

No. 677,730.

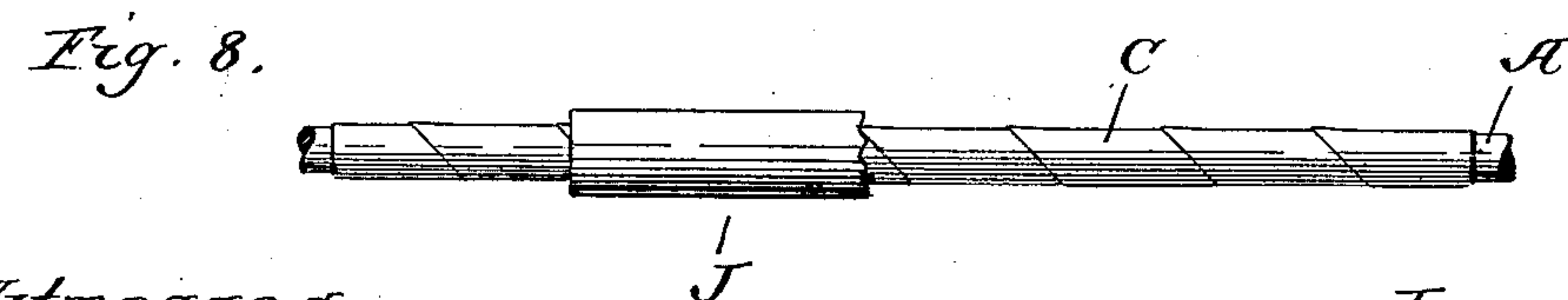
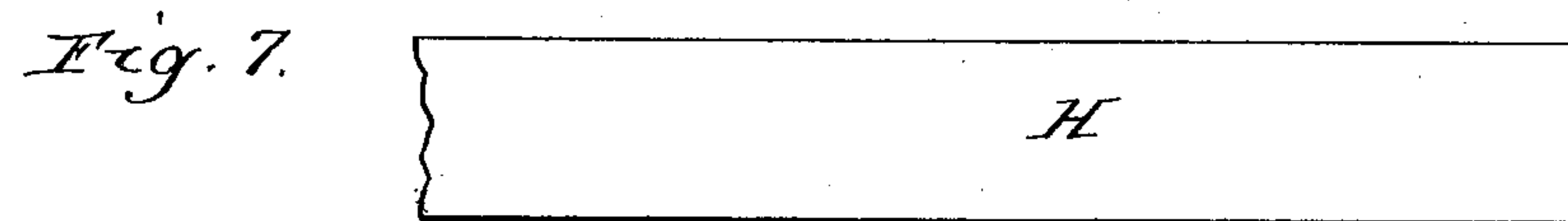
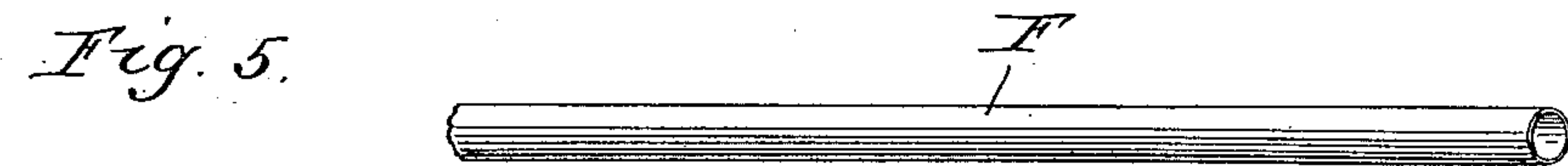
