

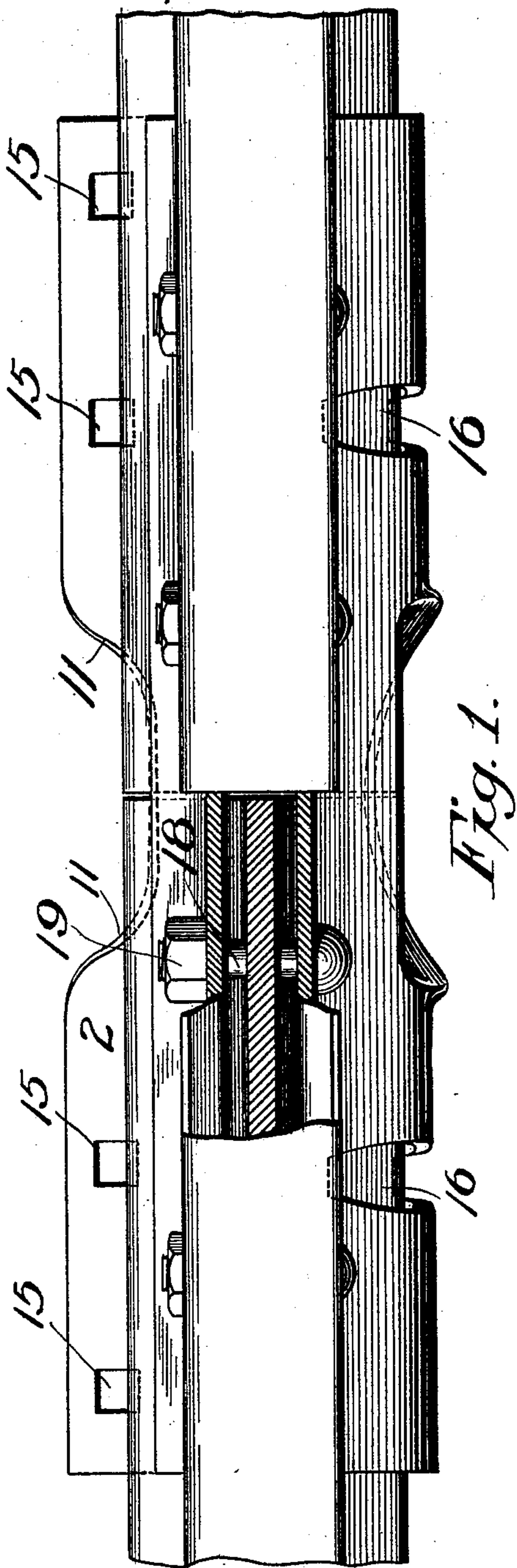
(No Model.)

