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J. M. HUMISTON.

UNDERGROUND CONDUIT INSULATION.

APPLICATION FILED APR. 27, 1903.

NO MODEL.

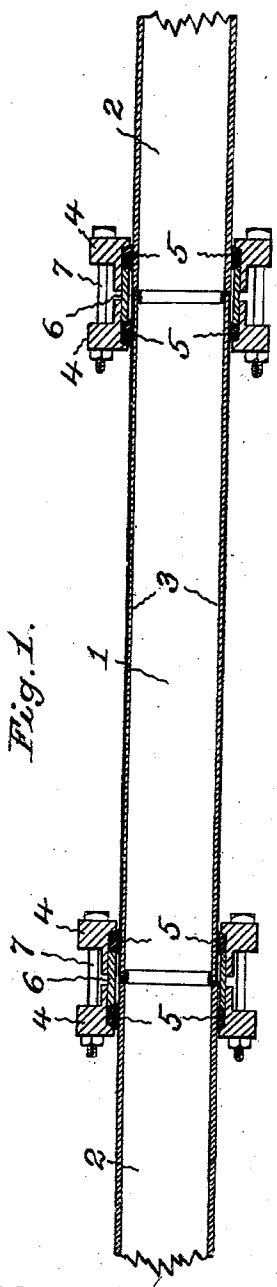

Fig. 1.

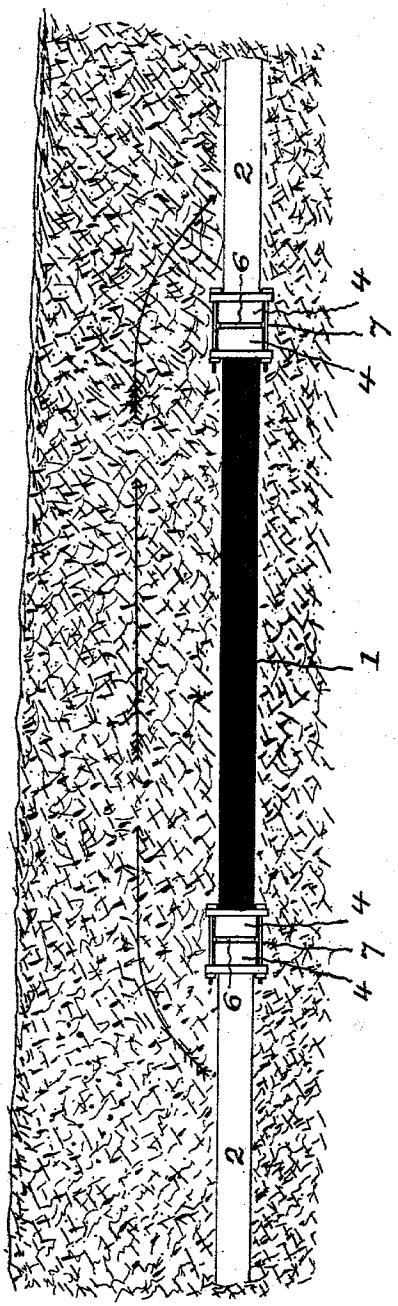

Fig. 2.

ATTEST:

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No. 751,985. Patented February 9, 1904.

UNITED STATES PATENT OFFICE.

JOHN M. HUMISTON, OF BERWYN, ILLINOIS.

UNDERGROUND-CONDUIT INSULATION.

SPECIFICATION forming part of Letters Patent No. 751,985, dated February 9, 1904.

Application filed April 27, 1903. Serial No. 154,554. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. HUMISTON, a citizen of the United States of America, and a resident of Berwyn, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Underground-Conduit Insulation, of which the following is a specification.

The present invention relates to means for insulating metallic underground conduits with a view to diminish the danger of corrosion from the electrolysis by stray electric-railway currents, and has for its object to provide a simple and efficient construction and arrangement of parts wherein sections of such underground conduits are insulated one from the other in a very perfect and practical manner, all as will hereinafter more fully appear, and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a longitudinal axial section of a portion of an underground conduit embodying the present invention; Fig. 2, a side elevation of the same in place in the ground.

