

No. 766,965.

PATENTED AUG. 9, 1904.

W. L. MCGOWAN.
UNDERGROUND CONDUIT JOINT.

APPLICATION FILED DEC. 1, 1903.

NO MODEL.

FIG. 1.

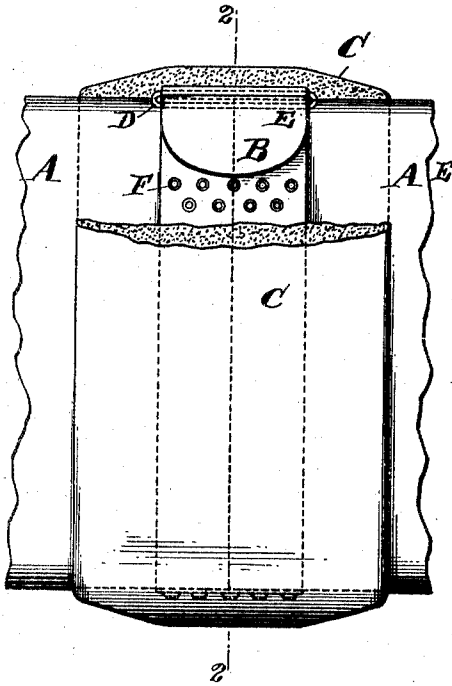


FIG. 2.

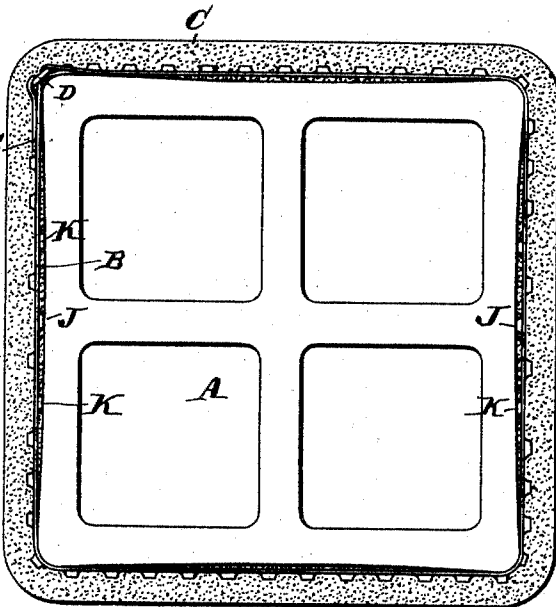


FIG. 3.

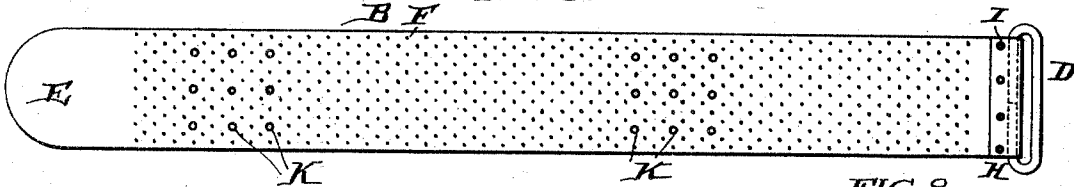
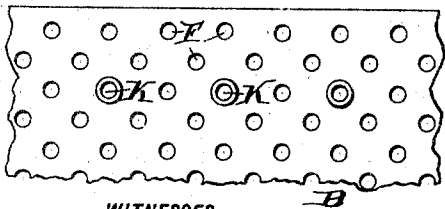


FIG. 8.



FIG. 5.



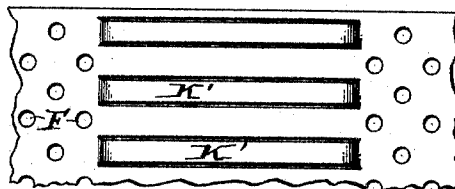
WITNESSES:

Henry D. Duff
M. J. Eyre

FIG. 6.



FIG. 7.



INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

WILLIAM L. MCGOWAN, OF PHILADELPHIA, PENNSYLVANIA.

UNDERGROUND-CONDUIT JOINT.

SPECIFICATION forming part of Letters Patent No. 766,965, dated August 9, 1904.

Application filed December 1, 1903. Serial No. 183,368. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MCGOWAN, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Underground - Conduit Joints, of which the following is a specification.

My invention has reference to underground-conduit joints; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide an adjustable wrapper and sealed joint for uniting the abutting sections of conduits, such as are embedded in the street, which may be quickly and cheaply applied and adapted to keep the sections in alinement and foreign matters from entering the joint.

