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May 4, 1948. P. N. SITTON 2,440,762

CONCRETE SEPTIC TANK

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FIG. 1

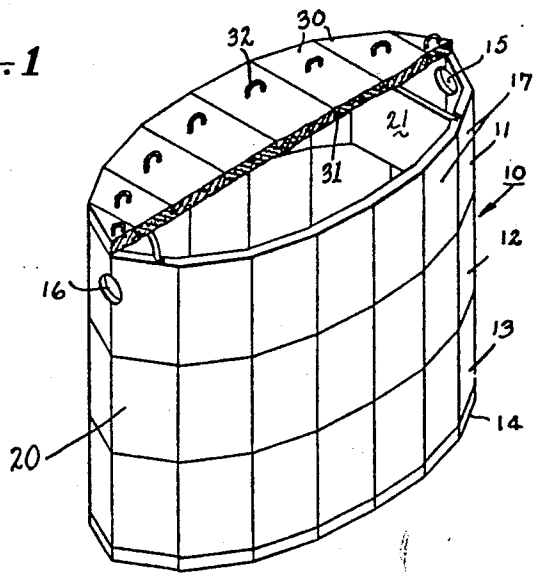
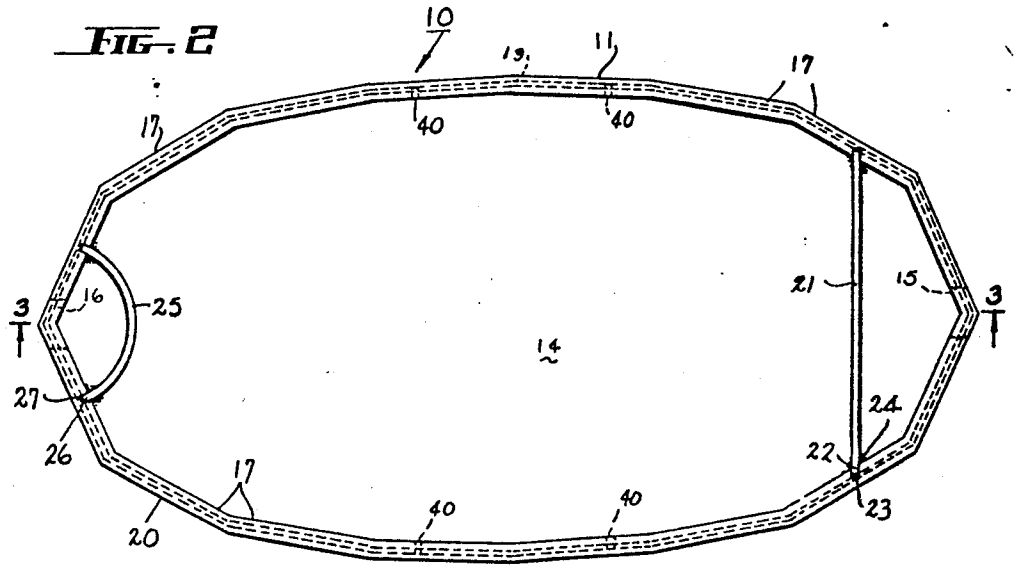


