(No Model.)

W. R. PATTERSON.

METHOD OF MAKING TELEGRAPH CABLES.

No. 309,244. Patented Dec. 16, 1884.

Fig. 1

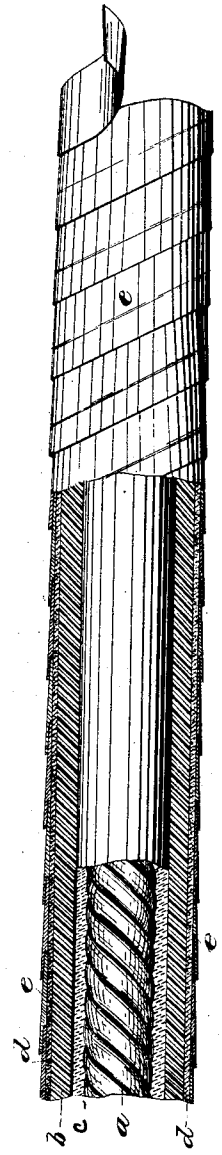
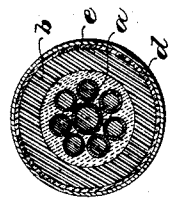


Fig. 2



Witnesses.-

Harry Faulkner.

Frank Allen

Inventor.

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per George P. Barton

Attorney.

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UNITED STATES PATENT OFFICE.

WILLIAM R. PATTERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

METHOD OF MAKING TELEGRAPH-CABLES.

SPECIFICATION forming part of Letters Patent No. 309,244, dated December 16, 1884.

Application filed June 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. PATTERSON, 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 Methods of Making Telegraph-Cables, (Case 33,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to flexible telegraph-cables in which a core of insulated conductors is drawn into a tube, and protected by an insulating substance forced in hot among the conductors.

Heretofore lead pipes have been used in the manufacture of telegraph-cables; but cables having lead-pipe coverings are very heavy, especially for aerial purposes. Rubber tubes have therefore been employed to protect the cover of aerial cables; but no attempt has been made to fill the interstices among the conductors of the core with an insulating substance for the purpose of preventing moisture from penetrating to the wires in case the tube proves defective.

My invention consists in filling the elastic tube, after the core of conductors has been drawn in, with an insulating substance, which is forced in hot. The elastic pipe is expanded by the pressure of the melted insulating substance as it is forced in; but as the substance shrinks in cooling, the tube which has been stretched by the pressure of the melted insulating material shrinks to correspond, and thus all the interstices are filled with a solid insulating substance, preferably paraffine-wax.

I preferably braid a loose serving about the rubber tube, so as to limit its expansion and prevent the pressure of the melted insulating substance from bursting the said elastic tube. After the paraffine or other substance has shrunk I wind the pipe with strong serving, so as to prevent expansion and strengthen the cable.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of a cable embodying my improvements. Fig. 2 is a transverse section thereof.

The core of conductors *a* consists of any desired number of copper wires insulated by fibrous material and twisted together in the form shown. The pipe *b* is a tube of soft rubber. The paraffine *c* is forced into the pipe hot under pressure and allowed to cool. The tube is expanded by the pressure of the hot paraffine; but as the paraffine shrinks in cooling, the tube also shrinks, so that all interstices are completely filled with solid paraffine or the insulating wax or composition. The braiding *d* is preferably braided loosely about the pipe before the filling is forced into the pipe, thus limiting its expansion. After the paraffine and pipe have shrunk, the serving *e* is wound tightly about the cable, thus strengthening the cable and preventing the pipe from expanding to any great extent in case the paraffine should again become warm or hot.

I claim as my invention and desire to secure by Letters Patent—

The method of insulating the conductors of a telegraph-cable, which consists in surrounding the core with an elastic pipe and forcing therein a melted insulating substance and allowing the insulating substance to cool within the elastic pipe, whereby the said pipe is caused to shrink as the insulating substance shrinks in cooling, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 5th day of June, A. D. 1884.

WILLIAM R. PATTERSON.

Witnesses:

GEORGE P. BARTON,

JOSEPH JENNINGS.