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Carlson et al.

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[54] **SEPTIC TANK CONSTRUCTION**

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[52] **U.S. Cl.** ..... **210/519,** 210/532 S

[51] **Int. Cl.** **C02c 1/14**

[58] **Field of Search** ..... 210/170, 181, 207, 256, 210/261, 342, 521, 532 R, 532 S, 519

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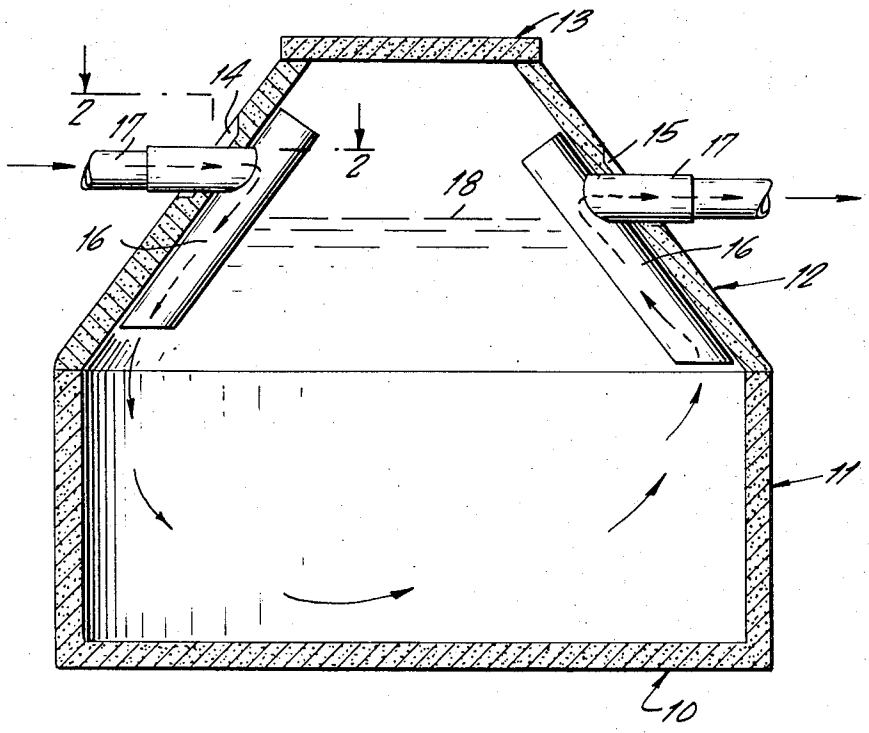
Primary Examiner—Charles N. Hart

Assistant Examiner—Robert H. Spitzer

[57] **ABSTRACT**

Septic tanks are described comprising a receptacle portion having an upstanding wall and a dome open at its top and supported on said wall. A removable slab covers the open end of the dome which is provided at opposite sides with baffled inlet and outlet means so constructed and arranged as to direct the sewage in an arcuate path from the inlet means to the outlet means while keeping turbulence to a minimum.