Heretofore it has been customary to wrap the conduit-joints with burlap and pour upon it hot asphaltum or tar. This construction has been found very faulty for the following reasons: It is difficult to get the burlap to fit tightly, and for this reason the joint is not sealed or tight. The hot asphaltum or tar is poured upon the burlap on the top of the conduit, and it flows down the sides, but does not properly adhere to the burlap or to the conduit-walls. The burlap usually bags when released by the hand at the time of or just prior to applying the hot asphaltum or tar, and hence the said substances are directed away from the conduit-walls and wasted. The side and bottom joints are invariably defective and not impervious, and hence foreign matters and water are permitted to enter. It also frequently happens that when the union is made the burlap or cloth wrapper is pinched and wrinkled into the joint, and this causes great delay and loss of time consumed in extracting and readjusting it. When the conduit is completed and covered with earth, the asphaltum becomes cold and loosens, owing to the fact that it loses its adhesive qualities. The wrapper at this time is usually quite loose over the union. The joint under such conditions cannot be tight. It is also evident that such a wrapper is a very weak one, and consequently any material strain coming upon

the union sufficient to displace the sections readily causes rupture of the burlap at the joint.

By my invention set out hereinafter I am enabled to overcome the above objections.

In carrying out my invention in the preferred form I provide a wrapper consisting of a strip of perforated metal, said perforations having outwardly-directed edges or walls, one end of the strip having means for receiving and holding the other end after being placed around the conduit-sections and over the joint. The ends of the wrapper overlap, so as to form a continuous wrapper. By this means the wrapper can be tightened and is self-holding. Combined with said wrapper I use a covering of cement mortar, the same being of a consistency capable of being forced through the meshes or perforations of the wrapper and adapted to attach itself to the conduit-sections and form a solid body. The cement mortar also covers and protects the wrapper, increasing it so as to prevent injury to the same by oxidation or rusting. The joint so produced is waterproof and strong and is of such a nature that it can readily be formed upon all sides of the joint. It furthermore is of such rigid character as to hold the conduit-sections in positive alinement.

My invention also comprehends other features, which, together with those above specified, will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved conduit-joint with part of the cement mortar broken away. Fig. 2 is a cross-section on line 2 2. Fig. 3 is a plan view of the wrapper. Fig. 4 is a longitudinal sectional view of same on line 4 4 with portions broken away to condense it. Fig. 5 is a plan view of Fig. 4. Fig. 6 is a longitudinal sectional view of a modified form of wrapper. Fig. 7 is a plan view of Fig. 6, and Fig. 8 is a section across the buckle.

A A are the conduit-sections and are butted against each other.

B is the metal wrapper and has open meshes or perforations F and is placed about the joint of the conduit-sections and held tightened in place.

C is the cement mortar or other suitable sealing substance which is forced over the wrapper and through its perforations F and made to adhere to the sections A A. It also
 5 completely incloses and seals the wrapper against the action of the atmosphere and moisture.

The wrapper is shown as a long band of thin sheet-metal material, at one end having
 10 the transverse wire loop D and the other end so made as to be capable of being passed through the loop and bent over, as in Figs. 1 and 2. After the wrapper has been drawn tightly around the joint of the conduit the
 15 bending of the end E completely holds the wrapper tightly in position and no buckling is possible. More specifically considered, the wrapper has its perforations F made with outwardly-projecting edges or walls, as at G,
 20 such as would be formed by driving pointed punches through it as distinguished from punching out pieces. Of course it is evident that the central part of these perforations might be punched out and the edges flanged
 25 outwardly, if so desired. The end E is made without perforations, and the perforated portion of the wrapper is supposed to be of just sufficient length to encircle the joint and not extend through the wire loop D. The wire loop
 30 D is elongated, so as to give an opening long enough to receive the end of the wrapper. The loop is held to the wrapper B by having the end bent over the wire, as at H, and riveted at I. In practice these rivets are formed by flanged
 35 apertures on one layer of the strip passing through holes on the other layer and bent over similar to an eyelet. The cement mortar is then applied with a trowel or otherwise, so as to completely incase and seal the
 40 wrapper. The cement mortar extends through the apertures F and is held to the wrapper by the outward flanges or walls G. Where it passes through the apertures it adheres to the conduit-sections and extends between the
 45 conduit and wrapper. To leave the perforated portions of the wrapper exposed on the sides of the conduit, I prefer to place the loop D at one corner and in that way the wrapper-joint to come at the corner, as shown.

