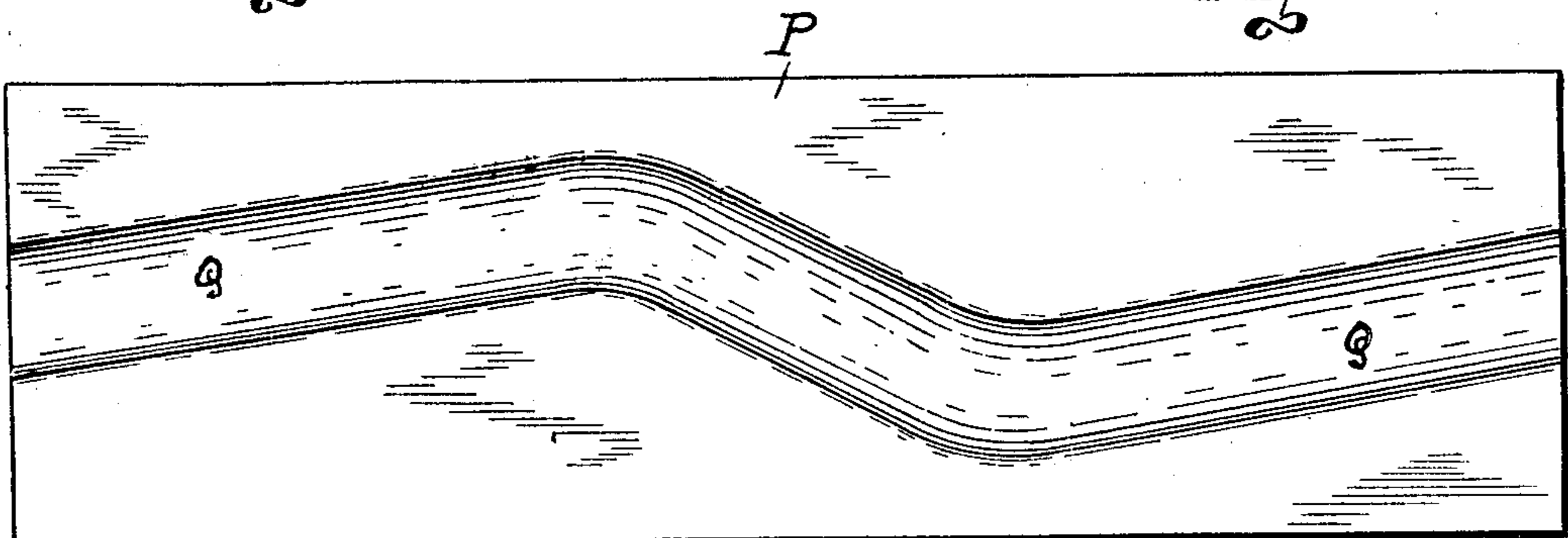
