May 22, 1951 H. A. VAN ORMAN ET AL 2,553,885

SEPTIC TANK CONSTRUCTION

Filed April 6, 1949 3 Sheets-Sheet 1

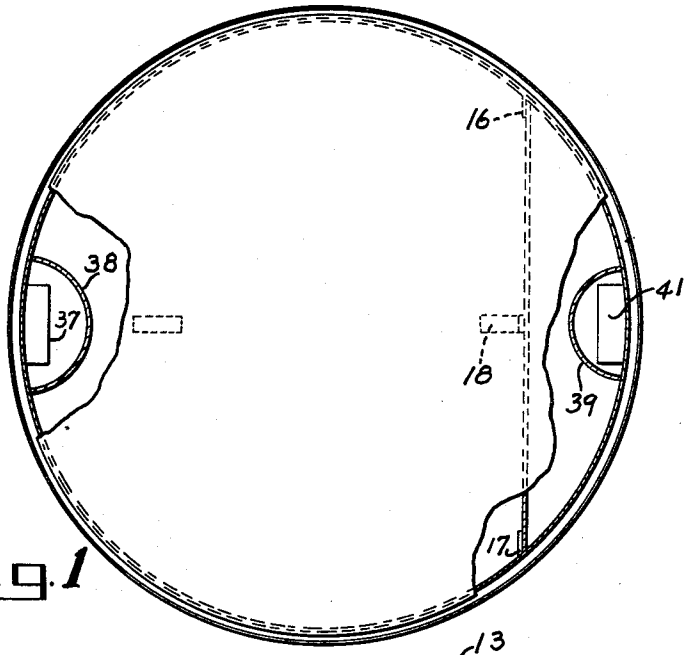


Fig. 1

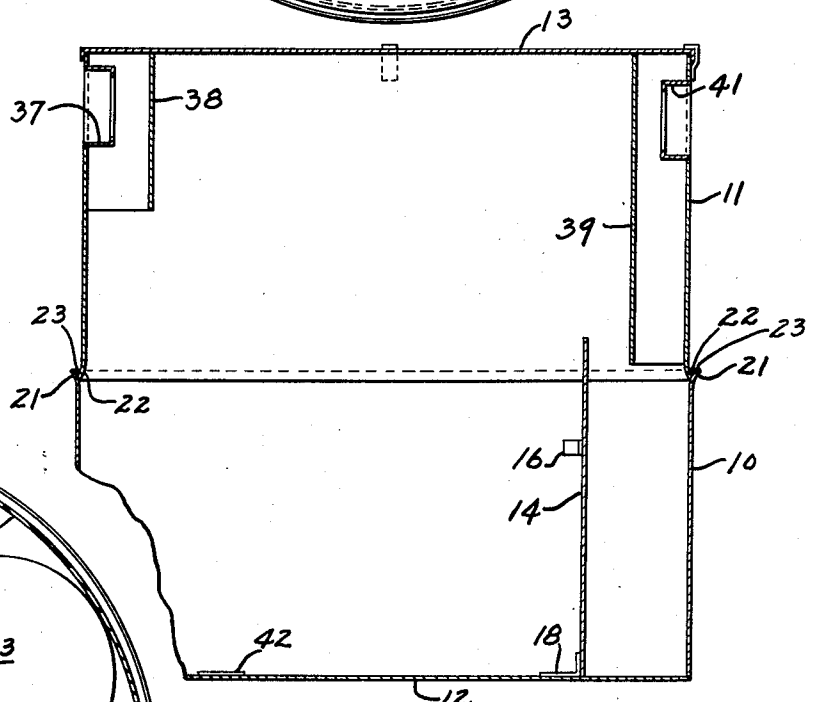


Fig. 2

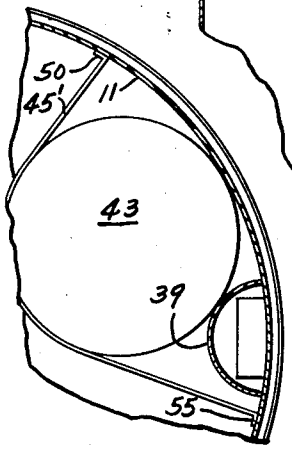


Fig. 13

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Filed April 6, 1949 3 Sheets-Sheet 2

