B. E. CLARKSON.

LIGHTNING ARRESTER.

APPLICATION FILED FEB. 27, 1909.

948,873. Patented Feb. 8, 1910.

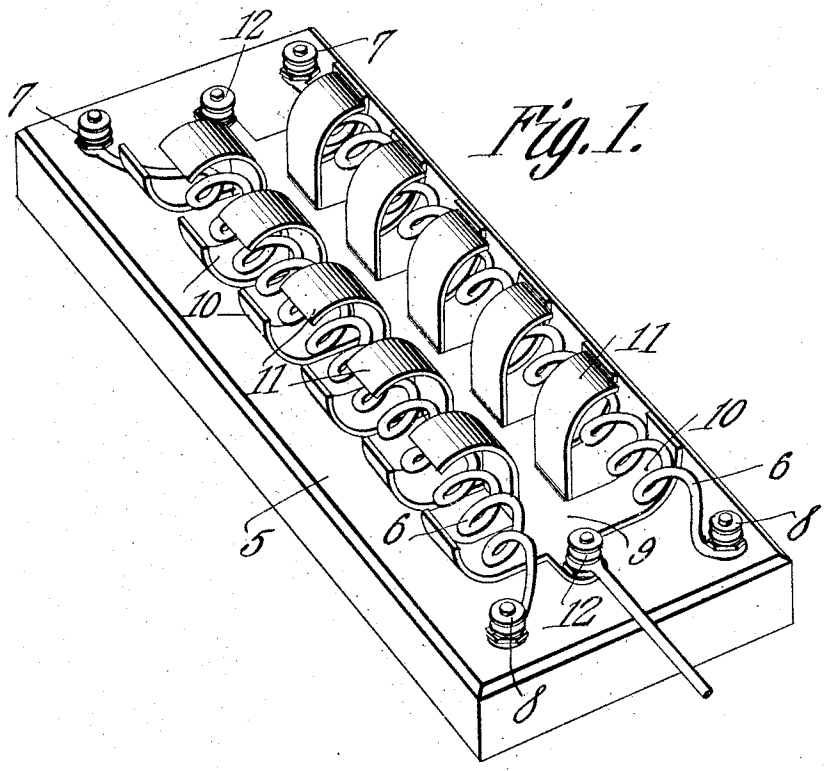

Fig. 1.

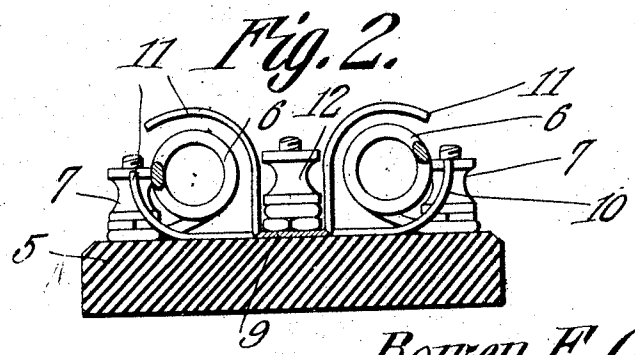

Fig. 2.

Witnesses

E. J. Stewart

H. G. Smith.

Inventor

Bowen E. Clarkson.

By C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

BOWEN ELIPHA CLARKSON, OF KINGSTREE, SOUTH CAROLINA.

LIGHTNING-ARRESTER.

948,873. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed February 27, 1909. Serial No. 480,385.

To all whom it may concern:

Be it known that I, BOWEN E. CLARKSON, a citizen of the United States, residing at Kingstree, in the county of Williamsburg and State of South Carolina, have invented a new and useful Lightning-Arrester, of which the following is a specification.

It is the object of the present invention to provide a lightning arrester which will embody features of construction resulting in the attainment of certain advantageous results not to be secured through the employment of the ordinary form of arrester now in use.

