No. 791,031. PATENTED MAY 30, 1905.

B. J. JONES.

SUPPORTING STRUCTURE FOR TROLLEY WIRES.

APPLICATION FILED APR. 2, 1904.

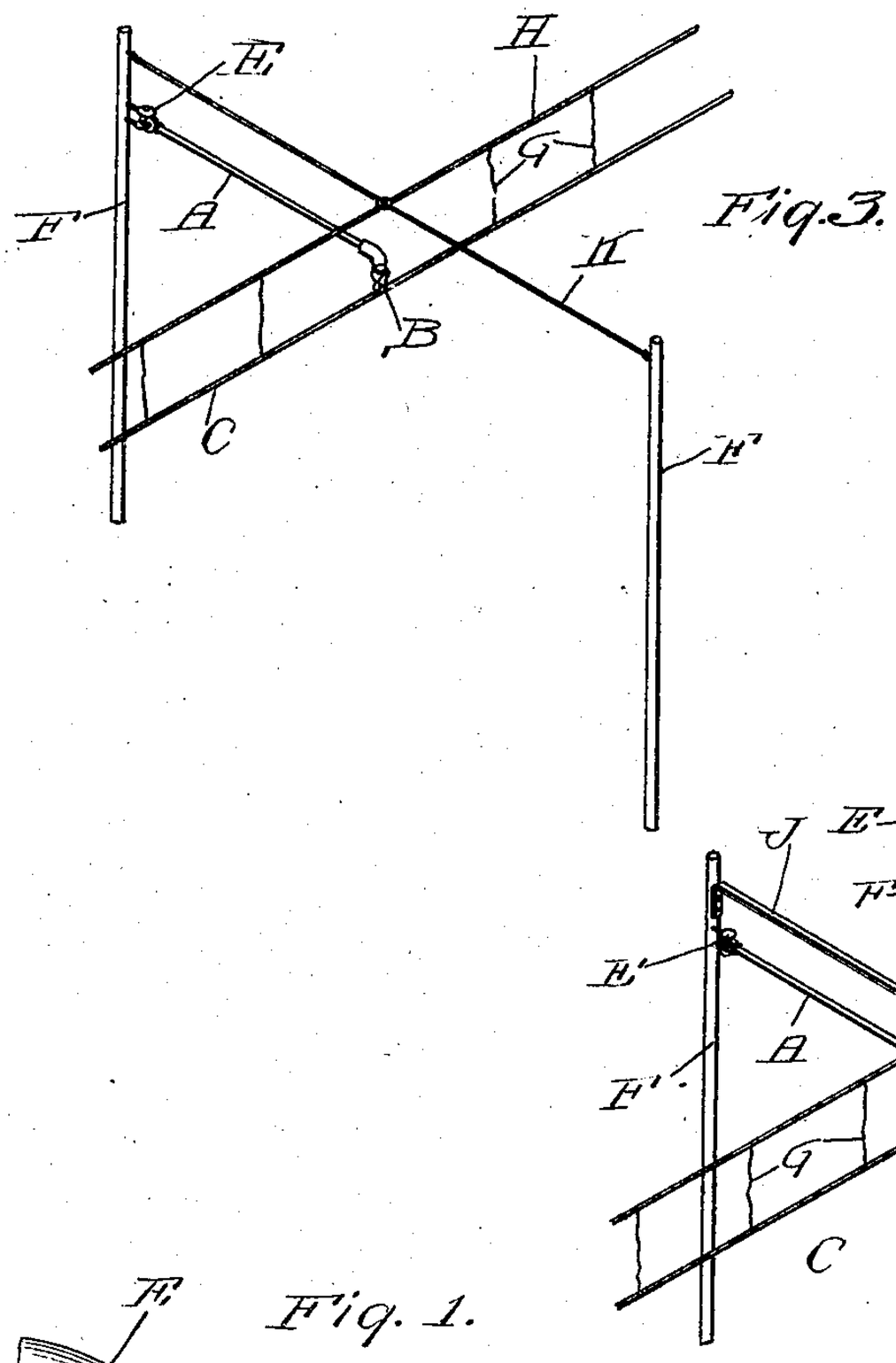


Fig. 3.