5 Claims, 6 Drawing Figures



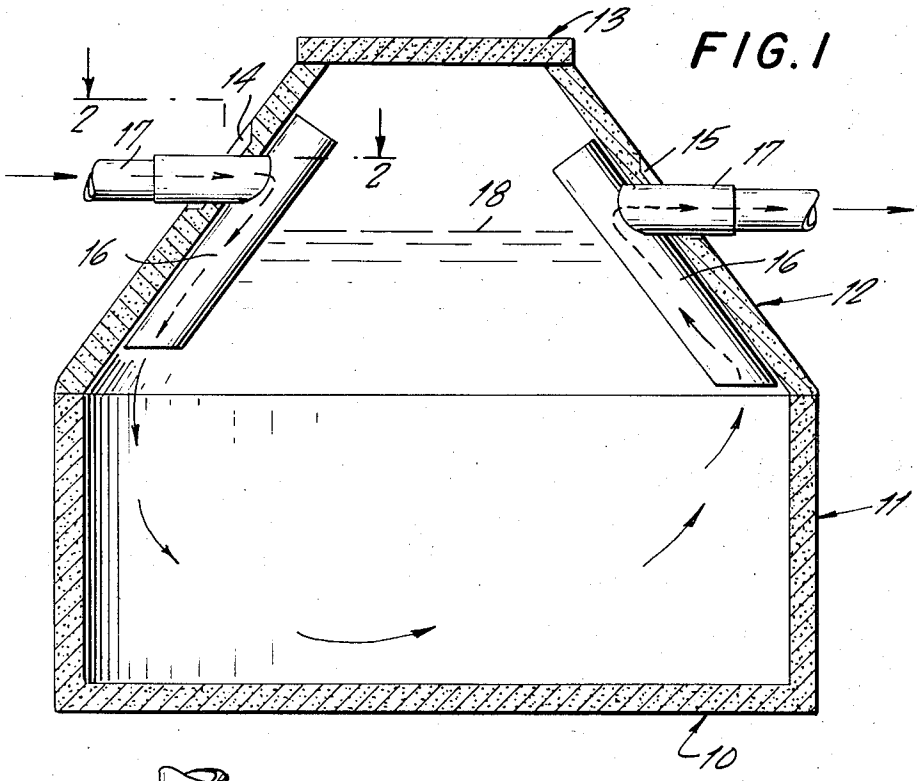


FIG. 1

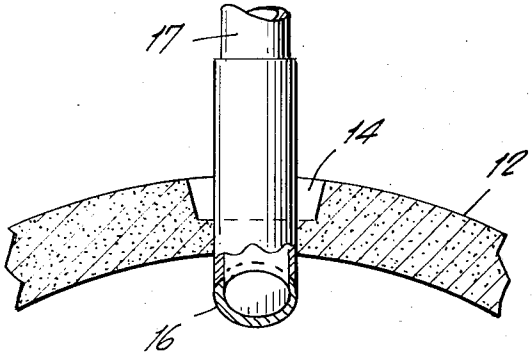


FIG. 2

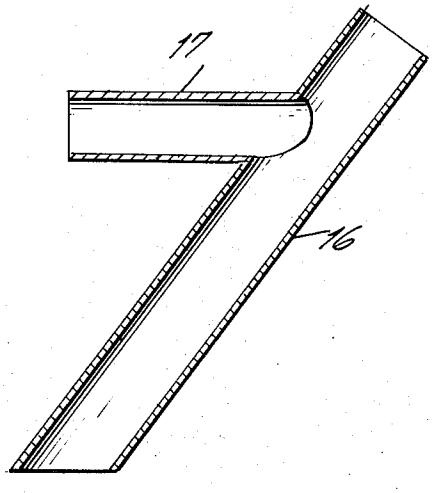
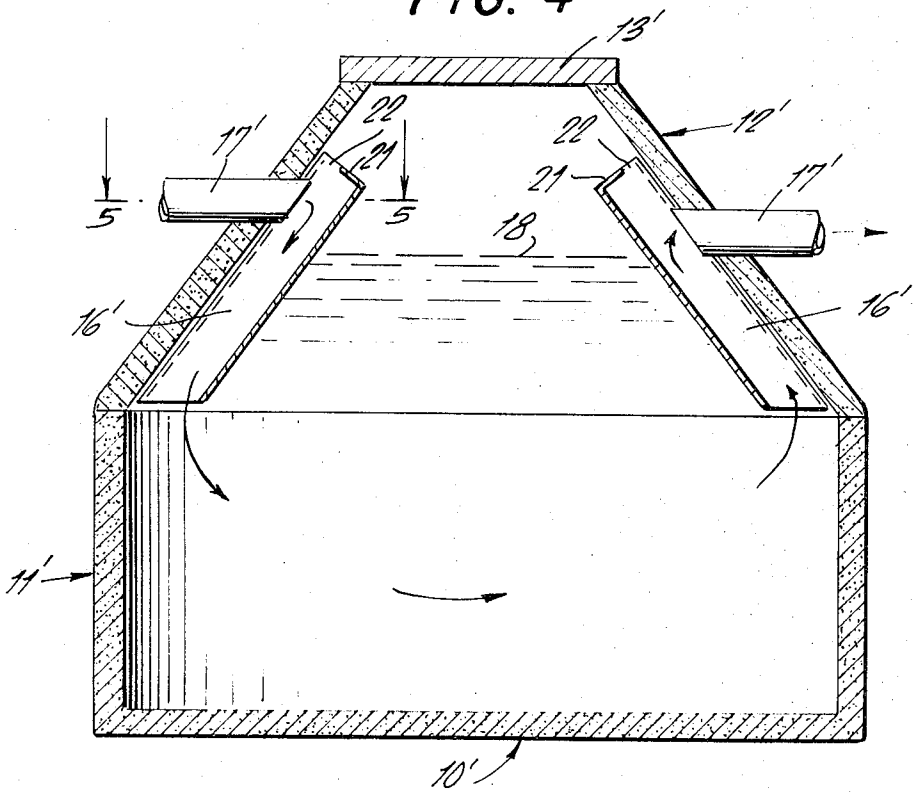


