

L. M. RANDOLPH.
THIRD RAIL INSULATOR.
APPLICATION FILED MAY 2, 1907.

908,136.

Patented Dec. 29, 1908.

Fig. 1.

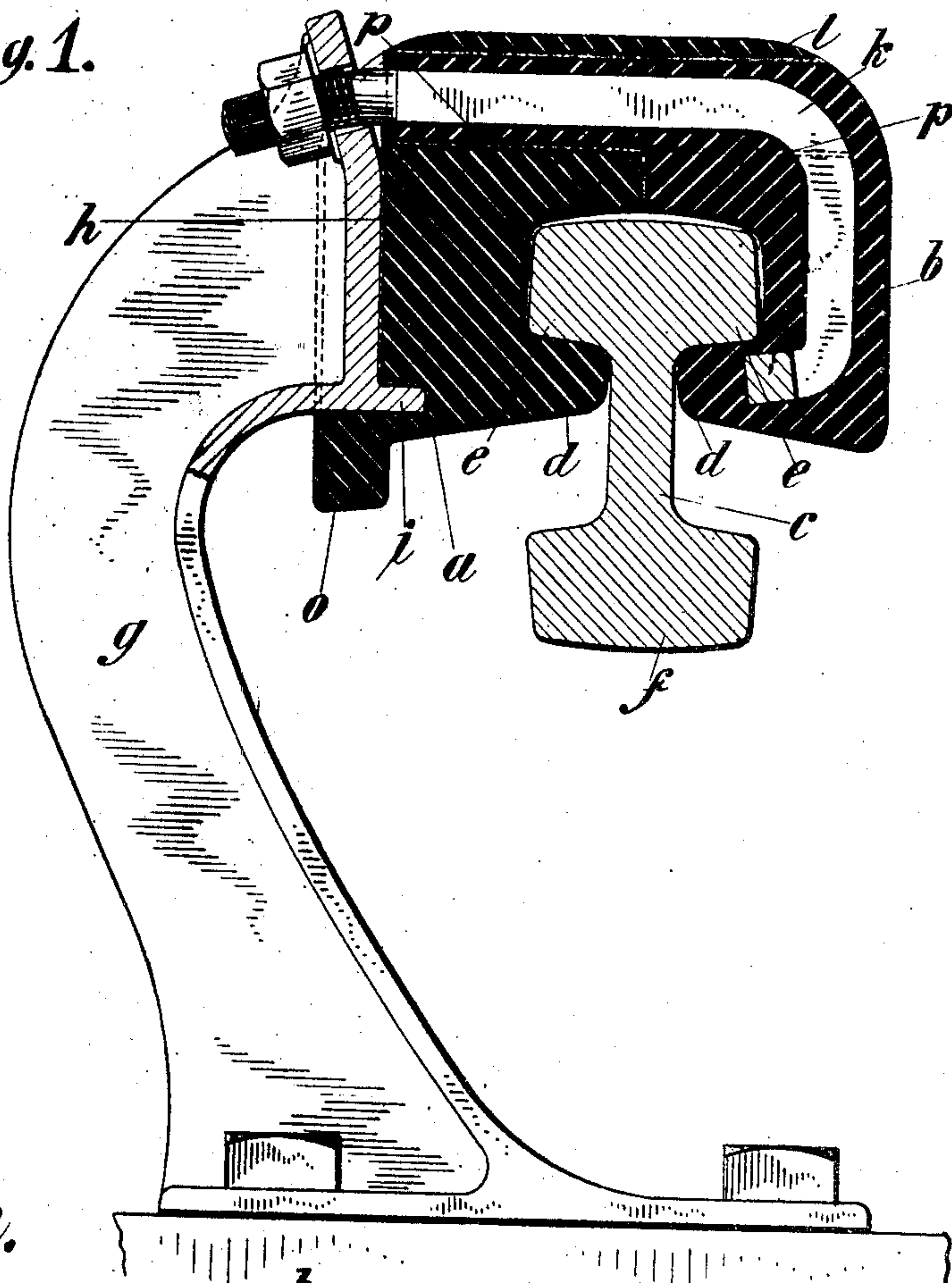


Fig. 2.

