

(No Model.)

S. D. LOCKE.

UNDERGROUND WIRE AND STEAM STREET CONDUIT.

No. 355,330.

Patented Jan. 4, 1887.

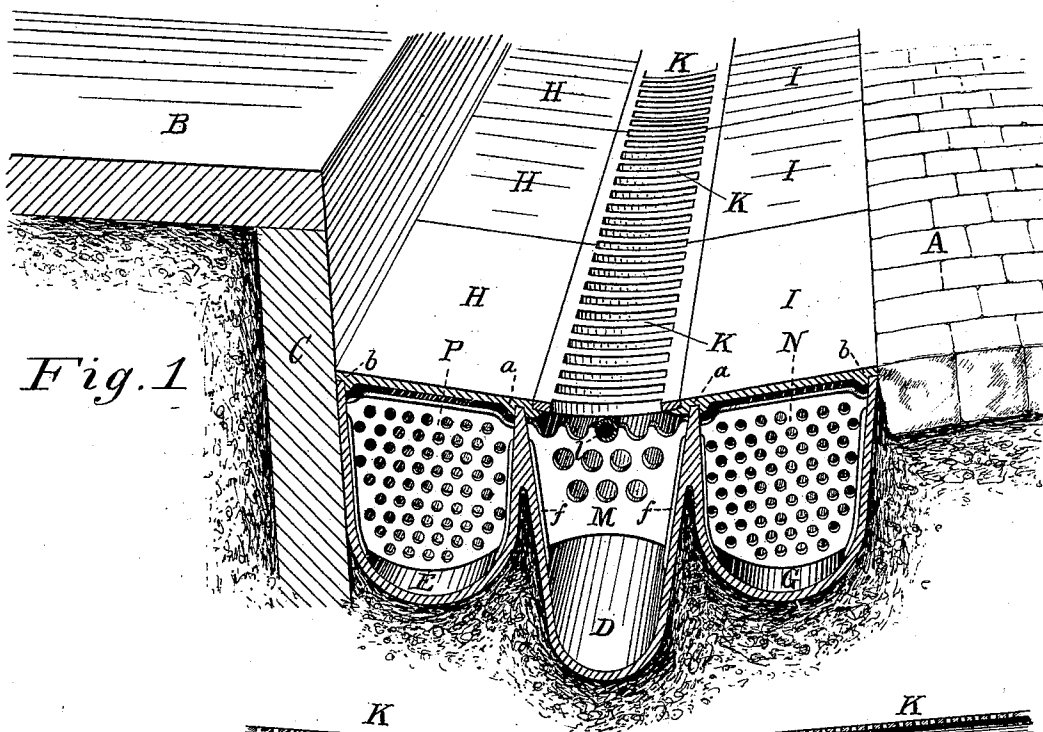


Fig. 1

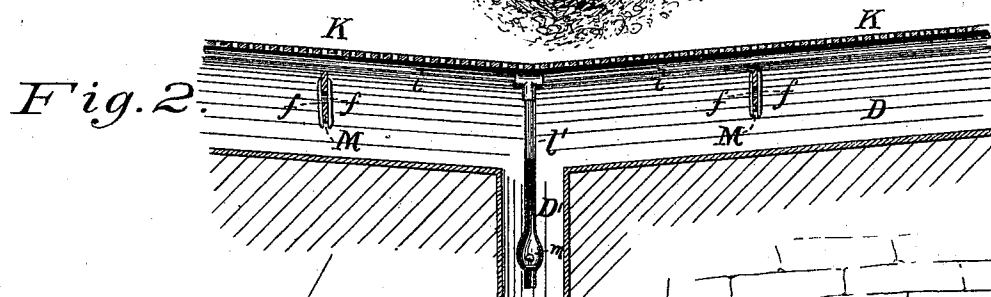


Fig. 2

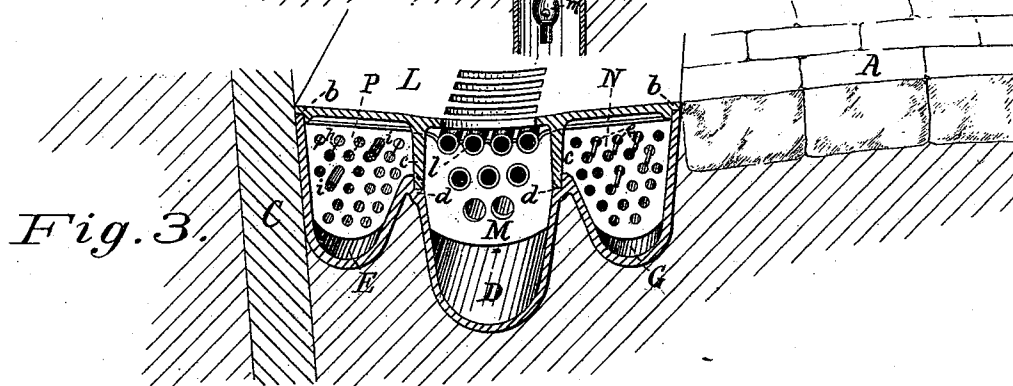


Fig. 3.

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SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

UNDERGROUND WIRE AND STEAM STREET-CONDUIT.

SPECIFICATION forming part of Letters Patent No. 355,330, dated January 4, 1887.

Application filed July 28, 1886. Serial No. 209,294. (No model.)

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Underground Wire and Steam Street-Conduits, of which the following is a specification.

My invention is an improvement on the invention described in my application No. 195,577, filed March 17, 1886, to which application reference is hereby made as a part hereof.

The object of this invention is to meet the defects in the conduit shown in that application when the same is used not only to conduct steam-pipes, but also to carry telephone and telegraph wires, as well as the wires for electric lighting; and it consists, first, in providing separate compartments or divisions in the conduit and other means for isolating the steam-pipes, the electric light, the telephone, and the telegraph wires; second, in an improved method of conducting the condensed steam out of the pipes into the sewers; third, in an improved covering for the conduits; and, fourth, in such other combinations and details of construction as are hereinafter more fully set forth and claimed.

That others skilled in the art may make and use my invention I will proceed to describe its construction and operation, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical cross-section of one side of a street, showing my improvements applied thereto, and a perspective view of the surface of the street. Fig. 2 is a longitudinal vertical section of the same through the gutter; and Fig. 3 is a view similar to Fig. 1, showing a modification of the conduit and its covering-plates.