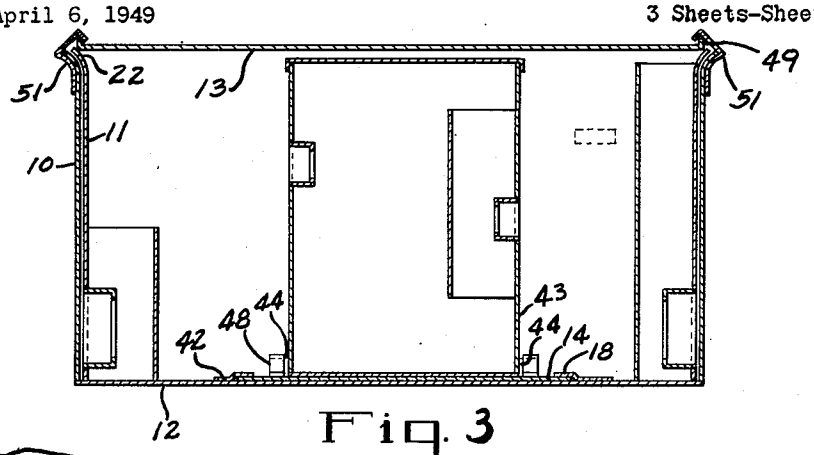


Fig. 3

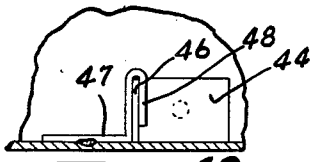


Fig. 12

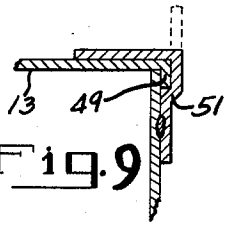


Fig. 9

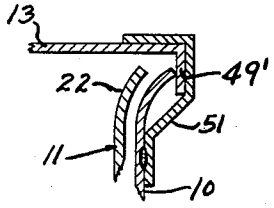


Fig. 10

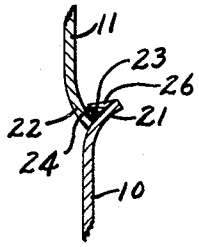


Fig. 4

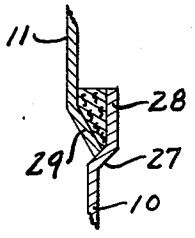


Fig. 5

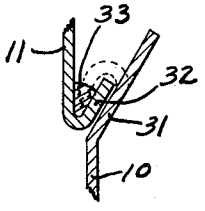


Fig. 6

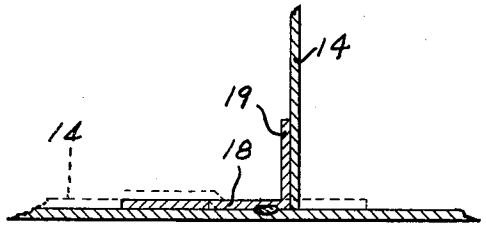


Fig. 11

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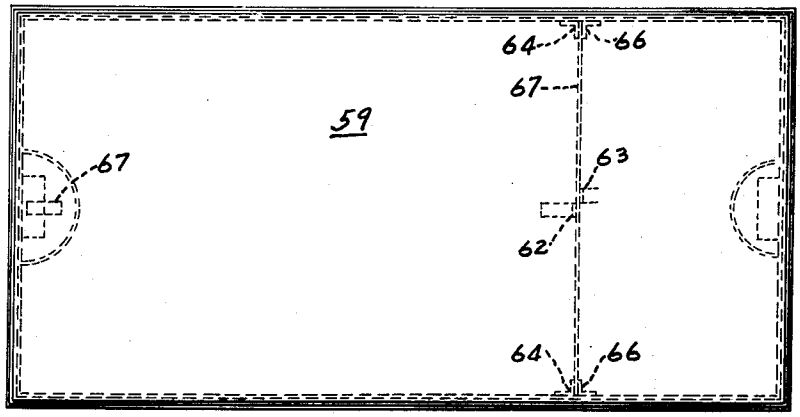


