C. H. SMITH.
Lightning-Rod.

No. 198,471. Patented Dec. 25, 1877.

Fig. 1.

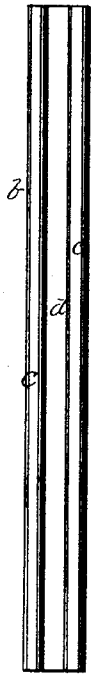


Fig. 2.

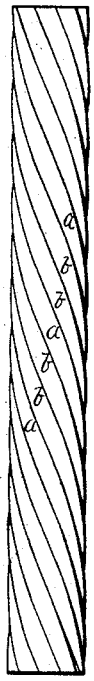


Fig. 3.

Fig. 4.

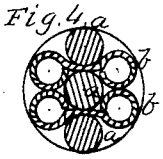


Fig. 5.

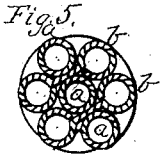
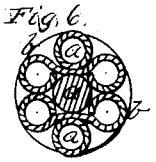


Fig. 6.



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CHARLES H. SMITH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **198,471**, dated December 25, 1877; application filed September 1, 1877.

To all whom it may concern:

Be it known that I, CHARLES H. SMITH, of Chicago, in the county of Cook and State of Illinois, have invented a new and valuable Improvement in Lightning-Rods; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of the binder or double tube. Fig. 2 is a side view of the rod complete. Figs. 3, 4, 5, and 6, are cross-sections of the binder and rods.

This invention has relation to lightning-rods; and it consists in the construction and novel arrangement of a binder or rod, consisting of a pair of tubes connected by a web, as hereinafter shown and described.

The construction of lightning-rods by combining a number of small tubes or rods, or both, in a variety of ways is well understood; and the present invention is designed to overcome the liability of such rods to spread or untwist in the bending and other handling to which they are subject.

In the accompanying drawings, the letter *a* designates the single rods or tubes, which form a considerable part of this lightning-rod. *b* indicates the double tube or binder. This is formed by drawing each edge of a single strip into tubular form, as indicated at *c*, leaving a narrow web, *d*, between the edge tubes of just sufficient breadth to fit neatly between single tubes or rods *a*, arranged on each side of said web. In this construction the single tubes or rods *a* alternate with the barrels of the double tube on the surface, the web extending through the interior, and, when twisted, binding all together securely. For a four-strand rod one double tube or binder will be used, and two for a seven-strand rod.

Thus constructed, the strands will not fly apart in bending or handling. The rod will preserve its contour while being coiled or uncoiled, and therefore can be made for use in considerable lengths. The binder also contributes largely to the rigidity of the rod when in position.

What I claim as new, and desire to secure by Letters Patent, is—

1. The double tube or binder, consisting of a single strip having its edges formed into tubes, and a narrow flat web between the same, adapted to receive the rod, substantially as specified.

2. In a lightning-rod, the combination, with single rods and tubes, of the double tubes or binders, *b*, whereof the barrels alternate with the single tubes or rods on the surface, and the web extends through the interior of the rod between the same, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CHARLES H. SMITH.

Witnesses:

SILAS M. MOODY,

RAYMOND BLISS.