Aug. 3, 1926. 1,594,364

C. GOTTWALD

CONDUIT CONSTRUCTION FOR UNDERGROUND PIPES

Original Filed April 3, 1922

Fig. 1.

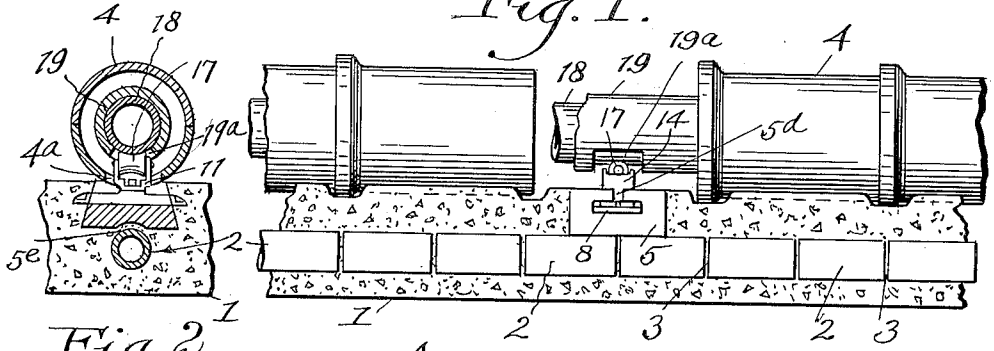


Fig. 2.

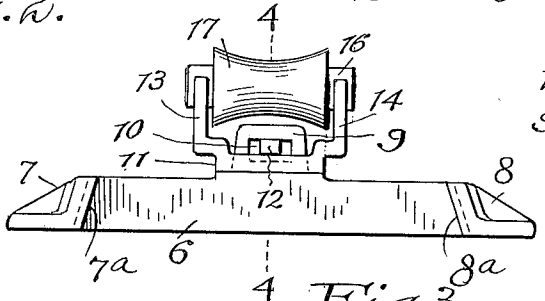


Fig. 3.

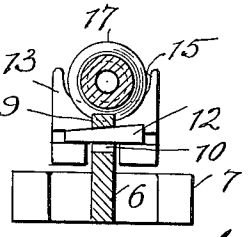


Fig. 4.

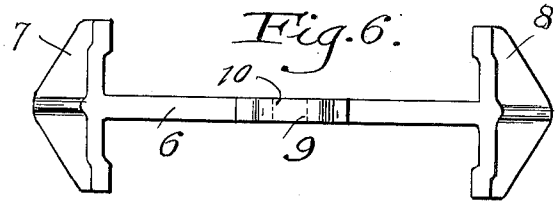


Fig. 6.

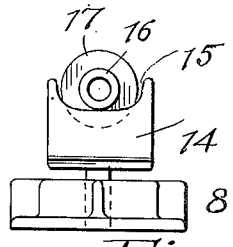


Fig. 5.

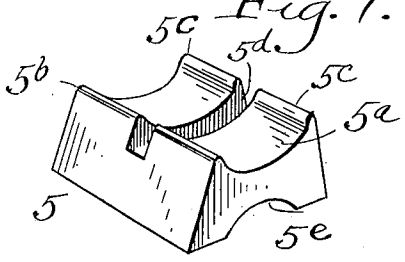


Fig. 7.

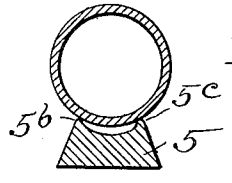


Fig. 8.

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UNITED STATES PATENT OFFICE.

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CONDUIT CONSTRUCTION FOR UNDERGROUND PIPES.

Original application filed April 3, 1922, Serial No. 549,236. Divided and this application filed May 9, 1923. Serial No. 637,691.

The present invention relates to a construction for the housing and supporting of underground pipes or conduits which are used primarily in the transmission of steam, hot water, and other liquids or gaseous materials, or under any similar circumstances for the protection of conduits, the present application being a division of my co-pending application Serial No. 549,236, filed April 3, 1922.

The object of the invention is to provide a construction in which there is provided a drained base, which base is formed of crushed rock, coarse gravel, or any similar material, the base serving as a support for tile in which the pipes before mentioned are housed.

One of the objects of the invention is to provide a construction in which the pipe within the tile is supported at frequent intervals by means of suitable supports which are in turn carried by the base. Other objects of the invention will appear as the description proceeds.

