June 18, 1974 H. B. CARLSON ET AL 3,817,864

SANITARY DRAINAGE SYSTEM

Filed June 2, 1972

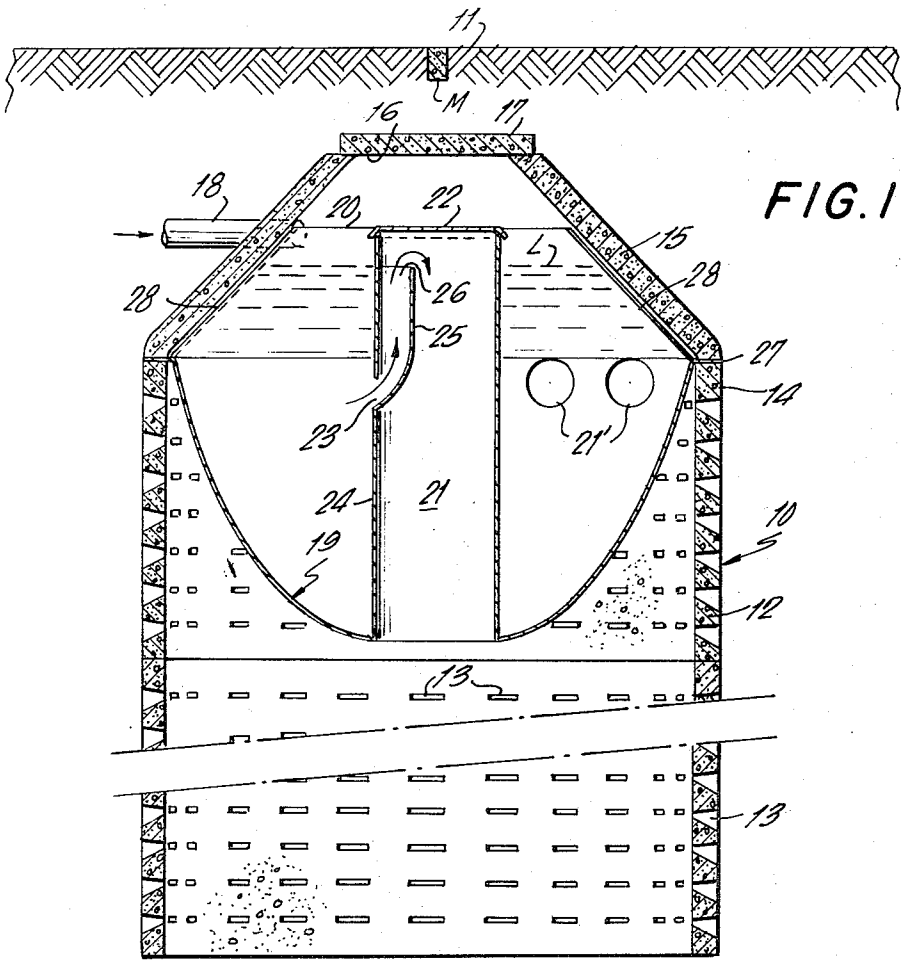


FIG. 1

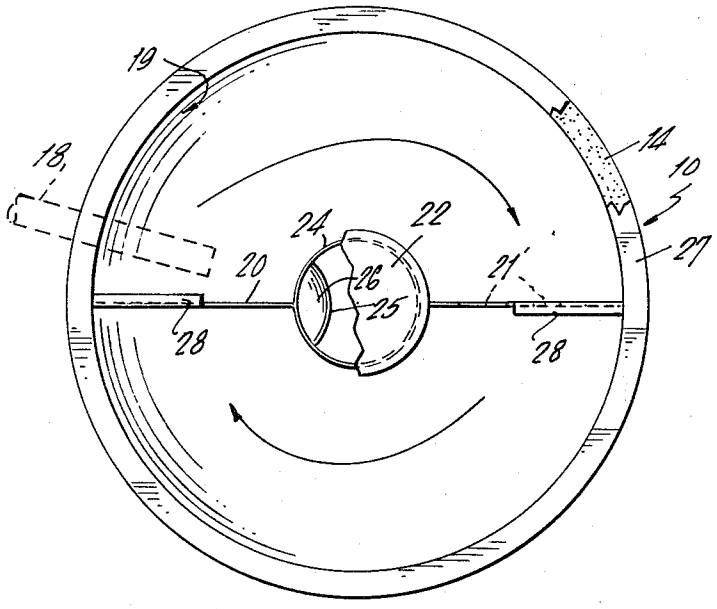


FIG. 2

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SANITARY DRAINAGE SYSTEM

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U.S. Cl. 210—170 5 Claims

ABSTRACT OF THE DISCLOSURE

A novel and improved sanitary drainage system is provided wherein the spetic tank of the system is fabricated from Fiberglas which has advantages over the use of pre-cast concrete or other material heretofore used in that it is non-corrosive, impervious and light and strong with some flexibility. The Fiberglas spetic tank has a generally hemi-spherical, furstoconical or polygonal shape.

BACKGROUND OF THE INVENTION

In co-pending application Ser. No. 240,138 filed Mar. 31, 1972 a novel septic tank construction has been described which, however, while not limited to the use of pre-cast concrete is preferably made of that material and has a generally toroidal or other shape which may be varied in accordance with requirements of fabrication and installation. The contents of said copending application are hereby made a part hereof.

THE PRESENT INVENTION

According to the present invention it has been discovered that by making the septic tank of the sanitary drainage system of Fiberglas and with a generally hemispherical, frusto-conical or polygonal shape important and unexpected advantages accrue. The entire installation is furthermore simplified with respect to its fabrication, assembly and installation.

In the accompanying drawing,

FIG. 1 is a vertical medial section taken through the new sanitary drainage system; and

FIG. 2 is essentially a top plan view of FIG. 1 with certain upper parts removed or broken away to show the underlying construction.

Referring to the drawing, numeral **10** represents the leaching pool which is made up essentially of a series of super-imposed pre-cast concrete drain rings **12** which are of generally trapezoidal cross-section and which thereby provide exit spaces **13** for effluent which seeps into the surrounding earth, it being understood that normally the entire installation is underground below ground level **11** and its location is readily ascertainable by the marker M. It is understood, however, that while pre-cast concrete drain rings are illustrated, the invention is not limited thereto since other materials can be substituted.

