J. F. WHEELER.

CONDUIT MANHOLE OR THE LIKE.

APPLICATION FILED AUG. 15, 1914.

1,258,839. **Patented Mar. 12, 1918.**

FIG. 1.

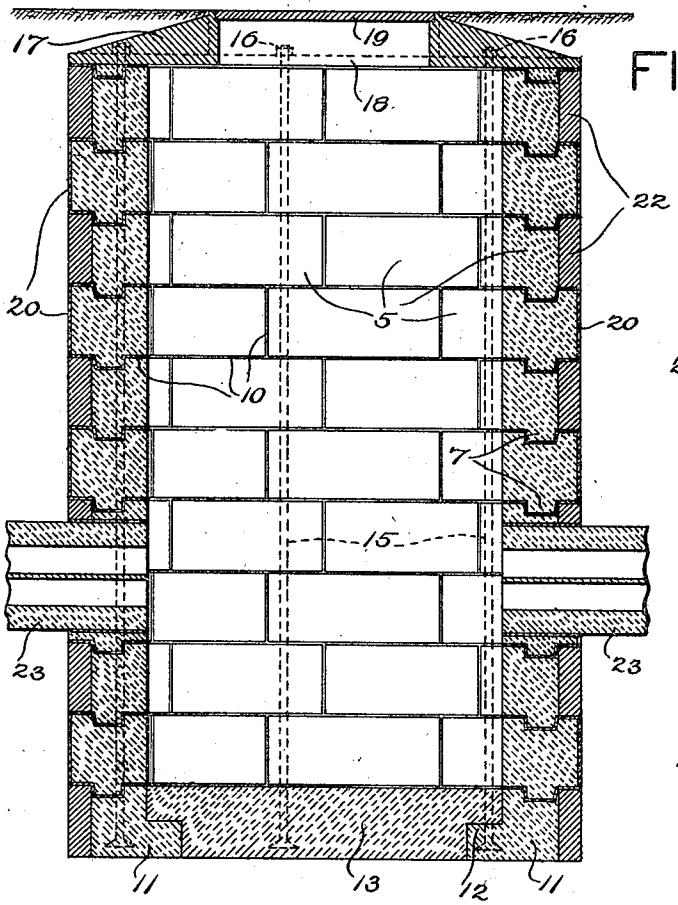


FIG. 3.

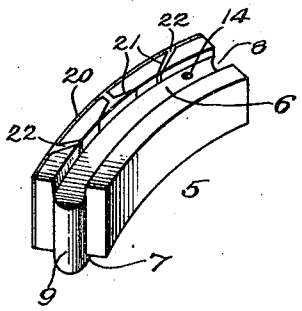


FIG. 4.

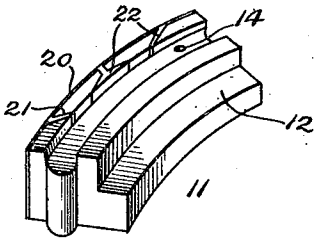
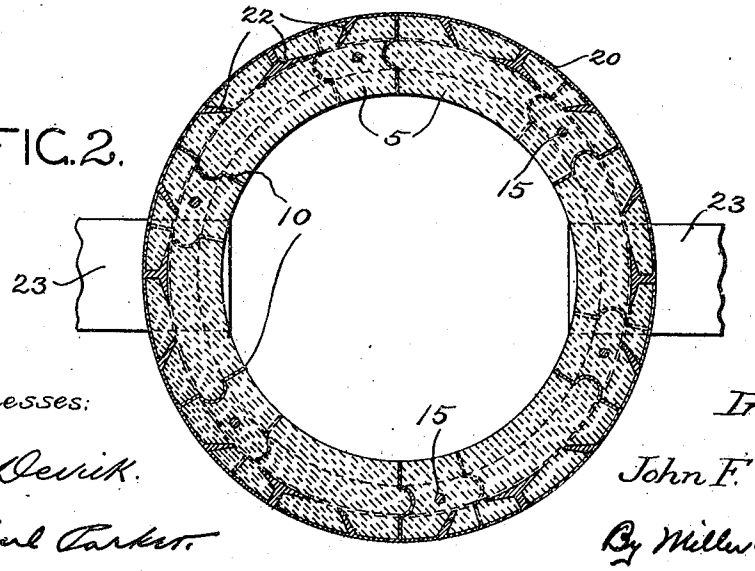


FIG. 2.



Witnesses:

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CONDUIT-MANHOLE OR THE LIKE.

1,258,839. Specification of Letters Patent. Patented Mar. 12, 1918.

Application filed August 15, 1914. Serial No. 856,936.

To all whom it may concern:

Be it known that I, JOHN F. WHEELER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Conduit-Manholes or the like, of which the following is a specification.

This invention relates to an improved construction for underground manholes, battery wells, etc., and while the invention is not limited to such use, it is peculiarly advantageous as a manhole for receiving switch-boxes or connections for underground electrical conduits.

Some of the conduit manholes heretofore made have been of integral concrete construction for the purpose of insuring a perfect insulation and moisture-proofing of the electrical connections within, and while such integral structures afford good protection, they are so heavy and unwieldy as to be very impractical to handle. Sectional manholes for this purpose have also been proposed, but difficulty has been experienced with prior sectional structures, due partially to the fact that it was impossible to prevent stray underground currents from creeping through the interstices of the structure and causing trouble or damage to the electrical connections within, and further on account of the difficulty of obtaining perfect moisture-proofing.