Reference should be had to the accompanying drawings forming a part of this specification, in which Fig. 1 is a side elevation with portions in section, of a portion of a base with drain tile therein supporting other tile within which are housed suitable pipes; Fig. 2 is an end elevation of the showing in Fig. 1; Fig. 3 is a front elevation of a pipe support; Fig. 4 is a sectional elevation on the line 4—4 of Fig. 3; Fig. 5 is an elevation of the support shown in Fig. 3; Fig. 6 is a top plan view of the base portion of the support which is shown in Fig. 3; Fig. 7 is a perspective view showing a block on which a pipe support is mounted; Fig. 8 is a sectional elevation showing the manner in which a tile is supported in a supporting block.

Referring to the drawings, and more particularly to Fig. 1, 1 indicates a base made up of crushed rock, coarse gravel, or any similar substance, in which base there is permanently located a series of common tile which is indicated at 2. The tile mentioned is the common ordinary unglazed tile of commerce, which is perfectly well known. These tile are spaced apart from each other, thereby leaving a slight spacing which is is indicated at 3. This construction permits the seepage of drainage water through the base portion 1, and this water will collect in the series of drain pipes and be conducted away to a point of discharge.

Mounted upon the base 1 are a series of tile which are indicated at 4. These tile are preferably of the usual bell and spigot type, and are preferably glazed. The bell portion of each tile occupies a suitable depression which is formed in the base, so that the tile may be supported in proper alignment.

At frequent intervals throughout the length of the base there are inserted blocks, one of which is indicated at 5. The number of blocks used in a given installation and the spacing of the same is purely an arbitrary matter, and while there is only one such block indicated in the construction shown in Fig. 1, it will be understood from the description given that there are in actual use a plurality of such blocks in a given construction.

The block which is indicated at 5 is more clearly shown in Fig. 7, in which it will be seen that the block has a rounding top surface 5^a, and that the edges of this top surface terminated in what may be termed beads 5^b and 5^c.

Extending transversely of the block 5 there is a slot 5^d.

On the lower surface of the block 5 there is a rounded groove 5^e which extends longitudinally of the block.

In using the block 5 it is placed in the base 1 so that the rounding portion 5^e will straddle a tile 2, or two adjacent tiles, as the case may be. The material of which the base 1 is composed is compacted around the block 5, so that it in effect forms an integral portion of the base.

The block 5 serves as a support and positioning member for a pipe supporting device. Each pipe supporting member comprises a saddle portion which consists of a web member 6 having transversely extending end members 7 and 8, the inner surfaces of the end members being slanting, as indicated at 7^a and 8^a in Fig. 3. At the central portion of the web member 6 there is an upstanding loop 9 which has an opening through it, 10.

There is a central member which is generally indicated at 11, these members being provided with a base portion having an opening which straddles the loop member 9, and for the purpose of securing the member

11 to the loop member 9 a retaining member or wedge 12 may be inserted, as indicated in Fig. 3, which holds these two parts together. The member 11 has at each side thereof an upstanding side member, these members being indicated at 13 and 14, the side members being formed with elongated depressions at their upper ends, as indicated at 15 in Figs. 4 and 5. These depressions serve to receive extending rounded projections 16 which are carried by a roller 17.

The formation of the depressions 15 is such that there may be slight longitudinal rolling movement of the roller 17. The roller itself has an outside surface which is concave, and which is adapted to receive and support a pipe such as indicated at 18, and from the construction it will be seen that the supporting contact for the pipe 18 is what may be termed a rolling contact.

The pipe 18 will usually be covered by a suitable heat retaining cover which is indicated at 19, and this will be cut away as indicated at 19^a, so as to provide a direct support for the pipe 18 upon the roller 17.

The block 5 is adapted to receive and support the saddle portion of the pipe supporting construction, which has just been described, and with this in view the width of the slot which is indicated at 5^d is substantially the width of the web member 6 of the saddle. It will be noted that the outer surfaces of the member 5 are divergently slanting, and the degree of slant which the side members of the block 5 may have is the same as the degree of slant which is given to the slanting surfaces 7^a and 8^a, so that when the saddle member is assembled with respect to the block 5 the web member 6 will occupy the groove 5^d, and the slanting surfaces 7^a and 8^a will co-operate with the outside slanting surfaces of the block 5. This arrangement definitely positions the saddle portion of the pipe support so that it will not move from side to side, and the weight of the pipe together with the weight of the pipe supporting construction which has been described holds the saddle in its proper position.

In Fig. 1 the drawing does not show a tile section corresponding to the tiles marked 4 at that portion of the structure at which the pipe supporting construction is shown, but it will be understood that such a tile section is there used, and for the purpose of admitting the pipe supporting construction, the bottom of such a tile will be provided with a suitable opening, such as indicated at 4^a in Fig. 2. This opening will also serve as a convenient discharge for any seepage or moisture which may accumulate within the tile.

The manner of co-operation between the supporting block 5 and the tile with which it co-operates is clearly indicated in Fig. 8, and it will be seen that the side ribs 5^d and 5^e on the block 5 will be two points of support for the tile above the same so that the weight of the tile, and of course, the weight of the earth which is upon the tile will be carried to the block 5 through the 2-point support.

