

HAMILTON & STEVENS.

Lightning Rod.

No. 86,151.

Patented Jan. 26, 1869.

*Fig. 1.*



*Fig. 2.*



*Witnesses.*

*W. H. Burridge.*

*E. E. Waite.*

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*G. B. Hamilton.*

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# United States Patent Office.

G. B. HAMILTON, OF WELLINGTON, AND J. S. STEVENES, OF CLEVELAND, OHIO.

Letters Patent No. 86,151, dated January 26, 1869; antedated July 27, 1868.

## IMPROVED MODE OF CONSTRUCTING LIGHTNING-RODS.

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

To all whom it may concern :

Be it known that we, G. B. HAMILTON, of Wellington, in the county of Lorain, and State of Ohio, and J. S. STEVENES, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Constructing Lightning-Rods; and we 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 view of the rod.

Figure 2 is an end view of the same.

Like letters of reference refer to like parts.

Our improvement relates to a rod, consisting of galvanized wires, forming a continuous strand from one end to the other, which may be used in combination with copper wires in the ordinary manner.

This rod consists of eight wires or strands, four of which are of galvanized zinc-iron, A, fig. 1, and the other four of smaller wire, but of copper, B, and which are arranged in the order as shown in fig. 2. The whole is then twisted together, as represented in fig. 1.

This number and arrangement of wires, and also the combination of the two kinds of metal, we are aware, have been used for this purpose, but those rods heretofore constructed have been more or less defective, for the reason that the strands comprising the rod have not always been entire, or continuous, there being no real connection of the two ends of one or more of the wires, as the case may be, of which the rod is made up, but the two ends are simply placed as closely together as may be, and then continued to the end, when another wire is introduced as before, and so on to the completion of the rod. This lack of continuity or entirety of each undivided wire, offers an obstruction to the free and direct passage of the electric current, as there is at times no actual contact of the two ends of the wire; hence the rod is defective more or less, according to the number of joints in the wires of the rod.

In order to obviate this defect, and thereby make a

more complete or perfect rod, we place the two ends of the galvanized wires together, and then weld them, thus making the joints of the two as solid and entire as is any other part of the wire, so that on inspection no joints can be discovered, the union of the two ends being so complete. This continuity of the separate wires of which the rod is made up, makes the rod as perfect as though each wire were originally of one piece.

The strands being galvanized, prevents oxidation of the iron, causing it to resist the action of the weather better than the usual wire, and thus keeping the rod in better condition for a conductor than those of ordinary construction.

This rod may be constructed of any desired number of copper and iron strands, or of galvanized iron alone, if thought advisable.

In order to effect the welding of previously-galvanized or coated iron wire, we remove the coating with acids, as sulphuric or muriatic, or it may be done in the diffused flame of the fire. The welding process is then accomplished in the usual manner, after which we recoat the part from which the coating had been removed. This is done by cleaning with acid, and dipping the part to be coated into melted metal, or by ladling the melted metal upon it until a perfect coat is given.

What we claim as our invention, and desire to secure by Letters Patent, is—

The herein-described method of welding wire that has been previously galvanized, by first removing the covering of soft metal, then welding and again recoating, as described, so as to form continuous strands in cable-wire for lightning-rods, and effecting the union of the several galvanized strands, in the construction of rods, as set forth.

G. B. HAMILTON.  
J. S. STEVENES.

Witnesses:

W. H. BURRIDGE,  
E. E. WAITE.