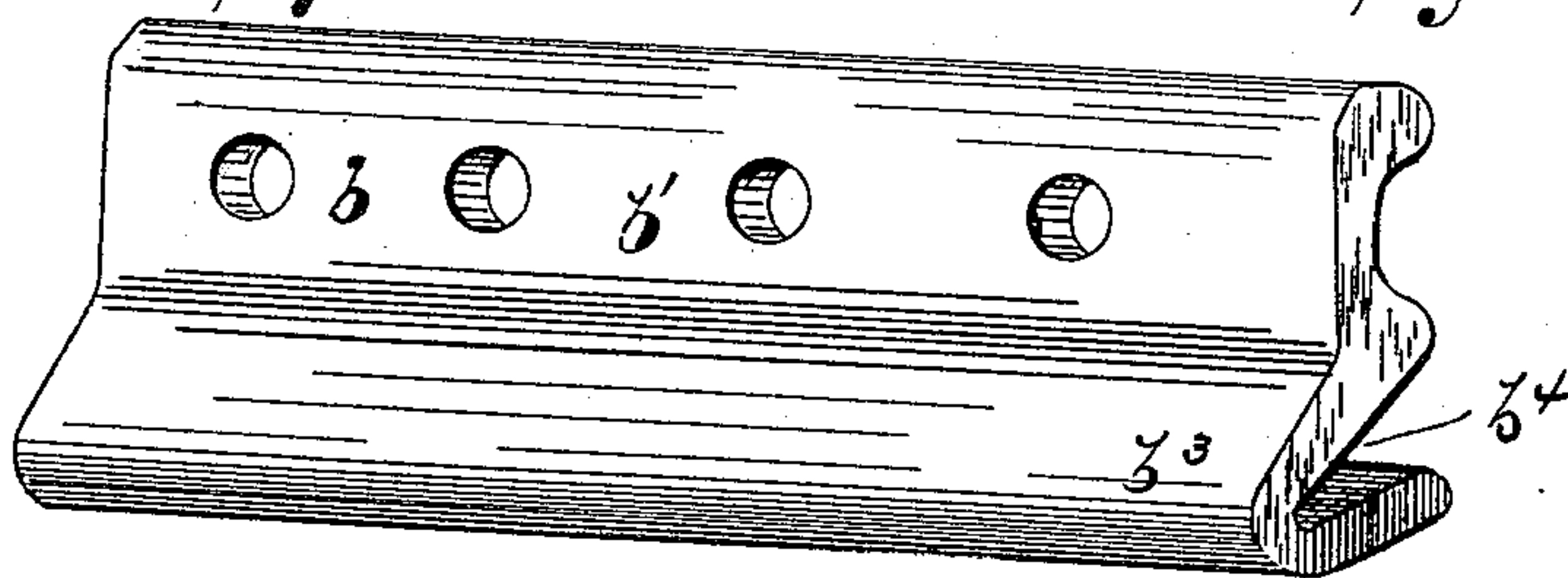