FIG. 3

FIG. 4



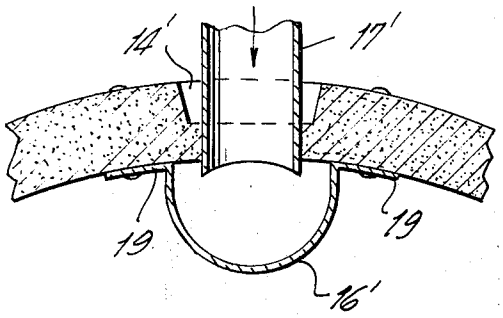


FIG. 5

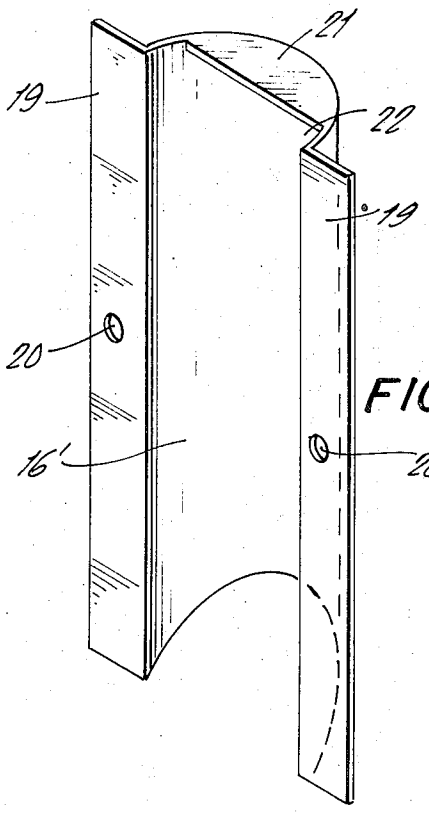


FIG. 6

SEPTIC TANK CONSTRUCTION

BACKGROUND OF THE INVENTION

Septic tanks are well known and widely used in many localities lacking municipal sewer systems. The construction and capacity of the septic tanks are required to meet specifications of the particular locality and to be approved by the local authority as to their size, construction and dependability. It has been customary to sink a septic tank into an excavation on the residential dwelling or commercial grounds wherein a septic tank, generally of precast concrete, is closed on the top by a flat slab which has one or more openings with a removable cover for inspection and cleaning.

Septic tanks customarily have an orthogonal inlet drop tee for the purpose of minimizing turbulence, and an orthogonal outlet drop tee for the purpose of preventing scum from entering the outlet pipe and clogging the leaching field or leaching pool. These orthogonal drop tees are located on opposite sides of the septic tank in order to obtain the maximum length flow path for sewage within the septic tank.

While various septic tank constructions have been proposed and used in the past which meet local requirements, it has been recognized that such are less than ideal particularly because the orthogonal drop tees are incompatible with a conical shaped dome top. If a conical shaped dome top were to be used and the inlet and outlet drop tees were placed below the dome top in order to maximize the length of the flow path, the volume capacity of the conical dome cannot be used, and the inlet and outlet tees would not be close to the access opening. If the orthogonal inlet and outlet tees were to be placed near the top of the dome to utilize the volume capacity of the dome, the flow path would be short.

THE PRESENT INVENTION

This invention comprises novel septic tank constructions having maximum capacity and excellent flow characteristics for sewage in a minimum of space while at the same time reducing or minimizing turbulence. The invention particularly comprises a septic tank having a receptacle portion with an upstanding wall, a conical dome supported by said wall and having an upper opening with a removable closure slab thereover and specially baffled inlet and outlet means for said dome which take advantage of the full capacity of the septic tank, provide a maximum length of flow path and reduce or minimize turbulence of the septic tank contents.

In the accompanying drawing:

FIG. 1 is a vertical sectional view through a septic tank according to the present invention showing the inlet and outlet means in elevation;

FIG. 2 is a sectional view partly in plan taken on line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken through the inlet means of FIG. 1;

FIG. 4 is a view similar to FIG. 1 of a modified form of the invention;

FIG. 5 is a sectional view taken on line 5—5 of FIG. 4; and

FIG. 6 is a perspective view of a flanged baffle of FIG. 4.

