

(No Model.)

H. E. LOANE.

LAYING SUBTERRANEAN CONDUCTORS.

No. 252,956.

Patented Jan. 31, 1882.

Fig. 1.

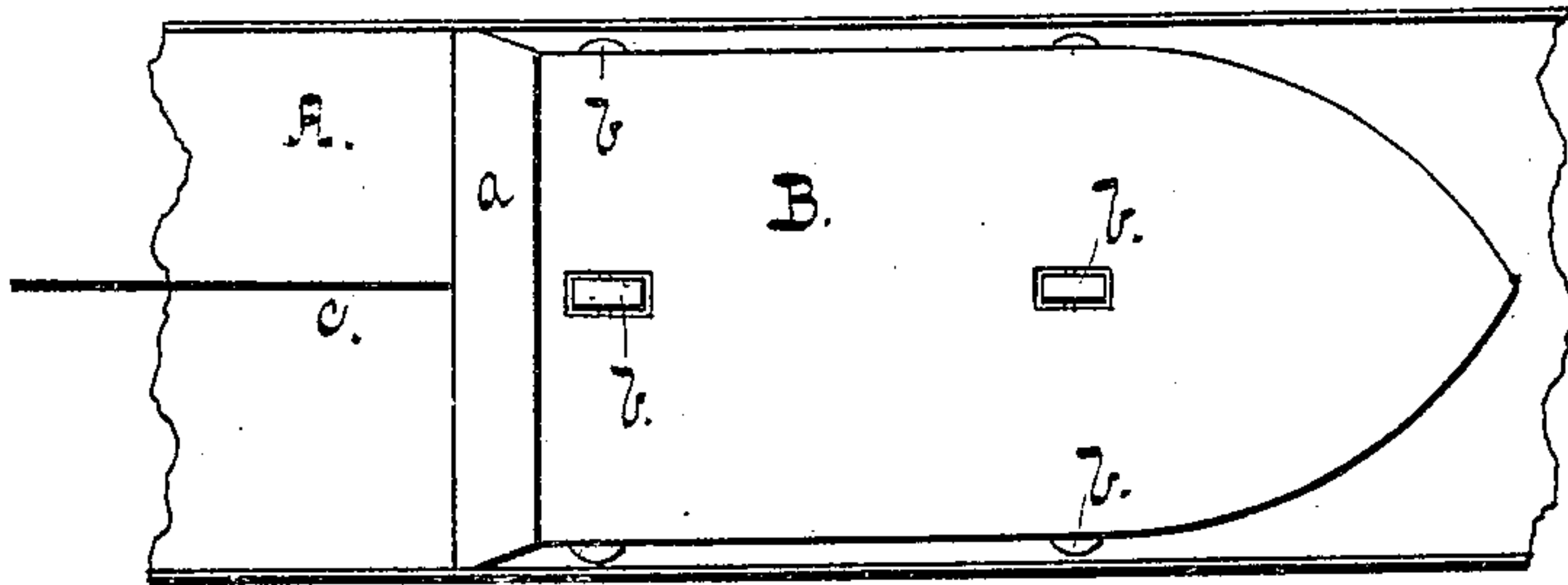


Fig. 2.

