

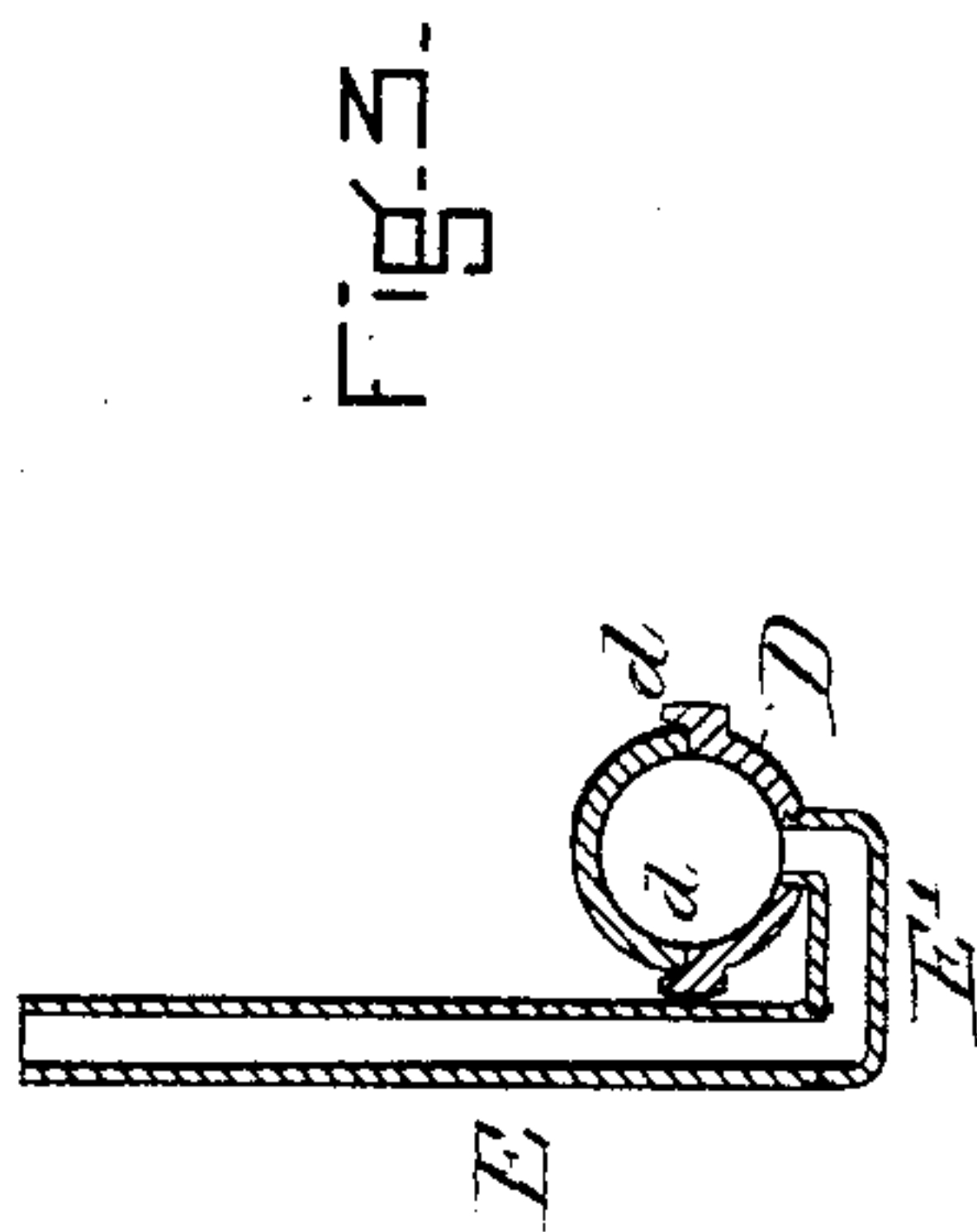
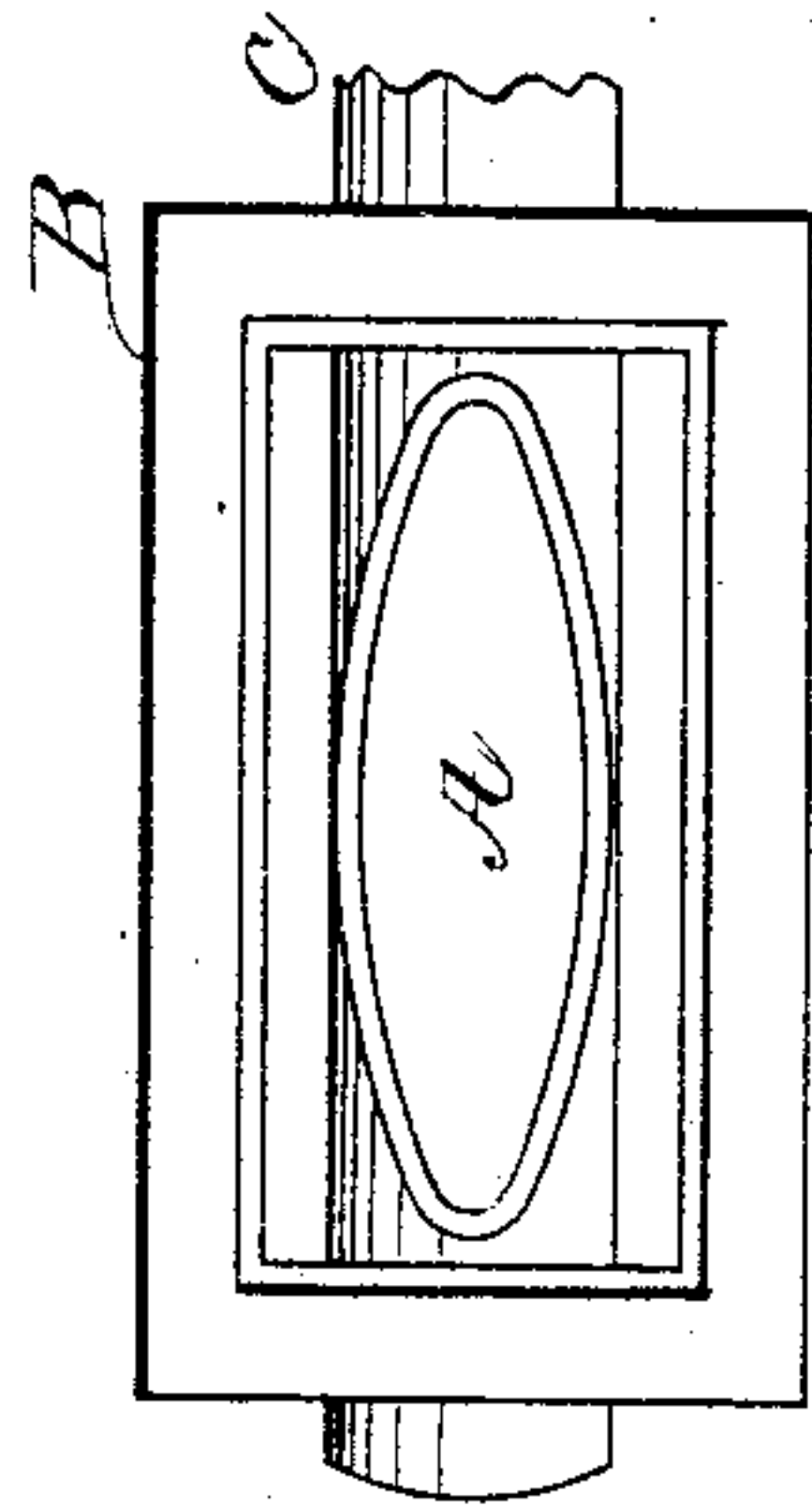