In the drawings, as in the above application, A represents the surface or pavement, B the sidewalk, and C the curbstone, the common ordinary features of a street. In place of the open-surface gutter, as in that application, I also construct a closed or covered gutter, D, to carry the steam-pipes *l*, for furnishing steam or for snow-melting purposes, the upper surface or covering of which constitutes the surface-gutter, and through the bars or openings

K of which covering the melted snow on the street runs into the gutter D, and thence into the sewer; but it is found necessary to keep the wires used for conducting electricity for the various purposes named above, if not absolutely dry, then as free as possible from moisture. It is also necessary to separate the telegraph and telephone wires from those carrying the more powerful currents used for lighting. It is well even to separate the telegraph from the telephone wires, and not to lay either so that induction-currents will interfere in their working. Complete freedom from induction can only be secured by widely separating the wires; but this is not possible when scores of wires are to be laid in a single street.

To meet these necessities and to make the conduit cheap, effective, and easily laid and all their contents (the wires and pipes) open at any hour for inspection, repair, removal, or replacement, I make each conduit in two or more separate compartments running longitudinally of the street and located immediately under the surface gutter. The center one, D, used for the steam-pipes, is under the lowest part of the surface gutter, and the others, E and G, used for the wires, are arranged on either side of this. These compartments or longitudinal divisions of the conduit I prefer to mold or form together, as shown, of some strong durable material that shall resist the influence of induction, and at the same time the whole conduit should be in short sections, as shown in the application above referred to, easily handled and laid. If constructed of metal—as iron—some provision should be made to break the inductive influence.

