Feb. 16, 1971 J. H. OLSEN 3,563,039

DRAINAGE TILE STRUCTURE

Filed June 10, 1969

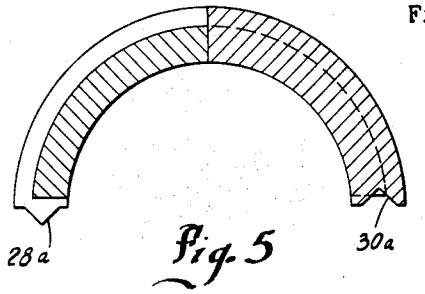


Fig. 5

Fig. 1

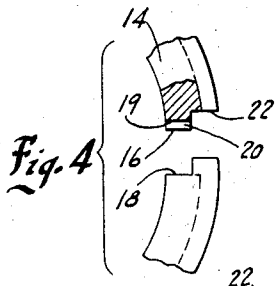


Fig. 4

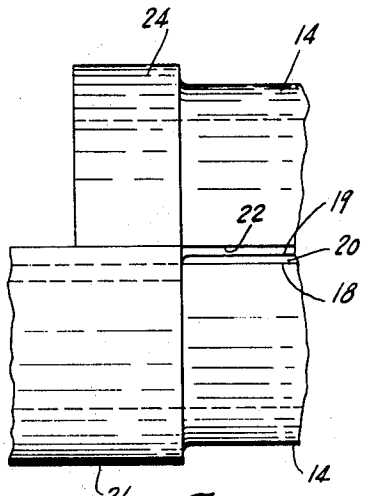


Fig. 3

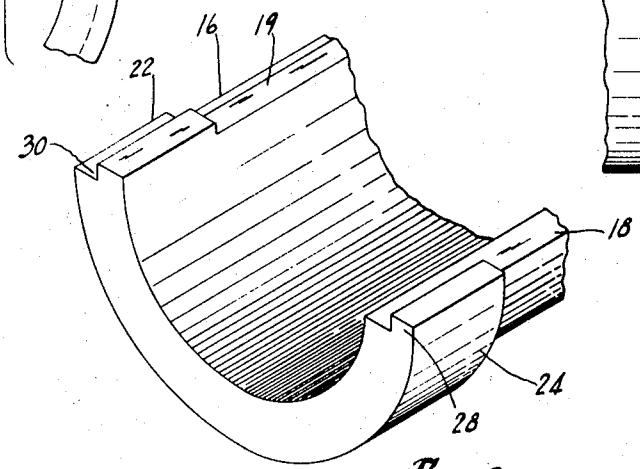


Fig. 2

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DRAINAGE TILE STRUCTURE

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ABSTRACT OF THE DISCLOSURE

A drainage tile comprised of a pair of opposed sections. Slots are provided in the sides of the tile to allow water to enter the tile.

BACKGROUND OF THE INVENTION

Field of the invention

The present invention relates to substratum drainage devices useful for hydraulic or earth engineering purposes.

Description of the prior art

It has long been common practice to utilize drainage tiles for aiding in the extraction and/or removal of moisture from soil. The drainage pipes or tiles heretofore employed have generally been in the form of cylindrical sections which are normally laid in axial alignment in a trench or drainage ditch so that water collected therein can flow through the aligned tiles to a point of distribution such as, for example, a sump, pond or lake.

It is the purpose of the present invention to provide an improved drainage tile suitable for such purposes.

Another object of this invention is to provide an improved drainage tile which may be economically produced in quantity and which may be quickly and easily installed by a novice.

Yet another object of the present invention is to provide an improved drainage tile so constructed as to be installable in a manner such as to maintain the axial alignment of the tiles.

Still another object of the invention is to provide improved drainage conduit or tile which may be nested for ease in handling and quantity transportation.

A further object of the present invention is to provide a drainage tile comprised of a pair of opposed sections of similar construction. Each of the sections presents a pair of spaced abuttable edges. A longitudinal portion of one of the edges is removed to provide slots on either side of the assembled tile through which the subterranean water may enter. Means are provided for assisting in the joining of the sections and for strengthening the sections. The opposing sections may be staggered during assembly to assist in maintaining the axial alignment of the tiles.

These and other objects and advantages of the present invention will become apparent from the following detailed description.

THE DRAWINGS

A clear conception of the construction, installation and operation of a typical drainage system embodying the improvements constituting this invention may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the several views.