Fig. 14

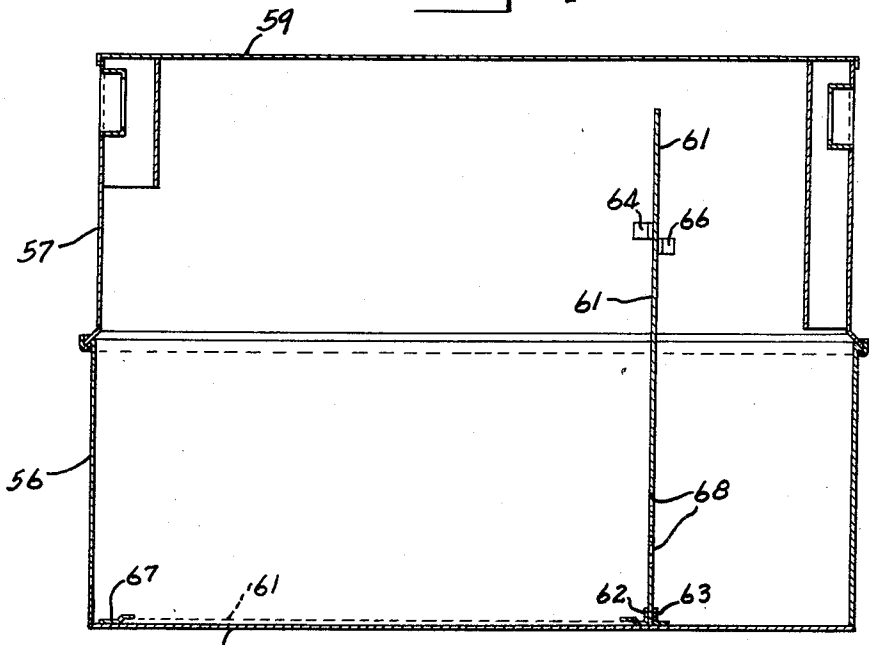


Fig. 15

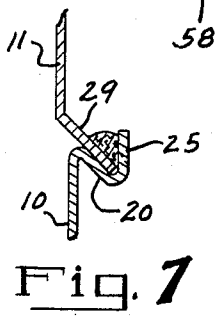


Fig. 7

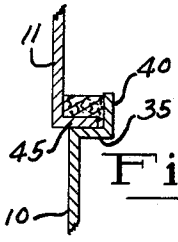


Fig. 8

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UNITED STATES PATENT OFFICE

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SEPTIC TANK CONSTRUCTION

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Application April 6, 1949, Serial No. 85,912

3 Claims. (Cl. 210—6)

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This invention relates to metal septic tanks for the disposal of sewage, and has for its principal object to provide such a tank which shall be constructed in sections capable of being nested together and occupy a relatively small space in storage and shipping, and which may be readily assembled and installed.

A still further object of our invention is to provide a sectional septic tank wherein the sections are adapted to be nested and occupy little space in storage and shipping and which shall include a simple, fluid tight joint between the sections.

Another object of our invention is to provide a sectional septic tank which shall include at least one removable baffle and in which the sections may be nested together for shipping with the baffle removed from its operating position, together with means to hold the sections and baffle against shifting during shipment, and to hold the baffle in position after assembly.