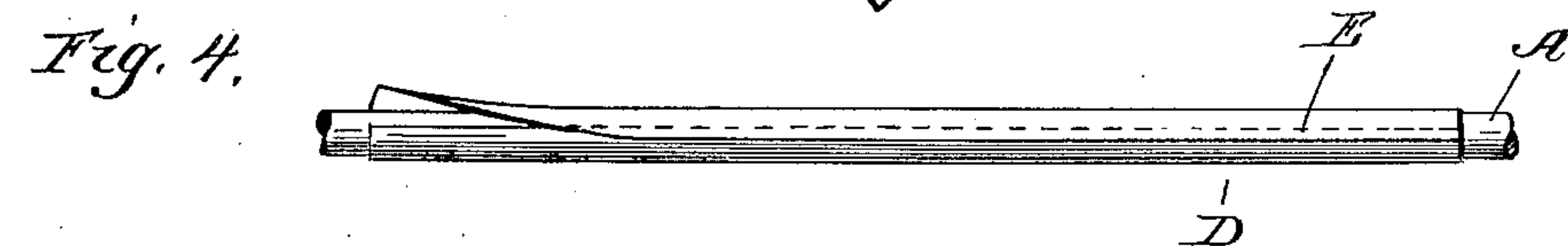
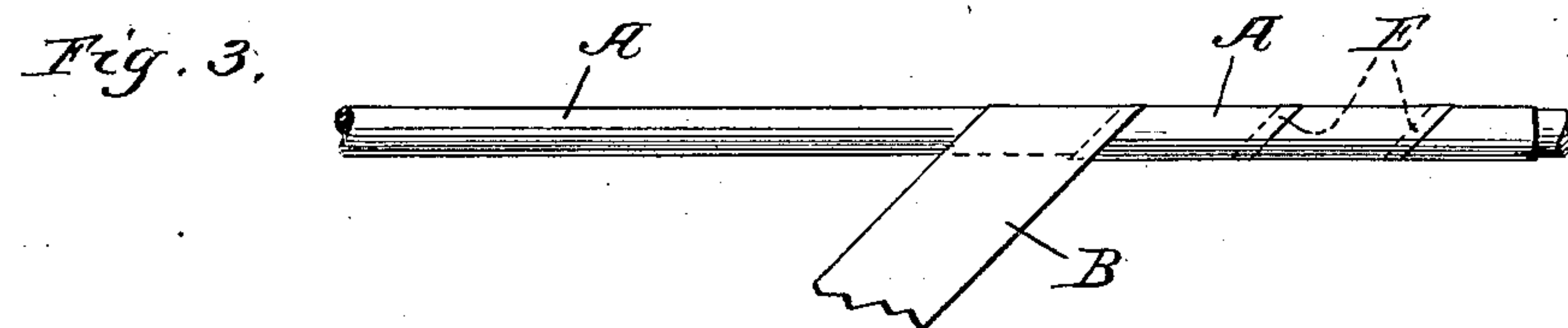
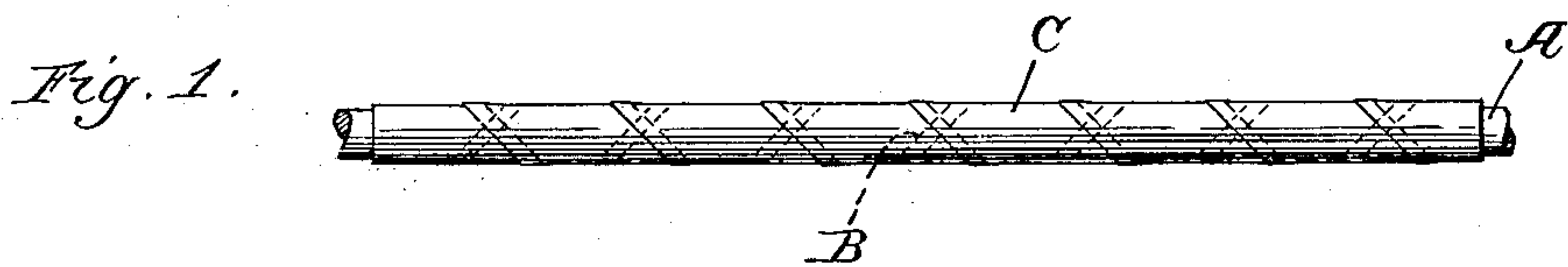
Patented July 2, 1901.

