J. F. GOETZ.

LIGHTNING ROD.

APPLICATION FILED APR. 6, 1908.

938,137.

Patented Oct. 26, 1909.

FIG. 1.

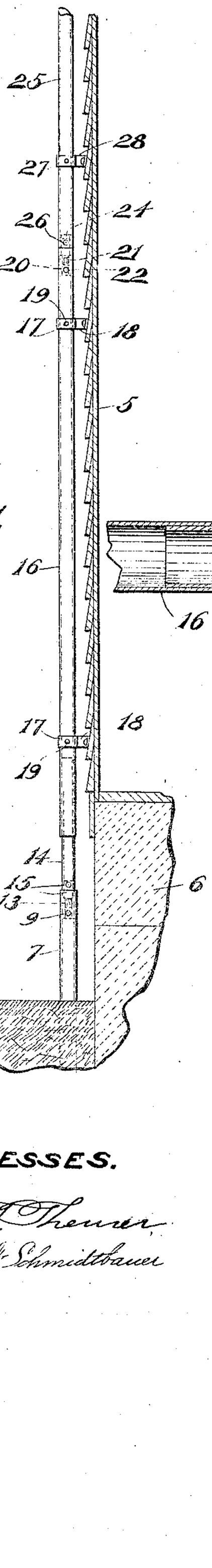


FIG. 2.

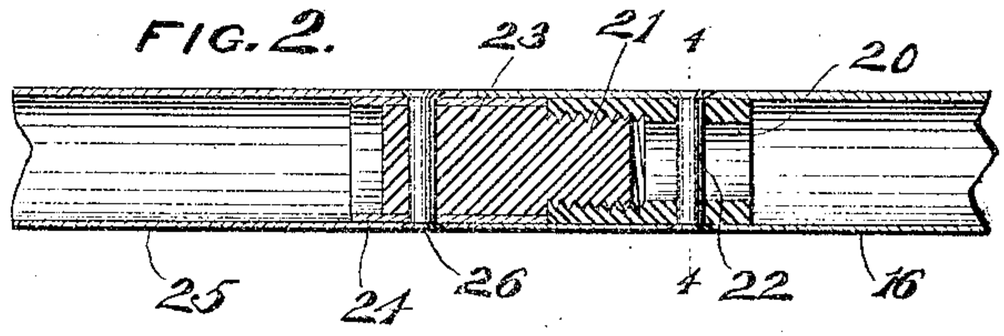


FIG. 3.

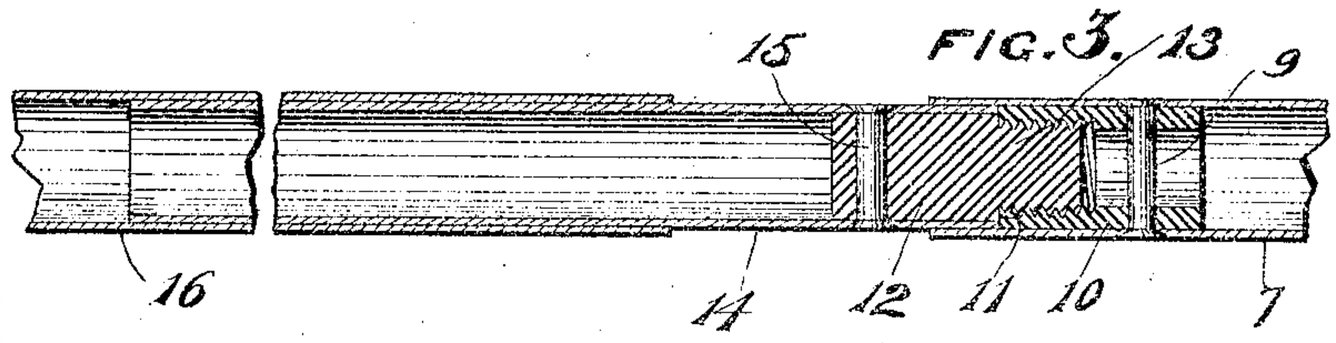
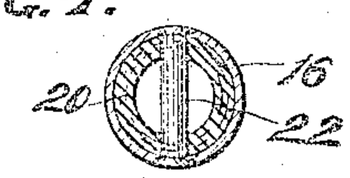


FIG. 4.



WITNESSES.

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LIGHTNING-ROD.

938,137. Specification of Letters Patent. Patented Oct. 26, 1909.

Application filed April 6, 1908. Serial No. 425,353.

To all whom it may concern:

Be it known that I, JULIUS F. GOETZ, residing in Hartford, in the county of Washington and State of Wisconsin, have invented new and useful Improvements in Lightning-Rods, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in lightning rods.

One of the primary objects is to provide a construction of such character that the lightning rod will be capable of movement with any movement upwardly of the house due to frost in the ground during cold weather, or of any movement of the house downwardly, which takes place in the spring of the year, when the frost leaves the ground.

A further object resides in the improved construction whereby the threaded joint between the tubular sections of the rod is made up of sections of metal other than copper, but yet a continuous copper contact is preserved throughout the length of the rod.

With the above primary, and other incidental, objects in view, the invention consists of the devices and parts, or their equivalents, as hereinafter set forth.

In the accompanying drawing, Figure 1 is an elevation of my improved lightning rod showing the same applied to the side of a house; Fig. 2 is a longitudinal sectional view through a fragment of the upper portion of the rod; Fig. 3 is a longitudinal sectional view through a fragment of the lower portion of the rod; and Fig. 4 is a cross section on the line 4—4 of Fig. 2.

