

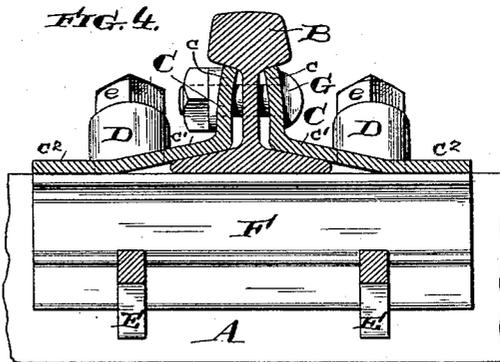
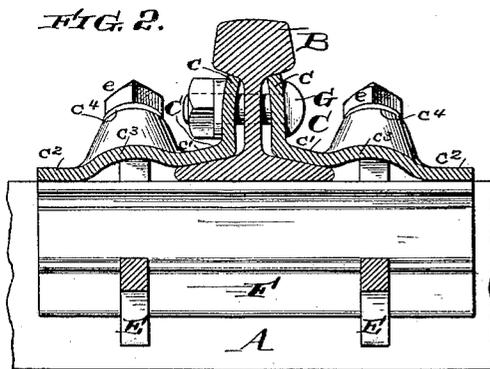
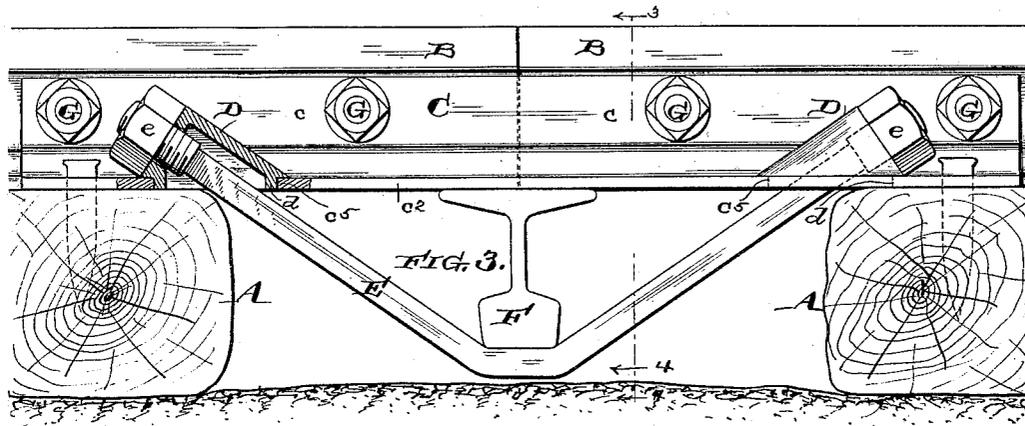
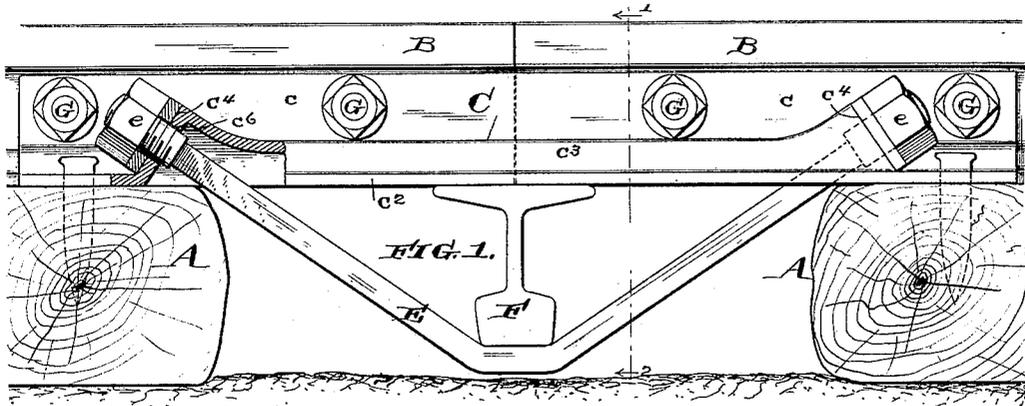
(No Model.)

W. H. CONNELL.

RAIL JOINT.

No. 452,833.

Patented May 26, 1891.



