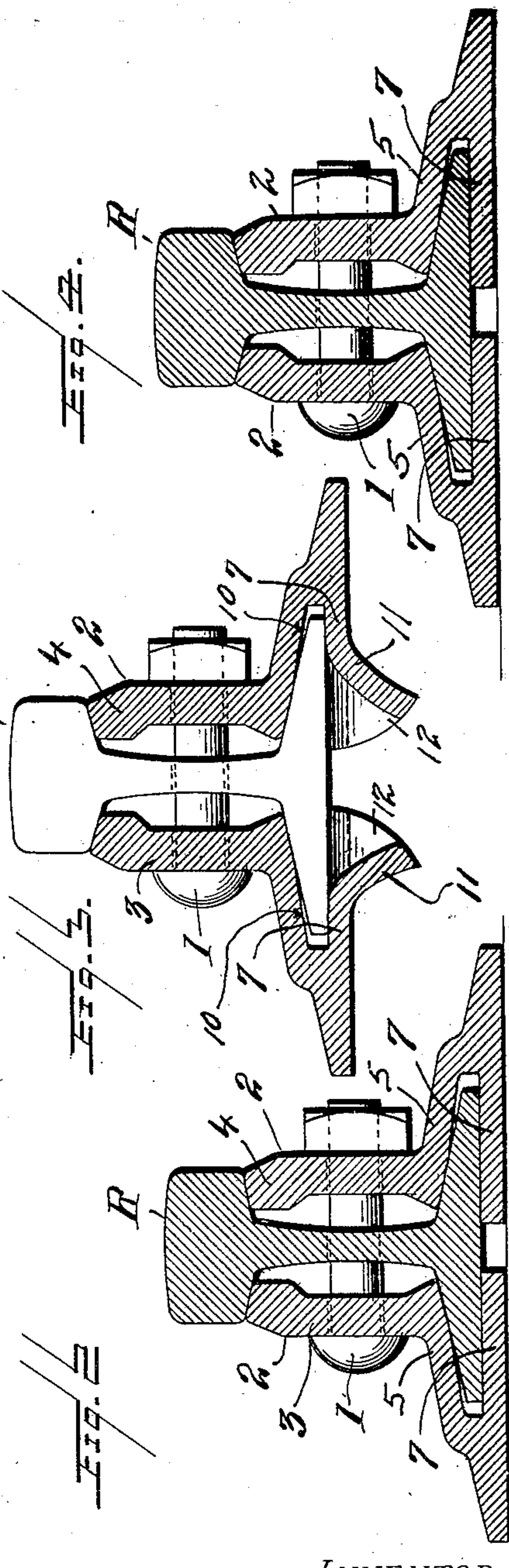
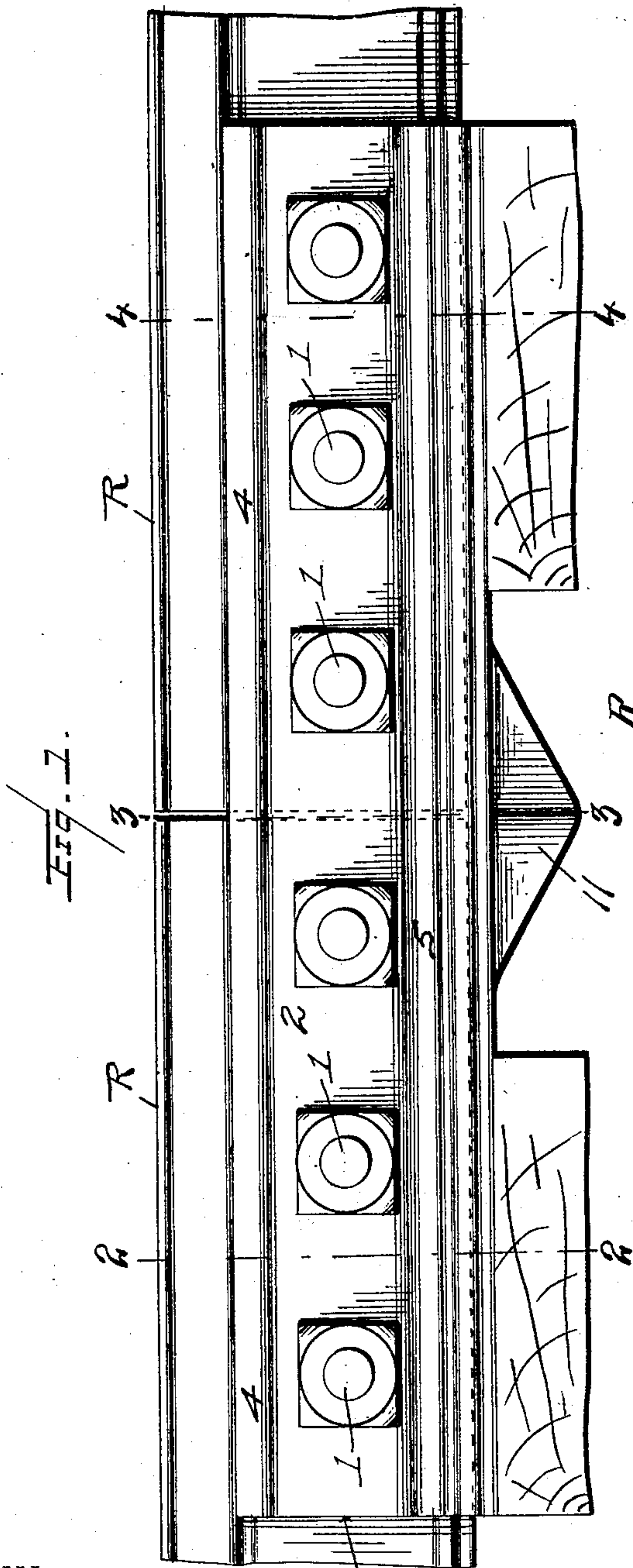


