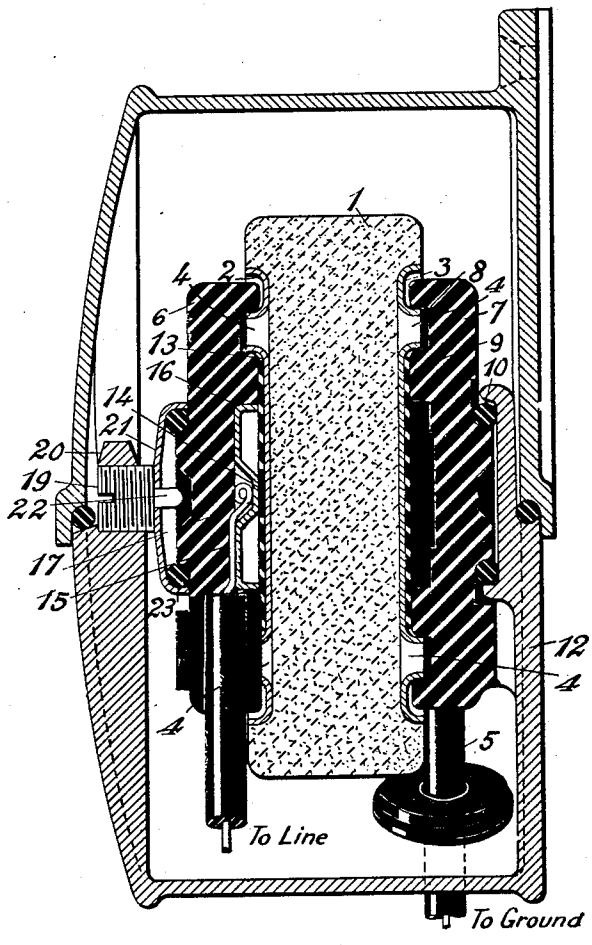
106-84 CROSS REFERENCE EXAMINER

No. 882,265. PATENTED MAR. 17, 1908.

N. J. NEALL.
LIGHTNING ARRESTER.

APPLICATION FILED JAN. 24, 1906.

175-30



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LIGHTNING-ARRESTER.

No. 882,265. Specification of Letters Patent. Patented March 17, 1908.

Application filed January 24, 1906. Serial No. 297,691.

175-30

To all whom it may concern:

Be it known that I, NEWITT J. NEALL, a citizen of the United States and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Lightning-Arresters, of which the following is a specification.

My invention relates to lightning arresters for electrical circuits, and it has for its object to provide an improved structure and arrangement of parts for such devices.

A form of lightning arrester which has been found successful in practice comprises circuits for connecting each of the distributing conductors to the ground, each of which includes a spark gap and a discharge block that offers but little opposition to the passage of high frequency currents but which effectively prevents the passage of dynamo currents.

The discharge blocks may be composed of a mixture of suitable conducting particles or bodies, a non-conducting filler and a binder which facilitates forming the mixture into blocks, the mixture being such that the conducting particles or bodies are held in a substantially invariable out-of-contact relation, thereby providing a large number of paths for discharges. My invention applies particularly to lightning arresters that embody such devices.

The single figure of the accompanying drawing is a view, in vertical section, of a device constructed in accordance with my invention.

A flat, cylindrical discharge block 1 is provided with dished or recessed faces with which correspondingly shaped conducting plates 2 and 3 are adapted to engage and to which they are preferably cemented, each of the plates being provided with a pair of studs or bosses 4 that are punched therefrom or that are formed in any other suitable manner, the exposed edges of the block being preferably enameled to prevent the absorption of moisture. A conducting lead 5 that is adapted to be connected to the ground, is soldered or otherwise connected to the plate 3. The block 1 and the plates 2 and 3 are supported in position between blocks 6 and 7 of porcelain or other insulating material, the inner faces of which are provided with recesses 8 into which the bosses 4 project for the purpose of preventing relative displacement of the engaging parts. A piece of suitable insulating material 9, such as fish-paper or fuller-board, is interposed between the block 7 and the plate 3 and a gasket 10 is interposed between the block 7 and the inner face of the lower half of an inclosing and supporting casing 12, both being for the purpose of affording cushions for the insulating block 7.

