

(No Model.)

F. S. RANDALL.
ELECTRIC WIRE COVERING.

No. 511,547.

Patented Dec. 26, 1893.

FIG. 1.

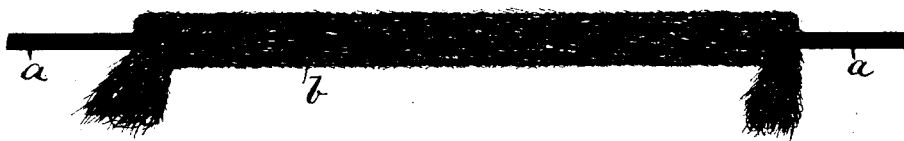


FIG. 2.



FIG. 3.

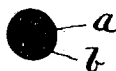
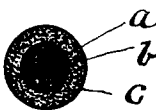


FIG. 4.



WITNESSES

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FRANKLIN S. RANDALL, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC-WIRE COVERING.

SPECIFICATION forming part of Letters Patent No. 511,547, dated December 26, 1893.

Application filed June 2, 1893. Serial No. 476,390. (No specimens.)

To all whom it may concern:

Be it known that I, FRANKLIN S. RANDALL, a citizen of the United States, residing at Frankford, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric-Wire Coverings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in an electric wire covering as an insulation of itself, and as a medium for retaining and holding other insulations, if necessary; and the invention consists in wrapping or otherwise covering the wire with raw cotton in bulk.

I have illustrated the application of the covering by the drawings herewith.

Figure 1, shows a piece of electric wire partially covered with the material. Fig. 2, represents a longitudinal section showing the wire surrounded by the covering. Fig. 3, is a cross-section. Fig. 4, is also a cross-section of the wire and covering showing an additional insulation applied thereto.

I have designated in the drawings A to represent a wire for electric purposes, and B the covering. C shows an additional outer insulation.

In the insulating and covering of wire for electric purposes, the cotton at the present time is formed into yarns, bands, tubes, braids, &c., and the same is either plaited, knitted, braided or wound in a single strand, or a series of strands formed into tubes or layers, one upon the other around the wire to the required thickness of the cover to hold the insulating compound. This form of covering of course requires the cotton, silk or other fibrous growth used to be manufactured into some definite condition either as yarn or in some other regular form, and thus be a manufactured product in itself. Machines are required after this is done either to plait, braid, knit, or weave the product around the wire, or to wrap it when in bands, or in some mechanical manner to cover the wire in the use of a manufactured material by a series of independent

layers, in order to secure the required thickness of the covering to hold the insulating compound. I obviate all expenses due to the production of cotton or other fibrous materials into any of the forms described, or into any others that may be adopted for the purpose, and simply cover the wire to the desired thickness with the loose raw cotton from bulk.

It will readily be seen that by using the raw or unworked cotton, that in applying it to the wire, the mechanical means in use at present for braiding, wrapping, tubing, or twisting it over the wire would not be serviceable; the cotton must first be manufactured into some definite condition in order that proper machines may be able to mechanically apply it. This is widely different from my invention, for the cotton when applied in its raw or unworked condition in the mass or bulk is in such a form by interlapping of the fibers of the mass to sufficiently entangle the sliver to give the cotton a sufficiently strong homogeneous body that it can be readily applied to the wire in regular thickness in the simplest possible manner. To readily apply the cotton when in this form for short or long distances or sections, it has been found to be very practicable to coat the outside of the wire with thin shellac, but not necessarily an insulating compound, glue, or other sticky or adhesive substance, any of these articles causing the fiber of the cotton to more readily adhere to the wire, and furthermore they produce a greater draft from the loose mass and the fiber may readily be pressed upon the wire either by rolls or any like device, or in a uniform shape, even by hand.

A wire covered by loose cotton is capable of any amount of manipulation and bending without the least liability to destroy it as an insulation or separate it from the wire; and it will be very readily understood that the sliver or staple not having been previously treated, drawn or straightened as it would be required to be in the manufacture of any form of yarn is allowed to remain in its natural crimped, crooked, flexible and irregular condition in the mass, nor are the fibers twisted one with another by force that would in any manner straighten them and thereby render them harsh or brittle, so that a wire

thus freely covered in the manner described is capable of being bent into any conceivable shape or position and remains so, and still retains its hold upon the wire, and at all times
5 forms a perfect covering or insulation. In the loose, unworked manner in which it is shown applied in my invention, it is much cheaper and serviceable than when the fiber is manufactured into yarn or fabric and is
10 placed on the wire in any manner before described, for the reason that the fiber yields with and to any additional insulating material that may be used; the former not exhibiting any stubbornness or tendency to crack, and where
15 the fiber is not saturated with the insulation; but is applied entirely to the outside of the same, C, the latter by its innumerable flexible holds upon the covering will retain the insulation indefinitely in position.
20 I am aware that fiber growths have been used in the manufacture of sub-marine and subterranean cables, in which one or more series of wires are insulated and wound to-

gether and an additional insulation is used with such a covering; but the uses to which
25 cables are subjected, and their necessary mechanical construction of wires and tubes in which the wool, oakum, &c., are used, make raw cotton alone a thoroughly unpracticable
30 agent, and it is the intention of this invention to use the raw cotton only upon such electric wires that are not constantly submerged in water or embedded in the earth.

I therefore claim as new and desire to secure by Letters Patent—

35 A covering for electric wires, the same consisting of raw cotton in bulk, when applied in the manners substantially, as shown described, and for the purpose set forth.

In testimony whereof I affix my signature in
40 presence of two witnesses.

FRANKLIN S. RANDALL.

Witnesses:

EDWARD PACKARD,
LEWIS F. BROUST.