

M. M. WOOD.
LIGHTNING ARRESTER.

No. 473,045.

Patented Apr. 19, 1892.

Fig. 1.

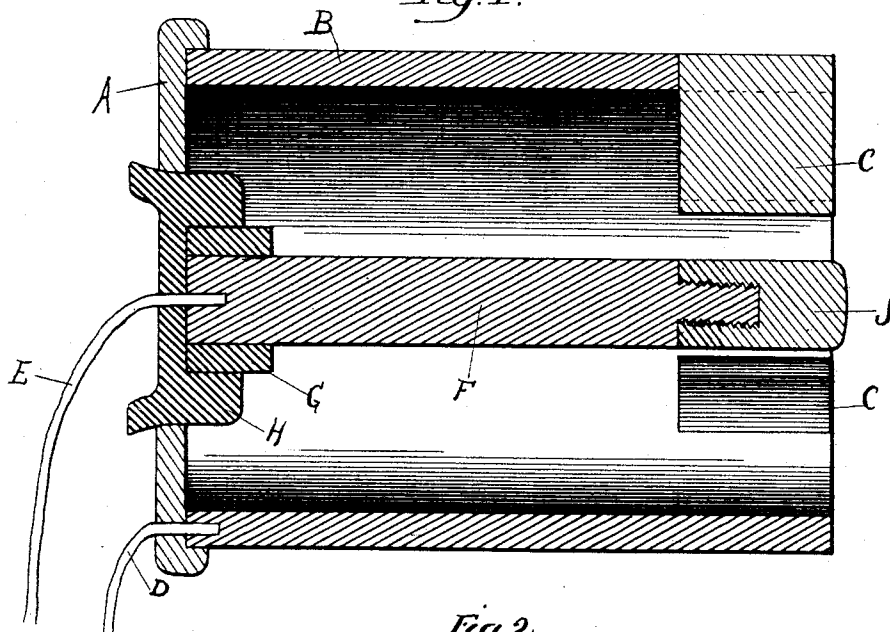
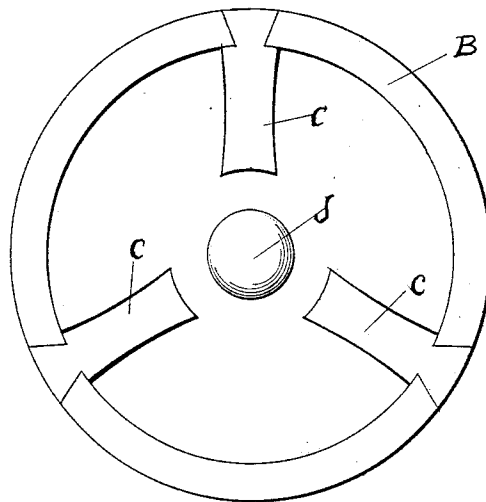


Fig. 2.



Witnesses:

Samuel M. Day.

Julia W. Allen.

Inventor:

Montreville M. Wood.

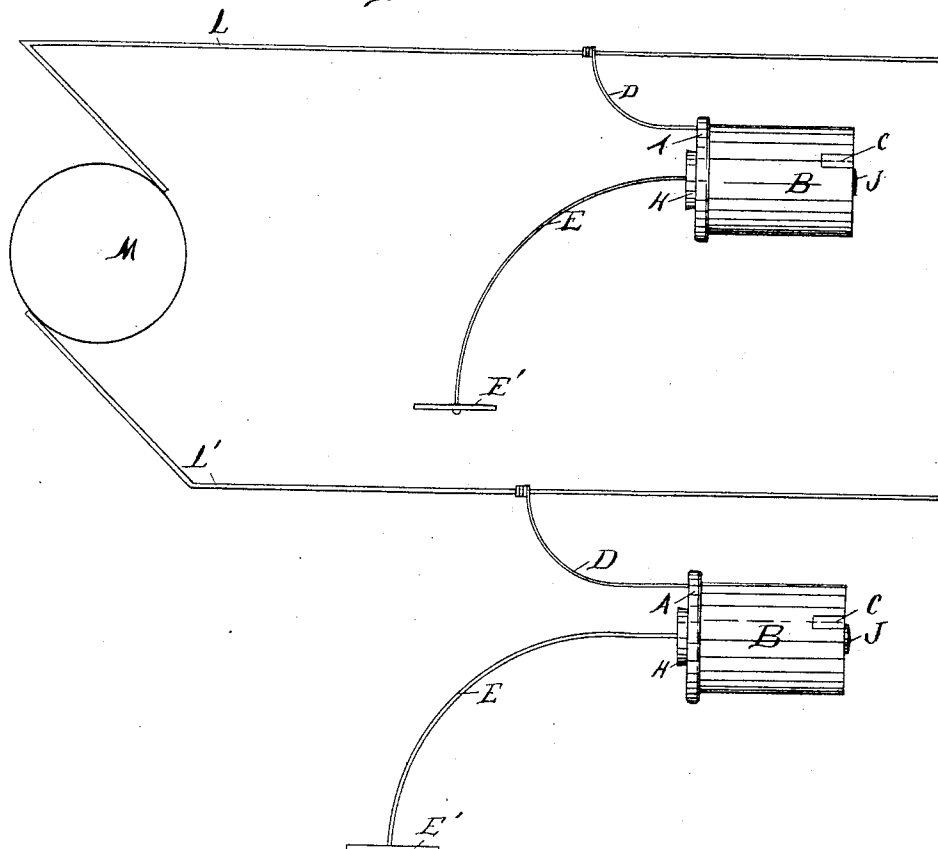
By Francis W. Parker,
Attorney

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Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

MONTRAVILLE M. WOOD, OF CHICAGO, ILLINOIS.

