

(No Model.)

2 Sheets—Sheet 1.

S. J. FAGUE.

SUPPORT FOR UNDERGROUND ELECTRIC LINES.

No. 317,326.

Patented May 5, 1885.

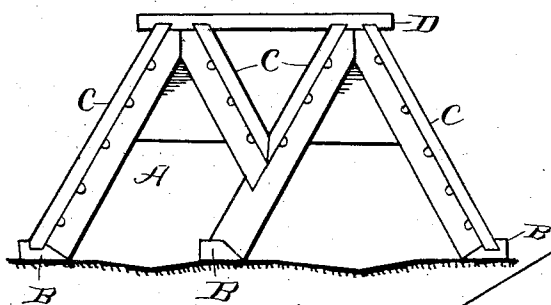


Fig. 2

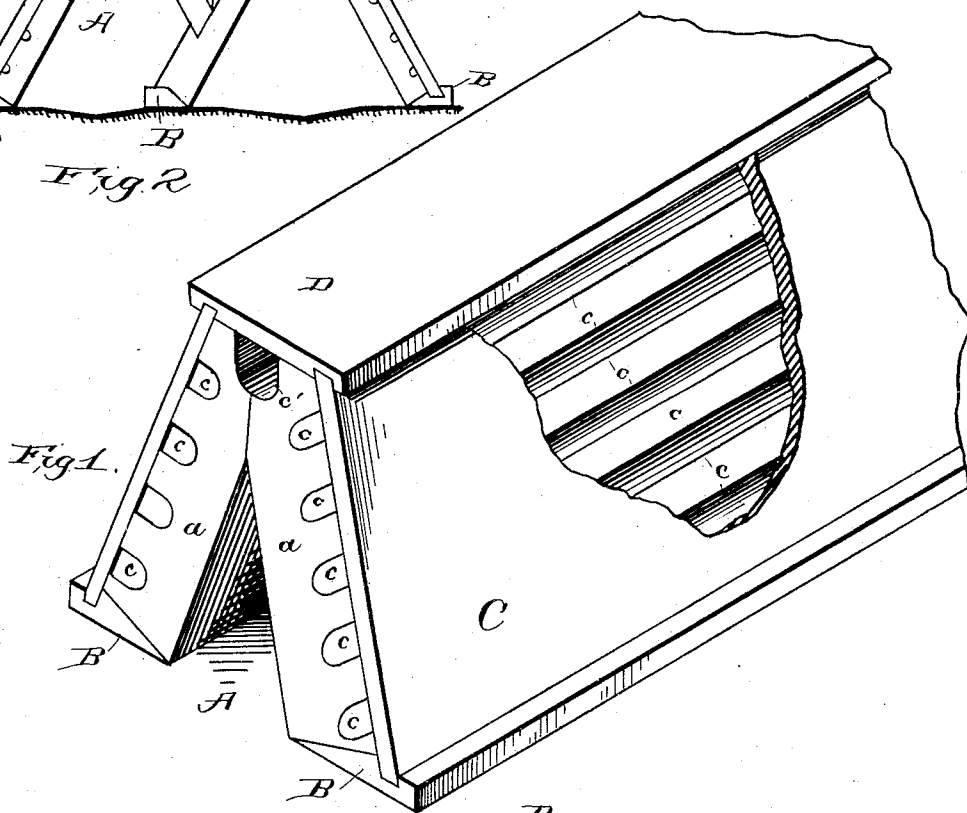


Fig. 1.

