(No Model.)

P. G. GARDNER, Jr., J. W. LE ROY & G. K. TINKER.

ELECTRICAL CONDUCTOR.

No. 271,832. Patented Feb. 6, 1883.

Fig. 1.

Fig. 2.

WITNESSES
Franck L. Durand
R. H. Smith.

Perry G. Gardner Jr.
John W. Le Roy
Giles K. Tinker
INVENTORS.

by Hill, Smith
Attorney

UNITED STATES PATENT OFFICE.

PERRY G. GARDNER, JR., JOHN W. LE ROY, AND GILES K. TINKER, OF NORTH ADAMS, MASSACHUSETTS.

ELECTRICAL CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 271,832, dated February 6, 1883.

Application filed March 29, 1882. (No model.)

To all whom it may concern:

Be it known that we, PERRY G. GARDNER, Jr., JOHN W. LE ROY, and GILES K. TINKER, all of North Adams, in the county of Berkshire and State of Massachusetts, have invented a new and useful Improvement in Electrical Conductors, of which the following is a full, clear, and exact description.

Our invention relates to certain new and useful improvements in electrical conductors, and at the same time making the entire coverings of the wire substantially non-inflammable.

It has long been known that the usual insulating coverings of fibrous material, covered with paraffine or wax, readily took fire from lightning, and from fires raging in buildings over which or into which the wires are conducted. The wires thus become instrumental in conveying fire from one building to another, and are sources of great danger in crowded cities.

We are well aware that liquid glass has been used to render telegraph-wires non-inflammable, and also that tar has been rendered non-inflammable by the admixture of various substances.

It is to this class of covered wires that our invention relates; and our object is to fully insulate the wire, and at the same time render its coverings in all parts substantially non-inflammable, impervious to water, and not liable to attacks of insects and animals, in the cheapest and easiest possible manner.

Our invention consists in the definite arrangement of the different layers of the coverings, and in the process of coating the wires, as hereinafter fully set forth, and pointed out definitely in the claims.

We first braid the wire with jute or any cheap fibrous material. Then we pass the braided wire through a vessel filled with vegetable or mineral tar heated to the boiling-point, and made non-inflammable by the addition of lime, marble-dust, magnesia, or any of the well-known and common materials that produce this effect upon tar. The mixture being kept at the boiling-point better contracts and solidifies the braid upon the wire. We now a second time braid the wire with jute or any cheap fiber, and then pass it through a solution of liquid glass, baryta, (or lead,) and oil. We prefer then to pass it through muriatic acid to solidify the coatings. Each therefore of the coverings is insulating and non-inflammable, as well as water-proof. The glass and baryta (or lead) coated braid rests upon a previously-applied bed of tar, and this comparatively yielding cushion renders the glass and baryta coating far less liable to crack or peel off or become checked and imperfect in the various handlings to which the wires are usually subjected.

In coating the braid-coverings we have used with satisfactory results for the first coating three parts of tar to one part of any of the other ingredients named, and for the second coating five parts of baryta (or lead) ground in oil and one part of liquid glass; but the proportions may be varied without departing from our invention.

For wires to be used in the interior of houses we conclude or terminate our covering at this stage of the process. In case, however, the wire is to be used under ground, or under water, or in the air, where its appearance is no object, we again pass the twice-covered wire through tar in which is mixed chloride of calcium or marble-dust. This outer coating resists fire, moisture, and the attacks of insects and animals.

It is to be understood that our invention is not confined to a wire with this last, a third coating.

Having now described our invention, we claim—

1. A wire for telephones, telegraphs, and like uses, first braided with a fibrous material, then coated with tar rendered non-inflammable, in substantially the way described, then braided a second time, and coated with liquid glass, baryta, (or lead,) and oil, all as set forth.

2. The process of insulating wires with a non-inflammable covering, consisting in first braiding the wire with a fibrous material, then passing it through non-inflammable tar at the boiling-point, then a second time braiding it and passing it through liquid glass, baryta, (or lead,) and oil, as hereinbefore set forth.

In testimony whereof we have hereunto set our hands this 27th day of March, 1882.

PERRY G. GARDNER, JR.
JOHN W. LE ROY.
GILES K. TINKER.

In presence of—
EDWARD R. TINKER,
JOHN E. DREW.