910,618.

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RAIL JOINT.
APPLICATION FILED OCT. 17, 1907.

Patented Jan. 26, 1909.
3 SHEETS—SHEET 1.



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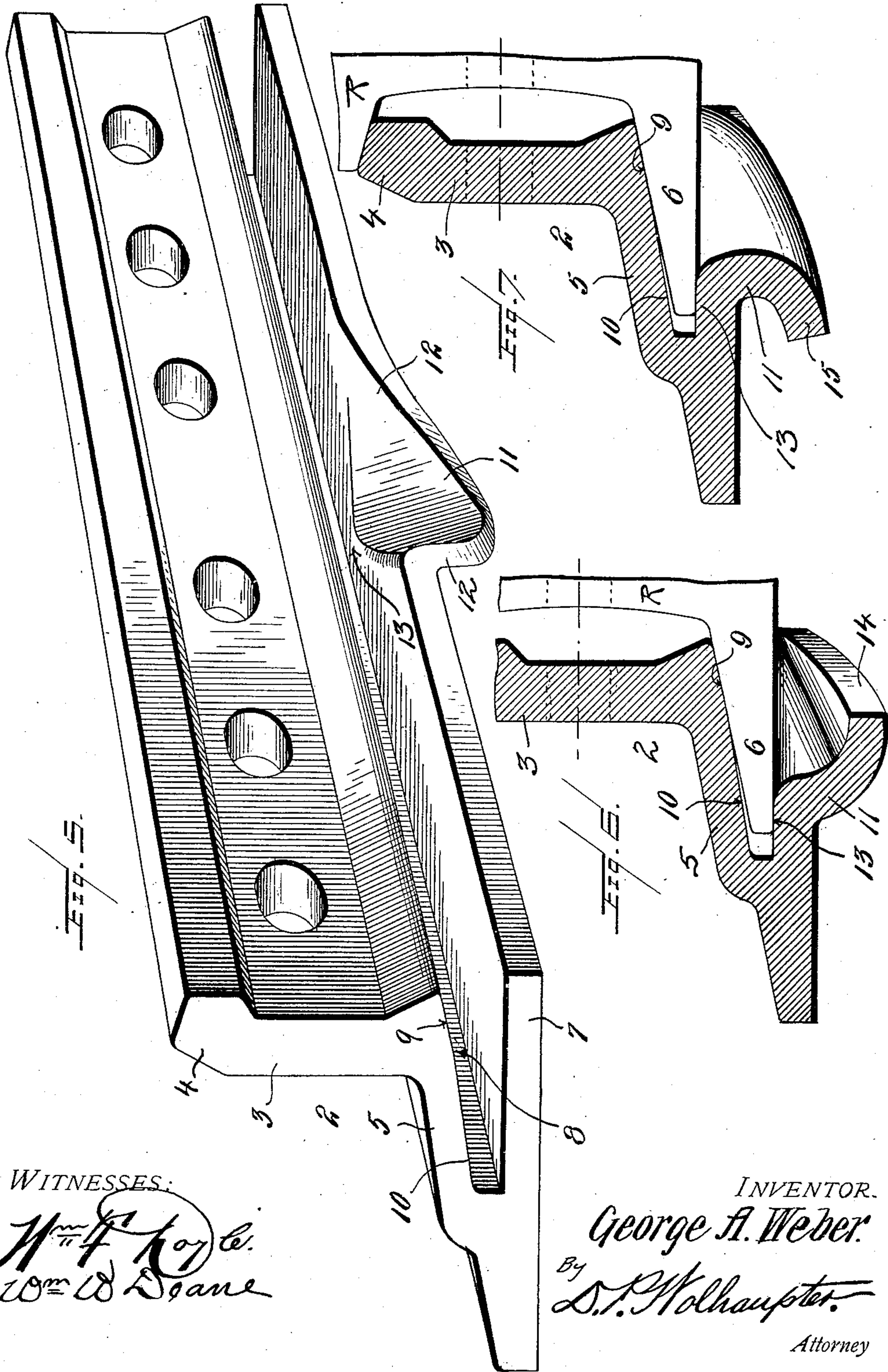