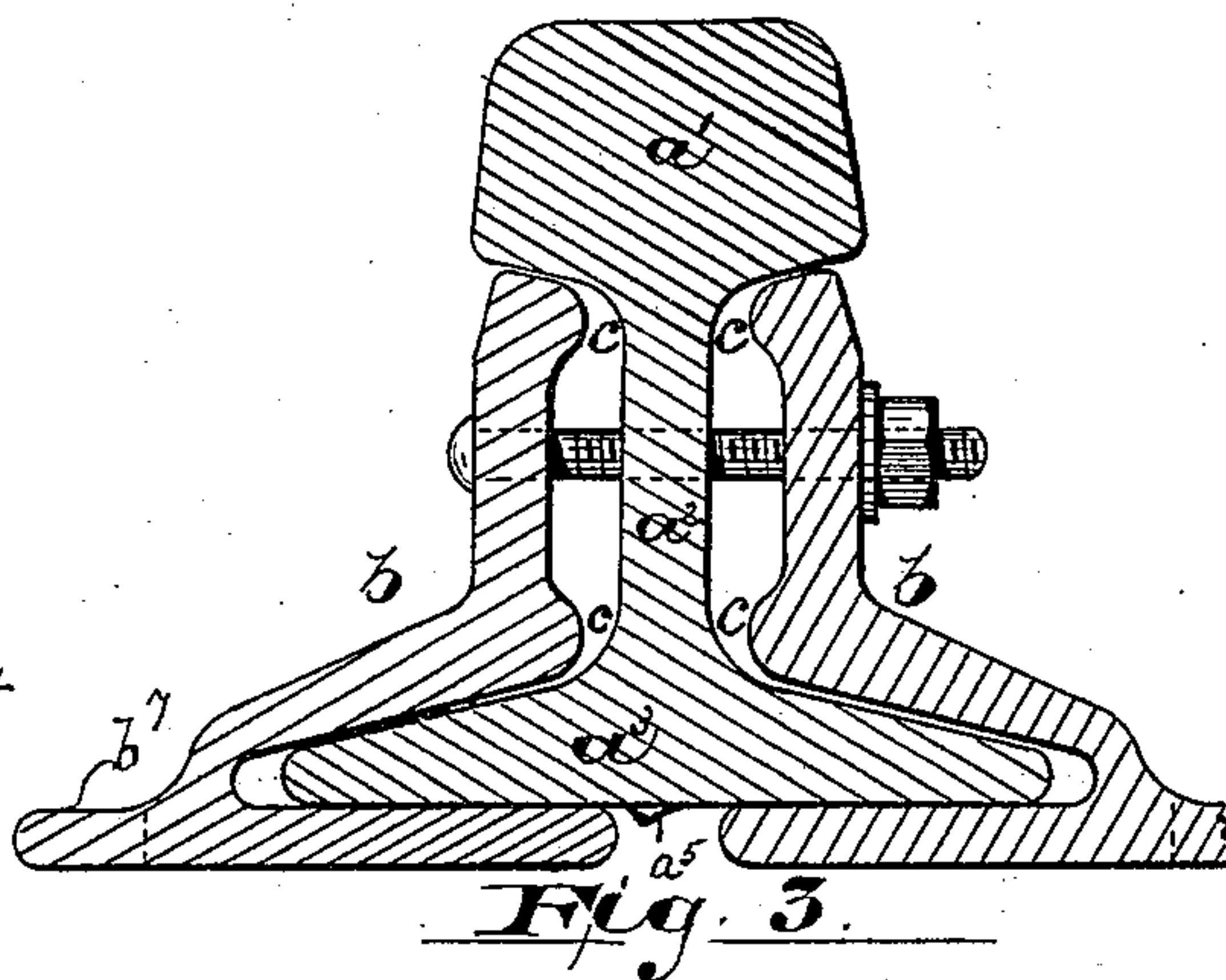
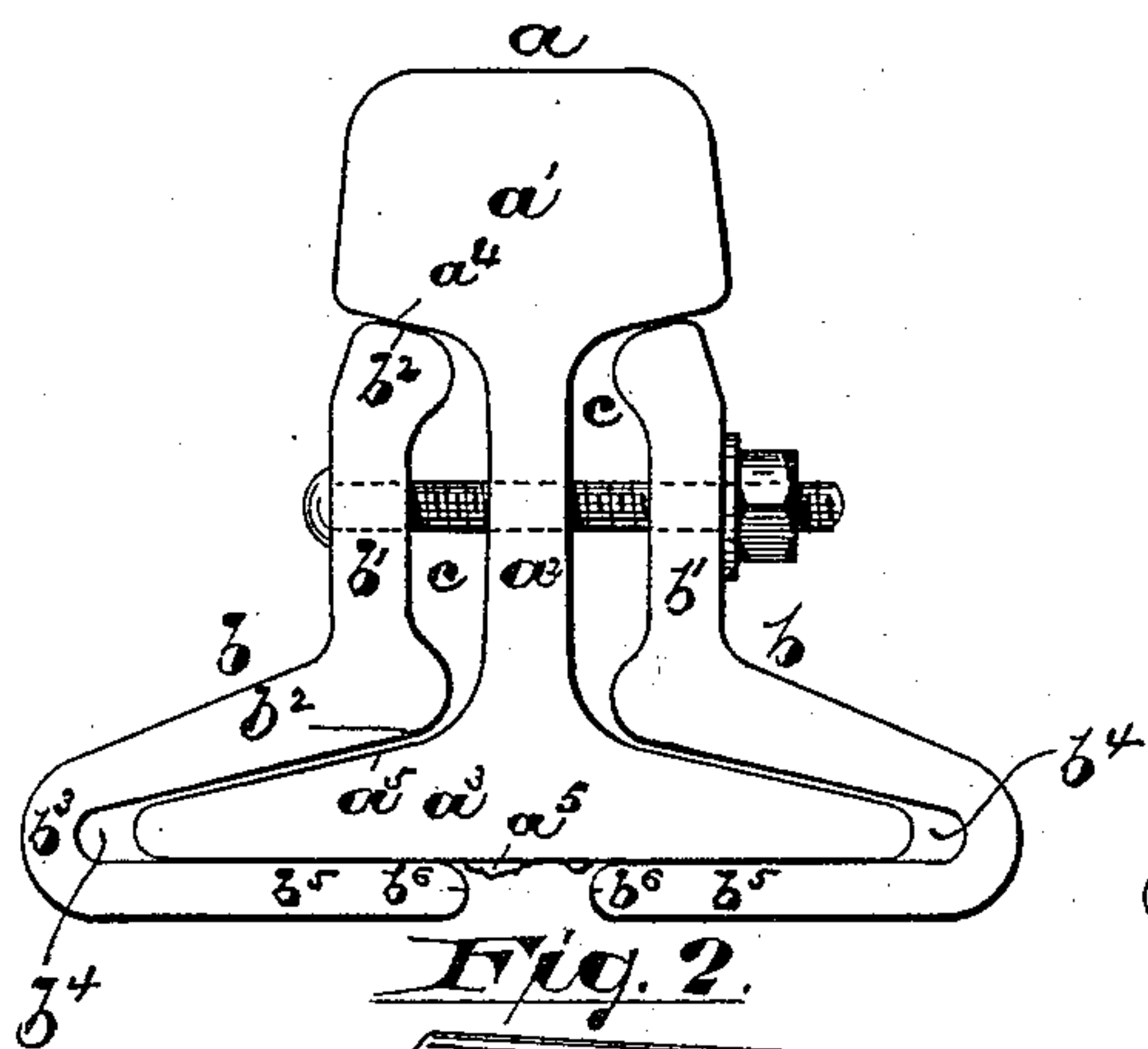
