

No. 848,045.

PATENTED MAR. 26, 1907.

J. H. PEARSON.
LIGHTNING ARRESTER.
APPLICATION FILED JAN. 9, 1906.

Fig. 1.

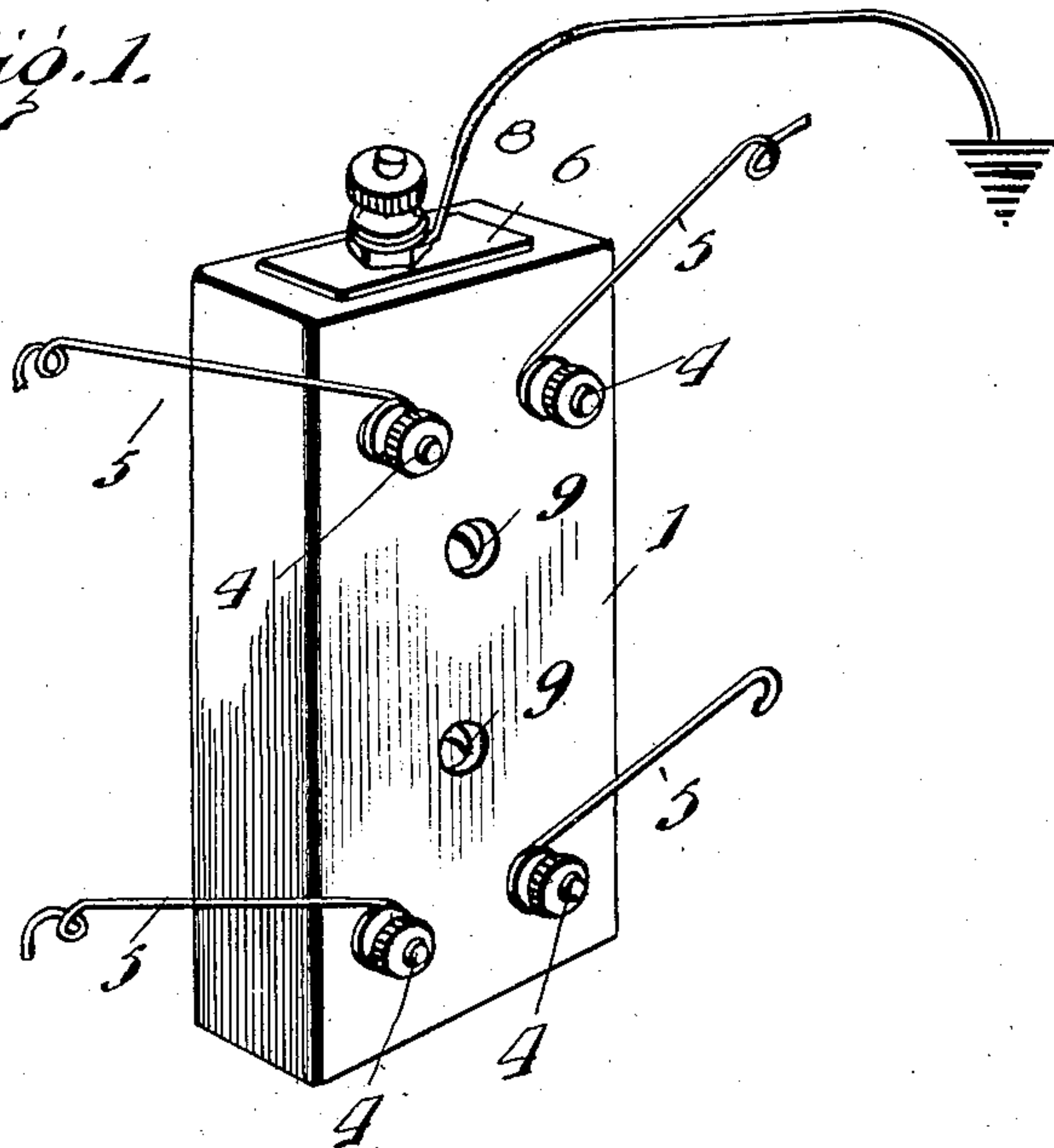


Fig. 2.

