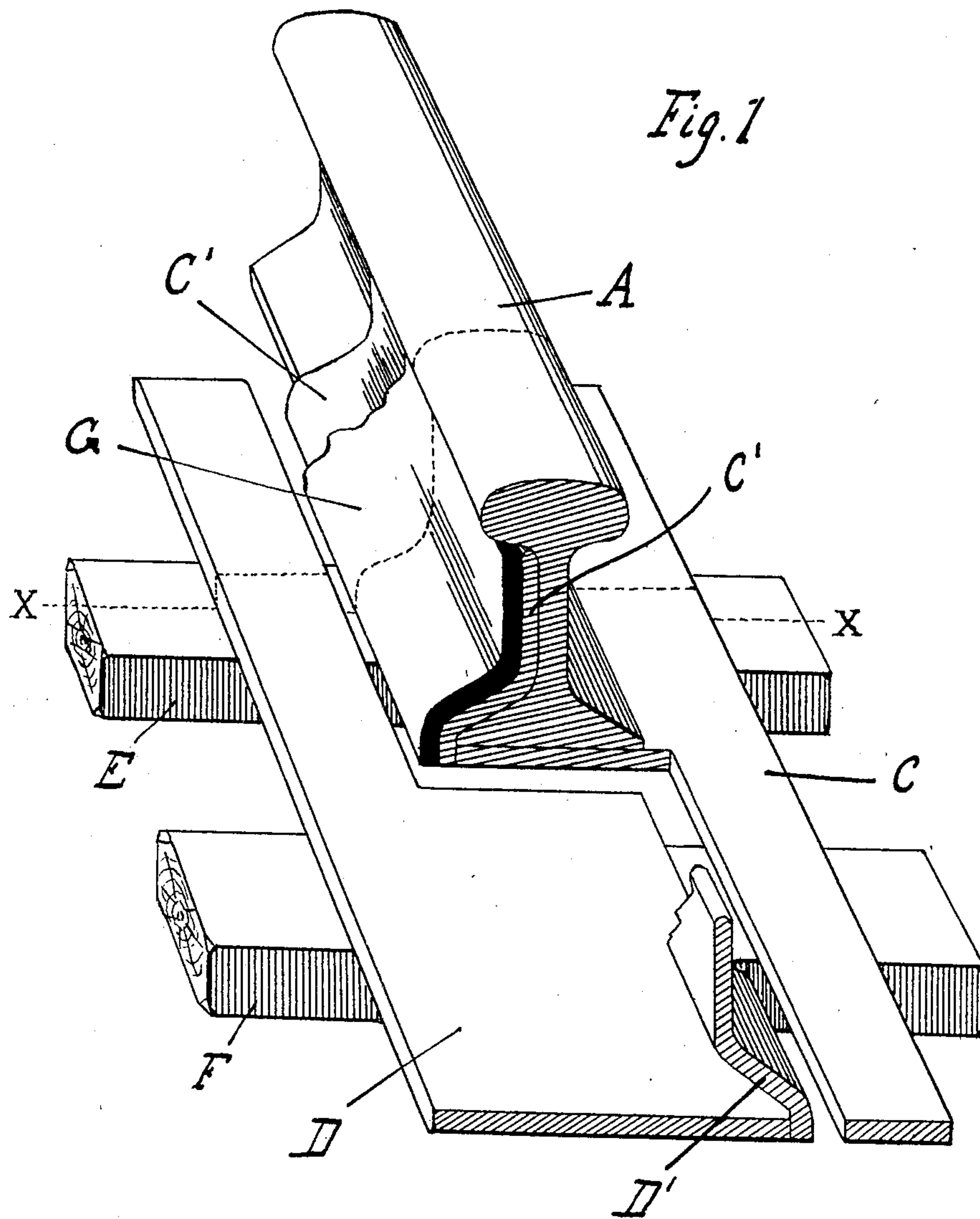


No. 803,793.

PATENTED NOV. 7, 1905.

R. W. SMITH.
INSULATED RAIL JOINT.
APPLICATION FILED MAY 26, 1905.

3 SHEETS—SHEET 1.



WITNESSES:

Andrew Wright Crawford
Laura Berger

INVENTOR.