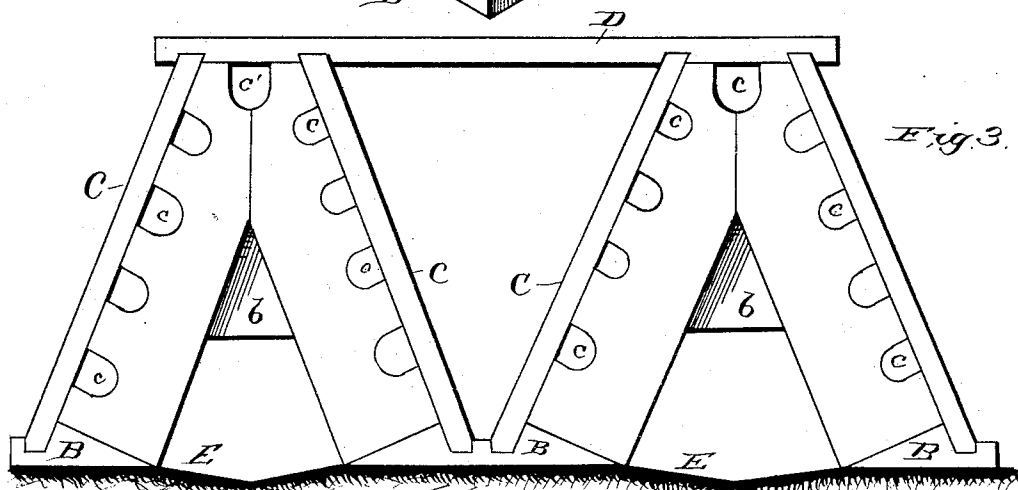


Fig. 3.

Witnesses { *Wm. A. Rumbaugh*
A. R. Brom *Solomon J. Fague*
by J. C. Gaskin

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Fig. 4.

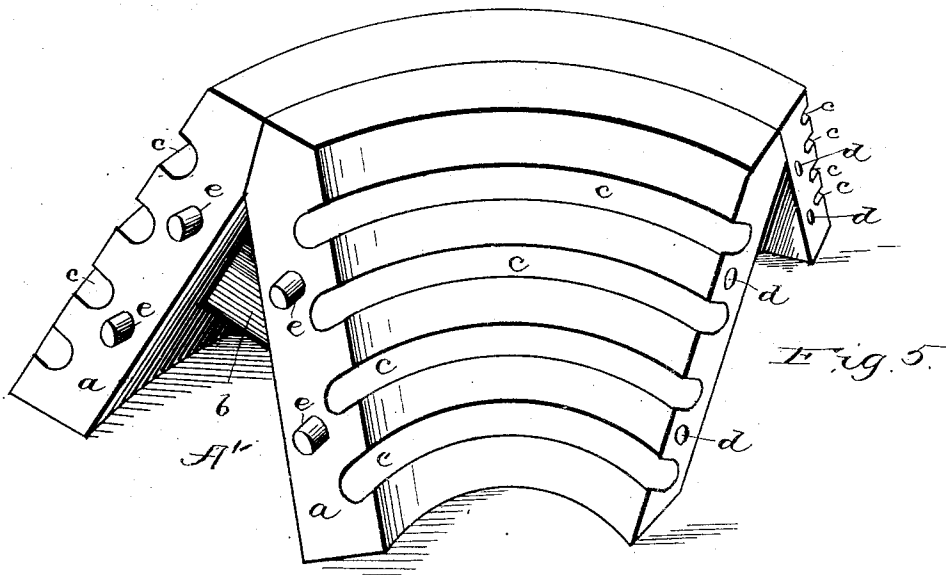
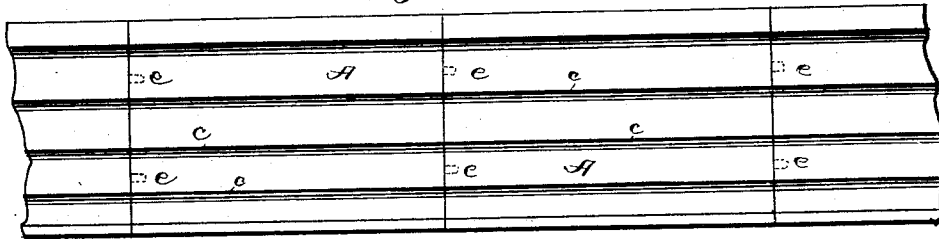
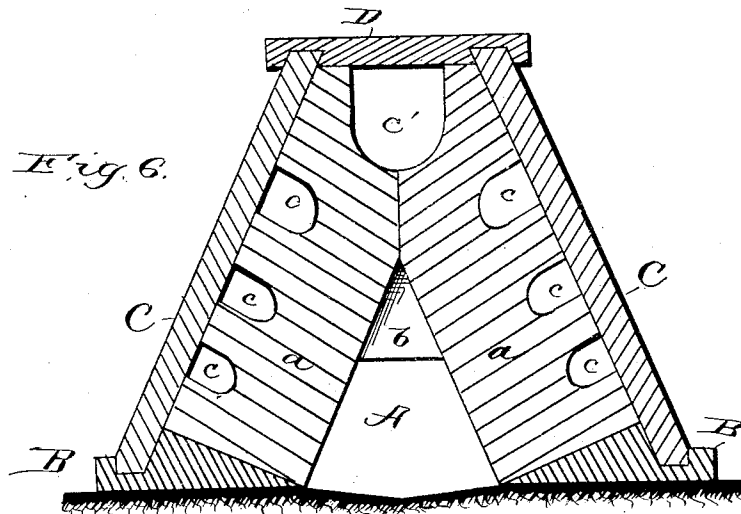


Fig. 6.



