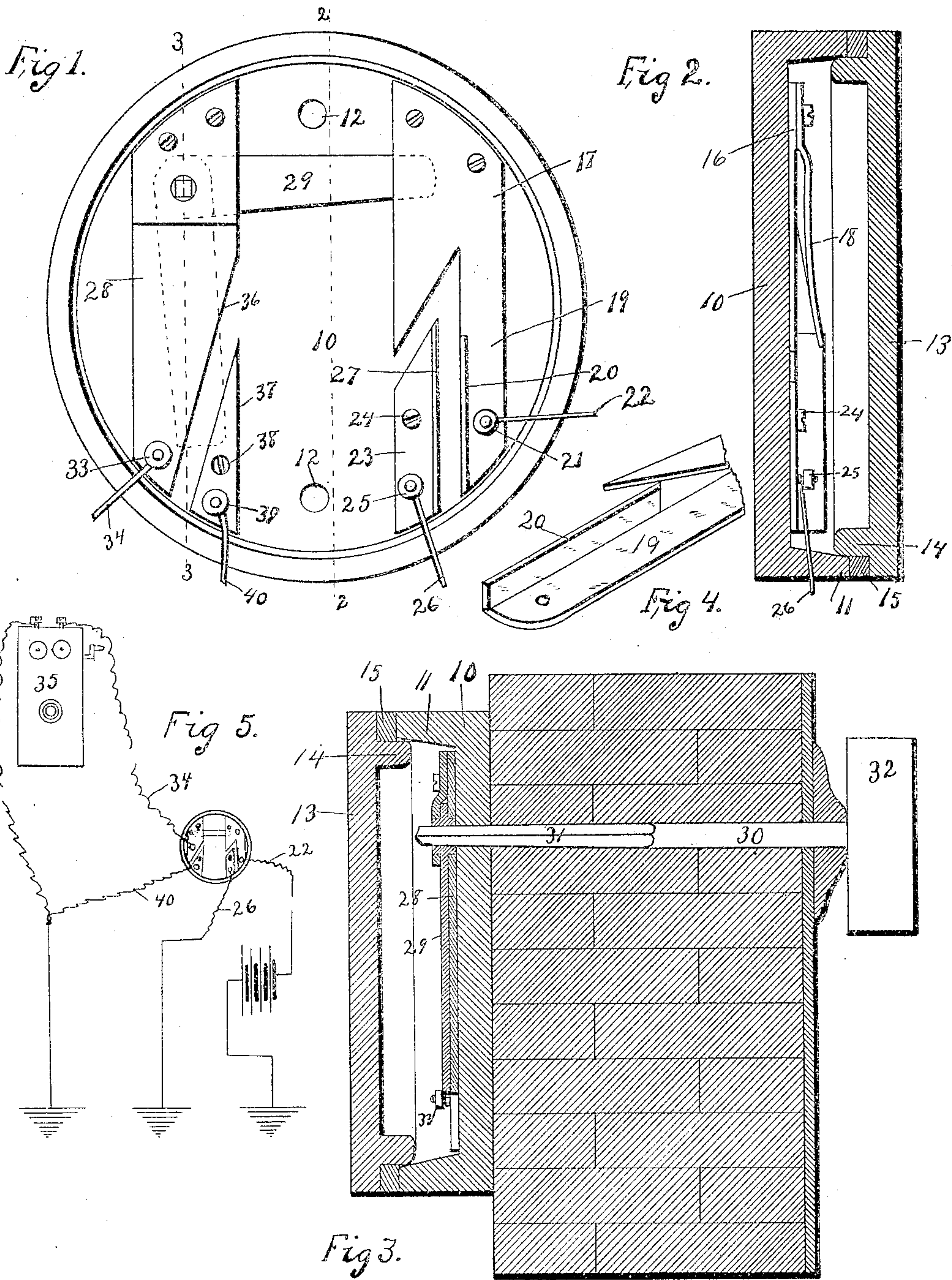


F. A. STAFFORD.  
LIGHTNING ARRESTER.  
APPLICATION FILED APR. 3, 1905.



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# UNITED STATES PATENT OFFICE.

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## LIGHTNING-ARRESTER.

No. 808,882.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed April 3, 1905. Serial No. 253,605.

*To all whom it may concern:*

Be it known that I, FREDERICK A. STAFFORD, a citizen of the United States, residing at Chariton, in the county of Lucas and State of Iowa, have invented a certain new and useful Lightning-Arrester, of which the following is a specification.

The objects of my invention are to provide a lightning-arrester of simple, durable, and inexpensive construction especially designed to be used in connection with a telephone and constructed so that it may be manipulated by the operator to break the circuit in the line-wire and carry an excessive current of electricity on the line-wire to the ground without entering the building in which the telephone is contained, and, further, to provide an arrester of this class which when set to break the circuit in the line-wire also operates to prevent the ringing of the bell of the telephone with which it is connected, so that the operator may by this means know whether or not the arrester-switch is open or closed.

My invention consists in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a front view of the arrester with the cover removed. Fig. 2 shows a sectional view of the same with the cover in position, taken on the line 2 2 of Fig. 1. Fig. 3 shows a sectional view on the line 3 3 of Fig. 1 with the switch-arm shown in solid lines in the position in which it is shown in dotted lines in Fig. 1. This figure also shows the arrester in position adjacent to a wall and the cover secured to the arrester-frame. Fig. 4 shows a detail perspective view of one end of one of the conducting-plates of the arrester, and Fig. 5 shows the arrester and a telephone-circuit connected therewith.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the base of the arrester-frame. Formed on the base is an annular rim 11, with its inner face beveled. This base is provided with openings 12 to receive screws or bolts, by which the frame may be connected to a building. The cover for the base comprises an annular body portion 13, with an inwardly-projecting rim 14 to engage the beveled face of the rim 11. A packing-strip 15 is inserted

between the edge of the rim 11 and the adjacent edge of the cover 13 outside of the rim 14 to form a moisture-tight joint at this point.

