

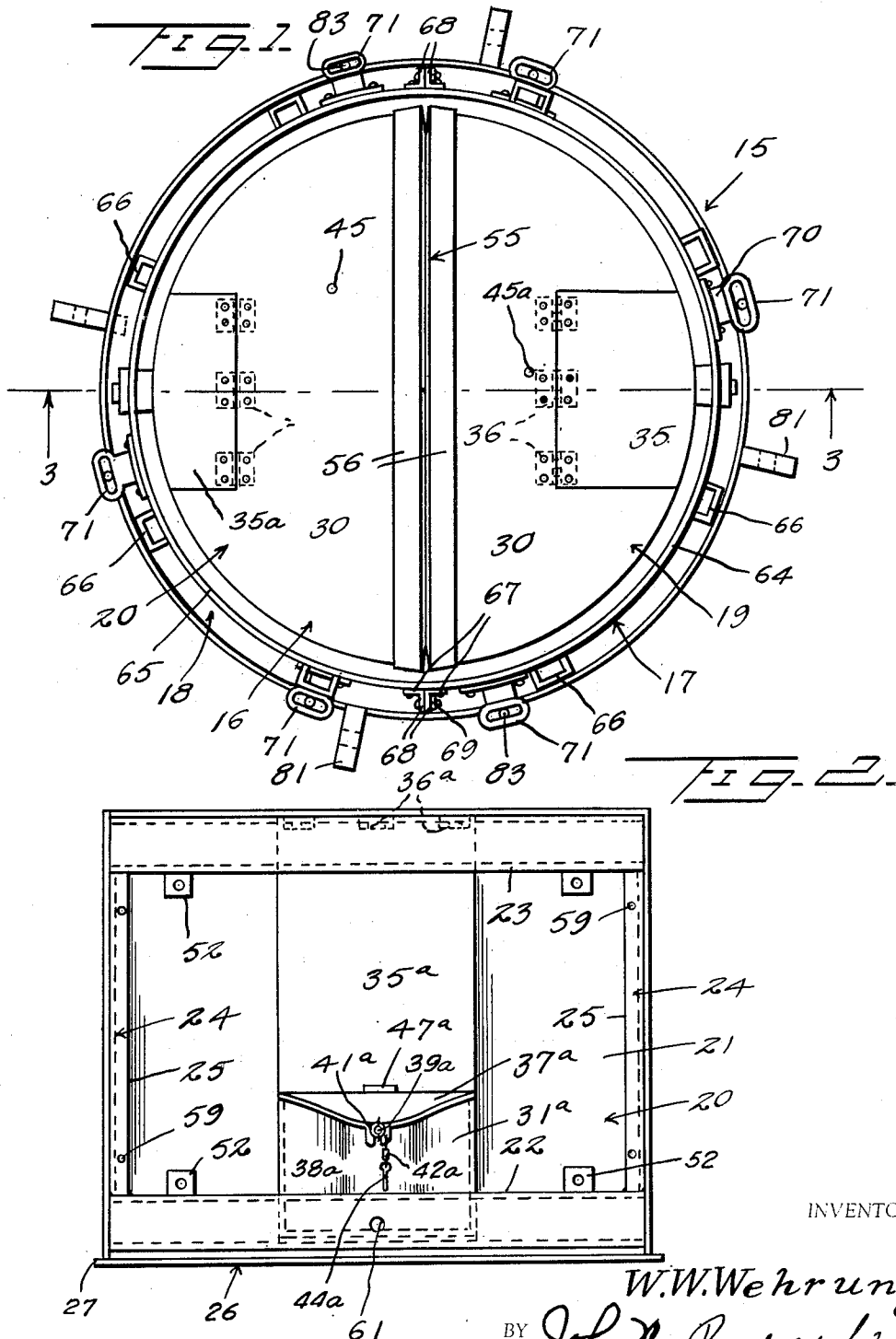
Jan. 15, 1957

W. W. WEHRUNG
FORM FOR CASTING TANKS

2,777,185

Filed May 25, 1953

4 Sheets-Sheet 1



INVENTOR

