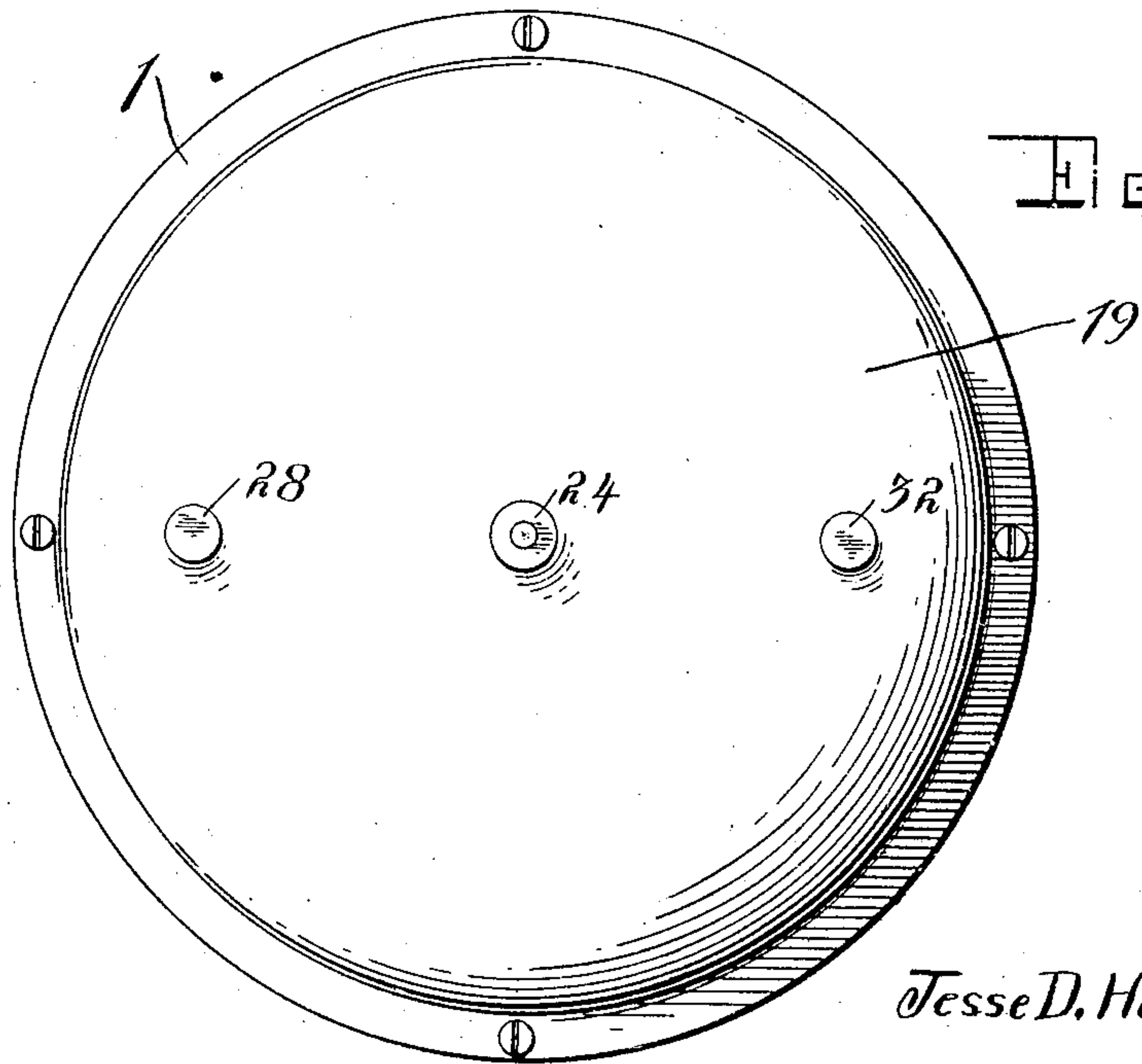
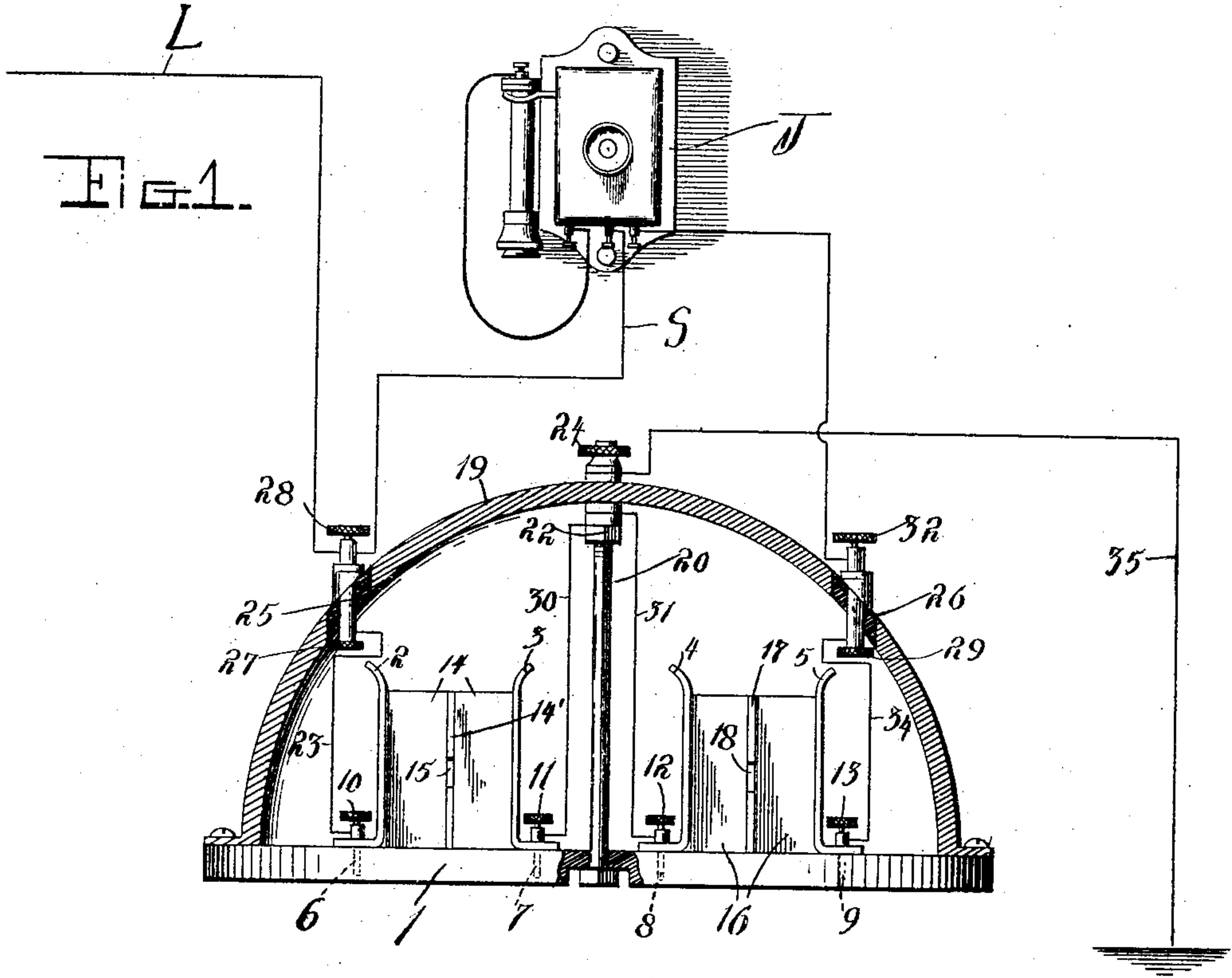