It has been found in practice that supporting the tile at the two points as indicated gives a much stronger construction than where it is attempted to support the tile in a rounding cradle. This is due to the fact that it is, practically speaking, under manufacturing conditions impossible to produce a perfectly round cradle of the same diameter as the diameter of the tile itself, and it therefore introduces uneven support. All this is obviated by the two-point support by the block 5 which has been described.

Having described my invention, I claim:—

1. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections and adapted to have a pipe extending therethrough, means forming a base by which said conduit sections are supported and held in alignment, a plurality of spaced blocks forming a part of said base, a pipe supporting structure mounted upon each of said blocks, each pipe supporting structure having a saddle portion extending across a block and engaging opposite side faces thereof and extending through a suitable opening formed in the lower portion of the conduit adjacent to which it is placed, and adapted to engage and support the pipe within said conduit.

2. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections, a pipe extending through said sections and housed thereby, means forming a base by which said conduit sections are supported and held in alignment, a plurality of spaced blocks forming a part of said base, each of said blocks being provided with a top surface which is adapted to engage with the under side of said conduit and having a transverse slot, a pipe supporting structure associated with each of said blocks and seated in said slot, said supporting structure extending through a suitable opening formed in the lower portion of the conduit adjacent to which it is placed and adapted to engage with the pipe within the conduit.

3. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections, a pipe extending through said sections and housed thereby, means forming a base by which said conduit sections are supported and held in alignment, a plurality of spaced blocks forming a part of said base each of said blocks being provided with a top sur-

face having longitudinally extending spaced ribs which are adapted to engage with the under surface of said conduit to form a two-line support for said conduit, a pipe supporting structure carried by each block and adapted to extend through a suitable opening formed in the lower portion of the conduit adjacent to which it is placed and adapted to engage with the pipe within said conduit.

4. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections, a pipe extending through said sections and housed thereby, means forming a base by which said conduit sections are supported and held in alignment, drain pipe provisions associated with said base, a plurality of spaced blocks forming a part of said base each of said blocks being adapted to engage and support an adjacent portion of the conduit, a pipe supporting structure mounted upon each block and having a saddle portion extending across the block and engaging opposite faces thereof, said supporting structure being adapted to extend through a suitable opening formed in the conduit adjacent to which it is placed and extending into said conduit in engagement with the pipe therein.

5. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections and adapted to house a pipe extending through the sections, means forming a base by which said conduit sections are supported and held in alignment, drain pipe provisions associated with said base, a plurality of spaced blocks forming a part of said base, and engaging with the under surface of the conduit and supporting the same, each of said blocks being provided with a transverse slot, a pipe supporting structure associated with each block and comprising a saddle having a web portion which fits in the slot in the block and having head portions at the ends of the web which engage with the side portions of the block, a support carried by the web and extending through a suitable opening in the lower portion of the conduit adjacent to which it is placed and adapted to support the pipe within the conduit.

6. In combination, an underground conduit for pipes comprising a conduit composed of a plurality of abutting sections and adapted to have a pipe extend therethrough, means forming a base by which said conduit sections are supported and held in alignment, drain pipe provisions associated with said base, a plurality of spaced blocks forming a part of said base, said blocks engaging the under surface of a portion of the conduit and supporting the same, each of said blocks being provided with a transversely extending slot and having slanting side wall portions, a pipe supporting structure associated with each block and comprising a saddle having a web portion which fits in the slot in the block, and having head portions at the ends of the web which head portions are provided with inside slanting surfaces that engage with the slanting sides of the aforesaid block, a support carried by the web and extending through a suitable opening formed in the lower portion of the conduit adjacent to which it is placed, a movable member carried by the support and adapted to engage with a pipe within the conduit.

7. An underground conduit for pipes comprising a conduit composed of a plurality of abutting sections, a pipe extending through said sections and housed thereby, means forming a base by which said conduit sections are supported and held in alignment, drain pipe provisions associated with said base, a plurality of blocks forming a part of said base and spaced at intervals throughout the length of the base, each of said blocks being provided with a top surface having longitudinally extending spaced ribs adapted to engage with the under surface of a conduit and being further provided with a transverse slot, a pipe supporting structure associated with each block and comprising a saddle having a web portion which fits in the slot in said block, and having head portions at the ends of the web which engage with the side portions of the block, a support carried by the said web and extending through a suitable opening formed in the lower portion of the conduit adjacent to which it is placed, a movable member carried by the support and engaging with the pipe within the conduit.

In testimony whereof, I hereunto affix my signature.

CHRISTIAN GOTTWALD.