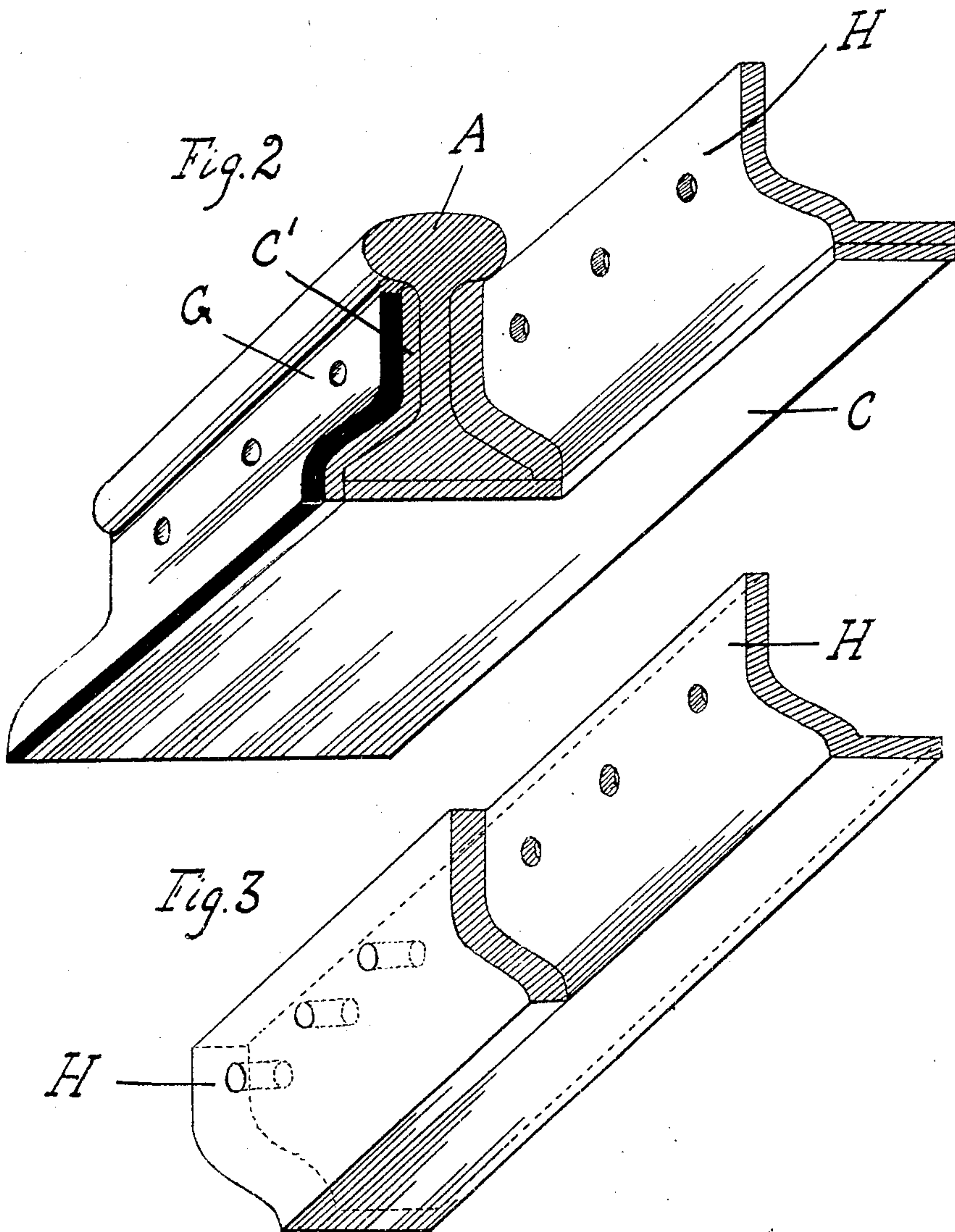
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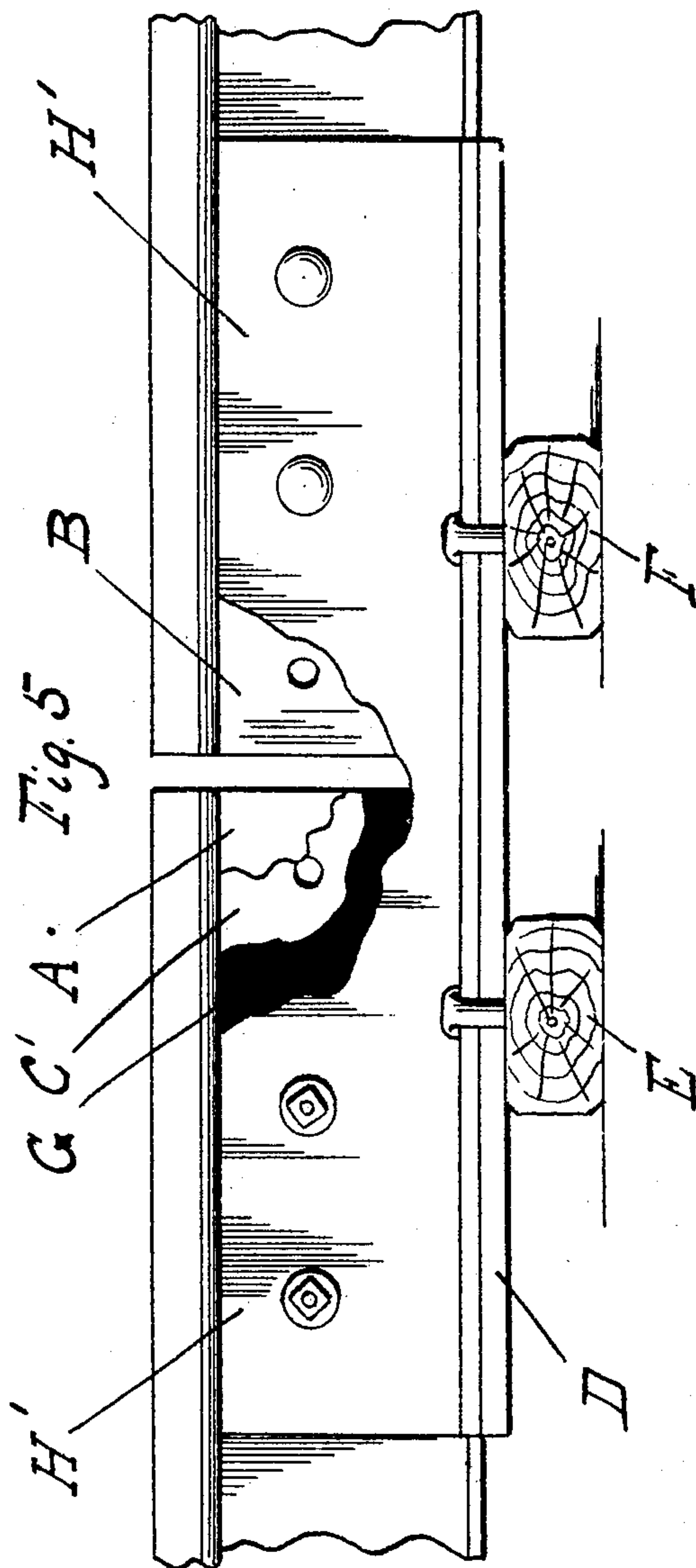