J. D. HOFFMAN.
 PROTECTIVE DEVICE.
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961,962.

Patented June 21, 1910.



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PROTECTIVE DEVICE.

961,962.

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To all whom it may concern:

Be it known that I, JESSE D. HOFFMAN, a citizen of the United States, residing at Duke, in the county of Jackson, State of Oklahoma, have invented certain new and useful Improvements in Protective Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a protective device for use in telephone systems to protect the instruments contained therein from damage by trespassing high pressure currents which may be introduced into the system in various ways such as from lightning or crosses with high pressure circuits.

To this end the invention consists in a self-contained protective device which may be readily introduced into a system of the type heretofore mentioned by connection with a line wire and ground wire.

The object of the invention is the construction of a protective device of the character named which will be efficient in use and comparatively inexpensive to manufacture, install and maintain.

With the above and other objects in view the invention consists in the arrangement and combination of parts to be hereinafter more particularly described and pointed out in the claim.

In describing the invention in detail reference will be had to the accompanying drawings in which like characters of reference denote like parts in the several views, and in which,

Figure 1 is a view in elevation of the invention with the cover thereof in section and showing same connected with a line wire of a telephone system and with a supplemental ground wire; and Fig. 2, a plan view of the device with the connection between same and the line wire of a telephone system omitted.

