(No Model.)

J. MacFARLANE.

SUBWAY FOR ELECTRIC CURRENT WIRES OR CABLES.

No. 361,276. Patented Apr. 19, 1887.

Fig. 1.

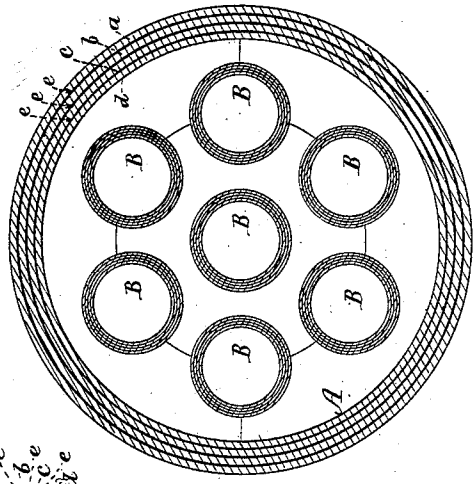


Fig. 4.

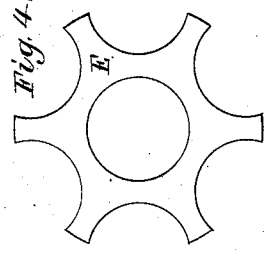


Fig. 5.

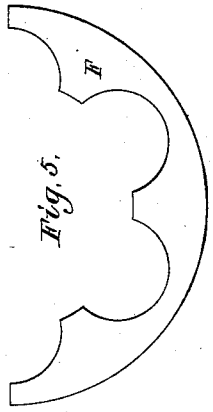


Fig. 2.

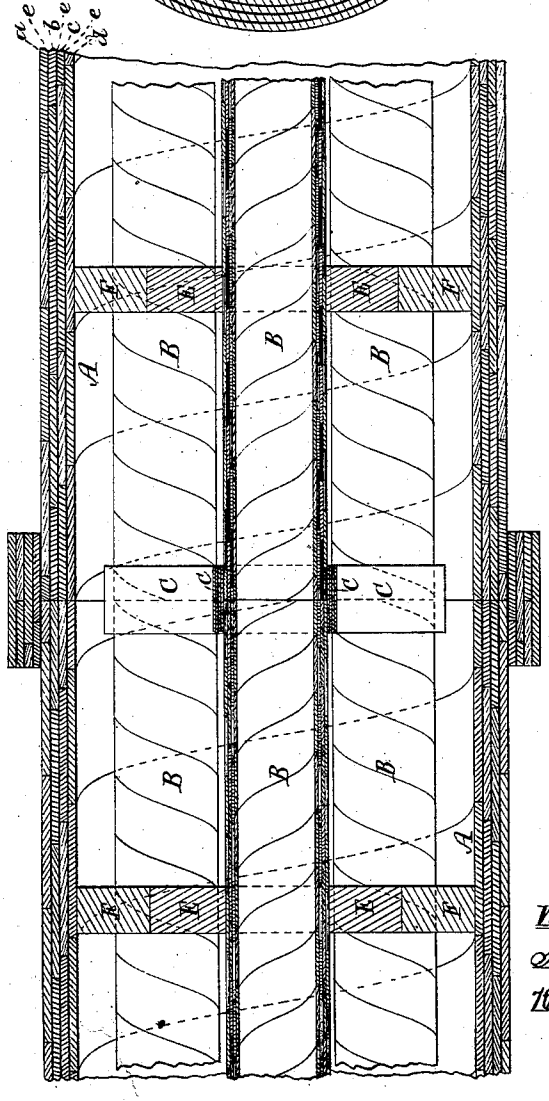
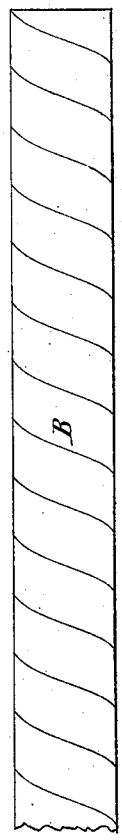


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES MACFARLANE, OF MALDEN, MASSACHUSETTS.

SUBWAY FOR ELECTRIC-CURRENT WIRES OR CABLES.

SPECIFICATION forming part of Letters Patent No. 361,276, dated April 19, 1887.

Application filed October 21, 1886. Serial No. 216,822. (No model.)

To all whom it may concern:

Be it known that I, JAMES MACFARLANE, of Malden, in the county of Middlesex, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Subways for Electric-Current Wires or Cables; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a transverse section, and Fig. 2 a longitudinal section, of a subway embodying my invention, the nature of which is defined in the claims hereinafter presented. Fig. 3 is a side view of one of the internal tubes, while Figs. 4 and 5 are side views of the two kinds of segmental saddles used in supporting within a main pipe the series of internal pipes to be described.

The main pipe A, as well as each of the interior or auxiliary pipes, B, contained in such main pipe, is constructed in sections, butted end to end, and coupled at their ends by short pipes C, into which the sections extend, a suitable cement, which is a non-conductor of electricity, being used between the next adjacent surfaces of the coupling and those of the pipes.

Each section of pipe is composed of a series of flexile strips of wood, each being bent around in a spiral with each coil at its edge or edges in contact with that or those next adjacent. Having thus wound one layer into a tubular form on a suitable cylinder or core, the next layer is to be wound on the first one, so as to break joints with it. So on, each layer is to be so wound, some of them being wound in a direction opposite to that of the others. Between each two next adjacent layers there is to be a water-proof layer of cement, which is a non-conductor of electricity.

In the drawings the main-pipe sections are shown as each composed of four such layers, *a b c d*, with a layer, *e*, of insulating-cement, as mentioned, between each layer and the one next to and surrounding it. Extending lengthwise in the main pipe so constructed is the series of auxiliary pipes B, each being made substantially like the main pipe. These pipes, being arranged as represented in Fig. 1—that is, one with its axis coincident with that of the main pipe and the rest at equal distances apart in a circle concentric with and surrounding the central pipe—are supported in practice by sets of segmental saddles E and F, formed and arranged as shown, those of the outer set fitting the bore of the main pipe. Such saddles operate to keep the internal pipes, B, through which the electrical current wires or cables are to extend, at their proper distances asunder.

A subway thus made is to be laid in the earth of a street or other place, as water or gas pipes are usually laid therein. It will not only hold the electrical wires or cables, but insulate them from the surrounding earth.

I do not claim for underground telegraph wires or cables a conduit composed of a series of grooved slabs having wire nettings embedded within them, all as set forth in the United States Patent No. 351,697, as my invention involves not only a main pipe and a series of auxiliary and smaller pipes, (these latter being arranged within such main pipe lengthwise thereof,) but a series of sets of peculiar segmental saddles, of which there are, as represented, three to each set, they being entirely different in construction and form from such grooved slabs.

I claim—

1. The combination of the main pipe and the auxiliary pipes arranged therein, as described—that is, one with its axis coincident with that of the main pipe and the rest at equal distances apart in a circle concentric with and surrounding the central pipe—with the sets of segmental saddles placed in the main pipe and with respect to it and the auxiliary pipes substantially as set forth.

2. In a subway or underground conduit for electric wires, essentially as described, each sectional pipe A or B composed of a series of strips of wood, each wound spirally and having each coil of it at its edge or edges in contact with that or those next adjacent, such coiled strips being disposed concentrically one within the other and having between each two next adjacent ones a layer of water-proof cement connecting them to each other, all being substantially as represented.

JAMES MACFARLANE.

Witnesses:
R. H. EDDY,
R. B. TORREY.