No. 730,845. PATENTED JUNE 9, 1903.

R. W. TRAYLOR.

COMPOSITE TUBE.

APPLICATION FILED AUG. 1, 1902.

NO MODEL.

Fig. 1.

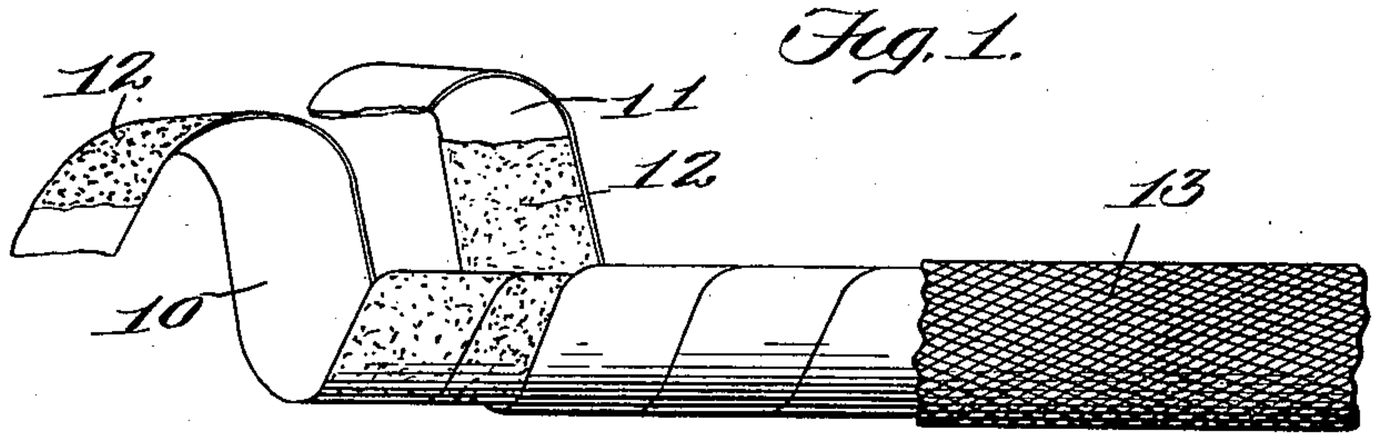

Fig. 2.

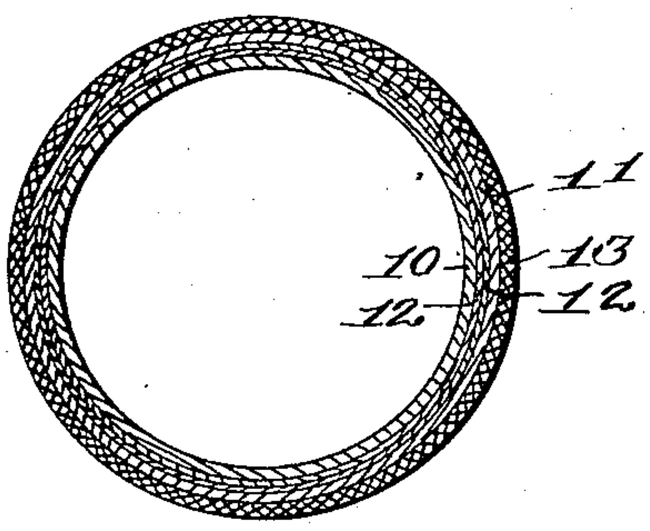

Fig. 3.

Fig. 4.

