

No. 682,918.

Patented Sept. 17, 1901.

W. M. DONAHUE.  
TRACK RAIL CONNECTION.

(Application filed June 22, 1901.)

(No Model.)

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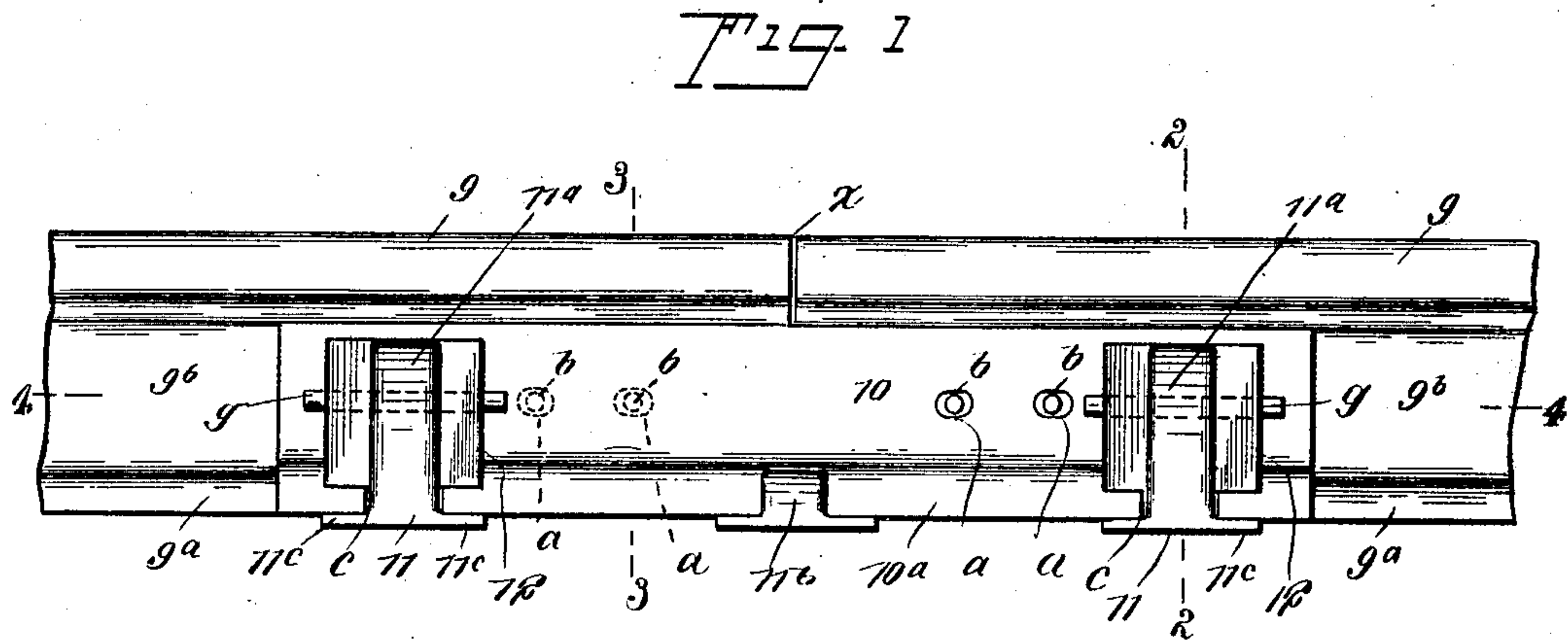