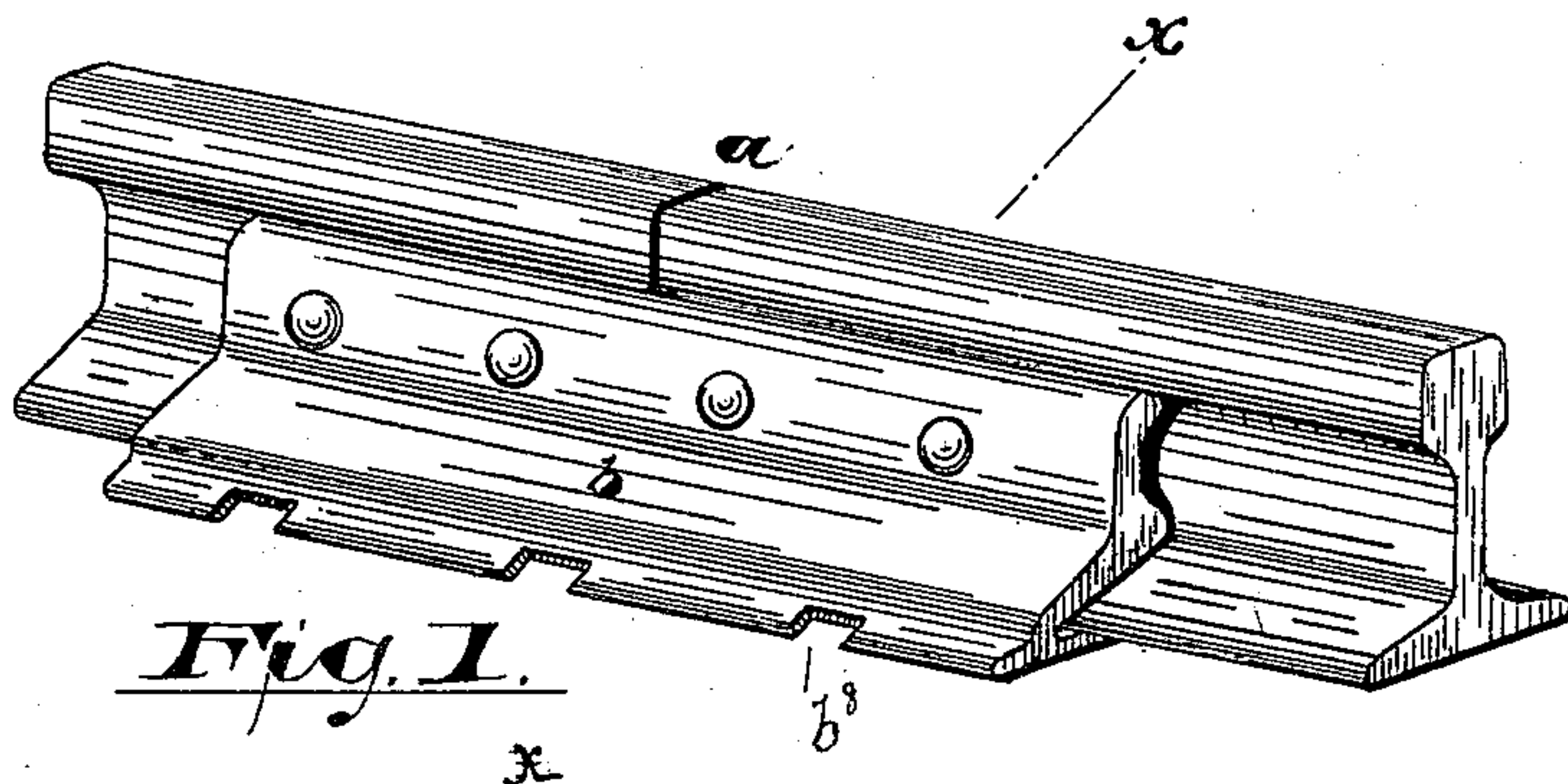