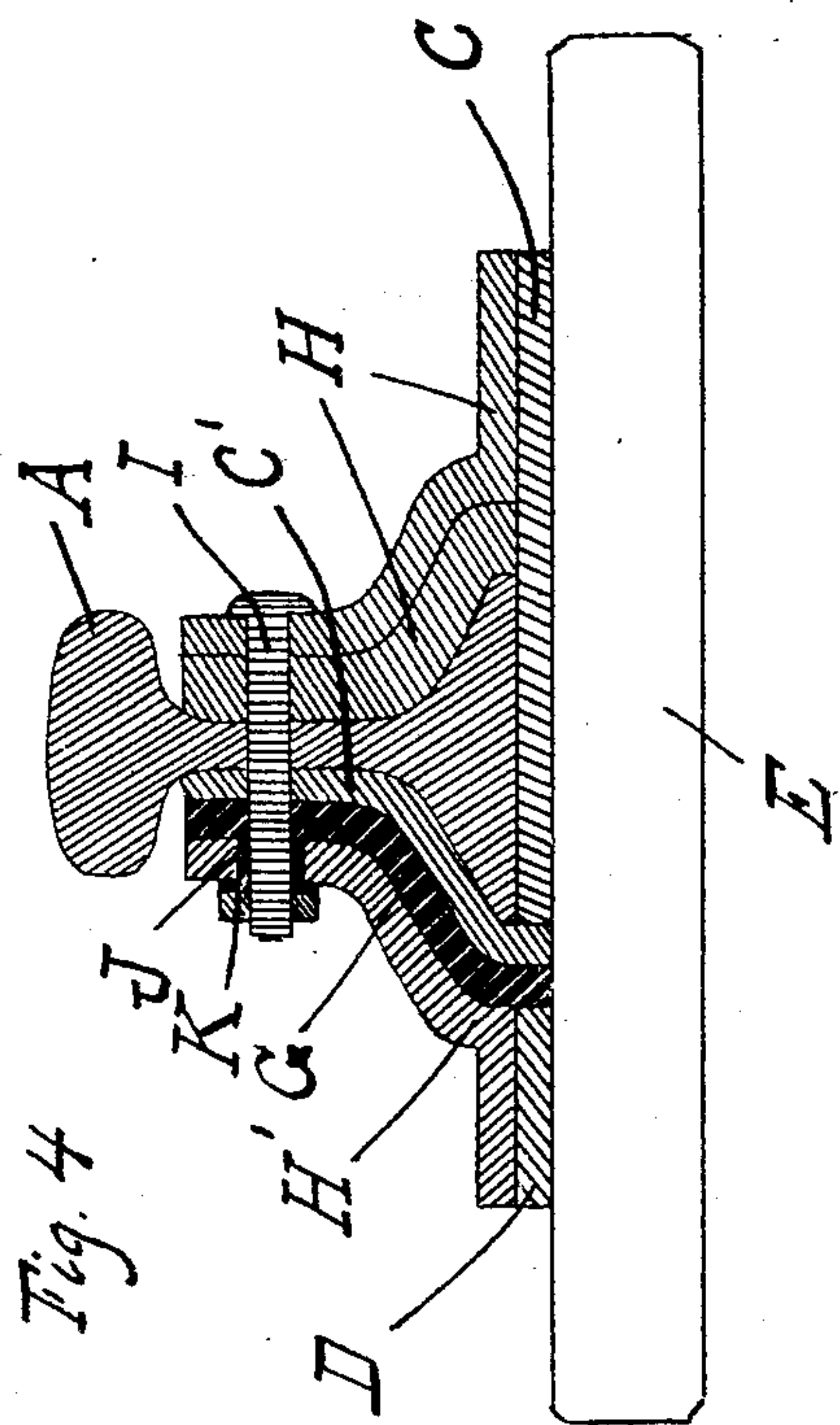
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3 SHEETS--SHEET 3.



