

No. 665,558.

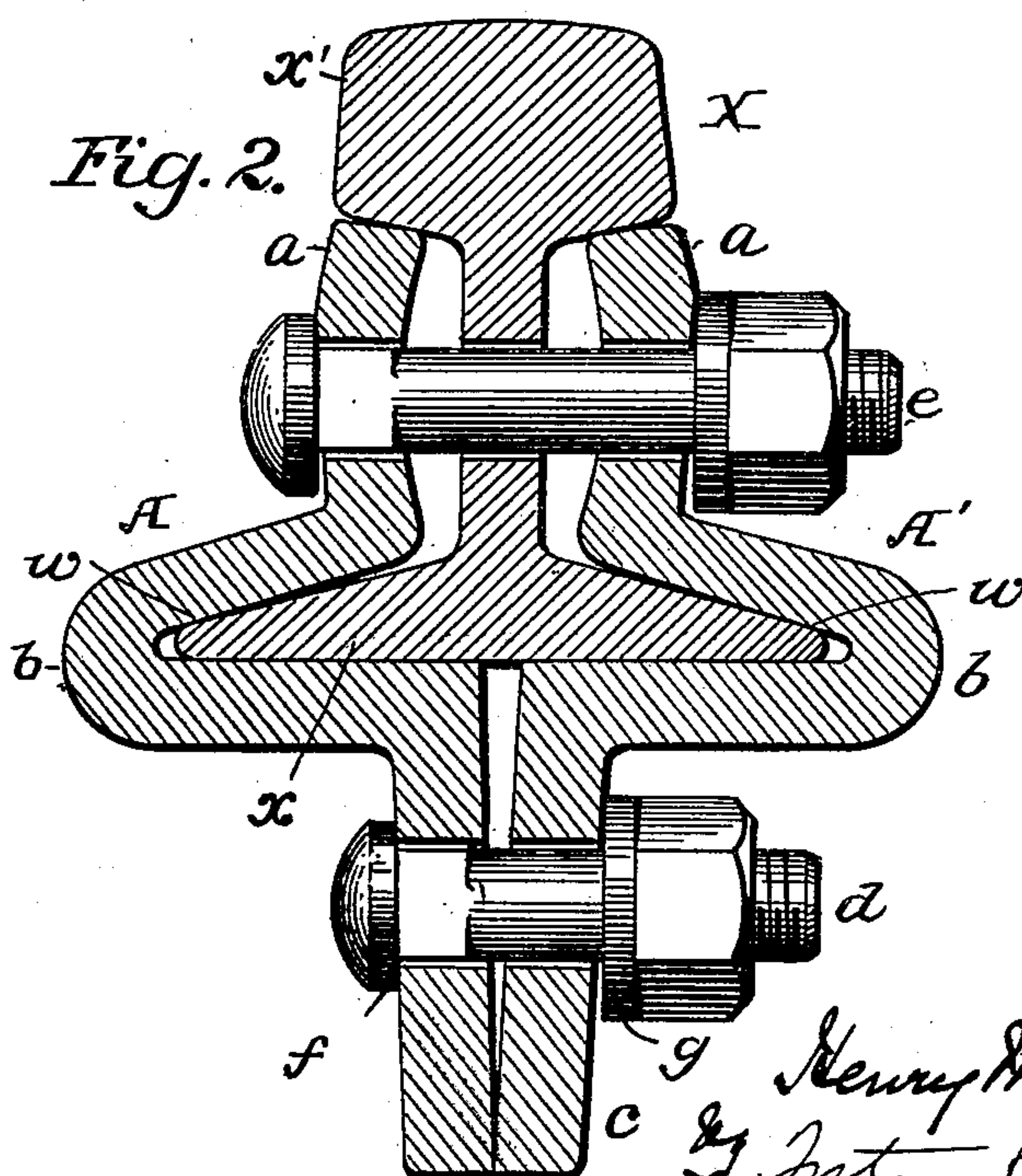