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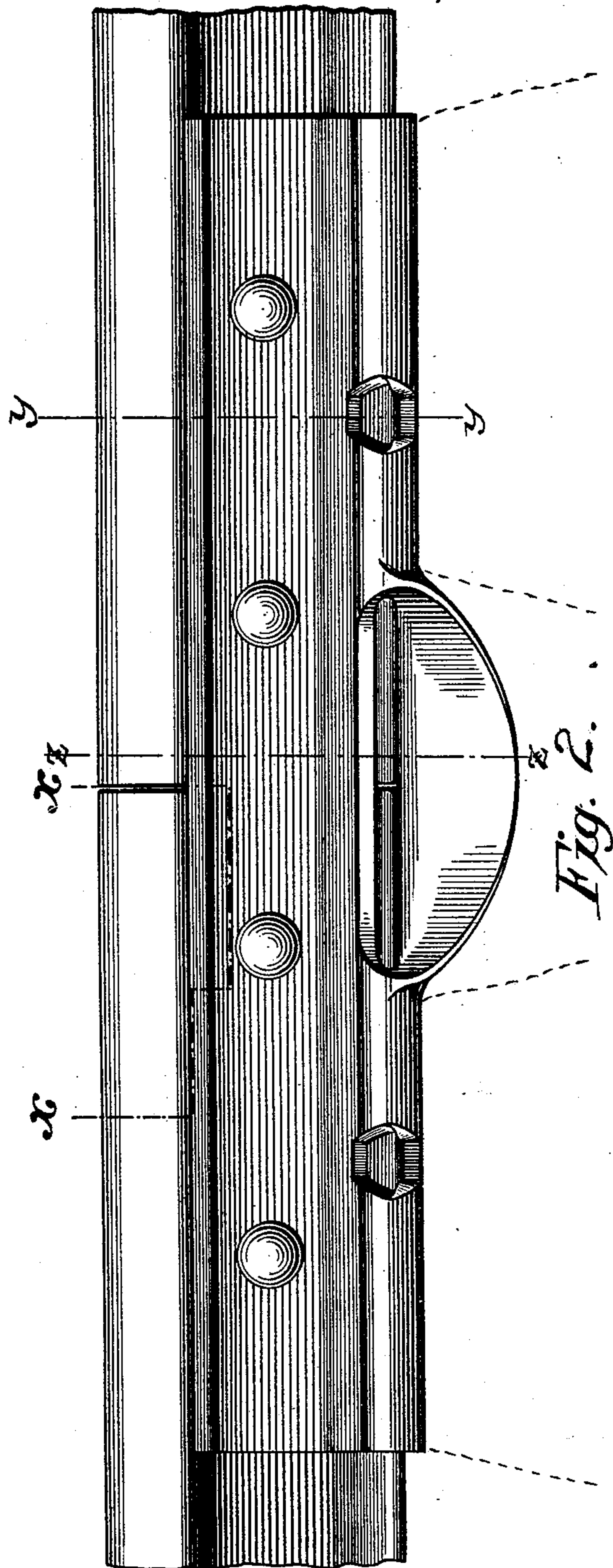
F. H. HEATH & E. P. CALDWELL.
RAIL JOINT.

No. 500,390.

Patented June 27, 1893.



Witnesses
Chas. C. Van Doren
J. S. Lyon



Inventors,
Frederick H. Heath,
Edward P. Caldwell.
By Paul & Merwin Att'ys.

(No Model.)

