

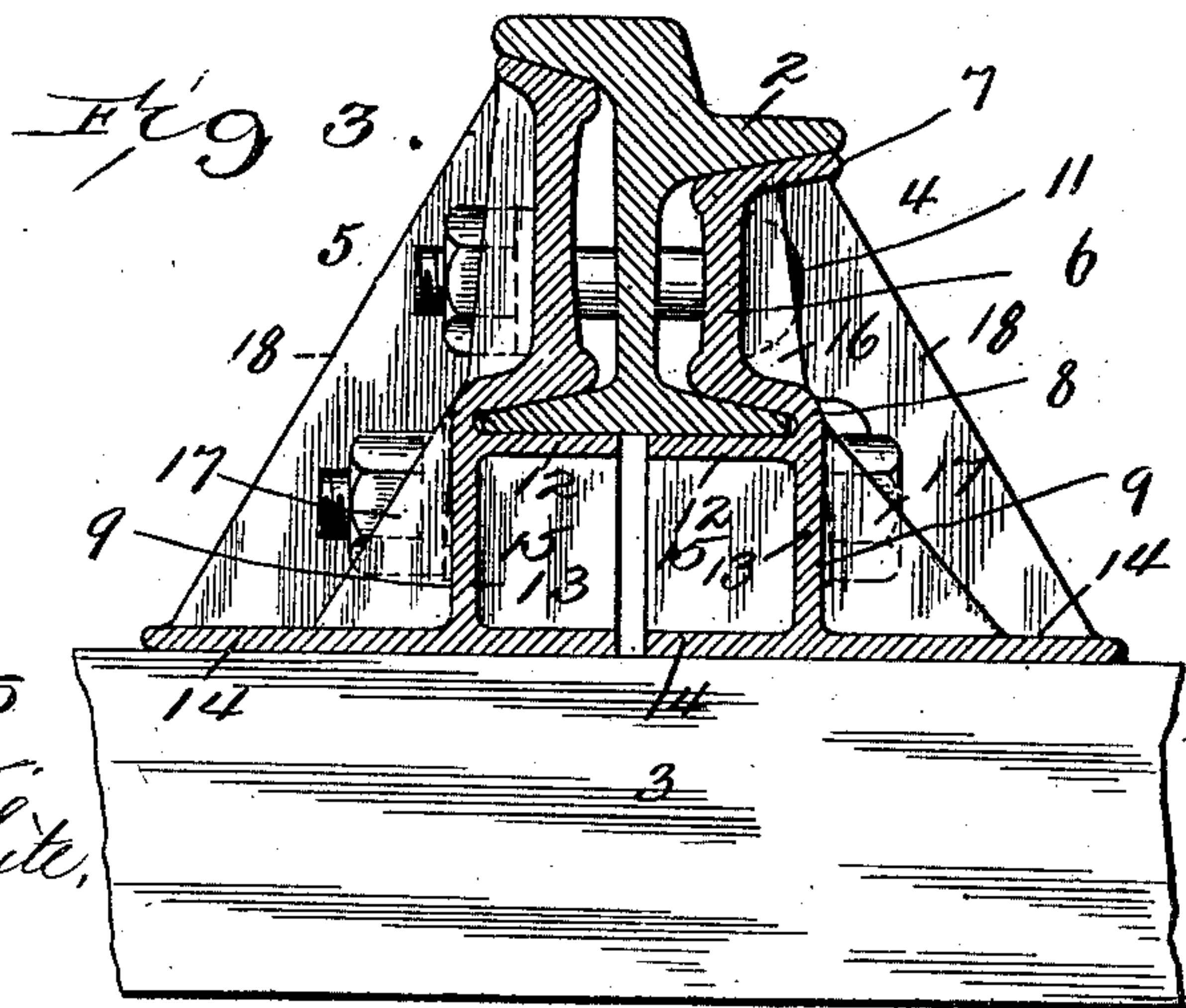