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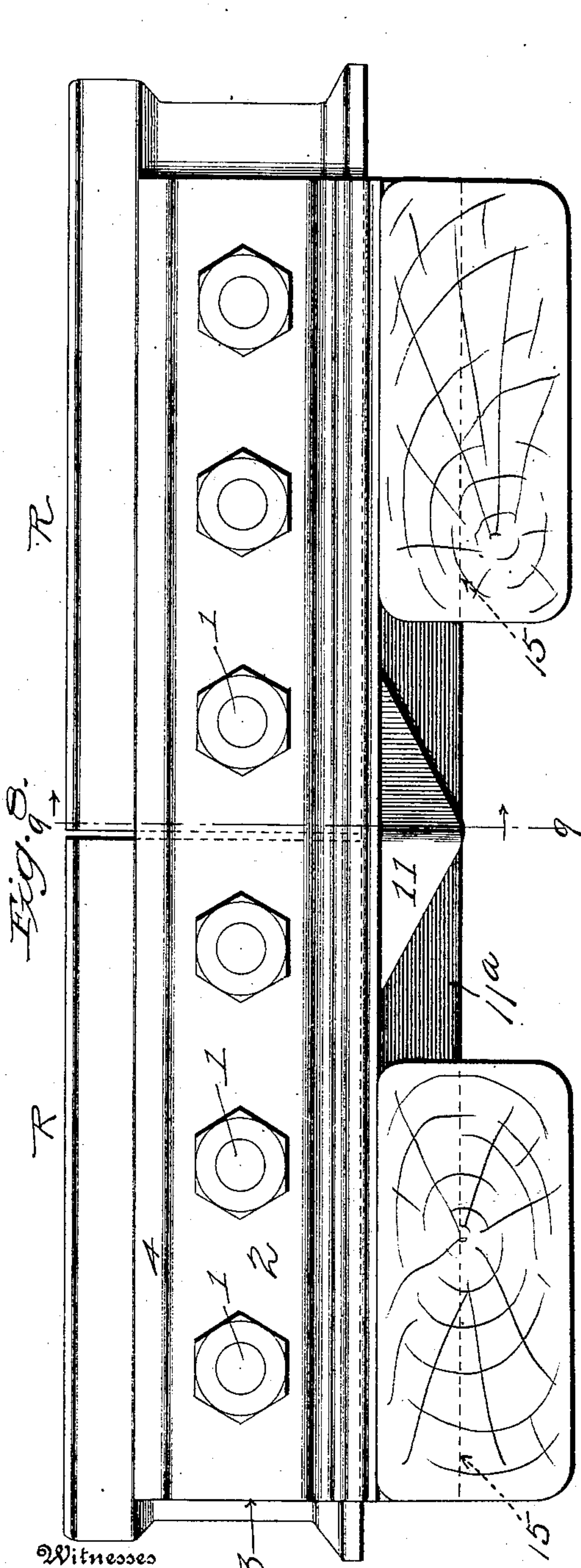
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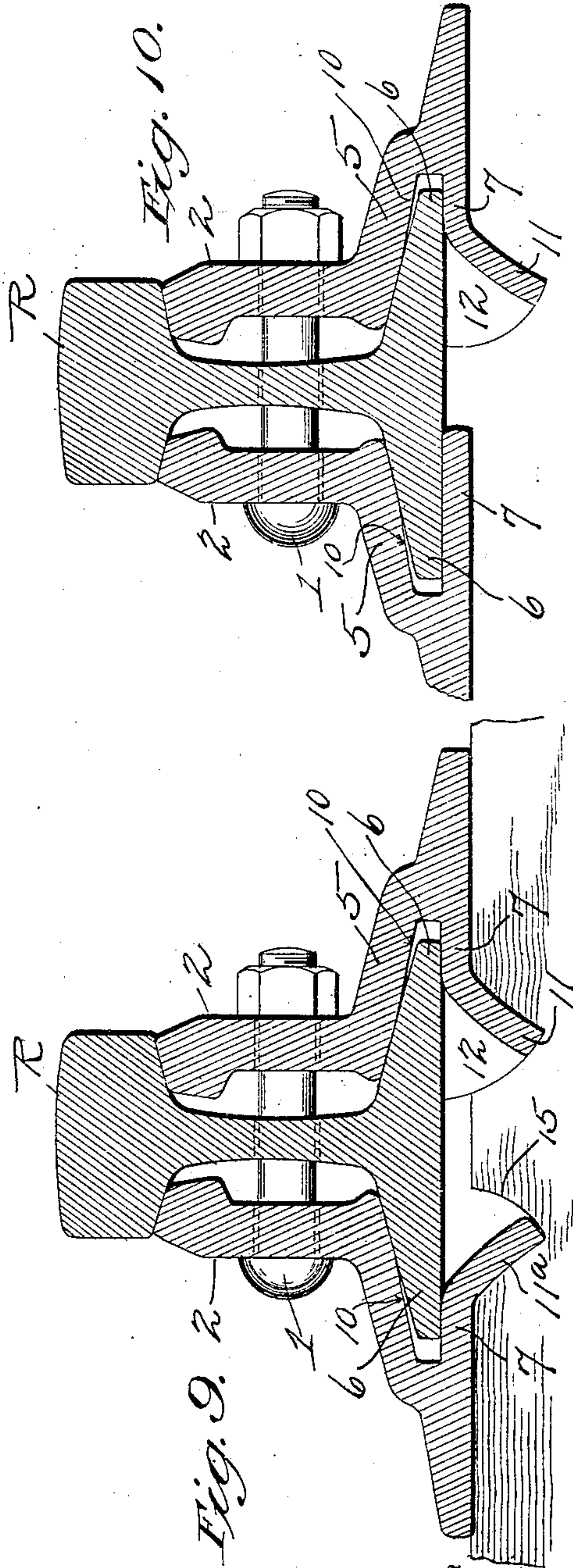
Patented Jan. 26, 1909.
3 SHEETS—SHEET 3.