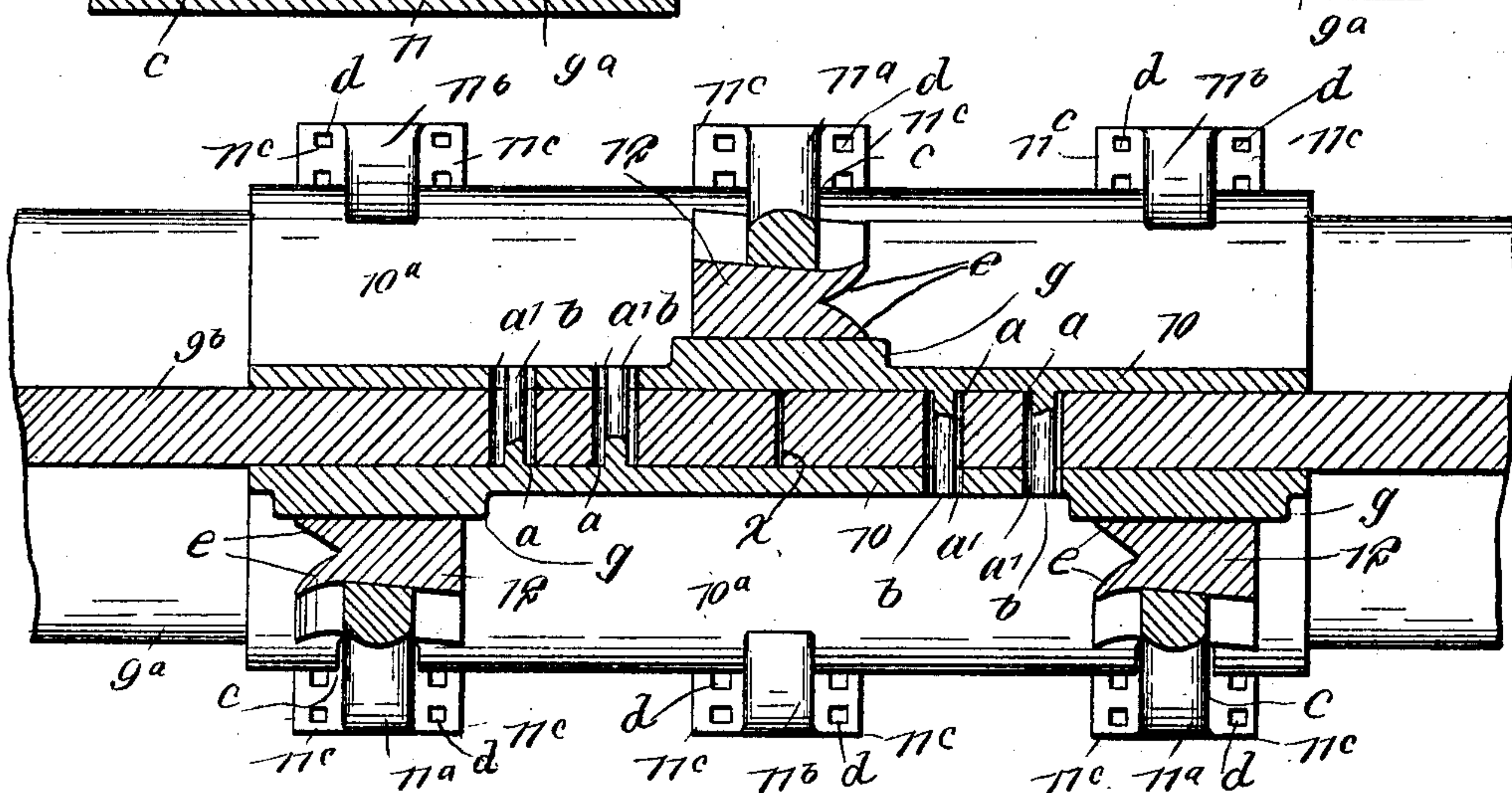
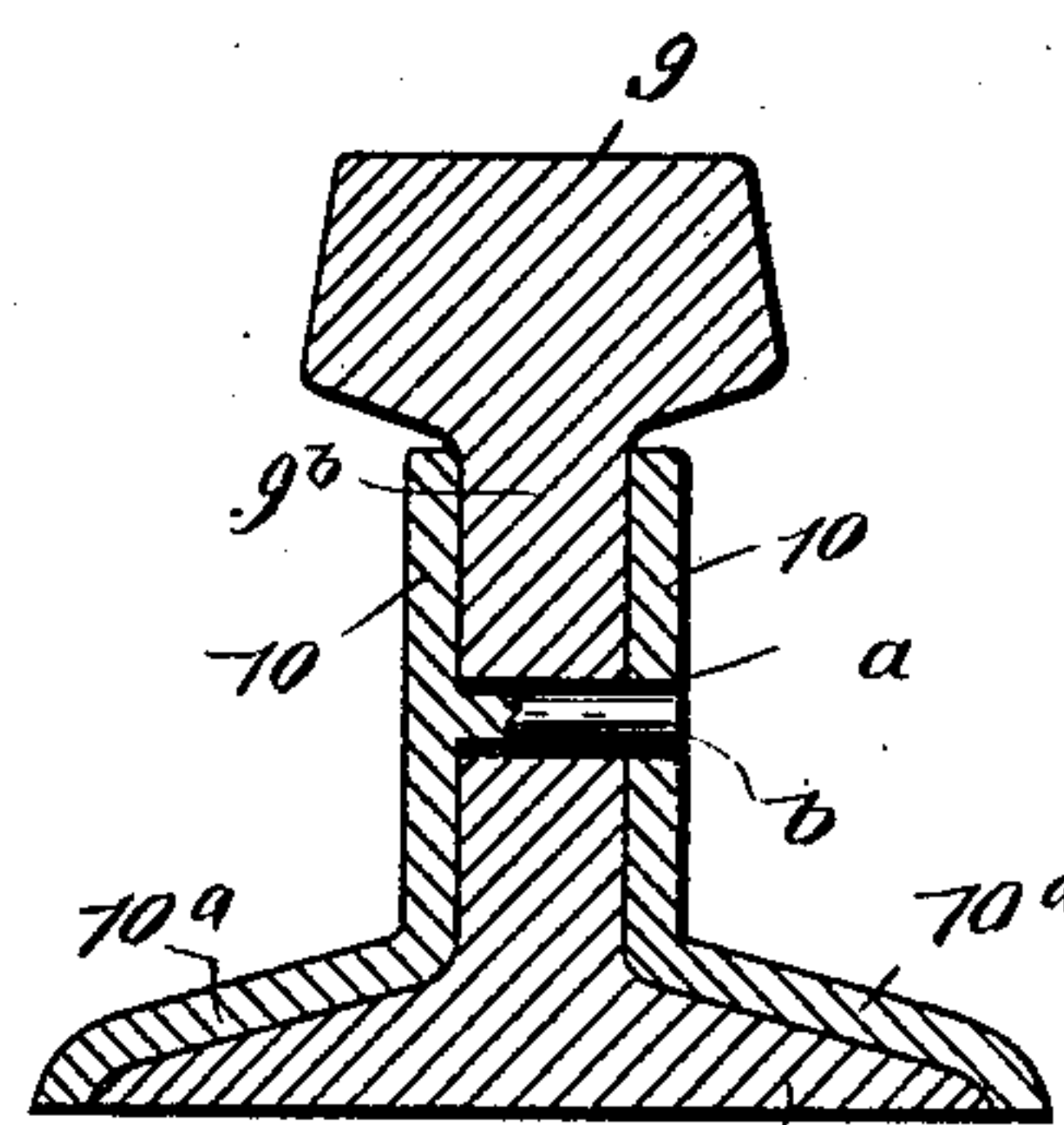
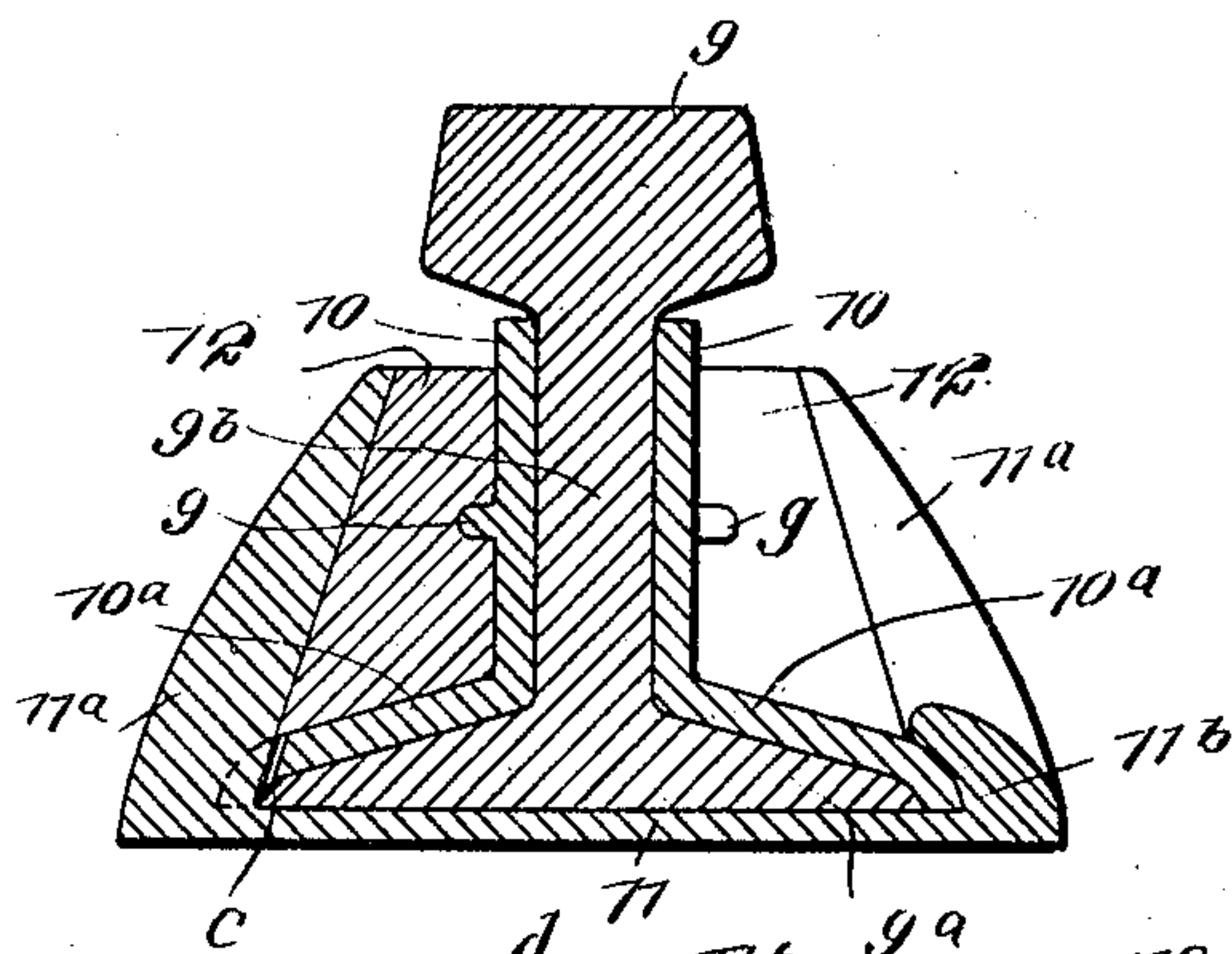


