

(No Model.)

J. BEELER.
UNDERGROUND CONDUIT.

No. 339,844.

Patented Apr. 13, 1886.

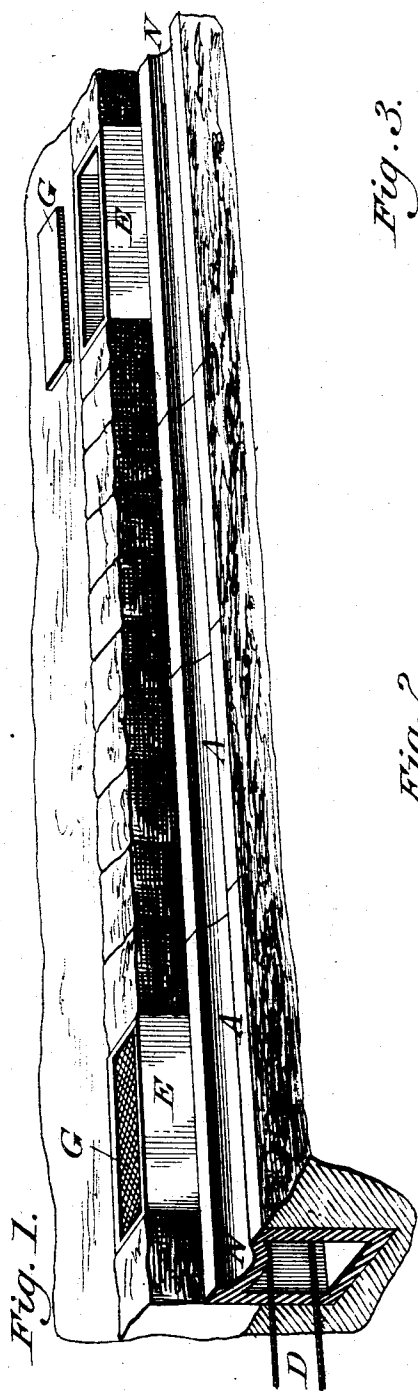


Fig. 3.

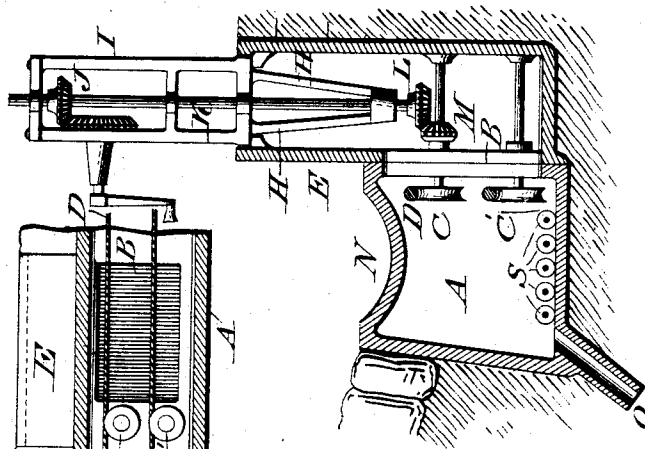


Fig. 2.

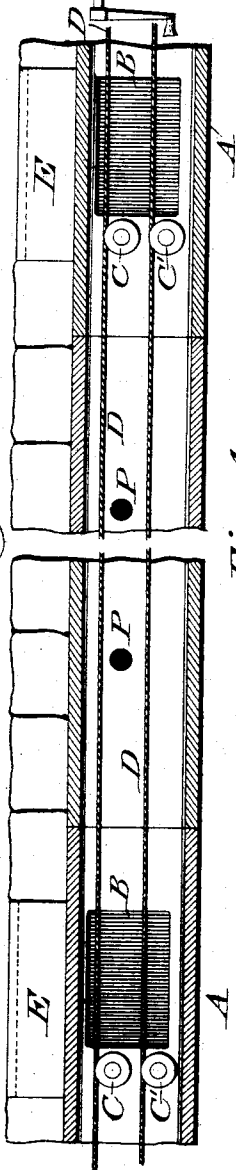


Fig. 4.

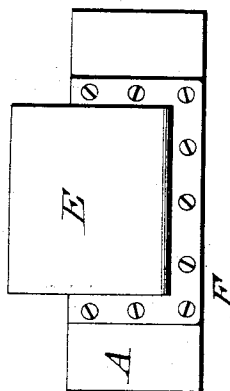
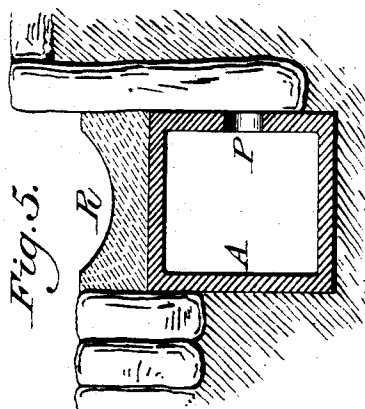


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN BEELER, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-THIRD TO ELIJAH COOMBE, OF SAME PLACE.

UNDERGROUND CONDUIT.

SPECIFICATION forming part of Letters Patent No. 339,844, dated April 13, 1886.

Application filed September 12, 1885. Serial No. 176,871. (No model.)

To all whom it may concern:

Be it known that I, JOHN BEELER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Underground Conduits for Telegraphs, Telephones, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to those underground conduits which are employed for carrying electrical wires through streets provided with curbstones; and the first part of my improvements comprises a novel arrangement of tube and hand-holes, whereby the original expense of laying such conduits is materially reduced, and at the same time the most convenient access is afforded to the tube, either for inspection or inserting the various wires. The tube or conduit proper is laid immediately outside of the curbstones, where the street gutters are usually located, and is provided with a system of internal pulleys and endless chains or wire ropes wherewith the electrical wires are drawn through said tube, the pulleys being journaled in the conduit at or near the hand-holes made in the inner side of the same. Access is had to these hand-holes through boxes placed at suitable intervals in line with the curbstones, said boxes being provided either with hinged or detachable covers or lids, the removal of which latter enables the pulleys to be set in motion for the purpose of operating the endless chain or other conveyer, as hereinafter more fully described.

