

(No Model.)

F. C. BALCH.  
RAIL JOINT.

No. 509,422.

Patented Nov. 28, 1893.

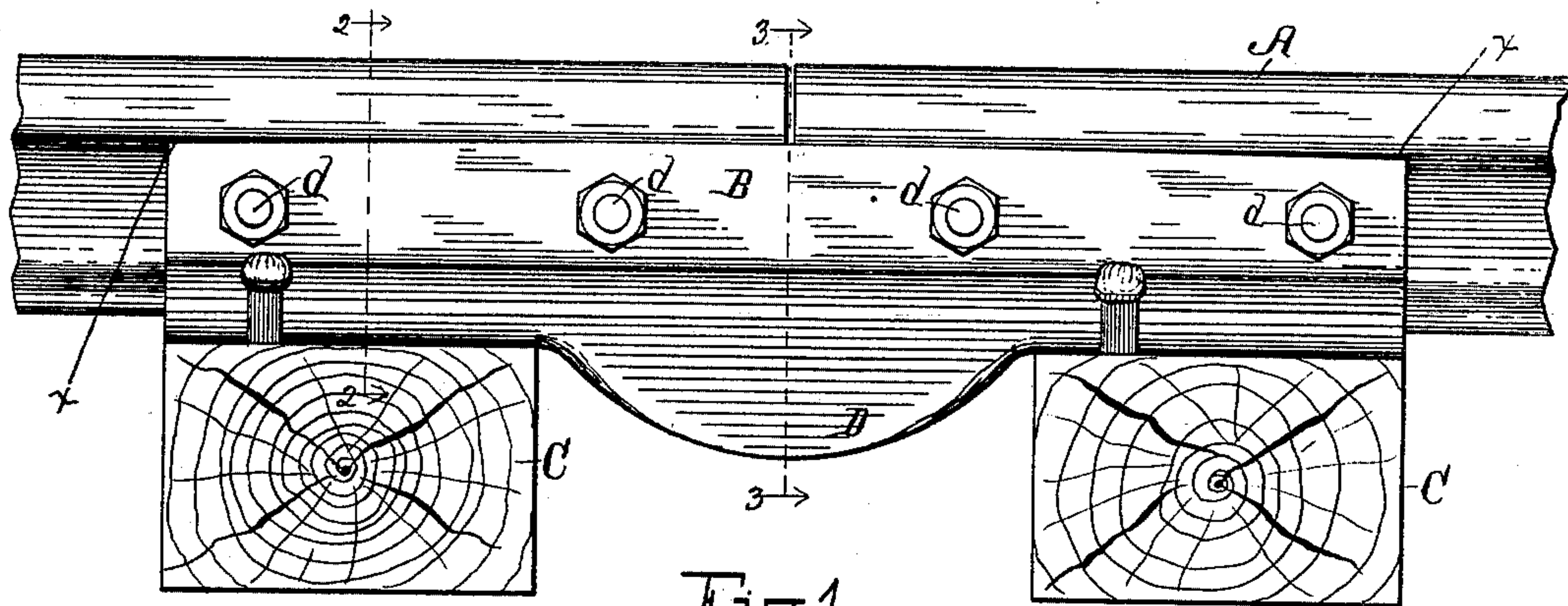


Fig. 1

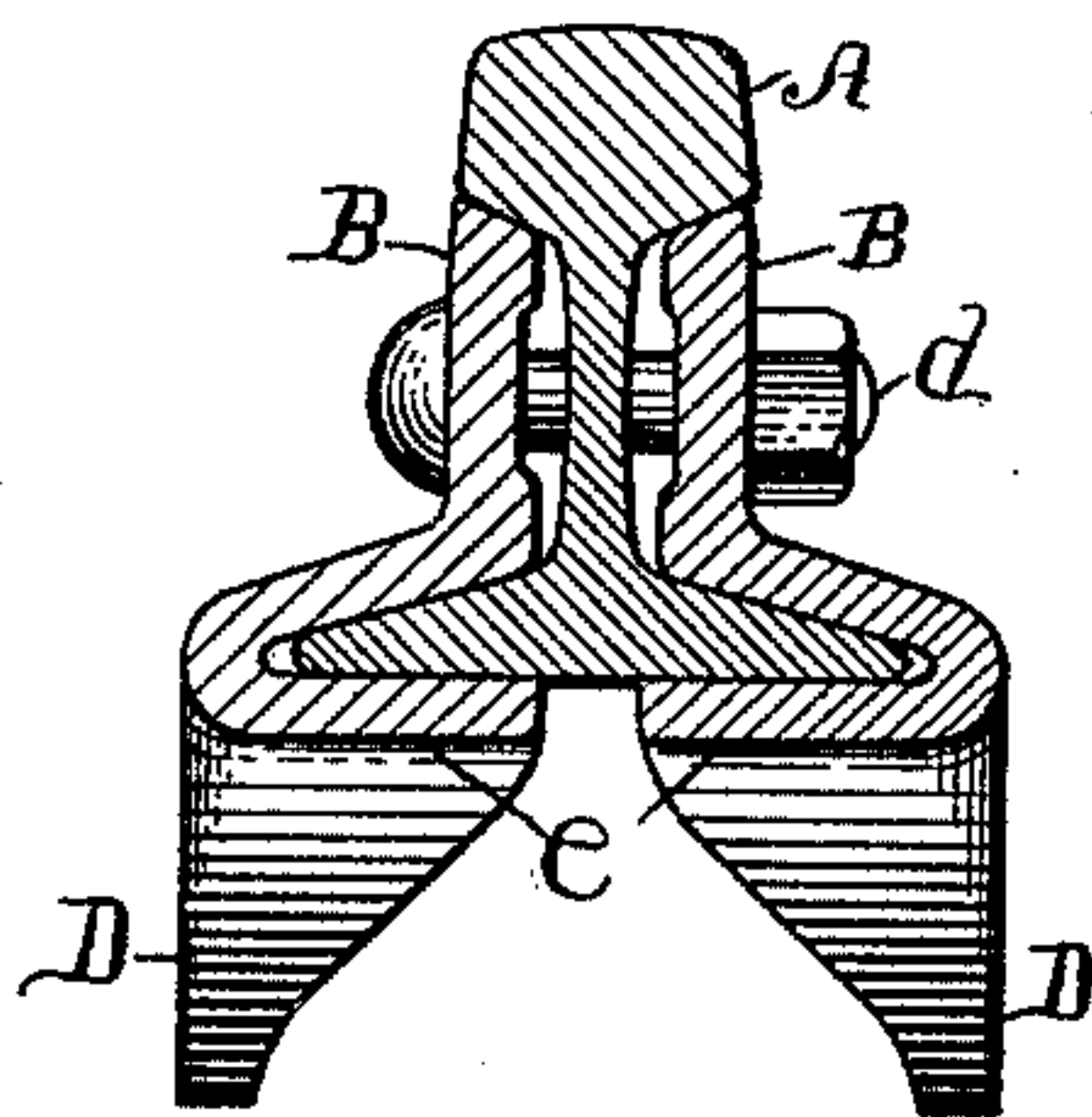


Fig. 2

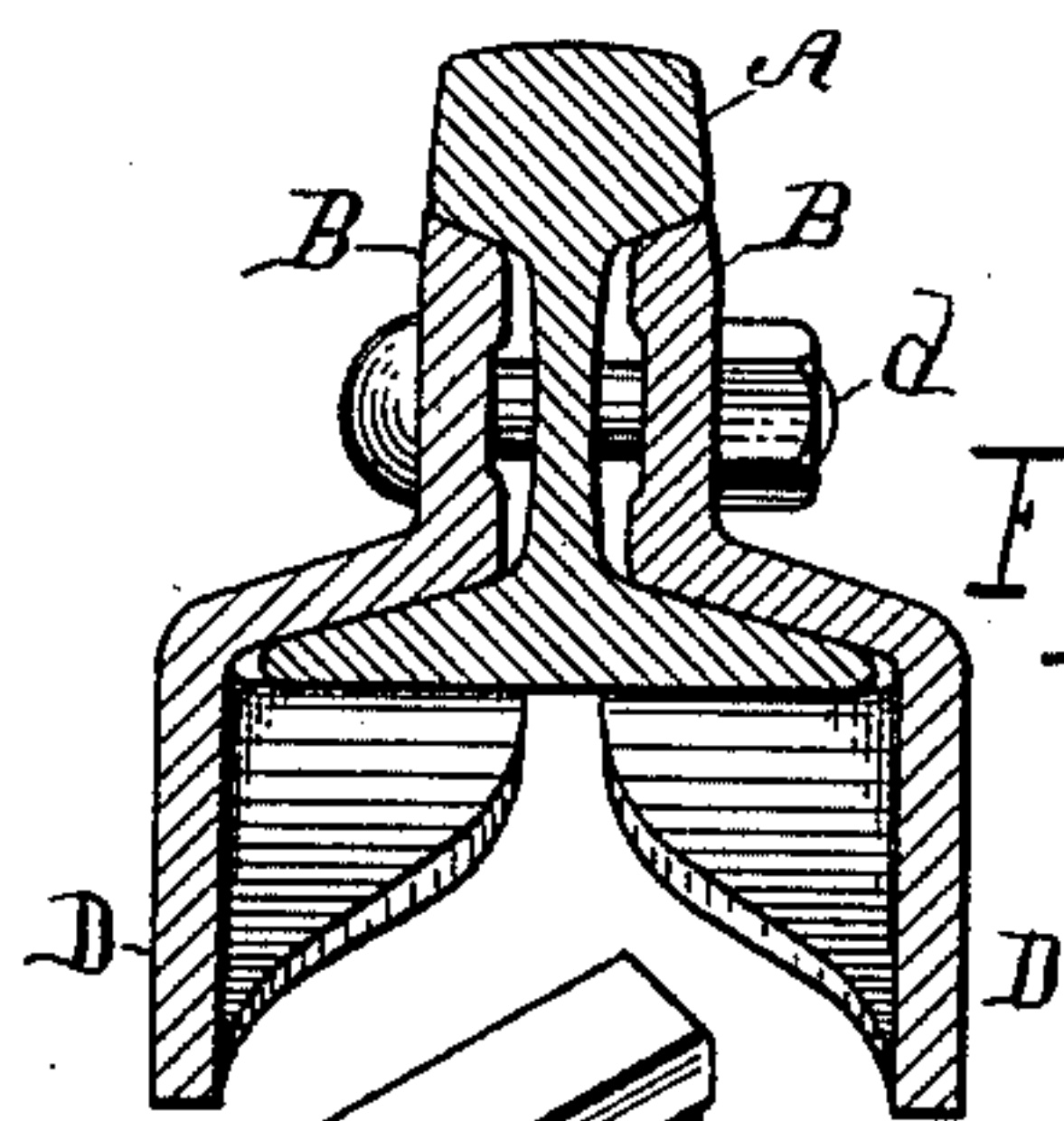


Fig. 3

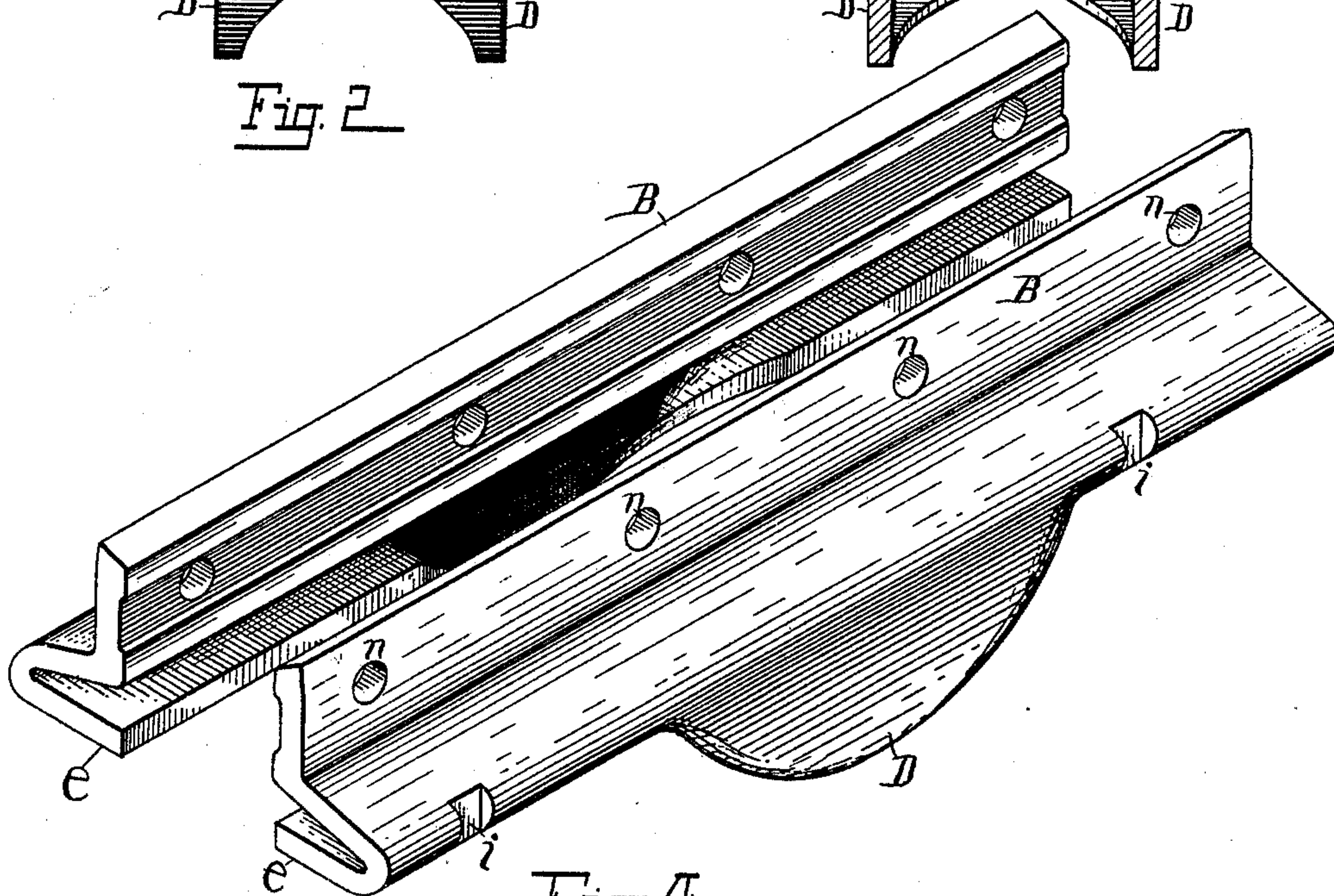


Fig. 4

Witnesses:

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Inventor.

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Att'y.



# UNITED STATES PATENT OFFICE.

FRANK C. BALCH, OF KALAMAZOO, MICHIGAN.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 509,422, dated November 28, 1893.

Application filed February 14, 1893. Serial No. 462,240. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK C. BALCH, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and useful Rail-Joint, of which the following is a specification.

My invention relates to improvements in rail joints for railroads, in which a portion of the splice bars project below the bottom of the rail to support the joint.

The objects of my invention are, first, to provide a truss portion below the rail; second, to provide in the joint means of attachment to the ties; third, to provide against violent shock to the splice bars from approaching and passing trains by leaving a small open space between the head of the rail and the end of the splice bars, and fourth, to afford a support for the rail over the ties. I accomplish these results by the device illustrated in the accompanying drawings, in which—

