

A. B. TURNER.
Underground-Telegraph Line.

No. 223,868.

Patented Jan. 27, 1880.

Fig. 1.

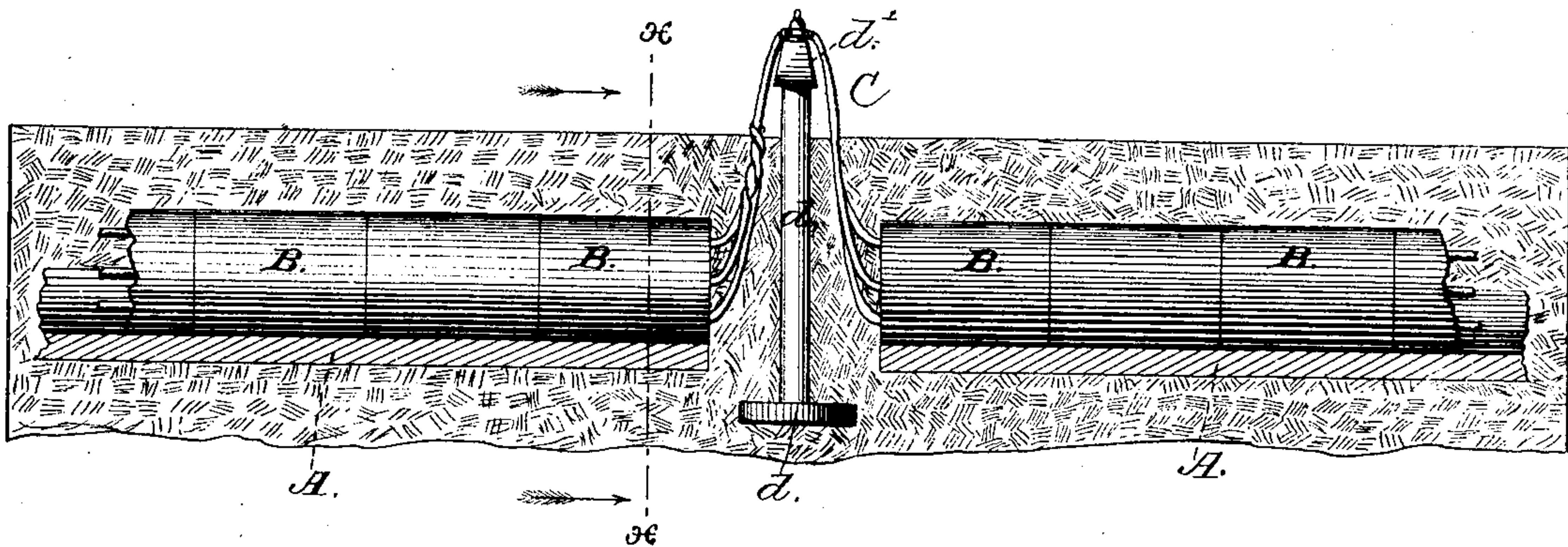


Fig. 2.

