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B. J. JONES.

SUPPORTING DEVICE FOR ELECTRIC CONDUCTORS.

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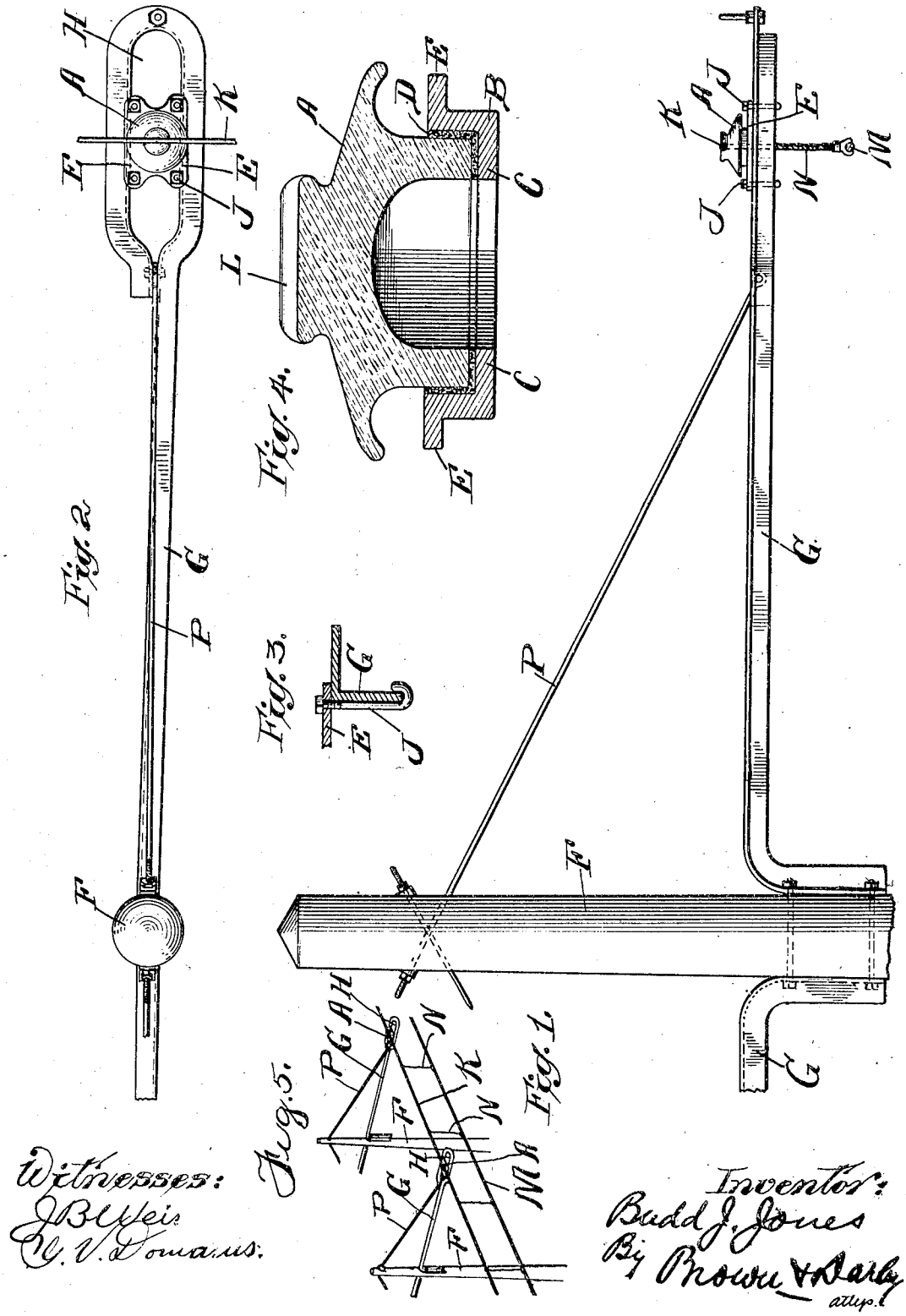

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UNITED STATES PATENT OFFICE.

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SUPPORTING DEVICE FOR ELECTRIC CONDUCTORS.

No. 851,671. Specification of Letters Patent. Patented April 30, 1907.

Application filed March 14, 1904. Renewed November 12, 1904. Serial No. 232,526.

To all whom it may concern:

Be it known that I, BUDD J. JONES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Line Structures for Electrical Distribution, of which the following is a specification.

This invention relates to line structures for electrical distribution, and particularly to structures that are utilized for railway service.

The object of the invention is to provide desirable supporting devices for conductors of high voltage electrical energy which shall embody effective insulating means.

