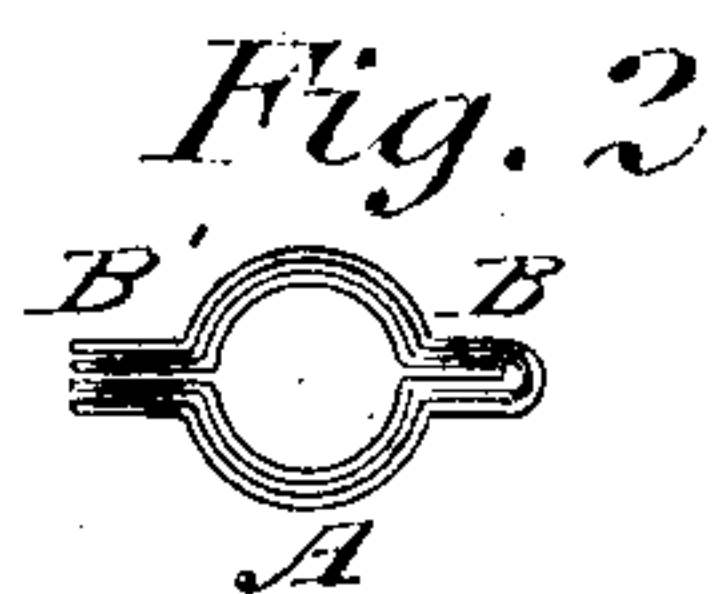
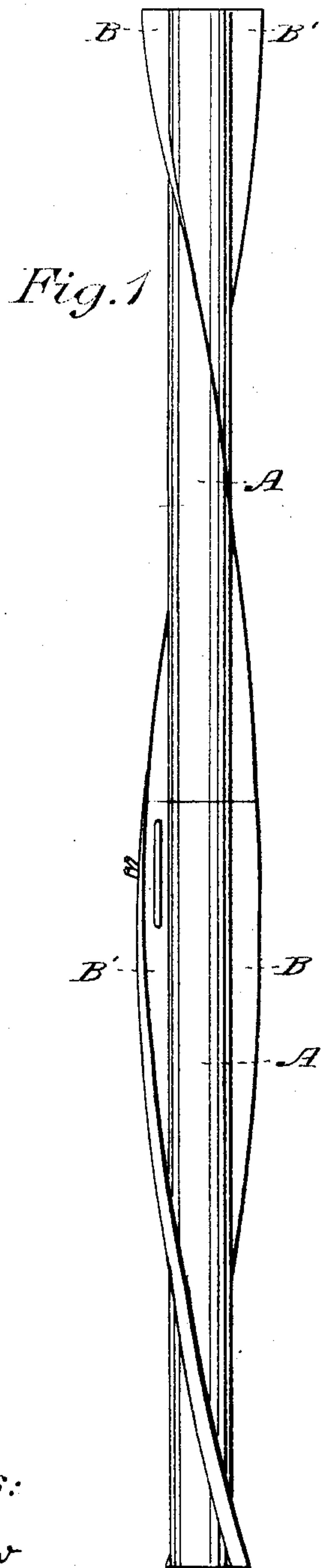


D. MUNSON.  
Lightning Rod.

No. 100,549.

Patented March 8, 1870.



*Witnesses:*  
*O. F. Mayhew*  
*S. H. Kuefler*

*Inventor:*  
*David C. Munson*

# United States Patent Office.

DAVID MUNSON, OF INDIANAPOLIS, INDIANA.

Letters Patent No. 100,549, dated March 8, 1870.

## IMPROVEMENT IN LIGHTNING-RODS.

The Schedule referred to in these Letters Patent and making part of the same.

I, DAVID MUNSON, of Indianapolis, in the county of Marion, and State of Indiana, have invented certain Improvements in Lightning-Rods, of which the following is a specification.

### *Nature and Objects of the Invention.*

My invention relates to the construction of sheet-metal lightning-rods in a manner to increase their receiving and conducting property and to stiffen them without adding materially to their cost, and is especially designed as an improvement on my tubular rod with spiral flanges, patented August 5, 1856.

### *Description of the Accompanying Drawings.*

Figure 1 is a view of a part of two adjacent sections of my improved lightning-rod.

Figure 2 is a horizontal section of the rod.

Figure 3 shows the manner of forming the strips before passing them through the forming machine.

Similar letters of reference indicate the same parts in the several figures.

The several sections A of which the rod is composed are made up of two or more thicknesses of thin sheet metal cut in strips of two or three inches in width, laid together, and first being folded in a U-form, as shown in fig. 3, are then passed through a suitable machine on a rod or mandrel, which forms them into a tube, with flanges B B' on opposite sides, as shown in fig. 2.

The spiral form is given to the flanges by twisting the sections on the mandrel before withdrawing it.

The object of making the rod of several thicknesses of sheet metal is to increase the conducting property of the rod by increasing the surface of metal, the conducting property being in proportion to the surface, which, with two thicknesses, is double that of one thickness.

Furthermore, the receiving property of the rod is

largely increased by increasing the number of raw edges of the sheet metal along the rod.

By making the rod of two or more thicknesses the metal may be made thinner, but it will at the same time stiffen the rod without adding materially to its weight or cost.

If desired, all the upper part of the rod above the ground may be made of suitably-plated sheet-iron or other suitable metal, and the part entering the ground of copper or other good conducting, non-oxidizing, durable material, thereby making a cheap and durable lightning-conductor.

The upper part may be of two or more thicknesses, while the portion underground may be single, as this is generally in moist earth and does not require the increased surface.

The inside flanged tube is made shorter at each end than the outside one, and the sections are put together similar to the sections of a stove-pipe, the upper end of one section entering the lower end of the section above it, so that the lower end of the inside tube will rest upon the top of the outside tube below, thus forming a smooth close joint, and avoiding the tendency of the sections to slip into each other by their weight when the rod is erected.

The sections are secured together by a wire or narrow strip of the sheet metal passed through holes in the open flange B' at the joining.

### *Claim.*

I claim as my invention—

The double tubular sheet-metal lightning-conductor with spiral flanges, constructed in sections and joined together in the manner substantially as and for the purpose set forth.

DAVID MUNSON.

Witnesses:

O. F. MAYHEW,  
D. W. KNEFLER.