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B. WOLHAUPTER.
RAIL JOINT.
APPLICATION FILED FEB. 21, 1908.

Patented Mar. 1, 1910.
3 SHEETS—SHEET 1.

Fig. 1.

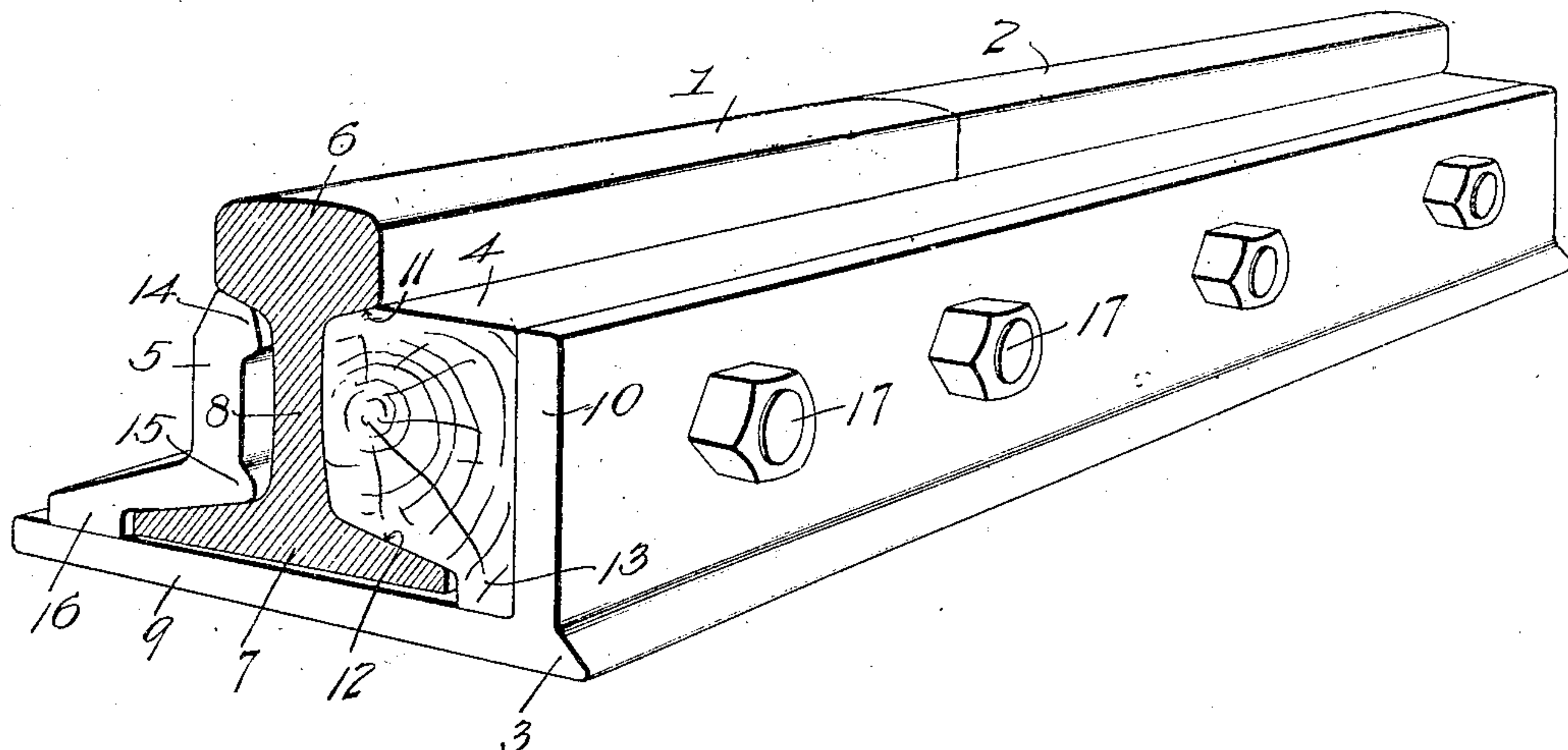
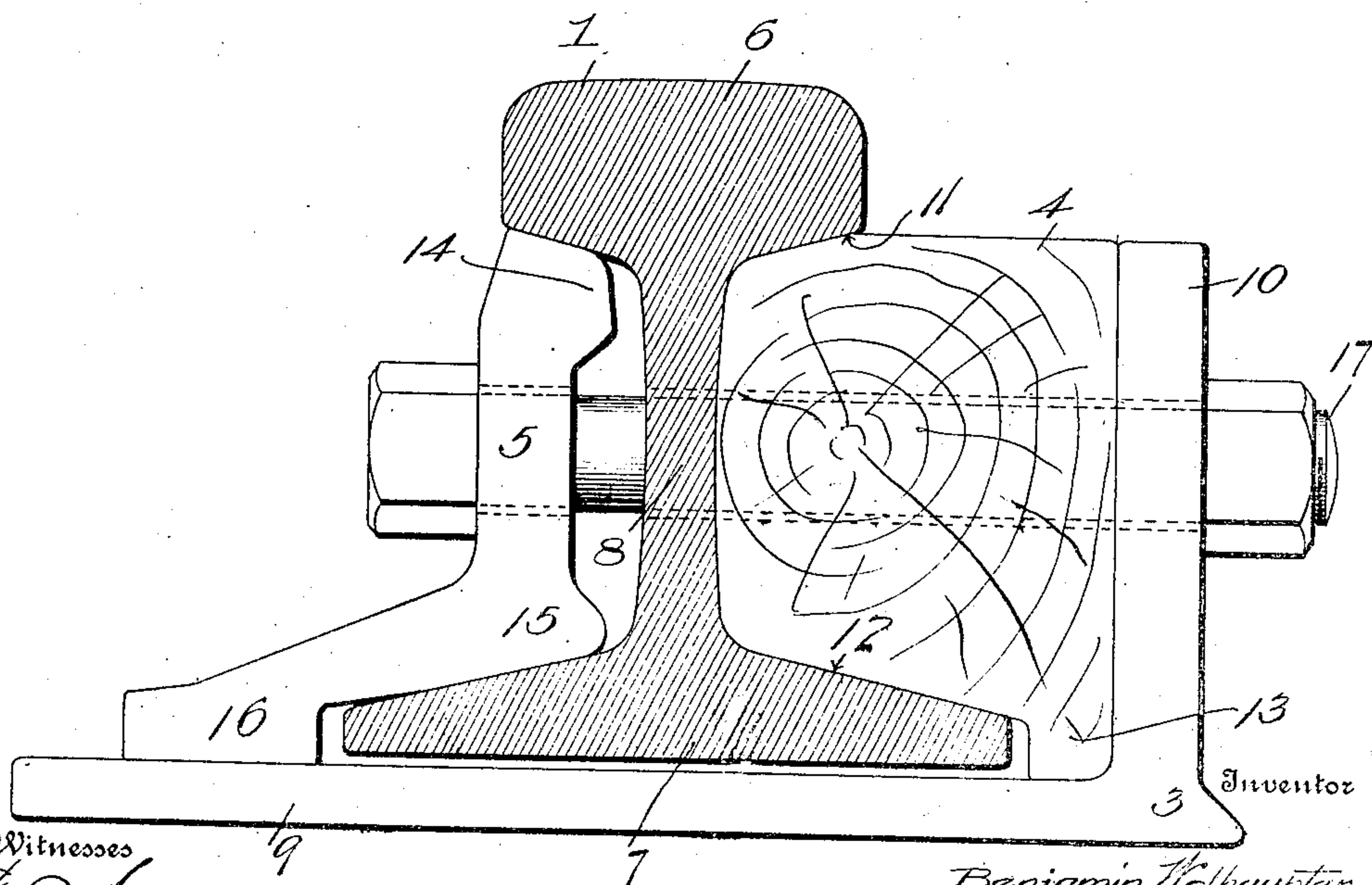


