

No. 714,422.

Patented Nov. 25, 1902.

G. H. WILLIAMS.

GRADUATED REINFORCED ARCHED ANGLE BAR FOR RAILROAD TRACK JOINTS.

(Application filed Aug. 11, 1902.)

(No Model.)

2 Sheets—Sheet 1.

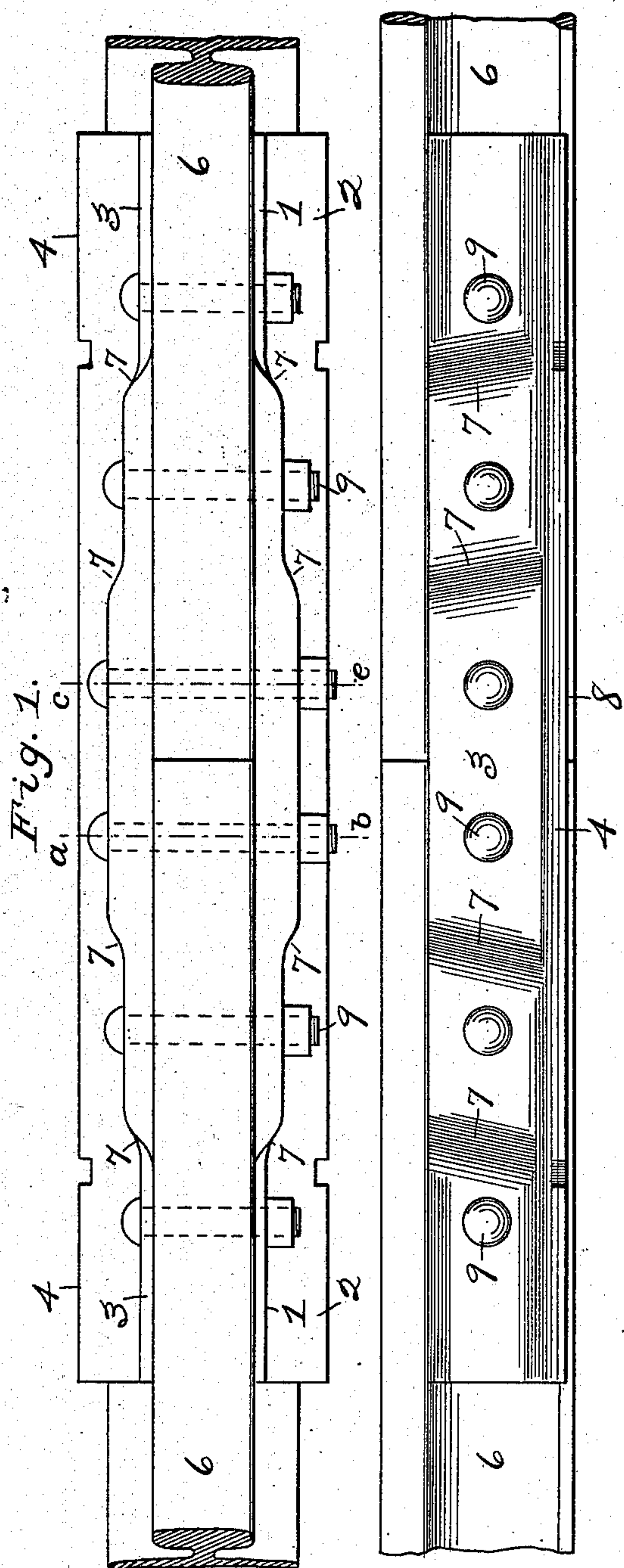


Fig. 2.