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Jan. 15, 1957

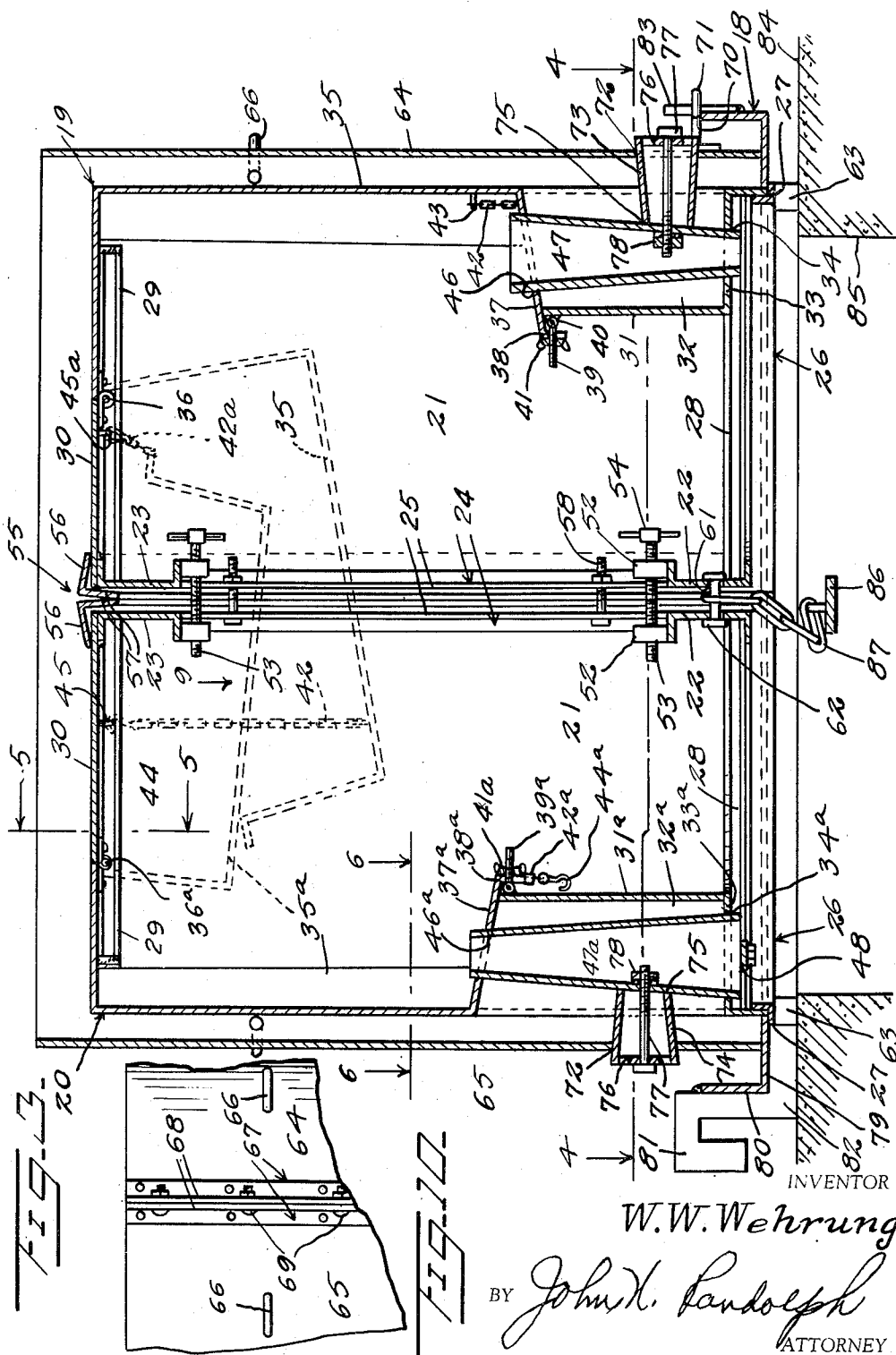
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