

UNITED STATES PATENT OFFICE.

ADONIRAM J. WILSON, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE
HALL SIGNAL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF
MAINE.

LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 729,472, dated May 26, 1903.

Application filed April 24, 1899. Serial No. 714,175. (No model.)

To all whom it may concern:

Be it known that I, ADONIRAM J. WILSON, a citizen of the United States, and a resident of Westfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Lightning-Arresters, of which the following is a specification.

This invention relates to lightning-arresters, and more particularly to that class where- in the lightning sets up a counter electromotive force which induces the lightning to jump through an interposed resistance to ground.

The invention consists in the construction hereinafter set forth.

In the accompanying drawings, forming part of this specification, I have shown the embodiment of the invention which I prefer to use.

In the drawings, Figure 1 shows a side elevation illustrating the invention. Fig. 2 shows a central horizontal section, and Fig. 3 shows a central vertical section.

1 is a coil of coarse wire of low resistance and preferably made of copper. The coil surrounds a soft-iron core 2, from which it is suitably insulated. Porcelain is preferably used as the insulating material, as shown in the drawings, being generally provided with a spiral groove in which the coil is wound and thereby supported. The turns composing the coil are bare and are insulated from each other, the space separating these turns being preferably about equal to the diameter of the wire which forms the coil.

3 designates this porcelain insulator, which, as shown in the drawings, is shown in the form of the cylindrical tube, open at one end. The core 2 may be held in place by a block of paraffin 4 or by other suitable means.

5 is a ground-terminal connected to ground by the wire 6. This terminal is situated in proximity to the coil 1 and is separated therefrom by a suitable insulating medium, preferably an air-space. The ground-terminal 5 extends lengthwise the coil and is preferably in the form of a plate. As an additional protection for the translating device protected by the lightning-arrester, and particularly as against high-tension currents, I generally employ a fuse 7, connected with the coil on the side of the translating device. In the best

form of my invention the porcelain cylinder 3 is provided with enlargements 8 and 9 at its ends, which support the cylinder and the coil thereon upon the insulating-base 10. Metal posts 11 and 12 pass through the base 10 and the ends of the cylinder 3 and carry at their upper ends an insulating-block 13. Binding devices 14 and 15 secure the ends of the coil on the posts 11 and 12, respectively, and at the same time support the insulating-block 13 above the coil. Extending between the binding device 16 on the post 11 and the binding device 17 on the block 13 is the fuse 7. The circuit-wire on the side of the translating device is connected to the binding device 17. When lightning strikes the line-wire connected with the coil at the binding device 15 and traverses the coil 1, it sets up a counter electromotive force, which induces the lightning to jump from the coil to the ground-terminal 5, thereby avoiding the translating device. This counter electromotive force is greatly increased by the presence of the soft-iron core 2.

While I have shown in the accompanying drawings the best form of the invention now known to me, it will be understood that various changes in the form and arrangement of the parts may be made without departing from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a lightning-arrester, the combination of a soft-iron core, a coil of coarse wire surrounding the core and insulated therefrom, the turns composing the coil being insulated from each other, and a ground-terminal insulated from and in proximity to said coils.

2. In a lightning-arrester, the combination of a soft-iron core, a coil of coarse wire surrounding the core and insulated therefrom, the turns composing the coil being insulated from each other, and a ground-terminal insulated from and in proximity to said coils, the space between the turns of said coil being substantially equal to the diameter of the wire forming the coil.

3. In a lightning-arrester, the combination of an insulating-tube, a soft-iron core within said tube, a coil of coarse wire wound on said insulating-tube and surrounding said core,

the turns comprising the coil being insulated from each other, and a ground-terminal insulated from the coil and extending in proximity thereto.

5 4. In a lightning-arrester, the combination of an insulating-tube, a soft-iron core within said tube, a coil of coarse wire wound on said insulating-tube and surrounding said core, the turns comprising the coil being insulated
10 from each other, and a ground-terminal insulated from the coil by an air-space and extending in proximity thereto.

5. In a lightning-arrester, the combination of an insulating-tube, a soft-iron core within
15 said tube, a coil of coarse wire wound on said insulating-tube and surrounding said core, the turns comprising the coil being insulated from each other, and a ground-terminal insulated from the coil by an air-space, and ex-
20 tending in proximity thereto, the space between the turns of said coil being substantially equal to the diameter of the wire forming the coil.

6. In a lightning-arrester, the combination
25 of a soft-iron core, a coil of coarse wire surrounding the core and insulated therefrom, the turns composing the coil being insulated from each other, a ground-terminal insulated from and in proximity to said coils, and a
30 fuse connected with an end of said coil.

7. In a lightning-arrester, the combination of an insulating-tube, a soft-iron core within

said tube, a coil of coarse wire wound on said insulating-tube and surrounding said core, the turns comprising the coil being insulated
35 from each other, a ground-terminal insulated from the coil and extending in proximity thereto, and a fuse connected with an end of said coil.

8. A lightning-arrester comprising an insu- 40
lating-base, a hollow insulating-cylinder having a spiral groove on its periphery, a soft-iron core within said cylinder, a coil of coarse wire wound in the grooves of said cylinder, the turns of the coil being separated by a distance substantially equal to the diameter of
45 the wire forming the coil, said cylinder having enlarged ends whereby the cylinder is supported on said base, posts passing through said base and the ends of said cylinder, an
50 insulating-block secured on said posts above said cylinder suitable binding devices on said posts above and below said block, and a ground-plate fixed on the upper side of the base and extending lengthwise to the coil and
55 separated therefrom by an air-space substantially as set forth.

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

ADONIRAM J. WILSON.

Witnesses:

NICHOLAS M. GOODLETT, Jr.,
J. KENNEDY.