910,618.



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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

No. 910,618.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed October 17, 1907. Serial No. 397,946.

To all whom it may concern:

Be it known that I, GEORGE A. WEBER, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to the subject of rail joints, and particularly to that type known as the continuous rail joint.

The standard type of continuous rail joint is characterized by the employment of joint bars, each of which is rolled to provide an upright member or girder interposed between the rail head and the upper side of the rail base flange, an outwardly extending foot flange overlying the base flange of the rail, and an inwardly extending rail supporting base section integrated with the outer end of the foot flange and underlying and bearing against the rail base; there being a continuous flange-receiving pocket or space provided between said foot flange and base section for the reception of the base flange of the rail. Experience has shown that it is difficult to secure absolute uniformity in the rolling of the rails and joint bars of the type described so as to insure a perfect fit of the joint bar to the base flange of the rail, inasmuch as the height of the rails between the under side of the head, and the upper side of the base flange, frequently varies to a considerable extent so that a perfect fit is not obtained when the joint bars are drawn on to the rails. Furthermore, under these conditions there is a tendency at times for the base flanges of the rails to exert an abnormal binding or wedging action at their outer edges, with the result of distorting the fit of the bars and tending to strain or break some of the parts.

It is, therefore, one of the objects of the present invention to obviate the foregoing difficulties, in the application of joint bars of the continuous type, by providing an easy, though firm, fit for the joint bars under the rail head and on top of the base flanges of the rails, while at the same time preserving all of the desirable features of the continuous type of rail joint.

Another and distinctive object of the present invention is to generally improve the reinforcing and stiffening of the joint bars, and particularly providing a construction which effectually reinforces and stiffens said bars

at the weak point of the joint, that is, at a point in the plane of the meeting ends of the rails.