Fig. 2.



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Fig. 3.

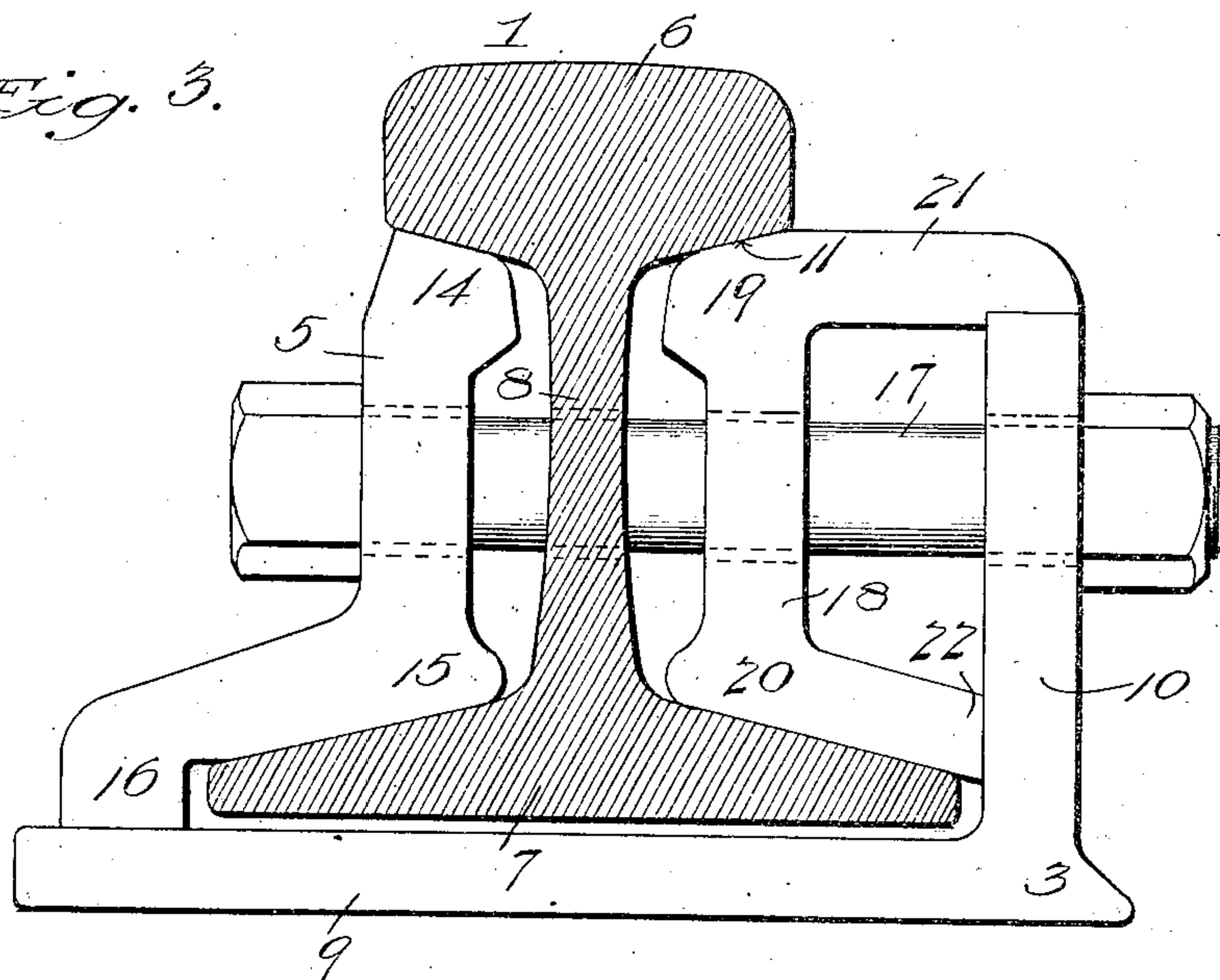
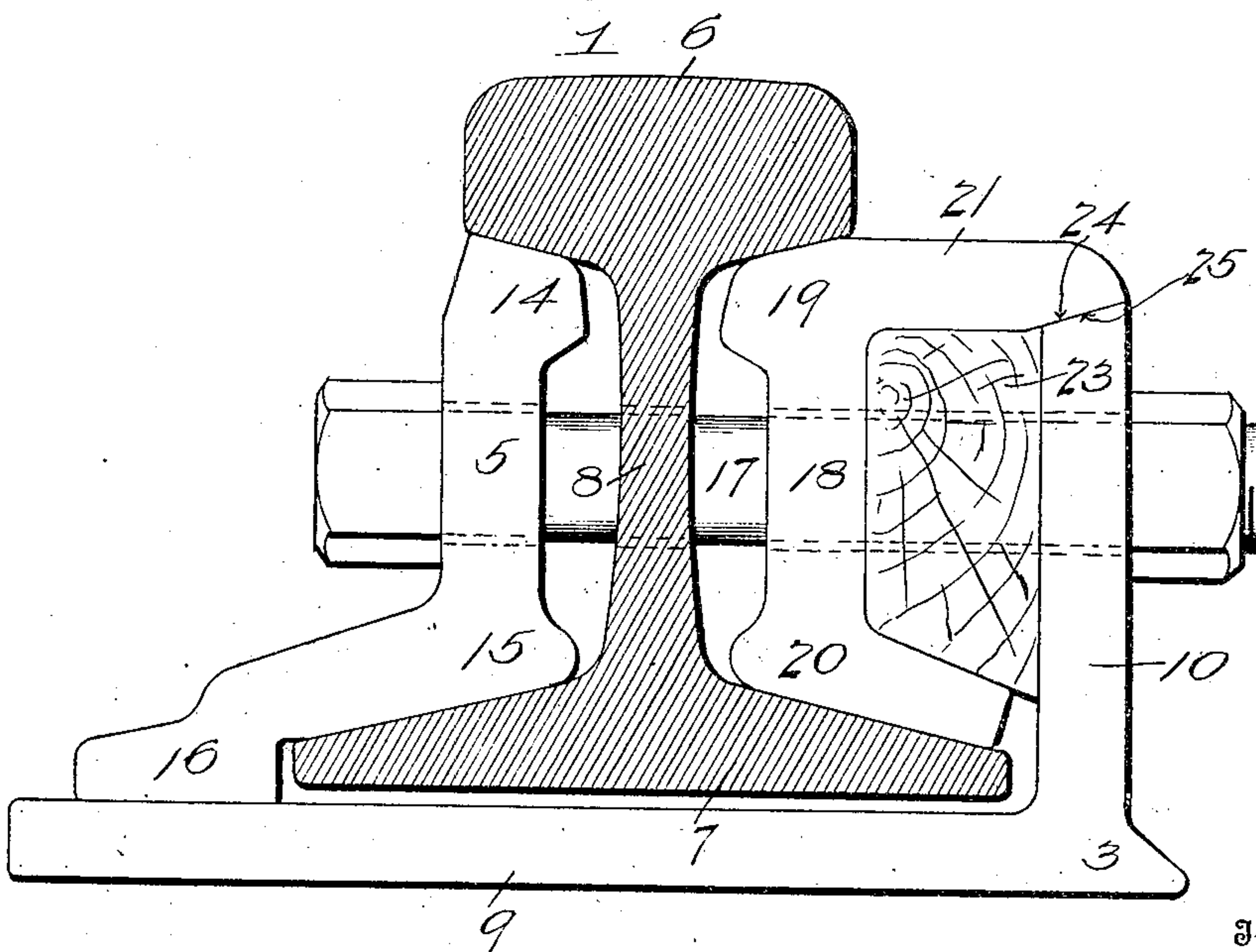


