

J. K. & B. W. D. GORRELL.

RAIL JOINT.

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948,069.

Patented Feb. 1, 1910.

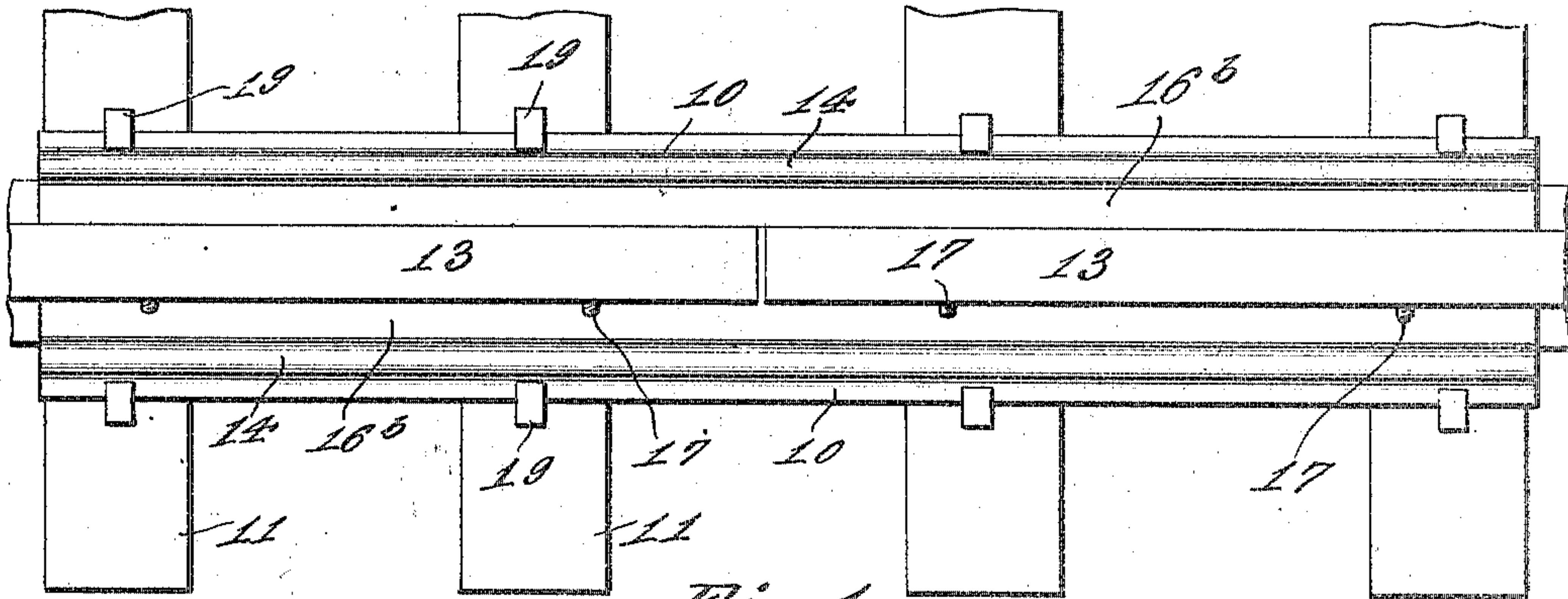


Fig. 1.