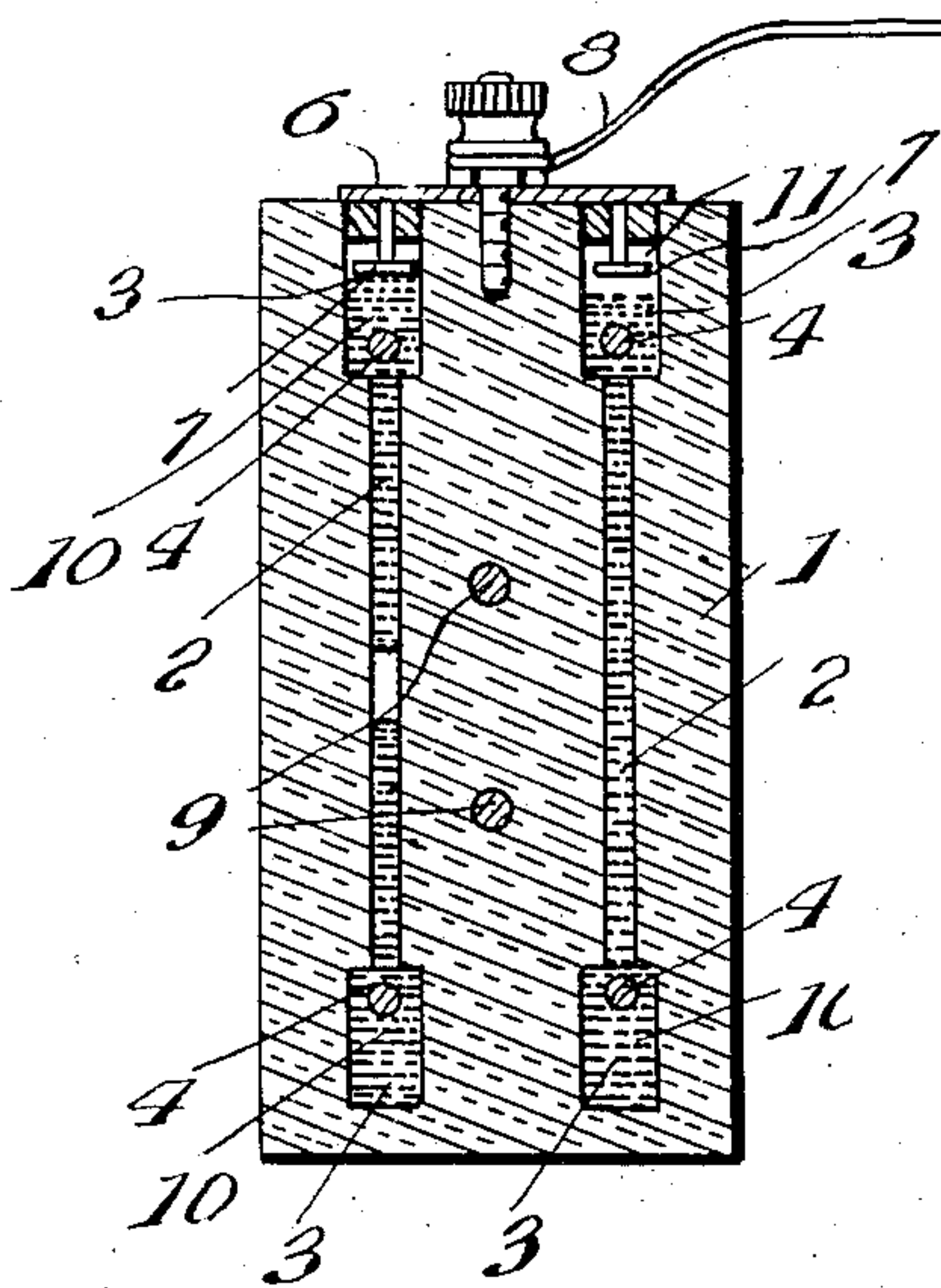