One or more sheets 13 of suitable insulating material, such as mica, having central apertures 14, are placed between the porcelain block 6 and the plate 2 and a dish-shaped terminal plate 15, that is located in a central recess 16 in the block 6, is placed with its concave face toward the insulating sheets 13 The plate 15 is provided with a central boss 17 that is punched therefrom or formed in any other suitable manner and is located directly over the apertures 14 in the mica sheets 13, an air-gap being thereby provided between the boss 17 and the plate 2. The width of the air-gap may be adjusted by varying the number or thickness of the mica sheets. The parts are all clamped together by means of a set-screw 19 that is threaded into a rib 20 in the interior of the lower half of the inclosing casing 12. A dish-shaped plate 21, having a central aperture through which a reduced portion 22 of the set-screw projects, is placed with its concave face toward the insulating block 6 and serves as a wearing piece and affords mechanical protection to the insulating block 6, a gasket 23 being interposed between the plate 21 and the block 6 for the purpose of affording a cushion for the block.

The discharge blocks may be composed of granulated carborundum or other suitable refractory conducting material, or of a material of fixed composition that is produced or disintegrated electro-chemically, a non-conducting filler, such as powdered spar, and a suitable binder, such as water-glass. The carborundum or other conducting substance may also be mixed with a non-conducting material which will serve both as a filler and as a binder, such as fireclay, cement and shellac, a mixture of magnesium oxid and magnesium chlorid, or any one of many other compositions.

Another composition which has been found useful and which forms the subject-matter of another application, Serial No. 297,690, filed by me of even date herewith,

comprises bodies or pellets of carborundum or other suitable conducting substances, such as have been described, that are first coated with an insulating and preferably porous material, such as fireclay, and which are secured together by means of a suitable insulating filler and binder, such as fireclay, a mixture of magnesium oxid and magnesium chlorid or others of the compositions which have been described.

I claim as my invention:

1. In a lightning arrester, the combination with a discharge block and conducting plates provided with lateral projections and secured to the faces of said discharge block, of insulating blocks that support the discharge block and are provided with central recesses and with other recesses into which the lateral projections of the conducting plates are seated, a terminal plate located in the central recess in one of the insulating blocks and provided with a boss, insulating sheets having apertures interposed between the terminal plate and one of the plates on the discharge block and directly opposite the boss on the terminal plate, and means for clamping the parts together.

2. In a lightning arrester, the combination with a discharge block and conducting plates secured to the faces thereof, of an apertured sheet of insulating material secured to one of the conducting plates, a terminal piece having a boss located directly opposite the aperture in the insulating sheet, and insulating blocks for supporting the discharge block and for securing the terminal plate in position.

3. In a lightning arrester, the combination with a discharge block, conducting plates secured to the faces thereof, and means for making circuit connection to one of the plates, of a terminal plate having a boss, an apertured insulating sheet interposed between the terminal plate and the other conducting plate upon the face of the discharge block, and insulating blocks for supporting the discharge block, one of which is provided with a central recess in which the terminal plate is located.

4. In a lightning arrester, the combination with a discharge block, conducting plates secured to the faces thereof, and means for making circuit connection to one of the plates, of an apertured insulating sheet interposed between the terminal plate and the other conducting plate upon the face of the discharge block, insulating blocks for supporting the discharge block, one of which is provided with a central recess in which the terminal plate is located, and means for clamping the parts together.

5. In a lightning arrester, the combination with a discharge block, conducting plates secured to the faces thereof, and means for making circuit connection to one of the plates, of an apertured insulating sheet interposed between the terminal plate and the other conducting plate upon the face of the discharge block, insulating blocks for supporting the discharge block, one of which is provided with a central recess in which the terminal plate is located, an inclosing casing, and means for clamping and supporting the parts between the walls thereof.

6. In a lightning arrester, the combination with a discharge block, conducting plates secured to the faces thereof and having lateral projections, and means for making circuit connection to one of the plates, of a terminal plate having a boss, a sheet of insulating material interposed between the terminal plate and the other conducting plate upon the face of the discharge block and having an aperture directly opposite the boss, and terminal blocks having recesses in their inner faces in which the conducting plate projections are seated and one of which has a central recess in which the terminal plate is located.

7. In a lightning arrester, the combination with a discharge block, conducting plates secured to the faces of said block and having outwardly projecting bosses, and means for making circuit connection to one of the plates, of a terminal plate having a boss, a sheet of insulating material interposed between the terminal plate and the other conducting plate and having an aperture directly opposite the boss, and terminal blocks having recesses in their inner surfaces into which the bosses upon the conducting plates project, an inclosing casing for said parts having means for clamping them together in proper position therein.

8. A lightning arrester comprising a discharge block, conducting plates secured to the faces thereof, an apertured sheet of insulating material secured to one of the conducting plates, a terminal piece covering the aperture in the insulating sheet and insulating blocks between which said parts are clamped.

In testimony whereof, I have hereunto subscribed my name this 18th day of January, 1906.

NEWITT J. NEALL.

Witnesses:
R. B. INGRAM,
BIRNEY HINES.