Figure 1 is a side view of my invention in position. Fig. 2, is a section view on line 2—2, looking in the direction of the arrows. Fig. 3, is a section view on line 3—3, looking in the same direction. Fig. 4, is a detailed view in perspective of the splice bars a little separated by the rail being removed.

Similar letters of reference refer to similar parts throughout the several views.

The rails A, and the ties C, are shown in the usual form.

The upper part of my splice bars B, are in the usual form of angle bars for that purpose, except that the upper edge instead of being straight is curved to leave a small space at each end between the bars and the head of the rail. The splice bars fit tight to the heads of the rails at the ends of the rails. This form of construction operates to relieve the joint from shocks for the reason that when the weight of the trucks of a car or train of cars are on each side of the joint beyond the ties C, C, shown, the tendency is to raise the ends of the rails up, the ties C, C, acting as fulcrums. The small spaces *x* at the ends of the bars permit this to take place without breaking or straining the joint. The splice bars B, are extended below the base of the

rails. The portions *e* at the ends of the bars are folded tight against the under side of the base of the rails as shown in Fig. 2. The portions *e* so folded rest on the ties C, under the rail and form a chair for the rail. The middle portions of the splice bars B instead of being folded tight against the under side of the base of the rail are projected down in a vertical position at the edge of the base and form the trusses D, one on either side of the rail. The metal between the truss D and the horizontal portion *e* of each bar I prefer to leave intact. Of course it will be somewhat stretched by the bending of the plate of which the bar is composed, to the desired form. The metal could be divided between the two parts D and *e* and still embody my invention. The bars B are bolted to the rails by the bolts *d* which pass through the bars B at and through the web of the rails in the usual manner. Notches are cut in the bars at *i* to receive the spikes that hold the whole securely to the ties. Bolts could also be inserted through the trusses D to hold the bars, but they are not necessary and I prefer not to use them.

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

1. A splice for rail-road rails, made of two pieces of metal bent at their ends to form a chair for the reception of a rail, their middle portion being bent downward to a vertical position at the edge of the base, to form a truss opposite the meeting points of the rails, substantially as described.

2. In a rail joint, the combination of the bars B constructed of suitable material, the upper portion being in the usual form of angle bars for the purpose, a lateral extension being folded under the base of the rail at *e* to form a chair for the rail, and bent down at the middle portion to form a truss D at the outer edge of the base of the rail with the rails A, substantially as described for the purpose specified.

3. In a railroad joint, the rails A, joined and supported by the combination of the ties C, the splice bars B, forming the chair *e* and the truss D with the bolts *d* substantially as described for the purpose specified.

4. A rail joint, composed of two spliced

bars B, the upper portion being in the usual  
form of angle bars, with the spaces  $x$  be-  
tween the ends of the bars B, and the heads  
of the rails, and the lower portions bent to  
5 form the chairs  $e$  and the trusses D, all joined  
to the rails and ties by bolts and spikes, sub-  
stantially as described for the purpose speci-  
fied.

In witness whereof I have hereunto set  
my hand and seal in the presence of two wit- 10  
nesses.

FRANK C. BALCH. [L. S.]

Witnesses:

E. S. ROSS,

CORA E. WESTBROOK.