It is the object of my invention to produce an improved sectional manhole which shall afford perfect insulation to the electrical connections within and provide an absolutely moisture-proof chamber. To this end I have produced an improved block embodying as a permanent part thereof a layer or coating of suitable insulating and moisture-proof material such as asphalt which is preferably located at the outer side of the block. When the blocks are built up, the edges of the layers on the blocks abut adjacent to each other, so that when united, either by fusing them directly together or through the medium of the filling material between the blocks, said layers form an integral or continuous insulating and moisture-proof shell inclosing the manhole structure.

The invention also relates to the peculiar form of the blocks embodied in the structure and to means for binding the courses of blocks together and holding them in vertical alinement.

In the accompanying drawings, Figure 1 is a vertical sectional view through a conduit manhole embodying the features of my invention. Fig. 2 is a transverse sectional view. Figs. 3 and 4 are perspective views of two forms of blocks embodied in the structure.

The manhole comprises a plurality of superimposed courses of blocks preferably of arcuate shape. The blocks 5 which are used for all but the first or lowermost course are preferably of the form shown in Fig. 3, each being provided on its upper and lower side with a groove 6 and a tongue 7 and at its opposite ends with a groove 8 and tongue 9 to interlock at four sides with complementary tongues and grooves of adjacent blocks. The grooves are made sufficiently larger than the tongues to receive in addition a filling material 10.

The blocks 11 in the lowermost course are of the form shown in Fig. 4, being similar to the blocks 5 and having in addition an inwardly extending flange 12. These flanges abut end to end and form a continuous ledge upon which the bottom 13 of the manhole is supported. This bottom may be of concrete poured in after one or more courses of blocks have been laid.

Each block 5 or 11 has a vertical opening 14 therethrough near one end, said openings being positioned alternately in opposite ends of adjacent blocks and being adapted to receive vertical tie-rods 15 having their heads seated in the blocks 11 of the lowermost course, said rods passing up through the openings 14 and having nuts 16 on their upper ends. The upper end of the manhole is closed by a cap 17 having a central opening 18 and the usual closure 19 at the surface of the ground. The nuts 16 engage the cap 17 and when turned up tightly hold it firmly in place. The rods 15 assist to hold the courses of blocks in vertical alinement.

Each of the blocks 5 and 11 embodies as a permanent part thereof a layer or coating 20 of insulating and moisture-proof material such as asphalt approximately coextensive with the block. This layer may be affixed to the block in different ways, but preferably the block is provided in its outer face with a plurality of angularly extending recesses 21 which are filled by inwardly extending flanges or tongues 22 forming part of the insulating coating 20. The coating may be applied to the block in a plastic condition,

when the material will flow into the recesses 21 in the block.

The filler 10 between the blocks is preferably insulating material, and may be the same as the layer 20 on the blocks, said filler 10 extending to the outer edge of the blocks and in contact with the edges of the layers 20 on the blocks. One way of applying the filling layers 10 is to lay prepared strips of material on the upper edges and in the grooves 6 of the course of blocks already laid and then applying a blow torch to the strips and the upper edges of the layers 20 on the blocks to melt them into a plastic condition before the blocks of the next course are laid. All of the edges of the layers 20 on the blocks are thus bonded together, so that a continuous impervious coating of insulating and moisture-proof material incloses the manhole structure and provides a perfectly insulated and moisture-proof chamber within. Thus the inclosed electrical connections are protected both from stray underground currents and from moisture.

At suitable points inlet and outlet conduits 23 are built in the structure to provide for ingress and egress of electrical cables and the like.

By my improved structure the complete and perfect insulation and moisture-proofing of the chamber may be attained without the necessity of making the manhole of integral construction with its attendant disadvantages. An insulating coating could not be applied to the outside of a sectional structure after it was built without digging a much larger hole than the size of the structure in order to give access to the exterior thereof. With the form of blocks herein shown the structure may be built in a hole of just sufficient size to receive it and at the same time the structure has an exterior insulating coating.

I claim as my invention:

A sectional circular manhole structure comprising a plurality of superposed horizontal courses of building blocks, each block having a vertical opening therethrough, the openings of some blocks being at one end thereof and of other blocks at the opposite end, and the blocks of the respective courses being staggered to bring the opposite openings of superposed blocks in alinement, a plurality of vertical rods passing up through the alined openings to hold the rods in place, a cap supported by the blocks and secured to the same by said rods, each block having a groove and tongue in its respective upper and lower faces and a groove and tongue in its respective ends to interlock with adjacent blocks of the same and adjacent courses, each block having outer and inner arcuate faces, the outer face having an individual layer of moisture-proof and insulating material permanently secured thereto prior to the assembling of the block in the structure, and the abutting edges of these layers in the structure being united or fused together to form a continuous moisture-proof and insulating coating inclosing the structure.

In testimony whereof, I hereunto set my hand in the presence of two witnesses.

JOHN F. WHEELER.

In the presence of—
CHAS. H. WHEELER,
W. W. WHEELER, JR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."