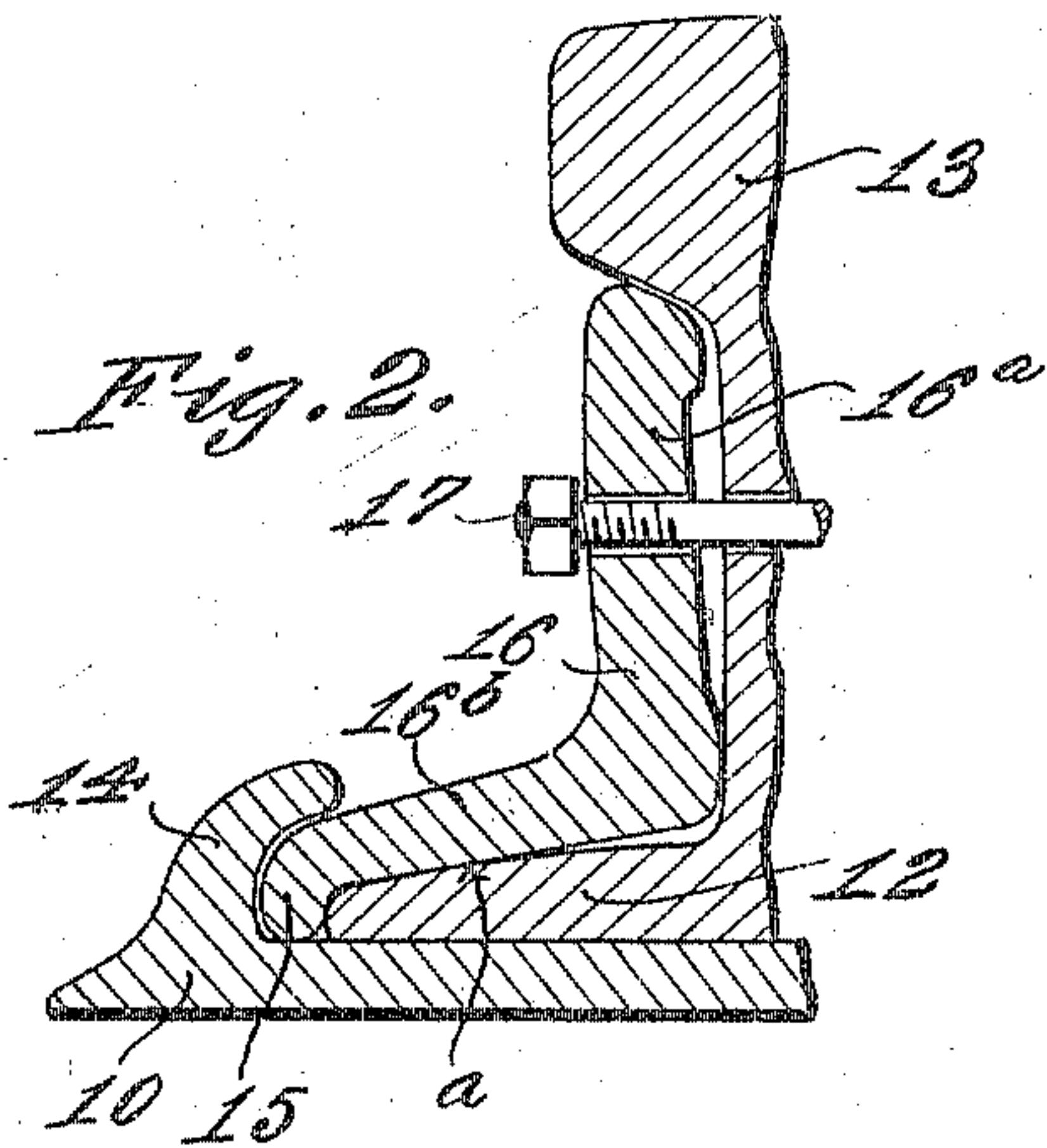


Fig. 2.