The uppermost ring **14** constitutes the top of the leaching pool proper, it being understood that while the leaching pool is usually round or circular, it can be rectangular or polygonal if desired, and resting thereon is a dome **15** which like the rings **12** and **14** is made of pre-cast concrete or other suitable material and terminates at its upper end in an opening **16** which is closed by a removable slab or cover **17** also made of pre-cast concrete or other suitable material. It will be seen that the dome **15** is of a generally frustoconical cross-section when viewed vertically and is of course round when the leaching pool wall is round or of other shape when the leaching pool wall is non-circular. An inlet pipe **18** extends through the dome **15** as illustrated and discharges sewage or other waste material into the Fiberglas septic tank designated by the numeral **19** above the liquid level L therein and on one side of baffle plate **20** which

is provided with baffle openings **21'** for purposes of circulation similar to the like openings **25** in FIG. 1 of the aforesaid co-pending application. The path of circulation is shown by the directional flow arrows in FIG. 2.

A particularly important and novel feature of the present invention resides in the septic tank **19** and its fabrication from Fiberglas. Fiberglas is a known material which is widely available commercially and which has a variety of uses and it is understood that the Fiberglas of the septic tank is made of the standard known and available material. It is, however, necessary to fabricate the Fiberglas septic tank **19** from a plurality of segments in order to give it the particular shape illustrated or other shape wherein the lower portion of the tank **19** is generally hemi-spherical or has a somewhat flattened polygonal shape depending on the specific nature of the individual segments and is of a modified toroidal shape in that it surrounds the access shaft **21** which serves as downflow for sewage or other waste material leading from the interior of the septic tank to the leaching pool. The access shaft **21** is of generally tubular or circular nature, but is not restricted to such shape and it is provided with a removable inner cover **22** or a cover which is fastened, which is hinged or secured for opening in the manner of a garbage can cover of Fiberglas, sheet plastic or other non-corrosive material. In addition it will be observed that access shaft **21** is in vertical alignment with dome opening **16** so that when slab **17** is removed, there is ready access to inner cover **22** and (upon removal or pivotal movement thereof) to the interior of access shaft **21** for observation or cleaning or other usual purpose. It will still further be observed that access shaft **21** has an opening **23** in its wall **24** whereby the material in tank **19** is permitted or caused to move upwardly in the short vertical tubular member **25** from which it exits as shown by arrow at **26** and flows downwardly through the access shaft **21** into the leaching pool **10** whereupon the treated sewage or other waste material passes out through effluent openings **13** into the surrounding earth.