LIGHTNING-ARRESTER.

SPECIFICATION forming part of Letters Patent No. 473,045, dated April 19, 1892.

Application filed June 20, 1891. Serial No. 396,919. (No model.)

To all whom it may concern:

Be it known that I, MONTRAVILLE M. WOOD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lightning-Arresters, of which the following is a full, clear, and exact specification.

My invention relates to lightning-arresters, and has for its object to provide a simple, cheap, and convenient lightning-arrester, particularly such arrester as can be conveniently carried. It is illustrated in the accompanying drawings, wherein—

Figure 1 is a longitudinal cross-section through the arrester. Fig. 2 is a plan view of the cylinder. Fig. 3 is a diagrammatic view showing the arrangement of the lightning-arrester in circuit.

Like parts are indicated by the same letters in all the figures.

A is a base, preferably of high insulating material.

B is a cylinder, which is preferably composed of a conductor of high resistance with reference to currents other than static. Removably secured to the upper end of the cylinder are three inwardly-projecting plates C C. The cylinder is securely seated upon the base A, and is connected at one or more parts to the conductor D, which leads to the line or main conductor.

E is a ground-conductor connected with the rod F, which may be of either high or low resistance material, and which is securely retained by the collar G in the cup H on the base A.

J is a removable head on the rod F.

The cylinder B is preferably made, as also the plates C C, of a substance which will conduct the ordinary working electric currents, but has a high resistance with reference thereto. Such cylinder and plates or a considerable portion thereof are, however, of such size or magnitude or present such an extended surface as to serve as good conductors for a static charge without too much heat.

The removable head J and plates C C are designed to permit the easy repairing of the device should it become injured by discharges. These parts could be very greatly

altered, and a wide latitude is allowed in the matter of the construction of the parts. It will be seen that from the conductor D, which leads from the line, the charge will pass over a widely-extended surface, so that if static electricity is discharged it will pass freely. A considerable portion of this path, however, is of high resistance, preferably the cylinder itself, and therefore the working current will not follow the static discharge. The parts might even be arranged so as to dispense with the air-space, which is in this particular form of construction shown between the plates C C and head J.

N is a dynamo or motor.

L L' are line-wires, and E E' the ground-plates.

The use and operation of my invention are as follows: When a static discharge has been received on a working circuit, it will discharge itself by means of the conductor D and the conductors B C C onto the head J, and thence through F and E to the ground. The working current might tend to follow and to maintain the arc which would be momentarily established between the plate C and the head J; but since the cylinder B is of high resistance the current is choked back, as it were, and the arc destroyed, so that the working current cannot follow the static discharge.

Obviously the arrangement of the devices might be changes so that the ground conductor would connect directly with the exterior shell or surface, and in this event the arrangement of high and low resistance elements might be changed or varied—as, for example, the outer cylinder might in such case be made of low-resistance material and the inner rod of high resistance. The resistance employed may be of any convenient kind or character—as, for instance, a continuous body of suitable material or a body built up from a series of plates or other portions variously disposed in relation to each other. The construction and substance of the resistance may be varied greatly. The drawings are designed to illustrate only the general shape of the preferred form of resistance. The circuit from the line to ground includes the short air-space which intervenes between the opposed high and low resistances, and the high resistance is so only

relative to the opposed so-called low resistance.

I claim—

1. In a lightning-arrester, the combination
5 of a ground-wire with a wire leading to the
line and a connecting-circuit from line to
ground, consisting in part of a substance of
high resistance and a substance of low resistance,
the two opposed to each other and one
10 substantially surrounding the other.

2. In a lightning-arrester, the combination
of a ground-wire with a wire leading to the
line and a connecting-circuit from line to
ground, consisting in part of a conductor of a
15 high-resistance substance shaped so as to present
a widely-extended surface and a low-resistance
conductor opposed to such widely-extended surface.

3. In a lightning-arrester, the combination
of a ground-wire with a wire leading to the 20
main line and a circuit connecting the two,
consisting of a cylinder of high-resistance substance
with a rod exposed in proximity to
such cylinder.

4. In a lightning-arrester, the combination 25
of a ground-wire with a wire leading to the
main line and a circuit connecting the two,
consisting of a cylinder of high-resistance substance
with a rod exposed in proximity to
such cylinder, said plates and the head of 30
said rod removable.

MONTRAVILLE M. WOOD.

Witnesses:

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