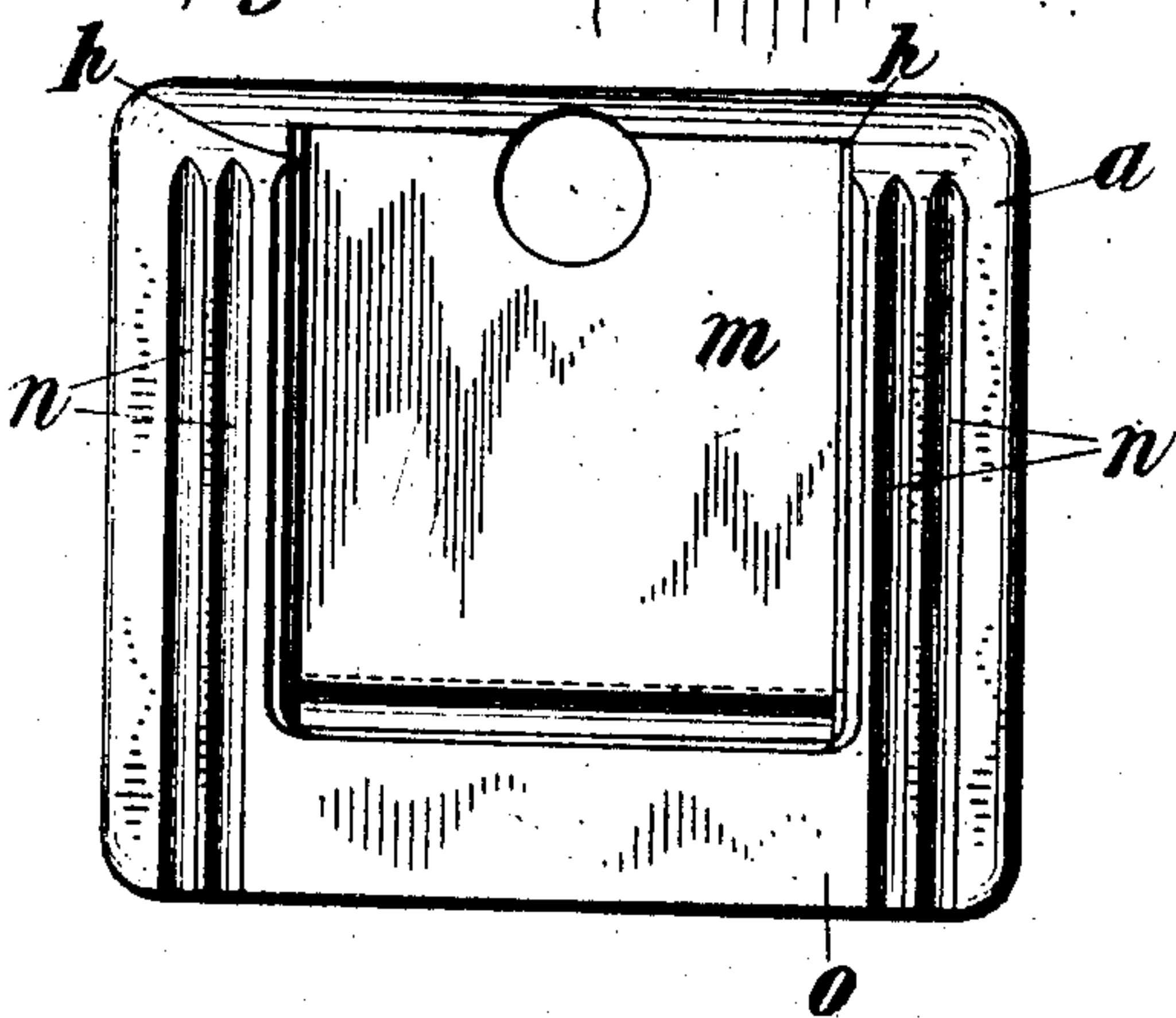
