

M. D. PHELPS.
Lightning-Rod.

No. 159,961.

Patented Feb. 16, 1875.

Fig 1

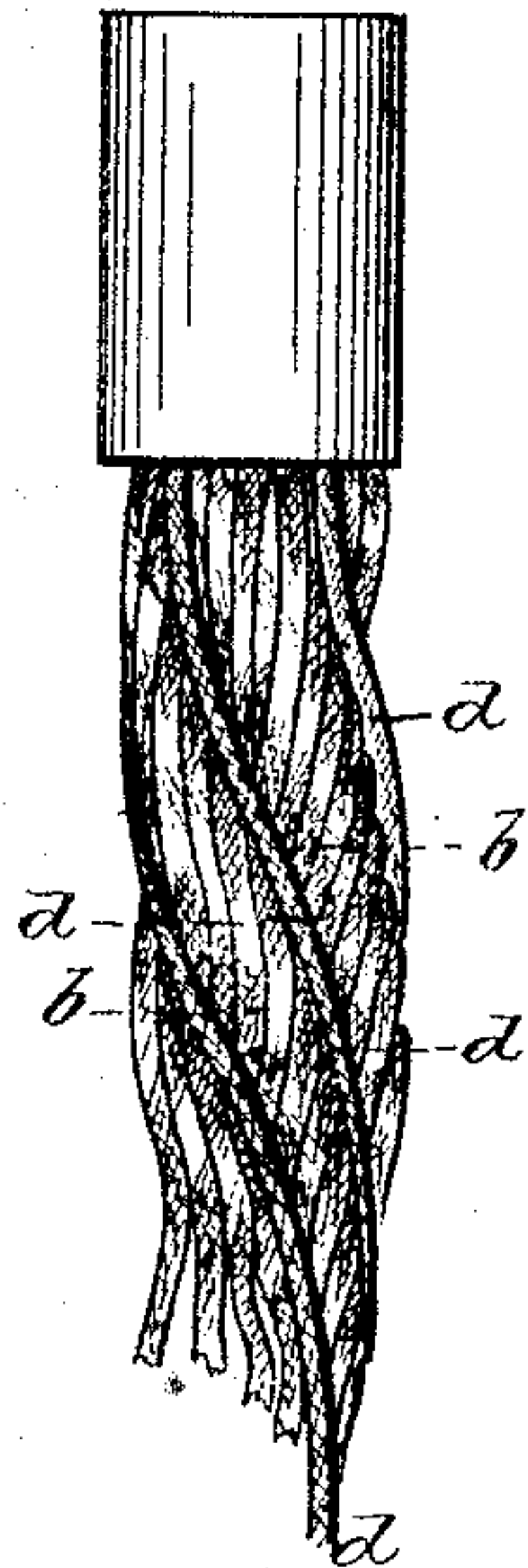
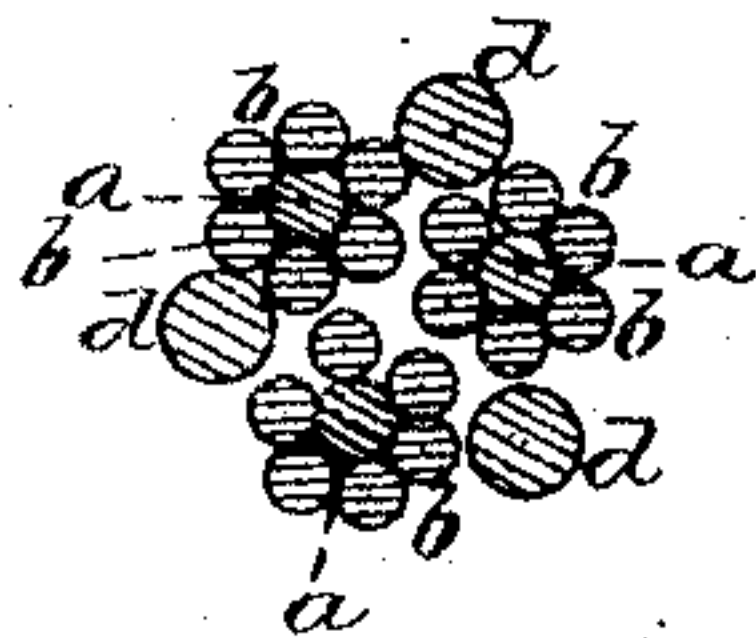


Fig 2



WITNESSES.

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By

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UNITED STATES PATENT OFFICE.

MYRON D. PHELPS, OF BRISTOLVILLE, OHIO.

IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **159,961**, dated February 16, 1875; application filed April 4, 1874.

To all whom it may concern:

Be it known that I, MYRON D. PHELPS, of Bristolville, in the county of Trumbull and in the State of Ohio, have invented certain new and useful Improvements in Lightning-Rods; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, making a part of this specification.

My present invention consists in an improvement upon the lightning-rod patented to me December 19, 1871, No. 122,055, and relates to the construction and combination of parts, as hereinafter set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view of a part of my lightning-rod; and Fig. 2 is a cross-section of the same.

In the construction of my lightning-rod I use one or more copper wires or strips, which may be twisted together or not, as desired, to form a center, *a*. Three or more of these centers are then covered independently with a suitable number of wires or strips, *b b*, of any desired metal, to form a perfect covering. The several cables thus made are then twisted together in the same manner as of the first twist, thus forming a single cable with several copper centers. Having the wires or strips all twisted in the same direction prevents them from crossing or becoming cross-banded.

Wires *d d* are wound on the outside of the cable thus made as wrappers, giving additional strength to the lightning-rod and fill in the spaces between the twisted clusters *a b*. The ends of all the wires or strips are braced or welded or otherwise united, whereby a continuous rod is obtained.

By using the several copper centers I greatly increase the conducting surface and unite a greater amount of copper and wire surface, thus making the combination of the rod more perfect and powerful as a conductor.

The rod, being made of smaller wires or strips, and a greater number employed, renders the rod more flexible, so that a very large rod may be made and used continuously, thus avoiding joints and greatly increasing the surface and natural conducting power.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of three or more clusters of wires, each cluster composed of a copper center, *a*, covered with wires *b b*, and the clusters thus formed twisted together, and the wires *d d* twisted around between the clusters on the exterior, all substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 16th day of March, 1874.

MYRON D. PHELPS.

Witnesses:

W. A. BIRCHARD,
P. J. FREEMAN.