(No Model.)

D. H. DORSETT.

CONDUIT FOR UNDERGROUND CONDUCTORS.

No. 305,904. Patented Sept. 30, 1884.

Fig. 1.

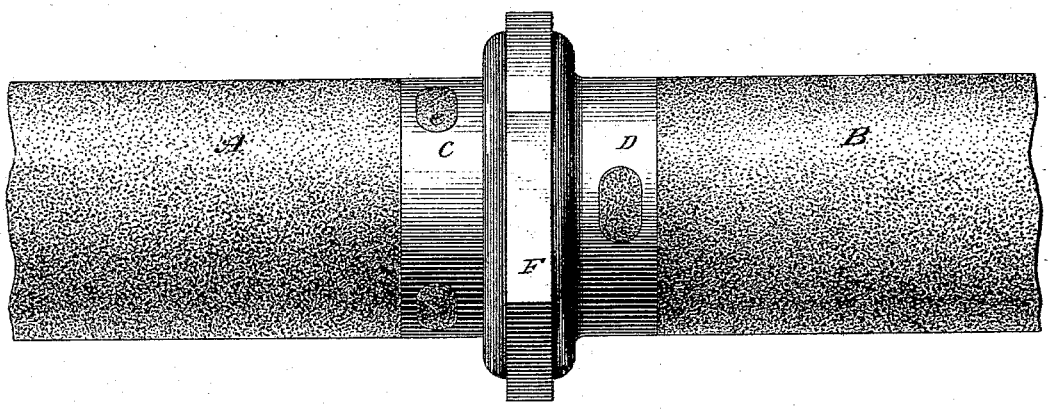
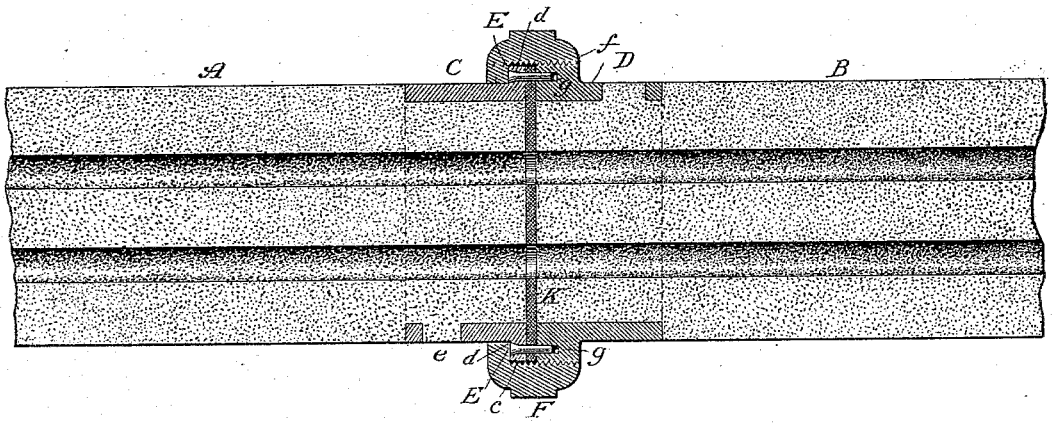


Fig. 2.



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DANIEL H. DORSETT, OF CHICAGO, ILLINOIS.

CONDUIT FOR UNDERGROUND CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 305,904, dated September 30, 1884.

Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. DORSETT, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Conduits for Underground Conductors, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The object of my invention is to produce a strong, durable, and impervious conduit for containing the conductors of underground circuits, or for other and analogous uses, and which may be constructed and laid in sections. My invention also involves certain details in the construction of the conduits or the devices for coupling the sections of the same, which admit of any section being taken up without disturbing the remainder.

To this end I form from a suitable plastic material sections containing one or more ducts, and provided at their ends with metallic ferrules or cylinders, forming parts of a coupling device, which ferrules or cylinders are placed in the mold and united to the sections by the plastic material, which, entering slots, grooves, or the like formed in them while soft, unites them firmly and securely when it hardens.

In carrying out my invention I prefer to use a compound composed of the residuum from partially-distilled coal-tar, crude petroleum, paraffine, silicious sand, and pulverized ashes and cinders in about the proportions of fifty gallons of coal-tar before distillation to two gallons of paraffine, one hundred and fifty pounds silicious sand, and fifty pounds of ashes and cinders. To this I sometimes add two pounds of oxide of manganese and one pound of ammonium chloride. This material I pack while soft into any suitable form of mold, in which the metal parts by which two sections are coupled are previously placed. When removed from the mold and allowed to harden, the plastic material and metal parts are firmly and strongly united, and the sections may be handled, laid, or taken up and used without protecting casings or supports in the same manner as the more expensive metal conduits. The special features of the construction of the coupling devices or the metal parts united to the sections will be hereinafter more fully described.

Referring now to the drawings for a detailed description of the invention and the best manner of which I am aware in which the invention is or may be carried into effect, Figure 1 is a view in elevation of portions of two contiguous sections of my improved conduit with the couplings united to the same. Fig. 2 is a longitudinal section of the same.

