(No Model.)

F. B. RAE.

INSULATING HANGER FOR OVERHEAD SUPPLY CONDUCTORS.

No. 426,064. Patented Apr. 22, 1890

Fig 1.

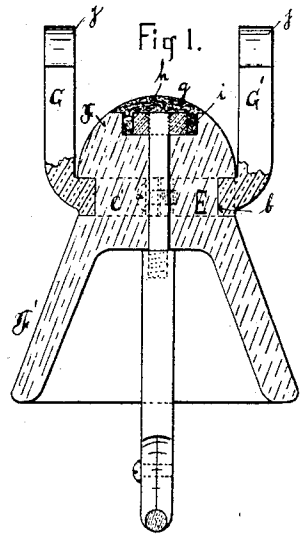
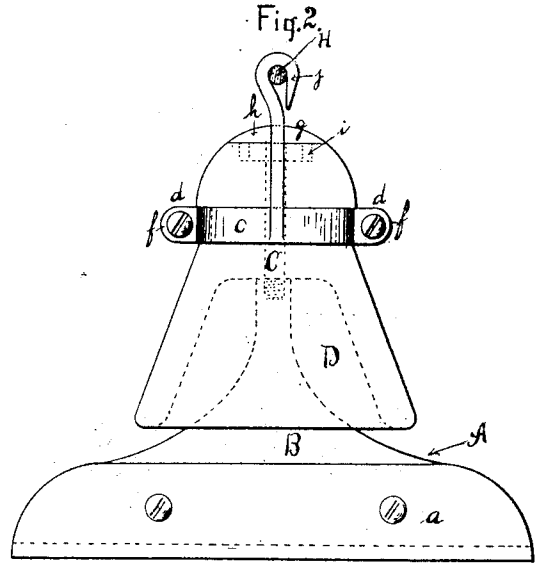


Fig. 2.



WITNESSES.

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INSULATING-HANGER FOR OVERHEAD SUPPLY-CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 426,064, dated April 22, 1890.

Application filed November 14, 1889. Serial No. 330,365. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. RAE, a citizen of the United States, and a resident of the city of Detroit, in the county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Insulating-Hangers for Overhead Supply-Conductors; and I do hereby declare that the following specification is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a novel form of insulating-hanger designed for the dual purpose of securely suspending the overhead supply-circuit, or better known as the "trolley-line" of an electric railway, from the supporting cross-wires and insulating the said trolley-line from the span-wires and span-wire supports.

It is well known that the weight of the trolley-line and the vibration or jar incident upon the traveling contact of the trolley-wheel with the wire necessitates the use of a strongly-constructed hanger, that will withstand the weight of the line without breakage, dislodgment, or distortion. In fact, experience has taught those skilled in this art that to insure the maintenance and durability of the overhead construction it is imperatively necessary to employ a trolley-line hanger practically weather-proof and capable of resisting enormous strain; yet at the same time it is equally necessary that such hanger be unobtrusive in appearance. Again, in order to insure thorough insulation of the line-circuit from the ground, the hanger employed must be of insulating material of the very best quality at certain points, so that there can be no possibility of electrical communication between the line and cross wires.

Accordingly it is the especial object of this invention to provide an insulating-hanger of this type that will meet the requirements of practice and at the same time will be cheap in first cost and manufacture and ornamental in appearance.

For the attainment of these objects my invention consists in certain details of construction, arrangement, and combination of parts, all of which will be more fully described hereinafter, and the specific points of novelty in which will be designated in the appendant claims.

Referring to the accompanying drawings, Figure 1 is a central vertical section showing the invention complete. Fig. 2 is a side elevation of the same.

Like letters of reference mark like or corresponding parts in both views of the drawings.

Referring to Fig. 2, A represents the hanger proper, consisting of the horizontal portion *a*, made in two parts, as shown, and grooved lengthwise on its end edge to accommodate and hold the trolley-wire, which is first introduced therein and secured permanently by clamping two portions of the hanger together or by soldering the wire in the groove, both of which methods are at present employed, as will be understood.

B is the neck or shank of the hanger, made of the same metal as the portion A and tapering off gradually in a vertical direction, terminating in a circular rod having a circular screw-threaded recess in its extremity of a size and depth corresponding to the lower screw-threaded end of the bolt C, which passes vertically through a bore in the bell-shaped portion D, which latter is made of some strong weather-proof insulating material and is provided with a circular groove or depression *b*, running exteriorly therearound, in the manner shown in Fig. 1, of sufficient depth and width to receive and accommodate the clamping-ring E, made in two portions *c c'* and secured together adjustably and removably by means of the clamping-screws *d d*, passing through the laterally-projecting perforated lugs *f f*. The insulator D is bell-shaped, as before stated, and is divided by the groove or neck *b* into the upper and lower portions F F', the latter being in the shape of a hollow tubular skirt, flaring outwardly and downwardly, while the former is substantially in the form of a bolt-head and is made solid throughout, as shown.

In the top part F of the insulator D is formed a recess or countersunk seat for the jam-nut of the bolt C, which nut is screwed down upon the screw-threaded end of said bolt, impinging against the bottom of the said seat or recess, and *g* designates a plug or cap of insulating material, fitting over the head of the

bolt C in the manner shown, to prevent water, snow, or other moisture from entering the recess and reaching the bolt C. This cap or plug *g* is provided with a head *h* of oval shape, similar to a machine-screw, but corresponding with the contour of the portion F, and, furthermore, is provided with a rectangular depending flange *i*, which bounds the jam-nut on all sides and enters between the same and the wall of the recess.

G G′ represent, respectively, two vertically-extending arms formed integral at their lower ends with the clamping-ring E and projecting upwardly at diametrically-opposite points on the ring E, each terminating in a hooked end J, by means of which the whole device is suspended from the cross-wire H. (See Fig. 2.) Thus it will be understood that when the hanger is in the position shown in Fig. 2 on the cross-wire H there can be no electrical communication established between the metallic portions of the hanger and the cross-wire and the superincumbent hooks.

The function of the flaring skirt of the insulator D is to deflect down and off any water or other adherent moisture that may lodge thereupon, thereby sheltering the portion A.

The bell-insulator may be made of any proper substance—such, for instance, as porcelain, hard rubber, close-grained wood, leather, &c.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An insulating-hanger consisting of a bell-shaped insulator having a metal hanger secured to project to its under side and to support the conductor, and having suspended arms secured to the exterior of the insulator and extending upward, substantially as described.

2. The combination, with a suitable form of metal hanger secured to an insulator, of a bell-shaped insulator and means for suspending the latter from a cross-wire, consisting of two hooked arms attached to the insulator by a clamping-ring and clamping-screws.

3. The combination, with a metal hanger, bolt C, secured thereto, the bell-shaped insulator D, supporting said bolt C and provided with a groove or neck *b*, the clamping-ring E, made in two halves and removably secured in said groove or neck *b*, the suspending-arms G G′, formed integral with the ring E, the jam-nut for the bolt C, countersunk in the manner described, and the cap or plug *g*, fitting over the jam-nut.

In testimony whereof I have hereunto set my hand this 10th day of October, 1889.

FRANK B. RAE.

Witnesses:
CHAS. BRUNDAGE,
F. R. HARDING.