(No Model.)

J. SPEICHER.
RAILWAY JOINT.

No. 427,017.

Patented Apr. 29, 1890.



WITNESSES:

INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN SPEICHER, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE CONTINUOUS RAIL JOINT COMPANY OF AMERICA, OF NEW JERSEY.

RAILWAY-JOINT.

SPECIFICATION forming part of Letters Patent No. 427,017, dated April 29, 1890.

Application filed November 27, 1889. Serial No. 331,799. (No model.)

To all whom it may concern:

Be it known that I, JOHN SPEICHER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Railway-Joints; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of railway fish-plates in which the lower edge of the upper or vertical portions of the plates are doubled and adapted to engage the upper and lower sides of the rail-flange.

The object of this invention is to secure a more rigid yet elastic joint for railway-rails, whereby a heavy railway-train may travel more smoothly or without the jar incident to the joints now in use, to secure a more durable and firmer seat and attachment to the sleepers of the track, to allow of greater certainty and ease of adjustment, and to secure other advantages and results, some of which will be hereinafter referred to.

The invention consists in the improved railway-rail joints having the peculiar arrangements and combinations of parts substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several figures, Figure 1 is a perspective view of a rail-joint having my improvements. Fig. 2 is an end view of the same, the fish-plate being devoid of a certain feature of improvement. Fig. 3 is a section taken on line $x x$, Fig. 1, and Fig. 4 is a perspective view of a plate of the construction shown in Fig. 2.