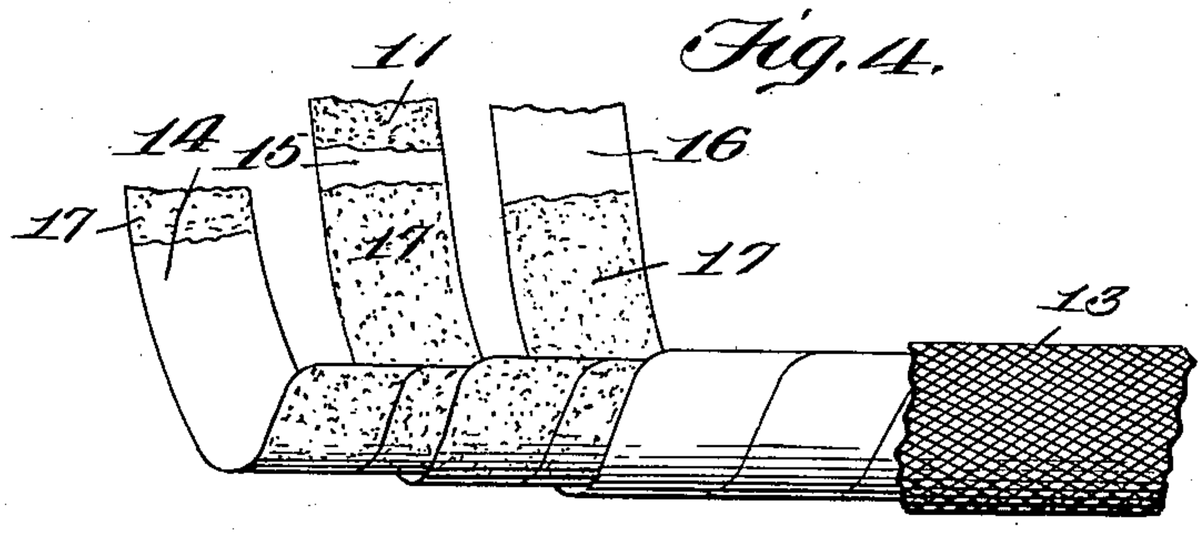

Fig. 5.

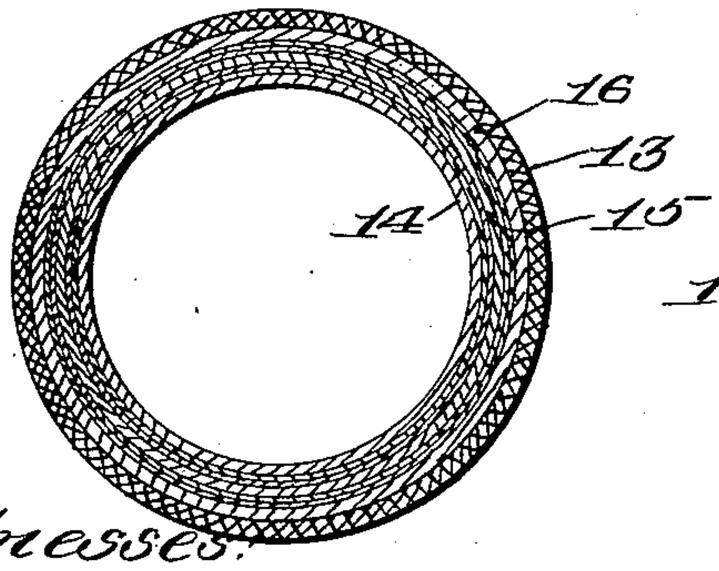

Fig. 6.

Witnesses:
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T. O. Parker

Inventor
Robert W. Traylor
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No. 730,845. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

ROBERT W. TRAYLOR, OF WEST HOBOKEN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO FRANK HALL, OF HOBOKEN, NEW JERSEY.

COMPOSITE TUBE.

SPECIFICATION forming part of Letters Patent No. 730,845, dated June 9, 1903.

Application filed August 1, 1902. Serial No. 118,017. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. TRAYLOR, a citizen of the United States, residing at West Hoboken, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Composite Tubes, of which the following is a specification.

This invention relates to a composite tube adapted for use in many arts, but of peculiar utility as a conduit for receiving and protecting electric conductors or wires when laid in buildings; and the primary object of the invention is to provide a flexible article of this character having a smooth inner wall and which is of fireproof construction and adapted to properly insulate the contained wires from such building. The tube is simple in construction and can be easily and inexpensively made, and it comprises in its make-up a plurality of spirally-wound tapes or strips, one inclosed by the other and the convolutions of one of them covering the joints between the convolutions of the other, and a mass of electro non-conducting material between the tapes. In the present case the tapes consist of paper, and the non-conducting material alluded to is preferably mica, which is suitably secured to the contiguous faces of the said spirally-wound tapes, and the mica may be and usually is in the form of flakes or scales. The composite tube therefore comprises inner and outer spirally-formed tubular sections, to the inner faces of which are secured mica. In this way the mica is wholly covered by the spirally-wound strips, so that it cannot be dislodged by the passing of wires through the tube or conduit. As a tube thus formed presents a continuous wall or film of mica, it will be apparent that the article serves to effectually insulate the wires from the building in which the tube is laid.

