

P. O. ADAMS.

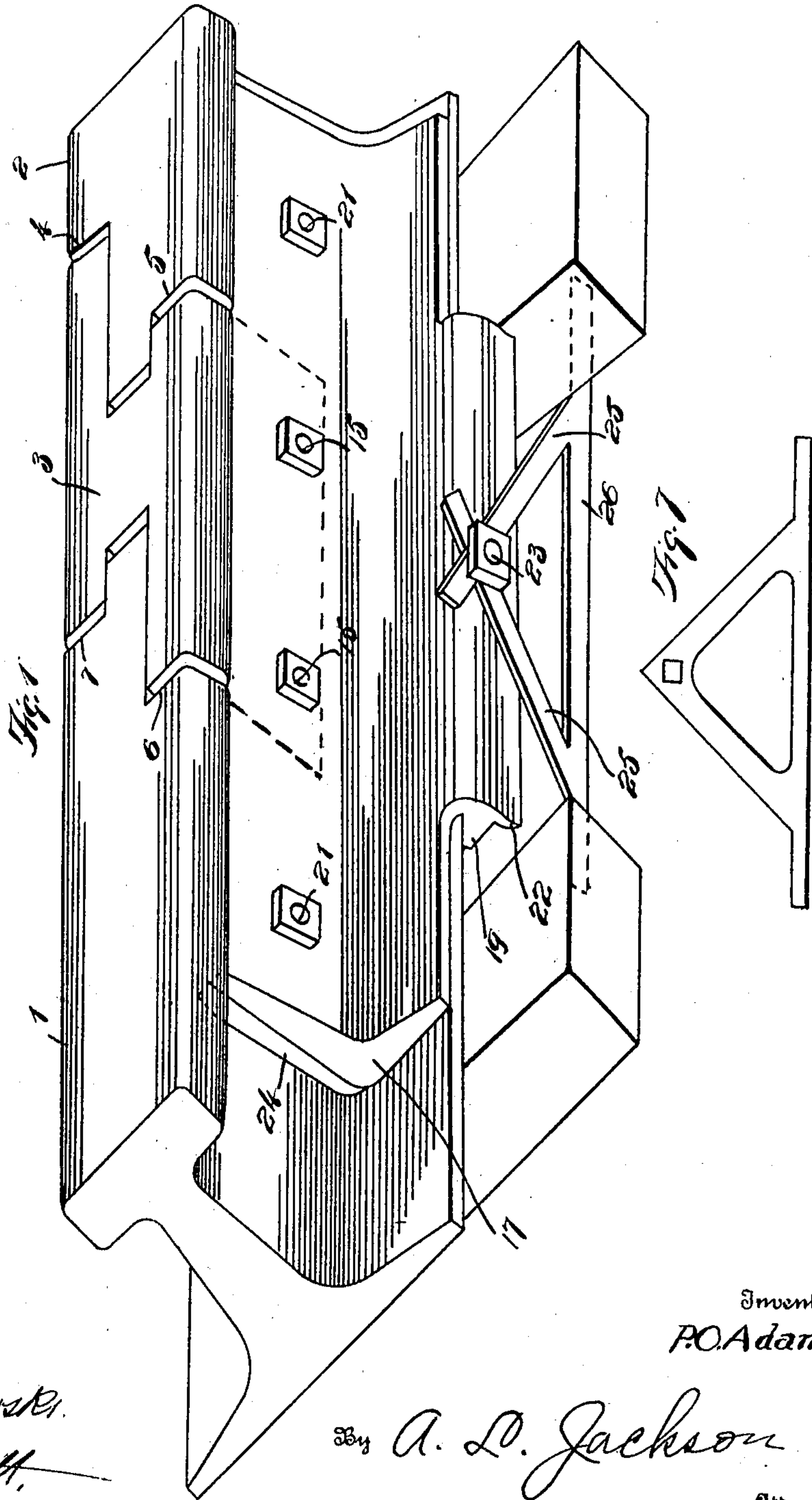
RAIL JOINT.

