

(No Model.)

2 Sheets—Sheet 1.

A. J. P. WHITAKER & F. G. TREHARNE.

INSULATOR FOR ELECTRICAL PURPOSES.

No. 566,045.

Patented Aug. 18, 1896.

Fig. 1.

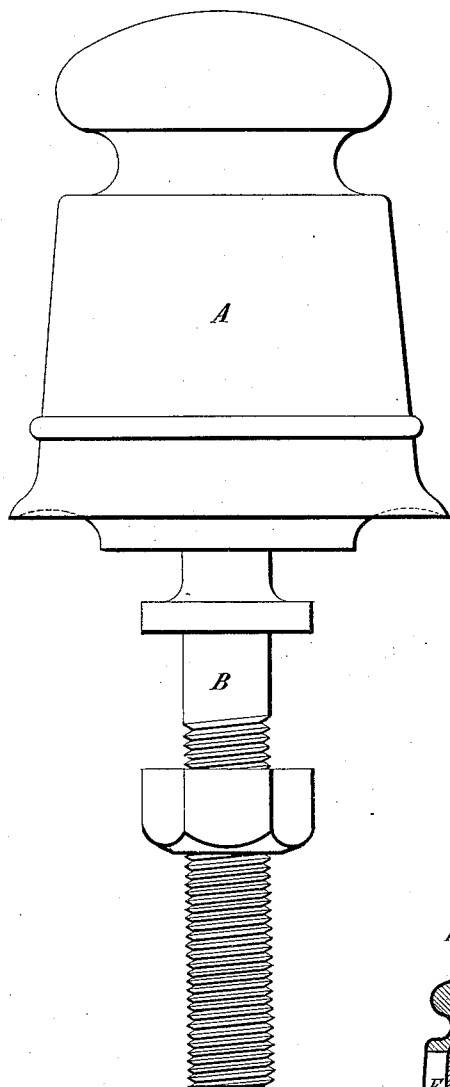


Fig. 2.

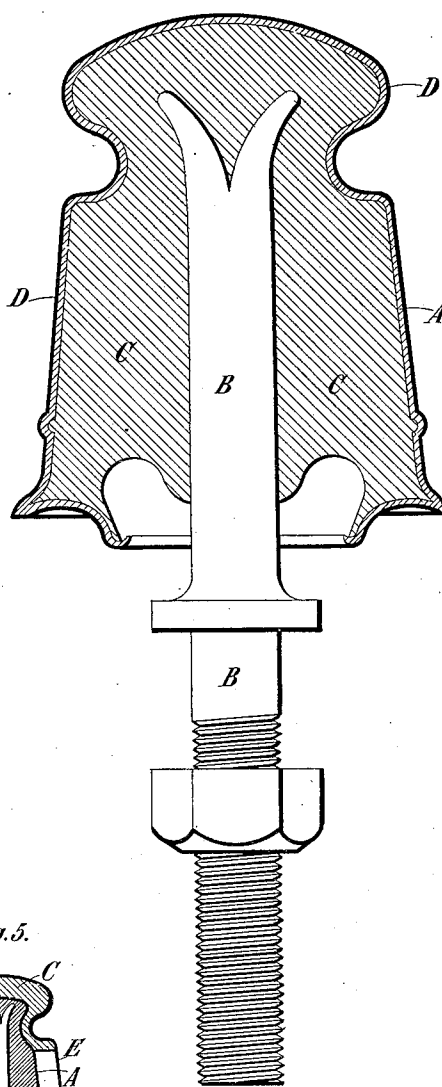
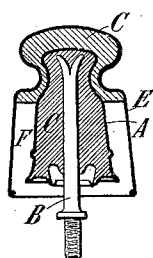


Fig. 5.



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2 Sheets—Sheet 2.

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Fig. 3.

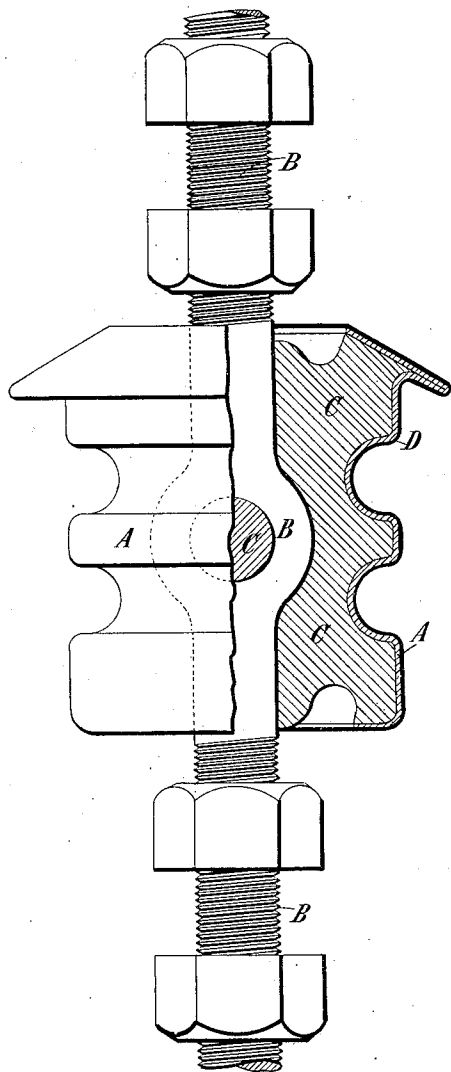
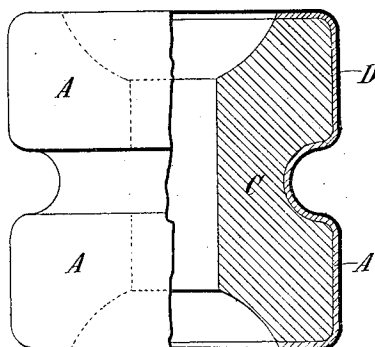


