

(No Model.)

O. GASSETT & I. FISHER.  
Connector for Electric Track-Circuits.

No. 227,102.

Patented May 4, 1880.

Fig:1.

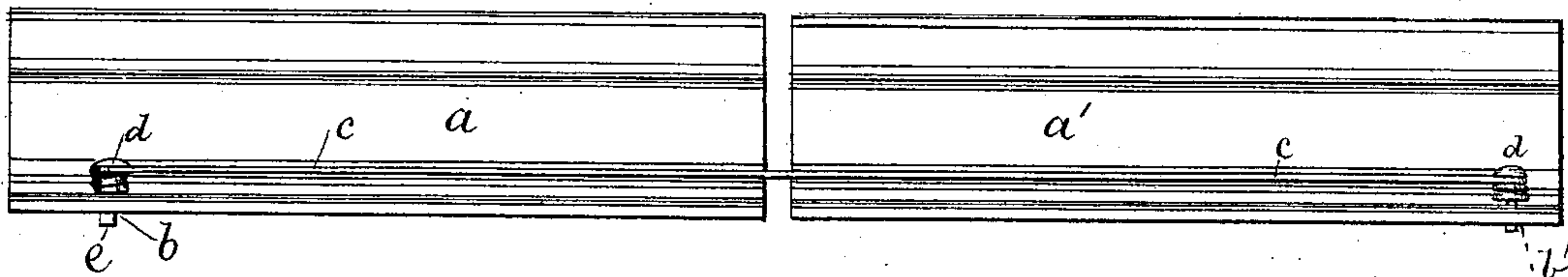


Fig:2.