In brief, the invention contemplates a construction contributing materially to the efficiency and strengthening of the continuous type of joint bar, while at the same time preserving the characteristic and essential functions thereof.

With these and many other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated, and claimed.

The essential features of the invention, involved in carrying out the objects above indicated, are necessarily susceptible to numerous variations by way of structural modification without departing from the scope of the invention, but certain practical embodiments thereof are exemplified by the accompanying drawings, in which:

Figure 1 is a side elevation of a rail joint embodying joint bars of the continuous type, and constructed in accordance with the present invention. Figs. 2, 3 and 4 are cross sectional views of the joint, respectively on the lines 2—2, 3—3, and 4—4 of Fig. 1. Fig. 5 is a perspective view of a joint bar of the continuous type illustrating one method of providing the girder reinforcement of the rail supporting base section at the center of the bar, and hence at the middle of the joint. Fig. 6 is an enlarged fragmentary sectional view illustrating a modification in the design of depending stiffening girder. Fig. 7 is a similar view showing another modification in the design of the depending stiffening girder. Fig. 8 is a side elevation of a further modification of the invention. Fig. 9 is a cross sectional view on the line 9—9 of Fig. 8. Fig. 10 is a cross sectional view illustrative of another modification that may be resorted to in carrying out the invention.

Like references designate corresponding parts in the several figures of the drawings.

As indicated, the invention claimed herein possesses special utility in connection with the continuous type of rail joint, and, as shown in the drawings, a joint of this character includes in its construction the service rails R, the usual joint bolts 1, and the oppositely arranged continuous joint bars 2. Each of the

continuous joint bars 2 is so rolled and shaped as to provide the same with an upright member or splice bar portion 3 formed at its upper edge with a thickened bearing head 4 engaging against the under side of the rail head, and at the lower edge of the said upright member 3 each joint bar is formed with an outwardly extending foot flange 5 overlying the base flange 6 of the rails, and having integrated with the outer edge portion thereof an inwardly extending rail supporting base section 7 underlying and bearing against the rail base, there being a continuous flange-receiving pocket or space 8 provided between said flange 5 and base section 7 for the reception of the base flanges of the rails. These several elements are characteristic of the continuous type of joint bar, and in addition thereto, the present invention preferably contemplates so rolling and shaping each joint bar that the same does not have a bearing contact with the upper inclined surface of the rail flange throughout the entire width of said surface, but instead, the bar is provided at the bottom edge of its upright member or splice bar portion 3 with an inclined bearing face 9 arranged within the vertical plane of the bearing contact between the head 4 of the bar and the under side of the rail head. Hence, the said bearing face 9 is so arranged as to closely contact with the inner portion of the upper inclined surface of the rail flange, while the major portion of the under surface of the outwardly extending foot flange 5 of the joint bar is provided with a clearance face 10 disposed at an angle of less degree than the angle of the upper inclined surface of the rail flange, so as to entirely clear not only the extreme outer edge of the rail flange, but also a considerable portion of the upper surface of said flange. Further, in connection with this clearance face 10, it will be observed that the bight of the flange-receiving pocket 8 is disposed well beyond the outer edge of the rail flange so as to provide ample clearance, and also ample space to accommodate the adjustment of the bar upon rails having flanges of different thickness, all of which contributes materially to allowing the joint bar to have an easy fit under the head of the rail, and close up on the flange of the rail directly on top of said flange in the vertical plane of the point where the head of the joint bar engages beneath the head of the rail.

The foregoing features serve to increase the general efficiency of the continuous type of joint bar, but the distinctive feature of the present invention resides in the provision of means for effectively reinforcing and stiffening the joint bars at a point between the ties upon which the joint is supported, and hence at the middle of the joint which lies in the transverse plane of the meeting ends of the rails. While this result may be effectively accomplished in various practical ways, a

practical construction is suggested in the drawings, and consists in providing the rail supporting base section 7 of each joint bar with a centrally arranged depending stiffening girder 11. This girder is necessarily susceptible of numerous variations and may be made in divers ways in the process of the manufacture of a joint bar, but for illustrative purposes, there is suggested the expedient of producing this girder by bending or punching the same downward from the inner edge portion of the base section 7 centrally between the ends of said sections. By forming the depending stiffening girder in this manner, the same necessarily assumes a triangular shape in elevation and is also somewhat concavo-convex inasmuch as the bending down of the girder from the base section or flange piece 7 leaves the girder at its edges with web portions 12 merging directly into the said base section 7.