Fig. 4.



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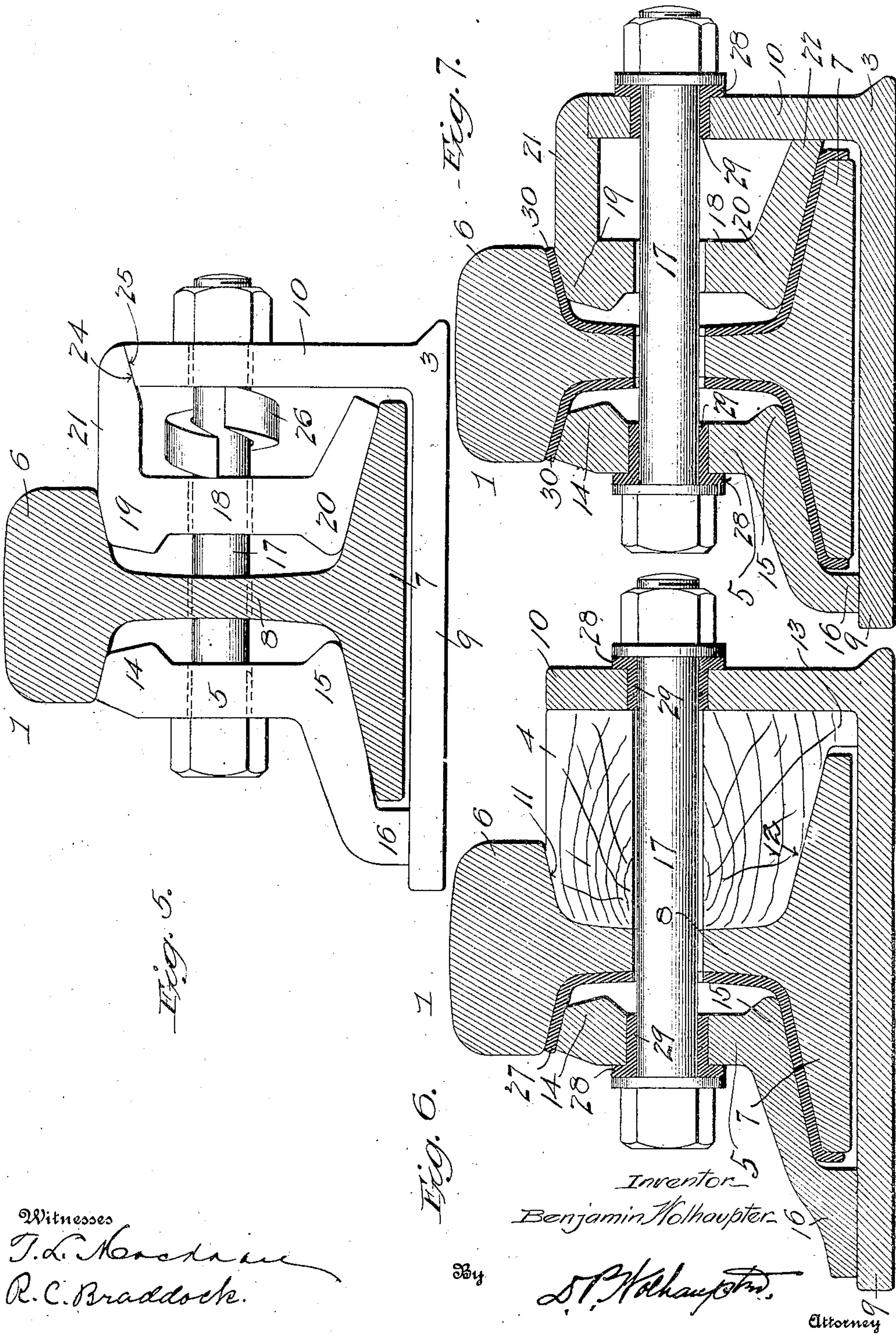
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RAIL JOINT.

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3 SHEETS—SHEET 3.

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UNITED STATES PATENT OFFICE.

BENJAMIN WOLHAUPTER, OF NEW YORK, N. Y., ASSIGNOR TO THE RAIL JOINT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RAIL-JOINT.

950,587.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed February 21, 1908. Serial No. 417,116.

To all whom it may concern:

Be it known that I, BENJAMIN WOLHAUPTER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to the subject of railway rail joints, and has in view certain novel and practical improvements which provide for the suspension of the rails in such a manner that the same are held firmly supported out of contact at the bottom with the base section of the joint, thus providing a joint structure wherein the joints do not support the rails at the bottom.

Further, the invention not only provides a construction in which the rail is supported by the joint parts without the rail bearing on the base of the joint, but also provides means for securely clamping the rails in position and holding them against lateral or vertical movement independent of the joint.

A general object of the invention is to provide thoroughly practical forms of suspended-rail rail-joints which are capable of application to different traffic requirements, and different rail-sections, but in all instances providing for suspending the rails in a way to secure a maximum bracing effect therefor, while at the same time supporting the rails out of contact with the main supporting base of the joint, and evenly distributing the load from the top heads of the rails through the side elements or parts of the joint to the supporting base of the latter.

With these and other objects in view, which will readily appear to those familiar with the art 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.