Fig. 2.

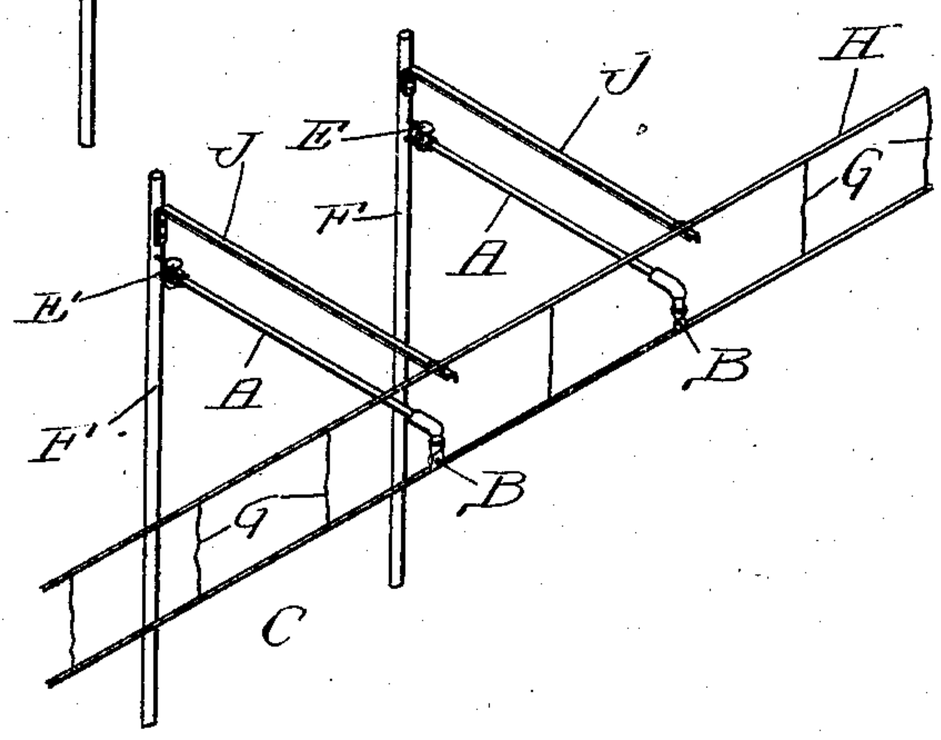
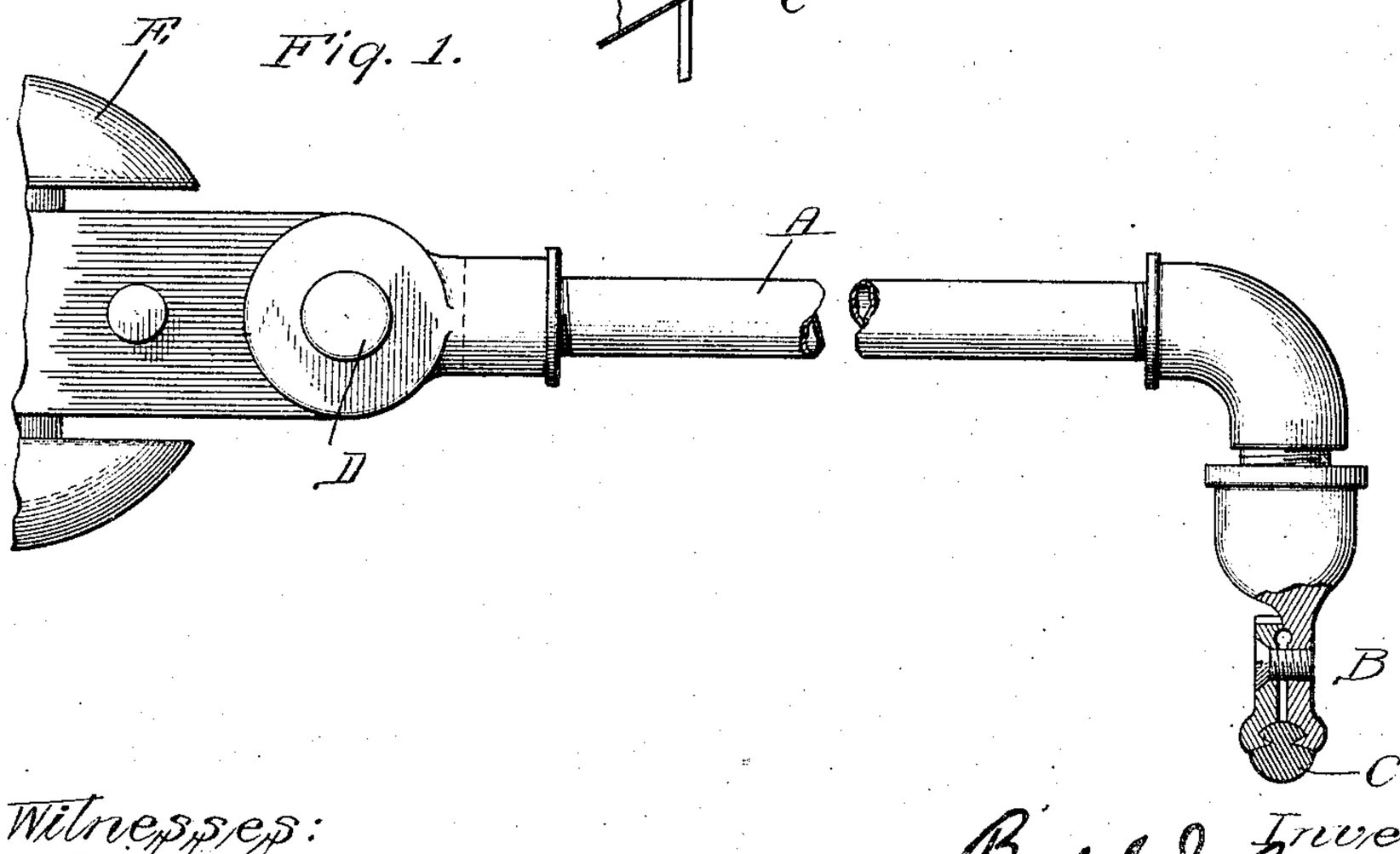


