

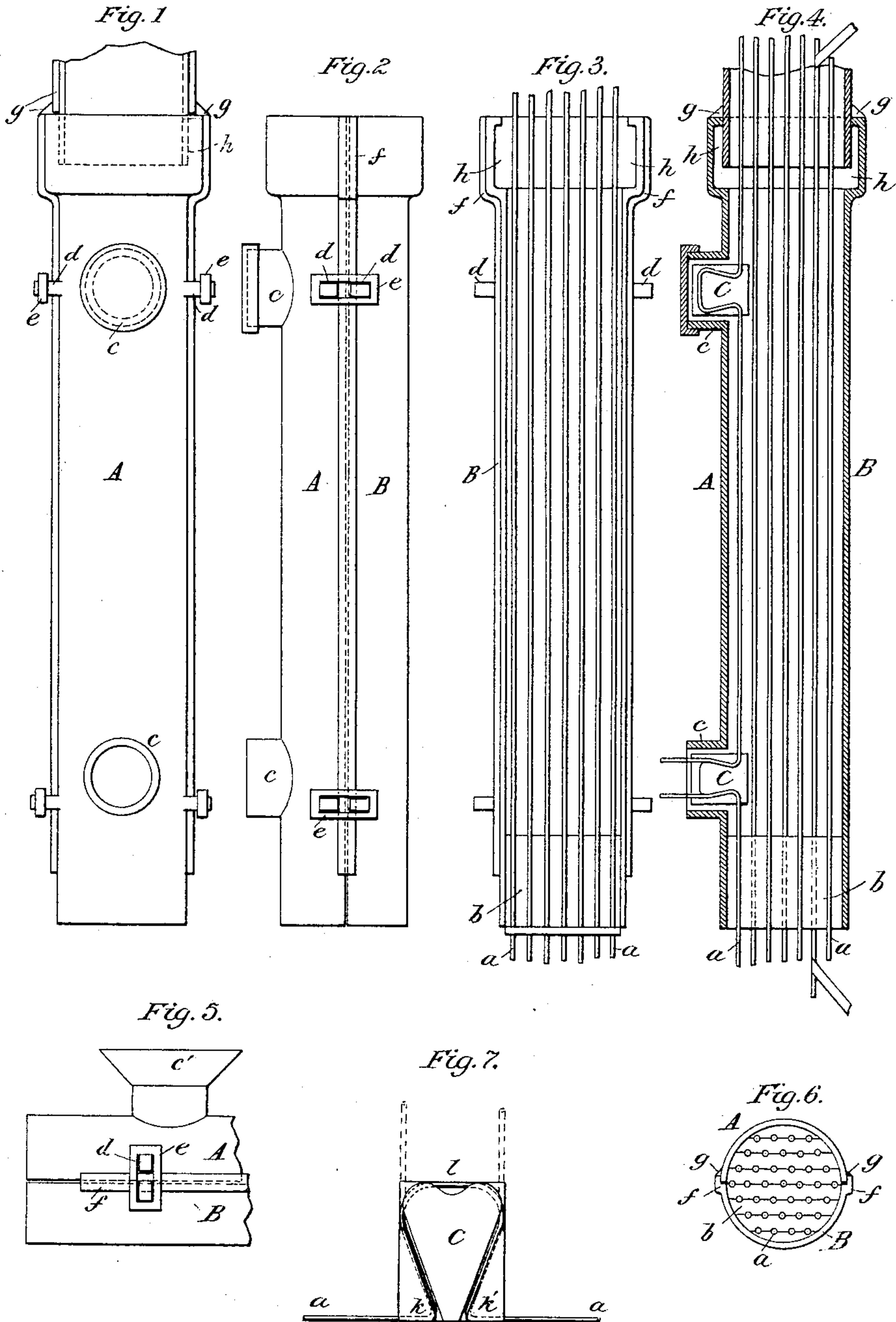
(No Model.)

H. C. SPALDING.

UNDERGROUND ELECTRIC CONDUCTOR.

No. 327,480.

Patented Sept. 29, 1885.



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UNDERGROUND ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 327,480, dated September 29, 1885.

Application filed April 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. SPALDING, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Underground Electric Conductors, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

My present invention has reference, mainly, to a system of underground electrical conductors—such as set forth in other applications filed by me and by Peter McMackin—and has been designed with a view to meet the practical needs of that system.

In the accompanying drawings this system and the improvements which form the subject of my present application are both illustrated. Figure 1 is a plan of part of the sectional pipe used to inclose the conducting-wires. Fig. 2 is a side elevation of the same. Fig. 3 is a plan of the lower pipe-section with the wires in place therein. Fig. 4 is a sectional elevation of the pipe. Fig. 5 is an elevation of part of a pipe, representing a funnel applied to the filling orifice or nozzle therein. Fig. 6 is an end elevation of the spigot end of the pipe with the segmental wire-holding block in place. Fig. 7 is a view in side elevation of a device for taking out a loop from one of the conductors in the pipe.