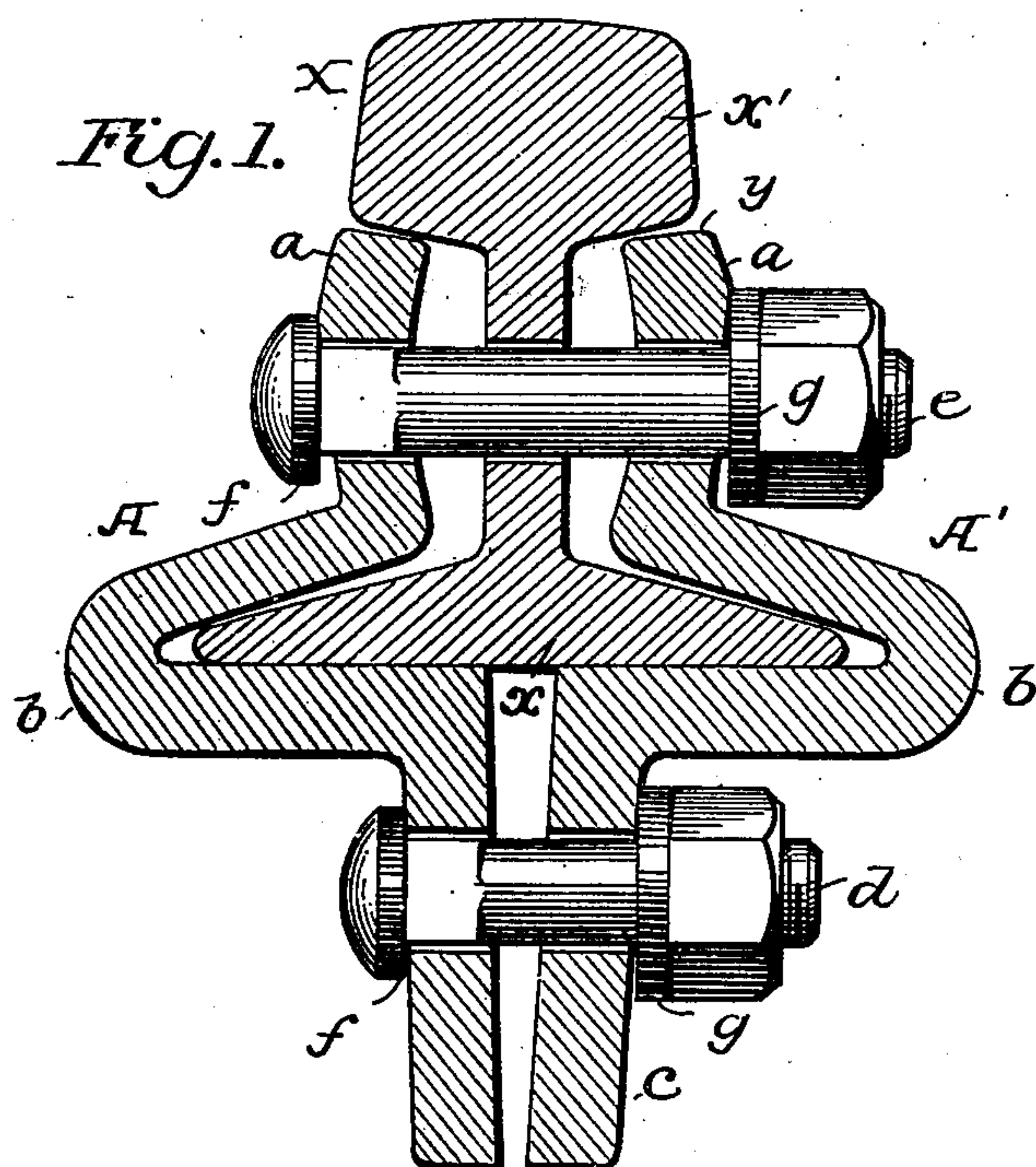
Patented Jan. 8, 1901.

