S. D. CUSHMAN.

Lightning Rod.

No. 52,541. Patented Feb. 13, 1866.

Fig. 1.

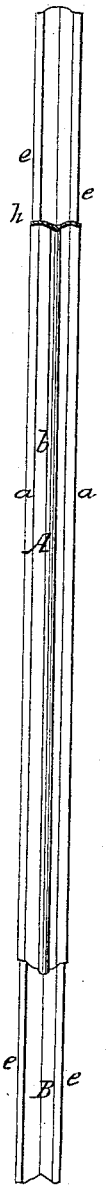

Fig. 2.

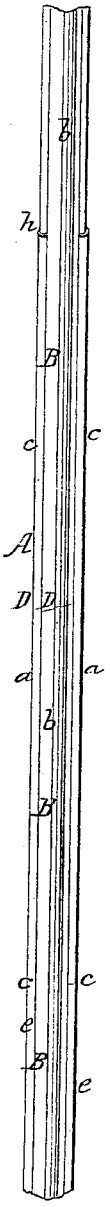

Fig. 3.

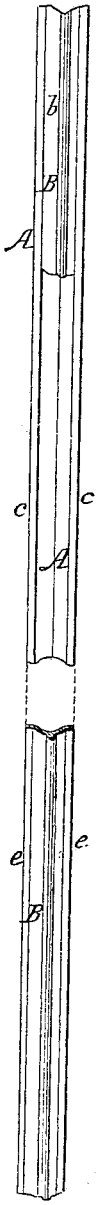

Fig. 4.

Fig. 5.

Fig. 6.

Witnesses.
W. H. Burridge.
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UNITED STATES PATENT OFFICE.

S. D. CUSHMAN, OF NEW LISBON, OHIO.

IMPROVEMENT IN LIGHTNING-RODS.

Specification forming part of Letters Patent No. **52,541**, dated February 13, 1866.

To all whom it may concern:

Be it known that I, S. D. CUSHMAN, of New Lisbon, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Lightning-Rods; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of one side of a portion of the rod. Fig. 2 is a view of the side opposite from Fig. 1. Fig. 3 represents sections of the rod detached. Figs. 4, 5, and 6 are transverse sections that will be referred to in the description.

Like letters of reference refer to like parts in the different views.

My improvement relates to a lightning-rod rolled out from skelps or plates in sections or strips that fit together, and are formed with ribs on four sides which act as lateral braces, making a light and very strong rod that presents a large amount of surface for conducting the electric currents, that will be described as follows: The rod is made longitudinally of sections or strips A and B rolled out by machinery in thin plates of the form represented, which, when together, make a tubular rod, as shown in the figures, with ribs or projections *a a* and *b b* on opposite sides.

The strip or section A, when detached, is of a semicircular form, as seen in Fig. 6, the rib *b* of which, along the center on the outside, is made by the thin metal plate of which the rod is formed, being compressed or doubled closely together, as represented, from which it curves round on each side and then turns straight outward and curves over and back in the form of lips *c*, making a space or groove to receive the flanges of the other section, B, on the inside, and the outside forms the ribs *a a* of the rod. The section B is formed in a similar manner, as seen in Fig. 5, the rib *b* being the same, but the edges of which are turned out, forming flanges *e e*, that slide or fit into the grooves in the ribs *a a*.

The sections or plates A and B, as described, are rolled out in such a size and form in relation to each other that the flanges *e* will fit and slide into the grooves in the ribs *a*, as indicated by the dotted lines in Fig. 3, and when the sections are together in place the lips *c* can be clamped closely down upon the flanges *e*, thereby holding the sections or strips firmly together, forming a rod of a tubular shape, with ribs *a a* and *b b* extending lengthwise on opposite sides, as represented and described, that act as lateral braces which render the rod very firm and strong.

Sections of the rod are connected together for making it any desired length by breaking joints—that is, the strips A on one side are joined at a different point in the length of the rod from the strips B on the other side. These connections are very close, as shown at D in Fig. 2, where the strips B abut together at the ends in the grooves of the ribs *a* and round on the outside, the sections B being slid into the section A, as before described. Opposite this connection the strip A on the other side of the rod is entire, as shown in Fig. 1. The sections A are joined, in a similar manner as at *h*, opposite the section B by another section like A fitting onto the flanges of the strip B, and the ends abutting together, thus forming one continuous rod with unobstructed connections either on the outside or inside for the passage of the electric currents.

A lightning-rod, of whatever length, should have but two poles, one at the point and the other where it enters the ground. Consequently it must be continuous, or the joints so formed, if made of sections, as to overcome all poles excepting those at the point and ground.

The mode of connecting the sections as herein described secures this electrical continuity by the ends of each section sliding past the electrical center of the next additional section. In this way a rod can be made of any length or of any desired number of sections without breaking the electric currents, and is equivalent in this respect to a rod made of one entire piece.

The plate of the rod when rolled out is very thin—that is, the tubular portion of it; but the ribs on opposite sides, being made of the plate doubled, forming lateral braces, renders the rod very strong, sufficiently so to retain firmly any position without yielding or any liability of breaking, and, the metal being so thin, the rod is very light, and as formed a large amount of surface is presented for conducting the electric currents.

The rod could be made with two ribs; but it would not be so strong.

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

1. The ribs *a* and *b*, in combination with the rod, when constructed and arranged substantially as and for the purpose set forth.

2. The sections A and B, when constructed and combined in the manner and for the purpose substantially as described.

S. D. CUSHMAN.

Witnesses:
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