(No Model.)

W. R. PATTERSON.

ELECTRIC LIGHT CONDUCTOR.

No. 309,246. Patented Dec. 16, 1884.

Fig. 1.

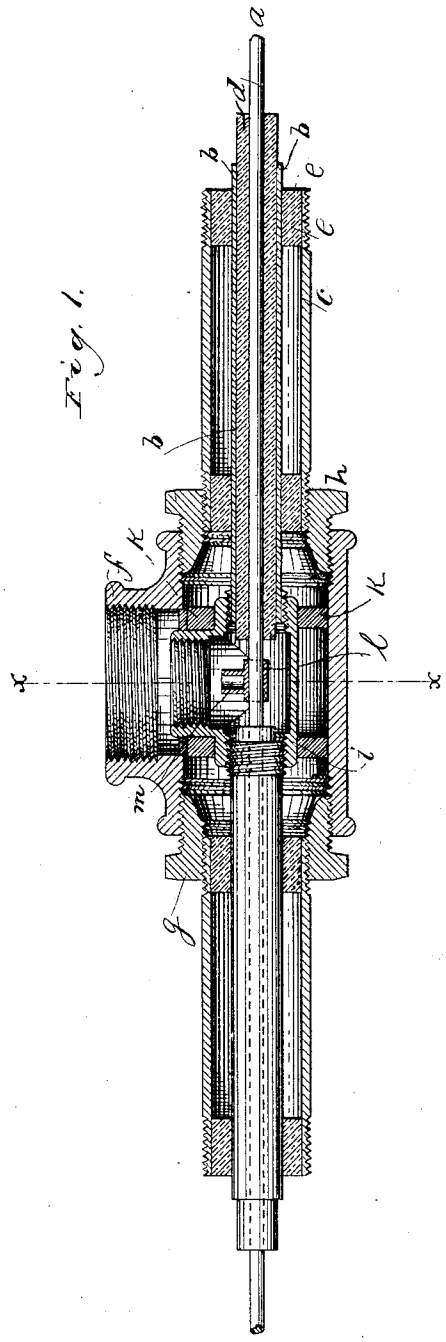


Fig. 3.

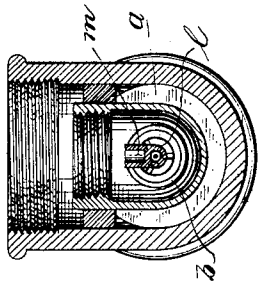
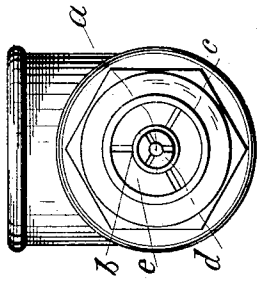


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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

ELECTRIC-LIGHT CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 309,246, dated December 16, 1884.

Application filed July 18, 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 Electric-Light Conductors (Case 35,) 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 underground electric conductors, and more especially to such as are used in incandescent systems of electric lighting, in which two conductors only are included in the same cable, while the lamps are arranged in multiple arc.

My invention consists in placing the two conductors concentric, and in connecting the different sections of cable together, so that connection may be made readily at any section with the branch or cross wire including the lamps.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a longitudinal sectional view of my electric cable, the ends of two sections being united so as to afford facilities for making connection with a branch or cross wire which is to contain the lamps. Fig. 2 is an end view of the cable. Fig. 3 is a sectional view taken upon line *x x* of Fig. 1.

Like parts are indicated by similar letters of reference in the different figures.

The central conductor, *a*, may be a copper wire of such size as may be desired. The outer conductor, *b*, is in the form of a tube, watertight, preferably of brass or copper, and should be of about the same conductivity as the inner conductor. The pipe *c* is preferably of iron. An outer protecting-pipe of lead instead of the iron pipe may be used, however, with a nipple soldered to the end for making connections with the T-pieces. Between the two conductors I place the strips *d*, preferably of wood. These strips are preferably three in number, and are designed to hold the wire at the center of the conducting-tube. The two conductors are thus held concentric. Between the outer conductor, *b*, and the pipe *c*, I provide similar wooden strips, *e*. The spaces between the strips are filled with some insulating substance like asphalt, forced in hot. The outer conductor is thus insulated from the pipe, and the two conductors from each other.

The cable may be made at the factory in sections of about thirty feet each, each section containing two lengths of iron pipe. When the cable is laid, the sections must be united, and means provided for making connection with the incandescent lamps, which are to be placed in multiple arc—that is, in small wires which connect from one main conductor to the other.

The T-coupling *f* may be provided with the bushings *g h*, of such size as may be necessary to fit the pipe of the cable. The T-coupling *i*, which unites the sections of the tube *b*, which forms the outer conductor, is of such size that it may be placed within and insulated from the outer coupling, *f*, by the hard-rubber rings or bushings *k*. The sleeve *l* forms the connection between the sections of the conductor *a*. This sleeve should be soldered to one of the sections, so that when the sections of cable are united the sleeve may come between the two sections of conductor *a*, as shown in Figs. 1 and 3. If the central conductor is large enough, one of the opposing ends may be provided with threads of the same pitch as the threads upon the two pipes, and united by a T similar to the one which connects the tubular conductor. The pitch of all the threads being the same, one section may be screwed into another, and all the connections formed simultaneously. The outlets of the T's *f* and *i* may be plugged, except when used to afford facilities for making a cross or connection between the conductors *a* and *b*.

In order to bring out branches from the conductors *a* and *b*, I first screw a bushing, like bushing *g* or *h*, into the outlet of the T-piece *f*. I then screw in a short piece of cable, the pipe of which fits the inner thread or screw of the bushing, while the tube which forms the outer conductor screws into the T *i*, and the central wire comes into the socket *m*, which is provided, as shown, upon the sleeve *l*. The socket *m* may be tapped out, if desired, so as to fit a screw which may be provided upon the end of the inner conductor of the piece of ca-

ble. In this manner a branch or half connection of any desired length may be made with each of the conductors. These branches may be connected in any well-known way with the wire containing the lamps.

It is evident that the pieces *f* and *i* may be made L-shaped, with such modifications in the different parts of the conducting-pieces as would readily suggest themselves to an ordinary mechanic, and thus the direction of the cable may be readily changed.

If no facilities for making half-connections with the conductors are required, concentric couplings may be used instead of the T's *f* and *i*.

I claim—

1. The combination, in a telegraph-cable, with two concentric conductors inclosed within a pipe, and insulated therefrom and from one another, of the T-piece *i* within the T-piece *f* and insulated therefrom, whereby two sections of cable may be joined, while branch or half connections may be made with the different conductors, substantially as and for the purpose specified.

2. The combination, with the sections of cable provided with the tube *b*, and the wire *a*, placed concentric and insulated by the strips or pieces *d* and *e*, of concentric couplings whereby two sections of cable may be united and the insulation of the concentric conductors maintained, substantially as and for the purpose specified.

3. The combination, with the pipe and concentric conductors of a telegraph-cable, of concentric couplings provided with threads of the same pitch, whereby two sections of cable may be joined and the insulation of the conductors maintained, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 15th day of July, A. D. 1884.

WILLIAM R. PATTERSON.

Witnesses:

GEORGE P. BARTON,

H. FRANKFURTER.