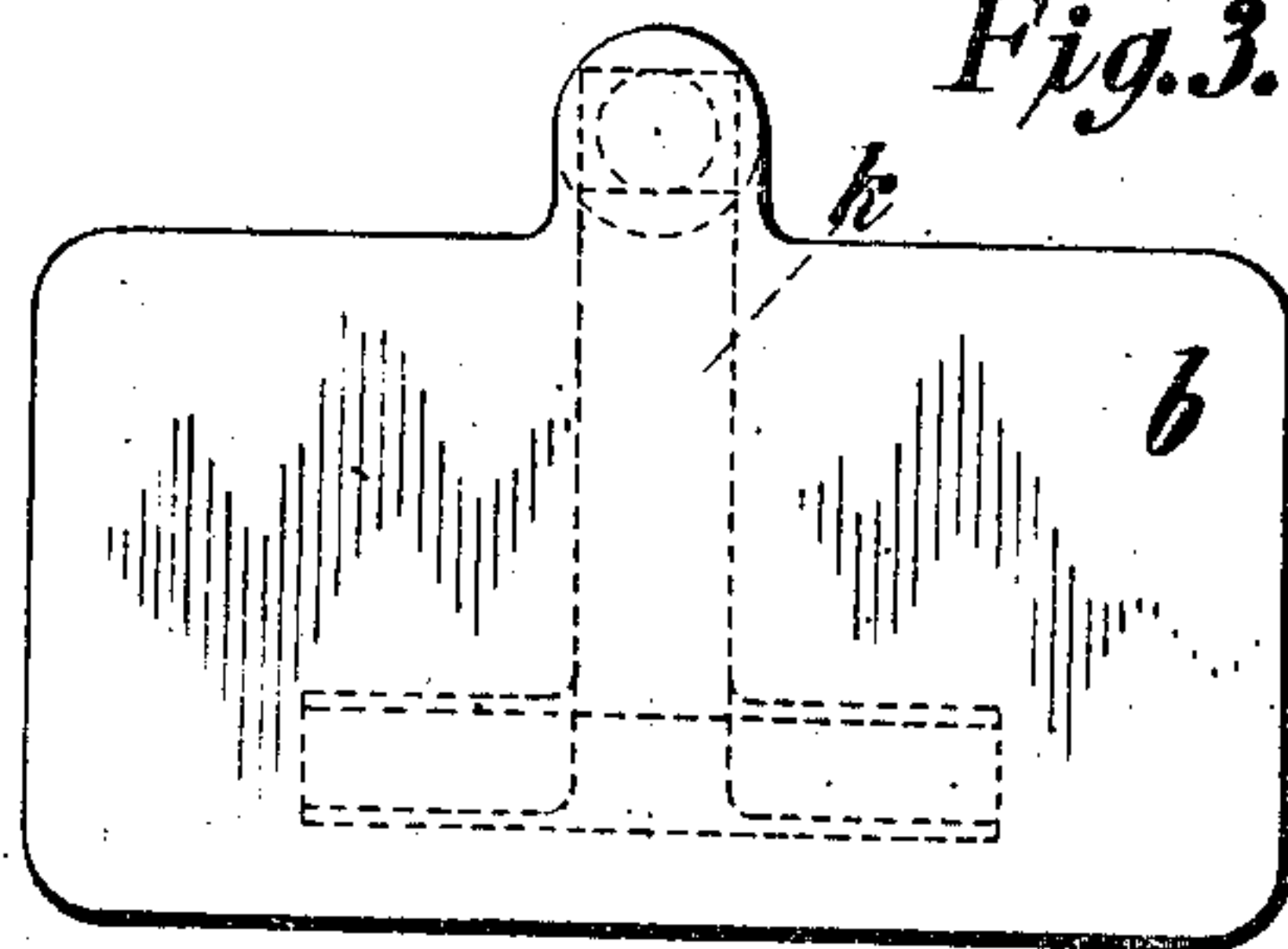


