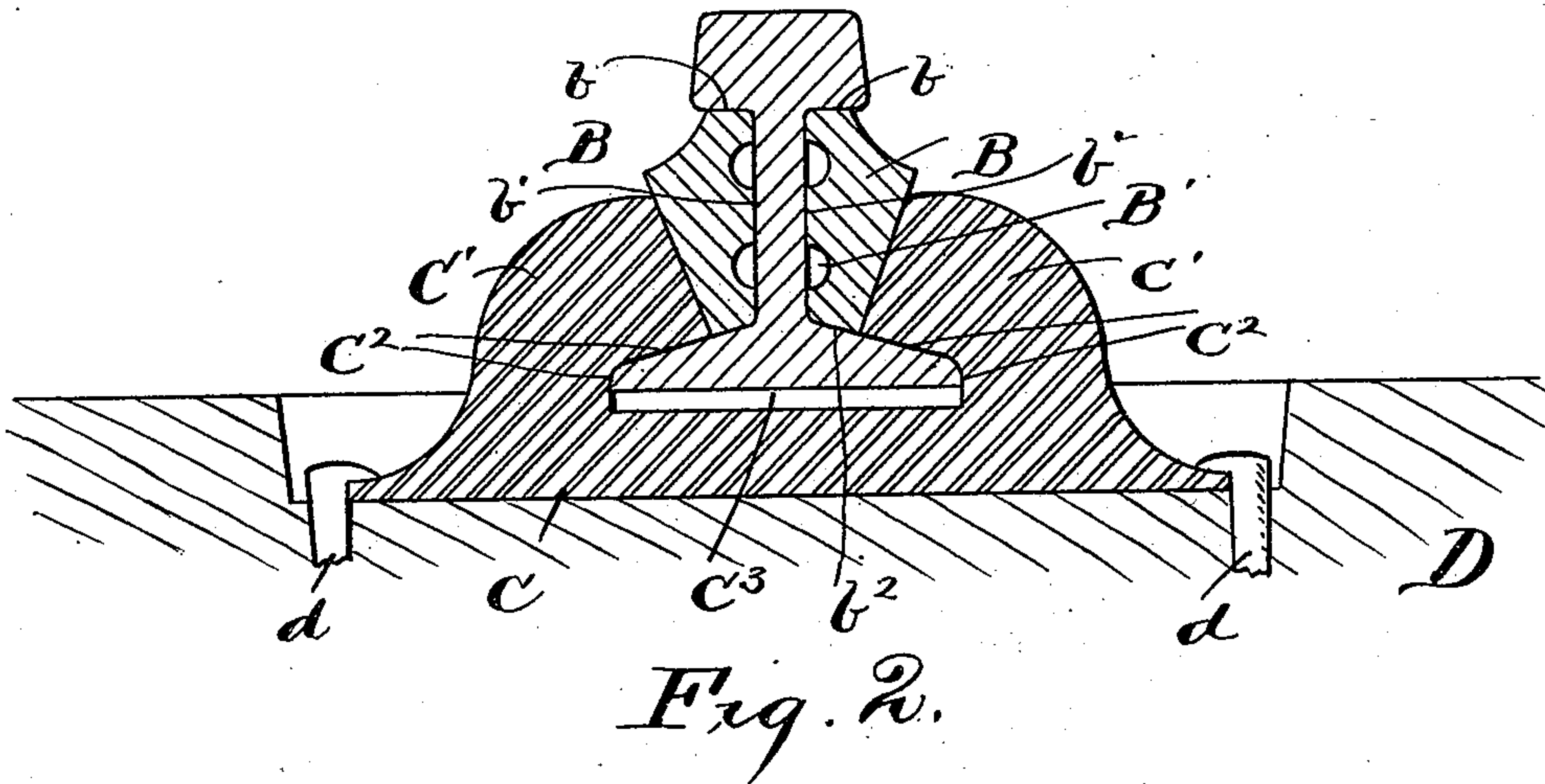


(No Model.)

C. E. MILLER & P. M. HAAS.
RAIL JOINT OR COUPLING.

No. 512,733.

Patented Jan. 16, 1894.



Witnesses.
E. B. Gilchrist
Crawford

Inventors
Charles E. Miller
and
Philip M. Haas
By *[Signature]*
their Attorneys

UNITED STATES PATENT OFFICE.

CHARLES E. MILLER AND PHILIP M. HAAS, OF YOUNGSTOWN, OHIO; SAID
HAAS ASSIGNOR OF ONE-FOURTH TO SAID MILLER.

RAIL JOINT OR COUPLING.

SPECIFICATION forming part of Letters Patent No. 512,733, dated January 16, 1894.

Application filed March 23, 1893. Serial No. 467,281. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. MILLER and PHILIP M. HAAS, of Youngstown, in the county of Mahoning and State of Ohio, have
5 invented certain new and useful Improvements in Rail Joints or Couplings; and we 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
10 it pertains to make and use the same.

