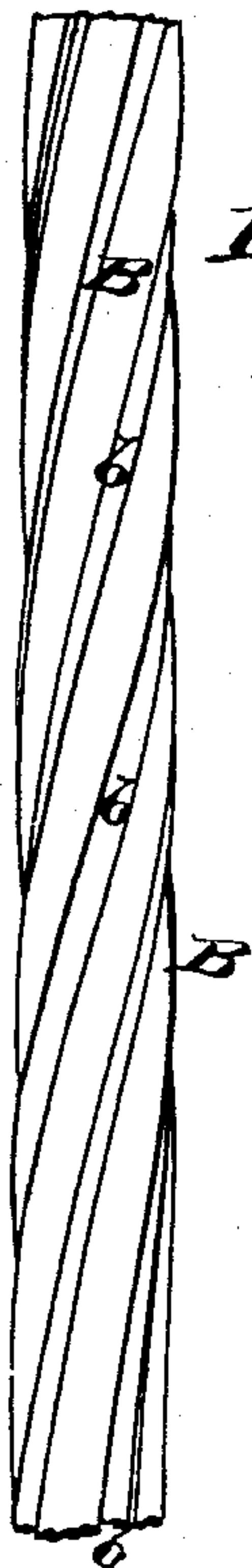


N. VAN LOON.  
LIGHTNING ROD.

No. 190,391.

Patented May 1, 1877.



WITNESSES  
*E. H. Bates*  
*George E. Upham*

INVENTOR.  
*Nicholas Van Loon*  
*Gilmore & Smith & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

NICHOLAS VAN LOON, OF ST. CLOUD, MINNESOTA.

## IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **190,391**, dated May 1, 1877; application filed February 24, 1877.

*To all whom it may concern:*

Be it known that I, NICHOLAS VAN LOON, of St. Cloud, in the county of Stearns and State of Minnesota, 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 elevation of my lightning-rod, and Fig. 2 a transverse vertical section thereof.

This invention consists in the combination of a compound central iron core of wound rods, with detached longitudinal strips of copper wound thereon, substantially as and for the purpose hereinafter set forth.

In the accompanying drawing, A designates the core of a cable lightning-rod, consisting of a central galvanized-iron rod, *a*, and a series of similar rods, *a'*, surrounding the same, all of said rods being twisted and soldered together. B designates several longitudinal strips, or long thin narrow sheets of copper, which are wound obliquely about said core, so as to cover the whole of it, except nar-

row spaces *b*, intervening between said strips. The latter are secured to said core by soldering.

The exposure of the edges of said copper strips increases the surface of copper available as a conductor, and the helical arrangement of said strips adds to the strength of the rod. The iron core, consisting of twisted rods *a* and *a'*, affords a strong central support.

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

The combination of the core A, consisting of the central galvanized-iron rod *a*, intertwined with the surrounding galvanized-iron rods *a'*, and soldered together with the inclosing copper strips B, soldered to the core, and having intervening spaces *b* between them, substantially as described, and for the purpose set forth.

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

NICHOLAS VAN LOON.

Witnesses:

L. A. EVANS,

WM. MULLIKEN.