As above indicated, the essential features of the invention involved in the central thought of the suspension of the rails out of contact with the supporting base, is necessarily susceptible to a wide range of structural modification, but a few of the preferred embodiments of the invention are shown in the accompanying drawings, in which,—

Figure 1 is a sectional perspective view of a rail joint of the general Weber type, embodying the present invention. Fig. 2 is a

cross sectional view of the same form of joint. Fig. 3 is a cross sectional view of another modification of the joint constructed in accordance with the present invention. Fig. 4 is a cross sectional view of a further modification of the invention embodied in a joint of the general Weber type. Fig. 5 is a cross sectional view of a modification of the joint similar in general features to the construction shown in Fig. 4, but embodying a spiral spring compensating washer substituted for the filler and arranged around each bolt between the channel bar and the upstanding girder or side bar of the joint chair. Figs. 6 and 7 are sectional views of different designs of the improved construction of joint illustrating the same supplied with suitable insulation to provide insulated rail joints.

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

The improved structure as embodied in a rail joint of the general Weber type, is well exemplified by the form of joint illustrated in Figs. 1 and 2 of the drawings. The joint shown in these figures of the drawings embodies in its general organization the service rails 1 and 2, a joint chair 3, a wooden filler block 4, and a side angle bar 5 arranged at the side of the joint opposite the filler block. The said service rails 1 and 2 are illustrated as being of a conventional type, that is, provided with the head 6, the bottom flange 7, and the intermediate connecting web 8.

The form of joint chair 3 illustrated is of the design usually employed in the Weber type of rail joints, and essentially comprises a main supporting base 9 arranged horizontally beneath the rails, and an upstanding girder 10 preferably formed integrally with the base 9 and arising therefrom at one side edge so as to be disposed at one side of the rails and thereby constitute one of the side bars of the joint. According to the present invention, the filler block 4 is interposed between the upstanding girder or side bar 10, and one side of the rail, and is also adapted to register in the fishing spaces of the rails so as to provide a substantial brace therefor, as well as a definite point of support upon which the rails are suspended. In this connection, it will be observed that the filler block 4 is provided at its inner upper corner with a bearing portion 11 engaging beneath the heads 6 of the rails, and in a corresponding position at its inner lower corner the

said filler block is provided with a lower bearing portion 12 fitting on the upper side of the rail flange 7, as plainly shown in the drawings. In addition to these details, the

5 said filler block is prolonged at its bottom to form a bottom supporting foot 13 disposed at one side of the bottom flange 7 of the rails and resting directly on the upper side of the main supporting base 9 of the joint.

10 The side angle bar 5 is arranged similarly to the filler block 4, that is, the said angle bar is formed at its upper edge with the bearing head 14 engaging beneath the rail heads 6, and at its lower edge is formed with

15 the inclined bearing foot 15 engaging against the upper side of the flanges 7 of the rails. Also, the said side angle bar 5 has depend-

ing from its lower bearing foot 15 a supporting foot flange 16 resting directly on the

20 upper side of the main supporting base 9 of the joint. It will thus be seen that by arranging the rails 1 and 2 with their bot-

toms out of contact with the supporting base 9 of the joint, the said rails will be held sus-

25 pended in such position upon the upper bearing points of the side elements 4 and 5 of the joint, and by reason of the registering fit of the said elements in the fishing spaces at

both sides of the rails, the latter will be se-

30 curely braced and thereby firmly held in the said suspended position.

The rail joint just described is completed by the employment of the usual series of joint bolts 17.

35 Another modification of the invention is suggested by the illustration of Fig. 3 of the drawings, wherein the joint has combined with the upstanding girder or bar 10 a

40 channel bar 18. This channel bar is shown as provided with upper and lower bearing portions 19 and 20, which respectively en-

45 gage beneath the rail heads 6 and upon the upper sides of the rail flanges 7 in the usual way, but a distinctive feature of the modi-

50 fication shown in Fig. 3 is that of providing the channel bar 18 at its top edge with an outturned horizontally arranged hanger

flange 21 which overhangs and rests directly upon the girder or side bar 10, thus pro-

55 viding a suspension for the rails upon said girder 10 through the interposition of the channel bar 18, and to secure a maximum

bracing effect, the lower bearing portion or foot 20 of the channel bar 18 may be pro-

60 vided with an abutment end or extension 22 which has a direct abutting engagement with the girder or side bar 10. This con-

struction secures a very rigid and compact fit for the parts, while at the same time ad-

65 mitting of adjustment, and also providing definite means for the suspension of the rails out of contact with the main support-

ing base.

