

(No Model.)

W. R. PATTERSON.
INSULATED ELECTRIC CONDUCTOR.

No. 572,215.

Patented Dec. 1, 1896.



Witnesses:

George L. Cragg.

Walter Clyde Jones.

Inventor:

William R. Patterson

By Barton & Brown
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UNITED STATES PATENT OFFICE.

WILLIAM R. PATTERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

INSULATED ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 572,215, dated December 1, 1896.

Application filed December 10, 1894. Serial No. 531,357. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. PATTERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Insulated Electric Conductors, (Case No. 101,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to insulated electric conductors; and its object is the provision of an insulation that shall be at once fireproof and non-hygroscopic.

My invention, in its preferred form, comprises a conductor immediately surrounded by a layer of wool, which may be formed by tightly wrapping woolen yarn about the conductor, and a covering of cotton dipped in fireproofing compound to render the same non-inflammable.

My invention will be readily understood by reference to the accompanying drawing, in which is illustrated an electric conductor insulated in accordance with my invention.

The conductor *a* is immediately surrounded by a layer *b* of wool, which may preferably be formed by wrapping woolen yarn tightly about the conductor, the layers of yarn being wound alternately in opposite directions when more than one layer is employed. A closely-fitting wool covering is thus provided. A cotton covering *c* is then formed over the wool, the cotton being dipped in a fireproofing compound to render the same non-inflammable. Tungstate of soda may be used for this purpose.

The wool being non-hygroscopic the insulation will not absorb moisture to thereby lessen the insulation resistance, and the cotton covering being fireproof danger from spreading fire is avoided. If flame is applied to the outside, the coverings are slowly carbonized, but unless considerable heat is employed for a long time the inner portion of the wool will remain unburned and in condition to maintain good insulation. In case of heating of the wire by heavy currents the wool is gradually distilled and the entire mass of wool and cotton may be carbonized and then ignited, but without the production of any

flame if the wire is not in contact with wood or other inflammable material.

The impregnated cotton covering protects the insulation from fire externally and serves to bind the layer of wool tightly about the conductor, thus preventing the inflammation of the insulation from the abnormal heating of the conductor. Wool, though inflammable when in a loose mass, is not inflammable when tightly compressed and cut off from the air by the cotton covering, so that abnormal current traversing the conductor merely distils and carbonizes the wool without causing it to inflame. If cotton were employed for the inner layer, the insulation would be inflammable from the interior. Furthermore, the salts employed in fireproofing the cotton covering render it quite hygroscopic, absorbing moisture readily, so that if the inner layer were also cotton, which is also hygroscopic, the insulation would possess a very low resistance. By making the inner layer of wool, which is highly non-hygroscopic, the insulation resistance is maintained high, while at the same time the advantage of a cotton covering impregnated by fireproofing material is retained.

I am aware that it has been proposed heretofore to employ wool as an insulating material, but it has not been proposed heretofore to provide a conductor immediately surrounded by a layer of wool and a cotton covering impregnated with fireproofing material formed directly about the wool.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture, an electric conductor immediately surrounded by a layer of wool, and a cotton covering formed directly upon said layer of wool, said cotton covering being impregnated with a fireproofing compound, to thereby produce a non-inflammable insulation possessing high non-hygroscopic properties, substantially as described.

In witness whereof I hereunto subscribe my name this 16th day of May, A. D. 1894.

WILLIAM R. PATTERSON.

Witnesses:

W. CLYDE JONES,
GEORGE S. BUELL.