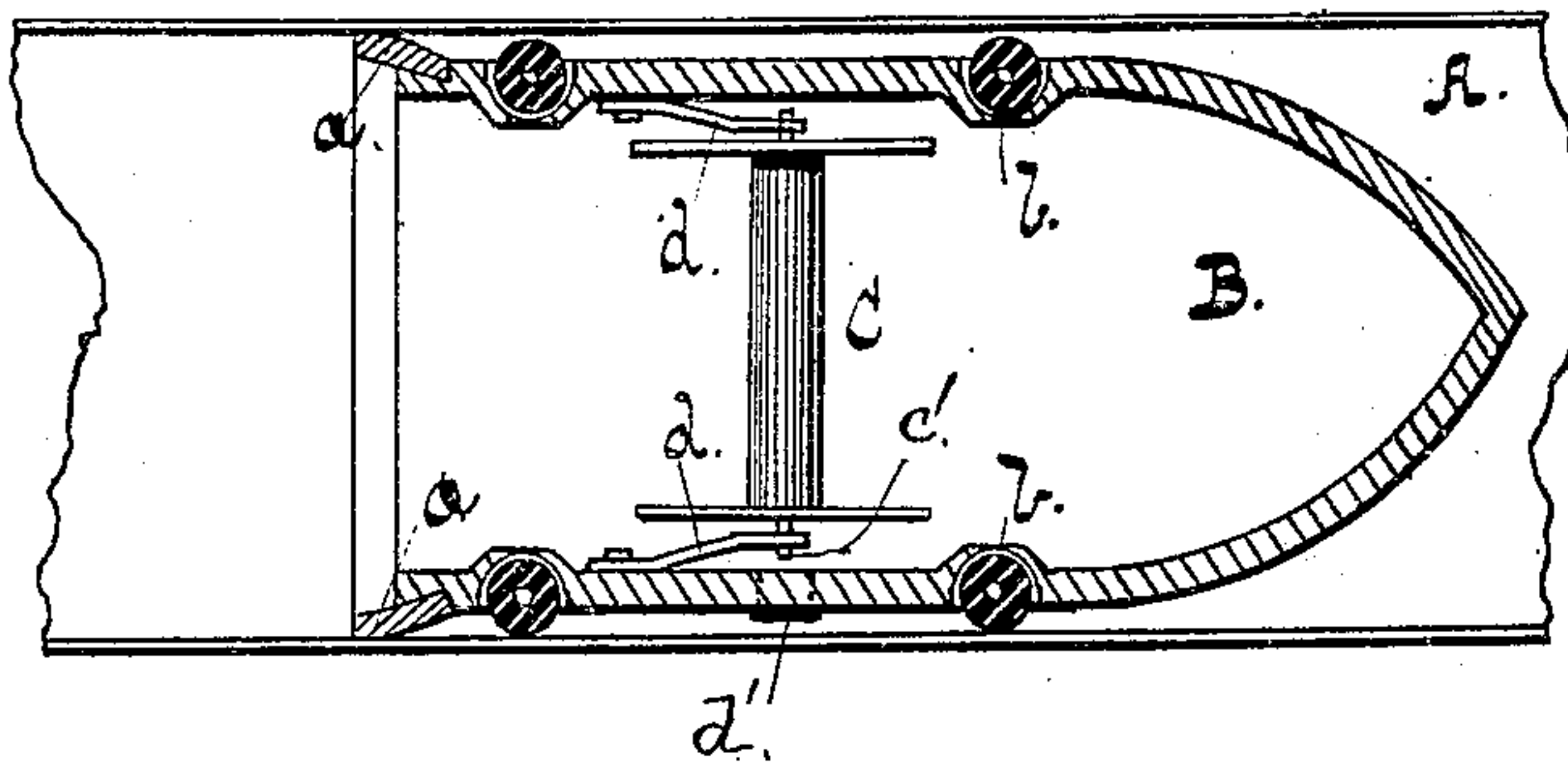
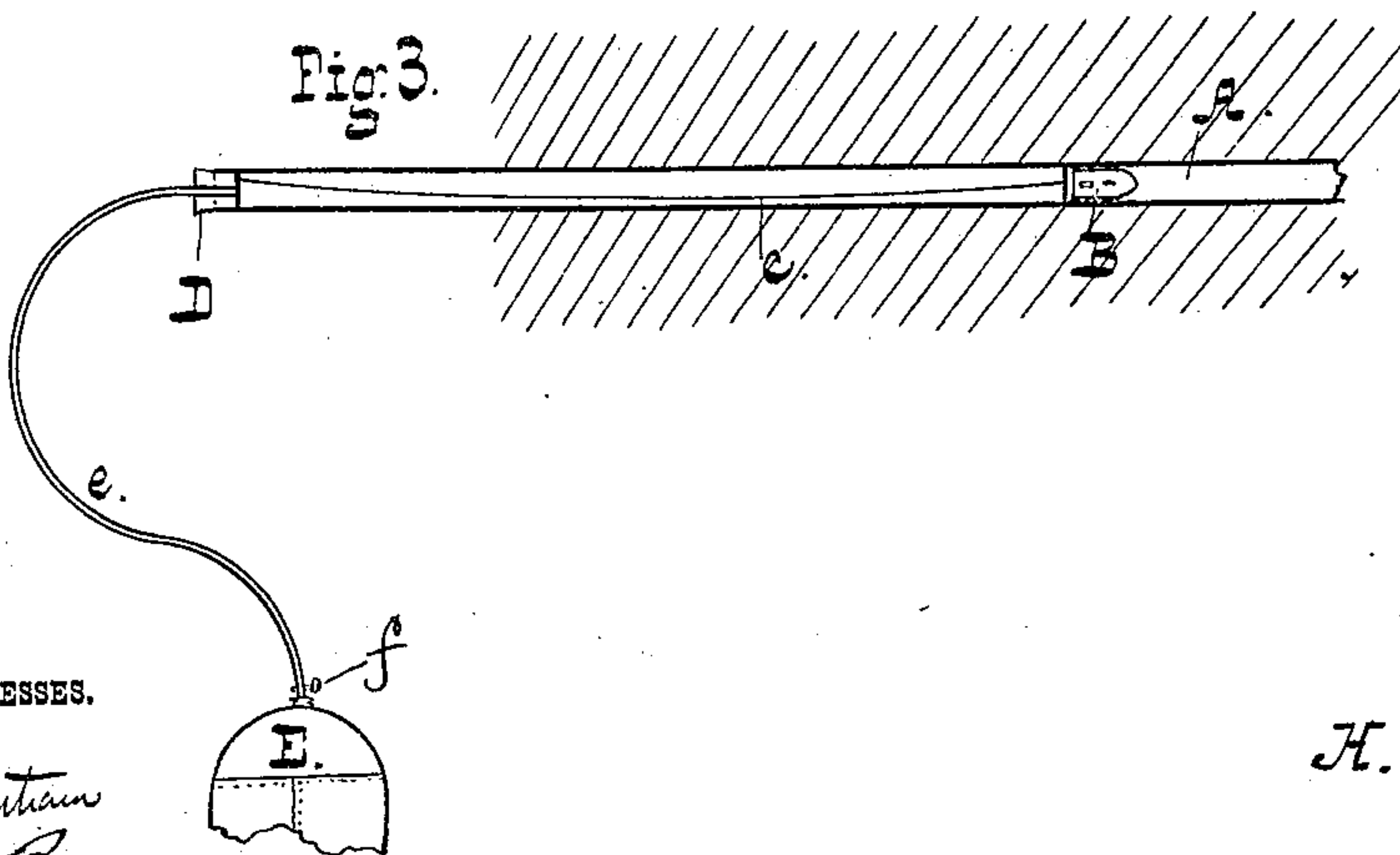