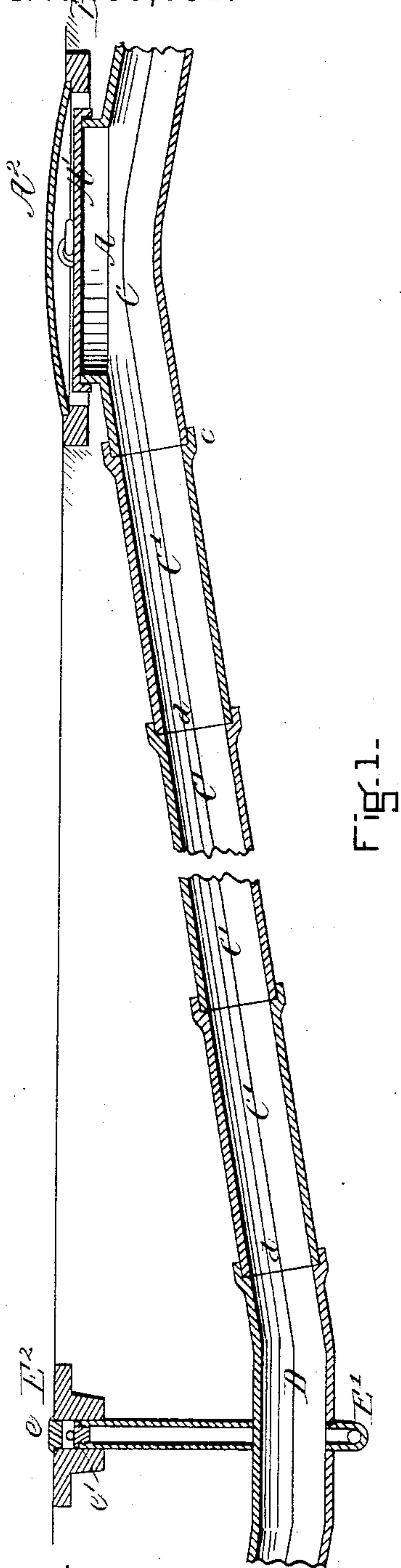
(No Model.)