2 Sheets—Sheet 2.

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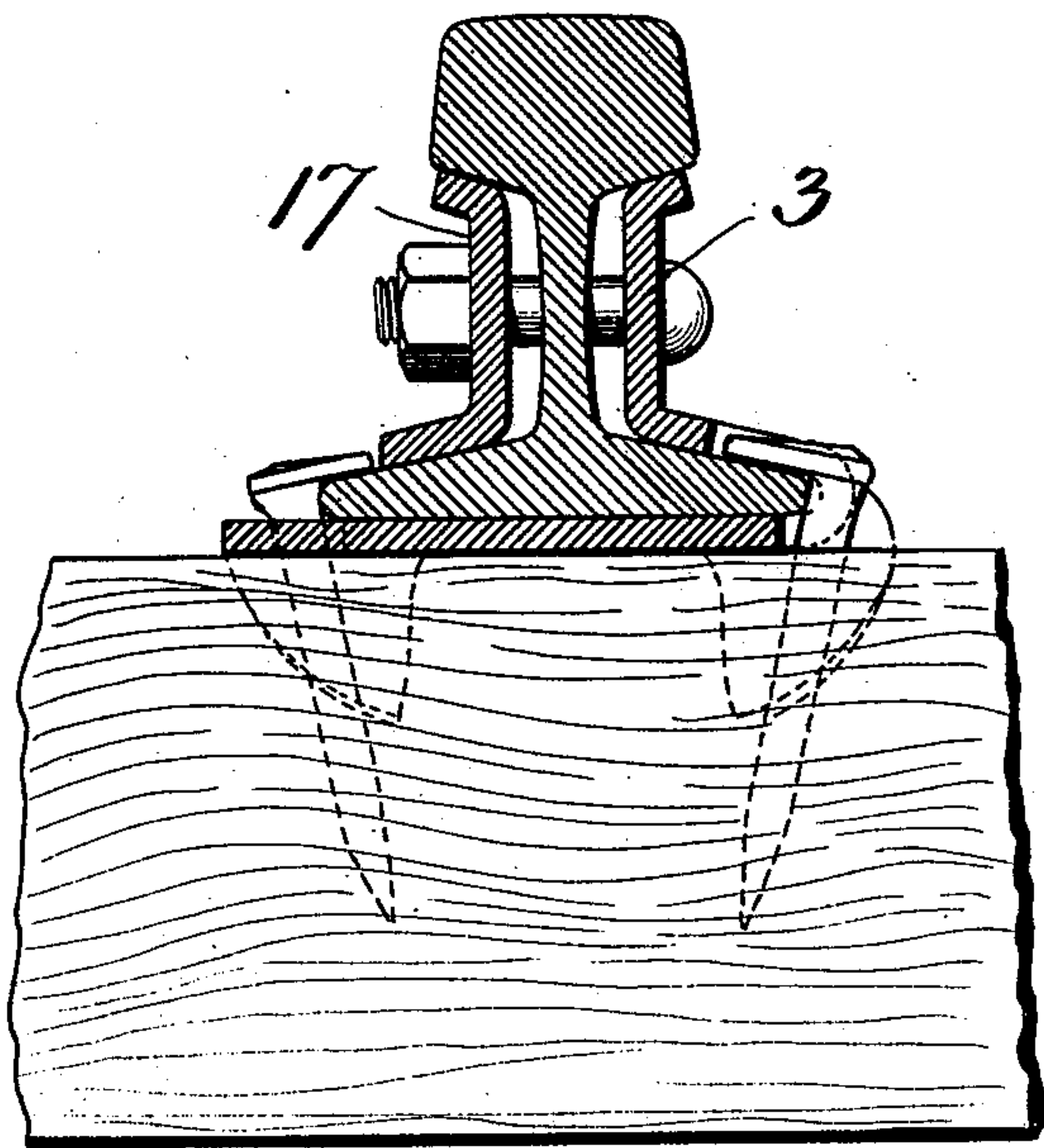


Fig. 3.