Witnesses
Wm S. Rosenthal
A. R. Brown.

Inventor
Solomon J. Fague,
by J. C. Parker
Atty.

UNITED STATES PATENT OFFICE.

SOLOMON J. FAGUE, OF WASHINGTON, DISTRICT OF COLUMBIA.

SUPPORT FOR UNDERGROUND ELECTRIC LINES.

SPECIFICATION forming part of Letters Patent No. 317,326, dated May 5, 1885.

Application filed December 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON J. FAGUE, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Supports for Underground Electric Lines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my invention is to furnish an improved means of conveniently supporting an underground line of electric cables or conductors so that access can be readily had when required.

The invention consists of an upwardly-converging double-inclined support formed in sections, having longitudinal grooves for receiving the electric conductors, and provided with a suitable covering on the sides and top, as hereinafter more fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a perspective view of a portion of one of the sectional underground supports for electric conductors, one of the outer sides or coverings being partly broken away to show the inner grooved shell on which the conductors are supported. Figs. 2 and 3 are end views of a double set of supports. Fig. 4 is a side elevation of several sections of the support connected in a continuous line, the outer covering being removed. Fig. 5 is a perspective view of a curved section with covering detached; and Fig. 6 is a transverse sectional elevation of one of the upwardly-converging double-inclined supports and its coverings.

Like letters of reference designate like parts in the several views.

It will be understood that my improved underground support and covering for electric conductors may be made of wood, metal, terra-cotta, vitreous substances, or other suitable material, terra-cotta, on account of its durability and comparative inexpensiveness, being deemed preferable, though good results can be obtained by employing wood or galvanized iron.

The inner shell or support, A, of whatever material made, is formed with upwardly-converging sides *a a*, like an inverted V in cross-section. This shell or double-inclined support is braced internally by cross-pieces *b b*, or other suitable means, and on its outer sides are longitudinal grooves *c c* for the reception and support of the electric conductors. At the top of the support A may be formed a central longitudinal groove or channel, *c'*, somewhat larger than the grooves *c c*, and intended for the reception of a large conductor or cable. The sectional double-inclined supports A are mortised and tenoned at their opposite ends, as shown at *d e*, so that they can be readily connected in continuous lengths, as represented in Fig. 4.

The lower ends of the double-inclined supports A rest on stringers B B, of wood, terra-cotta, metal, or other suitable material. These stringers may be beveled, as shown, to fit the lower ends of the supports A, or they may, if desired, be made plane, the bevel in that case being formed on the lower edge of the support. Each stringer B is grooved longitudinally to receive the lower edge of a side covering, C, which rests in an inclined position against the supports A, so as to cover the grooves *c c* and the electric conductors supported therein. The upper edges of the side covers, C C, project above the supports A A, and are held in place by top pieces or covers, D, which are grooved longitudinally on the under side to fit the upward-projecting edge of the side covers.

It will be seen that by raising the top cover, D, the side covers, C C, can be readily removed so as to give access to the electric conductors. Any portion of the underground electric line can thus be readily reached for repairs or other purposes without disturbing the contiguous sections of the supporting frame-work. By joining the several sections of my underground support with tenons and mortises or similar connections, and providing grooved connections for the stringers and covering-pieces, I am enabled to dispense with screws, nails, and metallic rivets of all kinds without affecting the strength or continuity of the structure.

In order to afford a firm and dry foundation for the stringers B and double-inclined sup-

ports A, the bottom of the trench in which they are laid should be covered with cement, asphalt, or concrete, as shown at E, and this may be laid so as to form a central gutter or drain beneath the supports, and thereby prevent the accumulation of water by conveying it at suitable points to any convenient sewer.

When it is necessary to change the direction of the electric conductors, as in turning a corner, or to form a curve or a bend, so as to avoid obstructions, such purposes can be readily accomplished by means of the curved section A', Fig. 5, which may be struck from a circle of any desired size, the inner grooved support and its covering-pieces being readily formed to correspond.

After the stringers and grooved supports A have been laid and the electric conductors put in place within the grooves *c* and *c'*, the inclined side covers, C C, are to be set up with their lower edges resting in the grooved portions of the stringers, and the top covers, D, are then put on. If desired, the joints between the side covers, C C, as well as those between the top covers, D D, may be covered with tar-paper, felt, pitch, or similar material in order to exclude moisture.

