

(No Model.)

E. T. GREENFIELD.
CONDUIT FOR ELECTRIC CONDUCTORS.

No. 441,837.

Patented Dec. 2, 1890.

FIG. 1.

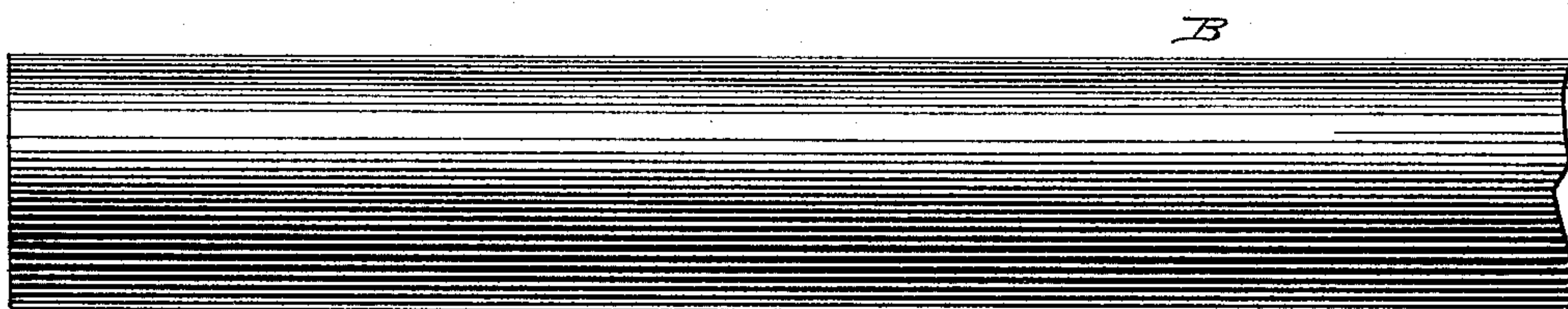
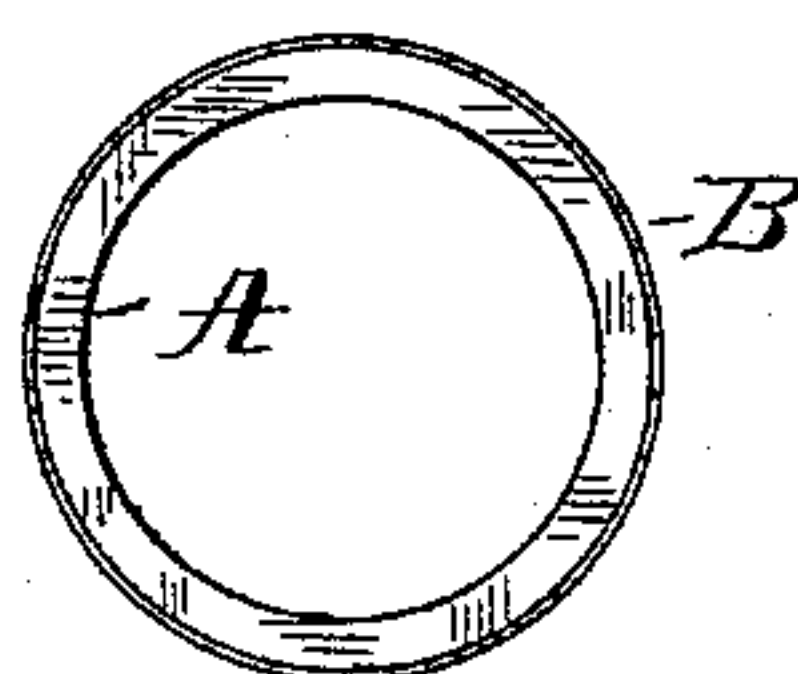


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EDWIN T. GREENFIELD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE INTERIOR CONDUIT AND INSULATION COMPANY.

CONDUIT FOR ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 441,837, dated December 2, 1890.

Application filed December 14, 1889. Serial No. 333,747. (No model.)