WITNESSES:

Andrew Wright Crawford.
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UNITED STATES PATENT OFFICE.

REUBEN W. SMITH, OF BRYN MAWR, PENNSYLVANIA.

INSULATED RAIL-JOINT.

No. 803,793.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed May 26, 1905. Serial No. 262,352.

To all whom it may concern:

Be it known that I, REUBEN W. SMITH, a citizen of the United States, residing at Bryn Mawr, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Insulated Rail-Joints, of which the following is a specification.

My invention relates to insulated rail-joints; and my object is to provide a joint of this character whereby an effective electrical insulation may be secured between abutting railway-joints, maintaining at the same time the strength of the ordinary fish-joint.

To this end my improvement comprises the following points: first, a firm foundation and support to the bases of the meeting ends of the rails, said bases resting directly upon metal bed-plates without the interposition of insulating material; secondly, a complete insulation of each rail end, and, lastly, a binding of all parts of the joint by a novel form of splice-bar, giving the strength and support of a fish-joint. These objects I accomplish by the means described, and shown in the accompanying drawings, in which—

Figure 1 is a view in perspective, showing one rail end, the bed-plates for both rail ends, and the insulation for the rail end shown. Fig. 2 is a view in perspective, showing the rail end of Fig. 1 with its bed-plate and insulation and one of the splice-bars employed to bind all parts of the joint. Fig. 3 is a complete view in perspective of the splice-bar shown in Fig. 2. Fig. 4 is a transverse sectional view of Fig. 1 on the line $x x$, but with all parts of the joint in position and showing the method of insulating the bolts clamping all parts of the joint to the rail end. Fig. 5 is a view in side elevation of one side of the complete joint, showing the splice-bar overlying all the other parts of the joint.

In Fig. 1, E and F are the usual ties or sleepers. Upon these are placed the bed-plates C and D. It will be noted that the form of these bed-plates secures for each rail end the support of both sleepers while avoiding at the same time any contact between one rail end and its bed-plate and the complementary rail end and bed-plate.