Fig. 2

Fig. 3



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Fig. 4

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Fig. 5

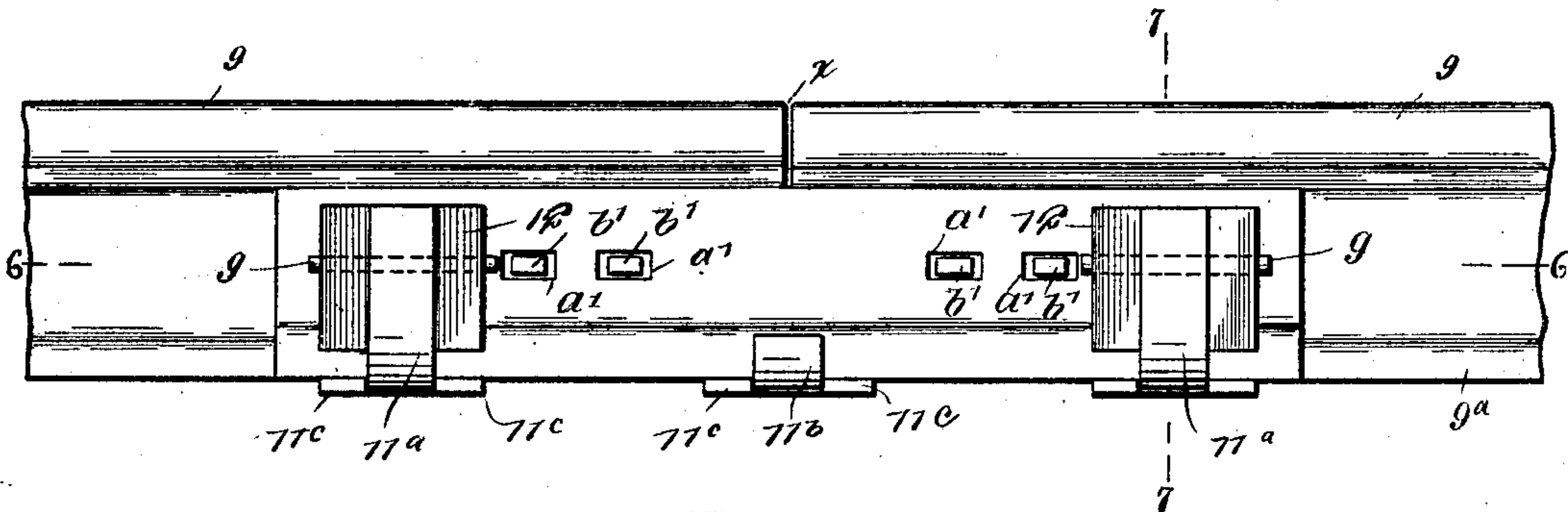
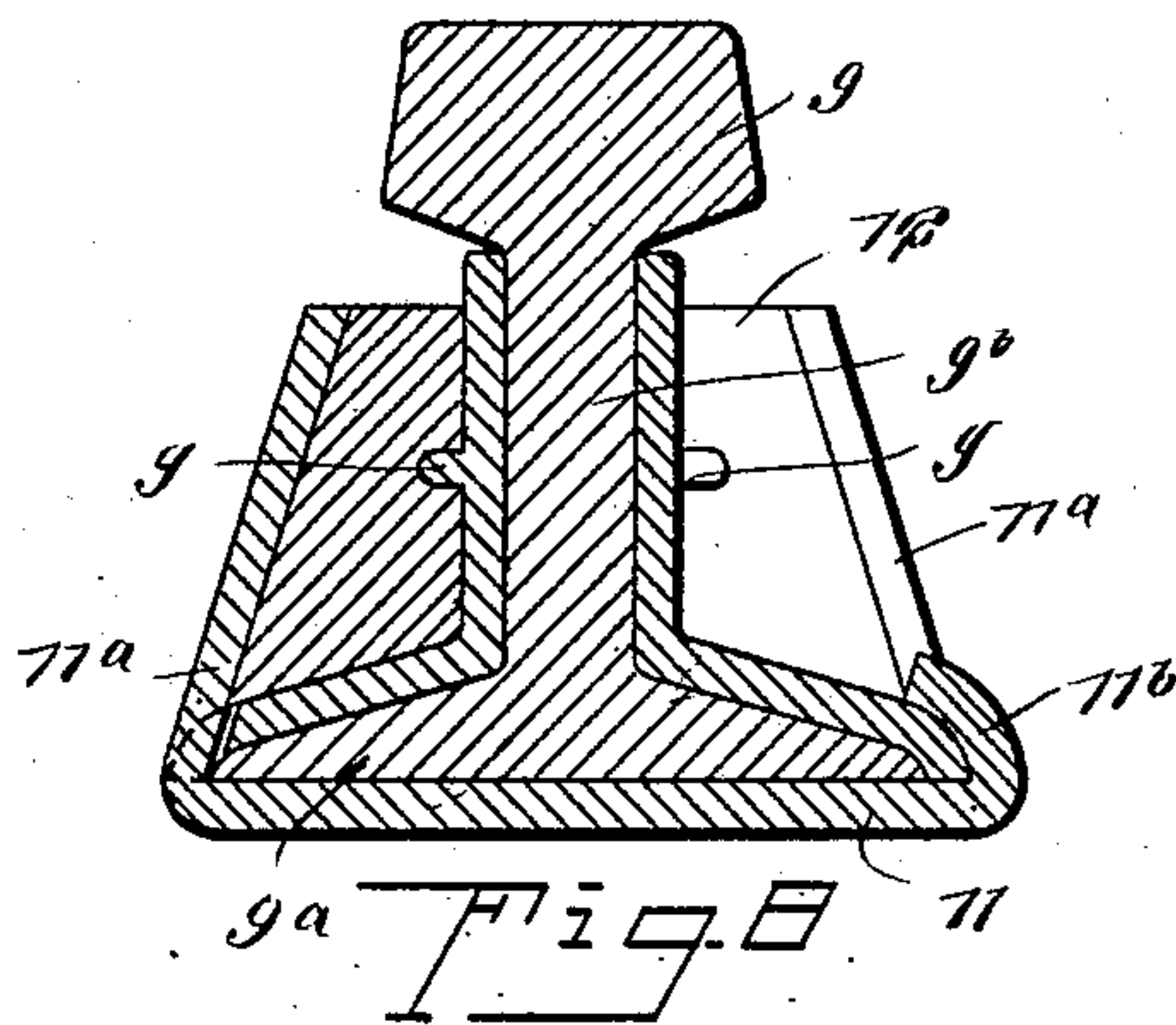
