(No Model.)

C. M. RADFORD.

GROUNDING DEVICE FOR LIGHTNING RODS.

No. 452,983. Patented May 26, 1891.

Fig. 1.

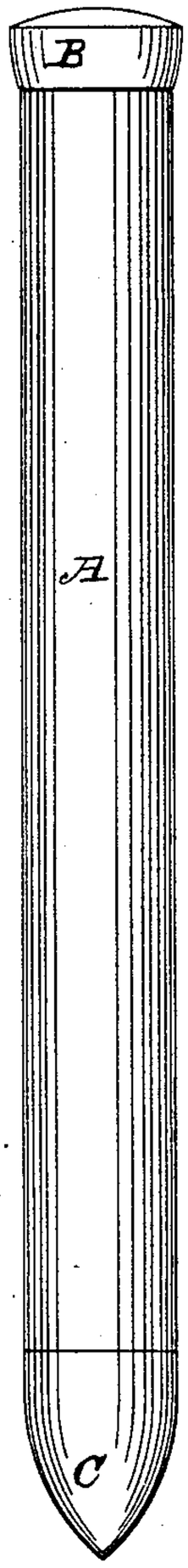


Fig. 2.

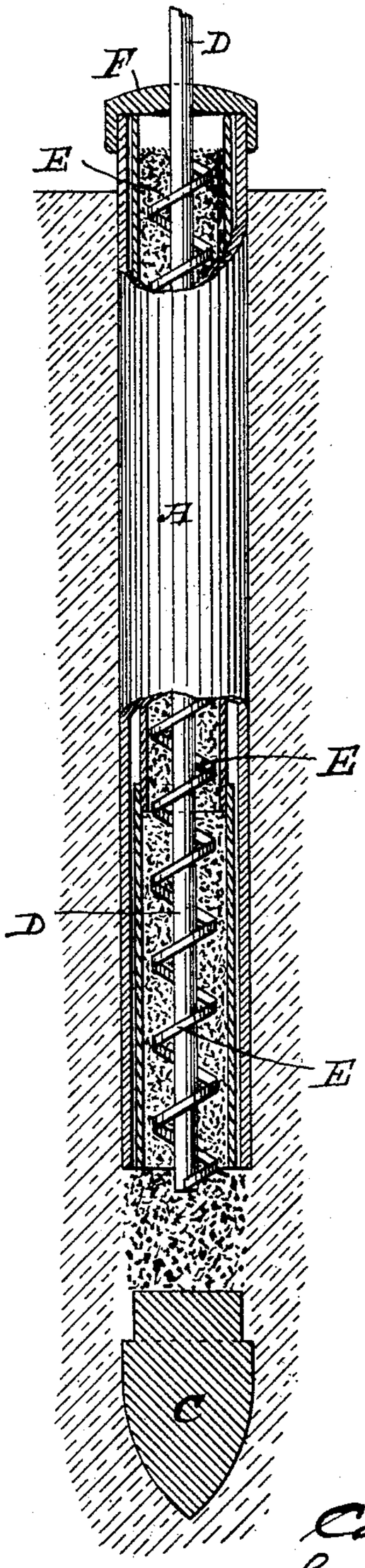
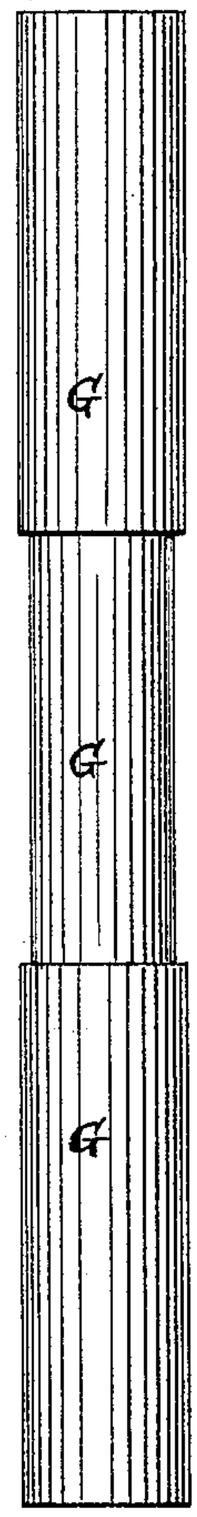


Fig. 3.



Witnesses

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CASSIUS M. RADFORD, OF EAST CONCORD, NEW HAMPSHIRE.