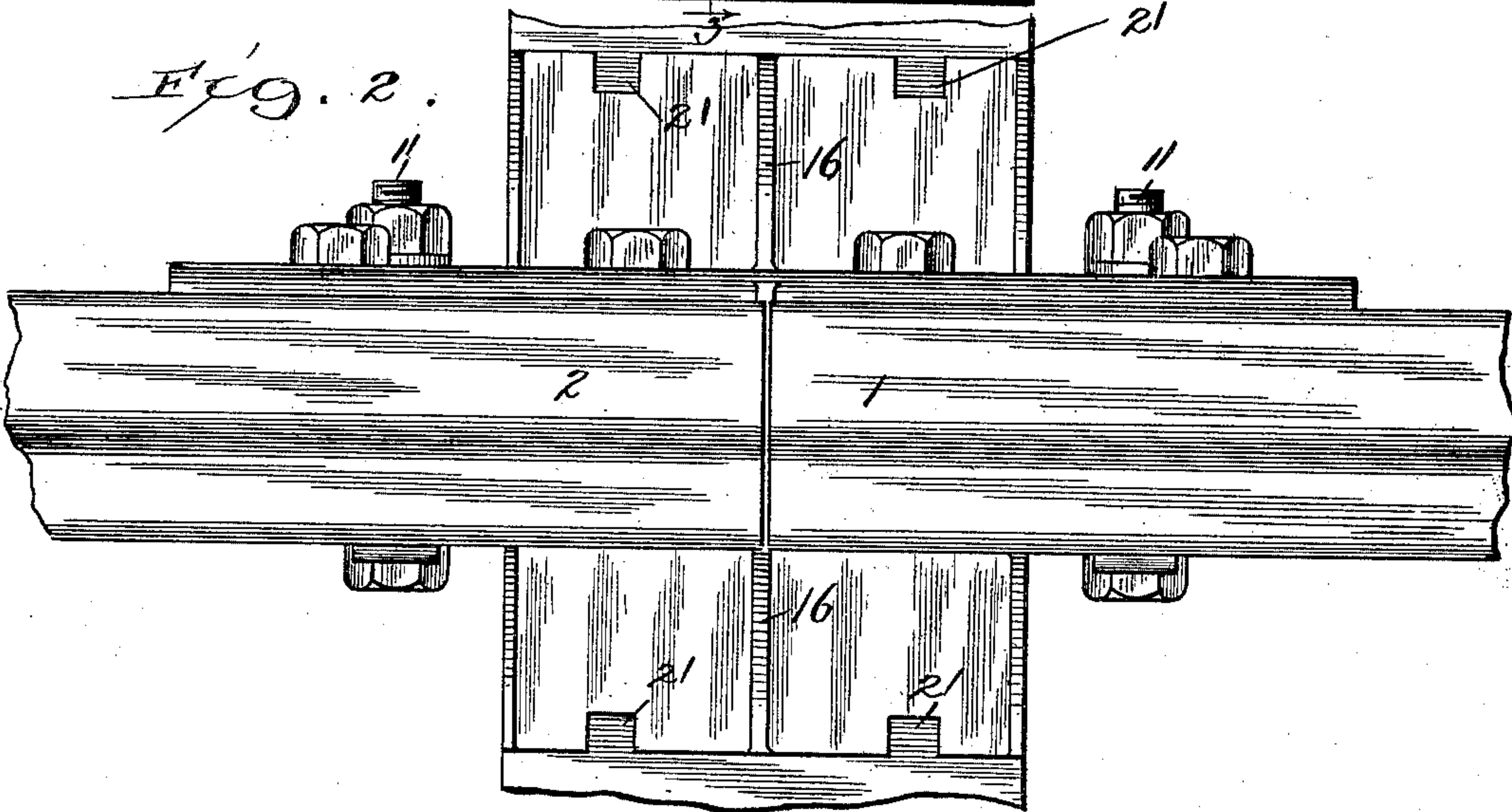
