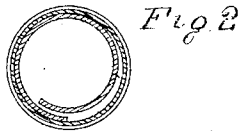
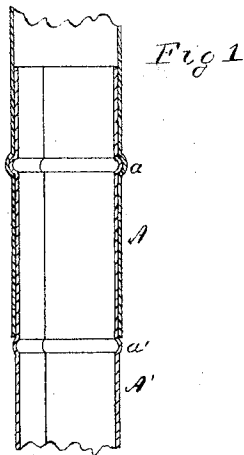


J. DREW.
Lightning-Rods.

No. 145,851.

Patented Dec. 23, 1873.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOSEPH DREW, OF WENONA, ILLINOIS.

IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **145,851**, dated December 23, 1873; application filed July 23, 1873.

To all whom it may concern:

Be it known that I, JOSEPH DREW, of Wenona, in the county of Marshall and State of Illinois, have invented certain new and useful Improvements in Couplings for Lightning-Rods; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 is a vertical central section of my invention. Fig. 2 is a transverse section of the same.

This invention has relation to tubular lightning-rods; and consists in the improved method of forming and connecting the sections, as hereinafter described.

Referring to the accompanying drawings, A A' designate two connected sections of tubular lightning-rod. These sections are formed from narrow sheets of any suitable conducting material, bent to a cylindrical form, and having their edges arranged to overlap. At one end of each section the edges are secured by soldering, brazing, or other available means, while at the other end, and for some distance

along the section, the edges are left free and disconnected to permit of the contraction and expansion of the section.

Two sections are readily connected by inserting the compressible end of one into the rigid or tight end of the other, and causing the annular corrugations *a* to coincide. A shoulder is formed at *a'*, on the inserted section, to prevent the same from being inserted too far. The sections may be disconnected by simply drawing them apart.

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

The tubular lightning-rod, as herein described, that is composed of connected tubular sections, each having a side seam fastened at one end, and open and compressible at the other end, said sections having, respectively, the corrugations *a* and shoulders *a'* arranged as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of July, 1873.

JOSEPH DREW.

Witnesses:

JOHN H. JACKSON,
W. R. PHILLIPS.