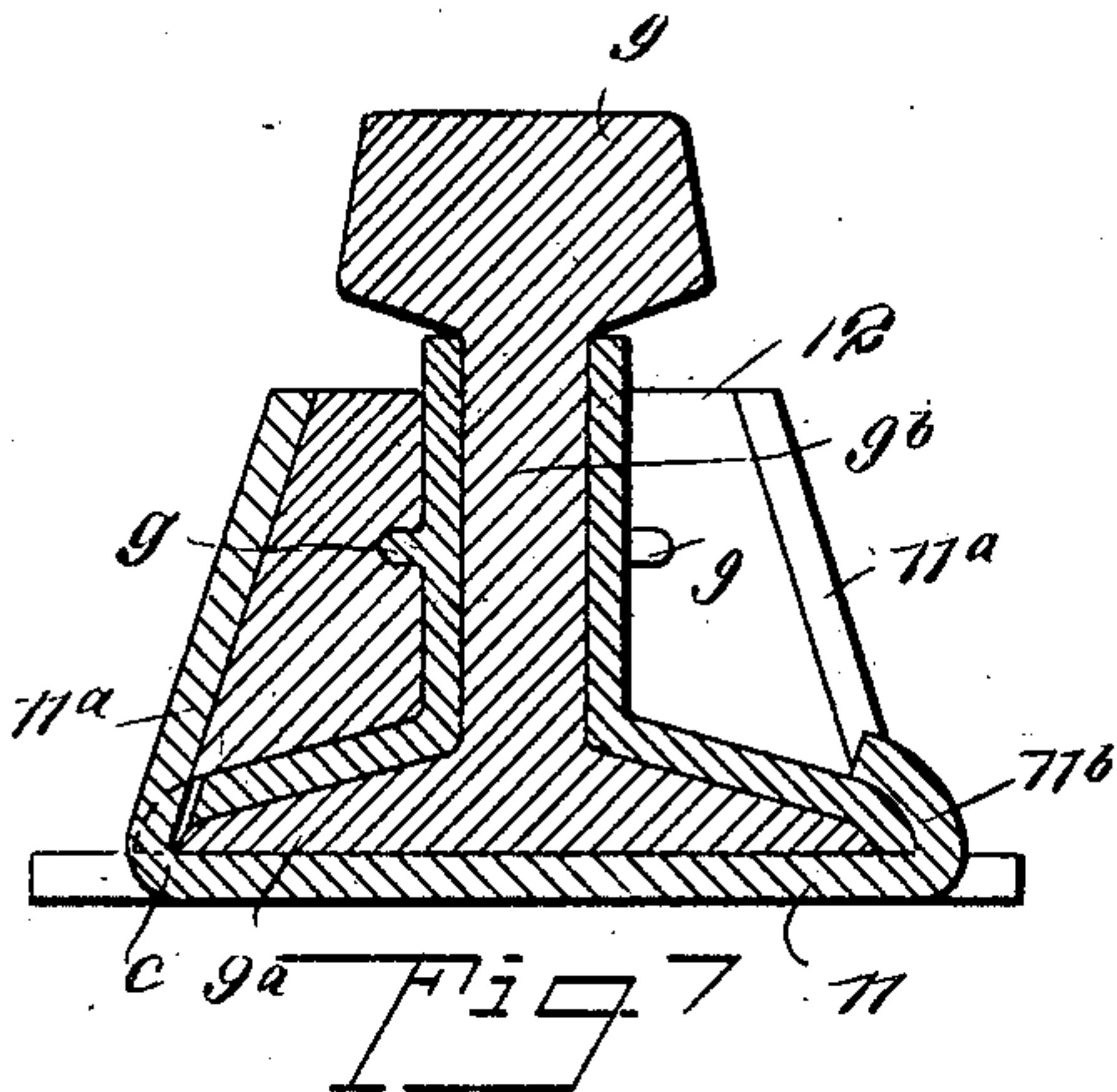
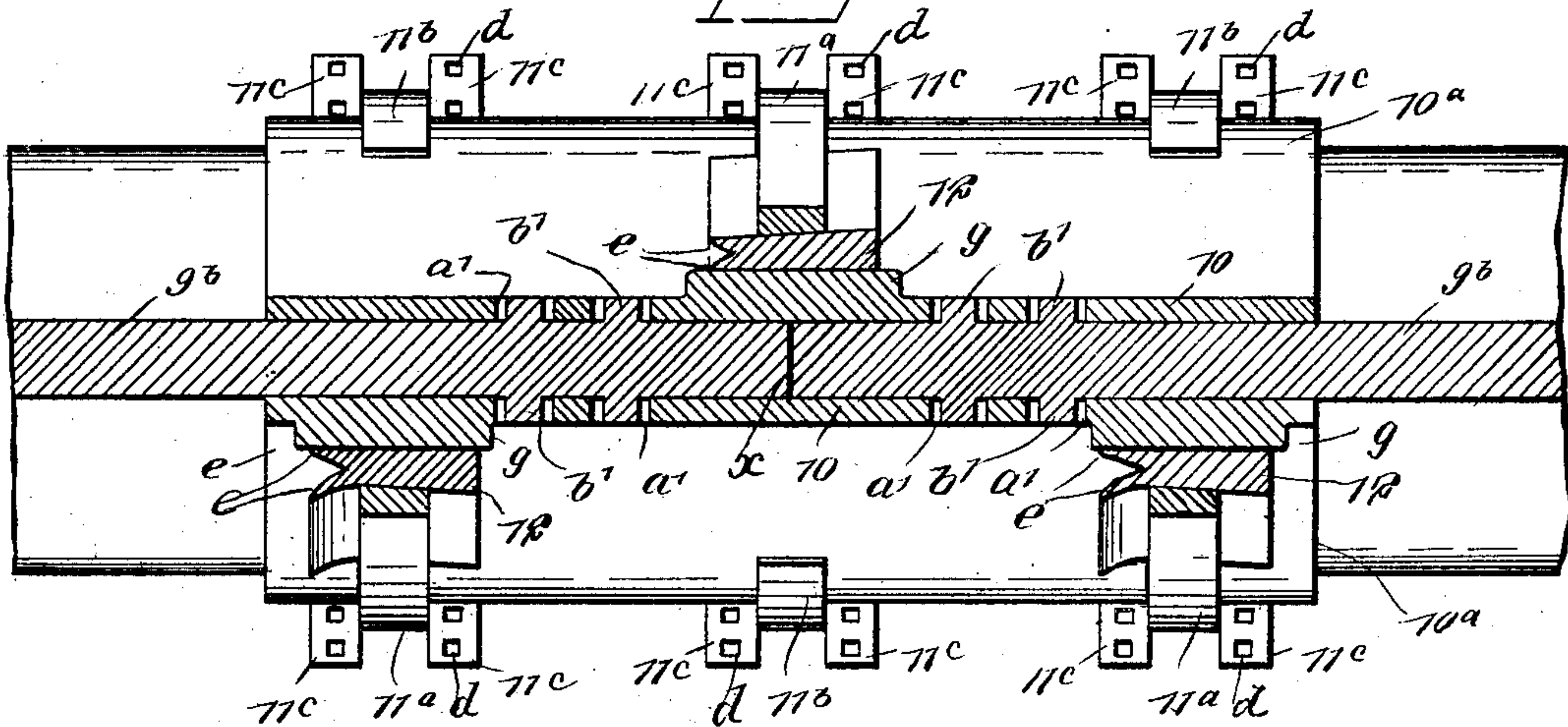


