C. H. SMITH.

LIGHTNING-RODS.

No. 183,425. Patented Oct. 17, 1876.

Fig. 1.

Fig. 3.

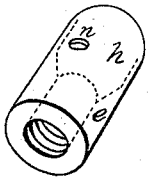
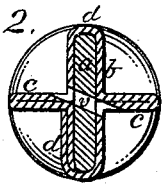


Fig. 4.

Fig. 2.



WITNESSES

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IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **183,425**, dated October 17, 1876; application filed March 17, 1876.

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 my invention with section of couplings. Fig. 2 is a cross-section thereof, enlarged. Figs. 3 and 4 represent details of the parts.

This invention has relation to lightning-rods; and it consists in the construction and novel arrangement of the parts of the rod, which consists of a central flattened iron bar or strip and an exterior copper sheathing, closely following in contact the surface of said bar or strip from the edges thereof to the center on each side, to form two of the ribs of the rod, and beaded upon itself, or doubled longitudinally on each side of said bar or strip, to form the other two ribs. It also consists in the hollow screw coupling-sections, perforated transversely for the reception of the fastening-pin, which passes through a perforation in the end of the central bar or strip, all as hereinafter fully shown and described.

In the accompanying drawings, the letter *a* designates the central iron bar or strip, which may be flattened or oval in sectional form. *b* represents the exterior copper sheathing, which is wrapped upon the same. The method of wrapping is preferably to commence near one edge of the bar with one edge of the strip of copper sheathing, carrying the same to the center of one side of said bar, and there forming a longitudinal corrugation or doubling of the sheathing, as shown at *c*. The copper is continued around the other edge of the bar to the center of the other side, where a similar doubling or corrugated rib, *c*, is formed, the other edge of the copper strip being carried around the first edge of the bar and lapped upon the first edge of the sheathing, the covering edge of said sheathing being carried into the concavity near the doubled rib, and protected thereby. These corrugated ribs are not so deep as the ribs *d*, which are formed by the edges of the central bar; but the thickness of this bar is sufficient to make the diameter between said corrugated ribs equal to that of the bar-section.

It is designed that the copper sheathing shall be sufficiently heavy to give rigidity to these corrugated ribs, and the manufacturer will be required to use copper of sufficient thickness to secure conducting capacity in the rod as well as durability.

The ribs may be formed by drawing through suitable dies, and the rod may be twisted at the same time, which will strengthen the corrugations.

e e represent the coupling-sections, which are respectively provided with male and female screw-threads, each having a hollow cylinder or flange, *h*, for the reception of the end of the rod-section, which is secured therein by a pin, *k*, passing through holes *n* in the opposite sides of the flange, and through a perforation, *v*, in the iron central bar of the rod. In this manner is formed a strong and firm joint, which may be readily manipulated. The pins *k* are properly of copper, as well as the coupling-sections.

The interior of each coupling-cylinder is usually beveled at the bottom, so that the ends of the rod-sections can be wedged therein, to effect a close contact of the copper parts.

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

1. The combination, with the sheet-metal lightning-rod sections, each having the perforated central diametric bar *a*, of the pins *k* and the hollow cylinder coupling-sections *e e*, provided at their adjacent ends with screw-connections, and at their outer ends with cylindrical recesses, to receive the ends of the rod-sections and keep the same in position, substantially as specified.

2. A lightning-rod consisting of a central

flattened or oval bar and an exterior copper sheathing, closely following in contact the surface of the edges of said bar or strip, to form two of the ribs of the rod, and beaded or doubled upon itself longitudinally on each side of said bar or strip to form the other two ribs, 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 W. MOODY,
WILLIAM C. LORIMER.