APPLICATION FILED DEC. 6, 1908.

970,158.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.



Witnesses  
B. J. Lempster.  
J. W. Still.

Inventor  
P. O. Adams.

By A. D. Jackson

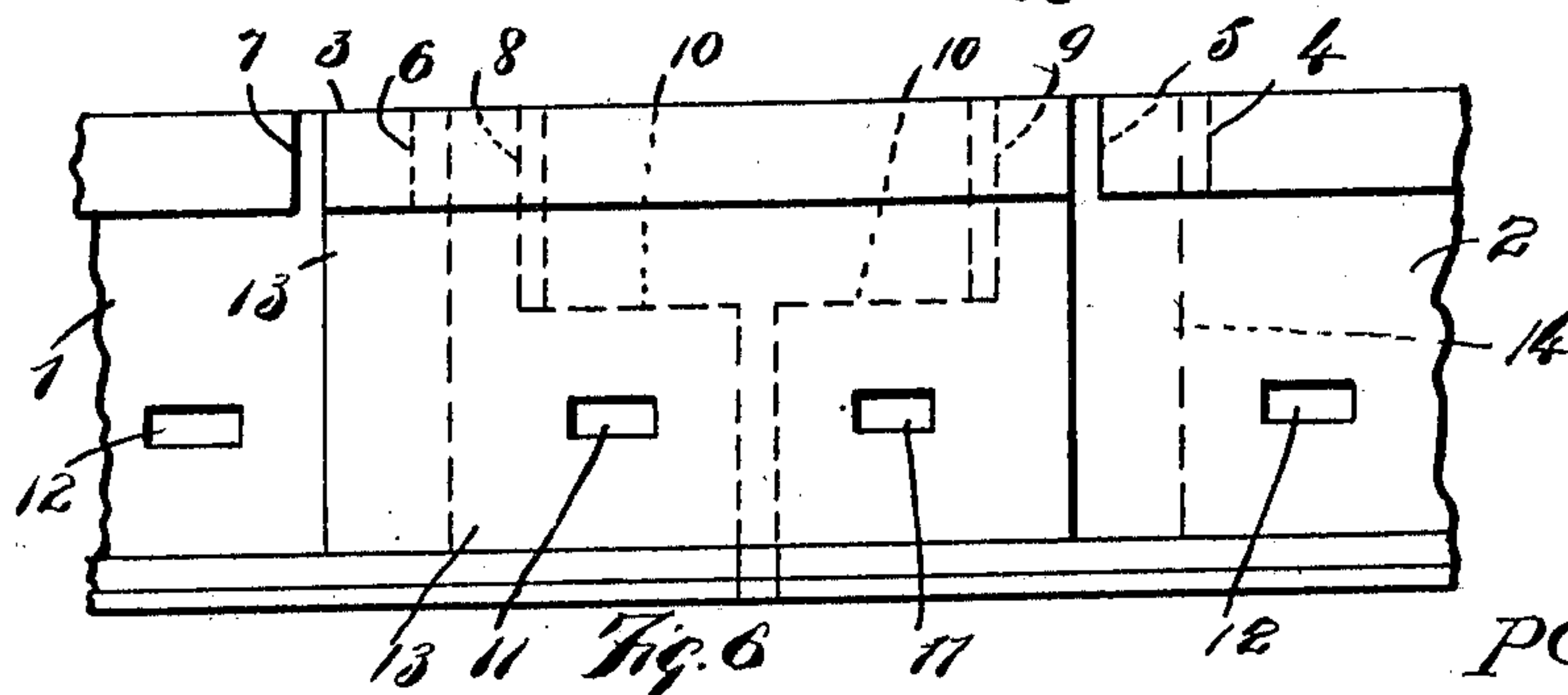