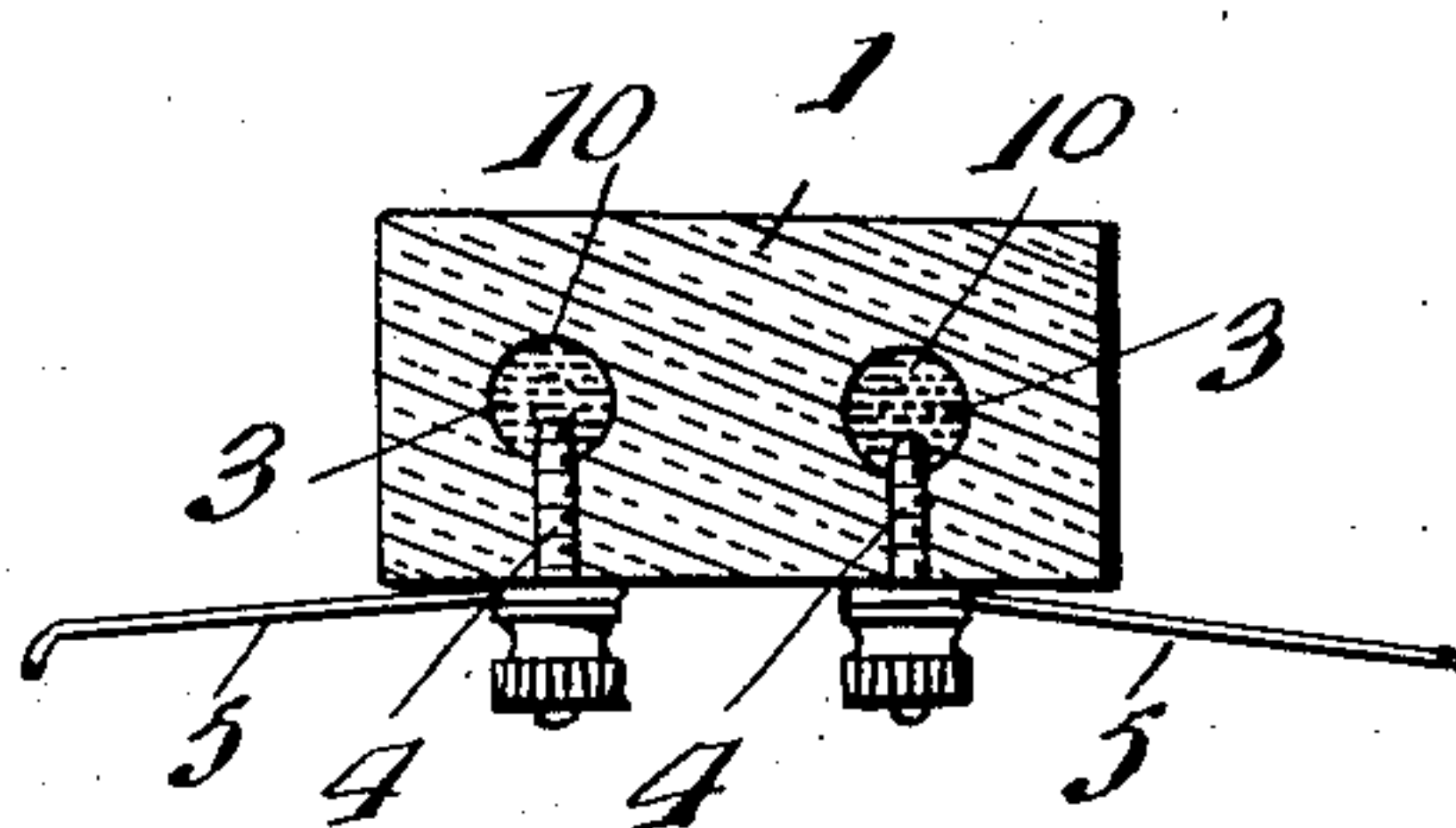