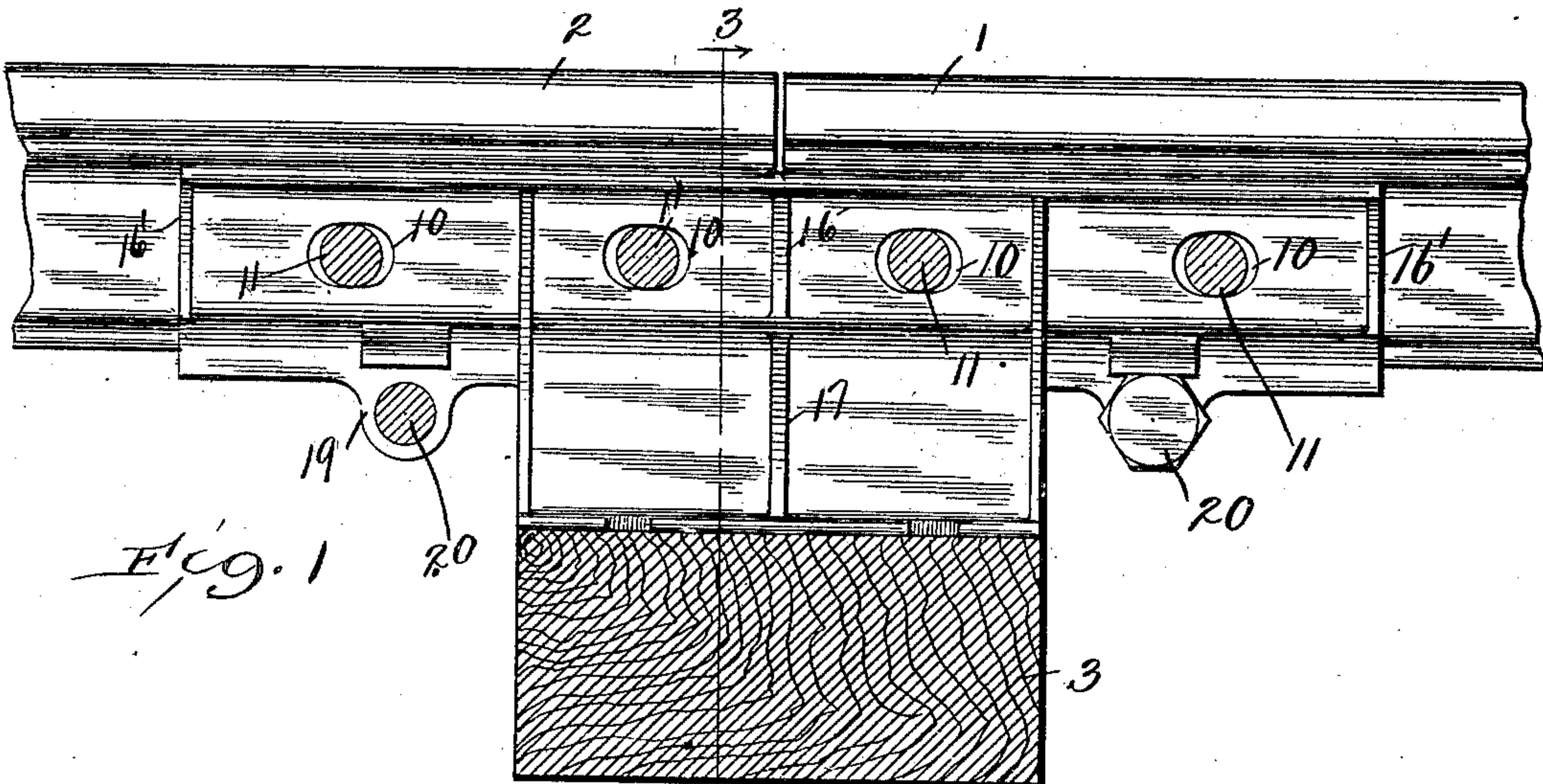
No. 713,835.