Witnesses:

*Henry D. ...*  
*Robert P. ...*

Inventor:

*William H. Connell*  
*by his attorney*  
*Francis T. Chambers*

# UNITED STATES PATENT OFFICE.

WILLIAM H. CONNELL, OF WILMINGTON, DELAWARE.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 452,833, dated May 26, 1891.

Application filed September 17, 1890. Serial No. 365,282. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. CONNELL, of Wilmington, county of New Castle, State of Delaware, have invented a certain new and useful Rail-Joint, of which the following is a true and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to the construction of rail-joints and the parts thereof, and has for its object to provide a new and useful construction of joint well adapted for the exigencies of railway use.

The nature of my invention will be best understood as described in connection with the drawings, in which it is illustrated, and the novel features which I desire to protect by this patent are hereinafter clearly set forth in the claims.

In the drawings, Figure 1 is a side elevation of my joint in the form which I prefer as best adapted for use; Fig. 2, a section on the line 1 2 of Fig. 1; Fig. 3, a side elevation of a modification of my improved joint, and Fig. 4 a section on the line 3 4 of Fig. 3.

A A are the two ties or sleepers adjacent to the rail-joint. B B are the abutting ends of the rails.

C C are fish-plates, which, like the well-known double-angle fish-plates, have an upright member *c* and an approximately horizontal member *c'*. I extend this horizontal member beyond the side of the rail and bring it down so that it will rest on the sleepers, as is indicated at *c''*, and through this extension *c''* I form openings, as *c'''* or *c''''*, for the passage of the ends of the tie-rods hereinafter described. Preferably I bend or corrugate the extension *c''*, as shown in Figs. 1 and 2, at *c'''*, forming the tie-bolt holes at the ends of the corrugation, as shown at *c''''*; but the extensions may be flat, or nearly so, as shown in Figs. 3 and 4, and the bolt-holes may then be like those marked *c'''''*, Fig. 3.

D D, Figs. 3 and 4, are castings, having a projection, as *d*, fitting in the opening *c''*, and through which the tie ends pass, these castings serving to provide shoulders for the nuts at right angles to the tie ends.

F is a strut placed below the center of the joint, as shown, and E E are tie-rods which

pass beneath the strut and have their ends extending through the openings at the ends of the extensions *c''* of the fish-plate.

*e e*, &c., are nuts screwing on the ends of the tie-rods E, and, as shown, resting on the shoulders *c'''* of the corrugation or on the equivalent surface provided by the block D.

G G G, &c., are bolts and nuts securing the fish-plates to the rails in the usual manner.

It will be seen that by using my joint, as shown, the strains on the rail ends are transmitted through the strut F and tie-rods E to the extensions of the fish-plates and partly converted into a compression strain on said extension and partly taken up on the ties or sleepers A, upon which the extensions *c''* rest at their ends.

In other patent applications now pending and filed by me as follows: February 3, 1890, Serial No. 339,039; February 21, 1890, Serial Nos. 341,289 and 341,325; April 25, 1890, Serial No. 349,413, and July 29, 1890, Serial No. 360,277, I have shown and described joints having a similar general construction to that above specified, the principal novel feature of which is in the construction and use of the extension *c''* of the double-angle fish-plate, adapting it for use in forming the joint in the way shown and described.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A rail-splice plate made in the form of a double-angle fish-plate and having its horizontal member continued out beyond the edge of the rail struck up to a U form and provided with holes at the ends of said U-shaped portion for the passage of a tie-rod, all substantially as and for the purpose specified.

2. A rail-joint having in combination with the ends of the rails and the adjacent ties double-angle fish-plates C, having their horizontal members extended out beyond the edge of the rail and brought down to the level of the rail-base, so as to rest upon the ties, a strut F, placed beneath the joint of the rails, and tie-bolts E E, passing beneath the strut and through openings in the extension of the fish-plate, all substantially as and for the purpose specified.

3. A rail-joint having in combination with

the ends of the rails and the adjacent ties double-angle fish-plates C, having their horizontal members extended out beyond the edge of the rail and struck up into a U form, the  
5 ends of said extensions resting on the ties, a strut F, placed beneath the joint of the rails, and tie-bolts E E, passing beneath the strut

and through openings in the extensions of the fish-plates formed at the ends of the U-shaped portion.

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Witnesses:

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