(No Model.)

H. A. FOSTER.

GUARD RAIL AND INSULATOR FOR ELECTRIC RAILWAYS.

No. 384,901. Patented June 19, 1888.

Fig. 1.

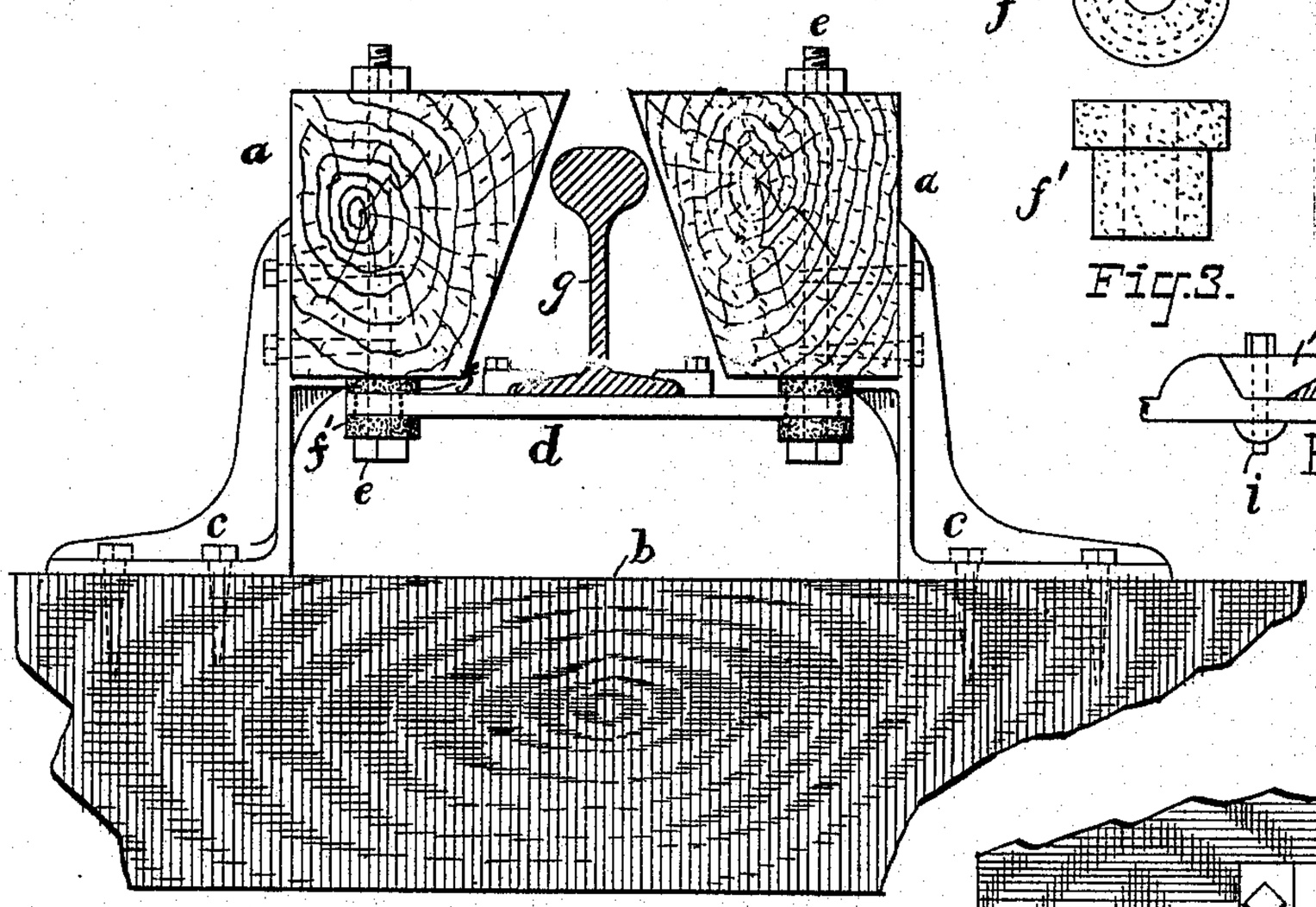

Fig. 3.

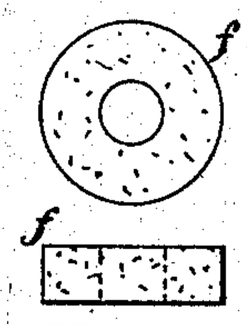

Fig. 4.

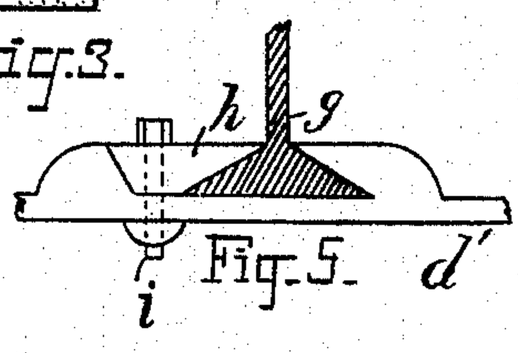

Fig. 5.