Fig. 6



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# UNITED STATES PATENT OFFICE.

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## TRACK-RAIL CONNECTION.

SPECIFICATION forming part of Letters Patent No. 682,918, dated September 17, 1901.

Application filed June 22, 1901. Serial No. 65,631. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. DONAHUE, a citizen of the United States, and a resident of Lindsey, in the county of Jefferson and State of Pennsylvania, have invented a new and Improved Track-Rail Connection, of which the following is a full, clear, and exact description.

The object of this invention is to provide novel track-rail connections for holding the adjacent ends of railroad-track rails properly alined, afford simple and reliable means to compensate for the expansion and contraction of such rails when connected with the improvement, and also maintain the joint connections secured against side strains that are liable to displace the rails at their connections.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of two track-rails at their meeting ends and of the improvement thereon. Fig. 2 is a transverse sectional view substantially on the line 2 2 in Fig. 1. Fig. 3 is a like view substantially on the line 3 3 in Fig. 1. Fig. 4 is a sectional plan view substantially on the line 4 4 in Fig. 1. Fig. 5 is a side view of two rails at their meeting ends, showing further details of the improvement. Fig. 6 is a sectional plan view substantially on the line 6 6 in Fig. 5. Fig. 7 is a transverse sectional view substantially on the line 7 7 in Fig. 5, and Fig. 8 is a transverse sectional view showing a modified form of clamp employed for holding the lower edges of the splice-bars in place upon the base-flange of a track-rail.

The track-rails to be connected at their meeting ends are of the usual T form in cross-section, and each consists of a head portion 9, a base-flange or footpiece 9<sup>a</sup>, and a web 9<sup>b</sup>, that integrally connects the head and foot portions of the rail. Two splice-bars of substantially similar construction are provided for holding adjacent end portions of two

track-rails in alinement. The splice-bars each consist of a plate-like piece having suitable length and bent angularly intermediately of its upper and lower edges, so as to permit the splice-bar to fit closely against the alined sides of two rails, the portion 10 of the splice-bar engaging the webs 9<sup>b</sup> and the laterally-extended portion 10<sup>a</sup> seating upon the bases of the track-rails. When the improved rail connections are to be applied for holding track-rails alined that are of ordinary make and are provided with spaced perforations *a* in their webs to receive bolts used for attaching common fish-plates thereon, the improved splice-bars are constructed, preferably, as shown in Figs. 1, 3, and 4. In this construction the upright portion 10 of a splice-bar is furnished with a plurality of studs *b*, that engage within appropriate perforations *a* and pass through them into opposite perforations *a'* in the upright portion 10 of the mating splice-bar, as shown in Figs. 3 and 4, and it may be advantageous to provide a plurality of the perforations *a'* at one end of a splice-bar in the portion 10 thereof and a plurality of studs *b* at the opposite end, so that the studs on the splice-bars project from opposite ends, as shown in Fig. 4, and engage within the opposed perforations *a'*.