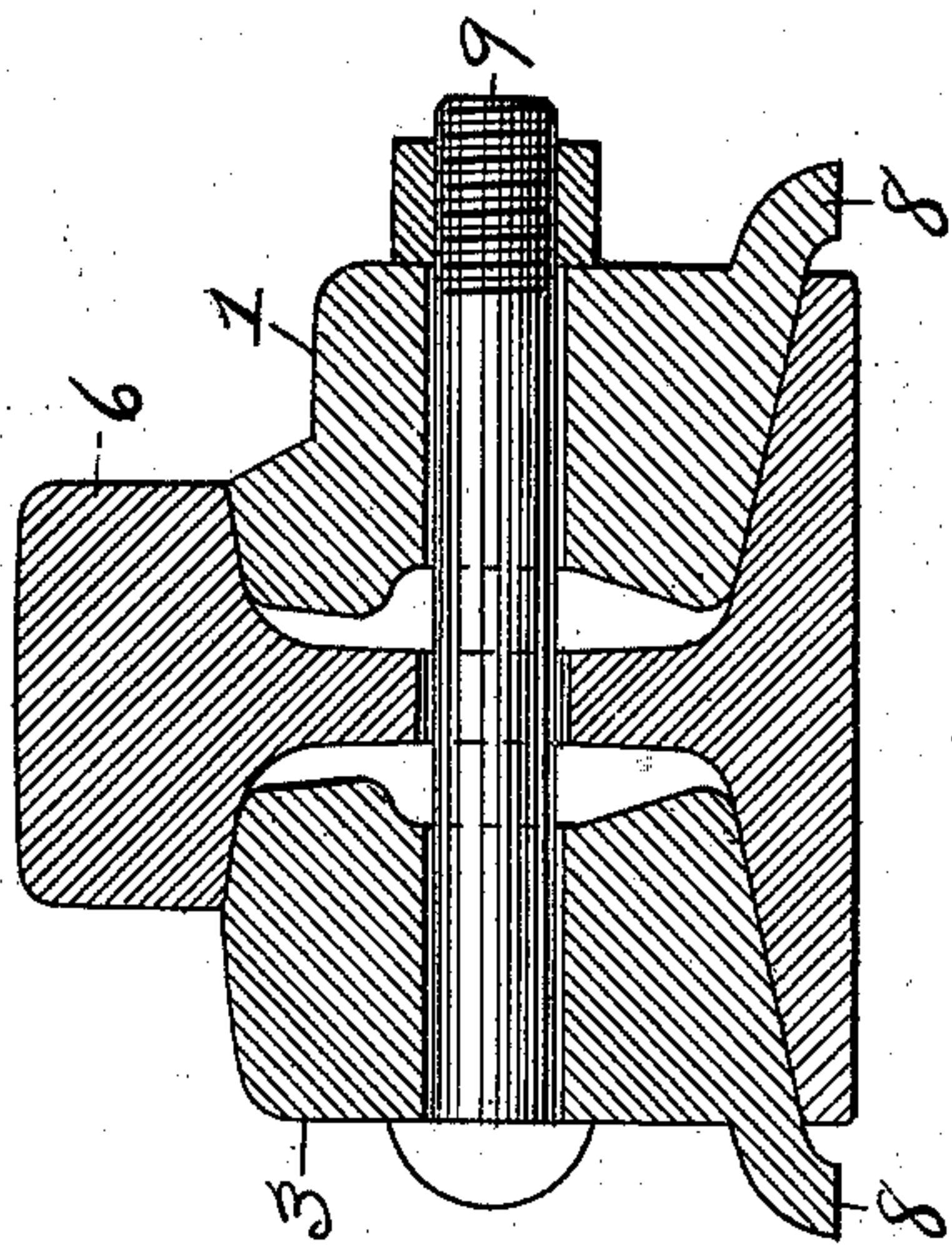


Fig. 4.