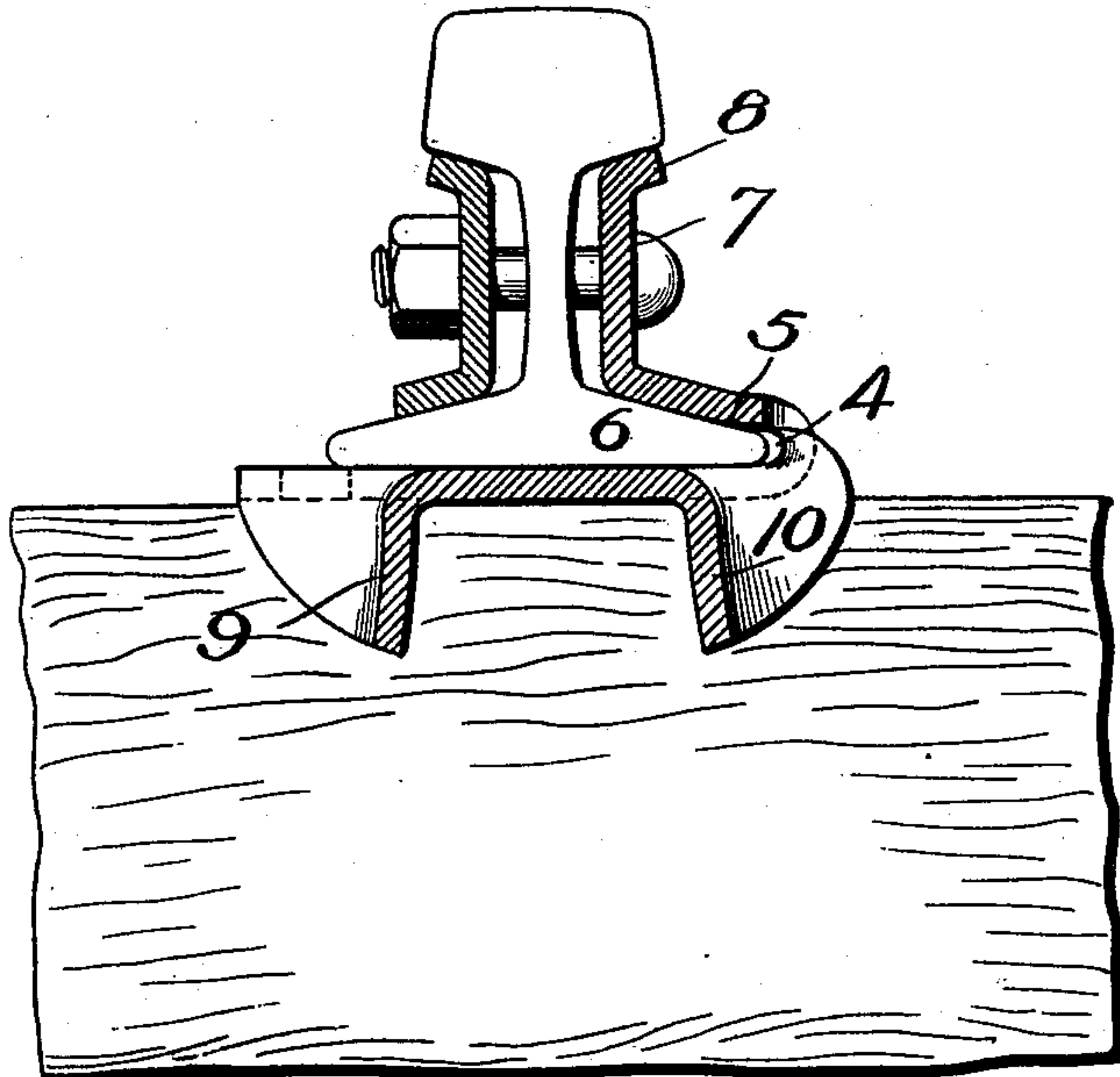


Fig. 4.

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Chas. E. Van Doren
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Inventors,
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UNITED STATES PATENT OFFICE.

FREDERICK H. HEATH AND EDWARD P. CALDWELL, OF MINNEAPOLIS,
MINNESOTA, ASSIGNORS TO THE HEATH RAIL JOINT COMPANY, OF
SAME PLACE.

RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 500,390, dated June 27, 1893.

Application filed January 21, 1893. Serial No. 459,136. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK H. HEATH and EDWARD P. CALDWELL, both of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

This invention relates to improvements upon the wrought metal rail joint shown and described in our application filed in the United States Patent Office September 6, 1892, Serial No. 445,172, and the object of this invention is to simplify and strengthen the joint without materially increasing the cost thereof and also adapt the joint to be more readily fastened to the ties and to the rails.

Our invention consists in a sheet metal tie-plate of a rectangular form having integral trusses punched or formed from intermediate parts thereof and having an extended portion bent up to form a continuous integral angle-bar and brace of a length equal throughout; and further the invention consists in various details of construction and in combination, all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a rail-joint embodying our invention and showing the rails secured therein, a portion being shown in section on line $x-x$ of Fig. 2. Fig. 2 is a side elevation of our rail-joint. Fig. 3 is a cross section on the line $y-y$ of Fig. 2. Fig. 4 is a cross section on the line $z-z$ of Fig. 2, showing the form of the depending trusses.