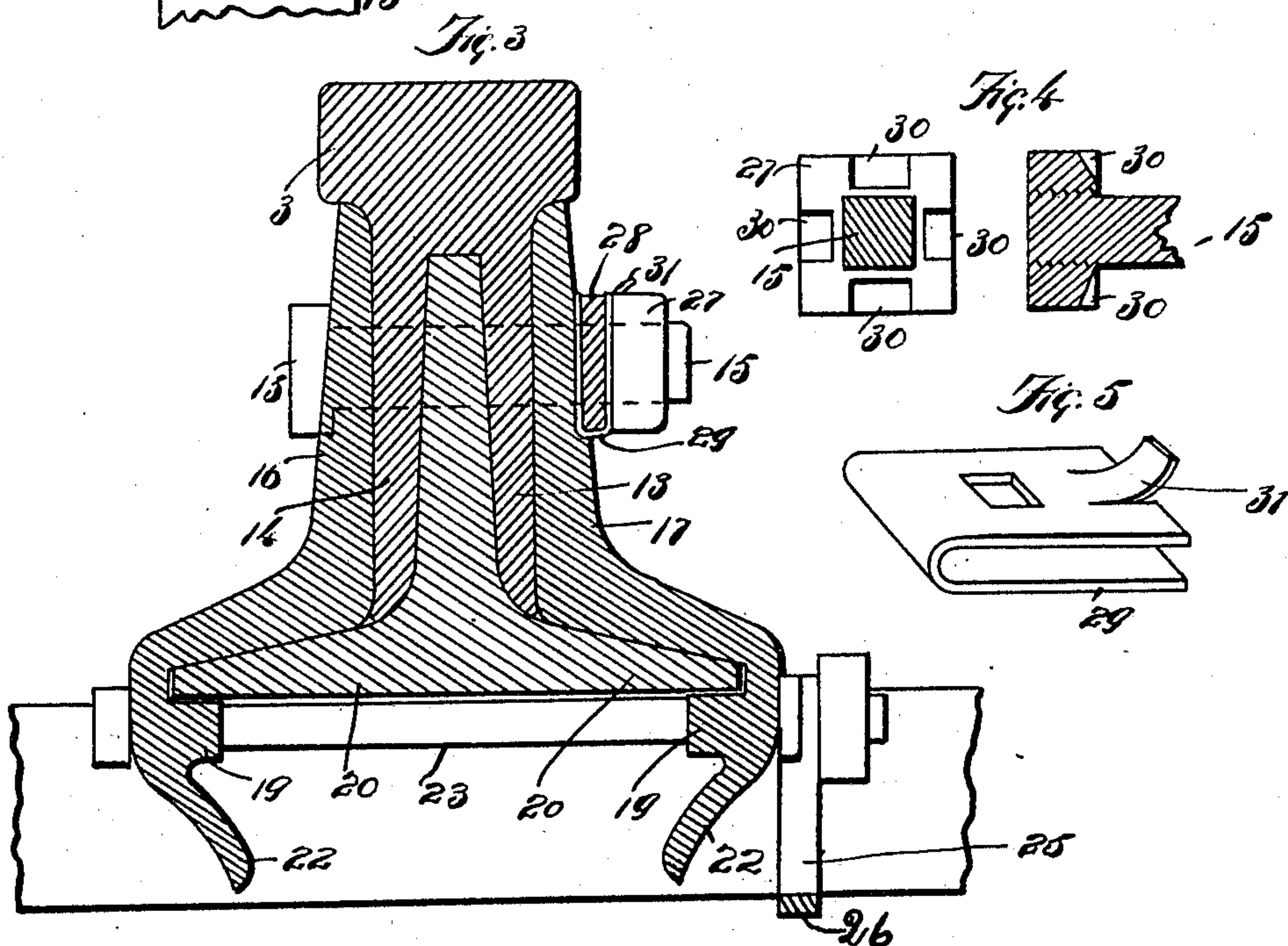
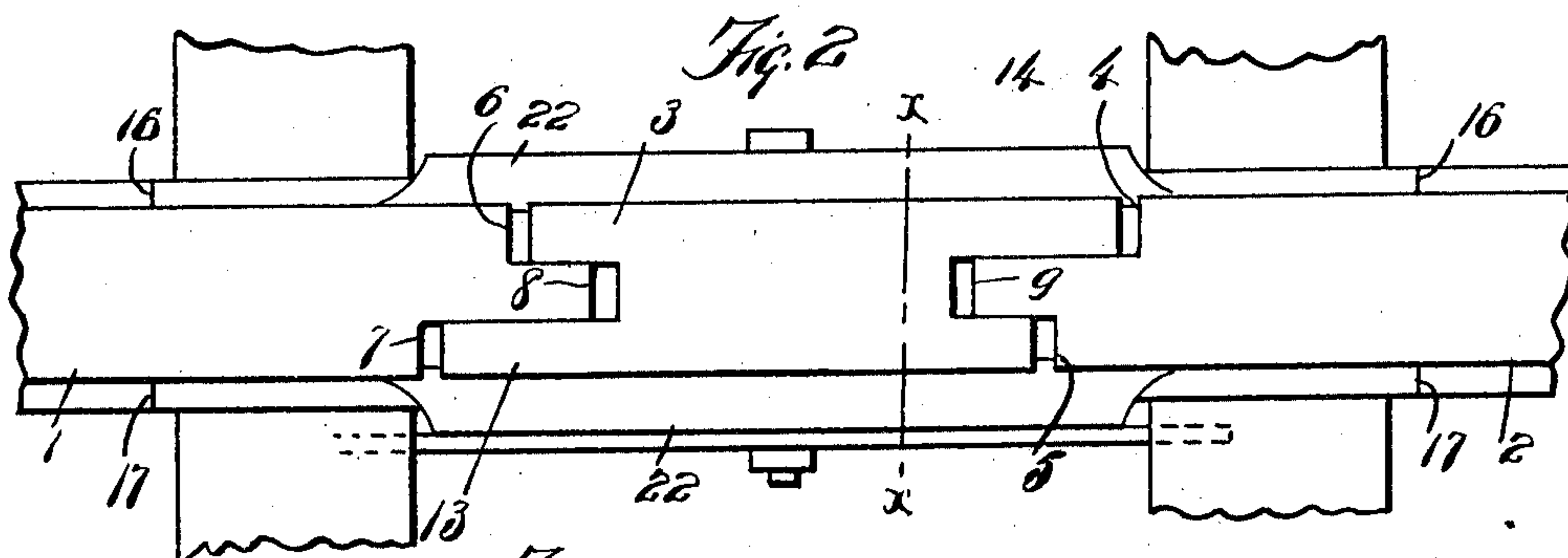
Attorney