Referring to the drawing, the numeral 5 indicates the side of a house to which the lightning rod is applied, and 6 the foundation of the house. The lightning rod is composed of a base section 7 of tubular form and having a conical lower end adapted to be driven into the ground 8. This section is composed of copper, or other desirable material which is a good conductor of electricity. Within the upper portion of this tube section, and located slightly below the upper end of said tube section and secured therein by means of a transverse rivet 9 is a sleeve 10, composed preferably of brass, or of some material cheaper than the copper or other material of which the base section is composed, and also not necessarily a conductor of electricity. The upper end of sleeve 10 is threaded interiorly, as most clearly shown in Fig. 3, and adapted to engage these threads is the lower reduced threaded end 11 of a plug 12, also of brass or other material cheaper than the copper or material of base tube 7. The shoulder 13 of this plug, when said plug is turned down to its full extent, seats itself against the upper end of the sleeve 10. The upper end of the plug enters for a limited distance the lower end of another tube section 14, composed of copper, or other desirable material which is a good conductor of electricity. The upper end of the plug is firmly held within said tube section by means of a rivet 15. The lower end of tube section 14 passes into the upper end of base section 7, and surrounds the upper enlarged portion of the plug 12, its lower end being also seated against the upper end of sleeve 10.

The next tube section of the series is indicated by the numeral 16, and is likewise composed of copper, or other desirable material which is a good conductor of electricity. The lower end of this section extends down and surrounds the upper end of section 14 for such limited distance that only a portion of the tube section 14 is surrounded by said section 16. The said section 16 is held to the house by means of clamps, each clamp comprising an outer circular portion 17 surrounding the tube section and having divergent legs 18 extending inwardly and provided with outwardly turned feet secured to the house. The outer circular portions of the clamps are held to the tube section by means of rivets 19. In the upper end of the tube section 16 is fitted a sleeve 20 located slightly below the upper end of said tube, the said sleeve being of brass or other desirable material. This sleeve is similar to the lower sleeve 10, being provided with interior threads, with which the lower reduced threaded end 21 of a plug is adapted to engage. The sleeve is secured in place by means of a rivet 22. The plug is turned into the sleeve until the shouldered portion of the plug engages the upper end of said sleeve. The upper enlarged portion 23 of the plug is surrounded by a tube 24, composed of copper, or other material which is a good conductor of electricity. Tube 24, however, is much shorter than the corresponding lower tube 14, and its upper end is only adapted to extend a slight distance

into the lower end of another upper tube section 25, which tube section is likewise composed of copper, or other material which is a good conductor of electricity. Tube 24 is held within tube section 25 by means of a rivet 26. The upper tube section 25 is also connected to the side of the house by means of clamps similar to the clamps for tube section 16, that is each consists of a circular outer portion 27 surrounding the tube, and the inwardly extending legs 28 secured to the side of the house. It is obvious that the lightning rod may be built up in this manner by sections to any desired height, in accordance with requirements.

By the arrangement described, it will be seen that if there is any movement of the house upwardly in winter when frost is in the ground, the sections above the base section, by reason of the connections afforded by the clamps, will move upwardly with the house; and vice versa, when there is a down movement or settling of the house, said sections above the base sections will correspondingly move downwardly, there being sufficient play left between the lower end of the section 16 and the upper of the base section 7 to permit of a movement downwardly to a considerable extent.

Another important feature of my invention resides in the construction whereby a threaded joint between the tubular sections is maintained, without breaking or sacrificing the continuity of the metallic electrical contact between the sections, and which sections are formed of copper as the preferable current conducting metal. If the copper sections were threaded directly together, it is obvious that considerable expense would be entailed owing to the fact that copper is an expensive metal, and in the cutting of threads therein a considerable amount of the metal is necessarily wasted. By my improved construction, however, I am enabled to use copper, or any other material which is a good conductor of electricity and at the same time form a threaded connection between the sections by means of coupling members, composed of brass, or other material cheaper than copper, and of such character that a strong threaded connection is secured. Also copper is too soft to have threads formed thereon, whereas brass is a much harder metal, and can be readily threaded.

What I claim as my invention is:

1. A lighting rod comprising a tube section composed of a material which is a good conductor of electricity, another tube section also composed of a material which is a good conductor of electricity having a direct electrical connection with the first mentioned tube, a threaded bolt provided with a sleeve which is a good conductor of electricity, a threaded sleeve connected to one of the tube sections and engaged by the threaded bolt, both tube sections overlapping the sleeve of the threaded bolt, and means for connecting the sections to the side of a building.

2. A lightning rod comprising a tube section composed of a material which is a good conductor of electricity, another tube section also composed of a material which is a good conductor of electricity, a threaded shouldered bolt, a sleeve formed of a material which is a good conductor surrounding a portion of said bolt and riveted thereto, a threaded sleeve riveted to the other tube section and positioned within the tube at a distance from the end thereof and engaged by the threaded bolt, both tube sections overlapping the sleeve of the threaded bolt, and means for connecting the sections to the side of a building.

In testimony whereof, I affix my signature, in presence of two witnesses.

JULIUS F. GOETZ.

Witnesses:

A. L. MORSELL,

ANNA F. SCHMIDTBAUER.