Referring first to FIGS. 1–3 of the drawing, the numeral 10 designates a receptacle portion of a septic tank having an upstanding wall 11 which is circular, rectangular or any other desired shape. The receptacle portion may be made of precast concrete or any other suitable material approved by the local authority where the same is to be installed such as fiberglass or other form of reinforced synthetic plastic material. Resting on and supported by said upstanding wall 11 is a conical dome 12 made of any of the materials just mentioned and it will be observed that dome 12 is open at its upper end and is provided with a closure slab 13 of precast concrete or other suitable material. Dome 12 is also provided with recesses 14 and 15 where the inlet and outlet means to be described are mounted. It is understood that any suitable fastening instrumentality (not illustrated) may be employed to hold the fittings in position. On opposite sides of dome 12 there are the Y-shaped fittings each of which has a hollow or tubular member 16 extending partway along the inside surface of the dome and a tubular pipe section 17 passing through the dome and intersecting the member 16 with which it communicates. Usually the Y-shaped fitting at the left in FIG. 1 is the inlet and the other Y-shaped fitting is the outlet as shown by the directional arrows. The hollow members 16 may be composed of tubing or piping of any suitable nature, but preferably of a composition which resists corrosion or a metal or alloy covered by an insulating material or the like which is corrosion resistant. The fittings can for example be made of stainless steel or other corrosion-resistant alloy or material. From the numeral 18 in FIG. 1 it will be seen that the liquid level in the septic tank is below the upper open ends of hollow members 16 and the inside diameters of the fittings are such that the rate of outflow as compared to the rate of inflow is such that the liquid level does not become excessively high. It will be clear also that upon removal of slab closure 13 ready access is given to the interior of the dome and the upper open ends of the hollow members 16 in the event that inspection or cleaning becomes necessary. From the directional arrows of FIG. 1 it will further be apparent that as sewage or other waste material enters through the inlet means it is directed downwardly in a path generally parallel to the inner surface of the dome and then follows the arcuate path shown by the directional arrows in receptacle portion 10 and then up through the outlet fitting to a desired point of discharge. In this way the incoming sewage or other waste material is given a path of maximum length for the size and capacity of the septic tank while at the same time reducing or minimizing turbulence and thereby expediting the treatment of the sewage or waste material.

The form of the invention shown in FIGS. 4–6 is essentially the same as that of FIGS. 1–3 as will be clear from the use of like numerals primed except that the hollow members 16′ are specially configured so that the same are approximately semicircular in cross-section with lateral flanges 19 and openings 20 therein for a fastening instrumentality and also each member 16′ has a semi-circular flange 21 at its upper end only and which is of less extent than the curvature of member 16′ so as to leave a space 22 which gives ready access to the interior of members 16′ for inspection and cleaning while at the same time the inturned flange 21 prevents splashing of sewage in an undesired direction. In other respects the form of the invention shown in

FIGS. 4–6 is identical with that already described and the same materials may be employed.

The members **16** and **16'**, particularly members **16'**, are baffles which prevent inrushing sewage or liquid waste from passing into the central part of the interior of the dome or receptacle and constrain influent to follow a path of travel shown by the directional arrows so that sewage passes relatively quiescently down along the direction of the dome surface. In the form of the invention shown in FIGS. **4** to **6** the members **16'** are more truly semi-cylindrical baffles as compared with tubes or pipes **16** and these baffles **16'** are particularly advantageously made of fiberglass. Other modifications may be made within the scope of the invention as will be appreciated.

What is claimed is:

1. A septic tank construction comprising a receptacle portion with an upstanding solid wall and a conical dome open at its top and supported on said wall, inlet means extending through the dome for the passage of sewage and having a baffle portion terminating above the receptacle portion and outlet means similar to the inlet means for receiving sewage at the end of its unobstructed arcuate flow path and directing it through said dome opposite said inlet means, and a removable slab on the dome opening, said inlet and outlet means each being a Y-shaped fitting having a hollow member extending along the inner surface of the dome and a tubular pipe section passing through the dome and intersecting the hollow member adjacent its upper end.

2. A septic tank construction according to claim **1**, wherein the hollow members extending along the inner surface of the dome are generally parallel thereto and are composed of fiberglass, the hollow member of the outlet means terminating at a level lower than the hollow member of the inlet means.

3. A septic tank construction according to claim **1**, wherein the hollow members extending along the inner surface of the dome are semi-circular in cross-section with lateral flanges for attachment to the dome and an anti-splash flange at the upper end of each member dimensioned to leave an access opening to the interior of the member through the top opening of the dome.

4. A septic tank construction according to claim **1**, wherein each of the inlet and outlet means has a semi-cylindrical fiberglass baffle secured to the inside surface of the conical dome and a hollow tubular member passing through the dome and intersecting the baffle.

5. A septic tank construction according to claim **4**, wherein the inlet and outlet means are disposed diametrically opposite one another and wherein the baffles extend from a point above normal liquid level during use to a point at approximately the base of the dome just above said upstanding wall.

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