Fig. 3.



Witnesses:
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LEONARD M. RANDOLPH, OF NEWARK, NEW JERSEY, ASSIGNOR TO ESSEX COMPANY, OF
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THIRD-RAIL INSULATOR.

No. 908,136.

Specification of Letters Patent.

Patented Dec. 29, 1908.

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To all whom it may concern:

Be it known that I, LEONARD M. RANDOLPH, a citizen of the United States, and a resident of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Third-Rail Insulators, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

The object of this invention is to increase the insulating qualities of third-rail insulators, particularly of the type which are adapted to support the rail from above, with a view toward reducing to a minimum the leakage from the rail through the insulator to its support.

The improvements have particular reference to insulators manufactured from an insulating compound described and claimed in Letters Patent of the United States No. 749,224, and dated January 12, 1904, although they are by no means limited to insulators manufactured from this compound.

The invention will be more fully described hereinafter in reference to the accompanying drawings in which,

Figure 1 is a view partly in side elevation and partly in section of one embodiment of the improved insulator together with its support, showing the third-rail embraced thereby. Fig. 2 is a view in elevation of the member of the insulator which is adjacent to the insulator support. Fig. 3 is a view in elevation of the other member of the insulator.

It will be seen that the insulator is composed of two parts *a* and *b* which embrace the third-rail *c*. These parts are each provided with a flange *d* which fits under the top flange *e* of the rail, the latter being T-shape and provided with a contact flange *f* along the bottom. In this way, as will be seen, the rail is supported by being suspended from the insulator which is itself supported through a bracket or some other suitable means *g*. For securing the insulator to this bracket, the adjacent part *a* is engaged by a portion *i* of the bracket and is held against said bracket by a hook bolt *k* which is bent down and partly around the rail and serves to hold the other member *b* of the insulator against the rail and against the member *a*.

In accordance with one feature of the present improvements, one of the members or parts of the insulator, as the part *a*, extends

above or overlaps the other part, so as to cover up the joint where the two parts meet above the rail. For this purpose, the part *a* is formed with an extension *l* which covers preferably the entire member *b* and which is preferably drilled or otherwise formed with a hole to permit the hook bolt *k* to pass through the same and be secured to the support *g*. In this way, it will be impossible for water to work down through the joint and on to the rail and thus provide a path for the leakage of current; and besides, the hook bolt is covered, insulated and kept dry. By passing through and being covered up by the part *a*, the half of the hook bolt nearest the support is insulated by being protected against moisture and contact with foreign parts. Moreover, the curved end of the hook bolt is, in the present embodiment, embedded in the part *b* so as to further insulate and protect the same from moisture, as well as to strengthen the part *b* which thus may be said to be provided with a projection through which it is secured to the support *g*. Furthermore, the end of the hook bolt embedded in the part *b* is bent in toward the rail and extends substantially in to the flange of the rail, and preferably underneath the supporting flange of the rail at least to a slight extent, whereby a portion of the insulator upon which the supporting flange rests may be greatly strengthened and prevented from being broken off by the weight or vibration of the rail. In order further to protect the half of the hook bolt nearest the support, the insulation upon the other half of the bolt, that is the insulation *b*, may be continued as a sleeve upon the hook so as to extend substantially to the support.

The part *a*, besides being formed to permit the insertion of the portion *i* of the support *g*, is also formed with a recess *m* upon its rear face to receive the upper part of the support. This recess is preferably lined with some substance such as galvanized iron *h* in order to distribute the strain which the support imposes upon the insulator under the conditions of use; for in practice it has been found that insulators of this sort are often broken along the lines of greatest strain. Moreover, it is easy to understand that with the frequent passing of trains and the vibration of the third rail caused thereby, constant pulsations are developed in the insulator which with the strains imposed by the support

are very effective in destroying the insulator unless some means is provided to distribute the strains throughout the same.