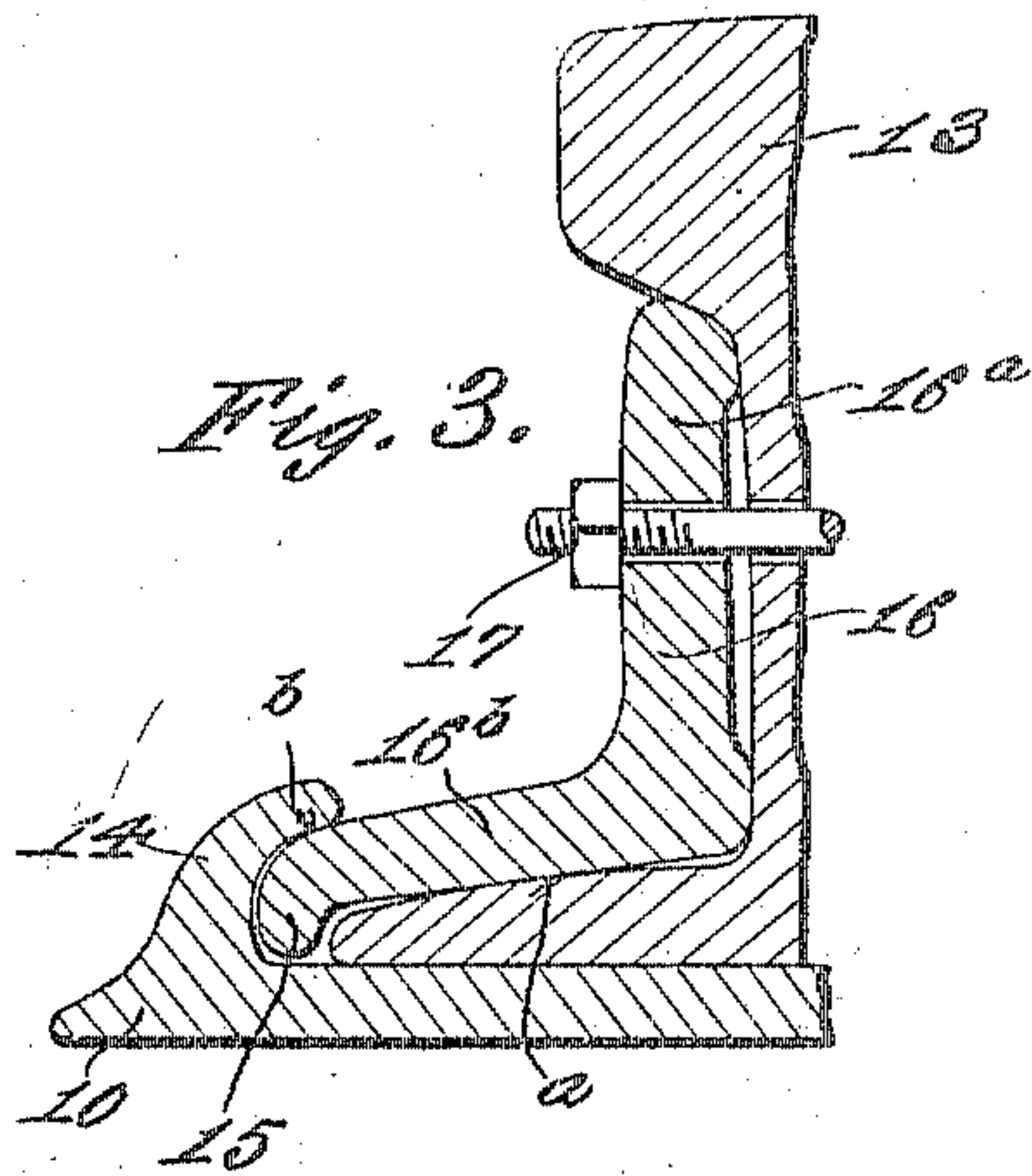


Fig. 3.