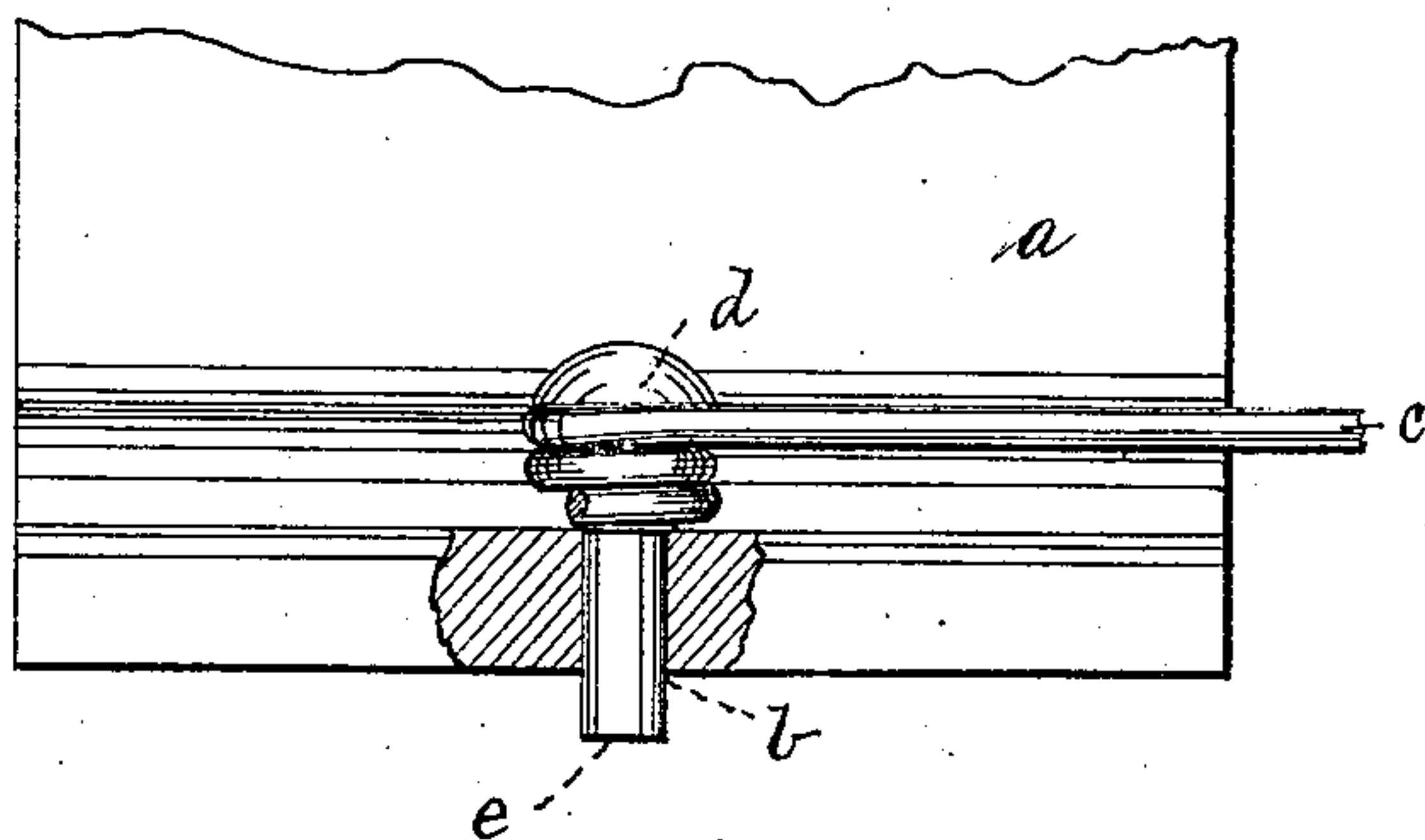
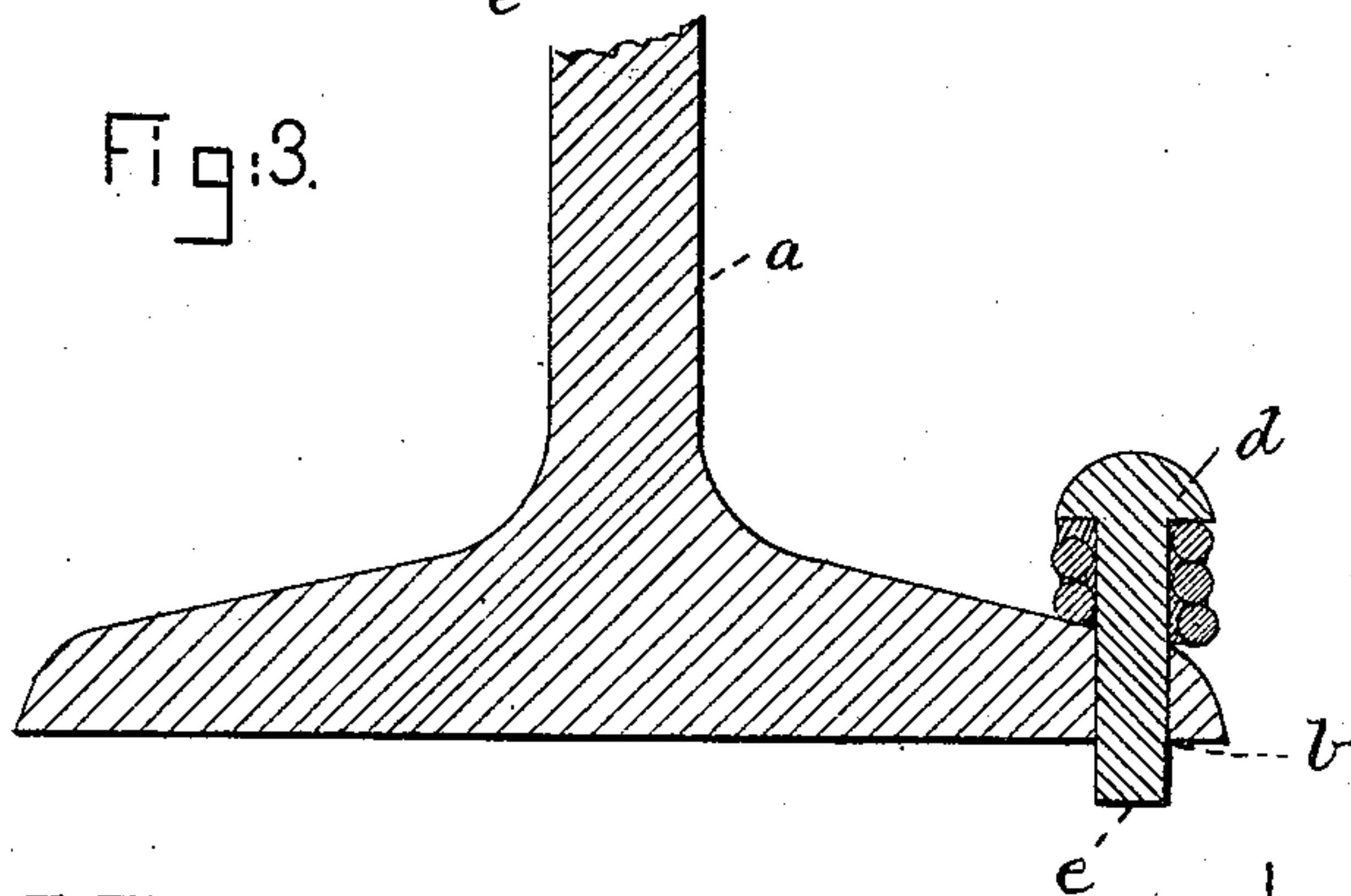


Fig:3.