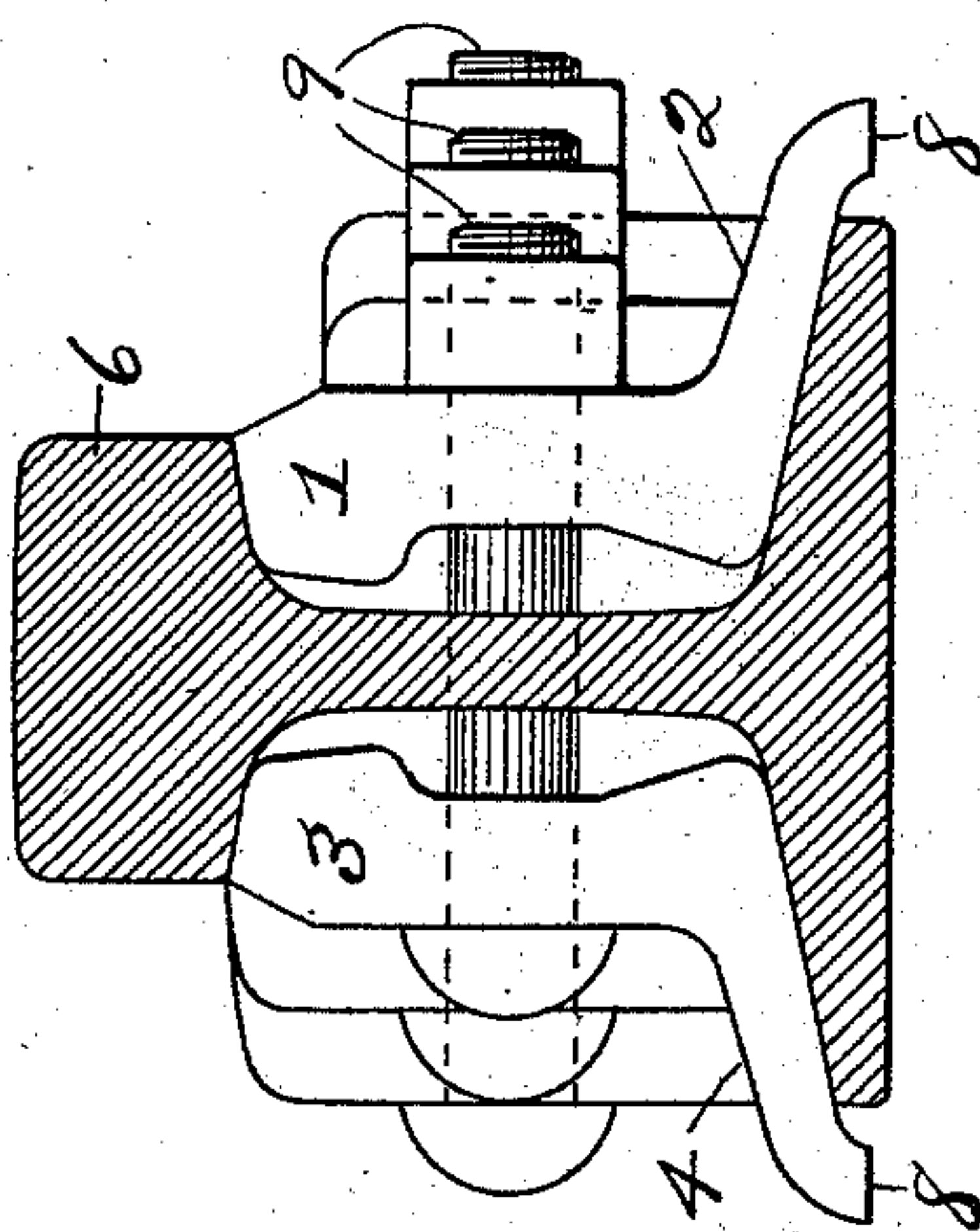


Fig. 3.

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Fig. 5.