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RAIL JOINT.  
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2 SHEETS—SHEET 2.



Witnesses  
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# UNITED STATES PATENT OFFICE.

POWELL O. ADAMS, OF CAMERON, TEXAS.

## RAIL-JOINT.

970,158.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed December 5, 1908. Serial No. 466,087.

*To all whom it may concern:*

Be it known that I, POWELL O. ADAMS, a citizen of the United States, residing at Cameron, county of Milam, and State of Texas, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to rail joints, and the object is to construct joints for railway rails which will present a smooth tread for the wheels of a locomotive or train of cars and which will make the joints as firm and rigid as any other part of the rails.

Another object is to construct such strong and durable joints that the cost of maintenance of the railway tracks will be much reduced, the cost of repairs being greatly reduced.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application and specification.

Figure 1 is a perspective view of a rail-joint complete, constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a vertical section, taken on the line  $x x$  of Fig. 2. Fig. 4 is an inside view and a longitudinal section of a bolt head which is used for bolting the fish plates on the rails. Fig. 5 is a perspective view of a locking device for the nuts of the bolts. Fig. 6 is a side elevation of the union block. Fig. 7 is a side elevation of a modification of the tie brace.

Similar characters of reference are used to indicate the same parts throughout the several views.

Sections 1 and 2 of abutting rails are shown in the drawings. The rails 1 and 2 are shown in dotted outline in Fig. 6 in connection with the union block 3. The balls of the rails are cut away along the lines 4, 5, 6, 7, and the webs of the rails are cut away along the lines 8 and 9 down to the lines 10, the latter being shown only in Fig. 6. The parts of the rails being cut away, the union block 3 fills the spaces of the cut away portions of the rails. The meeting faces of the rails and of the union block are spaced apart, as shown, to provide for expansion of the rails. Elongated bolt holes 11 are provided for bolting the rails and the union block to-

gether. The union block 3 has downwardly extended flanges 13 and 14 which engage the two ends of the abutting rails, the flanges 13 and 14 and the ends of the rails being secured together by bolts 15 operating through the elongated bolt holes 11. The flanges 13 and 14 extend down to the bases of the rails. Fish plates 16 and 17 are bolted on the outside of the flanges of the union block 3 and extend beyond the ends of these flanges. The fish plates 16 and 17 have lips 19 which project under the edges of the flanges or base 20 of the rails. The fish plates are secured to the union bolt 3 and to the ends of the rails by bolts 15 and to the rails by bolts 21 which operate through bolt holes 12. The fish plates have downwardly projecting lips 22. A bolt 23 serves to clamp the lower parts of the fish plates on the bases of the rails. The spaces between the fish plates 16 and 17 and the rails beyond the ends of the flanges 13 and 14 may be filled with blocks or bushing 24 of wood having the same thickness as the flanges 13 and 14. This bushing adds rigidity to the joint and prevents strain on the fish plates. The joints may be secured to the ties by binders 25. The binders 25 are brazed to a base bar 26 which extends under two adjacent ties. The arms 25 are engaged and held in place by the bolt 23 and thus hold fish plates and consequently the entire joint down on the ties. The binder may be made of a single piece of metal by casting or otherwise, as illustrated in Fig. 7. The bolts 15 are made square in cross-section, as shown in Fig. 4, so that they will not turn in the rails or fish plates. The nuts 27 are held on the bolts 15 in the following manner. A block of wood 28 is inclosed in a spring steel plate 29, the plate being bent about the wood. The plate 29 and the wooden block 28 are perforated with apertures which conform in contour to the cross-section dimensions of the bolt. The nut has recesses 30 and a tongue 31 is struck from the plate 29 and bent outwardly so that this tongue will engage any one of the recesses in the nut 27. In this manner the nut is prevented from coming off the bolt.

It is apparent that the joint herein shown provides a continuous tread for the wheels of a train or a locomotive. Provision is made for the expansion of the rails. The union block in combination with the construction and arrangement of the fish-plates provide



a joint which will be rigid so that vibrations of the ends of the rails will be prevented.

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

1. In a rail joint, the combination of the ends of abutting rails having portions of the balls and portions of the webs cut away, the portions of the balls on the same side of said rails being cut longer on one rail than on the other, a union block filling the spaces of the cut away portions of said rails and having downwardly projecting flanges engaging the webs of said rails, fish-plates engaging said union block and the base flanges of said rails and having lips projecting under said base flanges, and bolts clamping said fish-plates and union block on said rails.

2. In a rail joint, the combination of the ends of abutting rails having portions thereof cut away, a union block filling the spaces of the cut away portions of said rails, fish-plates secured to said union block and said rails and having downwardly projecting flanges engaging the bases of said rails, a bolt clamping said flanges on the bases of

said rails, cross-ties, and binders engaging said cross ties and said bolt.

3. In a rail joint, the combination of the ends of abutting rails having portions thereof cut away, a union block filling the spaces of the cut away portions of said rails and having flanges engaging the webs of said rails, fish-plates secured on said union block and on said rails and having downwardly projecting flanges engaging the bases of said rails, bolts binding said fish-plates on said union block and rails, nuts for said bolts, and means for preventing the removal of said nuts consisting of a perforated block of wood and a sheet of spring steel bent about said wood and perforated for each bolt and having a tongue struck therefrom for engaging said nut, said nut having recesses on the inner side for said tongue.

In testimony whereof, I set my hand in the presence of two witnesses, this 30th day of November, 1908.

POWELL O. ADAMS.

Witnesses:

A. W. TABER,  
S. D. TYSON.