H. M. WILLIAMS.
RAIL JOINT.

(Application filed July 12, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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2 Sheets—Sheet 2.

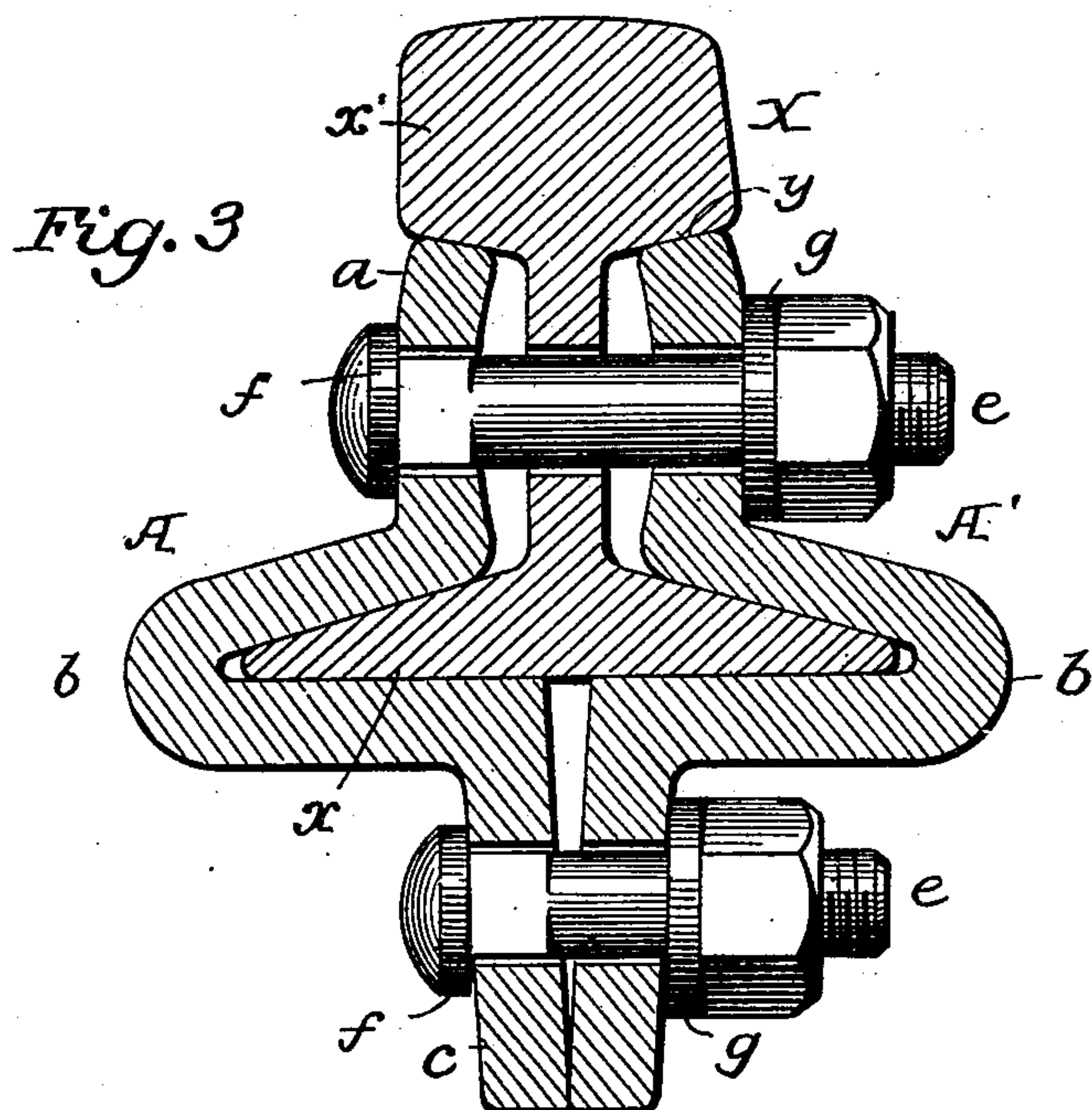
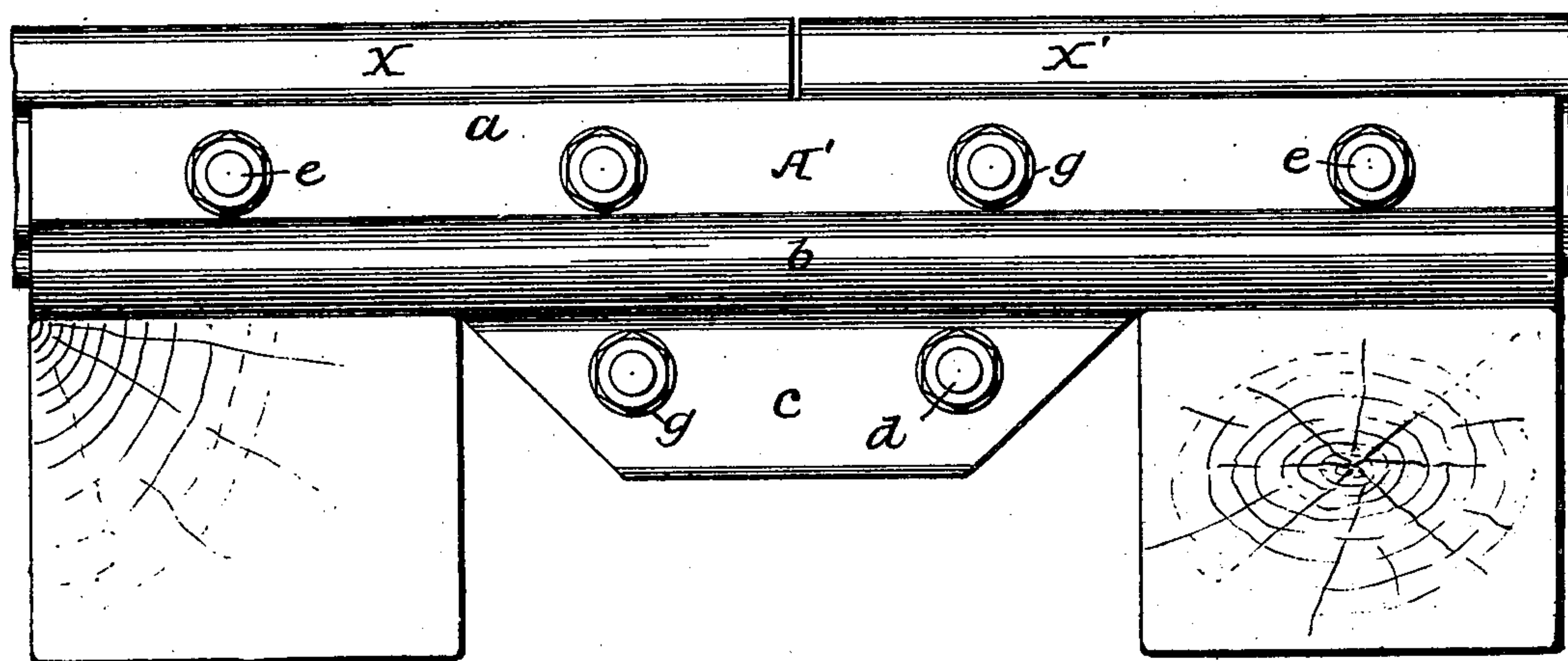