Our invention relates to improvements in rail-joints or couplings, the object being to provide a joint or coupling that will clamp the rail when the weight of the rolling-stock
15 is upon the rail, and that will be loose when there is no weight or load upon the rail; wherein no bolts and nuts are required, and that is more durable and more efficient than the joints or couplings that have heretofore been
20 devised.

With this object in view, our invention consists in certain features of construction and in combination of parts hereinafter described and pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a side elevation of a rail-joint or coupling embodying our invention, showing two contiguous or abutting rails joined or coupled together. Fig. 2 is a transverse vertical section on line 2—2, Fig. 1, looking in the direction of the arrow.
30

Referring to the drawings, A A represent the contiguous or abutting end-portions of two rails, the same being supported by a pair
35 of fish-plates B, a fish-plate being provided at each side of the rails and extending by the point at which the rails abut each other. Fish-plates B engage the under side of the head of the rails, as at *b*, the respective side
40 of the web of the rails, as at *b'*, and the top side of the base of the rails, as at *b''*, and are supported by cheeks *C'* of the rail-chairs C, the chair-cheeks engaging the top and edges of the base of the rail, as shown at *C''*, Fig. 2,
45 the cheeks being undercut for the purpose. The chair-cheeks are beveled downwardly and inwardly on their inner side, as shown in Fig. 2, where they support the fish-plates, and the latter are wedge-shaped in cross-section, as
50 shown, to nicely fit between the web of the

rails and the respective beveled portion of the chair cheeks.

A rail-chair is provided at each end of the fish-plates and the chairs are spiked to the railway-ties or sleepers, D, as at *d*. The base
55 of the rails does not rest upon the rail-chairs, but the cheeks of the latter are undercut sufficiently to provide a suitable clearance, as at *C''*, between the under side of the base of the rails and the chairs.
60

The fish-plates being made larger or thicker near the top or head of the rail as hereinbefore indicated, it will be observed that the fish-plates are strongest near the head of the rails where the greatest strength
65 is needed. It will also be observed that by means of the wedge-shape or downward and inward taper of the outer side of the fish-plates and the corresponding bevel of the inner side of the chair-cheeks, when the weight
70 of the rolling-stock is on the rails, the fish-plates are pushed or crowded downwardly in the rail chairs, thereby clamping the rails while the weight is upon them more securely than at any other time. The clearance *C''* between the base of the rails and rail-chairs
75 must be sufficient to allow the rails and fish-plates to push or crowd down into the chairs without coming into contact with the latter.

The chairs are preferably set into the ties, 80 the latter being gained or recessed, as at *D'*, for the purpose and so that the ties will all be on the same level. A preferable construction is shown in Fig. 1, wherein the gains or recesses in the ties for receiving the chairs
85 are at one side of the ties, thereby permitting the rails to rest upon the remaining portions or opposite side of the ties. By thus permitting the rails to rest upon a portion of the ties, it will be observed that a cushion is
90 formed for the rails and a great deal of weight or load taken off the chairs. The chairs of course, should be constructed strong enough to withstand any pressure to which they may be subjected. The chairs are placed any de-
95 sired distance apart.

The fish-plates, for obvious reasons, are preferably corrugated, as at *B'*, on their inner side.

We would direct particular attention to the grip of the chair and fish-plates upon the rails. 100

The grip thus holds the rails in a perfect line, and gives great support to the rails when carrying a load.

It will, of course, be understood that suitable devices for preventing endwise displacement of the fish-plates would preferably be employed. Any well known locking or securing devices can be used for the purpose, and it is, therefore, not considered necessary to illustrate or describe the same in this application.

What we claim is—

1. In a rail-joint or coupling, the combination with the rails, of a chair under each rail at or near the contiguous ends of the rails, said chairs at each side of the respective rails being provided with a cheek beveled downwardly and inwardly on its inner side, a wedge-shaped fish-plate interposed between said beveled side of the chair-cheeks and the adjacent side of the rails, said fish-plates engaging the head, web and base of the rail, and the chair-cheeks overlapping and engaging the upper surface of the rail-base and being sufficiently undercut to afford clearance between the base of the rail and chairs, substantially as set forth.

2. In a rail-joint or coupling, the combination with the contiguous or abutting end portions of the rails and ties or sleepers upon which said portions of the rails rest, said ties or sleepers being recessed, as at D', chairs seated in the recesses and provided at each side of the respective rail with a cheek beveled downwardly and inwardly upon its inner side and undercut, substantially as indicated, a wedge-shaped fish-plate interposed and nicely fitting between the beveled sides of the chair-cheeks and the adjacent side of the rails, the fish-plates engaging the head, web and base of the rail and the chair-cheeks overlapping and engaging the upper surface of the rail-base and being sufficiently undercut to prevent contact of the under side of the base of the rail with the chairs, substantially as set forth.

In testimony whereof we sign this specification, in the presence of two witnesses, this 20th day of February, 1893.

CHARLES E. MILLER.

PHILIP M. HAAS.

Witnesses:

EMERY F. LYNN,

L. S. CRUM.