In connection with the formation of the depending girder 11, it is to be noted that the same preferably does not occupy or take up the full width of the base section 7, but leaves, in the transverse plane of the girder, a relatively narrow base bearing shoulder 13 forming a part of the supporting surface of the base section 7 and bearing under the outer edge portion of the rail flange. This base bearing shoulder 13 is disposed directly beneath, and in the vertical plane of the clearance space between the foot of the joint bar and the upper side of the rail flange, thus preserving the full flexibility of the bar at the central reinforced portion thereof so that the bar may uniformly have an easy fit under the head of the rail and a firm bearing beneath the rail base throughout the entire extent of the bar.

Variations in the design of the girder 11 may contribute to the efficiency thereof, such for instance as curving or deflecting the bottom edge thereof inwardly, as indicated at 14 in Fig. 6 of the drawings, or deflecting said edge outwardly, as indicated at 15 in Fig. 7 of the drawings. Aside from modifications of this nature and the cross sectional design of the stiffening girder 11, the invention presents practical possibilities along other lines with other modifications and combinations, one of which is suggested by the illustration of Figs. 8 and 9 of the drawings.

Referring particularly to the construction and arrangement of parts suggested in said Figs. 8 and 9 of the drawings, it will be observed by reference to the latter that an advantageous structure is provided for by combining one joint bar having a stiffening girder 11 of the kind described, with the opposite joint bar which is differently reinforced or stiffened at the base thereof. In other words, as suggested in Figs. 8 and 9, one of the side joint bars 2 of the joint may be constructed as described, viz: with the pendent stiffening

girder 11 located centrally between the ends of the joint bar, while the opposite joint bar has the inner edge portion of its base section 7 bent down to provide a depending continuous stiffening girder 11^a extending longitudinally throughout the whole length of the joint bar, and hence throughout the whole length of the joint. In this construction, the continuous bottom stiffening girder 11^a of one of the joint bars may be conveniently checked or cleared in the ties by providing the latter with the clearance notches 15 which are plainly indicated in Figs. 8 and 9 of the drawings.

A very practical and effective reinforcement of the joint is secured by the construction shown in Figs. 8 and 9 of the drawings, inasmuch as the centrally located stiffening girder 11 of one of the joint bars provides for the reinforcing and stiffening of the joint particularly at the center thereof between the ties upon which the joint is supported, while the other continuous stiffening girder of the opposite joint bar effects a substantial base reinforcement of the joint throughout the entire extent thereof, which reinforcement is particularly effective in stiffening that side of the rail so as to prevent any outward canting of the rails.

In further exemplification of the invention, attention is directed at this point to the fact that while in one of the preferred embodiments of the invention, both of the opposite joint bars are illustrated and described as having the centrally arranged pendent stiffening girders 11 on the base sections 7 thereof, it is to be understood that the invention may be carried out with one or both joint bars so constructed. In other words, the joint bar at either side of the joint may alone be provided with the centrally arranged depending stiffening girder 11 on its base section, while the opposite joint bar remains constructed in the conventional form of the continuous type of joint bars, that is, with a plain, inwardly extending base section 7 engaging the bottoms of the rails and of uniform construction throughout without

bends or reinforcements. This adaptation of the invention is well illustrated by the modifications suggested in Fig. 10 of the drawings, which shows only one joint bar provided with the bent down reinforcing girder 11, and the usual joint bar provided with the plain base section 7 referred to. It may also be noted in connection with these various modifications and uses of the invention, that while the stiffening girders are illustrated as being preferably set or disposed at an inclination to a vertical plane, such girders may obviously be arranged perpendicularly or at any angle desired without affecting the principle of construction claimed herein.

From the foregoing it will be understood that various changes in the form and proportion of the stiffening girder, as well as in its manner of utilization, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. In a rail joint, the rails, and the opposite angle bars provided with rail supporting base sections, the base section of one bar having a centrally located depending stiffening girder, and the base section of the other bar being provided with a bent-down continuous stiffening girder extending from end to end of the base section.

2. In a rail joint, the rails, and the opposite joint bars, one of said joint bars being provided with a horizontal inwardly extending base section having a centrally located stiffening girder depending from its inner edge, and the other of said joint bars being provided with a horizontal inwardly extending base section having its inner edge bent down to provide a continuous stiffening girder extending the full length of the bar.

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

GEORGE A. WEBER.

Witnesses:

BENJA. WOLHAUPTER,
E. A. VAN DEUSEN.