FIG. 1 is a partial perspective view of an assembled drainage tile constructed in accordance with the present invention;

FIG. 2 is a fragmentary perspective view of one of the opposed sections forming the drainage tile of the present invention;

FIG. 3 is a fragmentary side view of the assembled drainage tile of FIG. 1;

FIG. 4 is an exploded fragmentary end view of the opposed sections of the drainage tile showing the manner in which the sections are assembled to form the tile, a portion of the view being cut away to reveal further details of one of the sections.

FIG. 5 is an irregular cross-sectional view of another embodiment of the drainage tile section showing a cross section of the wall portion of the section on the left side and a cross section of the collar portion on the right side.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the drawing, there is shown therein the drainage tile **10** of the present invention. While drainage tile **10** is shown in the drawings and described herein in an exemplary manner as a tube of circular cross-sectional configuration, it will be appreciated that other cross-sectional configurations may be used, if desired. Further, while the term "tile" is used herein, it is to be understood that materials other than baked clay may be used in the manufacture of the present invention. For example, cement, plastic, or resin impregnated fibers may be used, and as a matter of fact, it is preferred to form the same of expanded polystyrene or the like.

Drainage tile **10** is formed from a pair of opposed abutting sections **12** of generally similar configuration. Each section **12** includes an elongated semicircular wall **14** of the desired thickness. The wall **14** of each section presents a pair of spaced longitudinally extending edges **16** and **18** which are placed in abutment when the tile is assembled.

A longitudinal portion of at least one of the walls is cut away or removed. For example, wall **16** may be cut away to provide a depression **19** which forms slots **20** in the assembled tile as hereinafter described. A longitudinal notch **22** is provided along the outer border of depression **19** so that the adjacent portion of the wall provides an overhanging protective lip which permits water to enter the drainage tile while at the same time restraining dirt from so doing.

A plurality of collars **24** are included on the outer surface of wall **14** to strengthen the wall and to assist in the assembly of drainage tile **10**. Specifically, a collar **24** is positioned on the outer surface of wall **14** at each end of section **12**. A collar **26** is also located at the center of section **12**. This collar may have twice the longitudinal dimension of collars **24** so that when the opposing or abutting sections are staggered during the assembly of drainage tile **10**, the end collars **24** of two longitudinally adjacent sections **12**, will be positioned opposite a center collar **26**, as shown in FIG. 1.

A projection **28** extends from one side of each of the collars **24** and **26**, and a corresponding groove **30** is provided on the other side of collars **24** and **26**. FIG. 2 shows a rectangular projection **28** on one side of the collar **24** and a rectangular mating notch or groove **30** on the other side of the collar. FIG. 5 shows a prismatic projection **28***a* of triangular cross-sectional configuration, on one side of each collar, and mating triangular grooves **30***a* on the other sides of the collars.

Drainage tile **10** is assembled by placing the opposing sections **12** is abutment with the sections staggered so that each section overlaps an opposing section by one half its length. Projections **28** and grooves **30** on each of the collars aid in the staggered assembly of drainage tile **10**. The tile **10** may be placed in the drainage trench or ditch, either before or after assembly, and covered with dirt to retain it in the assembled state. If desired, the tile may be bound with bands or the like placed around collars **24** and **26**.

With the sections of drainage tile **10** assembled, depressions **19** form slots **20** on either side of the tile through which water or other fluids may flow into the sile. If desired, a depression **19** may be provided to both edges **16** and **18**, as shown in FIG. 5, to enlarge the size of slots **20**.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. A drainage tile comprised of a pair of opposed, longitudinally extending sections of similar construction, each of said sections having an elongated wall presenting a pair of spaced, longitudinal edges, a longitudinal portion of some of said edges being removed so as to provide a longitudinal slot on either side of said tile when said sections are joined along their edges, said removed portion of said wall including a longitudinal notch located along the outside edge thereof and extending radially inwardly to define a remainder of said wall which forms an over-hanging protective lip for said slots.

2. The drainage tile of claim **1**, wherein said sections include interengaging projection mating means for assisting in the joining of said sections.

3. The drainage tile of claim **2**, wherein said mating means comprises a projection on one of said edges and a corresponding groove on the other of said edges.

4. The drainage tile of claim **3**, wherein said projection is rectangular and said groove is correspondingly rectangular.

5. The drainage tile of claim **3**, wherein said projection is prismatic and said groove is correspondingly prismatic.

6. The drainage tile of claim **1**, wherein each of said sections includes a plurality of semicircular collars mounted on the outer surface of said wall.

7. The drainage tile of claim **6**, wherein a collar is located at each end of a section and wherein another collar is located in the longitudinal center of said section, said latter collar being twice the longitudinal length of the other collars.

8. The drainage tile of claim **7**, wherein additional collars are located in equal numbers and at equally spaced intervals between each of said end collars and said center collar.

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