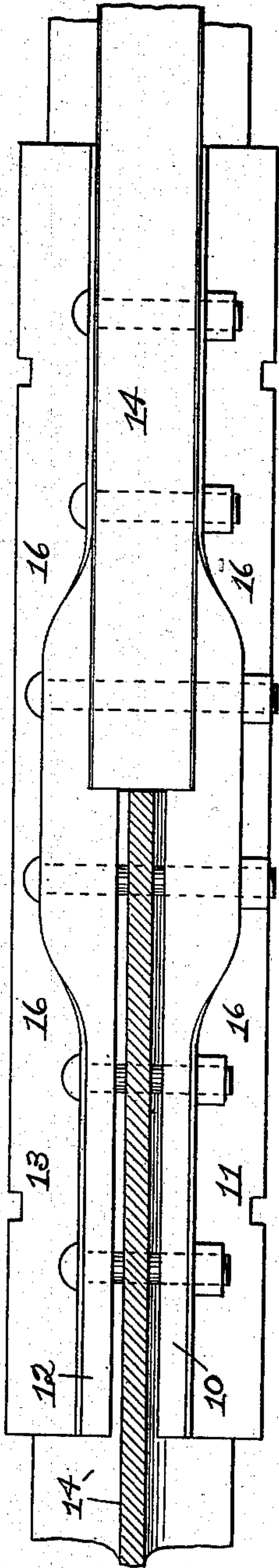
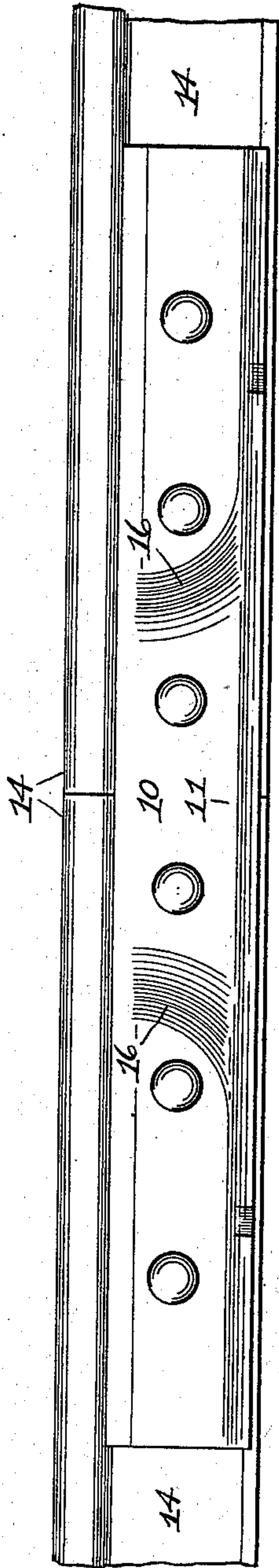


Fig. 6.



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# UNITED STATES PATENT OFFICE.

GEORGE H. WILLIAMS, OF KANSAS CITY, MISSOURI.

GRADUATED REINFORCED ARCHED ANGLE-BAR FOR RAILROAD-TRACK JOINTS.

SPECIFICATION forming part of Letters Patent No. 714,422, dated November 25, 1902.

Application filed August 11, 1902. Serial No. 119,255. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. WILLIAMS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Graduated Reinforced Arched Angle-Bars for Railway-Track Joints, of which the following is a specification.

My invention relates to a graduated reinforced arched angle-bar for making railway-track joints for connecting the ends of the rails.

The object of my invention is to provide a sufficiently heavy mass of metal under the heads of the rails, at their ends, to strengthen the joint and to resist the blows of the wheels of the passing trains.

Referring now to the drawings, Figure 1 is a top plan view of the preferred form of my invention—that is, a pair of angle-bars having graduated reinforcements and applied to the abutting ends of two rails. Fig. 2 is a side elevation of the rails and the outer angle-bar. Fig. 3 is an enlarged end elevation of the angle-bars shown in Fig. 1, the rail being in section. Fig. 4 is a correspondingly-enlarged transverse section taken on line *a b* or *c c* of Fig. 1. Fig. 5 is a top plan view of a modification—a pair of reinforced angle-bars applied to a rail-joint, the head of one rail being cut away. Fig. 6 is a side elevation of the outer angle-bar shown in Fig. 5.

Referring to Figs. 1 to 4, illustrating the preferred form of my invention, 1 2 designate the inner angle-bar—that is, the one which lies against the inner side of the track—and 3 4 designate the outer angle-bar. Each angle-bar comprises an upright portion 1 or 3, occupying a position alongside the web of the rails, and a foot portion 2 or 4, which rides upon the base of the rails 6.