P. J. DUGGAN.

PIPE FOR UNDERGROUND ELECTRIC WIRES.

No. 259,831.

Patented June 20, 1882.



WITNESSES

Frank S. Parker
William Edison

INVENTOR

Patrick J. Duggan

UNITED STATES PATENT OFFICE.

PATRICK J. DUGGAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO GEORGE T. McLAUGHLIN, OF SAME PLACE.

PIPE FOR UNDERGROUND ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 259,831, dated June 20, 1882.

Application filed February 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. DUGGAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Pipes for Underground Electric Wires, of which the following is a specification.

The object of my invention is to so construct and lay the pipes that they shall ascend at intervals so near to the surface of the ground as to allow their contained wires to be easily manipulated and inspected through a man-hole in one of the pipes, while the greater part of the pipe is so deeply embedded in the earth that it will be safe from injury. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section, showing my pipes and their connections. Fig. 2 is a plan view of the man-hole and its adjuncts. Fig. 3 is a cross vertical section, showing the drainage.

In the drawings, B, Figs. 1 and 2, represents a strong casing or frame, which surrounds the man-hole A.

A² is a strong cover, which fits into the frame B and protects the cover A' of the man-hole A. (See Figs. 1 and 2.)

C is that section of the pipe which is nearest the surface of the ground and in which the man-hole A, Figs. 1 and 2, is made.

The sections of the pipe C' C' are jointed together in any suitable manner, and are inclined, as shown in Fig. 1, so that as they approach the central section, D, between the two man-holes they are deeper in the ground, the section D being the deepest of all, and having its center portion lowest and provided with a drainage or pump pipe, E' E. From this central section, D, to the next man-hole the pipes gradually ascend.

The drainage-pipe E E', when used as a pump-pipe, as shown in Figs. 1 and 3, comes

to the surface at E², Fig. 1, at which point a portable pump may be attached, the cap and valve e e' being removed for convenience in attaching the pump.

In laying long wires or cables each section of pipe should be divided longitudinally, as shown at d d, Figs. 1 and 3.

In laying my pipes, a trench is dug and properly graded; then the lower halves of the pipe are laid, after which the conducting-wires are carefully placed in position, and, in addition to these conducting-wires, one or more cords or wires are laid, which are called "supplemental" wires. These should extend from one man-hole to a distance equal to twice the space between the man-holes. These supplemental wires or cords are to be used for drawing in new wires, but are not used as conductors. When the conducting-wires and supplemental wires or cords are properly placed, then the upper halves of the sections of pipe may be laid and the trench filled.

In using my devices for short circuits the pipes may be whole and the wires drawn through from man-hole to man-hole, the circuits being closed or connections made at each man-hole.

I claim—

In a pipe for underground electric wires, the combination of the main sections, man-hole pipes C A, having inclined terminals, and intermediate inclined sections, C' C' C', connecting the said man-hole sections and the main sections, whereby a continuous conduit is secured free from all abrupt angles, substantially as described, and for the purpose set forth.

PATRICK J. DUGGAN.

Witnesses:

HELEN M. FEEGAN,
WILLIAM EDSON.