A further object of the invention is to provide apparatus of the character specified in which the insulators are so located as to be free from danger of injury through the action of a trolley or otherwise.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawing and finally pointed out in the appended claims.

Referring to the accompanying drawing and to the various views and reference signs appearing thereon—Figure 1 is a view, in side elevation, of a supporting pole, showing the application thereto of a conductor-supporting device embodying the principles of my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a broken, detail, sectional view showing the means for securing the insulator to the supporting bracket. Fig. 4 is a detail view in section through the insulator. Fig. 5 is a perspective and partially diagrammatic view of a portion of a line structure that embodies the principles of my invention.

The same part is designated by the same reference sign wherever it occurs throughout the several views.

In the distribution of high tension energy for operating electric cars, or for other purposes, porcelain or glass insulators are generally utilized to efficiently insulate the line conductors. In the operation of railways which employ trolleys for making contact with overhead conductors, the insulators that are usually employed are exposed to the pounding action of the trolley and also to the danger of being struck by it in case it becomes detached from the conductor. Glass or porcelain insulators, as generally used, often fail to successfully withstand the strains caused by the pounding action of a trolley when operating at high speeds along the conductor supported by such insulators. When the insulators are broken, the operation of the line is interrupted, and if the conductor falls to the ground, as it is likely to do, it becomes a source of danger to pedestrians and others using the streets which are occupied by the line structure. This is especially true where a high-tension conductor is suspended from supporting brackets, in accordance with the practice heretofore generally employed.

It is among the special purposes of my present invention to provide supporting apparatus for conductors carrying high-tension currents, in which glass or porcelain insulators may be utilized without danger of being struck by a trolley in case it jumps from the trolley wire or conductor, and in which the arrangement is such that the insulators are relieved from the strains which are caused by the pounding of the trolley as it passes along the conductor. These objects may be accomplished by means of many specifically different constructions and arrangements, and, consequently, while I have shown and will now describe one construction and arrangement for accomplishing the desired objects, I desire it to be distinctly understood that my invention is not to be limited or restricted to the exact details of construction and arrangement disclosed.

Referring to the accompanying drawing, A designates a glass or porcelain insulator, which may be of any suitable form.

B designates a supporting plate having a seat, formed by an offset flange C (see Fig. 4) in which the insulator is located and in which it is secured by suitable means, such, for example, as a layer of cement D. The supporting plate B is provided with a lateral flange E to afford means for supporting the same upon a suitable bracket or other device, whereby the insulator may be supported in convenient relation with respect, for instance, to a railway track.

In the form shown, to which I do not de-

sire to be limited or restricted, F designates a supporting pole, to which is suitably secured an arm or bracket G, upon the outer or free end of which the insulator is mounted. In order to provide means for adjustment of the insulator laterally so that it may be set in any desirable position with reference to the track, I mount it upon the supporting arm or bracket G for movement laterally with respect to the conductor or supporting wire. This lateral movement may be accomplished in many specifically different ways. In the particular form shown, to which, however, I do not desire to be limited or restricted, I provide the bracket or arm G with an elongated opening H, upon the upper surface of the bounding edges of which rest the lateral flanges E of plate B. I have shown the supporting arm or bracket G in the form of an angle-bar, the outer end of which is bent or doubled upon itself to form an elongated opening H, as clearly seen in Fig. 2, the horizontal flange of the angle-bar forming a supporting surface upon which the lateral flanges E of plate B rest. In order to secure the plate B to the supporting arm or bracket G while permitting adjustment laterally along opening H, bolts J may be employed, which project through holes in the flanges E and have hooked ends which engage the edge of the vertical portion or flange of the angle-bar G (see Fig. 3). By means of this construction, the insulator supporting plate B and the insulator are supported upon the upper surface of the supporting arm or bracket and are therefore out of danger of being struck by the trolley in case it becomes disengaged from the conductor. It will also be seen that provision is made for lateral adjustment of the insulator and its support along the supporting arm or bracket G, while at the same time the insulator is held or clamped in adjusted position upon the supporting arm or bracket G. The insulator A is provided with suitable means to receive a wire K, such, for instance, as a seat L in its top. In practice, however, wire K is not utilized as a conductor, but serves as a messenger or supporting wire for a conductor M, along which the trolley operates, the conductor M carrying the high-tension current and being supported by or suspended from the messenger or supporting wire K in any suitable or convenient manner. Preferably, and in order to avoid rigidity as between the conductor M and its supporting or messenger wire K, the suspending connections N by which the conductor M is supported are flexible, though I do not desire to have my invention limited or restricted in this respect. By making such suspending connections flexible, relative movement between the conductor M and messenger or supporting wire K is possible, whereby the pounding action of the trolley upon the conductor M is not transmitted to the supporting or messenger wire K and, consequently, breakage of the insulators by such action is avoided. In practice, I propose to employ a plurality of the suspending connections N between adjacent insulators A, so that if the conductor is broken at any point, or a suspending connection N becomes detached or is broken, the conductor M will still be maintained out of danger of accidental contact with pedestrians or others who may be beneath it.