My invention consists in thickening the metal composing the upright portions 1 and 3 of the angle-bars for the greater portion of their length, the greatest thickness being at the middle and the thickness of the adjacent portions being less than that of the middle portion, but greater than that of the ends. I am aware of patents on angle-bars for rail-joints having their upright portions thickened or reinforced by a series of thicknesses

graduating from the middle of the bar each way toward the ends and in some respects similar to my invention; but the patent issued to Sellers September 25, 1883, No. 285,688, to others than the practical observer would appear the same as mine, while the actual difference in construction could and would be readily pointed out by a mechanic or the practical observer. This formation provides a graduated reinforcement of the angle-bars for the purpose of resisting the pounding blows of car-wheels upon the ends of the rails. At the ends of the rails, where the effect of these blows is the greatest, I place the maximum thickness of metal in the angle-bars. Hence the angle-bars have the greatest strength where such is required. At distances of several inches from the ends of the rails the shocks caused by the passage of car-wheels are not so severe, and the thickness of the vertical portion of each angle-bar is reduced proportionately, as shown. This graduation of the thickness of the bar might be effected by tapering the outer face of the bar (the upright portion thereof) in straight lines; but I prefer to make the outer face or faces of each said portion parallel to the rails, as shown, excepting certain portions 7, where shoulders are formed by the changes of thickness of the bar. The purpose of providing such parallel faces is to provide the necessary perpendicular bearings for the bolt-heads and nuts. The profiles of these shoulders (as seen in plan) form compound curves connecting the otherwise straight outer faces of the upright portions 1 and 3.

The reinforcements or thickened portions of the inner angle-bar 1 2 do not extend so high as the reinforcements of the outer angle-bar 3 4 on account of the clearance required for car-wheel flanges.

The upper outer edges of the angle-bars meet the lower edges of the heads of the rails, as shown.

At the outer edge of each angle-bar is a downwardly-curved spiking-flange 8.

The inside faces of the angle-bars are so shaped that spaces will be left between them and the webs of the rails, so that it will be possible to draw the angle-bars closer together by the bolts 9 in case of wearing of said bars.



These angle-bars may be bolted with either six or four bolts, according to the length of the bars.

5 The thickness of the middle portions of the upright portions 1 and 3 should be one and three-fourths inches or more. The reinforcements bear immediately over the flanges or base of the rails, and this arrangement of the reinforcements has evident advantages over  
10 those reinforcements which project laterally beyond the base of the rails.

The reinforced portions of the angle-bars having a direct bearing over and upon the base or flange of the rail, with the bars' up-  
15 per bearing under the head or ball of the rail, and the bars being held firmly against the rail by the track-bolts give the joint the same solidity and strength as the body of the rail and cause the joint to take the same wave  
20 motion or deflection as the rail proper during the passage of the trains.

The reinforcements between the ends and the middle portions of the angle-bars may be omitted, as shown in Figs. 5 and 6. In these  
25 views, 10 11 and 12 13 designate, respectively, a pair of angle-bars, and 14 the rails connected thereby. The central portion of the outer face of each angle-bar forms a swell

caused by the greater transverse thickness of this portion. The reinforcement is graduated 30 to some extent by means of the curves 16, connecting the thickened portion to the normal side or face of the angle-bar. The rate of change in the degree of reinforcement in this form of bar is not so gradual as in my pre- 35 ferred form; but the support afforded to the extreme ends of the rails is equal to that afforded by said preferred form.

Having now fully described my invention, what I claim as new, and desire to secure by 40 Letters Patent of the United States, is—

The combination forming a truss, with two abutting ends of railway-track rails, of a pair of reinforced graduated angle-bars, support- 45 ing - bolts passing through the reinforced graduated portions and the web of the rail thereof, a recess 1 in the top of the upright body portion of the inside angle-bar adapted to conform to the depending flange of the car-  
50 wheel, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE H. WILLIAMS.

Witnesses:

M. L. LANGE,  
A. W. HIRSCH.