Fig. 1.



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UNITED STATES PATENT OFFICE.

BUDD J. JONES, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

SUPPORTING STRUCTURE FOR TROLLEY-WIRES.

SPECIFICATION forming part of Letters Patent No. 791,031, dated May 30, 1905.

Application filed April 2, 1904. Serial No. 201,266.

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 Supporting Structure for Trolley-Wires, of which the following is a specification.

This invention relates to supporting structures for trolley-wires; and it has for its object to provide means whereby a trolley-wire supported by catenary suspension is prevented from unduly vibrating or swinging out of its proper position with respect to the road-bed or track-rails and the plane of operation of the trolley-wheel.

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 drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view in side elevation, parts broken off, parts broken out, and parts in section, of a trolley-wire-steadying device embodying the principles of my invention. Fig. 2 is a view in perspective, somewhat diagrammatical, showing the application of a steadying device to a trolley-wire supported by catenary suspension and embodying the principles of my invention. Fig. 3 is a view similar to Fig. 2, showing a modified form of catenary suspension for trolley-wires to which a steadying device embodying the principles of my invention is applicable.

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

In utilizing electrical energy for operating railway-vehicles at high speeds it has been proposed to employ a catenary suspension for the trolley-wire or conductor, and in this form of suspension it is customary to employ a messenger-wire which is suitably supported and to suspend the trolley-wire or conductor therefrom by suitably-spaced suspension connections.

It has been found that a trolley-wire which is freely suspended from a messenger-wire is liable to be vibrated laterally by the force of the wind or otherwise to such degree as to cause the trolley to jump from it and injure or break the suspending connections or the insulators.

It is among the special purposes of my present invention to provide steadying devices for trolley-wires supported by catenary suspension which will prevent lateral vibration or swing of such wires when subjected to gusts of wind or other forces. In providing such a steadying device it is necessary that the same be efficiently insulated and that such device be permitted to rock or swing vertically, so as to permit the trolley-wire to yield upwardly or vertically under the pressure of the trolley as a car progresses along the track. In the device shown in the accompanying drawings these objects are attained.