In practice the sides of the conduit-sections are usually depressed, as at J, this being due to shrinkage. As the wrapper is stretched tightly over the corners of the conduit it is
 50 seen that it will not touch the depressed portions J of the side walls thereof, and hence to prevent the wrapper springing in and out under the application of the cement mortar I provide feet or inward projections K at those
 55 portions of the wrapper as will come opposite the vertical sides of the conduit. These feet hold the wrapper against inward springing and permit the cement mortar to be received under the wrapper. These feet may be made
 60 by having a number of the edges or side walls of the apertures flanged inwardly instead of

outwardly, as shown. In place of these feet the same result may be secured by feet K', formed in bars bent inwardly, as in Fig. 6. It will be noticed that these feet are only at
 70 two places in the wrapper and separated substantially a distance equal to approximately one-half the perimeter of the cross-section of the conduit. They are not necessary at the top of the conduit nor at the bottom, as the
 75 weight of the mortar in the first case and the weight of the conduit in the second case holds the wrapper in position.

The cement mortar being applied to the wrapper as well as to the surface of the conduit-section insures the formation, in effect,
 80 of a hard and rigid sleeve of metal and cement shrunk upon the conduit when the cement mortar hardens, and this acts as a good support to keep the sections A A in alignment as well as make a tight joint. The ad-
 85 justable feature of the wrapper is important, as the conduit-sections frequently vary in size owing to difference in shrinkage in burning, and the adjustable feature insures a tightly-fitting wrapper under all conditions.

While I prefer the construction set out, the details may be varied without departing from the spirit of the invention.

Having now described my invention, what I claim as new, and desire to secure by Letters
 95 Patent, is—

1. The combination of two conduit-sections abutted together, with an inclosing adjustable wrapper of sheet metal having its surface provided with a large number of perforations the
 100 edges of which are flanged outward, and cement mortar surrounding the wrapper and extending through its perforations and under the same for sealing the joint between the sections and inclosing the wrapper.

2. The combination of two conduit-sections abutted together, with an inclosing adjustable wrapper of sheet metal having its surface provided with a large number of perforations the
 110 edges of which are flanged outward and also having projecting portions directed toward the sides of the conduit-sections to hold the body of the wrapper slightly away from said conduit-sections, and cement mortar surrounding the wrapper and extending through
 115 its perforations and under the same for sealing the joint between the sections and inclosing the wrapper.

3. The combination of two conduit-sections abutted together; with an inclosing adjustable
 120 wrapper of sheet metal having its surface provided with a large number of perforations the edges of which are flanged outward and having projecting portions directed toward the
 125 sides of the conduit-sections to hold the body of the wrapper slightly away from said conduit-sections and also having one end provided with a slot-like space through which the other end of the wrapper is passed and bent to
 130 tighten the wrapper in place upon the conduit-

sections, and cement mortar surrounding the wrapper and extending through its perforations and under the same for sealing the joint between the sections and inclosing the wrapper.

5 per.
4. The combination of two conduit-sections, with an inclosing adjustable wrapper of flexible sheet metal having its surface provided with outwardly-directed projections, and an inclosing body of cement mortar covering the wrapper and ends of the conduit-sections.

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5. The combination of two conduit-sections, with an inclosing adjustable wrapper of flexible sheet metal having its surface provided with outwardly-directed projections, and an inclosing body of cement mortar covering the wrapper and ends of the conduit-sections.

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6. A conduit-joint-sealing wrapper consisting of a sheet-metal strip having its surface provided with a series of projecting perforated portions.

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7. A conduit-joint-sealing wrapper consisting of a sheet-metal strip having one of its surfaces provided with a series of projecting perforated portions and having the other of its surfaces provided with two groups of feet

or projections considerably separated, whereby they may rest upon the sides of the conduit in use.

8. A conduit-joint-sealing wrapper consisting of a sheet-metal strip having its surface provided with a series of projecting perforated portions, and also having one end provided with a loop through which the other end is passed and over which it is bent.

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9. A conduit-joint-sealing wrapper consisting of a sheet-metal strip having one of its surfaces provided with a series of projecting perforated portions and having the other of its surfaces provided with two groups of feet or projections considerably separated, whereby they may rest upon the sides of the conduit in use, and also having one end provided with a loop through which the other end is passed and over which it is bent.

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In testimony of which invention I hereunto set my hand.

WILLIAM L. MCGOWAN.

Witnesses:

R. M. KELLY,
M. J. EYRE.