Witnesses:

Jos. P. Livemore,  
L. F. Connor.

Inventor.

Oscar Gassett and  
Israel Fisher, by  
Crosby & Gregory,  
Attys.

# UNITED STATES PATENT OFFICE.

OSCAR GASSETT AND ISRAEL FISHER, OF BOSTON, MASSACHUSETTS.

## CONNECTOR FOR ELECTRIC TRACK-CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 227,102, dated May 4, 1880.

Application filed March 8, 1880. (No model.)

*To all whom it may concern:*

Be it known that we, OSCAR GASSETT and ISRAEL FISHER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Connectors for Electric Track-Circuits, of which the following description, in connection with the accompanying drawings, is a specification.

Our invention relates to a connector for the meeting-ends of rails when used as a conductor for an electric current, as in connection with railway-signals.

It has been found in practice that the usual chairs or fish-plates do not in dry weather afford sufficiently good metallic continuity to form a good conductor, chiefly on account of the oxidation of the surfaces. To obviate this elastic contact-pieces have been used, intended to be caused to rub by the deflection of the rails, and thus always afford a contact-surface of bright metal. It is known, however, that a conductor composed of many pieces in contact with one another, as a wire spliced, but not soldered at many points, offers more resistance than one of continuous metal similar in all other respects to the first.

We have discovered by a series of experiments that it is possible, without great expense, to so connect the rails of a railway-track as to form practically a continuous metallic conductor thereof.

Our invention consists in punching or drilling holes in the flanges of adjacent rails at convenient points near but so as not to interfere with the rail-joint, and driving into these holes the ends of a wire connector long enough to reach between them and span the rail-joint, the said connector being provided at its ends with driving-studs a trifle larger in diameter than the holes and tapering, so that when they are forcibly driven into the holes in the rail they form a perfect and permanent contact therewith, and, on account of the taper, fit so tightly that they cannot be driven out or removed except by a special instrument for drawing them, thus removing from them any scale or loose or tarnished surface, and leaving the surface thereof bright where it comes in contact with the rail, such bright metallic surfaces, forced together, insuring a perfect electric con-

nection. The ends of the wire connector are coiled around the said driving-studs just under their heads, and the whole end then dipped in molten solder or other suitable metal.

Figure 1 is a side elevation of the ends of two rails provided with a connector embodying our invention; Fig. 2, an elevation of a portion thereof enlarged and partially in section, and Fig. 3 a transverse section thereof.

The rails *a a'*, which may be of any usual kind and connected by any form of chair or fish-plate, or otherwise, are bored at convenient points, as at *b b'*, preferably near the edge of the flange, to receive the ends of the connector *c*, formed of wire of suitable diameter and material. The end of the wire *c* is coiled around a headed stud, *d*, and then dipped in molten solder or tin, or any suitable material.

The stud is made with a slight taper, and is driven into the hole, which is small enough to peel off the tarnished outer surface of the stud, to cause its bright surface to form the closest possible contact with the metal of the rail, such a joint forming practically metallic continuity, either as an electric conductor or for strength to resist attempts to break it away.

If it is attempted to drive out the stud when in place by blows on the lower end, *e*, thereof, it is found that the stud fits so tightly that the said lower end will be upset or headed before the stud is started from the rail.

It is obvious that the holes *b b'* may be made in any part except the crown of the rail; but the part shown is most convenient, especially when they are made by punching. A conductor of this kind is cheaper and more reliable than one applied by soldering or clamping.

It is obvious that wires to connect with batteries or instruments may be connected with the rail in the same way.

We claim—

1. The combination, with a rail bored to receive it, of a wire provided at its ends with a connected driving-stud to be driven into the said rail to form a continuous metallic conductor therewith for an electric current, substantially as described.

2. A stud to be driven into a bored rail, combined with a wire conductor coiled around



and soldered to the said stud, substantially as and for the purpose described.

3. As a new article of manufacture, a connector for electric track-circuits, consisting of  
5 a wire of suitable length to span the rail-joints, having its extremities coiled around and soldered upon metal studs adapted to be driven into holes in the rails, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

OSCAR GASSETT.  
ISRAEL FISHER.

Witnesses:

JOS. P. LIVERMORE,  
I. N. RICHARDS.