To all whom it may concern:

Be it known that I, EDWIN T. GREENFIELD, a citizen of the United States, residing at New York city, in the county and State of New York, have invented a new and Improved Tube Especially Adapted to be Used as a Conduit for Electric Conductors, of which the following is a specification.

The main object of my invention is the production of a flame-proof insulating tube or conduit for electric conductors at a low cost.

A further object of my invention is the production of a flame-proof insulating tube or conduit for electric conductors the outer skin of which shall be of conducting material.

My invention consists in combining with a body of insulating material in the form of a tube a thin skin of a material of lower inflammability than the insulating material, which skin, for certain uses, shall be of a conducting material. The insulating material may be of any suitable kind, as vulcanized rubber or paper coated or impregnated with an insulating compound. The thin skin in all cases is preferably of metal, so that it may be used as a conductor, and is applied so as to form a continuous sheet-like covering; but where the flame-proof quality only is desired the protecting-skin may be of any material of lower inflammability than the body of the tube. When metal is used, it may be applied to the insulating material by electro-deposition. As a paper tube treated with an insulating compound is less expensive than vulcanized rubber, I prefer to use it. To produce an insulated tube of this kind, I take a paper tube of the required diameter and coat or impregnate it with any of the well-known insulating compounds. These compounds, as far as I am aware, and consequently the tube in which they are embodied, are objectionable as inflammable, and it is to obviate this objection that I have combined a skin of lower inflammability therewith. For a paper tube impregnated with an insulating compound copper, which is of a comparatively lower inflammability, will be found a useful skin or sheathing, it being adapted to be either electro-deposited or drawn on the insulating-tube.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a portion of tube embodying my invention, and Fig. 2 is an end view thereof.

A is the insulating material of the tube, which, as before stated, may be of any suitable character. Preferably, however, it is of paper coated or impregnated with a suitable insulating compound.

B is the flame-proof protecting-skin of the tube. When this protecting-skin is to be used as a conductor, it is preferably of metal; but it may be when the protecting-skin is not to be used as a conductor of any substance of lower inflammability than the insulating material. I prefer to use copper, however, in all cases as the protecting-skin when the insulation is impregnated paper, as it may be applied by electroplating to the outer surface of the insulating material, so as to form a thin skin in the manner well understood.

The thickness of the insulating material will be varied to meet the uses to which the tube is to be put, it being understood that the main or body portion of the tube is that part which is composed of the insulating material, the outer coating being intended simply as a protecting-skin which shall be integral with the body, so as not to slip thereon in ordinary use. The thickness of the skin may be uniform for all sizes of tubes when it is not desired to use it as a conductor; but when used as a conductor its thickness may be increased.

It will be apparent that an insulating-conduit provided with a flame-proof protecting-skin is very desirable in a system of interior or house wiring, and that the conduit above described answers the requirement.

When a conducting material is used as the protecting-skin, it is adapted to be grounded, and should the wire or wires carried in the conduit from any cause lose their insulation and come into contact with the conducting protecting-skin a person grasping the wires would be free from danger, as the current would pass along the conducting-skin to the ground. This application of the conduit is particularly useful with conductors carrying

an alternating current, and when so used the conduit not only is a protection from fire, but from danger to the person.

What I claim is—

- 5 1. As a new article of manufacture, a tube or conduit for electric conductors, having a body of insulating material and a continuous protecting-skin of a less inflammable material, substantially as set forth.
- 10 2. As a new article of manufacture, a tube or conduit for electric conductors, having a body of insulating material and a continuous protecting-skin of a conducting material of less inflammability than the insulating material, substantially as set forth.
- 15 3. As a new article of manufacture, a tube or conduit for electric conductors, having a body of insulating material and a continuous

skin of conducting material, substantially as set forth.

4. As a new article of manufacture, a tube or conduit for electric conductors, having a body of paper impregnated with an insulating material and a continuous metallic protecting-skin, substantially as set forth.

5. As a new article of manufacture, a tube or conduit for electric conductors, having a body of insulating material and a continuous metallic protecting-skin, substantially as set forth.

This specification signed and witnessed this 16th day of November, 1889.

EDWIN T. GREENFIELD.

Witnesses:

W. PELZER,

D. H. DRISCOLL.