

(No Model.)

T. J. MAYALL.

INSULATION OF WIRE FOR TELEGRAPH LINES.

No. 286,035.

Patented Oct. 2, 1883.

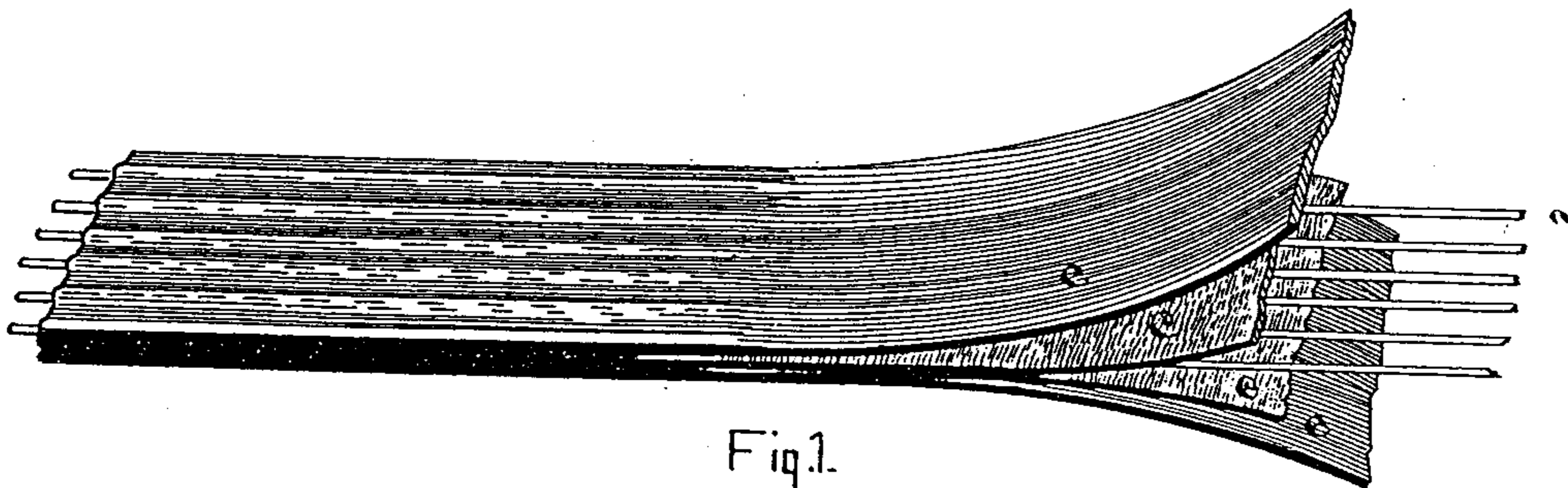


Fig. 1.



Fig. 2.

Witnesses:
Ch. Houghton
H. Kennedy Jr.

Inventor:
T. J. Mayall.

UNITED STATES PATENT OFFICE.

THOMAS J. MAYALL, OF READING, MASSACHUSETTS.

INSULATION OF WIRES FOR TELEGRAPH-LINES.

SPECIFICATION forming part of Letters Patent No. 286,035, dated October 2, 1883.

Application filed June 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. MAYALL, of Reading, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Improvement in the Insulation of Wires for Telegraph-Lines, of which the following is a specification.

My invention relates to the compounds of materials used for insulating wires and the manner of applying the insulating materials to the wires, the object of it being an improvement upon the method of insulating wires set forth in my application for a patent filed March 24, 1881, whereby greater convenience of manipulation in the manufacture is secured and more satisfactory results are attained.

The invention set forth in my application for a patent above referred to consisted in embedding the wire or wires to be insulated in the middle of an elongated mass in the form of a strap or belt or cord of a compound of rubber, graphite, and sulphur vulcanized on the wire or wires. In practice, I have found that there is some liability to imperfections caused by vulcanizing the compound on the wires, which my present invention will obviate; and, also, that the product is more conveniently handled and can be made in much greater lengths.

My present invention consists in first covering the wire to be insulated with a coating of a plastic compound of rubber and graphite, without sulphur, and then putting on over this covering a layer of rubber, graphite, and sulphur, vulcanized before applying it, and completely uniting it with the inner covering of rubber and graphite by cement and pressure. Thus the wire is only in contact with the compound of rubber and graphite, which is a perfect insulator, and has no tendency to corrode the wire. The outer coating of rubber, graphite, and sulphur, vulcanized, protects the inner unvulcanized coating from the action of the atmosphere and moisture, and also strengthens the insulation and renders the insulated wire less liable to injury by violence.

To practice my invention, I make a compound of rubber, one pound to about one and one-half pounds of graphite mixed and thoroughly blended together by grinding or other

suitable means. I run this compound into sheets of proper thickness—about one thirty-second part of an inch. I then cut the sheets into strips of the desired width, and unite the strips end to end to attain the length required. A wire or a gang of several wires is laid between two of these strips in such manner that if there are more than one they do not touch each other, and then the two strips of rubber and graphite are compressed in any convenient way with sufficient force to completely weld them into one homogeneous strip, with the insulated wires in the middle of it. This compound being without sulphur cannot be and is not vulcanized, and is comparatively soft, and will not bear violent contact with hard bodies, and has very little tensile strength. It therefore requires protection. For this purpose I make a compound of rubber one pound, graphite two and one-half to four pounds, and sulphur about two to four ounces, which I thoroughly mix and blend together into a plastic mass by grinding or other suitable means, and then run it into sheets of proper thickness, (about one-sixteenth of an inch,) cut the sheet into strips of suitable width, join the strips together end to end, and then vulcanize or cure the strips by heat to a degree to leave them pliable and somewhat elastic. I then lay one of these strips on each side of the strip of rubber and graphite compound containing the wire or wires, uniting them with it by cement and sufficient pressure to completely weld the three strips into one. Thus I get the strength and durability of the vulcanized rubber and graphite and sulphur compound, and at the same time perfectly insulate the wire or wires and prevent them from coming in contact with the compound containing sulphur.

In the drawings annexed, Figure 1 shows a gang of wires partially inclosed in coverings of rubber and graphite compound. Fig. 2 shows a cross-section of wires and rubber and graphite compound.

a are wires. *c* is the inner coating of rubber and graphite compound unvulcanized. *e* is the outer coating of rubber and graphite compound vulcanized.

I claim as new and my invention—

1. An electrical conductor coated with a

compound of rubber and graphite not vulcanized, and enveloped outside said coating with a compound of vulcanized rubber and graphite, substantially as described.

5 2. A compound electrical conductor comprising a series of parallel wires embedded and separated from each other by an unvulcanized rubber composition, and an exterior envelope or covering of vulcanized rubber and
10 graphite, substantially as described.

3. An electrical conductor coated with an

insulating composition of rubber and graphite unvulcanized and free from sulphur, substantially as described.

4. As an electrical insulating medium, an unvulcanized compound of rubber and graphite, substantially as described. 15

THOS. J. MAYALL.

Witnesses:

CHS. HOUGHTON,
H. KENNEY, Jr.