The arrester embodying the present invention is of that type employing two choke coils which are adapted for interposition in a line circuit and a ground conductor so arranged with respect to the choke coils as to carry off to ground current of abnormal potential and whereas it has been customary to embody the ground conductor of such arresters in sleeves which completely inclose the choke coils, the present invention contemplates inclosing the coils either in some form of mutilated or open sleeve or partly surrounding the coils by fingers or other similar elements in circuit with the ground. Where the coils are completely inclosed in sleeves, the temperature within the sleeve frequently rises to an abnormal degree during the passage of the current of normal potential through the coils, but where the coils are inclosed in a mutilated sleeve or only partly surrounded by the ground conductor, of whatever character it may be, the coils are exposed to the cooling action of the atmospheric air and such heating is obviated.

Another advantage accruing from the provision of a ground conductor which but partly incloses the coils lies in the fact that a greater number of points of discharge will be provided for than where an integral sleeve is employed and embodies the ground conductor.

In the accompanying drawings, Figure 1 is a perspective view of a lightning arrester embodying the present invention, and Fig. 2 is a transverse sectional view therethrough.

In the drawings, the numeral 5 indicates the base of the device which is of any suitable insulating material and upon which are mounted the choke coils, these coils being indicated by the numeral 6 and being connected each at its ends to the binding posts of pairs 7 and 8, the line wires of the circuit in which the device is interposed being connected to the binding posts 7 and the wires leading from the coils to the instrument being connected to the binding posts 8. As shown in the drawings, the two choke coils 6 are preferably mounted in parallel relation upon the base and the ground conductor which is to be now fully described is interposed between the coils and is common to both.

As heretofore stated, the invention resides broadly in the idea of inclosing or arranging the choke coils of the device within mutilated ground conductor sleeves or similar elements or means which will expose the coils to a greater or less degree to the atmosphere, and while in the drawings a specific form of ground conductor is illustrated, it is to be understood that the showing of the drawings illustrates merely one embodiment of the invention and that the structure of the ground conductor may be modified in a number of ways to produce the same result provided of course the structure permits of exposure of the coils to the atmosphere to a greater or less degree.

The form of ground conductor illustrated in the drawings comprises a plate 9 which is formed with a number of slits extending inwardly from each longitudinal or lateral edge toward the median line of the plate to afford a plurality of fingers or tongues at each side of the said plate. As will be observed, the fingers or tongues at each side of the plate are bent, some to extend beneath the adjacent choke coil 6 and then in a direction away from the base and opposite the outer side of the coil, these fingers being indicated by the numeral 10, and others to extend in a direction away from the face of the plate upon which the ground conductor is secured and thence over the adjacent or respective coil, these latter fingers being indicated by the numeral 11. The ends or extremities of the fingers 10 are directed toward the extremities of the fingers 11 and vice versa. It is preferable that the fingers 10 alternate with the fingers 11 and vice versa as a more uniform discharge will in this manner be secured throughout the length of each coil. The plate 9 or body of the ground conductor is secured upon the insulating base 5 through the medium of binding screws 12 and it is intended that to either one of these binding screws a wire is

to be connected and to lead therefrom to ground.

From the foregoing description of the invention it will readily be understood that a current of normal potential will flow from one line wire through the choke coil 6 in circuit therewith, through the wire forming a circuit between this coil and the instrument, through the instrument, through the other wire connected to the instrument to the other choke coil, through the said other choke coil, and out to line, such current being too weak to bridge the spark gap or interspace between the fingers of the ground conductor and the choke coil. However, when a current of abnormal potential is sent through either line wire, it will flow, by way of this wire, to the choke coil in direct circuit therewith and will discharge to the fingers or other elements which partly inclose this coil, and thence to ground through the ground wire connected electrically with the ground conductor.

Regarding the advantages accruing from the invention, it will be appreciated that the edges of the fingers partly inclosing the choke coils insure of more ready discharge of current of abnormal potential from the coils to the fingers than is provided for when an integral sleeve is employed to inclose the coils.

What is claimed is:—

In a device of the class described, a base, choke coils arranged upon the base side by side but spaced apart and a plate secured upon the base between the coils, the plate being slit inwardly from its longitudinal edges toward its middle whereby to afford a plurality of fingers, every other one of the fingers at each side of the plate being bent to extend around and beneath the adjacent choke coil, the remaining fingers at each side of the plate being bent around over the adjacent coils.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

BOWEN ELIPHA CLARKSON.

Witnesses:
T. B. McClain,
E. L. McLean.