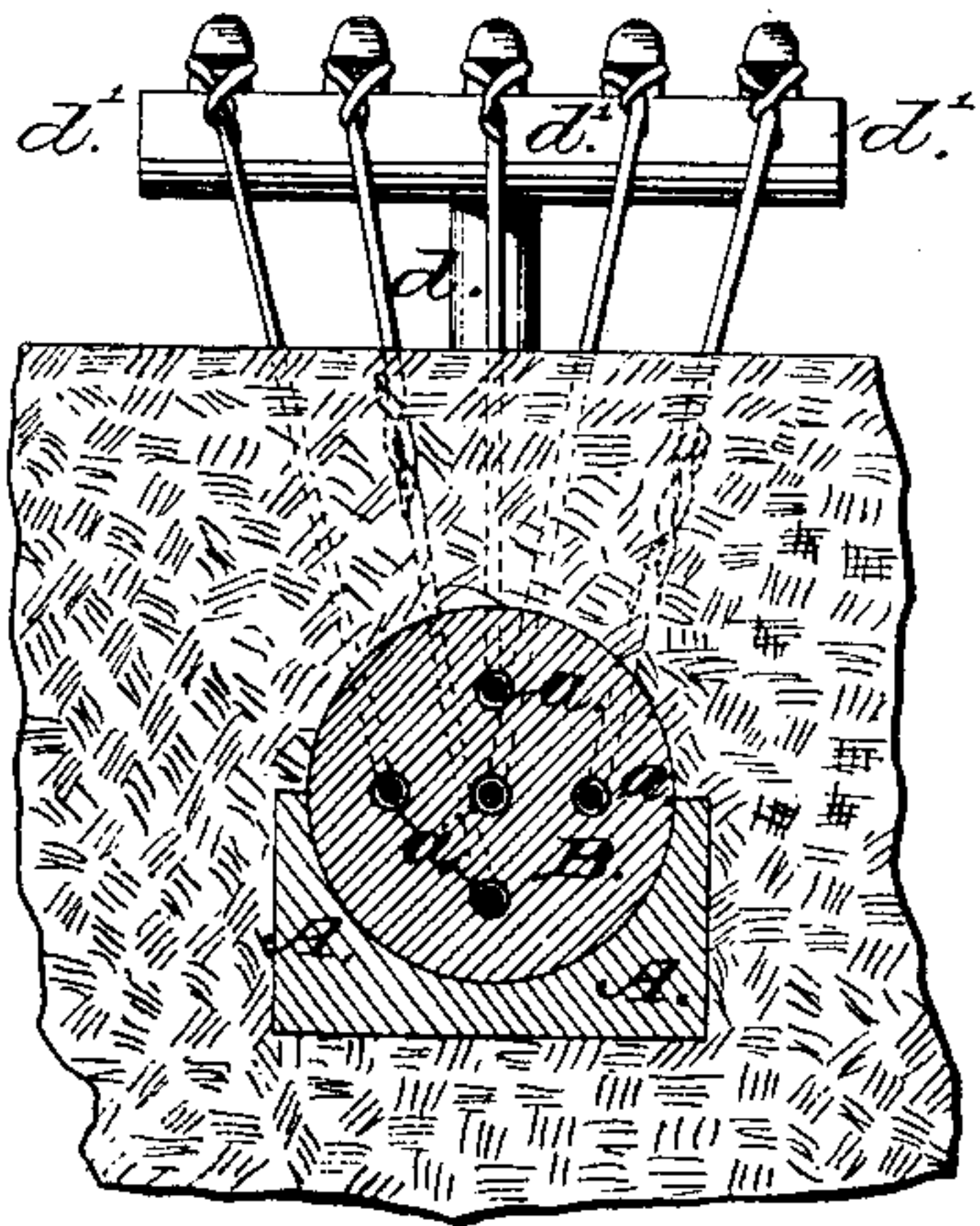
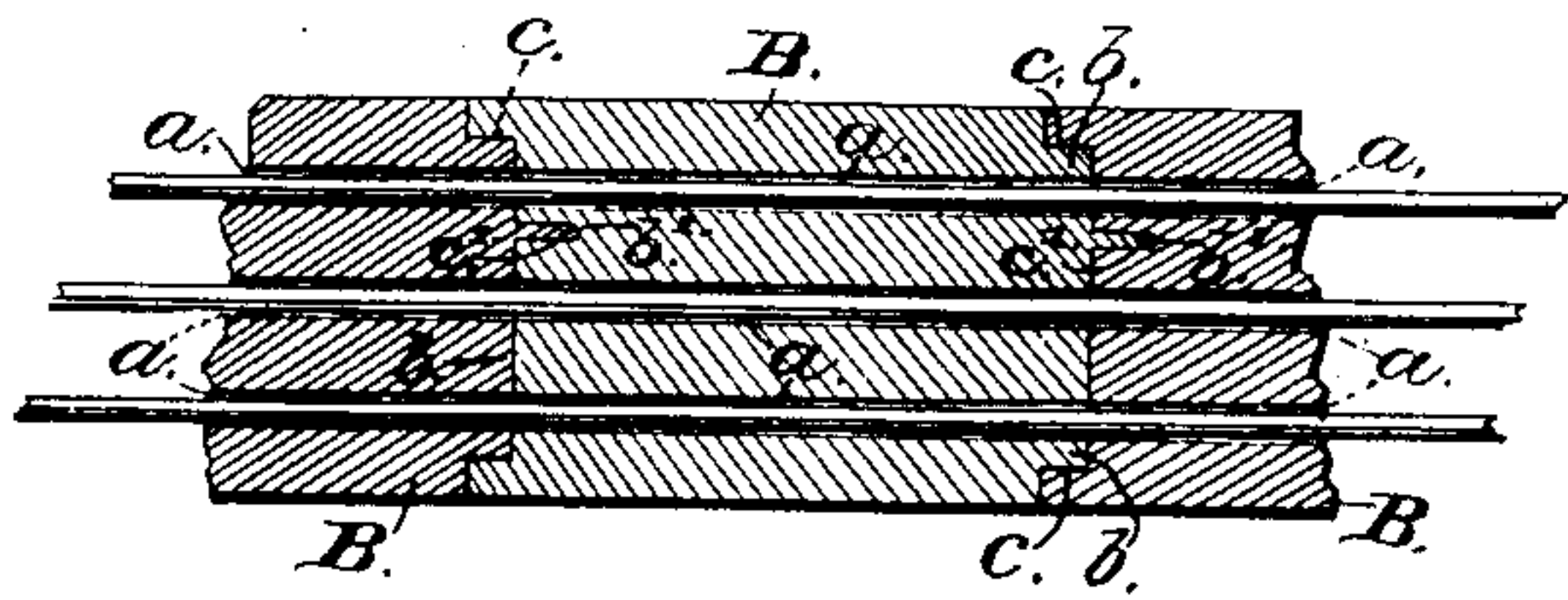


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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UNDERGROUND-TELEGRAPH LINE.

SPECIFICATION forming part of Letters Patent No. 223,868, dated January 27, 1880.