In said drawings, a indicates the rails, of which a' is the head, a^2 the web, and a^3 the flange. $b b$ are fish-plates for uniting the ends of said rails, and c are bolts for fastening the said fish-plates to the rails in the usual manner. The said fish-plates consist of vertical

plates $b' b'$, having oppositely-inclined bearings $b^2 b^2$ at the upper and lower edges of the same, adapted to engage correspondingly-inclined bearings $a^4 a^5$ on the under side of the head and on the flange, respectively, spaces being provided adapted to allow of wear being taken up as the bearings wear away. At the lower edge of the vertical plates the same are each provided with a doubled plate b^3 , having a flaring space b^4 between the parts thereof, into which the flange is seated. The parts of said doubled plate rest against the upper and under sides of the flange, bearing against the same, as shown, and thus adding greatly to both the lateral and vertical strength of the joint. The bearings $b^2 b^2$ are of substantially the same degree of inclination, the inclination being sufficient to allow of the vertical plate b' being wedged between the head and flange and of the wear being taken up by the bolt from time to time, and yet none of said bearings approach a vertical line, but, on the other hand, are nearer to a horizontal line or plane. Thus the head a' may rest hard on the upper seat without any material tendency toward forcing the vertical plate outward, and thus uplifting the under flange b^5 of the doubled portion of the plate, so that its upper surface does not rest flat against the under side of the rail. The wedging of the vertical portion b' between the head and flange and the wedging of the flange between the flaring parts of the plate b^3 , are conducive to great solidity or rigidity in the rail, so that a heavy train may travel thereover more smoothly than when the means now ordinarily employed are used. By having the bearings $a^4 b^2$ and $a^5 b^2$ at each side of the rail uniform in degree of angle and both of said bearings approximate horizontal planes, as described, when the heavy load or weight of the locomotive-wheel approaches the extremity of the rail, so that the tendency of the latter is to bend downward, the lower inclined bearing counteracts the tendency of the upper oppositely-inclined bearing in such a manner as to prevent tilting of the under flange b^5 , or to avoid forcing the under flange to an inclined position, or out of parallelism with respect to the rail, whereby its efficiency in giving firmness to parts of the joint is in-

creased and the tendency of the parts to wear loose by the repeated and very severe hammering of the wheels is greatly lessened.

I am aware that under flanges or bearings for the bottom of the rail have been employed before in connection with vertical plates having opposite bearings to engage the sides of the rails; but the said opposite bearings when used in this connection were not uniform in degree of inclination and both approximately horizontal, as hereinbefore described; but the upper bearing on the head of the rail approximated a vertical plane, so that the pear-shaped rail-head tended greatly to wedge the upper parts of the said vertical plates apart and to tilt the under plates integrally connected therewith, so that their efficiency in conducting to continued or lasting firmness was greatly reduced.

To allow for perfect adjustment, so that the double-wedged fish-plate may be drawn together and be seated perfectly in place without obstruction, I have rounded the edge of the under flange b^5 , as shown at b^6 , so that the said edge will ride over burrs a^5 , Figs. 2 and 3, or other obstacles on both or either the rail and tie or sleeper.

At the turn in the doubled portion of the plate b , I prefer to form a flange b^7 , Figs. 1 and 3, to enable the plate to be nailed to the sleeper or ties. Said flange may be notched, as at b^8 , for the reception of the nails.

Having thus described the invention, what I claim as new is—

1. The herein-described improvement in

railway-rail joints, consisting of the rail having bearings on the under side of the head and on the upper side of the flange, which are oppositely inclined at the same angle of inclination, the fish-plates having vertical portions which at their upper and lower ends are formed with inclined bearings which engage the inclined bearings of the head and flange of the rail, and having also the horizontal plate which engages the under face of the flange of the rail, the bearings of the rail and fish-plates closely approaching horizontal planes.

2. The herein-described improvement in railways, consisting of the rail having oppositely-inclined bearings on the under side of the head and upper side of the flange, which are similarly inclined, the fish-plates having vertical portions formed with inclined bearings to engage those of the head and flange and having enlargements contiguous with the bearing-faces, and the horizontal portions fitting the flange of the rail, the bearings of the fish-plates and rail closely approaching horizontal planes, and the said horizontal plates being free or disconnected, whereby the fish-plates will yield uniformly under the weight of the train.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of November, 1889.

JOHN SPEICHER.

Witnesses:

CHARLES H. PELL,
OSCAR A. MICHEL.