GROUNDING DEVICE FOR LIGHTNING-RODS.

SPECIFICATION forming part of Letters Patent No. 452,983, dated May 26, 1891.

Application filed January 19, 1891. Serial No. 378,219. (No model.)

To all whom it may concern:

Be it known that I, CASSIUS M. RADFORD, a citizen of the United States, residing at East Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Grounding Devices, of which the following is a specification.

This invention relates more especially to lightning-rods, the object of the invention being to provide a suitable ground-terminal for lightning-rods, which may be readily driven into the ground and connected to a rod just above the surface.

The invention consists of the combination of a novel device comprising wires, tubes, and a suitable filling for the latter, all of which will be fully set forth and described in the following specification and claims, and clearly illustrated in the accompanying drawings, forming a part thereof, of which—

Figure 1 represents an elevation of my improved device as when ready for driving into the ground. Fig. 2 is a sectional elevation showing the device as when in the ground and ready for attachment to the lightning-rod. Fig. 3 is an elevation showing the case (made in sections) for inclosing the improved grounding device ready for use or transportation.

Similar letters designate corresponding parts.

Lightning-rods often prove ineffective simply because the lower end is not properly grounded, or if inserted far enough in the ground oxidation sometimes renders them defective. To prevent the latter, lightning-rod agents, with the intention of doing a good job, will dig a deep hole and place a small quantity of charcoal in the bottom, allowing the end of the rod to terminate therein, and then fill up the hole with earth.

It is to avoid the labor and time involved in preparing the ground terminus of lightning-rods, as above mentioned, that suggested the present invention, and also to devise a grounding device which may be readily transported ready for immediate use without the necessity of digging a hole.

To carry my invention into practice I provide an iron tube A, of any required length, having a cap B fitting its top end and a conical plug C inserted in its lower end. This tube is then driven into the ground, its cap B removed and a rod or bar inserted, by which the plug C is driven out of the tube a few inches farther into the ground, as seen in Fig. 2. Then a little charcoal or other similar material is dropped down the tube, covering the plug, and all is then ready for inserting the improved grounding device. This consists of a rod D, which is sufficiently long to reach to the bottom of the tube A and extend far enough above the same to be connected to the lower end of a lightning-rod.

As an auxiliary to the conductive or attractive force of the rod D, I prepare in helical form a rod E, which is connected at either or both ends to the rod D, both said rods D E being made, preferably, of copper. The rod D may be provided with a loose collar F, and when the rods D E have been placed in position within the tube A the latter is filled with pulverized charcoal, when the said collar F is dropped down upon the top of said tube A, forming a cap for same.

If it is desired to transport the rods D E with the pulverized charcoal or its equivalent ready for use, the same may be placed within paper cylinders G, (illustrated in Fig. 3,) and after driving the plug C out of the tube A, as previously described, these tubes G, containing the rods D E and the filling material, may be placed in said tube A and allowed to remain, as seen in Fig. 2.

By the foregoing it will be seen that my improved grounding-rods are entirely protected (so far as they may extend below the surface) from oxidation, and thus rendered more efficient than are rods which are sunk into the ground without such protection. The outer driving-tube may rust; but as its bottom is driven down still farther into the ground and covered with charcoal before inserting the grounding-rods, and as the latter are then completely surrounded with charcoal, the rusting of this outside or driving tube will have no bad effect upon my improved grounding device, as rusty iron will not conduct lightning so readily as iron which is not rusty, or so readily as copper, of which material I prefer to form the rods D E.

Having described my invention, what I claim as new is—

1. In a grounding device for lightning-rods, a straight rod for connecting with a lightning-

rod and a rod forming a helix surrounding said straight rod and attached thereto, in combination with a metal tube having at its lower end a detachable conical plug for driving into the ground, and suitable filling for said tube, all substantially for the purpose specified.

2. In a grounding device for lightning-rods, a straight rod for connecting with a lightning-rod and another rod forming a helix surrounding said straight rod and attached thereto, a suitable case formed in sections and of heavy straw-board or like material for inclosing said grounding-rods, and a suitable filling for preventing oxidation, all substantially for the purpose specified.

3. As a means of forming a hole for the ground connections of lightning-rods, a metal tube provided at its lower end with a detachable plug formed conical, in combination with the grounding-rods and suitable filling for preventing the oxidation of said rods.

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

CASSIUS M. RADFORD.

Witnesses:
J. B. THURSTON,
DANIEL B. DONOVAN.