It is obvious that the suspending connections N may be applied in any suitable or convenient manner as suspending supports for the conductor M. The brackets or arms G may be secured and braced to the pole or other support F in any convenient manner. I have shown a brace-rod P extending downwardly and outwardly from the pole or support F to the bracket or arm G to serve as an auxiliary supporting means.

While I have described a specific means for mounting the insulators, it is obvious that many variations and changes in the details of construction and arrangement may readily suggest themselves to persons skilled in the art which will fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details shown and described. But

Having now set forth the object and nature of my invention, and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is:

1. A line structure for electrical distribution comprising a rigidly mounted supporting arm or bracket, an insulator located above and adjustably supported upon said arm or bracket, and a conductor suspended from said insulator, as and for the purpose set forth.

2. In a catenary suspension for trolley wires, an arm, a casting adjustably mounted thereon, means for clamping said casting in adjusted position, an insulator carried by said casting at a point above said arm, a messenger wire supported by said insulator, a trolley wire, and means for suspending said trolley wire from said messenger wire.

3. In a catenary suspension for trolley wires, an arm, a support carried thereby, a messenger wire carried by said support, means for retaining the messenger wire upon said arm in case said messenger wire is displaced from its support, a trolley wire, and means for suspending said trolley wire from said messenger wire.

4. In a catenary suspension for trolley wires, an arm, a messenger wire supported thereon at a point above the same, and a retaining device connected to said arm and operating to retain the messenger wire upon said arm in case said wire is displaced from its support, a trolley wire, and means for suspend-

ing said trolley wire from said messenger wire.

5. A line structure for electrical distribution comprising a supporting arm or bracket, an insulator adjustably supported upon and above said arm or bracket, and a conductor suspended from said insulator, as and for the purpose set forth.

6. A line structure for electrical distribution comprising a supporting arm or bracket having an elongated opening, an insulator adjustably supported upon the upper surface of said arm or bracket, and an electric conductor suspended from said insulator, as and for the purpose set forth.

7. A line structure for electrical distribution comprising a supporting arm or bracket having the end thereof doubled or bent upon itself to form a support, an insulator resting upon the upper surface of such support, and an electric conductor suspended from said insulator, as and for the purpose set forth.

8. A line structure for electrical distribution comprising a rigidly mounted supporting arm or bracket, an insulator located above and adjustably supported upon the upper surface of said arm or bracket, an electric conductor, and flexible suspending devices supported from said insulator and attached to said conductor, as and for the purpose set forth.

9. A line structure for electrical distribution comprising a flanged arm or bracket, an insulator having a base-plate, said base-plate having a lateral flange arranged to be received upon, and to be supported by, the flange of said bracket, a conductor, and suspending devices for said conductor, said suspending devices being supported from said insulator, as and for the purpose set forth.

10. A line structure for electrical distribution comprising a supporting arm or bracket, an insulator, a base-plate in which said insulator is supported, said base-plate having a lateral flange that rests upon said arm or bracket, a messenger wire supported by said insulator, a conductor, and suspending devices interposed between said conductor and said messenger wire, as and for the purpose set forth.

11. A line structure for electrical distribution comprising a supporting arm or bracket, an insulator having a base-plate that rests upon said arm or bracket, hook-bolts between said base-plate and the edges of said arm or bracket, an electric conductor and suspending devices connected thereto and supported from said insulator, as and for the purpose set forth.

12. A line structure for electrical distribution comprising an angle-bar arranged to form a supporting bracket, the end of said bar being bent or doubled upon itself, an insulator, a base-plate upon which said insulator is supported, said base-plate having a lateral flange that rests upon the upper surface of the flange of said angle-bar at the looped end thereof, hook-bolts connecting said flange and the edge of the web of said angle-bar, an electric conductor, suspending devices therefor, said suspending devices being supported from said insulator, as and for the purpose set forth

In witness whereof, I have hereunto set my hand this 12th day of March, 1904, in the presence of the subscribing witnesses.

BUDD J. JONES.

Witnesses:
C. H. SEEM,
E. C. SEMPLE