Application filed November 25, 1879.

To all whom it may concern:

Be it known that I, ALONZO B. TURNER, of Mount Savage, in the county of Alleghany and State of Maryland, have invented certain new and useful Improvements in Underground-Telegraph Lines; and I do hereby 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 ap-

10 pertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, and in which—
Figure 1 is a side view of my improved un-

15 derground-telegraph-line wire. Fig. 2 is a vertical transverse section on the line *xx* of Fig. 1, and Fig. 3 is a detail longitudinal section thereof.

The same part in the several figures is designated by the same letter.

This invention has relation to improvements in underground-telegraph-line wires, and refers more especially to the insulators which contain or receive the wires, and has for its
25 object to facilitate the laying of the wires, to permit of their ready removal, to protect them from the deleterious effects of air and moisture, to readily detect a breakage in the wires, to test any one or more sections there-
30 of, and to provide for turning corners or forming angles, and to effect the expeditious uniting of the respective sections of the insulator, and to insure the coinciding of the passages or apertures therein through which the wires
35 pass.

The nature of my invention consists of apertured insulators with their apertures or passages for the wires extended longitudinally through them, and provided, each section of
40 insulator, at one end with a projection, and also a pin or tenon, and at its other end with a socket or recess and a further inlet or aperture, which, respectively, receive the correspondingly-shaped projection and stud or tenon
45 upon the meeting end of the uniting section, while at certain intervals relays are provided between the insulator-sections, substantially as hereinafter more fully set forth.

Referring to the accompanying drawings, A
50 may represent concaved sections of blocks of any suitable material, first placed in position

in a prepared excavation or ditch in the ground. B B mark a number of sections of the insulator, which are disposed end to end and placed in the concaved blocks or foundation, as clearly represented in Figs. 1 and 2. 55
These sections may be made of glass, furnace-slag, or any other non-conductor of electricity having the requisite strength and capable of resisting the effects of air and moisture, and
60 may be round, square, or any other desired shape, and of convenient length—say from four to ten feet in length—while the diameter is governed by the number of wires to be accommodated. 65

Through each section of insulator are made as many coincident apertures or passages *a a*, extending in the direction of their length, as the number of wires to be accommodated or passed through them, while one end of each
70 section is provided with a cylindrical or other shaped projection, *b*, and the latter with a tenon or pin, *b'*, and its other end with a similar recess or socket, *c*, and a further inlet or aperture, *c'*. From this construction it will be
75 observed that each section will fit and interlock into the other to prevent its dislocation, while the tenons or pins fitting into their apertures will secure the wire-passages in a coincident plane, whereby the wires can be passed
80 through them without interruption or being intercepted by the meeting edges of the passages, as might otherwise occur. By thus insulating the wires each is separate from the
85 other, thoroughly protected, and insulated without additional inclosing or wrapping, as has heretofore been the practice in some, if
90 not all, instances, and which is objectionable because of the difficulty to withdraw or remove a defective wire with the insulator-sections in position under ground.

With my insulator this difficulty is completely overcome, in that the wires can be inserted and removed with facility, there being
95 no crowding of the wires in their passages by reason of wrappers on the wires.

At certain intervals along the line relays C are provided between the sections of the insulator, consisting of carrying the wires
up around insulators upon a cross-piece, *d'*,
100 secured upon a central upright or post, *d*, planted in the ground. These serve to detect

1 a breakage or defect in any of the wires that
may arise, to test the same, and to provide
for turning corners, or rather forming angles
at those points to correspondingly change the
5 direction of the wires of the line.

The projections *b* on the insulator are each
formed by cutting a circular section or annu-
lus from the circumference at one end of each
section, thus providing a single projection for
10 uniting and encompassing the whole series of
passages or apertures, greatly simplifying con-
struction, that heretofore employed consist-
ing in cutting or providing a separate projec-
tion, or rather tube, for each aperture or pas-
15 sage.

These insulator-sections can be laid with fa-
cility and be cheaply gotten up, which are
great desiderata, especially in the construc-
tion of telegraph-lines.

20 Having thus fully described my invention,
I claim and desire to secure by Letters Pat-
ent—

1. In underground-telegraph lines, the insu-
lator-sections with longitudinal wire passages

or apertures extending through them, and hav- 25
ing, each section, at one end a projection, and
upon said projection a tenon or pin entering
corresponding indentations in the connecting-
section, and at the other end a socket with a
further inlet or aperture; into which fit a cor- 30
responding projection and pin, substantially
as and for the purpose set forth.

2. In underground-telegraph lines, the com-
bination of the insulator-sections, with lon-
gitudinal passages or apertures extending 35
through them, and provided with interlocking
projections and tenons at one end, and at the
other end with sockets or recesses and aper-
tures, with the line wires and intermediate re-
lays, substantially as and for the purpose set 40
forth.

In testimony that I claim the foregoing I
have hereunto set my hand this 22d day of
November, 1879.

A. B. TURNER.

Witnesses:

H. B. SHAFFER,
JOHN LAVELLE.