This invention is clearly shown in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of the improved tube with the ends of the coils free. Fig. 2 is a transverse section of the same. Fig. 3 is a detail sectional view of a portion of one of the tubes or strips on an enlarged scale. Fig. 4 is a view similar to Fig. 1, but showing a modification wherein the tube is made up of three strips. Fig. 5 is a transverse section of the same. Fig. 6 is a view of the intermediate strip of the modified form of tube.

Like characters refer to like parts in all the figures of the drawings.

Referring more especially to Fig. 1, the improved tube, which is flexible, so that it can be readily bent or otherwise shaped to meet different conditions, consists of a plurality of spirally-wound tapes or strips of suitable material, such as paper. In said figure there are two of such strips or tapes, the inner strip or tape being denoted by 10 and the outer one by 11, and it will be seen that the convolutions of one strip overlap the joints between the other strip and preferably for about half the width thereof, so as to positively close said joints.

The inner faces of the tapes 10 and 11 are covered with mica, as at 12, and the mica preferably consists of flakes or scales cemented or otherwise secured to the coöperating tapes. The mica is secured to such faces in any suitable way, and to form the tube a strip is coiled on a suitable mandrel, with the mica-coated face outside, after which a second strip is coiled around the other strip in such manner that the convolutions of the latter cover the joints between the first tape or strip.

It will be seen, therefore, that a tube constructed as described presents inner and outer spirally-formed tubular sections, the convolutions of which overlap, and an intermediate layer of electro non-conducting material, by virtue of which the inner surface of the composite tube is smooth, and as the intermediate layer of electro non-conducting material is wholly covered by the tapes it cannot be dislodged by the passing of wires through the tube, which is an important factor when such intermediate material consists of flakes or small pieces of mica. The inner and outer mica-coated strips are preferably cemented or otherwise attached to each other, so that one cannot have a longitudinal movement relative to the other.

In practice I prefer to cover the tube with a jacket 13, of woven material, and this woven material will be preferably impreg-

nated with some fireproofing solution, such as silicate of soda, so as to render the completed article non-combustible.

It will be understood that the invention contemplates the use of a plurality of paper strips; but I have hereinbefore described the same as made up of only two. In Fig. 4 the tube there shown consists of three spirally-formed or coiled paper strips or tapes, the inner one being denoted by 14, the intermediate one by 15, and the outer one by 16, and in the modified form the same overlapping relation of the tapes is preserved, the only difference being that the intermediate tape 15 is covered on both sides with mica, as at 17. In neither case, however, are the respective spirally-wound tapes in direct contact. The tube, therefore, it will be understood, is simple, can be easily made, and serves to thoroughly insulate the contained wires from the building. It is flexible and can therefore be readily bent. It can be easily cut into small lengths, if desired. It is light and when provided with a fireproofed jacket cannot be destroyed by fire.

Having described the invention, what I claim is—

1. A composite tube including a plurality of spirally-wound paper tapes, one inclosed by the other, the convolutions of one tape overlapping the joints between the convolutions of the other tape, and mica secured to the contiguous faces of said tapes for their entire width whereby the mica on one tape will overlap the mica upon the other tape.

2. A composite tube including three spirally-wound tapes, one inclosed by the other, the convolutions of one tape covering the joints between the convolutions of the adjacent tape, and the inner faces of the outer tapes having mica secured thereto, and both faces of the inner tape having mica secured thereto.

3. A composite tube including a plurality of spirally-wound paper tapes, one inclosed by the other, the convolutions of one tape overlapping the joints between the convolutions of the other tape, mica secured to the contiguous faces of said tapes for their entire width whereby the mica on one tape will overlap the mica upon the other tape, and a fireproof jacket around the outer tape.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT W. TRAYLOR.

Witnesses:
J. W. BELLIS,
GEO. PERRY.