Secured to the base 10 at one side of its vertical center is a contact-plate comprising a flat metal inner portion 16 and a flat metal outer portion 17, having a pointed arm 18, with its end inclined away from the base 10, said plates 16 and 18 designed to receive a switch-arm between them. Formed on the said plate is a downwardly-extending arm 19, having an upturned flange 20 at one side. Secured to the lower end of this arm 20 is a binding-post 21, to which a line-wire 22 is attached. Fixed to the base 10 is a grounding-plate 23, held in place by a screw 24 and provided with a binding-post 25, to which the ground-wire 26 is connected. The said plate 23 is also provided with an upturned edge 27, extending parallel with and adjacent to the upturned edge 20. By this arrangement of parts the current of electricity passing over the line-wire 22 will pass through the upturned edge 20 throughout its entire length, which edge is adjacent to and parallel with the edge 27 of the grounding-plate, so that in case an excessive quantity of electricity, such as might be caused during an electrical storm, should pass over the line-wire the current will be bridged at some point between the edges 20 and 27 and the excessive current will pass to the ground-wire 26, although an ordinary current, such as is used in telephone service, would not bridge the space between the edges 20 and 27. On account of the great area of the adjacent faces of the flanges 20 and 27 the charge of electricity is more liable to pass from one to the other than though said flanges were omitted.

Fixed to the base 10 on the side opposite from the contact-plate 17 is a contact-plate 28, having the switch-arm 29 pivoted thereto. This switch-arm in one position enters between the parts 16 and 18 of the plate 17 and in another position extends downwardly over the plate 28, as shown by dotted lines in Fig. 1. I have provided for operating this switch-arm from the interior of a building to which the lightning-arrester is connected on the outside as follows: The numeral 30 indicates a rod having an annular end 31 and a head 32. The switch-arm is provided with an annular opening at its pivotal center, and the rod 30 is passed from the interior of a building through the annular opening in the



switch, and the end of said rod projecting beyond the said switch is then cut off, so that an operator may manipulate the switch from the interior of a building. The lower end of the plate 28 is provided with a binding-post 33, connected with a wire 34, leading to a telephone 35, and the lower corner of the plate 28 is beveled at 36 for purposes hereinafter made clear. The numeral 37 indicates a second grounding-plate secured by a screw 38 to the base 10 and provided with a binding-post 39, to which the ground-wire 40 is connected. The edge of the plate 37 adjacent to the plate 28 is parallel with the beveled edge 36 of said plate and is spaced apart a slight distance therefrom. The arrangement is such that if the switch-arm 29 is placed in position to engage the contact-plate 17, as shown in Fig. 1, then an excessive current of electricity passing over the line-wire would be likely to bridge this space between the plates 28 and 37 and pass to the ground over the wire 40. Said plates are also positioned so that when the switch-arm 29 is extended downwardly, as shown by dotted lines in Fig. 1, it will contact with both of said plates. In this connection it is to be understood that I use my improved arrester in connection with a telephone of the class known as "bridging telephones," and in such telephones the telephone-bell may be rung if the wires running to and from the telephone are connected; but the bell will not ring, if said wires are disconnected. Hence when the switch-arm 29 forms a connection between the plates 28 and 37 the bell will not ring, and the operator will know by this sign that the switch-arm is not in position for using the telephone, and he may then set the switch to proper position before attempting to use the telephone.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a lightning-arrester for telephones, the combination of a base, a contact-plate on the base to be connected with a line-wire and designed to engage a switch-arm, a grounded plate adjacent to said contact-plate, a second

contact-plate spaced apart from the first to be connected with a telephone-wire, a switch-arm connected to the second contact-plate and designed to be moved to and from position connecting with the first contact-plate, and a second grounded plate adjacent to the second contact-plate.

2. In a lightning-arrester for telephones, the combination of a contact-plate to be connected with a line-wire, a second contact-plate to be connected with a telephone-wire, a switch-arm to be connected with the second contact-plate and designed to be placed into or out of contact with the first contact-plate, a grounded plate adjacent to the second contact-plate, said grounded plate also designed to be connected with a telephone-wire, said second contact-plate and said grounded plate designed to be engaged by the switch-arm when it is out of engagement with the first contact-plate.

3. A lightning-arrester comprising a circular base with a flange, a detachable cover therefor provided with a packing-ring and fitted to the flange, a contact-plate secured to the base and comprising an inner and outer layer to receive a switch-arm between them and also formed with an upturned flange, a binding-post on said plate adjacent to the upturned flange to receive a line-wire, a grounded plate having an upturned flange adjacent to the upturned flange of the contact-plate, a second contact-plate, a binding-post thereon to be connected to a telephone-wire, a switch-arm connected with the second contact-plate, a second grounded plate adjacent to the second contact-plate and designed to be connected with a ground-wire and also with a telephone-wire, said switch-arm in one position engaging both the second contact-plate and the second grounded plate and a rod connected with the switch-arm for operating it.

Des Moines, Iowa, March 15, 1905.

FREDERICK A. STAFFORD.

Witnesses:

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