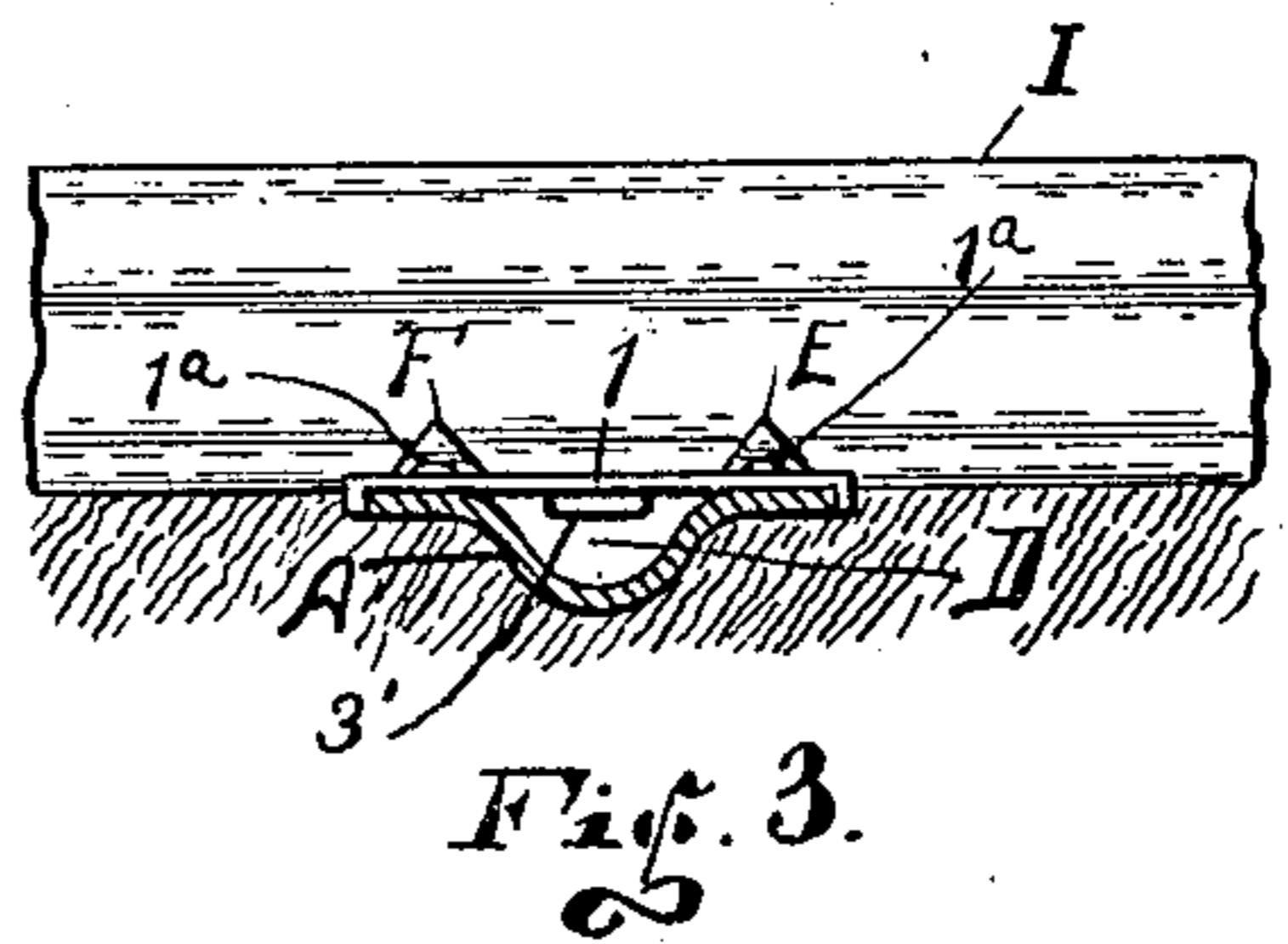
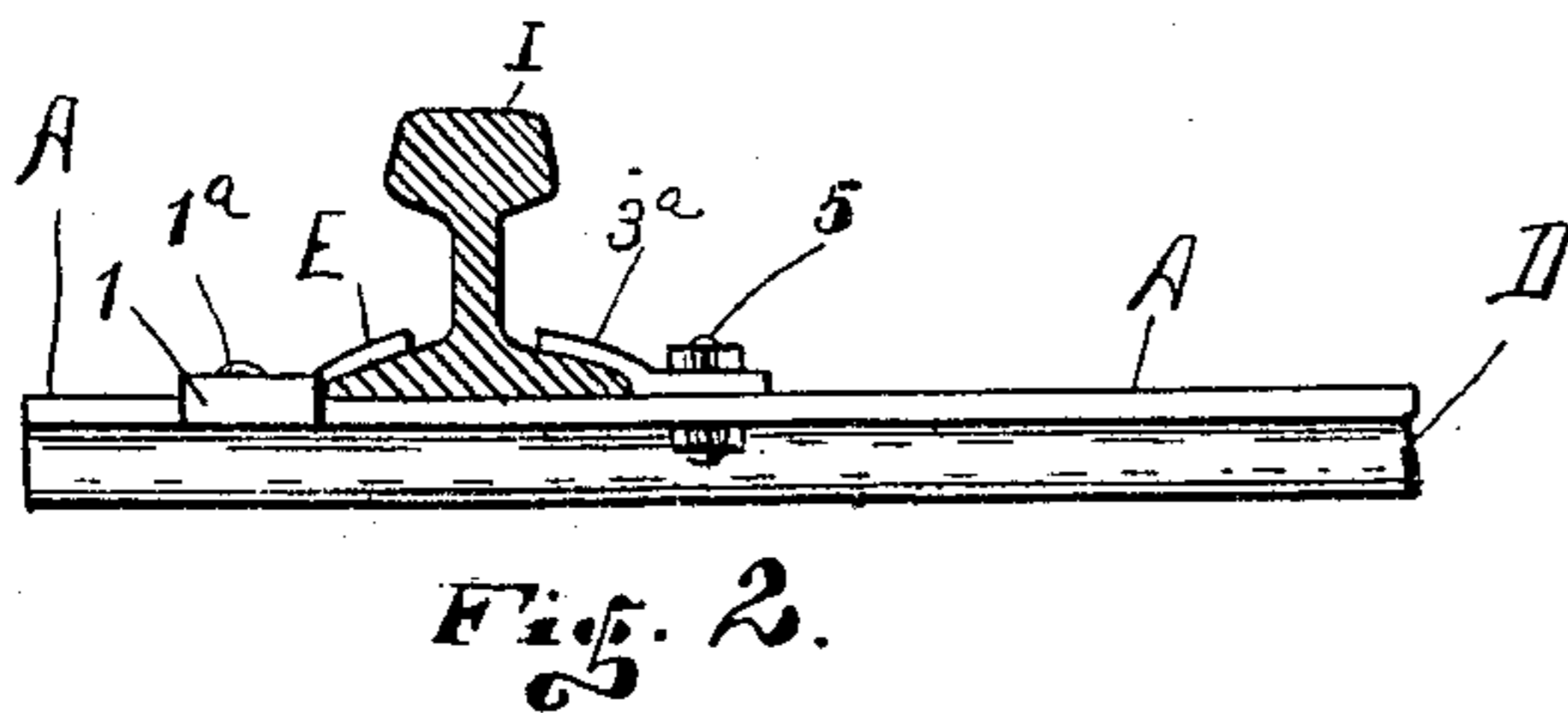
