No. 833,870. PATENTED OCT. 23, 1906.

H. B. CAMP.

UNDERGROUND CONDUIT.

APPLICATION FILED OCT. 3, 1905.

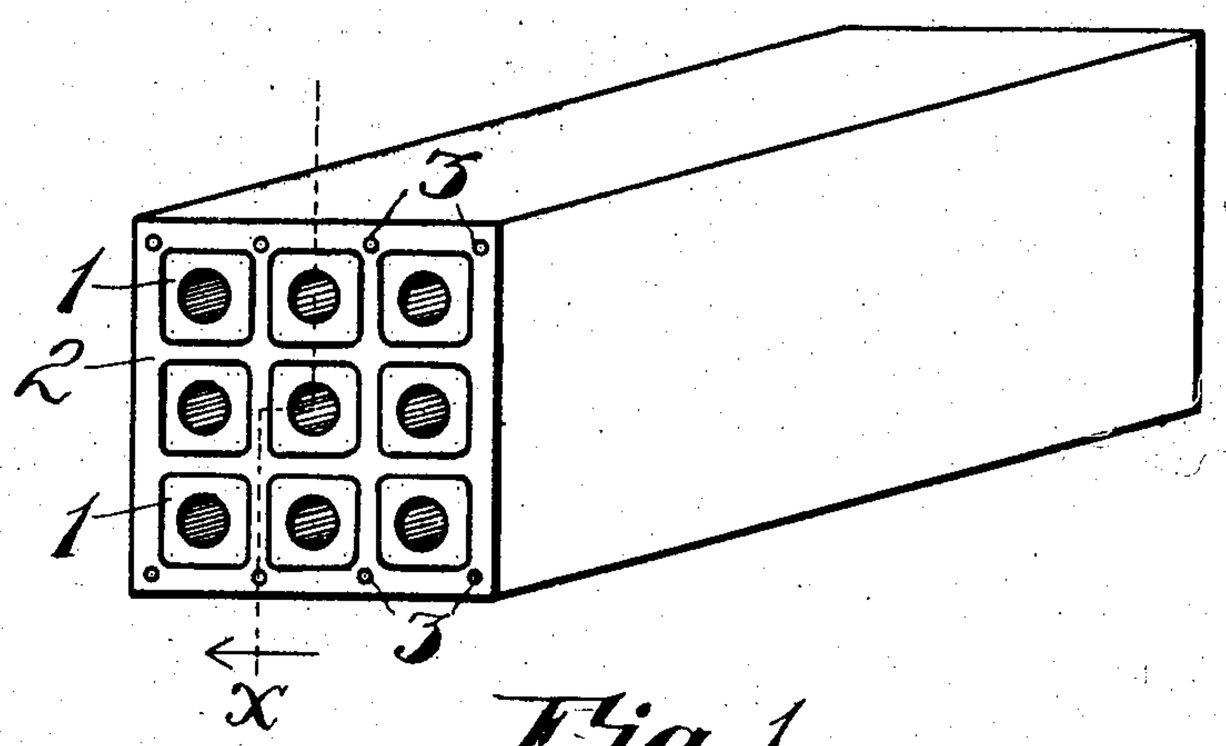

Fig. 1.

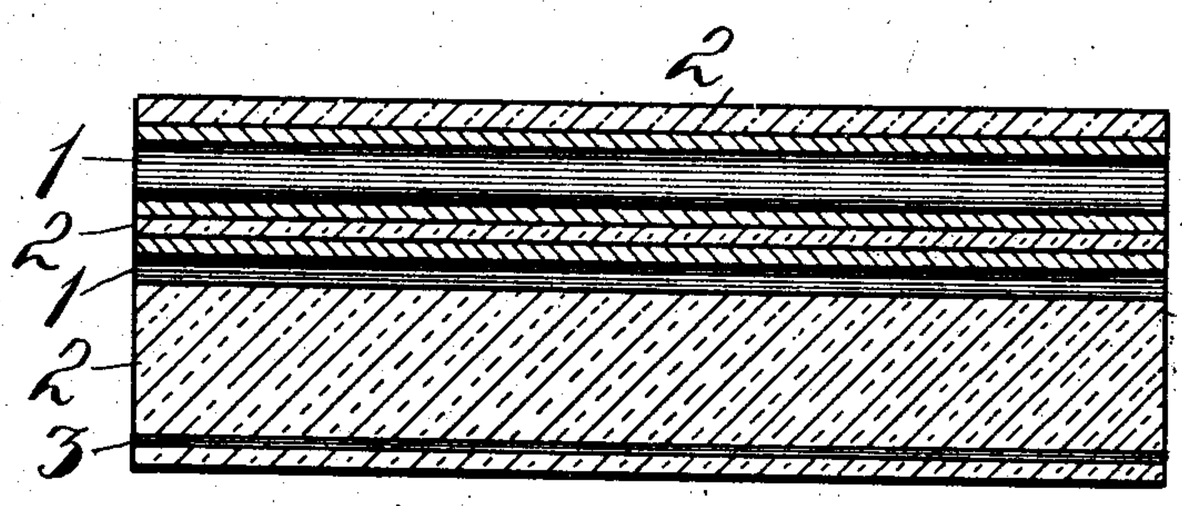

Fig. 2.

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UNITED STATES PATENT OFFICE.

HORACE B. CAMP, OF AKRON, OHIO.

UNDERGROUND CONDUIT.

No. 833,870. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed October 3, 1905. Serial No. 281,175.

To all whom it may concern:

Be it known that I, HORACE B. CAMP, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Underground Conduits, of which the following is a specification.

This invention relates to conduits, and has especial relation to underground conduits for containing wire, cables, &c., used for conducting electric currents.

