

No. 652,671.

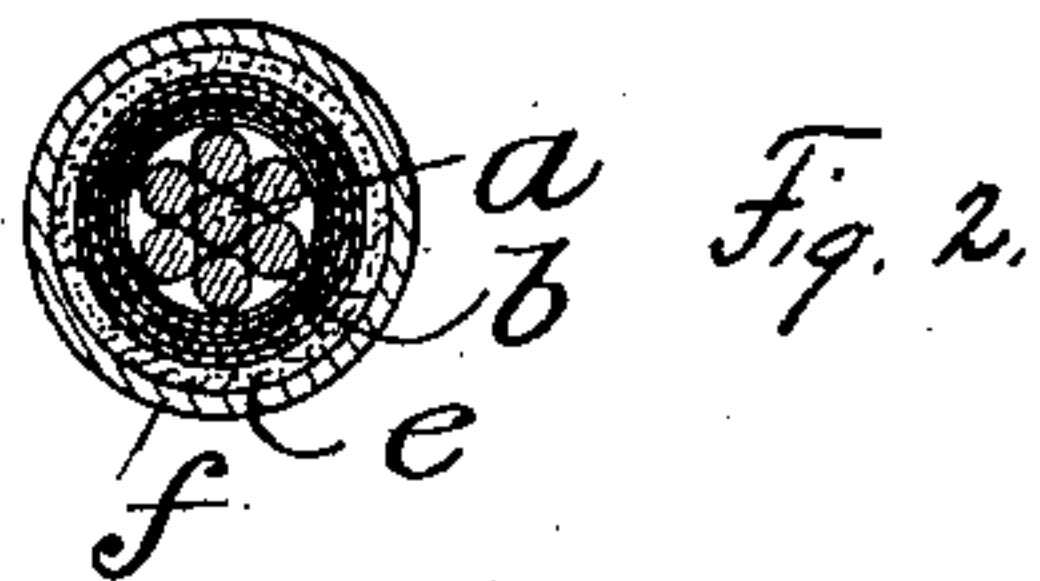
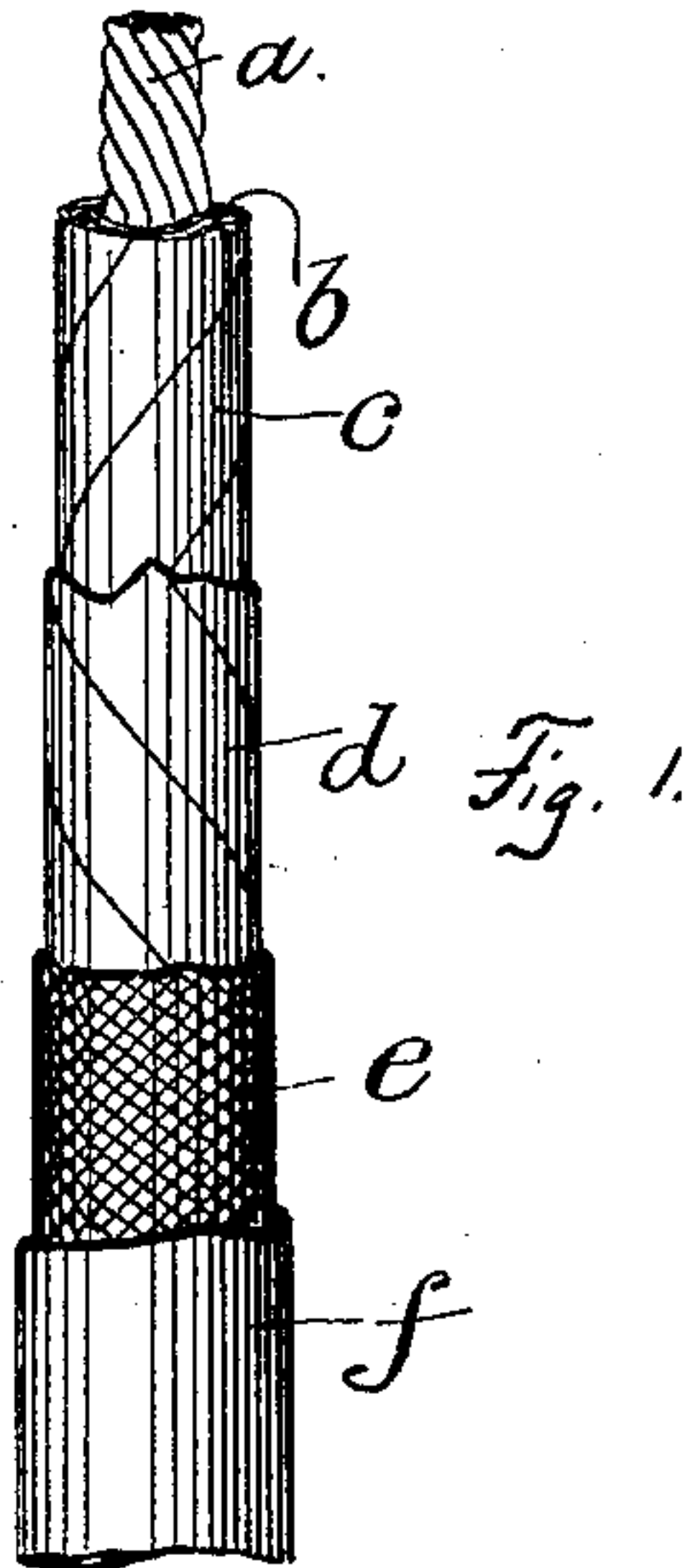
Patented June 26, 1900.