Similar numerals of reference indicate like parts in both views.

In the usual manner of coupling up underground pipes the means for preventing corrosion by electrolysis consists in the employment of insulating-couplings between the adjacent ends of more or less of the series of metallic pipe-sections comprising the underground distributing system of pipes, and owing to the expensive nature of such insulating-couplings it was manifestly impractical from a commercial point to employ a sufficient number of such couplings to attain the desired result. With a view to attain such results and at a cost which will permit of successful commercial use the present invention consists as follows:

Referring to the drawings, 1 represents an insulating tubular section of the present invention having a considerable length and a diameter substantially the same as that of the ordinary sections 2 of metallic piping in connection with which it is to be used. Such tubular insulating-section may be formed wholly of any usual and suitable insulating material, but is preferably formed of an inner tubular metal shell 3, upon the exterior of which is applied a layer or coating of enamel, concrete, or other usual waterproof insulating substance. Such layer or coating may be of any required thickness and in the present invention extends the entire length of the shell 3, around the respective ends thereof, and partly into the interior of such shell, as illustrated in Fig. 1 of the drawings.

The insulating-sections heretofore described are arranged at suitable intervals in the series of underground pipe-sections and will in the case of an already-existing line take the place of single sections of piping thereof and will be secured in proper longitudinal alinement by pipe couplings or clamps of any ordinary and suitable construction. In the form of couplings shown in the drawings as a means of connection the construction is as follows:

4 represents a pair of counterpart annular compression members formed with annular gland-cavities in their opposed faces, as shown.

5 represents annular elastic packing-rings arranged in the aforesaid gland-cavities of the members 4 and surrounding the respective pipe-sections.

6 is an annular central compression member the respective ends of which fit the respective gland-cavities of the members 4 aforesaid and have ends bearing against the respective packing-rings 5.

7 represents longitudinal bolts passing through the compression members 4 and adapted to draw the same together to cause a compression of the packing-rings 5 within the gland-chambers aforesaid and effect the required gas and liquid proof connection of the pipe-sections together.

In the practical use the insulating-sections 1, as well as the joints or couplings thereof, and the adjacent portions of the ordinary pipe-sections 2 will be embedded in sand or gravel, as shown in Fig. 2, with a view to prevent an accumulation of moisture around the parts, and thus insure a continuance of the insulating nature afforded by the present invention. As so arranged the electric current in order to reach from one length of pipe 2 to another of the underground conduit would have to

jump by the insulating-section 1 in manner illustrated by arrows in Fig. 2. Owing to the poor electrical conductivity of the material in which underground conduits are usually embedded, such jumping would be entirely prevented, with the consequent prevention of any electrolysis of the pipe-sections 2 near where their ends connect with the insulating-couplings.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together substantially as set forth.

2. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together, said insulating-section consisting of an inner initial shell and an outer coating of insulating material, substantially as set forth.

3. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length, and couplings connecting the ends of the respective sections together, and consisting of annular compression members having gland-cavities in their exposed faces, elastic packing-rings in said cavities, a central compression member, and bolts for drawing the annular compression members together, substantially as set forth.

4. In an insulation for underground conduits, the combination with two adjacent ends of ordinary metallic pipe-sections, of an interposed tubular insulating-section of considerable length and consisting of an inner metal shell and an outer coating of insulating material, and couplings connecting the ends of the respective sections together, and consisting of annular compression members having gland-cavities in their opposed faces, elastic packing-rings in said cavities, a central compression member, and bolts for drawing the annular compression members together, substantially as set forth.

Signed at Chicago, Illinois, this 25th day of April, 1903.

JOHN M. HUMISTON.

Witnesses:
ROBERT BURNS,
M. H. HOLMES.