An increased supporting-surface for the electric conductors may be obtained, without adding to the height of the supports A or deepening the trench, by arranging two or more lines of supports side by side, as shown in Fig. 3, and when this is done some economy of space can be effected by shortening one side of the supplemental support so that it will rest on the adjacent one, as represented in Fig. 2. By thus arranging the supports side by side an obvious advantage is gained over increasing their height, as it is desirable to lay the electric conductors near the surface of the ground, so as to avoid deep excavations and facilitate access to the underground line. When two or more lines of supports are arranged in this manner, the covering-pieces D D should be made sufficiently wide to extend over all, as shown in Figs. 2 and 3, thereby excluding earth from the space between the opposite side covers, C C, and facilitating their removal when required.

It will be observed that the longitudinal grooves *c c* in the sides of the double-inclined supports A are curved upward in cross-section in such a manner as to form pockets for the reception of the electric cables or conductors, so that the latter when put in position are not liable to become displaced when the side covers, C, are removed.

It is obvious that the stringers B may be dispensed with, the side covers, C C, in that case being allowed to rest on the bottom of the trench, or in grooves formed in the concrete foundation.

It is also apparent that the double-inclined supports A can be used without the inclined side covers, C, or the top covers, D, it being only necessary to inclose the supports in any suitable manner, so as to exclude moisture

from the line. For this purpose boxes of galvanized iron may be used, or walls of masonry or other suitable material may be built in each side of the trench, and removable covers of stone, slate, metal, or wood arranged to rest on said walls above the cable-supports.

The upwardly-converging double-inclined supports A, with their longitudinally-grooved outer faces for the reception and support of electric conductors, are capable of forming an underground conduit from which the several conductors in succession can be conveniently made to diverge in various directions, as required in practice, in order to effect communication with different points. For this purpose the conductors, after having been supported in parallel lines to the point or points where branch lines are to be given off, are turned in succession, as required, to the various directions needed. In giving off branch lines the conductors are first removed or turned from the lowermost longitudinal grooves, *c*, the conductors in the next higher grooves being successively displaced as required. The construction of the upwardly-converging double-inclined supports A, with their removable side and top covers, thus enables the removal and turning of the lower conductors in various directions to be readily accomplished without disturbing the conductors in the higher grooves. With this construction, also, the underground supports A, beyond the points where branch lines are to be given off, need not be grooved below the level of the conductors that are continued to the terminus.

I am aware that it has heretofore been proposed to lay underground electric conductors in troughs of earthenware or similar material containing corrugated metallic plates for supporting said conductors. It has also been proposed to place in such troughs other supports having hooks or notches arranged at intervals upon which to rest the conductors. These, however, I do not claim, and such forms of conduit are obviously different from one in which the electric conductors are supported throughout their length in longitudinal grooves formed in the outer sides of an upwardly-converging double-inclined support, my invention not only involving the advantage of giving ready access to the conductors at all times, but at the same time affording an adequate support, and enabling branch lines to be taken off with facility at any desired point without disturbing or disarranging the conductors that constitute the main line.

The construction embraced in my invention is also simple and economical in practice.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an underground electric conduit, the double-inclined support A, having upwardly-converging sides provided with a series of external longitudinal grooves, *c c*, for the reception of electric conductors, the apex of said

support being provided with an enlarged longitudinal groove, *c'*, for receiving a cable, substantially as described.

2. The combination of the double-inclined
5 support A, having upwardly-converging sides and provided with longitudinal grooves for the reception of electric conductors, the removable inclined side covers, C C, and the top
10 cover, D, having its lower face grooved for engaging the upper edges of said side covers, substantially as described.

3. The combination, with the double-inclined support A, having longitudinal grooves for the reception of electric conductors, of the
15 grooved stringers B B, the side covers, C C, and the top cover, D, having grooves on its

under side for engaging the side covers, substantially as shown and described.

4. The combination, with the sectional double-inclined supports A A, having grooves *c c* 20 on each side, of the curved double-inclined support A', formed on the segment of a circle, and provided with grooves *c c*, corresponding with those on the straight sections, substantially as shown and described. 25

In testimony whereof I affix my signature in presence of two witnesses.

SOLOMON J. FAGUE.

Witnesses:

PHILIP MAURO,
A. R. BROWN.