Fig. 3.



WITNESSES.

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LAYING SUBTERRANEAN CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 252,956, dated January 31, 1882.

Application filed November 10, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. LOANE, of Baltimore city, State of Maryland, have invented certain new and useful Improvements in Laying Subterranean Conductors; and I hereby declare the same to be fully, clearly, and exactly described as follows, reference being had to the accompanying drawings, in which—

10 Figure 1 is a side elevation, and Fig. 2 a central vertical sectional view, of a device herein-after particularly described; and Fig. 3 is an elevation, partly in section, illustrating the method of using said device.

15 My invention relates to laying electric conductors in subterranean conduits or pipes; and it has for its object to provide a means for running the wires through an indefinite length of pipe. Heretofore the wire has either been
20 thrust through the pipe by means of a rod made in sections which were screwed together, or else a little car was made to traverse a railway made in an offset from the main pipe. In the first case the method was slow and tedious,
25 and was, indeed, not practicable at all in case the pipe-sections settled out of line while, in the second a specially-constructed pipe and expensive mechanism were required. I obviate these difficulties by forcing through the
30 line of pipe, by fluid (pneumatic or hydraulic) pressure, a suitable projectile arranged to draw after it, or pay out as it advances, a pilot-wire. When the projectile appears at the other end
35 of the line of pipe a plate or disk is made fast to one of the ends of the pilot-wire and the conductors are attached to the disk. The wire is then drawn out, drawing after it the conductors which remain in the pipe.

40 In the drawings, A is the pipe, made, by preference, of tin and circular in cross-section. One end of each section is slightly flared, so as to permit of the insertion therein of the end of the next section, like an ordinary stove-pipe.

45 B is the projectile, having a number of rollers, *b b*, on which it runs, or, in lieu of these, longitudinal ribs may be used; but the rollers are preferable as lessening friction. The pro-

jectile is furnished with a rubber, leather, or equivalent elastic ring, *a*, forming a substantially gas-tight joint with the walls of the pipe. 50

C is a reel, journaled in spring-arms *d d*, and on it is wound the pilot-wire *c*, which is, by preference, piano-wire, or is similar thereto in quality, being tough, fine, and strong.

In operation, the pipe being laid the projectile is thrust therein, the end of the wire *c* being attached to a plug, D, which closes the end of the pipe tightly. A hose, *e*, leads from the interior of the pipe A through the plug D to a reservoir, E, containing compressed air. 60 On opening the cock *f* the air rushes through the pipe *e*, driving the projectile B through the pipe A and out at the other end. In its transit the pilot-wire is paid out and constitutes a connection between the ends of the
65 pipe A. The bundle of conductors is next attached to one end of the wire and is drawn through the pipe.

The spring-arms *d* may be thrust outward at their free ends to release the reel when it is desired to wind the wire thereon, or else, and by preference, one of the journals *c'* is squared on the end for the attachment of a crank, which is inserted through an orifice normally closed by a screw-plug, *d'*, in the walls of the
75 projectile, whereby the wire may be wound as on a fisherman's reel.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device for laying conductors under ground, a projectile adapted to fit substantially air-tight in the tube, and provided with a reel for the pilot-wire, as set forth.

2. The projectile B, having rollers *b* and expanding-flange *a*, in combination with the reel C and wire *c*. 85

3. In combination with the pipe A and receiver E connected therewith, the projectile B and wire *c*, as set forth.

HENRY E. LOANE.

Witnesses:

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