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALFRED JAMES PERTON WHITAKER AND FREDERICK GWILYM TREHARNE,
OF LLANISHEN, ENGLAND.

INSULATOR FOR ELECTRICAL PURPOSES.

SPECIFICATION forming part of Letters Patent No. 566,045, dated August 18, 1896.

Application filed September 3, 1895. Serial No. 561,282. (No model.)

To all whom it may concern:

Be it known that we, ALFRED JAMES PERTON WHITAKER, chartered accountant, and FREDERICK GWILYM TREHARNE, analytical chemist, subjects of the Queen of Great Britain, residing at Llanishen, near Cardiff, England, have invented certain new and useful Improvements in and Relating to Insulators for Electrical Purposes, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to improved insulators for electrical purposes and chiefly for telegraph and telephone wires. The said insulators comprise a steel or other metal shell coated with a non-conducting enamel composed chiefly of silica and aluminium, and filled with a suitable insulating cement or composition.

We preferably carry our improved insulator by a spindle which may be coated with the non-conducting enamel aforesaid, and which is held in position in the shell and insulated therefrom by means of the before-mentioned cement or composition.

Referring to the accompanying drawings, Figure 1 is a side elevation of an insulator constructed according to our invention, and Fig. 2 is a vertical central section of the same. Fig. 3 is an elevation, partly in section, of a modified form of insulator. Fig. 4 is a similar view of a further modification, the spindle having been removed. Fig. 5 is a section on a smaller scale of a still further modified form of insulator furnished with two shells separated by insulating-cement.

A is the metal shell or body of the insulator.

B is the spindle.

C is the insulating cement or composition which fills the shell A and receives the spindle B.

D is the non-conducting enamel coating, which is composed chiefly of silica and aluminium, together with, in the preferred form, a more or less relatively small quantity of lime, barium, tin, and borax.

The composition of the enamel may, for example, be as follows: silica, fifty per cent.; aluminium, twenty per cent.; lime, five per cent.; barium, five per cent.; oxid of tin, five

per cent.; borax, fifteen per cent. Total, one hundred per cent.

The insulating-cement C is composed of sulfur, bitumen, sulfate of lime, sulfate of barium, silica, together with in some cases oxid of lead and resin, which substances may, for example, be advantageously combined in the following proportions: sulfur, twenty per cent.; bitumen, ten per cent.; sulfate of lime, twenty per cent.; sulfate of barium, twenty per cent.; oxid of lead, five per cent.; resin, five per cent.; silica, twenty per cent. Total, one hundred per cent. The said insulating-cement is preferably placed in the shell A when in a plastic state, the spindle being then held in position therein till the cement or composition "sets" and hardens. The spindle may be arranged to pass right through the insulator, as in the form shown in Figs. 3 and 4, or it may only project into the interior of the insulator, as shown in Fig. 2. In either case the spindle is secured to and insulated from the shell A by means of the insulating-cement C.

The insulator shown in Fig. 5 is furnished with a second metal shell E, inclosing the shell A and secured thereto by insulating-cement C at the upper or inner end. An annular space F unfilled with cement is left between the body part of the two shells, as shown, to diminish the risk of leakage when exposed to driving rain. The shell E is coated with enamel the same as the inner shell A.

In all cases the shells may be coated internally as well as externally with the enamel.

Our improved insulators are adapted for use in any climate.

What we claim is—

1. The combination in an insulator, of a metallic shell, a non-conducting coating or enamel thereon, a carrying-spindle, and a cement of insulating material within the said shell and serving to secure the same to the carrying-spindle.

2. An improved insulator for electrical purposes comprising a metal shell coated with a non-conducting enamel, in combination with a spindle for carrying the insulator, and an insulating-cement for securing the said spindle within the shell, the said cement being

composed of sulfur, bitumen, sulfate of lime, sulfate of barium, oxid of lead, resin and silica, substantially in the proportions specified.

3. An improved insulator for electrical purposes comprising a metal shell coated with a non-conducting enamel, in combination with a spindle for carrying the insulator, an insulating-cement for securing the said spindle within the shell, and an outer metal shell
10 coated with non-conducting enamel and inclosing the first-named shell and separated

therefrom by an insulating-cement at the inner end, an annular space being left between the body of the shells, substantially as described.

In testimony whereof we have hereunto set our hands this 22d day of July, 1895.

ALFRED JAMES PERTON WHITAKER.

FREDERICK GWILYM TREHARNE.

Witnesses:

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GEO. P. SURCHER.