The Fiberglas tank **19** can be fabricated in any suitable or known manner as by casting or molding operations or by forming sections which are thereafter bolted or otherwise secured together in a water-tight fashion. The material is light, strong and advantageously somewhat flexible while being non-corrosive and superior to pre-cast concrete or other materials heretofore employed in the manufacture of septic tanks. It will also be appreciated, as stated in the aforesaid co-pending application, that the leaching pool and the septic tank may be made of various sizes and capacities which are in general governed by local ordinance or regulation. The septic tank may be held easily within the leaching pool in the position shown in FIG. 1 in any desired manner such as by means of the lateral tab or extension **27** held between uppermost ring **14** and the lowermost surface of dome **15** and as will be further observed the Fiberglas baffle plate **20** which extends upward along the inner dome surface is constructed with a flexible flange **28** which serves as a gasket between the baffle plate and the dome.

It is to be understood that the invention includes septic tanks of various shapes, as referred to above, and that instead of the curved septic tank wall shown in FIG. 1 a straight wall can also be employed wherein the tank is in effect frusto-conical with the wall extending in a direct substantially straight line from member **27** to the bottom of access shaft **21**. In actuality, due to fabrication methods, the shape of the tank **19** is polygonal because of the assembly of a plurality of straight cast or molded sections. In addition, inlet pipe **18** can be located on the opposite side of baffle plate **20** from that shown in FIG. 2 in which case the flow directions are reversed as compared to the directional arrows of FIG. 2. In either event, the flow via **26** is controllable by a plug insertable into

and removable from each half of opening **26** so that in the arrangement shown in FIG. 2 flow proceeds via **26** on the nearer side of baffle **20** and when inlet pipe **18** is in its alternative position opposite flow occurs. Secondary discharge may be arranged from a pipe leading to another unit or location where conditions such as volume and rate of flow require.

It has been found that sanitary drainage systems according to the present invention are easily and rapidly manufactured, transported and installed and meet all local laws and regulations.

What is claimed is:

1. A sanitary drainage system comprising a leaching pool defined by a circular or polygonal wall having effluent openings therethrough, a dome atop said wall and having an opening in its upper portion, a closure over said opening, a Fiberglas septic tank having its wall extending upwardly and inwardly along the dome inner surface and part way down into said leaching pool and supported from the upper edge of said wall being held between the leaching pool wall top and the dome bottom and converging therefrom downwardly and inwardly toward the center of the pool interior leaving a space between the septic tank and the leaching pool wall and configured to provide a hollow access shaft in vertical registry with the dome opening, an inner cover on the upper end of the access shaft, inlet means passing through said dome at the upper end of the tank wall and outlet means in said tank at the upper end of the pool wall communicating with the interior of the access shaft for directing sewage into said pool.

2. A sanitary drainage system according to claim **1**, wherein the septic tank is generally hemi-spherical in vertical medial section.

3. A sanitary drainage system according to claim **1**, wherein the septic tank is of somewhat flattened polygonal shape in vertical medial section.

4. A sanitary drainage system according to claim **1**, wherein the septic tank is provided with an apertured, diametrically disposed baffle plate terminating below the dome top at the level of the inlet means and providing a space between the baffle and the top of the dome.

5. A sanitary drainage system according to claim **1**, wherein the leaching pool wall has effluent openings throughout its height formed by superimposed trapezoidal rings and effluent in the leaching pool has access to all the effluent openings including those in the space between the tank and the pool wall.

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U.S. Cl. X.R.

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