H. EDMUNDS.

INSULATED ELECTRICAL CONDUCTOR OR CABLE.

(Application filed May 1, 1900.)

(No Model.)



Witnesses.
John Lewis
W. R. Edelen.

Inventor
Henry Edmunds
by *Philip Mauro*
his atty.

UNITED STATES PATENT OFFICE.

HENRY EDMUNDS, OF LONDON, ENGLAND.

INSULATED ELECTRICAL CONDUCTOR OR CABLE.

SPECIFICATION forming part of Letters Patent No. 652,671, dated June 26, 1900.

Application filed May 1, 1900. Serial No. 15,121. (No model.)

To all whom it may concern:

Be it known that I, HENRY EDMUNDS, a subject of the Queen of Great Britain and Ireland, and a resident of 2 Queen Anne's Gate, Westminster, London, England, have invented certain new and useful Improvements in Insulated Electrical Conductors or Cables, (for which I have applied for a patent in Great Britain, No. 15,418, dated July 27, 1899,) which invention is fully set forth in the following specification.

In insulated electrical conductors or cables in which paper is employed for insulating the conductors oil has been used to treat the paper and the insulated conductor or cable has been sheathed with a lead or equivalent sheathing. In such insulated conductors or cables should the sheathing become perforated the insulation is liable to be injured, owing to the escape of the oil and the absorption of moisture.

The object of my invention is to provide insulated electrical conductors or cables which are economically made and which may be of comparatively-small weight and in which the insulation is not liable to become readily injured.

According to my invention I employ as the foundation of the insulation paper treated by saturating it with a mixture of resinous matter and oxidized oils of a sealing and waterproof character, and I combine therewith paper saturated with an oily matter or treated with a lubricant, as hereinafter explained.

The paper may be saturated with the sealing and waterproofing matter by steeping the paper in or passing it slowly through a bath of the said resinous matter and oxidized oils, rendered fluid by the application of heat, the said paper being passed through the bath at such a slow rate or allowed to remain in the bath sufficiently long to become thoroughly impregnated with the mixture of resinous matter and oxidized oils. The paper can be saturated with the oily matter or lubricant in a similar manner. The said oily matter or lubricant should be free from moisture and of good insulating qualities. Strips of paper thus prepared are wound spirally on the conductor or cable alternately with strips of paper prepared with a sealing and waterproofing material, as hereinbefore described, any suitable number of lappings being employed,

in accordance with the degree of insulation required. Either the paper saturated with the sealing and waterproofing material or the paper saturated with the oily matter or lubricant may be placed next the conductor or conductors; but it is preferred that the outer layer should be made by paper saturated with the sealing and waterproofing material. The whole may then be covered, if desired, with a braiding or lapping of a material, such as jute or cotton, and be passed through a hot bath of a mixture of sealing and waterproofing character, which may be similar to that used for treating the paper, as herein first described; but this braiding or lapping is not essential. A suitable mixture or compound for the purpose is that known in the trade as "diatrine." The insulated conductors or cables thus produced are very flexible, and the insulation is not liable to be strained or broken on bending, and the oily matter or lubricant of the paper strips treated therewith is retained very effectually by the sealing and waterproofing material with which the other strips are treated, as aforesaid, the strips treated with oil or lubricant allowing of the conductors or cables being bent without the insulation being injured. If desired, the insulated conductors or cables wound with the compound insulation, as aforesaid, can have applied to them a lead or other sheathing; but this, if used, may be much lighter than is generally employed.

In the accompanying drawings, illustrating one embodiment of my invention, Figure 1 is an elevation, and Fig. 2 a cross-sectional view.

Referring to the drawings, *a* is a metallic conductor or cable, which is first covered with a number of alternately-arranged layers, first, of paper saturated with a waterproofing material, such as above specified, and, second, of paper saturated with oil, such as above specified. Either the paper saturated with waterproofing material or the paper saturated with oil may be placed next to the conductor; but it is preferred that the outermost of these layers should be of the waterproofed paper. In the drawings, *c* is the outermost layer of paper saturated with oil, while *d* is the outermost layer of waterproofed paper.

e is a covering of jute or cotton placed over

covering *d*, said jute or cotton being by preference rendered waterproof, as hereinbefore explained.

5 *f* is a sheathing of lead of equivalent material.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

10 An electrical conductor, or cable, having applied thereto paper saturated with a mixture of resinous matter and oxidized oils of a

sealing, or waterproof, character, alternating with paper, saturated with an oily matter, or treated with a lubricant; substantially as 15 hereinbefore described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY EDMUNDS.

Witnesses:

PERCY READ SOLDRINE,
JOHN EDWARD NEWTON.