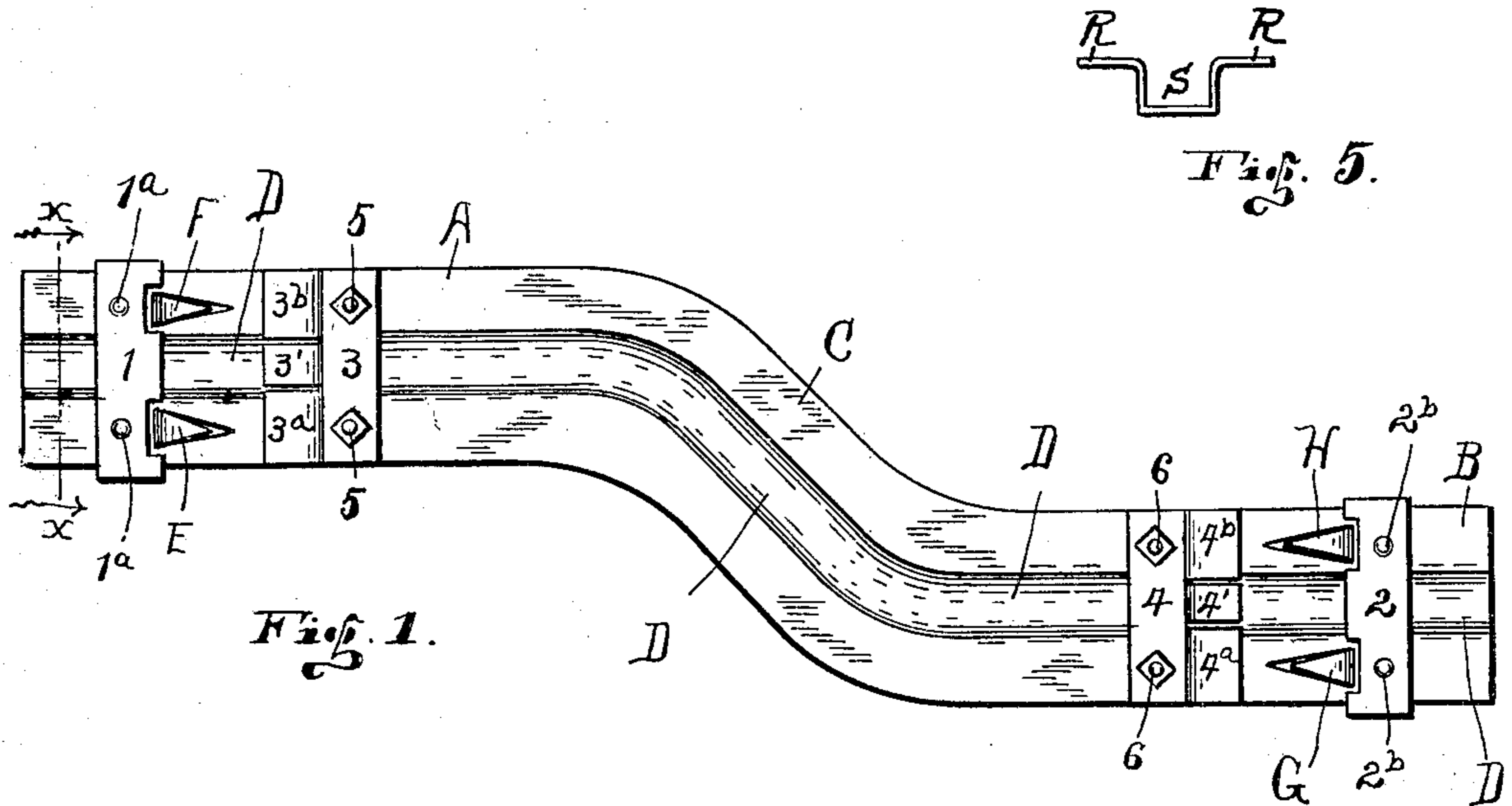