To hold the splice-bars securely against the rail-webs 9<sup>b</sup>, a plurality of clamps are provided, which when constructed as shown in Figs. 1 to 4, inclusive, will be well adapted for use on railroads at curves and also on such roads as have heavy rolling-stock. Each clamp represented in the views named comprises a bottom plate 11, having an inwardly-inclined heavy hook member 11<sup>a</sup>, integrally formed at one end thereof, said hook extending up a suitable height opposite the portion 10 of an adjacent splice-bar. On the opposite end of the bottom plate 11 a hook member 11<sup>b</sup> is formed, which curves inwardly and fits upon the edge portion 10<sup>a</sup> of an adjacent splice-bar. The lower edge of the base portion 10<sup>a</sup> of the splice-bar, which is engaged by the hook member 11<sup>a</sup>, is notched of a width and depth to permit the introduction of the hook member 11<sup>a</sup> into said notch, as shown at *c* in Figs. 1 and 4. The bottom plate 11 of each clamping device is preferably extended at each end



alongside of the hook members  $11^a$   $11^b$ , and in said flange extensions  $11^c$  spike-holes  $d$  are formed, as shown in Fig. 4.

The clamps which have been described may be provided in any preferred number sufficient to insure stability of the track. As shown, three of said clamps are utilized, two of the clamps being respectively located at each side of the joint  $x$  between the rails and the third clamp positioned directly beneath and at each side of said joint, as best shown in Fig. 4. The inner surface of each clamp-hook  $11^a$  is sloped from one side edge toward the opposite side edge, thus providing a slightly-tapered opening between each hook  $11^a$  and a side of the adjacent splice-bar. In each opening between a hook member  $11^a$  and the adjacent side of a splice-bar a key 12 is inserted and driven with sufficient force to draw the clamp forcibly against the opposite splice-bar, the key by its impinge upon the nearest splice-bar serving to clamp both splice-bars upon the webs and bases of the track-rails at and near their joint. Each key 12 is preferably provided with prongs  $e$ , which are projected from the smaller end of the same, and when the keys are driven sufficiently each one may be locked from reverse movement by bending the prongs outwardly. As clearly shown in Fig. 4, the intermediate clamp of the three, which is opposite the rail-joint  $x$ , has its hook  $11^a$  disposed in contact with one splice-bar, and the hooks  $11^a$  on the other two clamps have contact with the opposite splice-bar, this disposal of the clamps adapting the keys 12 to press the splice-bars more effectively upon the rails. As shown, the splice-bars each have a rib  $g$  formed thereon longitudinally at and near each hook  $11^a$  of a clamp, so that the keys 12 may engage therewith, said keys each having a groove wherein a rib may be seated, which will hold the keys from upward displacement.

In Fig. 8 is shown a modified form for the rail-clamps which is suitable for railroads on straight lines and such roads as have light rolling-stock, the flanges  $11^c$  being dispensed with, the key 12 of each clamp serving to hold the parts secured together, while the rails are spiked upon the ties of the road-bed in the usual way.

In Figs. 5 and 6 is shown a slight change in construction, wherein studs  $b'$  are projected from the webs of the rails for engagement within opposite perforations  $a'$ , formed in the

portions 10 of the splice-bars, and these studs may be integrally formed on the webs of the track-rails or be affixed in perforations of old track-rails, as may become desirable in the adoption of the improvement.

As the construction of the improvements and their combination with track-rails afford an elastic but secure connection with the rails at and near the joints between them, it will be seen that proper compensation is afforded to counteract the lateral and longitudinal expansion and contraction of the rails and splice-bars due to changes in temperature the track-rails incur, which provision greatly increases the durability of such connections for the rails and correspondingly increases their efficiency in service.

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

1. Track-rail connections, comprising two angular splice-bars at meeting ends of two track-rails, said rails having integral studs laterally projected therefrom to loosely engage perforations in the splice-bars, clamps each having two hook members, and wedge-shaped keys adapted to engage one member of each clamp and contact with an adjacent splice-bar.

2. Track-rail connections, comprising two angular splice-bars, ribs on the sides of said splice-bars, clamps each having two hook members one longer than the other, and wedge-keys grooved to engage with the ribs, said keys being driven between the longer hook members of the clamps and adjacent sides of the splice-bars.

3. Track-rail connections, comprising two angular splice-bars, ribs extending longitudinally on the outer surfaces of the splice-bars, studs connecting the splice-bars and webs of the rails, clamps each having two hook members one longer than the other, and wedge-keys each having prongs at one end, the keys being driven between the longer hook members of the clamps and adjacent sides of the splice-bars, said keys being held in place by spreading the prongs.

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

WILLIAM M. DONAHUE.

Witnesses:

JOHN FRY,

JAS. H. COLKITT.