On either side of the recess *m* are grooves *n*, which are formed in the part *a* and extend preferably up and down, thereby serving to lengthen the distance between the rail and the support *g* along the surface of the insulator. The lengthening of this surface, as will be obvious, reduces the surface leakage. Moreover, and for the same purpose, the part *a* is provided with a petticoat *o* extending downwardly between the rail and said support. The petticoat *o* must have a substantial thickness, otherwise it will break off and one of the objects of providing the recess *m* is to permit the part *a* to be built out toward the support in order to form a thicker petticoat, such building out toward the support obviously necessitating the formation of a recess around the part of the support adjacent to the insulator, if the same distance between the support and the third rail be preserved. The petticoat could not well be thickened by building it in toward the third-rail, for portions of the rail near the end thereof have wider flanges which would interfere with the petticoat if placed nearer the rail.

In order to seal up the joints between the two parts or members *a* and *b*, a suitable insulating paste may be employed as illustrated at *p* in Fig. 1. This paste may be formed of the gummy residue left in the varnish kettles after the manufacture of varnish, or from any other substance or substances which remain plastic under ordinary atmospheric conditions.

I claim as my invention:

1. A two-part third-rail insulator, each part having a flange to support the rail, and one part overlapping the other part so as to cover the joint between the two parts.

2. A two-part third-rail insulator adapted to embrace and support a T-rail, each part having a flange fitting underneath the flange upon the rail, and one part overlapping the other part above the rail for the purpose specified.

3. A two-part third-rail insulator adapted to embrace the rail, one part having an overlapping extension, and the other part having a projection extending through the first part and upon which the insulator may be supported.

4. The combination of a two-part third-rail insulator adapted to embrace the rail and means to support the insulator, one part being adjacent to the support and the other part having a hook bolt embedded therein and extending in toward the rail and underneath the supporting flange thereof and which is adapted to be secured to the support.

5. The combination of a two-part third-rail insulator adapted to embrace the rail

and means to support the insulator including a hook bolt, said bolt having one end extending underneath the flange of the rail in order to reinforce the insulator and assist it in supporting the rail as described.

6. The combination of a two-part third-rail insulator adapted to embrace the rail, and means to support the insulator, the part adjacent to said support having a recess in which the support engages, and the other part having a hook bolt one end of which is embedded in said other part and is bent around underneath a portion of the rail and the other end of which is adapted to be secured to the support.

7. The combination of a two-part third-rail insulator adapted to embrace and support a T-rail, each part having a flange fitting underneath the flange upon the rail, and means to support the insulator including a hook bolt, one part of the insulator having the end of the hook bolt embedded therein in such a way that the end of said bolt extends into the supporting flange thereof for the purpose specified.

8. The combination of a two-part third-rail insulator adapted to embrace the rail, and a support for the insulator in contact with one of said parts, which part is provided with grooves on either side of the support for the purpose specified.

9. The combination of a two-part third-rail insulator adapted to embrace the rail, and means to support the insulator, the part adjacent to the support having a recess in which the support engages and vertically extending grooves on either side of the support for the purpose specified.

10. The combination with a two-part third-rail insulator and a support therefor, of a bolt to bind the two parts around the rail, one part of the bolt being bent in and extending into a position adjacent the flange of the rail, and the other end being secured to the support.

11. The combination with a two-part third-rail insulator and a support therefor, of a bolt to bind the two parts around the rail, one end of said bolt being embedded in one of the parts of the insulator and the other end of said bolt being provided with insulation around the same.

12. The combination with a two-part third-rail insulator and a support therefor, of a petticoat upon the part of the insulator adjacent to the support, the said part being recessed so as to admit the adjacent portion of the body of the support in order that the petticoat may be made sufficiently thick.

This specification signed and witnessed this 20th day of April, 1907.

LEONARD M. RANDOLPH.

Signed in the presence of—

LUCIUS E. VARNEY,
AMBROSE L. O'SHEA.