As is well known in the art to which our invention relates, assembled tanks are bulky to handle and of low weight relative to size. These characteristics present difficulties in manufacture and in storage and shipping, and subject them to a high freight rate. We have found by making such tanks in sections with the sections adapted to nest together, that economies in manufacture, storage and handling are obtained as well and, due to a lower freight rate thus obtained, material savings in freight costs are realized. In order to adapt the sections for nesting, we make them of progressively lesser lateral dimensions, and provide a readily sealed joint between the sections when assembled for use. One or more of the baffles may be made removable, and improved means are provided for holding them in position when knocked down for shipping and when assembled for use. In addition, we provide means in such knockdown assemblies to nest the usual grease trap in the tank sections, and thus further reduce the expense of storage and shipping.

Articles embodying features of our invention are illustrated in the accompanying drawings, forming a part of this application, in which:

Fig. 1 is a plan view, partly in section, of a cylindrical septic tank;

Fig. 2 is a vertical sectional view thereof showing the tank sections assembled for use;

Fig. 3 is a vertical sectional view showing the upper section of the tank inverted and nested in the lower section for storage and shipping, and also with a grease trap nested in the upper section and retained in place for shipping;

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Figs. 4 to 8 inclusive are detail sectional views showing various forms of joints which we may employ between the sections;

Fig. 9 is a detail sectional view showing means for retaining the cover in place when the sections are assembled for use;

Fig. 10 is a detail sectional view showing a modified cover and means for retaining it in place when the sections are nested for storage and shipping;

Fig. 11 is a detail sectional view showing the retaining means for the removable baffle;

Fig. 12 is a detail sectional view showing one form of retaining means for the grease trap when nested in the tank for shipping;

Fig. 13 is a detail plan view showing another form of anchoring means for the grease trap in the nested sections;

Fig. 14 is a plan view of a rectangular septic tank made in accordance with our invention; and,

Fig. 15 is a vertical sectional view of the tank shown in Fig. 14.

Referring now to the drawings for a better understanding of our invention, we show in Figs. 1 and 2 a cylindrical septic tank comprised of a lower section 10 and an upper section 11. The lower section 10 is provided with a bottom 12 and the upper section 11 is provided with a removable cover 13. Mounted in the lower section 10 is a removable baffle 14 which extends across one side of the lower section, as shown in Fig. 1 of the drawing, and which is held in place by means of lateral metal clips 16 and 17 and a lower metal clip 18. As best shown in Fig. 11, the metal clips 16, 17 and 18 are preferably spot welded to the sides and bottom, respectively, of the tank so as to leave the ends free for bending to engage the baffle 14 and hold it in position when the tank is in use. The lower section 10 of the tank is provided with an outwardly and upwardly turned upper edge 21, such as shown in Figs. 2 and 4, or other to be described hereinafter.

The upper section 11 of the tank is similar to the lower section 10 except that it is of lesser diameter whereby, with the cover 13 and the baffle 14 removed, it may be inverted to fit snugly within the lower section 10 as shown in Fig. 3 of the drawing. The upper section 11 is provided with a lower, outwardly turned edge 22, slightly less in diameter than the outturned edge 21 of the lower section 10, which fits within the outturned edge 21 of the lower section, as shown more clearly in Fig. 4, thereby providing

a sealing groove 23 which extends all around the tank. This groove is filled with a suitable sealing material 24, for example, a bituminous material such as asphalt, or tar, to provide a tight joint. As the joint is sealed, as shown in Fig. 4, the upper edge of the outwardly flared rim 21 may be bent over the outwardly turned edge 22 as shown at 26 in a plurality of places, to retain the sections against accidental displacement.

Instead of the form of joint shown in Fig. 4, we may provide the upper edge of the section 10 with an outwardly flared portion 27 followed by a straight vertical portion 28 as shown in Fig. 5, and provide the lower edge of the upper section 11 with an outwardly flared portion 29 which bears against the outwardly flared portion 27 of the lower section 10. Such arrangement provides a deeper packing groove and aids in assembling the sections in proper position.

