

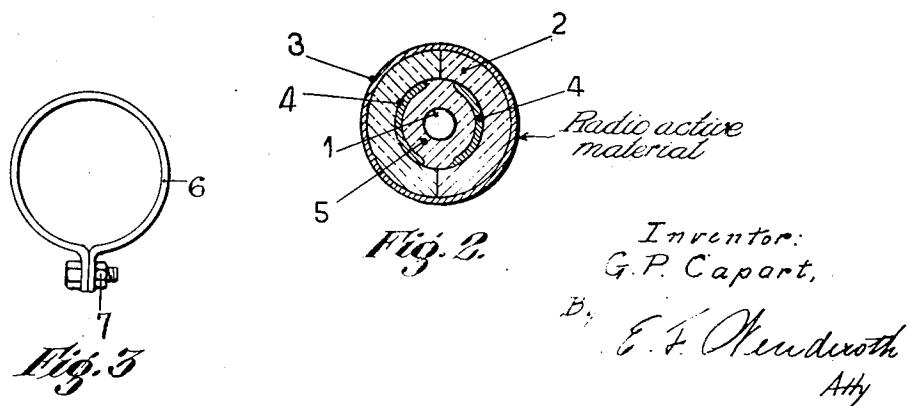
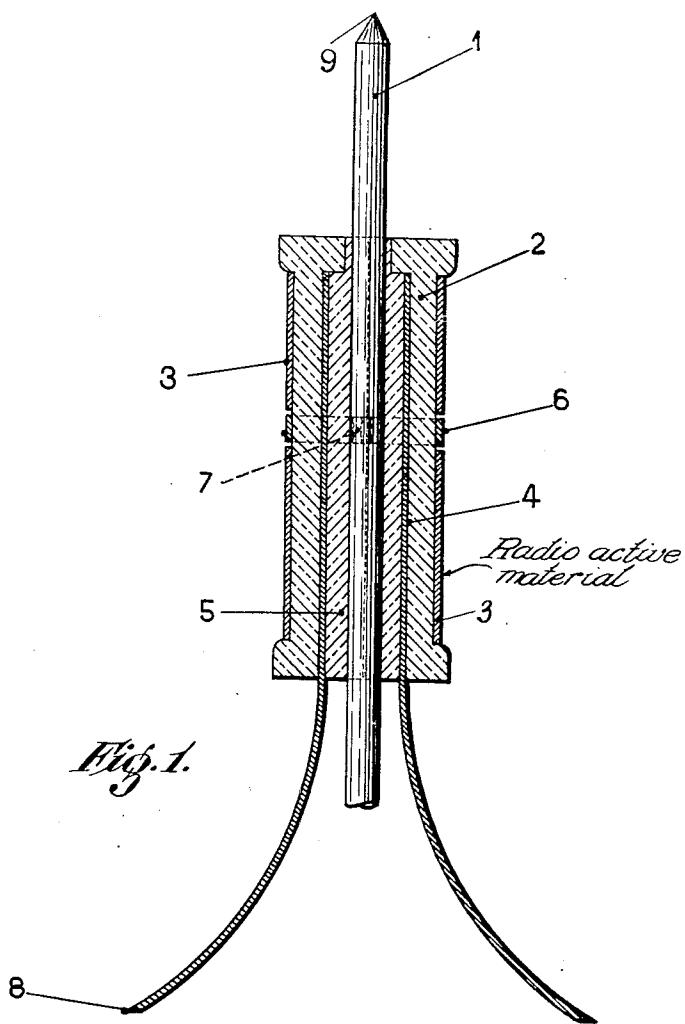
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G. P. CAPART

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LIGHTNING ROD ASSEMBLY

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## UNITED STATES PATENT OFFICE

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## LIGHTNING ROD ASSEMBLY

Gustave Paul Capart, La Varenne St. Hilaire,  
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4 Claims. (Cl. 173—31)

The present invention relates to lightning rod assemblies.

It has already been suggested that the tips of lightning rods be coated with radioactive material in order to ionize the air just adjacent. This ionizing effect, it is found, can be enhanced by utilizing auxiliary electric circuits fed by independent sources of current.

One of the objects of the present invention is to increase the ionizing effect adjacent an ionized rod without utilizing any external source of current, recourse being had to the electrostatic field of the earth for obtaining an autoexciting effect.

Other objects will appear in the course of the detailed description now to be given with reference to the accompanying drawing, in which, the figures represent an illustrative embodiment of the invention.

Figure 1 is an axial section through the invention showing parts in elevation,

Figure 2 is a transverse section, and

Figure 3 is a plan view of a detail.

In carrying out the invention, a layer of radioactive material embedded in enamel is used to ionize the rod and the auto exciting circuit is formed by a pair of metallic elements in the form of antennae insulated from the lightning rod, the extremities of this circuit being situated at points in the atmosphere at different potentials. At the approach of a storm, the differences in potential of the atmosphere may surpass several thousand volts per meter and the auto-exciting effect may become greater than if a special source of current were being utilized.

Referring to the drawing, there is shown a lightning rod 1 connected to the earth,—an annular insulating layer 2,—a layer of radioactive material 3 embedded in enamel,—an autoexciting circuit composed of metallic elements 4 insulated from rod 1 by insulator 5, and a pair of divergent

elements 8 whose extreme points are sufficiently separated to produce a difference of potential adjacent the radio-active layer,—an assembly collar 6,—and bolt 7 maintaining the ends of collar 6 in closed position.

At a distance of one meter and during the approach of a storm the difference in potential of atmospheric layers at points 8 and 9 may be greater than several thousand volts.

Obviously, the invention is not limited to the structure or application shown in the drawing. Thus, transmission lines may be protected against atmospheric discharges and surges in a manner similar to that described. The electric line may, either alone or in combination with resistances, condensers or capacities, act as the exciting circuit.

I claim:

1. A lightning rod assembly comprising a rod, a radioactive material spaced from said rod so as to ionize the air adjacent said rod, electrodes associated with said rod setting up an electric field for exciting said radioactive material and a circuit including said electrodes having a source of potential from the surrounding atmospheric layers.

2. A lightning rod assembly as set forth in claim 1 in which the ends of said electrodes are placed at points between which the air field has a difference of potential.

3. A lightning rod assembly as set forth in claim 1 wherein said rod itself forms part of the exciting electric field.

4. A lightning rod assembly as set forth in claim 1 in which said radioactive material and said electrodes generating the exciting electric field form an independent construction detachably connected with said rod.

GUSTAVE PAUL CAPART. 40