No. 885,377.

PATENTED APR. 21, 1908.

J. A. REED.
METAL RAILWAY TIE.
APPLICATION FILED AUG. 3, 1907.



Witnesses:
Adelaide Kearns.
R. Q. Handley.

Fig. 4.

By

Inventor.
J. A. Reed;
Robert W. Handley,
Attorney

UNITED STATES PATENT OFFICE.

JOHN A. REED, OF RICHMOND, INDIANA.

METAL RAILWAY-TIE.

No. 885,377.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed August 3, 1907. Serial No. 386,875.

To all whom it may concern:

Be it known that I, JOHN A. REED, a citizen of the United States, residing in the city of Richmond, in the county of Wayne and State of Indiana, have made new and useful Improvements in Metal Railway-Ties, of which the following is a full, clear, and accurate specification, being such as will enable others skilled in the art to which it appertains to make and use the same with absolute exactitude.

This present invention relates to metallic railway ties, and my object, broadly speaking, is the provision of ties which will be simple in design, strong and durable in construction, positive in action, and which can be manufactured and sold at a comparatively low price.

More specifically stated, my object is to provide railway-ties composed entirely of metal, so formed that they will effectually prevent the track from slipping laterally; being so proportioned in design that they will allow for a proper and desirable amount of spring when under great pressure; will effectually prevent the rails thereon from spreading; and at the same time having means whereby the rails may be removed therefrom for repairs, but without danger of inadvertent displacement thereof.

Other objects and particular advantages will be made apparent in the course of the following specification.

The preferred manner for the construction and carrying out of my invention is shown most clearly in the accompanying drawings, in which—

Figure 1 is a plan view of the upper side of my railway-tie as it would appear in actual operative position, but without the rails being shown in connection therewith. Fig. 2 is a side elevation of one-end portion of my tie, showing an ordinary railway rail in cross section in connection therewith. Fig. 3 is a cross sectional view of my tie, as taken in the line $x-x$ of Fig. 1, but showing a railway-rail resting thereon. And Figs. 4 and 5 show modified forms of my invention.

Similar indices denote like parts throughout the several views of the drawings.

In order that my invention and its intended operation may be fully understood I will now take up a detail description thereof in which I will set forth the same as briefly and as compactly as I may.

The tie proper consists of an integral length of heavy sheet metal, such as steel; designated, for convenience of description; by the letters A, B, and C denoting the two end and the center portions, respectively.

The portions A and B are parallel with each other but are off-set laterally with reference to each other, and connected by the angular central portion C, substantially as indicated in Fig. 1.

A corrugation, or channel, denoted by the index D, extends centrally and longitudinally from end-to-end of the tie so formed, and said channel should be of a width somewhat less than one-third of the width of the tie, and of a depth such as will give the tie the desired rigidity, depending somewhat on the thickness of the material of which the tie is formed.

The letters E and F denote two teeth formed integral with the body of the tie, and are located on the sides of the channel and near the end of the tie as shown. Said teeth are each formed by cutting two diverging incisions through the material of the tie and then bending the points upwardly, forming the teeth as shown; and the letters G and H denote two teeth identical with the above in every particular except that they are formed near the opposite end of the tie. All of said teeth are formed with their points directed towards the center of the tie, as shown.