Patented Nov. 18, 1902.

F. BAIN.  
RAIL JOINT AND CHAIR.  
(Application filed July 28, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
Ray White.  
Camp B. White.

Inventor:  
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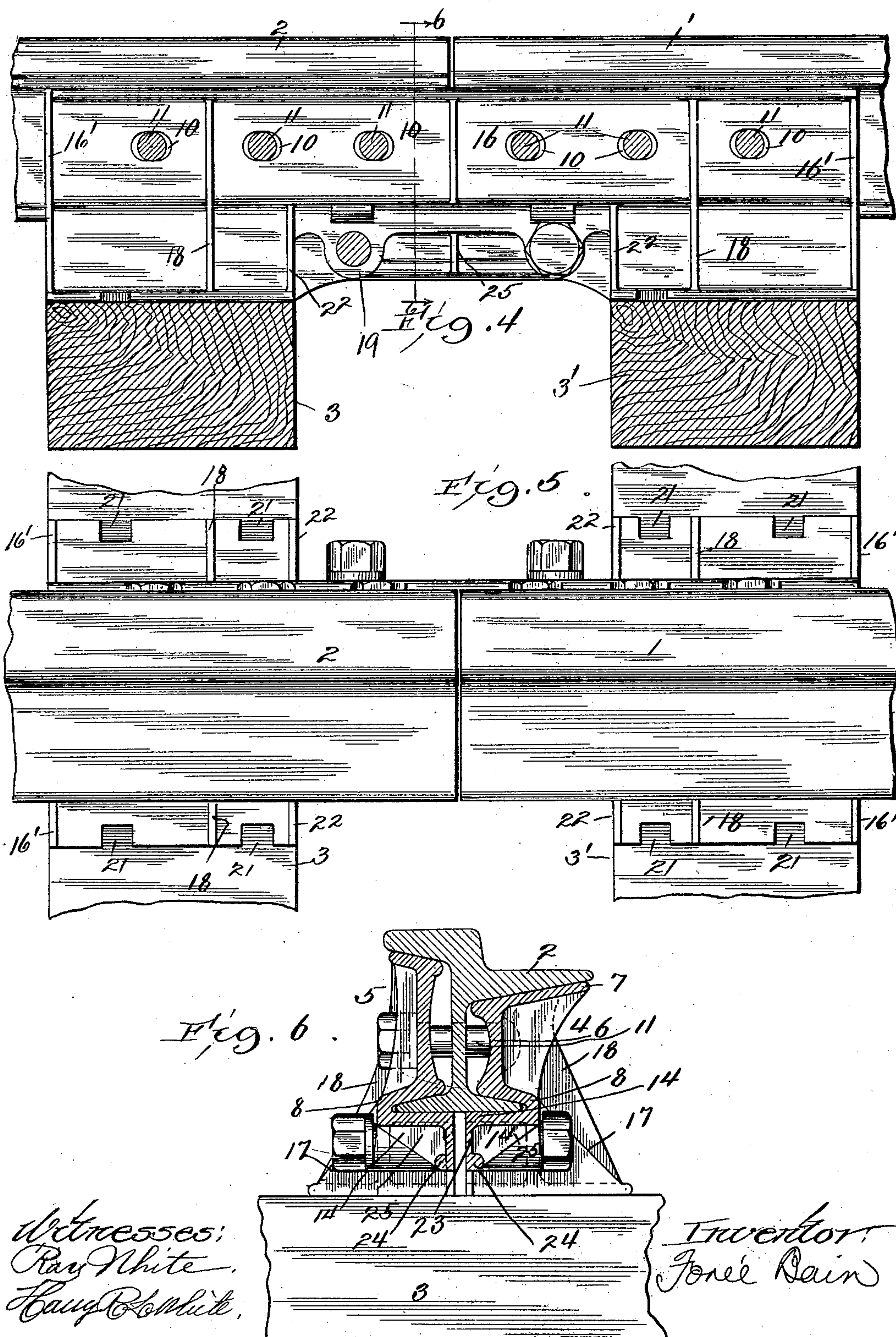


**Patented Nov. 18, 1902.**

(Application filed July 28, 1902.)

(No Model.)

**2 Sheets—Sheet 2.**





# UNITED STATES PATENT OFFICE.

FORÉE BAIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES G. McMICHAEL,  
OF CHICAGO, ILLINOIS.

## RAIL JOINT AND CHAIR.

SPECIFICATION forming part of Letters Patent No. 713,835, dated November 18, 1902.

Application filed July 28, 1902. Serial No. 117,340. (No model.)

*To all whom it may concern:*

Be it known that I, FORÉE BAIN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful  
5 Improvements in Rail Joints and Chairs; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

10 My invention relates to improved rail joints and chairs, particularly the joint-chairs adapted for use in street-railways.

One of the objects of my invention is to provide as an integral structure a joint and  
15 chair adapted to elevate the rail used in conjunction therewith above the plane of the supporting-ties in position to bring the tread of the rail to the level of the surrounding street-surface.

20 A further object of my invention is to provide a construction which will insure great strength in the direction of strain, while permitting of an economical use of material.

Further objects of my invention will become apparent to those skilled in the art from the description following.

In the drawings, Figure 1 is an elevation of one form of my invention, showing a supporting-tie in section. Fig. 2 is a top plan  
30 view. Fig. 3 is a transverse vertical section on line 3 3 of Fig. 1, looking in the direction indicated by the arrow. Fig. 4 is a side elevation of a modified form of my invention, showing two ties in cross-section. Fig. 5 is  
35 a plan view of the same; and Fig. 6 is a transverse vertical section, taken on line 6 6 of Fig. 4, looking in the direction indicated by the arrow.