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY M. WILLIAMS, OF FORT WAYNE, INDIANA, ASSIGNOR OF ONE-FOURTH TO FRANZ BURGER, OF SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 665,558, dated January 8, 1901.

Application filed July 12, 1899. Serial No. 723,535. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. WILLIAMS, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

My invention relates to rail-joints; and it consists in a certain construction of fish-plates adapted for application to the abutting ends of rails, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a cross-sectional view through a rail, showing my fish-plate applied thereto, the parts in position before the rail-joint is tightened. Fig. 2 is a view showing the parts in position after the rail-joint has been tightened to a certain extent; Fig. 3, a similar view showing the position of the parts after the bolts have been fully tightened, and Fig. 4 a side view.

In my improved rail-joint there are two fish-plates $A A'$, adapted to the opposite sides of the ordinary T-rails $X X'$, which abut each other, and extending across the joints thus formed. Each fish-plate is made of elastic metal and consists of an outwardly-curved section or web a , adapted to fit between the heads x' and the flanges x of the rails, as set forth hereinafter, and continued to form a yoke portion b , adapted to engage the flange of the rails and forming a bottom seat for the latter, and a vertical flange c , which is much shorter in the direction of the length of the rails than the web a , the webs and the flanges being perforated for the reception of transverse bolts $d e$, as shown. The fish-plates are so rolled or formed that when applied to the side of a T-rail with the lower flange thereof bearing against the lower inner face of the yoke b the upper inner face of said yoke will not be parallel to the upper face of the flange x , but will make contact there-with only at the point w , near the outer edge. When in this position, the upper edge of the web a will be presented to and just in contact with the lower inclined face of the head x' , the edge y of the web being likewise inclined.

The flanges c are not absolutely vertical, but each is inclined inward at the lower end or edge, so that their inner faces diverge from the bottom toward the base of the rail X , whereby when the bolts d are tightened the lower edges of the flanges c are first brought together, as shown in Fig. 2, so that any further tightening of the bolts results in a transverse bending of the flanges c , which thereby serves to prevent the loosening of the nuts of the bolts and gives an elastic bearing upon the flanges x of the rails.

Inasmuch as the webs a are curved and beveled at the upper edges and bear on the flanges x only near the outer edges thereof, the effect of tightening the bolts e is to spring the upper portions of the yokes b downward toward the upper faces of the flanges x of the rails with a gradually-increasing gripping action as the bolts are tightened, with a corresponding frictional binding of the edges y of the webs against the under sides of the heads x' . This is further increased by the tendency of the webs a to become flattened by the pressure of the bolts, thereby forcing down the upper portions of the yokes b onto and gripping the flanges x .

As before stated, the flanges c are much shorter than the webs a . These flanges come beneath the joints between the abutting rail-sections and serve to effectually stiffen the fish-plates at this point and secure a firm bearing for the rails without interfering with the application of the latter to the ordinary sleepers, while, further, the ends of the fish-plates projecting beyond the flanges c are left at liberty to bend more freely to accommodate themselves to the rails than otherwise would be the case.

It will be seen that in the said construction there are three extended points of contact between each fish-plate and the rails—first, the bearing of the edge y of the web a against the under side of the head; second, the bearing of the upper inner face of the yoke b against the upper face of the flange; third, the bearing of the inner lower face of the yoke b against the under side of the flange, these being bearing-faces and not mere bearing-points.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

5 The combination with the ends of abutting rails, the heads of which have inclined under faces, of a rail-joint consisting of fish-plates of elastic metal, each having an outwardly-curved web adapted to make contact only
10 per surfaces of their bases, a yoke portion adapted to receive and conform to the contour of the flanges of the bases of the rails and an inclined vertical flange shorter in respect to the length of the rails than the web-
15 section, the said vertical flange depending beneath the rails between adjacent cross-ties and engaging at its lower end only with the

corresponding flange of the opposite fish-plate, means for securing the vertical flanges together, and bolts for drawing the outwardly-curved web portions of the opposite fish-plates toward each other, whereby as the bolts are tightened said web portions tend to straighten and exert an upward thrust on the heads of the rails and a downward thrust on
20 the bases thereof, substantially as described. 25

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY M. WILLIAMS.

Witnesses:

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J. B. RYAN.