Heretofore underground conduits have generally been constructed in either of the following methods: One method consists in building in an excavation a conduit made up of a plurality of tubular units of burnt earthenware in approximately the same manner that a brick wall is constructed, with the exception that the openings in the units must necessarily accurately register. The other method of constructing conduits is to place in the excavation in which the conduit is to be laid a continuous line of burnt-clay blocks, each having a plurality of partitions, these partitions dividing the hollow portion of the blocks into a number of separate conduits, the ends of the blocks being united by cement.

The objections to the first method of building conduits is the excessive expense, due to the necessity of employing skilled and high-priced labor for laying the conduit, and as these conduits are generally placed under streets the excavation therefor is generally kept open a long time, thereby greatly impeding traffic, and the open excavation is at all times a source of danger to the users of the street, and there is danger of distortion, due to the pressure of earth thereon, and the settling of the conduit, due to excavations made thereunder for the placing of sewers, &c. The objection to the second method of building conduits is the frangible nature of the material of which the blocks are composed, which are frequently broken in shipment and are also liable to distortion when in place by reason of the small amount of suitable surface on which the cement can be applied in joining successive blocks of the conduit. Other serious objections which exist against both of these methods of laying conduits is the fact that in making crosses, T's, or branches it has been found exceedingly difficult to do this by the methods hereinbefore described, and these objections are obviated by my improved method.

The object of this invention is to provide a conduit made up of a plurality of blocks arranged to be placed end to end to constitute the conduit, wherein the blocks themselves are composed of one or more units, each consisting of a tubular body of burnt earthenware united into a block by being incorporated into a structure of which cement constitutes the binding element. The invention aims to construct these blocks as integral unitary marketable articles, designed to be constructed and transported to the place where the conduit is being laid as separate units, each of which will be provided with any desired or suitable number of tubular members existing therein, and further provided with such strengthening means as will prevent the breaking of the block during transportation or under the strain of the weight of earth superposed thereon in the conduit or under the strain incident to the excavation of earth below the conduit from any cause. The invention aims to place these blocks (made up of united units) in suitable position in the conduit end to end and unite them by cement in the ordinary manner, the cement used for uniting the successive blocks to each other forming a better and more perfect union with the cement body of these blocks than would be possible were these blocks composed entirely of burnt earthenware.

The invention contemplates that the strengthening means incorporated in the blocks will remain there as a permanent part of the structure, so that when under strain due to any cause the blocks will have greater powers of resistance to breakage than they would otherwise have were these strengthening devices not contained therein. The making of these blocks and shaping them at any other point than in the conduit itself permits odd shapes, such as crosses, T's, branches, curves, &c., to be constructed with great care and accuracy and thence be transported to the conduit and rapidly placed in position without the necessity of maintaining the excavation for the conduit open while these difficult pieces are being made, and this invention further permits the making of the blocks so as to form substantially perfect curves of reasonable radii to permit the conduit to follow the curves of a street, which is impossible with the two methods heretofore described.

With the foregoing and other objects in

view the invention consists of the novel construction, combination, and arrangement of parts constituting the invention, to be hereinafter referred to, and illustrated in the accompanying drawings, which form a part of this specification, in which is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, in which similar reference-numerals indicate like parts in the different figures, Figure 1 is a perspective view of my improved block, and Fig. 2 a section of Fig. 1 at the line X.

In forming my improved conduit-blocks I take a desired number of tubular burnt earthenware members 1 1, as shown in the drawings, provided with circular central openings throughout and with rectangular sides provided with rounded corners. These are preferably arranged as shown in the drawings, wherein the blocks are represented as being spaced apart from each other. The space existing between these blocks is filled with a composition 2, of which cement forms the binding element, and a layer of the same composition is placed around the entire structure thus formed. The particular method by which these blocks are sustained in place while being inclosed by the binding element 2 is immaterial to this invention, although various processes and devices may be employed therefor which will produce a block of the kind herein described. The inclosing structure 2, of cement, will be of substantially the same length as the tubular members 1 1, and if for any reason these members 1 1 are made in shorter lengths than it is desired to make the block two or three of them may be placed in alinement with each other, so as to extend from end to end of the block. In order to strengthen the blocks, I incorporate in the cement portion thereof longitudinal rods 3, adapted to extend from end to end of the block and placed at any suitable place in the same, which will give the best results in strengthening the entire structure. It will be obvious of course that the number, size, and external configuration of the burnt-clay units 1 1 may be changed or altered to suit the requirements or fancy of the user, and it is also true that the central opening in these blocks may be of entirely different conformation without in any manner departing from the scope of this invention. It will be seen that a block thus constructed may be made at a factory, and when sufficiently hardened shipped to any place where a conduit is to be laid, and the blocks laid in the excavation successfully and perfectly united one to another with the openings in the members 1 1 accurately registering with each other, the binding between the adjacent blocks being completed by cement. The incorporation of the strengthening-rods 3 will serve at all times to prevent breaking due to any ordinary strain exerted on the block.

What I claim, and desire to secure by Letters Patent, is—

As a new article of manufacture, a conduit-block consisting of a plurality of series of hollow members, the members of each series extending longitudinally and in parallelism with respect to each other and suitably spaced apart, a cement body inclosing said plurality of series of hollow members and filling the spaces between the members of each series and the space between each series of members, a plurality of longitudinally-extending strengthening-rods embedded in said body in close proximity to the top thereof, said plurality of rods being out of vertical alinement with respect to the hollow members of said plurality of series of members, and a plurality of longitudinally-extending strengthening-rods embedded in said body in close proximity to the bottom thereof, said second-mentioned plurality of rods being out of vertical alinement with respect to the hollow members of said plurality of series of members.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HORACE B. CAMP.

Witnesses:
GLENARA FOX,
C. E. HUMPHREY.