Referring to the drawings, 1 represents a base plate of insulating material, having secured thereto transversely thereof conducting plates 2 and 3, 4 and 5, said plates being arranged in spaced parallel pairs with their lower ends bent at an angle whereby they may be secured to the base plate 1, through the medium of the screws 6, 7, 8 and 9 respectively; the portion of said screws pro-

jecting above the base plate 1 being threaded to receive the binding nuts 10, 11, 12 and 13 respectively, for a purpose to be hereinafter described. The said plates 2 and 3 have their upper ends flared outwardly with respect to each other and the plates 4 and 5 have their upper ends similarly flared and each pair of said plates is so arranged and mounted that they converge slightly toward each other in the direction of their free ends.

Between the plates 2 and 3 are inserted the carbon blocks 14 and separating these blocks is a strip of mica 14' having an opening 15 therethrough to form an air space between the blocks 14. Corresponding carbon blocks 16 are inserted between the plates 4 and 5 and are in turn separated from each other by a strip of mica 17 provided with an aperture 18 to form an air space between said blocks 16. A spheroidal cover 19 secured upon the base plate 1 serves to inclose the elements of the device heretofore mentioned and protect same against dust and moisture. Mounted centrally of said plate 1 and extending in a vertical direction is a conducting rod 20, the upper end of which pierces the cover 19 and is threaded above and below said cover to receive a nut 22 traveling on the threaded portion below and a nut 24 on the threaded portion above, said cover 19. An electrical connection 30 has one end secured in contact with the rod 20 and the other secured in contact with the screw 7 by means of the nut 11, while another electrical connection 31 has one end secured in contact with the rod 20 by means of the nut 22 and the other end in contact with the screw 8 by means of the nut 12. It will thus be obvious that the rod 20, connection 30, and plate 3 are electrically connected as are also rod 20, connection 31 and plate 4.

Mounted in the cover 19 and located on each side of the rod 20 and extending in a vertical direction parallel to said rod are the double end binding posts 25 and 26 each of which extends through the cover 19 and has its ends threaded. A nut 27 is mounted for travel on the threaded lower end of the post 25 and a nut 28 similarly mounted on its upper end, while a nut 29 is mounted for travel on the lower end of the post 26 and a nut 32 mounted for travel on the upper end thereof. An electrical connection 23 has one end secured in contact with the binding post

25 by the nut 27 and the other end secured in contact with the screw 6 by the nut 10. Another electrical connection 34 has one end secured in contact with the post 26 by the nut 29 and with the screw 8 by the nut 13; thus electrically connecting the plate 2, the connection 23 and the post 25, and again the plate 5, connection 34 and the post 26. The line wire is represented as at L and the service wire as at S, and the instrument in the service wire as at J. The line wire L is electrically connected with the post 25 by the nut 28, and the service wire S is also electrically connected with the post 25 through the same agency. Another extension of the line wire is connected with the binding post 26 by the nut 32, and the other end of the service wire S is also connected to the post 26 by the nut 32.

The operation of the device is as follows:—assuming that a normal current is passing through the line L in the direction of the arrow in Fig. 1, it will take the following course:—first entering the binding post 25, then through the service wire S, through the instrument J, through the binding post 26 and then again out through the line wire. However, if a high pressure current is trespassing the line L as the result of a lightning discharge or momentary crossing with high pressure circuits, such as electric light or power circuits, said high pressure current will pass through the line wire L, through the binding post 25, through the electrical connection 23, through the plate 2, across the carbon blocks 14, jumping the air space formed by the aperture in the strip of mica separating said carbon blocks, then through the plate 3, connection 30, the rod 20 and out through the connection 35 to the

ground. It will thus be obvious that the instrument J, located in the service line is thus thoroughly protected from injury by trespassing high currents in the main line.

What is claimed is:—

A protective device of the character described, comprising a base plate, a spheroidal cover mounted on said base plate, a plurality of pairs of spaced plates mounted on said base plate beneath said cover, a pair of electrodes inserted between each pair of plates and connected with its adjacent plate, the members of each pair of electrodes being separated by a perforated insulating material, a binding post for each pair of plates mounted on said cover adapted for electrical connection with a line wire and with one plate of its respective pair; a vertical rod disposed between said pairs of plates and having its lower and upper ends threaded and projecting through the base plate and cover respectively, the threaded portion of the upper end of said rod being disposed both above and below the cover, a nut mounted on the threaded lower end of the rod adapted to bear against the end face of the base plate, a nut mounted on the threaded upper portion of the rod disposed above the cover for electrical connection with a supplemental ground wire and a nut mounted on the threaded portion of the upper end of the rod disposed beneath the cover for electrically connecting the rod with the other plate of each pair.

In testimony whereof, I affix my signature, in presence of two witnesses.

JESSE D. HOFFMAN.

Witnesses:

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