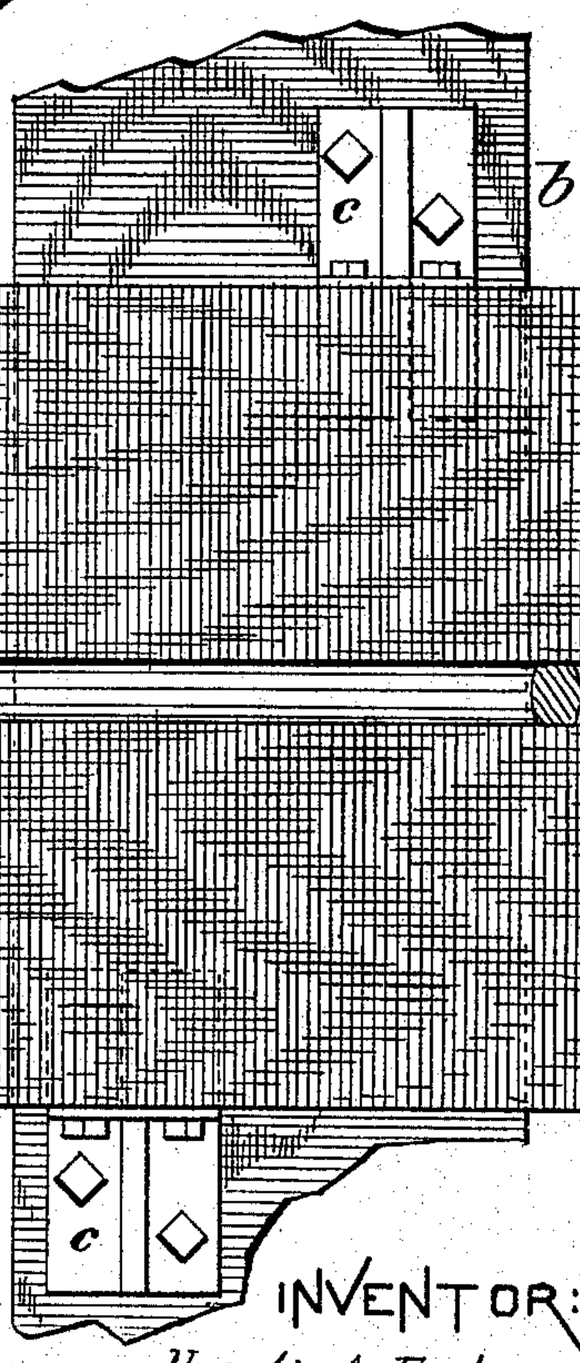

Fig. 2.

Fig. 6.

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HORATIO A. FOSTER, OF BOSTON, MASSACHUSETTS.

GUARD-RAIL AND INSULATOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 384,901, dated June 19, 1888.

Application filed April 26, 1887. Serial No. 236,162. (No model.)

To all whom it may concern:

Be it known that I, HORATIO A. FOSTER, a citizen of the United States, and a resident of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Guard-Rails and Insulators for Electric Railways, of which the following is a specification.

The invention relates to the mechanical construction and disposition of a conducting-rail for an electric railway. Its object is to provide in combination an efficient insulation and guard rail for the conducting-rail.

The invention consists of the combination, with trapezoidal guard-rails supported above railway-ties, of an insulating conducting-rail suspended between said guard-rails and said ties.

In the accompanying drawings, Figure 1 shows the invention partially in cross-section. Fig. 2 is a top view of Fig. 1. Figs. 3 and 4 show different views of the insulating-washers on an enlarged scale, and Fig. 5 shows the preferred construction of the clamping device for the electric conducting-rail. Fig. 6 is an end view of a rectangular guard-rail commonly used on electric railways.

As far as my invention is concerned, the electric conducting-rail consists of the combination of two wooden guard-rails, *a*, located above and transversely to the usual railway-tie, *b*, (only one tie or sleeper is shown, as they are so well known in the art,) angle-irons *c*, fastened to the upper surface of the tie *b* and supporting the guard-rails *a*, straps or cross-pieces *d*, suspended and insulated from the lower surface of the guard-rails *a* by means of bolts *e*, and washers *f* and *f'* and an electric conducting-rail *g*, clamped to said strap *d* midway between the guard-rails *a*, the said conducting-rail being thereby insulated not only from the guard-rails *a*, but also from the angle-irons *c*.

The washer *f* (shown in Fig. 4) is a disk of insulating material provided with a central hole. In Fig. 3 the washer *f'* has a projection which extends through the strap *d*, so as to insulate the said strap from the bolt *e*. In Fig. 5 the strap *d'*, which corresponds to the strap *d*, has a groove in which fits both an electric conducting-rail (shown partly by *g*) and a wedge-like washer, *h*, which is secured to the strap *d'* by a bolt, *i*. The washer thereby secures the conducting-rail to the strap.

The guard-rails, as known by those acquainted with the art, are usually rectangular, as shown in Fig. 6. I prefer to change the shape of these guard-rails, so as to partially hang over the electric conducting-rail. I make the cross sectional shape, therefore, trapezoidal.

It is unnecessary to go into the consideration of electrical circuits, motors, and generators, as my invention is limited to the disposition of the electric conducting-rail and its supports. The return-conductor may be above, on, or under the surface of the earth.

The trapezoidal guard-rails assist to prevent contact of large stones and similar foreign objects with the electric conducting-rail, but at the same time rain-water can flow through and be drained off without difficulty.

As shown in Fig. 2, the strap *d* is placed to one side of the tie *b* for the purpose of good insulation from the angle-irons *c*.

I claim as my invention—

In an electric railway, the combination, with trapezoidal guard-rails supported above railway-ties, of an insulated electric conducting-rail suspended between said guard-rails and said ties, substantially as and for the purpose described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 13th day of April, 1887.

HORATIO A. FOSTER.

Witnesses:

T. J. SOUTHARD, 2d,

J. M. ODIORNE.