C. E. WOODS.

PROCESS OF INSULATING CONDUCTORS.

(Application filed Apr. 12, 1901.)

(No Model.)



Witnesses,

Edward T. Wray,
Howard L. Kraft

Inventor
Clinton C. Woods
by Parker & Carter
His Attys

UNITED STATES PATENT OFFICE.

CLINTON E. WOODS, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO
PETER F. TURNER, OF SAME PLACE.

PROCESS OF INSULATING CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 677,730, dated July 2, 1901.

Application filed April 12, 1901. Serial No. 55,466. (No model.)

To all whom it may concern:

Be it known that I, CLINTON E. WOODS, 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 Processes of Insulating Conductors, of which the following is a specification.

My invention relates to the insulation of electrical conductors, such as copper wire, and has for its object to provide means for obtaining a better insulation and with less trouble and expense in the matter of applying the same than is the case with the insulations commonly in use.

My method of insulation can be employed for the entire insulation of a continuous conductor or for insulating parts of such conductor or for repairs where other methods of insulation are employed.

For the purpose of more fully explaining my invention I have used some drawings, which are to be used as diagrammatic or illustrative.

Figure 1 is a view of a conductor shown as of a large cross-section with double coatings of insulation applied thereto according to my method. Fig. 2 is a view of a similar conductor with a single coat of insulation applied according to my method. Fig. 3 is a view of a similar conductor with the insulation of my invention in process of being applied thereto. Fig. 4 is a view of a conductor with an insulation applied thereto according to my process, but in a manner different from that shown in Figs. 1, 2, and 3. Fig. 5 is a view of the insulating material when in its original condition. Fig. 6 is a view of the same when it has been split. Fig. 7 is a view of the same stretched or flattened out in a ribbon form ready for application to the wire. Fig. 8 is a view of the arrangement shown in Fig. 1, with an exterior coating of a different character.

Like parts are indicated by the same letters in all the figures.

A is a conductor.

B (shown in dotted lines) is the insulation-strip wound in a certain sense. C is a similar insulation-strip wound in an opposite sense. D is an insulation-strip which lies

longitudinally with the conductor. The edges of all the strips are overlapped, as indicated at E.

F is the intestine from which the insulation is formed. G is the same when it is severed longitudinally, and H when it is drawn or flattened out to form a ribbon.

J is an exterior coating of any kind of material, as a cotton or silk wrapping or shellac or coloring-matter or a coating of vulcanite, for my improvement is valuable as a base for the subsequent application to such conductor of vulcanite.

I have found that the intestines of many animals, especially of the sheep and hog, will form very perfect insulation material when properly prepared and applied. The intestines are taken and thoroughly cleansed and purified, the inner and outer walls of the intestine being preferred for the purpose of my invention. The intestine may now be taken and collapsed and be thus applied in two thicknesses, or it may be split and be then applied to the conductor. The intestine so prepared and preferably with its natural moisture still in it is then applied to the naked copper or other wire. It is wrapped around or applied to the conductor so that the edges overlap, and thus there is preferably formed a continuous sheath, for when so wrapped the two overlying surfaces of the intestine become firmly united together. This is due perhaps partially to the substances of which the intestines are composed and perhaps also to the contraction of the overlying parts and to other conditions. The intestine so applied of course speedily shrinks, so as to produce a very close, firm, and continuous sheath or coating for the conductor. This coating may be supplemented and strengthened by other coatings of the same material, as suggested in Figs. 1 and 2, and such coating may be applied in spiral strips, as shown in Figs. 1, 2, and 3, or in long rolls, as shown in Fig. 4. For an extra or additional coating for the purpose of giving greater strength or supplementing the insulating effect produced by my invention or for giving color to the conductor or for any other purpose I have contemplated the application of vulcanite or other waterproofing materials, and the insu-

lation of my invention furnishes a very good base for all such applications.

One of the great advantages of my invention is its high insulating property as compared with cotton and silk insulations. Another is its great thinness, which makes wire insulated by my process of great value in dynamos, motors, and other apparatus where space is valuable. Another advantage is the great durability of this insulation. Another advantage is its comparative lack of combustibility. Another advantage is the great ease of its application, for no paste or other like material is necessary to cause it to adhere to the conductor or its several folds to adhere one to another. The adhesive substances in the intestine are sufficient for this purpose, especially when it is put on before the natural moisture has been extracted. If, however, this moisture has to a degree departed from it, it may be again moistened or have associated with it a proper adhesive substance or material.

For any purpose where it is likely to be exposed to moisture it is best to waterproof the conductor to which the insulation of my invention is applied.

I claim—

1. An insulated conductor comprising a suitable conductor with a coating formed of animal-intestines.

2. An insulated conductor comprising a

suitable conductor with a coating formed of animal-intestines laid on so that the edges overlap and the coating thus forms a continuous sheath about the conductor.

3. An insulated conductor comprising a suitable conductor with a coating formed of animal-intestines laid on so that the edges overlap and the coating thus forms a continuous sheath about the conductor, said intestines applied in the form of spirally-wound ribbons.

4. An insulated conductor comprising a conductor proper with a sheath formed of animal-intestines, and an exterior additional covering.

5. An insulated conductor comprising a conductor proper with a sheath formed of animal-intestines, and an exterior waterproof covering.

6. A method of insulating conductors which consists in covering the same with cleaned but moistened animal-intestines.

7. A method of insulating conductors which consists in covering the same with cleaned but moistened animal-intestines, and then covering such intestines with a waterproofing preparation.

CLINTON E. WOODS.

Witnesses:

PATRICK A. TURNER,
PETER F. TURNER.