FIG. 2



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FIG. 3

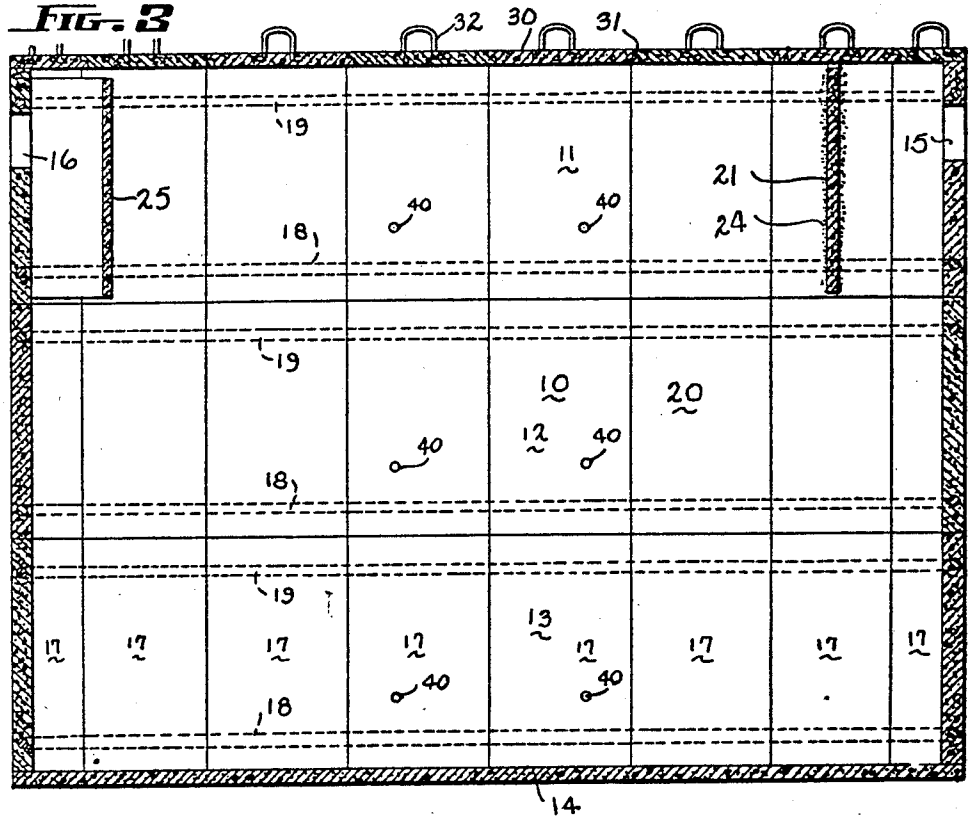


FIG. 4

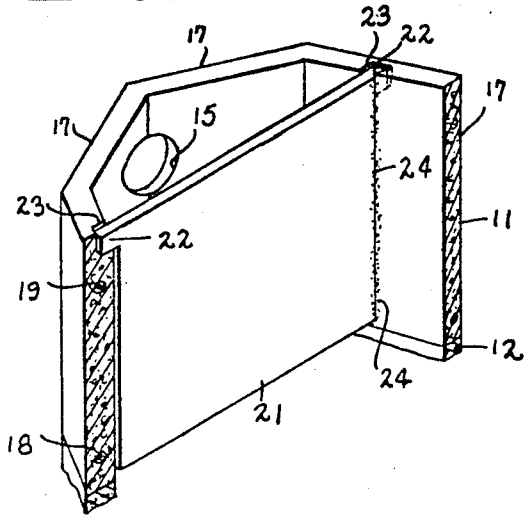
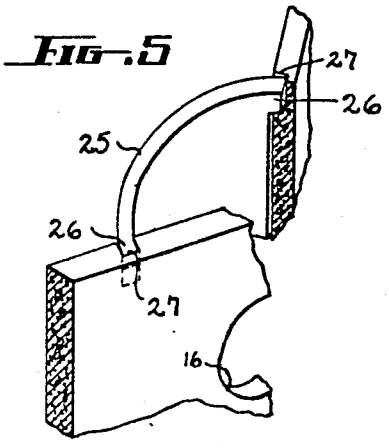


FIG. 5



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UNITED STATES PATENT OFFICE

2,440,762

CONCRETE SEPTIC TANK

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Application January 1, 1945, Serial No. 570,858

1 Claim. (Cl. 210—6)

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This invention relates to septic tanks. An object of the invention is to provide a cast concrete septic tank of an improved design.

Another object of the invention is to provide a cast concrete septic tank that can be cast in sections and assembled at the site of installation.

Still another object of the invention is to provide a cast concrete septic tank that is in the shape of a polygon having generally a conic section.

Still another object of the invention is to provide a cast concrete septic tank having a contour adapted to more favorably withstand ground pressure and changes in the ground pressure due to various changing conditions of the ground.

Still another object of the invention is to provide a cast concrete septic tank having concrete baffles that are suspended in position within the septic tank from the sidewalls of the tank.

Further objects and advantages will become apparent from the drawings and the following description:

In the drawings:

Figure 1 is a perspective elevational view of a concrete septic tank constructed in accordance with this invention.

Figure 2 is a plan view of the septic tank illustrated in Figure 1, but having the top cover removed therefrom.

Figure 3 is a vertical cross-sectional view taken along line 3—3 of Figure 2.

Figure 4 is a perspective view of a portion of the septic tank illustrating the manner in which the inlet baffle is suspended from the sidewalls of the tank.

Figure 5 is a perspective view of a portion of the tank illustrating the manner in which the outlet baffle is supported adjacent the outlet opening by the sidewalls of the tank.

In this invention the septic tank 10 consists of three principal sections 11, 12 and 13. Each section 11, 12 and 13 has the same general contour of the vertical sidewall illustrated in Figure 2, which may be referred to as a polygon having generally a conic section. It will be noted that the wall section is composed of a plurality of straight sidewall portions or chordal sections that form the polygon shape of the sections 11, 12 and 13, the reasons for which will be more fully described hereinafter.

The tank 10 has a base 14 upon which the section 13 is placed, the section 12 then being placed upon the section 13. The two sidewall sections 12 and 13 are identical in their construction, and

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give sufficient height to the septic tank 10 for providing the desired capacity.

The section 11 of the septic tank 10 is placed upon the section 12, and is provided with an inlet opening 15 and an outlet opening 16. In so far as the cross-sectional shape of the section 11 is concerned, it is identical with sections 12 and 13 so that in describing the section 11, that also incorporates other features, sections 12 and 13 will be covered sufficiently.

The wall section 11 of the septic tank 10 consists of a plurality of straight sidewall portions or chordal sections 17 that are contiguous with one another to form a unit structure. These sidewall portions or chordal sections 17 are arranged generally as a conic section, such as an ellipse, but in the form of a polygon in view of the many straight sides of the wall section.