The racks M P N, laterally spanning the divisions and that support or carry the wires and pipes are secured against displacement by being inserted in grooved seats formed by the ribs *f*, on either side of each division. The racks P and N may run quite to the bottom compartments; but M should leave enough clear or open space in the bottom of its compartment D to carry off all the water. The wires for electric lighting *e* are shown in G, Fig. 3. The telegraph and telephone wires are shown in Fig. 3, and may be carried singly, *h*, or in bundles *i*.

The partitions between the compartments or

chambers may extend quite to the covering, as shown in Fig. 1, or only part way, and be met by flanges *c*, extending vertically from the covering, as shown in Fig. 3. In the latter case these flanges should have their seats *d* shouldered or otherwise guarded, so as to prevent moisture from entering the wire divisions.

The covering or cap of the conduit is preferably made not only in short sections, but in longitudinal divisions H I K, as shown in Fig. 1. The divisional sections H and I are shouldered on the top of the conduit, at *a* and *b*, to prevent surface water from entering the wire compartments, and the gutter-sections K, barred or otherwise opened to allow the rain and melted snow to run through into the gutter-compartment, are firmly seated in the edges of the sections H and I, as shown. All the sections of the cap are held by gravity.

To remove the condensed steam without liability of its freezing either in the pipes *l* or after it has left them, I construct the closed gutter D with a man-hole, D', at each sink or depression in the pipes, and let a vertical section or stand-pipe, *l'*, Fig. 2, having a float-valve, *m*, at its lower end, descend into this man-hole. This valve should be below enough in the earth to avoid freezing of the condensed steam, and the man-hole should connect with the sewer and carry all the water from the street therein.

It is evident that with this construction the wire compartments or chambers will be free from the water conducted in the gutter-chamber as well as from the surface water of the street, and that all the contents of these chambers can at all times be easily reached for inspection or for any other purpose without digging up the street or interfering with its traffic; and it is also evident that the electric-light wires might, when properly guarded and shielded from moisture, be carried in the central or gutter chamber along with the steam-pipes.

What I claim is—

1. A subway for electrical conductors, provided with a separate sub-gutter and with a cover formed as a surface-gutter, substantially as specified.

2. A subway for electrical conductors, provided with a separate sub-gutter and with an

imperforate cover which is extended and perforated to form a surface gutter above said sub-gutter, substantially as specified.

3. A subway for electrical conductors, provided with a central separate sub-gutter and with a cover having inclined imperforate portions and a central perforate portion, substantially as specified.

4. The combination, with a subway for electrical conductors, provided with a central sub-gutter, of a cover having imperforate and perforate portions, whereby the latter serves as a surface gutter, substantially as specified.

5. A subway for electrical conductors, provided with a central separate sub-gutter, the divisional wall of which extends substantially to the surface, substantially as specified.

6. A subway for electrical conductors, provided with a separate sub-gutter arranged longitudinally with and having its bottom lower than the bottom of said subway, and its separating-wall extended substantially to the surface, whereby the water in the sub-gutter is prevented from entering the subway at imperfect joints thereof, substantially as specified.

7. The combination, with a subway for electrical conductors, provided with wire and cable supporting devices, of a separate sub gutter provided with pipe-supporting devices, substantially as specified.

8. The combination, with a subway for electrical conductors, of a separate sub-gutter provided with pipe-supporting devices, and of a surface gutter having an imperforate portion arranged to cover the subway, substantially as specified.

9. A subway for electrical conductors, formed in two longitudinal compartments separated by a sub-gutter, the two longitudinal compartments being provided with wire-supporting devices, and the sub-gutter being provided with pipe-supporting devices, and the whole provided with a cover serving as a surface gutter, substantially as specified.

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Witnesses:

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