Another feature of my invention consists in concaving the upper side of the tube, so as to render it available for a gutter, as hereinafter more fully described.

40 In the annexed drawings, Figure 1 is a perspective view of a section of my improved conduit, the lid of one of the hand-hole boxes being detached. Fig. 2 is a longitudinal section of said conduit, the central portion thereof being broken away. Fig. 3 is an enlarged transverse section of the same, taken in the plane of one of the hand-holes, a driving-machine being shown applied to the box of said hole for the purpose of drawing a wire through the tube.

Fig. 4 is an elevation showing the manner of attaching the hand-hole boxes to the tube or conduit. Fig. 5 is a modification of the invention.

A represents the tube or conduit proper, which may be made of any suitable size, shape, and material, although cast-iron is preferred. Said tube is made in sections of any length that can be conveniently handled, and at proper intervals hand-holes B are formed in the inner sides of some of said sections. These hand-holes afford access to the interior of the tube and permit the application of a pair of grooved wheels, pulleys, or rollers, C C', that support an endless conveyer, D. This conveyer may be a wire rope or a chain, or other instrumentality capable of being set in motion by the driving-pulleys. Each hand-hole is provided with a box, E, having a flange, F, wherewith it is securely fastened to the side of one of the sections A, as more clearly seen in Fig. 4, said boxes being open to top and furnished with hinged or detachable lids or covers G, as represented in Fig. 1. It is preferred to rest these lids on flanges or lugs H, projecting inwardly from each box and near the top of the same, because such flanges can be used for supporting a portable machine, I, capable of ready insertion in the mouth of said boxes, as seen in Fig. 3. This machine includes a system of bevel-gears, J, for operating a vertical shaft, K, having at its lower end a wheel, L, that engages with a pinion, M, on the shaft of the upper pulley, C. It is preferred to concave the upper side of the tube, as at N, and to slope the floor or bottom of the same, so as to shed water toward the neck O, which latter may communicate with a sewer, drain-pipe, or other outlet.

In constructing my conduit the tube A is laid immediately outside of the curbstones, but so as to be in contact therewith, as seen in Fig. 1, in order that the concavity N of said tube may serve for the gutter of the street. At suitable intervals—say every two hundred feet or so—a section is laid having a hand-hole B therein, and as these openings are made in the inner side of the tube it is evident the boxes E for said holes must be in-

serted in line with the curbstones of the street. The curbstones are accordingly removed where these boxes are located, and as the latter are flush with the former the sidewalk is not obstructed, neither is there any danger of a person tripping on the lids of said boxes, which latter may be ribbed, corrugated, or otherwise roughened to afford a secure foothold in the winter season. Furthermore, as the upper surface of the tube is flush with the roadway, it is evident the conduit can be carried across intersecting streets without adopting special expedients for that purpose. While the line is being built, the conveyer D can be inserted therein, being passed over the pulleys C C', in the manner seen in Fig. 1, and after the conduit is finished the ends of this conveyer are joined together, so as to render it continuous. When an electrical wire is to be inserted in the conduit, a cap of one of the boxes E is removed, and the portable machine I is applied to the upper end of said box, thereby causing the bevel-wheel L of said machine to gear with pinion M of pulley C. The electrical wire being now fastened to the conveyer D, and the machine I set in motion, by properly turning the crank of the same said conveyer is caused to traverse the tube and drag the wire through it. When the advancing end of the wire arrives at its destination, it can be detached from the conveyer and carried out through the opening P, made in the inner side of the tube. These wires are seen at S in Fig. 3. These openings (seen in Figs. 2 and 5) may be cast in each section of the tube, so as to prevent any subsequent drilling operation after the conduit has been laid, and as said sections are comparatively short two or three of such openings will occur in front of each building, thereby affording ample connections for all houses on the line. If the wires should become entangled, or the conveyer slip off the pulleys, it will be an easy matter to reach through the box E and hand-

hole B and restore things to their proper position.

In Figs. 1 and 3 the top of the tube is shown as being flush with the level of the street; but in Fig. 5 said tube is wholly underground and is covered by a gutter-stone, R. Finally, although it is preferred to make the tube of cast or malleable iron, the invention is not limited to such material, as it is evident said tube may be composed of concrete or "granolithic," &c.

I claim as my invention—

1. In an underground conduit, the combination, with a tube located in the gutter of the street, the inner side of said tube being provided with hand-holes, of covered boxes located at suitable intervals in the curb and affording access to the interior of the tube through the hand-holes, substantially as set forth.

2. In an underground conduit, the combination, with a tube located in the gutter of the street, the inner side of said tube being provided with hand-holes, of covered boxes located at suitable intervals in the curb and affording access to the interior of the tube through the hand-holes, the upper surface of said tube being concaved, for the purpose stated.

3. The combination, in an electrical underground conduit, of tube A, hand-hole B, pulleys C C', and covered boxes E G, the shaft of said pulleys being journaled transversely of the lower portion of said boxes, and one of said shafts being provided with a bevel-wheel, M, that gears with a similar wheel, L, of a portable machine that is temporarily fitted in the upper end of one of the open boxes E, for the purpose specified.

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

JOHN BEELER.

Witnesses:

JAMES H. LAYMAN,
SAML. S. CARPENTER.