The contour of the wall section 11, which is also the contour of the wall sections 12 and 13, has been found to be especially satisfactory in supporting ground pressure applied against the sidewalls of the septic tank 10. When a septic tank is installed underground, the ground applies considerable pressure upon the walls of the septic tank, and which pressure shifts from time to time due to varying conditions of the ground such as its water content or freezing and thawing conditions. When the septic tank is constructed in the form of a polygon having generally a conic section, the ground pressure is applied over a substantial area of any one of the sections of the polygon and normal to the face of the polygon. The ground pressure thereby tends to move the particular face of the polygon inwardly toward the center of the septic tank, but due to the invisible lines of separation between the sections of the polygon, the force moving the section of the polygon inwardly tends to spread the rest of the wall section so that the force is applied to the remaining wall section normal to the face of the section of the polygon to which the ground force is applied. The force of the ground force is therefore distributed annularly around the wall section of the septic tank. It has been found that the distribution of force obtained by the particular construction of the wall section of the septic tank of this invention is superior to the distribution of the force of the ground pressure that may be obtained in the septic tank having a true arcuate contour, because in a septic tank having a true arcuate contour the ground pressure applied normal to the surface of the arcuate contour concentrates the force toward the axis of the arc, thereby reducing the maximum

pressure of which the septic tank is capable of withstanding. This is in contra-distinction to the distribution of the ground pressure as obtained by the construction of the septic tank of this invention.

As noted in Figure 2, the shape of the septic tank is generally in the form of an ellipse, in the nature of a polygon, so that the inlet opening 15 is positioned a substantial distance from the outlet opening 16 thereby giving the incoming waste matter a relatively large distance to travel to the outlet opening 16 and permitting settling of the waste matter in the tank. This arrangement is superior to a circular tank of equal capacity because of the increased flow travel distance between the inlet and outlet openings, the flow of material taking the shortest path between the inlet and outlet in any septic tank.

The sections 11, 12 and 13 of the septic tank 10 each have the reinforcing rods 18 and 19 extending around the wall of the section adjacent the top and bottom edges thereof. These reinforcing rods are preferably shaped to the contour of the wall section to provide a continuous reinforcement annularly around the wall section.

The wall sections 11, 12 and 13 of the septic tank 10 form the sidewall 20 of the tank 10.

A baffle plate 21 is provided between opposite sidewalls of the tank 10 adjacent the inlet opening 15 to deflect incoming matter to the bottom of the septic tank 10. This baffle 21 is constructed of concrete and is provided with the ears 22 that rest within the recesses 23 formed in opposite sidewalls of the section 11 of the tank 10. Suitable grouting 24 may seal between the edge of the baffle 21 and the sidewall portions or chordal section of the section 11 when the baffle is installed in position in the tank. An arcuately-shaped baffle 25 is provided adjacent the outlet opening 16 to prevent a direct flow of material from the inlet into the outlet of the tank. This baffle 25 is similarly suspended from the sidewall portions or chordal section of the section 11 by means of the ears 26 in the upper edges thereof that are placed within the recesses 27 provided in the wall of the section 11.

A top cover is provided for the tank 10 and consists of a plurality of individual flat sections 30 that are provided with a lap joint connection 31. The top sections 30 are provided with hooks 32 that may be used for placing the sections in place upon the top edge of the wall section 11 to close the septic tank 10.

From the foregoing description, it will be apparent that the septic tank of this invention is relatively easy to install because it is made in sections that are placed directly one upon the other in the process of assembly, and the baffle plates can be installed after the tank is in position in the ground. Each of the sections 11, 12 and 13 has small recessed holes 40 provided in opposite walls thereof in which suitable hooks or rods may be placed for carrying or raising or lowering the sections during the installation and handling of the sections of the septic tank.

While the device of this invention disclosed and described herein constitutes a preferred form of the invention, yet it will be understood that it is capable of mechanical alteration without departing from the spirit of the invention, and that all modifications that fall within the scope of the appended claims are intended to be included herein.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

A septic tank comprising, a bottom wall, side wall means forming a generally elliptical hollow body with a length substantially twice that of the width thereof and comprising a plurality of joined flat chordal sections, the said side wall means cooperating with said bottom wall to form a tank, inlet and outlet openings in said side wall adjacent the upper edge thereof and positioned in substantially the end extremities of the elliptical body, baffle means extending transversely across said elliptical body adjacent said inlet opening and forming with said side wall means a chamber expanding outwardly in the direction of flow of material into the septic tank, baffle means adjacent said outlet opening, and a cover for closing the tank formed by said side walls and bottom wall, said septic tank having inner walls which are entirely unobstructed except for said baffle means at the ends of the tank, the angles of juncture of the inner walls of the chordal sections forming corners whose angles increase from each end of the tank toward the center thereof, and the angles of the inner walls made by the chords adjacent the center being slightly less than 180°, the opposite ends of each of said baffles being anchored into the sides of a pair of opposite confronting chordal sections.

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