The rail end A being placed in position on its bed-plate C, the sheathing-plate C', shaped to fit closely against the side of the base and web of the rail, is fitted into place. Upon the sheathing-plate C' is applied a layer of any suitable insulating material G of any desired thickness, but otherwise substantially

identical in configuration and dimensions with the sheathing-plate C'. The remaining rail end B, Fig. 5, is placed in position upon its bed-plate D, Fig. 1, and brought into alignment with rail end A. A sheathing-plate and insulating layer identical in all respects to the corresponding parts above described with reference to rail end A is then applied to the opposite side of rail end B. A portion of the sheathing-plate of rail end B is shown at D', Fig. 1. The joint is now in readiness for the application on each side thereof of a splice-bar, which serves to bind all parts into a solid continuous joint. One of these splice-bars is shown at H, Fig. 3, and in position at H, Fig. 2. By a reference to Figs. 2 and 3 it will be seen that the curved side of the splice-bar H is for one-half its length of greater thickness than the remainder. The necessity for this offset in construction will be obvious from a consideration of Figs. 1 and 2. The thicker half of H fits directly against the web and base of rail end A, Fig. 2. This sets the remaining thinner half away from the web and base of rail end B to precisely the extent of this added thickness. When rail end B is in position and alined with rail end A and the sheathing-plate and insulating layer are applied thereto, the above-described space between the side of the web and base of rail end B and the thinner half of the curved side of splice-bar H is filled. In other words, the offset in the side of splice-bar H, as shown in Figs. 2 and 3, should be equal to the combined thickness of the sheathing-plate and insulating layer. This construction brings all parts of the side surface of splice-bar H to the direct bearing essential to obtaining a firm and solid joint. The construction of splice-bar H', Fig. 5, is of course identical with that of splice-bar H, as above described, save that the order of thick and thin parts is necessarily reversed. In Fig. 5 one side of the completed rail-joint is shown, in which the splice-bar H' is broken away at the meeting-point of the rails in order to show the order and disposition of the underlying parts of the joint. The splice-bars H and H' being in position, it remains to describe the manner in which all parts are bolted together. Fig. 4 is a transverse sectional view of the joint on the dotted line $x x$, Fig. 1, but with the addition of all parts of the joint. The bolt I is furnished with the insulation J at the point where said bolt passes through the splice-bar H' and is also provided with the insulation K to preclude contact between the

nut L and the splice-bar H'. This mode of insulation applies to the bolts on the left-hand near side of the joint, Fig. 5, and to those on the right-hand far side of said joint, Fig. 5.

- 5 The above-described insulation of said bolt ends is obviously necessary to complete the insulation of the joint. The joint being thus completed is spiked or otherwise secured to the sleepers in the usual manner. If desired,
 10 the bed-plates and the bases of the splice-bars may in addition be bolted together to secure greater stiffness in the joint. In like manner the ordinary section of insulation corresponding in shape to the transverse section of the
 15 rail may be interposed between the meeting ends of the rails in accordance with well-known practice.

Having thus fully described my invention, I claim—

- 20 1. In an insulated rail-joint, the combination with the rails and sleepers, of a two-part bed-plate, each part supporting one rail end on the sleepers on both sides of the joint without contact with its corresponding part, insu-
 25 lating-strips applied to one side of each rail, splice-bars joining said rails on each side, each splice-bar conforming to the contour of the webs and bases of the rails and having an offset for one-half its length corresponding to
 30 the thickness of said insulating-strips, connecting-bolts for said splice-bars and means for insulating the same therefrom, substantially as described.

- 35 2. An insulated rail-joint, consisting of the combination with the rails and sleepers, of a

two-part bed-plate, each part supporting one rail end on the sleepers on both sides of the joint without contact with its corresponding part, sheathing-pieces applied to one side of each rail, insulating-strips overlying said
 40 sheathing-pieces, splice-bars joining said rails on each side, each splice-bar conforming to the contour of the webs and bases of the rails and having an offset for one-half its length corresponding to the combined thickness of
 45 said sheathing-piece and insulating-strip, connecting-bolts for said splice-bars and means for insulating the same therefrom, substantially as described.

3. In an insulated rail-joint, the combina-
 50 tion with the rails and sleepers, of a bed-plate formed in two sections, each section affording one rail end the support of the sleepers on both sides of the meeting-point of said rails,
 55 without contact with its corresponding section, substantially as described.

4. An insulated rail-joint consisting of the combination with the rails, of a bed-plate supporting each rail end, each bed-plate being adapted to afford its rail end a support on
 60 both sides of the meeting-point of said rail ends, without contact with its corresponding bed-plate, substantially as set forth.

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

REUBEN W. SMITH.

Witnesses:

JOHN B. RUTHERFORD,
 W. B. SCHERMERHORN.