A.D. 1878, *29th March.* N° 1248.

Insulators for Telegraphic Purposes.

LETTERS PATENT to Joseph Oppenheimer, of Manchester, in the County of Lancaster, Merchant, for the Invention of "IMPROVEMENTS APPLICABLE TO INSULATORS FOR TELEGRAPHIC PURPOSES."

Sealed the 24th September 1878, and dated the 29th March 1878.

PROVISIONAL SPECIFICATION left by the said Joseph Oppenheimer at the Office of the Commissioners of Patents on the 29th March 1878.

JOSEPH OPPENHEIMER, of Manchester, in the County of Lancaster, Merchant, "IMPROVEMENTS APPLICABLE TO INSULATORS FOR TELEGRAPHIC PURPOSES."

My Invention is designed to obviate the inconvenience which arises in the working of telegraph lines from the breakage of insulators by lightning, and a consequent making of earth contact by the conducting wire. In order to avoid this I introduce a lightning discharger in the interior of the insulator, which I provide with a metallic covering between that part which carries the conducting wire and the other part which forms the attachment to the post, and which is connected to earth by means of a lightning conductor, which may be the post itself when made of iron.

In carrying out my Invention I place a metallic pin within the insulator so that it approaches sufficiently near to be a lightning discharger, but not so as to be in contact with the aforesaid outer casing, and this approachment may be regulated by ascertained measurement or by a stop of any insulating material. By these means I obtain an effective lightning discharger in the interior of the insulator.

[*Price 4d.*]

Oppenheimer's Improvements in Insulators for Telegraphic Purposes.

SPECIFICATION in pursuance of the conditions of the Letters Patent filed by the said Joseph Oppenheimer in the Great Seal Patent Office on the 27th September 1878.

JOSEPH OPPENHEIMER, of Manchester, in the County of Lancaster, Merchant. "IMPROVEMENTS APPLICABLE TO INSULATORS FOR TELEGRAPHIC PURPOSES."

My Invention is designed to obviate the inconvenience which arises in working telegraph lines from the breakage of insulators by lightning, and a consequent making of earth contact by the conducting wires. In order to avoid this I introduce a lightning discharger in the interiour of the insulator, which I provide with a metallic covering.

The accompanying Drawing shews the apparatus I employ in section.

At *a* is the metallic insulator pin connected with the post, supposed in this case to be of metal, and having formed or attached thereon a screw *b* which supports the earthenware or other such insulator *c*, open at the top, as shewn in the Drawing. On the outside of this insulator is a metallic cap *d*, secured by means of cement *e*, and to this metallic cap the telegraph line wire is attached in the ordinary manner.

Upon the top a^* of the insulator pin is placed a ring *f* of insulating material, and the distance to which this ring extends determines the distance between the top $d^\times$ of the cap and an extended part *g* of the pin *a*. This distance may be varied to some extent, but that shewn in the Drawing, which is full size, may be taken as a standard.

By this arrangement an effective lightning discharger is obtained within the insulator, the lightning passing through the top d^* of the cap to the post *g*, and from thence along the pin *a* to earth.

In cases where wooden posts are used a lightning conductor may be connected with the pin *a*, or its attachment to the post to earth in the usual manner.

Having thus described and ascertained the nature of my said Invention, and the manner in which the same is to be performed, I desire it to be understood that I claim as secured to me under the above in part recited Letters Patent, and for the purpose above set forth, the application of a lightning discharger within the insulator, substantially as described.

In witness whereof, I, the said Joseph Oppenheimer, have hereunto set my hand and seal, this Twenty-sixth day of September, in the year of our Lord One thousand eight hundred and seventy-eight.

JOSEPH OPPENHEIMER. (L.S.)

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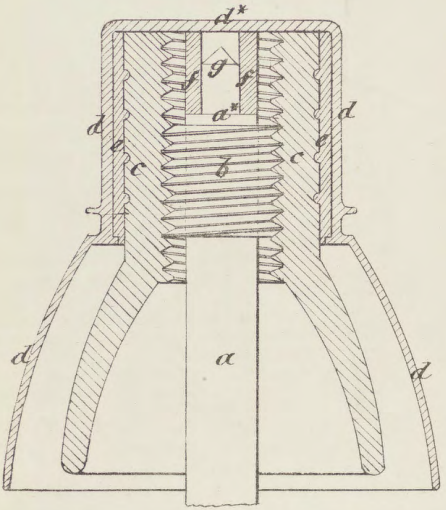
1878.



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