As shown in the drawings, our rail-joint is made up of three parts; the rail or tie plate whereon the rails rest, and the integral angle-bar together making one; a separable angle bar or fish plate constituting the second; and the short bolts the third; in addition spikes are used for securing the joint upon the ties. The upper surface 2 of the plate portion is flat and level and affords a long wide bearing or chair for the rails. About two-fifths of the originally flat and rectangular plate or

blank is devoted to the rail-plate proper. The rest is taken up by the integral angle-bar 3 formed by bending up the side of the plate, curling it squarely over at 4 to make the flat horizontal portion 5 beneath which the edge of the rail flange 6 extends, from thence the sheet is bent upwardly at substantially the angle of the top of the flange of the rail and thence is bent a third and a fourth time to make the vertical part 7 and the angular flange 8 to engage the rail tread. The integral trusses 9 and 10, which curve downwardly and have the diagonal portion 11 merging into the outer edges of the plate-portion, are of such length as to occupy substantially all of the space between the ties whereon the joint rests. These trusses are formed by punching or bending down the outer edge of the middle of the plate and by punching directly through the intermediate part or the original plate before the angle-bar is turned. At this time the trusses will have exactly the same form;—that is the lower edge of the truss 10 will be substantially straight and parallel to the edge of the plate, like unto the form of the truss 9 punched from the edge of the plate. This truss retains its shape, but the other truss (10) is drawn up at the ends by the turning of the angle-bar and consequently presents a curved appearance when viewed from above, and constitutes an extremely strong truss adapted to withstand both vertical and lateral strains, to which, being on the outside of the rail, it is subjected more often than the inside truss 9, which is required to hold the joint against depression only. The inner edges of the plate extend considerably beyond the inner edge of the rail-flange and are provided with spike-holes 15 through which spikes are driven down close to the edge of the flange and so that the spike-heads engage the top of the rail-flange or base.

For securing the outer side of the rail-joint to the ties we may drive spikes against the outer edge thereof and down so as to engage the top of the integral angle-bar. In order, however, that the spikes may extend as far as possible into the ties we punch the large

holes or slots 16 in the plate before the angle-
bar is turned and after the bar is turned con-
stituting the slots through which the heads
of the spikes may be driven into engagement
5 with the rail-flange itself. The shank of the
spike is held in the gaps between the sides of
these slots thereby preventing longitudinal
movement of the joint on the ties. On the
opposite sides of the rails we provide a fish-
10 plate or angle-bar 17, preferably of the same
length as the integral angle-bar and the rail-
plate and, with the integral part, secured to
the rails by short bolts 18 extending through
the rail web and secured by the nuts 19.

15 Having thus described our invention, we
claim as new, and desire to secure by Letters
Patent—

1. The combination, with the rails, and an
angle-iron fitting upon one side of the rails,
20 of a combined trussed base plate and angle-
iron formed integrally of wrought metal and
of the same length as said plate, and bolts
for securing the said angle-irons to the rails,
substantially as described and for the pur-
25 pose set forth.

2. As a new article of manufacture, the
herein described combined base-plate and
angle-iron, consisting of a single sheet of
metal having the longitudinal trusses formed
30 therein, and with the angle-iron portion
adapted to fit against the side of the rails and
of the same length as the plate, substantially
as and for the purpose set forth.

3. The combined base-plate and angle-iron,
consisting of the sheet metal plate having de- 35
pending trusses formed integrally therewith,
and with the angle-iron portion also formed
integrally with said plate and adapted to fit
against the flange and side of a rail and of
the same length as the plate, substantially as 40
and for the purpose set forth.

4. As an article of manufacture, a rail joint
consisting of a flat rail plate to be secured
upon the ties and having depending trusses
9 and 10 formed integrally therewith, the 45
truss 9 being straight and the truss 10 being
curved as described, and the integral angle
iron to engage the rail or rails, substantially
as described.

5. As an article of manufacture, the rail 50
joint consisting of the rail plate portion pro-
vided with spike holes 11 and having the in-
tegral depending trusses, and the integral
angle bar provided with the slots 16, the
whole being formed of sheet metal, and said 55
angle bar and plate portions being of the
same length, substantially as described.

In testimony whereof we have hereunto set
our hands this 30th day of December, A. D.
1892.

FREDERICK H. HEATH,
EDWARD P. CALDWELL.

In presence of—

C. G. HAWLEY,
F. S. LYON.