No. 762,410. PATENTED JUNE 14, 1904.

H. F. HILL.

SAFETY APPARATUS FOR USE WITH OVERHEAD ELECTRIC CONDUCTORS.

APPLICATION FILED JUNE 10, 1903.

NO MODEL.

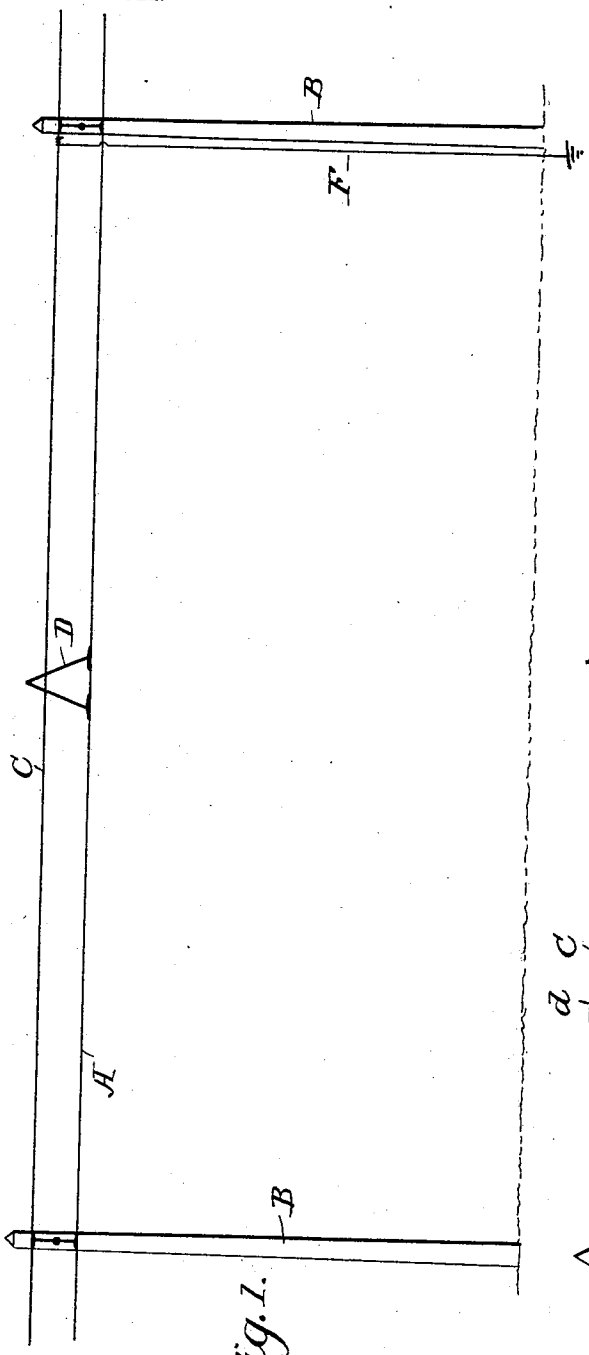


Fig. 1.

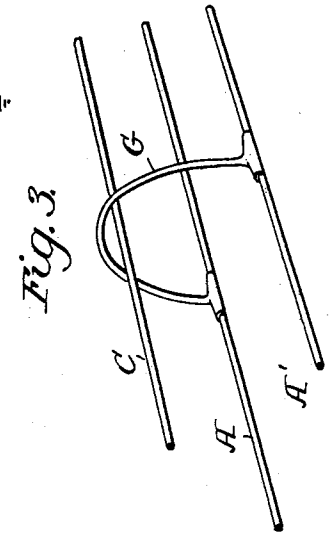


Fig. 3.

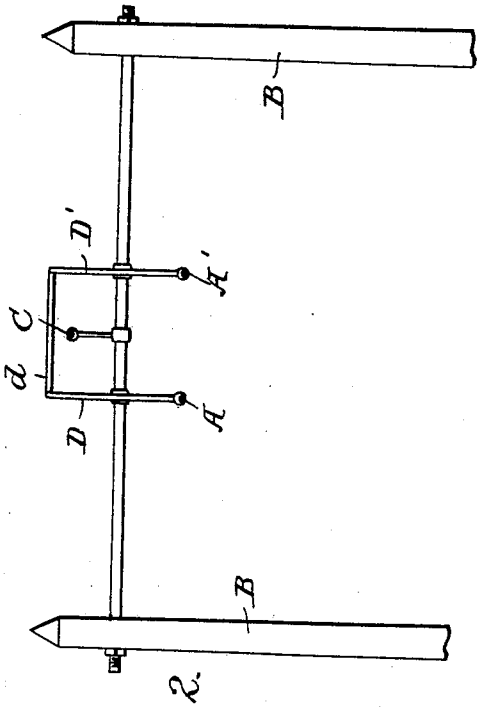


Fig. 2.