40 In all the views like numerals of reference refer to like parts.

Referring particularly to Figs. 1 to 3, 1 and 2 represent the abutting ends of two rails. 3 represents a cross-tie of suitable construction, arranged below the point of juncture of  
45 the rails. 4 and 5, respectively, represent as a whole the complementary members forming my improved chair and joint. Each of said members comprises a longitudinally-extended vertical plate 6, provided with a suitable  
50 head portion 7, adapted to bear against

the under side of the rail-head, a folded portion 8, adapted to embrace the rail-flange, and a vertical extension 9, terminating in a flat base-plate. The complementary members 4 and 5 differ only so far as is required  
55 to accommodate the particular type of rail employed, and for purposes of description it will be necessary to refer only to a single member, it being understood that the parts described are duplicated in the complementary member. The vertical plates 6 are  
60 formed after the manner of fish-plates and are provided with suitable perforations 10 to receive the bolts 11, employed to secure these plates to the rails. The intermediate folded  
65 portion of these members includes a flat web 12, extending below the rail-flange and forming a seat therefor. The extension 9 preferably consists of a box-like structure, comprising the top web 12, the vertical wall 13, a  
70 horizontal base-plate 14, extending laterally on both sides of the vertical wall 13, and end walls 15. In order to obtain the greatest strength with the least practical expenditure  
75 of material, I preferably provide a centrally-arranged strengthening-web 16, extending from the under side of the head 7 to the folded portion 8, webs 16' at the ends of the  
80 extended vertical member, similarly arranged, a web 17, extending from the folded portion 8 to the base portion 14, and an intermediate web 18, extending from the head 7 to the extremity of the base 14 on either side of  
85 the plane of juncture of the rails. It will be noticed that the extension, of which the base 14 forms a part, is of a width only equal to that of the supporting-tie. The vertical and folded portion of each section are, however,  
90 preferably extended longitudinally of the rail beyond the base and are provided at suitable intervals with depending lugs 19 to receive the bolts 20 to unite the complementary  
95 joint-sections below the rails, the base 14, which is provided with suitable notches or perforations 21, to receive the usual spikes or other retaining devices.

Referring now to Figs. 4, 5, and 6, it will be noticed that in the general features of my invention described in connection with Figs. 1  
100 and 3 I have shown embodied in a construc-



tion employing two ties 3 and 3', placed on either side of the point of juncture, two base extensions adapted to be supported upon each of said respective ties, and an intermediate bridge structure arranged to connect said extensions.

In the form of my invention shown in Figs. 4 to 6 the particular configurations of the webs have been slightly modified to suit the altered conditions; but the general arrangement thereof, with the centrally-located web 16, the end webs 16', and the extended intermediate webs 18, is retained. Webs 22 on each side of the bridge structure connecting the vertical portion of the extension 9 and base-plates 14 are provided, and a longitudinally-extending flange 23, provided with a strengthening-rib 24, is formed on the inner extremity of the web 12, forming the seat for the rail. A strengthening-web 25 is located in vertical alinement with the web 16 and connects the flange 23 and rib 24 with the base 14 of the folded portion of the joint member.

When the bridge form of my improved joint is employed, it is preferable to form the bolt-receiving lugs 19 as a portion of the base structure. It will thus be seen that my invention provides a joint-chair adapted to elevate the rails supported and united thereby above the plane of the ties to bring the tread of the rail to the level of the street-surface without the use of blocks or jacks for that purpose.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent of the United States, is—

1. In a joint-chair for street-railways, a pair of complementary members each comprising a vertical fish-plate portion, a folded portion adapted to afford a flat-rail seat 12, extending under the rail-base to substantially the central plane of the rail, a depending vertical extension, 9, a base 14 extending inward coextensively with the seat 12 and outward webs, 15, connecting the inward extension of the base 14 and the rail-seat 12.

2. The combination with two abutting rails and two supporting-ties, of a rail-joint chair comprising two complementary members, each having a fish-plate portion, a folded portion embracing the rail-base and providing a seat therefor, a depending extension at each end of the folded portion having webs extending transversely of the rail to approximately the central plane thereof, and a reinforcing-bridge connecting the said extensions in said plane; and bolts connecting said bridge portions of the complementary members.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

FORÉE BAIN.

In presence of—

GEO. T. MAY, Jr.,  
M. F. ALLEN.