Still another form of joint between the sections, which we may employ, is shown in Fig. 6 of the drawing, in which the upper section 11 is provided with an upwardly turned over flange 32 forming a groove 33. The lower section 10 is provided with an outwardly flaring portion 31 which, when the sections are assembled for use and the sealing material placed in the groove, is bent over as indicated in dotted lines to engage the groove 33.

Yet another form of joint is shown in Fig. 7 of the drawing in which the upper edge of the lower section 10 is formed with an outturned portion 20 which is bent slightly downwardly, as shown, and then upwards at 25 forming a groove extending around the section for receiving the outwardly flared portion 29 of the upper section 11. It will be seen with this form of joint, that when the upper section 11 is fitted over the section 10 as indicated in Fig. 7, there is a greater resistance to the crushing action of the earth when the tank is installed in the ground.

Yet another form of joint between the sections is shown in Fig. 8 of the drawing in which we show the lower section 10 provided with an outturned horizontal portion 35 followed by an upturned vertical portion 40. The upper section 11 is provided with an outturned flange 45 which rests on the horizontal, outturned portion 35 of the section 10. With the form shown either in Fig. 7 or Fig. 8, the upwardly turned portion of the joint may be bent over, as indicated in dotted lines to prevent accidental displacement of the sections. Also, it will be understood that the groove formed by the joint may be filled with sealing material as hereinbefore described.

Sewage is introduced into the upper section 11 of the tank through an inlet connection 37 and is directed downwardly by the usual inlet baffle 38. Liquid flows over the baffle 14 and out under the usual outlet baffle 39 and outlet 41 to the soil disposal area, as is well understood.

In Fig. 3 of the drawing we show the manner in which we nest the sections of our improved tank for storage and shipping. It will be noted that the section 11 is inverted from the position shown in Fig. 2 of the drawing and is inserted within the section 10, the diameter of the section 11 being sufficiently less than that of the section 10 for it to fit snugly within the section 10. The baffle 14 is laid down flat in the bottom of the section 10 and is held against shifting by having one end of the clip 18 bent down over it and by means of a clip 42 at the opposite end, spot welded as shown to the bottom 12 of the section 10 and bent down over the baffle 14 as shown. In Fig. 3, we also show a conventional grease trap 43 which may be nested within the section 11 and rests on the baffle 14. The grease trap may be held in this position against shifting by means of clips 44, a suitable number of which are welded to the sides of the grease trap at the bottom and have a portion 46 extending radially outwardly therefrom. Cooperating clips 47 are welded to the baffle 14 and have a portion 48 which hooks over the radially extending portion 46 of the clip 44 to hold the grease trap in place as shown in Fig. 12. It is contemplated that these clips will be of relatively heavy gauge metal which can be bent over with hand tools when the articles are packed for shipment.

Instead of the means shown in Figs. 3 and 12 for anchoring the grease trap against shifting, we may place the grease trap 43 in the position indicated in Fig. 13 of the drawing, at one side of the nested sections, where it can bear against the baffle 38 and the side of the upper section. A metal strap 45' may extend around the trap as shown, and be fastened to the sides of the tank section at 50 and 55 in order to anchor the trap against shifting.

The cover 13, in the form shown in Figs. 1 and 2, is inverted as shown in Fig. 3 with its rim 49 turned up. It is held in place for shipping by means of clips 51, a suitable number of which are welded to the sides of the lower section 10 and are bent over to the position shown in Fig. 3 when the tank is packed for shipment or storage. The cover 13 and the sections 10 and 11 are thus held against relative displacement. When the tank is assembled for use, the clips 51 are bent over the rim 49 and the cover 13 to hold it in place as shown in Figs. 2 and 9.