The letter I denotes a portion of an ordinary railway-rail, adapted to rest on the ties which are formed as stated and supported thereby.

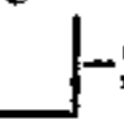
The two pairs of teeth, F—E and G—H, are so located with reference to each other that when the two rails of an ordinary railway track are laid across the tie at the proper distance apart to form the desired gage that the said teeth will lap onto the outer portion of the base of the rails, as shown in Figs. 2 and 3. The object of said teeth is twofold: To form very inexpensive and secure means for securing the outer edges of the rail base, and to prevent the rails from spreading apart. As a further precaution against spreading of the rails I employ the plates 1 and 2 secured across their respective ends of the tie by the respective pairs of rivets, or bolts, 1^a and 2^b , which pass through the body of the tie on each side of the channel D. Said plates are notched whereby they will stride the bases of the teeth as shown, and also by which they

may contact with the edge of the base of the rails, as shown in Fig. 2. After the rails are positioned, as above set forth, then the inner flanges of the bases thereof are secured by the inner plates 3 and 4, located on the respective ends of the tie as shown. Extending outward, towards the rails, from the plates 3 and 4 are flanges which are each divided into three parts: A central tongue 3', and 4', which extends under their respective rails, and the end cleats 3^a—3^b, and 4^a—4^b, which extend up over the inner base portion of the rails as shown. Said plate 3 is secured to the tie by the bolts 5, having the nuts therefor removable from above; and the plate 4 is likewise secured by the bolts 6.

From the above it is apparent that it will be easy to remove or replace the rail, but when secured in position they will not inadvertently be loosened; and it is also apparent that the channel D not only contributes to the strength and resiliency of the tie but that it acts as a drain to conduct the water falling on the tie to one side of the roadbed.

By reason of the swell on the underside of the tie, caused by said channel, I prevent the tie from slipping sidewise after it has been bedded in the ballast; also I prevent the tie from slipping endwise by reason of the shoulders formed by the angular disposition of the center portion of the tie. For these reasons the tie will continue firmly in position.

In Fig. 4 the letter P denotes a metal tie whose sides are straight, parallel with each other, and at right angles to the ends. Extending longitudinally from end to end of the tie P there is pressed thereinto a zig-zag channel, similar to the channel shown in Fig. 1.

In Fig. 5 is shown an end view of a tie, denoted by the letter R, showing the channel S extending longitudinally thereof, which channel is formed square or -shaped in cross-section.

It is apparent that the same devices for holding the rails of the track as that shown in Figs. 1, 2 and 3 may be employed with the ties shown in Figs. 4 and 5 without departing from the spirit of my invention.

Various changes may be made in the details of construction without departing from the spirit or sacrificing any of the advantages thereof.

Having now fully shown and described my invention and the best manner for its construction to me known at this time, what I

claim and desire to secure by Letters Patent of the United States, is—

1. A railway-tie formed of a comparatively thin sheet of spring metal having its end portions formed parallel but offset laterally with reference to each other and connected by an angularly disposed central portion integral therewith and having a corrugation extending from end to end centrally of said tie forming a channel in its upper face, a pair of tongues formed integral with each end portion of the tie, each of said tongues being pointed and formed by cutting two divergent incisions through the body of the tie and then bending the points upward at an angle and directed centerward, a plate permanently secured across the tie near the base of each pair of tongues, a removable plate located centerward from and oppositely disposed with reference to said tongues, each of the last named plates having a flange divided into three equal portions the center portion being bent slightly down to extend under the base of a rail and the end portions being bent slightly upward to extend over the base of the rail, and means for detachably securing each of said last named plates to the tie, all substantially as shown and described.

2. A metal railway-tie having its end portions parallel but offset with reference to each other and connected by an angularly disposed central portion formed integral therewith, a corrugation pressed in the face of said tie and extending centrally from end to end thereof forming a channel in the face of the tie and a ridge along the underside of the tie, a pair of pointed tongues extending upwardly at an angle from the end portions of the tie and formed integral therewith, a permanent plate secured to the end and extending across the tie near the base of said tongues, a removable plate located opposite each pair of said tongues, each of the last named plates having a flange divided into three portions whereby it may extend under and over the base of a rail, and bolts for securing said plates in position, all substantially as shown and described.

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

JOHN A. REED.

Witnesses:

R. W. RANDLE,
R. E. RANDLE.