Witnesses
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No. 762,410. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

HERBERT FREDERICK HILL, OF LONDON, ENGLAND.

SAFETY APPARATUS FOR USE WITH OVERHEAD ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 762,410, dated June 14, 1904.

Application filed June 10, 1903. Serial No. 160,940. (No model.)

To all whom it may concern:

Be it known that I, HERBERT FREDERICK HILL, a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Safety Apparatus for Use with Overhead Electric Conductors, of which the following is a specification.

This invention relates to a safety attachment for use with overhead electric wires, and especially with the overhead electric conductors or trolley-wires of electric railways; and the object of the invention is to provide means for short-circuiting the current to earth in case the electric conductor breaks.

The invention will be fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing my invention; and Fig. 2 a view, partly in section, taken at a right angle to Fig. 1. Fig. 3 is a perspective view showing a modification.

The invention is particularly adapted for use in connection with two parallel separated electrical conducting-wires—one for the supply and the other for the return of the current—although it might be employed in connection with a single conducting-wire. In the present case the electric conducting-wires are indicated by A and A′, and these may be supported by the poles B B in any suitable manner not necessary to particularly describe.

C indicates what may be termed the "safety-wire" and which will also be suitably supported by the poles B in such position that it will be above the wires A and A′ and in a plane substantially midway between them. Wires F will run from the wire C at intervals to the earth, one of such wires being shown in Fig. 1.

D and D′ indicate two metallic frames of approximately inverted **V** shape and preferably made of wire, the legs of the respecive frames being firmly secured to the conductors A and A′, respectively, and the apex of each frame extending upwardly above the plane of the wire C and being securely connected to each other by a metallic cross-bar *d*, and the frames and bar practically form an arch extending over and across the safety-wire.

If either of the conductors A or A′ should break, its frame D or D′ will drop until the cross-bar *d* engages the wire C, when the current will be short-circuited to the earth through the frame and cross-bar and wires C and F.

The advantage of the particular form of the frames D D′ is that they can be very cheaply manufactured, and by connecting them at two separated points to the conductors there is less danger of their becoming separated therefrom, since if one leg of a frame should accidentally become separated from the conductor the other one would still be sufficient to sustain the broken conductor.

Although I prefer to use the frames D and D′ for the reasons above stated, and especially when only a single conducting-wire is employed, I may sometimes use in place thereof with two conducting-wires a single piece of wire bent into the form of an arch, as indicated by G in Fig. 3, the ends of the wire being respectively connected to the conducting-wires and the arch extending above and across the safety-wire.

Without limiting myself to the precise details of construction illustrated and described, I claim—

1. The combination with an electric conducting-wire and the supports therefor, of a safety-wire, a conducting-frame connected to the conducting-wire at a plurality of points, and a bar extending from said frame above and across the safety-wire, substantially as set forth.

2. The combination with an electric conducting-wire and the supports therefor, of a safety-wire supported in a plane above the conducting-wire and electrically connected to the earth, a metallic frame of substantially inverted **V** shape, the legs of which are connected to the conducting-wire and the apex of which extends above the plane of the safety-wire, and a bar extending from the apex of the frame above and across the safety-wire, substantially as set forth.

3. The combination with two separated, parallel, electric conducting-wires, and the supports therefor, of a safety-wire supported in a plane above the conducting-wires substantially midway between them, and electrically connected to the earth, inverted-**V**-shaped

frames the legs of which are connected to the respective conducting-wires and their apexes extending above the safety-wire, and a bar extending above and across the safety-wire and connecting the apexes of said frames, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERBERT FREDERICK HILL.

Witnesses:
JESSIE TAYLOR,
MAURICE JOHN RICE.