In Fig. 10 we show another modification in which the cover 13' is made larger in diameter than the largest diameter of the lower section 10. In such case, the rim 49' of the cover is turned down to fit over the outer diameter of the lower section 10. The lid is held in place, and the nested sections thus held against relative displacement, by means of the clips 51 which pass upwardly over the lid as hereinbefore described. While we have shown, for the purpose of illustration, a minimum number of retaining clips, it will be understood that, in every instance where retaining clips are shown that a suitable number will be employed to hold the parts in assembled relation.

In Figs. 14 and 15 we show a modified form of our invention in which the tank is made rectangular in shape, rather than cylindrical, as shown in Figs. 1 to 3 inclusive. The tank comprises a lower rectangular section 56, and an upper rectangular section 57, the lateral dimensions of the upper section being such that it may be inverted and nested within the section 56, forming therewith a relatively snug fit. The lower section 56 is provided with a bottom 58 and the upper section 57 is provided with a removable top 59. A relatively high vertical baffle 61 is mounted in the sections 56 and 57 and is held in place when assembled, as shown in Fig. 15 by means of lower clips 62 and 63 on the opposite sides thereof and upper clips 64 and 66 which are welded to the sides of the section 57 and which bear against the opposite sides of the baffle 61. When the tank is packaged for shipment, the baffle 61 is turned to the dotted position shown in Fig. 15 and is held in place against shifting by

means of clips 67 and 62. The baffle 61 may be perforated as required, as shown at 68, as is well understood in septic tank construction.

In this modification of our invention, we prefer to employ the form of joint between the sections that is shown in detail in Fig. 7 of the drawing due to the flat sides of the tank which are more subject to bending and relative displacement than the cylindrical form shown in Figs. 1 to 3. In all other respects our improved tank follows conventional septic tank design and requires no detailed description. The upper section 57 is of such lateral dimensions that it may be inverted and nested in the lower section for shipping and storage and the cover 59 secured as already described for the cylindrical tank.

While we have described our septic tank as embodying an upper section adapted to nest in a lower section, it will be apparent that the upper section of either the cylindrical or rectangular tank may be made the larger, and the lower section be nested in the upper. It will also be apparent that the construction is not limited to two sections, but may comprise three or more sections of progressively smaller diameters, whereby to telescope, or nest, one within the other. From the foregoing, it will be apparent that we have devised an improved tank construction which is simple of design, economical of manufacture, and one which may be packaged for handling and shipping in a small space and thereby greatly reduce the freight rates applicable to its shipment.

While we have shown our invention in several forms, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various other changes and modifications, without departing from the spirit thereof, and we desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What we claim is:

1. In a septic tank, a lower section, an upper section similar to the lower section but having an inlet and an outlet and having slightly smaller lateral dimensions whereby when inverted it is adapted to nest within the lower section for shipping and storage, a removable baffle member in the lower section, and a clip member welded to the bottom and adapted to have one end bent upwardly to bear against the baffle and hold it in operating position when assembled and to be bent downwardly to engage and hold the baffle against shifting when lying flat on the bottom in shipping and storage.

2. In a septic tank having an inlet and an outlet, a lower section having a bottom, an upper section similar to the lower section but having slightly smaller lateral dimensions whereby when inverted it is adapted to nest within the lower section for shipping and storage, a removable baffle member in the lower section, a clip member welded to the bottom and adapted to have one end bent upwardly to bear against the baffle and hold it in operating position when assembled and to have one end bent over to engage and hold the baffle against shifting when lying flat on the bottom in shipping and storage, a removable cover for the upper section adapted to cover both sections when they are nested, and means to hold the cover and the sections in nested relation.

3. In a sectional septic tank having an inlet and an outlet, upper and lower similar sections with one section of slightly lesser lateral dimensions than the other whereby to invert and nest it in the other section for shipping and storage, a removable vertical baffle in the lower section adapted to lie flat on the bottom of said section for shipping and storage, metal clips welded to the bottom of the lower section each having one end free for bending over the baffle, at least one of said clips also having one end free for bending upwardly to retain the baffle in position when the tank is assembled for use.

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HARRY H. HENDON.

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