In the design of joint illustrated in Fig. 4 of the drawings, there is embodied sub-

stantially the same elements and structural relation of parts as employed in the construction shown in Fig. 3 of the drawings, but in addition thereto, the modification shown in Fig. 4 of the drawings includes in its general organization a wooden or equivalent filler block 23 which is held clamped between the channeled side of the bar 18 and the inner side of the girder or bar 10. Furthermore, in this form of the invention, (viz: that shown in Fig. 4) there is also suggested the feature of providing the off-standing hanger flange 21 with an inclined under face 24 corresponding to and resting upon the inclined head 25 of the girder or side bar 10. The advantage to be obtained from this detail resides in the fact that when the wood shrinks with age and the bolts are tightened up, there is a slight lifting action of the channel bar and rails, thus assuring that the bottoms of the rails are kept out of contact with the base section of the joint chair.

A further detail of construction that may be resorted to in carrying out the present invention, is suggested in Fig. 5 of the drawings. For illustrative purposes, there is shown in this figure a joint embodying sub-

stantially the same general features as disclosed in Fig. 4, but involving the idea of

95 omitting the filler 23 and substituting in place thereof a spiral spring compensating washer 26 for each bolt. Each of these

washers 26 preferably consists of a short spiral section of stout spring metal placed

100 around the bolt and interposed between the channel bar and the upright girder or bar 10 of the joint chair, and having a bearing

105 against these elements, all of which is plainly shown in said Fig. 5 of the drawings.

To further exemplify the adaptation of the present invention to various joints em-

110 bodying differently designed and arranged elements, and also to show the applicability of the improvement to the standard joints

as well as to joints of the insulated type, reference is made to Figs. 6 and 7 of the drawings. From these figures of the draw-

115 ings, it will be apparent that in order to adapt the invention to insulated rail joints, this may be done in a practical and thor-

120 oughly effective manner by simply combining with joint members such as already described, any suitable or conventional insula-

125 tion for insulating the metallic joint parts from the rails. For instance, Fig. 6 of the drawings illustrates the design of joint in

130 Figs. 1 and 2 insulated by simply interposing between the side angle bar 5 and the adjacent sides of the rails a sheet 27 of in-

insulating material. Also, for purposes of safeguarding the insulation there may be utilized in this adaptation of the invention, the insulating expedient of associating with

the heads and nuts of the joint bolts the

conventional bolt insulation which includes the usual insulating washers 28, and the insulating sleeves or bushings 29 for the bolt holes in the joint bars. In connection with this form of the invention, it will be observed that the wooden filler block 4 provides proper and sufficient insulation between the upright girder 10 and the adjacent sides of the rail; and, furthermore, in this, as well as in other designs of insulated joints embodying the invention, the insulation of one rail from the other is preferably completed by interposing the ordinary insulating end post between the meeting ends of the rails.

In the form of insulated joint shown in Fig. 7 of the drawings, there is shown the same design of joint as illustrated in Fig. 3 of the drawings, supplied with suitable insulation to provide a thoroughly practical insulated rail joint. In this adaptation of the invention, it is simply necessary to interpose side insulating sheets 30 between the rails and the said side and channel bars 5 and 18 respectively, and equip the end portions of the bolts with suitable bolt insulation such as shown in Fig. 6.

Other modifications and adaptations can be resorted to, and it will therefore be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. The combination, in a rail joint, of the rails, a joint chair having a base plate arranged out of contact with the rail bottoms, an angle bar engaging beneath the rail heads at one side of the rails and having a support from its lower edge on said base plate, and other rail-head-engaging means opposite the angle bar and also supported from the joint chair to combine with the angle bar to suspend the rails from their heads and out of contact with the base plate.

2. The combination, in a rail joint, of the rails, a joint chair having a base plate and an upright member along one edge of the latter, said plate being arranged out of contact with the rail bottoms, an angle bar engaging beneath the rail heads at one side of the rails and having a support from its lower edge on said base plate, and a side joint element fitting the fishing spaces at the side opposite the angle bar and having a supporting engagement with the underside of the rail heads and supported from said upright member, said angle bar and said side joint element combining to suspend the rails from their heads and out of contact with the base plate.

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

BENJAMIN WOLHAUPTER.

Witnesses:

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