A designates an arm carrying a clamping device B, arranged to engage the trolley-wire C. The arm A is hinged or pivoted, as at D, upon an insulator E, that is suitably supported in any convenient manner—as, for instance, upon a pole F. The hinge-axis D of the strain or steadying arm A is so arranged as to permit the outer or free end of said arm, which carries the clamp B, to rock or swing vertically and at the same time to prevent the trolley-wire from swinging laterally or sidewise with respect to the road-bed.

In Fig. 2 I have shown my invention as applied to a trolley-wire supported by a catenary suspension similar to the arrangement set forth in my pending application, Serial No. 197,982, filed March 14, 1904, renewed November 12, 1904, renewal Serial No. 232,526, wherein the trolley-wire C is suspended, through connections G, from a messenger-wire H, the latter being supported upon supporting-brackets J, that project laterally from the poles F.

In Fig. 3 I have shown another form of catenary suspension wherein the messenger-wire H is supported by span-wires K between poles F, located on opposite sides of the roadway, the trolley-wire C being suspended from the messenger-wire by flexible suspending connections G. In either case the trolley-wire-steadying arm A is located below the supporting means for the messenger-wire and directly engages the trolley-wire. The steadying-arm is insulated, but is mounted to rock or swing in a vertical plane.

The trolley-wire-steadying device above described is designed to be employed at suitable intervals along the electric-railroad line to afford sufficient steadying means to prevent lateral swaying and vibration of the trolley-wire with respect to the road-bed under the action of gusts of wind or other force, and hence to maintain the trolley-wire in efficient centered relation with respect to the roadway and the vertical plane of operation of the trolley. It will also be seen that I provide a construction which is exceedingly simple and wherein the use of a trolley-wire carrying high-tension currents for electric-railway service is rendered safe and practicable.

Having now set forth the object and nature of my invention and a construction embodying the same and the manner of applying the same to practical use, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. The combination with a trolley-wire or other conductor, and a catenary suspension therefor, of an insulated steadying device one end of which is clamped to the trolley-wire or conductor and the other end of which has a pivotal or hinge attachment to a stationary support, as and for the purpose set forth.

2. The combination with a trolley-wire or other conductor, and a catenary suspension therefor, of a steadying device one end of which is fastened to the trolley-wire or conductor and the other end of which is pivotally supported to permit of movement in a vertical plane, as and for the purpose set forth.

3. The combination with a trolley-wire or other conductor, and a catenary suspension therefor, of an arm, an insulated support to which one end of said arm is hinged or pivoted, the other end of said arm being fastened to the trolley-wire or conductor, as and for the purpose set forth.

4. The combination with a trolley-wire or other conductor, and a catenary suspension therefor, of an arm, an insulated support upon which said arm is pivotally mounted at one end to swing in a vertical plane, said arm being connected at its free end to said trolley-wire or conductor, as and for the purpose set forth.

5. The combination with a trolley-wire, a messenger-wire, and flexible connections between said messenger-wire and trolley-wire or conductor for freely suspending the latter, of a steadying-arm, and an insulated support upon which said arm is pivotally mounted at one end, the other end of said arm being connected to the trolley-wire, as and for the purpose set forth.

6. A trolley-wire, means for freely suspending the same, and a hinged or pivoted arm having its free end fastened to the trolley-wire for preventing lateral swinging or vibration of the same, as and for the purpose set forth.

7. A trolley-wire, means for freely suspending the same, and an insulated, pivotally-supported arm having its free end fastened to the trolley-wire for preventing lateral swinging or vibration thereof, as and for the purpose set forth.

8. A trolley-wire, a catenary suspension for such wire, and a pivotally-supported arm the free end of which is fastened to the wire for preventing lateral swing or vibration thereof, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 30th day of March, 1904, in the presence of the subscribing witnesses.

BUDD J. JONES.

Witnesses:
C. H. SEEM,
S. E. DARBY.