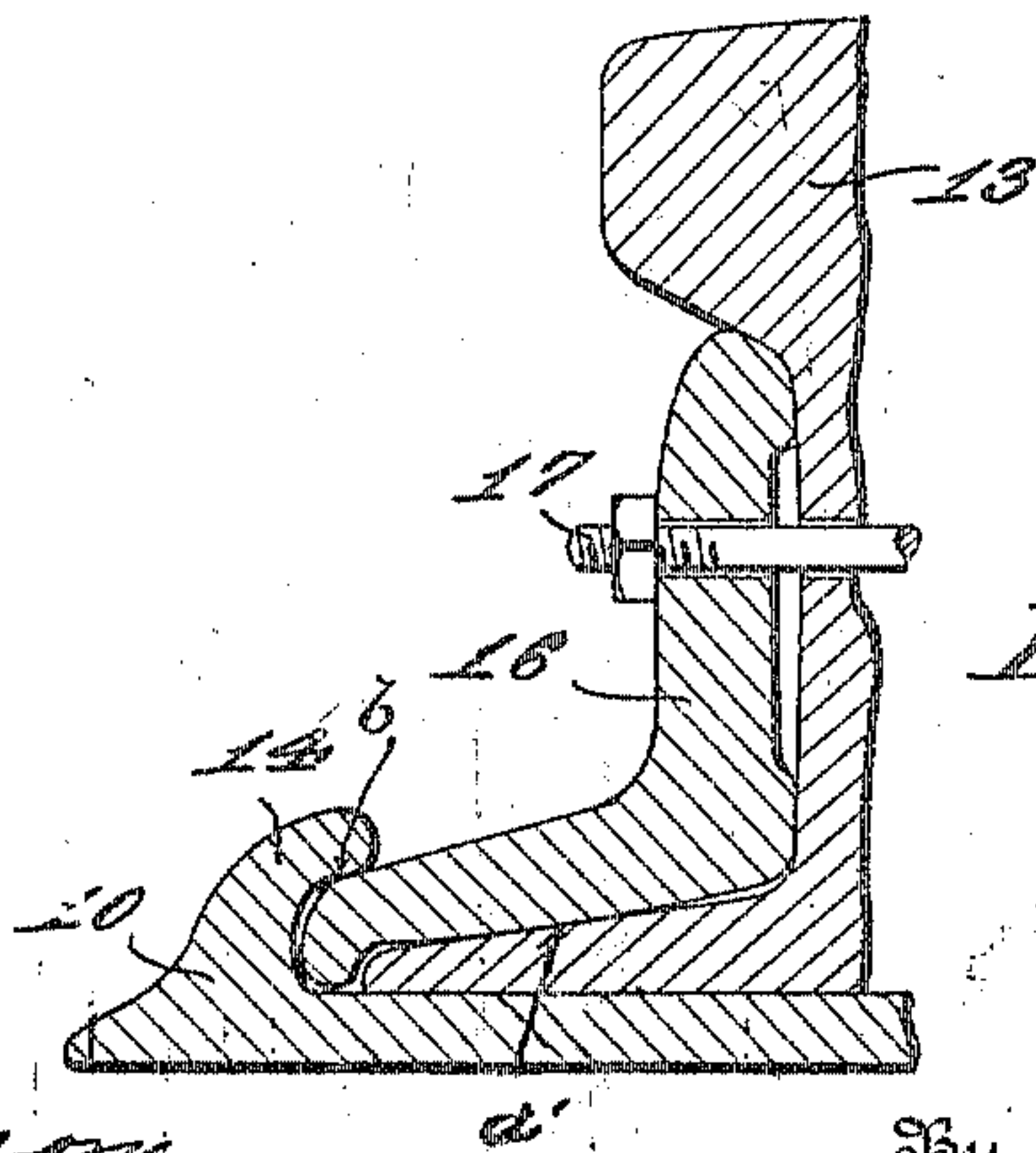


Fig. 4.

Witnesses

E. Larson  
S. E. Dodge

By

Inventors  
J. K. Gorrell  
B. W. D. Gorrell,  
Dele. & Cobb  
Attorneys



# UNITED STATES PATENT OFFICE.

JOSEPH K. GORRELL AND BENJAMIN W. D. GORRELL, OF NEWPORT, TENNESSEE.

## RAIL-JOINT.

948,069.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed June 23, 1909. Serial No. 503,951.