The pipe is composed of two sections, A and B. At intervals within the pipe are supports formed of segmental blocks *b*, grooved on their contiguous faces, and otherwise formed, arranged, and laid into place before the upper pipe-section, A, is placed upon the lower, as described in my application for patent filed December 3, 1881, No. 47,258. The conducting-wires *a* are held and spaced by means of these supports, the wires being laid in the grooves on the segmental blocks. After the wires and blocks are in place and the top section placed on the bottom one, the intervening space in the pipe between the blocks *b* is filled in with a non-conducting composition which will harden in cooling, and which is poured in through filling-orifices *c* by means of a funnel, *c'*, which fits around the neck of the nozzle-opening, to which it may be applied, as indi-

cated in Fig. 5. Thus far there is no material difference between the structure here described and those described in the two applications hereinbefore referred to.

I pass now to a description of the special features in which my invention resides.

The blocks *b* are of such a size that when built up to form the supports or rests for the wires they will support the upper pipe-section, A, when placed in position, and prevent it from resting to any extent directly upon the bottom section, as indicated in Fig. 6. The blocks thus sustain the weight of the section A, and in this way I hold them firmly in position and insure the retention of the wires in the grooves. To bind the two pipe-sections together before the filling compound is poured in, I provide them with studs *d*, bound together by links *e*, which are first slipped over the studs and then tilted and jammed in this position to act in a measure as clamps. I stop the joints at the points where the longitudinal ribs *f* of the lower section meet the upper section with a luting, *g*, of any suitable kind, with a view to prevent the asphalt or other liquid composition before it hardens or sets from leaking out of the pipe. The sleeve end of the pipe is enlarged, and is then contracted at its extreme outer part to meet and fit around the spigot end of the next adjoining length of pipe. In this way I form around the spigot end of one length inserted into the sleeve end of the other length an annular chamber, *h*, (shown plainly in Fig. 4,) which is filled by the liquid non-conducting filling composition poured into the pipe. By this means the joint between the two lengths of pipe is effectually sealed; and, furthermore, the composition, when cooled, beds the spigot end and gives it a firm bearing on all sides. I use luting *g'* on the exterior of this joint for the same reason that the luting *g* referred to is used.

The blocks *b* are preferably placed only in the spigot end of each length of pipe, the object being to allow of slight variations in the alignment of the several pipe-lengths and still prevent the wires from having contact with the walls of the same.

In order to furnish in any wire at any desired point a loop which is held in a position

where it may be got at and cut in order to make connection with a way-station, for instance, I make use of a thin block, C, of wood or other non-conducting material, which is
5 grooved, as indicated in Fig. 7, the groove having the form approximately of an inverted U, the legs formed on the side of the block, as at *k*, and the connecting bend formed in the top of the block, as at *l*, these parts *k'kl* forming a continuous groove, into which the wire
10 can be inserted and held in the manner indicated in the figure. This block is placed in one of the spouts or nozzles *c*, where it can be conveniently got at. It is held in place by
15 the insulating material, which is poured in and hardens around it. The wire being looped into the block and hauled taut, it must perforce remain in the groove. Care must be taken to place the block in such a position
20 that it will clear the side of the spout or nozzle *c*.

The portion of wire which stretches across the top of the block is in a position to be readily got at and cut, as indicated on the left of
25 Fig. 4, whenever this is desired.

Having now described my improvements and the manner in which the same are or may be carried into effect, what I claim is—

30 1. In combination with a pipe for conveying electric wires and divided into longitudinal

sections, the wire-supports constituted of superposed grooved segmental blocks, the said supports being each of a height greater than the internal diameter of the pipe, so that when the sections are fitted together the upper shall
35 rest and press upon the said supports, instead of upon the lower section, as and for the purpose specified.

2. The combination, with a pipe for conveying electric wires and divided into longitudinal
40 sections, of the wire-supports formed of superposed grooved segments contained and inclosed within said pipe and supporting the upper section thereof, and the stud and link clamping devices, whereby the sections
45 are held in place, for the purpose specified.

3. The sectional pipe-lengths formed with sleeve ends enlarged, as described, to form an annular chamber, *h*, around the spigot end of the adjoining length, in combination with the
50 wire-supports, wires, and a filling of non-conducting composition, all substantially as set forth.

In testimony whereof I have hereunto set my hand this 4th day of April, 1882.

H. C. SPALDING.

Witnesses:

E. A. DICK,
W. C. CROSS.