The letters A and B designate the sections of a conduit. On the former is a metal ferrule or cylinder, C, having a collar, *c*, through which are two or more perforations, *d*. The cylinder C is slotted at one or more points, as indicated by the letter *e*.

On the section B is a slotted metal ferrule or cylinder, D, having a back thread, *f*. In its ends are a certain number of holes, *g*, corresponding in number and position to the perforations *d*, and so situated that when the two sections are brought together the ducts in the several sections and the perforations *d* and holes *g* will all register.

E E are pins that are passed through the perforations in collar *c* into the holes *g* when the two sections are joined. The removable pins are used instead of ordinary dowel-pins, in order that any given section may be readily taken up from a line when laid without disturbing the remainder, this being rendered easy by simply removing the pins E from the section to be taken up and one of the adjacent sections.

F is a threaded sleeve on the cylinder C, that engages with the collar *c*, the whole forming an ordinary union-coupling.

In laying the coupling, the ends of two sections are brought together, a soft-rubber annular plate or gasket, K, being placed between them, and the pins E inserted through the flange or collar *c* into the holes *g*. By any instrument commonly used for the purpose, the sleeve F is screwed upon the back screw, *f*. This brings the two sections closely and firmly together against the intervening annular packing. The conductors or wires may be drawn through the ducts of the conduit, or the sections of the conduit may be strung on the wires in the usual way.

In making the conduit, I may use any ordinary form of mold, through which extend rods or tubes for forming the ducts. The ends of the mold are cut away or enlarged for the

reception at one end of the threaded cylinder D, and at the other for the cylinder C and sleeve F, both of which are placed in the mold together. I close one end of the mold, and introduce the material in a plastic condition by any desired means. I then tamp the material, to render it dense and solid, and by this means all space in the mold is completely filled. The plastic material enters the slots in the collars C D, so that they are held firmly in place.

When the compound has set or become sufficiently hard to permit it, I remove it from the mold and allow it to harden. I would state that in an application filed by me August 27, 1883, I have shown a device applicable to the manufacture of these conduits; but as the process or method of making the same forms no part of my present invention, it is not illustrated herein.

I may use various compounds for the manufacture of these conduits. That which I prefer, as above stated, is one discovered by me and described in another application. The constituent parts and the process of making the same are as follows: By the distillation of common coal-tar I produce a residuum capable of resisting a temperature of between 130° and 140° Fahrenheit without softening. This residuum I liquefy by heat, and compouud with a small proportion of crude petroleum paraffine. With this compound I then mix finely-pulverized coal ashes and cinders and fine silicious sand, using about three parts, or more, by weight, of the sand to one part of the ashes and cinders, until the mass is of the required plasticity for easy working. I sometimes add to the plastic mass while in the mixer a small quantity of oxide of manganese and ammonium chloride in the proportions of two parts of the former to one part of the latter. This oxidizes and hardens the material and renders it better adapted for the manufacture of tubes or pipes. The special advantages of this material are that it adheres perfectly to the metal cylinders in the molds, is an excellent insulator, and is very strong and durable, and I regard the combination of a conduit composed of this material with metal cylinders or coupling devices applied in substantially the manner set forth as an important feature of my invention.

Though illustrated and described as applied to the manufacture of conduits for underground conductors, it is obvious that the invention may be applied to the manufacture of conduits, pipes, or tubes of other kinds—such, for example, as sewer-pipes, gas-pipes, and the like. I would also state that I do not confine myself to the special form of coupling herein shown, as many others may be used.

What I claim is—

1. The combination, with the sections of a conduit composed of a plastic compound, of metal cylinders forming parts of a coupling applied and united permanently to the ends of the sections in substantially the manner set forth.

2. The combination, with the sections of a conduit composed of plastic material, of slotted metal cylinders forming parts of a coupling applied and united to the ends of the sections in substantially the manner set forth.

3. The combination, with the sections of a conduit composed of coal-tar, paraffine, silicious sand, and pulverized ashes and cinders, of metal cylinders forming parts of a coupling applied and united to the sections in substantially the manner set forth.

4. The combination, with the sections of a conduit composed of a molded plastic material, of a slotted and threaded cylinder on one end and a slotted and flanged cylinder and sleeve thereon on the other end, the cylinders being permanently united to the sections in substantially the manner specified.

5. The combination, with the sections of a conduit containing two or more ducts and composed of a molded plastic material, of a slotted cylinder having a perforated collar applied to one end of each section, a threaded cylinder applied to the opposite end of each section and containing holes registering with the perforations in the collars, pins passing through the perforations and entering the holes, and threaded sleeves for binding the sections together, all as set forth.

6. The combination, with the sections A and B of a conduit composed of a molded plastic substance, of the flanged cylinder C and threaded cylinder D, gasket K, pins E, passing through the collar and entering the cylinder D, and threaded sleeve F, all as set forth.

In testimony whereof I have hereunto set my hand this 28th day of January, 1884.

DANIEL H. DORSETT.

Witnesses:
W. FRISBY,
PARKER W. PAGE.