*To all whom it may concern:*

Be it known that we, JOSEPH K. GORRELL and BENJAMIN W. D. GORRELL, citizens of the United States, residing at Newport, in the county of Cocke and State of Tennessee, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to railway appliances, and has particular reference to an improved form of rail joint possessing peculiar characteristics of simplicity and advantage of application and effectiveness.

For a full understanding of the invention, including its characteristic advantages, reference is to be had to the following detail description and to the accompanying drawings, in which—

Figure 1 is a diagrammatic plan view of a rail joint, showing its relation to a series of cross ties; Fig. 2 is a vertical transverse section of a joint showing the parts in assembled position before being tightened; Fig. 3 is a view corresponding to Fig. 2 but with the parts set; Fig. 4 is a view corresponding to Fig. 3, but of a slightly modified construction, the principle of construction and advantage remaining the same.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

Referring to the drawings particularly, the invention comprises a bed plate or chair 10 of sufficient length to rest firmly upon a plurality of cross ties 11, whereby the joint is rendered very secure with respect to vertical vibration. The chair 10 is of considerably greater width than the base flange 12 of the rail 13 which is received thereupon. Along each edge of the chair is an offstanding and inwardly turned hook-shaped flange 14. The inner face of said flange is spaced sufficiently far from the outer edge of the base flange to receive an outwardly and downwardly turned flange 15 of the fish plate 16 as indicated in the drawings. The fish plates are preferably angular, having an upwardly projecting flange 16<sup>a</sup> adapted to snugly embrace the web of the rail and a horizontally projecting flange 16<sup>b</sup>, the afore-

said flange or hook being an extension of the latter flange 16<sup>b</sup>. The flange 16<sup>b</sup> is adapted to have a slightly rolling contact with the base flange 12 of the rail as indicated at the point *a*. In Figs. 2 and 3 said rolling effect is produced by a rounded upper surface of the rail flange cooperating with the flatter lower surface of the flange 16<sup>b</sup>. In Fig. 4 the base flange is shown as being substantially plane and cooperating with a rounded lower surface of the fish plate as indicated at *a'*. The same effect may be produced by making both of said contacting surfaces slightly rounded, combining the features of Figs. 2 and 4 if desired.

With the peculiar construction herein indicated the fish plate when finally set by operation of the usual clamping bolts 17 will have two principal points of contact, namely at point *a* on the rail base flange and at the point *b* on the chair flange 14. The fish plates are designed to be so constructed that said points of contact *a* and *b* will be effective before the flange 16<sup>a</sup> becomes seated against the web of the rail and that the clamping effect of the bolt 17 will slightly bend or distort the fish plates sufficiently to bring the flange 16<sup>a</sup> home against the web and whereby a peculiar advantageous gripping effect is produced between the base flange 12 and the chair flange. The upper edge of the flange 16<sup>a</sup> preferably fits snugly below the rail bead in the usual manner. The chair 10 is designed to be held in place upon the cross ties 11 by the usual spikes 19.

Having thus described the invention, what is claimed as new is:

The hereindescribed rail joint comprising a chair, a pair of meeting rail ends received upon said chair, said chair having at each edge an upwardly and inwardly curved hook-shaped flange spaced laterally from the edge of the rail flange, a fish plate having an upwardly extending flange cooperating with the rail web, a laterally extending flange cooperating with the rail base flange, said outwardly extending flange having a rolling contact with said base flange and terminating in a downwardly extending flange lying within the space between the

5 rail base flange and the chair flange, said laterally extending flange having a point contact with the under face only of said chair flange hook, and means to clamp the upwardly extending fish plate flange against the railweb and securely lock the fish plate at said two points of contact with the base and chair flanges, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH K. GORRELL.  
BENJ. W. D. GORRELL.

Witnesses:

W. O. MIMS,  
OSCAR O'NEIL.