Fig. 3.



Inventor

J. H. Pearson

Witnesses

Wm. M. Mace
H. P. Hoodson.

By

Wm. M. Mace, Attorneys

UNITED STATES PATENT OFFICE.

JAMES H. PEARSON, OF BLOOMFIELD, INDIANA.

LIGHTNING-ARRESTER.

No. 848,045.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed January 9, 1906. Serial No. 295,291.

To all whom it may concern:

Be it known that I, JAMES H. PEARSON, a citizen of the United States, residing at Bloomfield, in the county of Greene and State of Indiana, have invented certain new and useful Improvements in Lightning-Arresters, of which the following is a specification.

The object of my invention is to provide an improved construction of lightning-arrester embodying a novel and useful block designed to be introduced into a telephone or other circuit and arranged to absorb or carry off, preferably by grounding, any excess or overload current.

The invention consists, essentially, of a device of this character introduced into an electric circuit and provided with capillary passages containing mercury or similar conducting or expansible fluid, the passages opening at both ends into mercury-chambers in which there is a ground-terminal, so that any overload or excessive current will expand the columns of mercury in the passages or tubes and effect a contact between the same and the ground-terminal to carry off the excessive current.

For a full description of the invention and the merits thereof, and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a vertical section thereof. Fig. 3 is a horizontal section.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawing, the numeral 1 designates a block, which is preferably of porcelain or similar non-conducting material. The block 1 is provided with two longitudinal passages 2, each of which opens at both ends into an enlargement or chamber 3. Into each chamber 3 there extends a line-terminal 4, provided with any desired form of binding-screw for the line-wires 5.

6 designates a ground-plate, which in the present instance is permanently attached to one end of the block 1 and is provided with two terminals 7, extending into the adjacent chambers 3. The ground-plate 6 is provided with a binding-screw for the ground-wire 8.

9 designates screws or similar fastening means by which the block 1 may be secured

to any stationary part and at the proper convenient location. The passages 2 and chambers 3 in the block 1 are designed to contain a predetermined amount of mercury or similar conducting and expansible medium 10, and the amount of said medium is so regulated or determined as to leave under normal conditions an air-space 11 between the ground-terminal 7 and the said conducting medium, as indicated in the drawings.

In the practical operation of the device any slight excessive current introduced into the main circuit will by its heat expand the mercury 10, and thereby eliminate the air-spaces 11 between the mercury and the ground-terminals 7, and thereby ground the circuit and absorb or carry off the overload. Hence the sensitive mechanisms of the telephone or other device to which my improved block is connected will be protected from any excessive or overload current at all times. Any excessive current or high voltage, such as would occur from lightning, would so act on the mercury 10 that it would violently expand the same and not only effect a contact between the ground-terminals and the mercury, but break the columns of mercury at different points by the violent expansion.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided an improved construction of lightning-arrester or similar device which embodies two mercury columns designed to be introduced in an electric circuit and so arranged in connection with a ground-terminal that any excessive current or overload will short-circuit or ground the circuit and protect the included parts from injury.

Having thus described the invention, what is claimed as new is—

1. A device of the character described, comprising a block of insulating material provided with line-terminals and columns of expansible conducting media connecting the same, and ground-terminals secured to said block, said ground-terminals being in communication with the said columns and normally spaced therefrom.

2. A device of the character described, comprising a fuse-block provided with longitudinally-extending capillary passages and chambers communicating therewith at both ends, line-terminals secured to said block and extending into said chambers, columns of expansible conducting media in said passages

and chambers, and ground-terminals extending into said chambers and normally spaced from the columns of mercury therein.

3. A device of the character described,
5 comprising a block of insulating material provided with two capillary passages enlarged at both ends whereby to form four chambers, columns of mercury in said passages and chambers, line-terminals secured to said
10 block and each extending into one of said chambers in contact with the mercury therein, and a ground-plate secured to the top of

said block and provided with two terminals each of which extends into the adjacent mercury-chambers with its ends normally spaced 15 from the mercury therein, as and for the purpose set forth

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

JAMES H. PEARSON. [L. s.]

Witnesses:

JOHN M. GRAY,
LON ALLEN.