

(No Model.)

E. CLARK & T. A. RICHARDS.

ELECTRICAL CONDUCTOR.

No. 333,394.

Patented Dec. 29, 1885.



Attests:  
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# UNITED STATES PATENT OFFICE.

EDWARD CLARK, OF NEWBURG, AND THERON A. RICHARDS, OF BROOKLYN,  
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## ELECTRICAL CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 333,394, dated December 29, 1885.

Application filed March 30, 1885. Renewed December 4, 1885. Serial No. 184,745. (No model.)

### *To all whom it may concern:*

Be it known that we, EDWARD CLARK and THERON A. RICHARDS, citizens of the United States, and residents of Newburg, Orange county, and Brooklyn, Kings county, respectively, in the State of New York, have invented certain new and useful Improvements in Electric Conductors, of which the following is a specification.

10 Our invention relates to electrical conductors, and has for its object to produce an electrical conductor that shall be thoroughly insulated, and at the same time be pliable and capable of bending without destroying or injuring the insulation, that will not be deleteriously affected by the elements, and that can be cheaply and readily constructed.

15 Our invention consists of an electrical conductor covered or coated with an insulating material consisting, essentially, of alumina or oxide of aluminum in as pure a state as possible.

20 Alumina in a dry pure state is an excellent non-conductor of electricity, and its use as an insulator applied to external or underground lines forms the basis of our invention. We have applied the same to the conductors in various ways by the use of some suitable binding agent, of which a comparatively small quantity need be used. It may be applied in many and various ways, which are not material to our present invention, and need not be specifically stated herein. It may be said, generally, that one of the best ways of applying it consists in forming a plastic mass of the alumina and a vehicle or binding agent—such as tar, asphaltum, gums, and the like—and applying a suitable coating of such material to the wire or conductor by suitable machinery.

35 Many binding agents may be used besides those mentioned—as a small quantity of india-rubber, gutta-percha, and the like; or the alu-

mina may be applied directly to the wire and a coating of some suitable material—as tar or asphaltum—applied over the alumina to hold the same in place, and braiding or strips of textile or other material saturated with a binding agent may be applied to the coating of alumina or otherwise.

45 The essential feature of our invention consists in applying a coating of alumina in as pure a state as possible directly to or around the conductor.

In the accompanying drawing is shown a conductor, *a*, having a coating of alumina, *b*; also having a part supplied with an exterior coating of some binding agent, *c*, and again covered in part with a spun or woven material, *d*, saturated with some suitable substance, as above stated.

60 We do not here claim this construction of the insulator, as it constitutes the subject of a separate application for Letters Patent.

We are aware that insulating compounds have been proposed wherein clay has formed an ingredient, and we do not claim such, broadly.

What we claim is—

1. An electric conductor coated with alumina as an insulating material, substantially as described.

2. The combination, with a wire, of an insulating-coating consisting, essentially, of alumina and a binding agent, substantially as described.

75 In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWARD CLARK.  
THERON A. RICHARDS.

Witnesses:

E. J. CLARK,  
JNO. S. HUYLER.