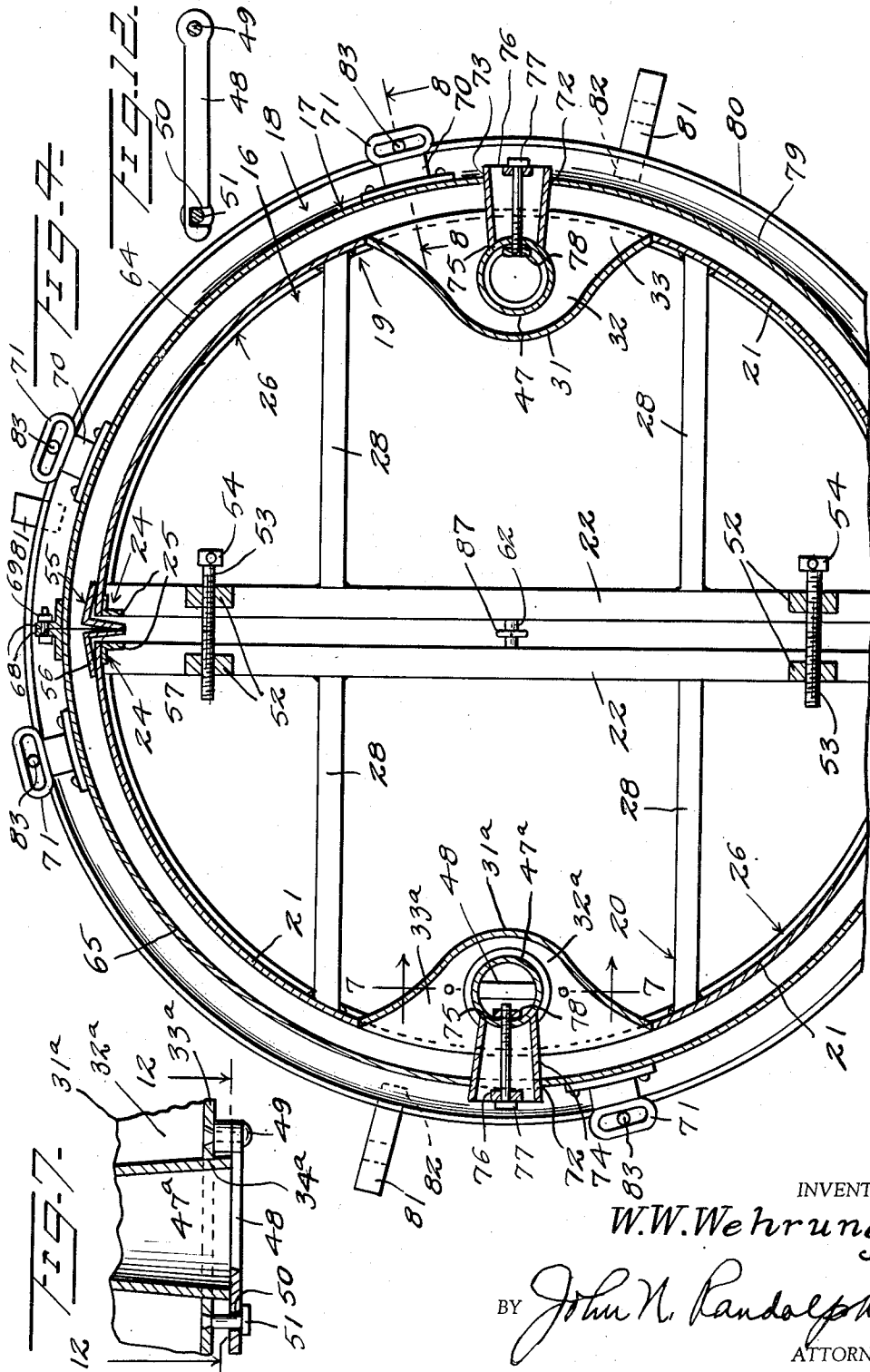
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Fig. 11

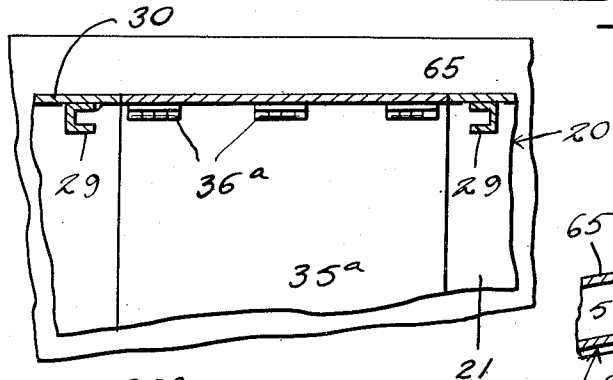
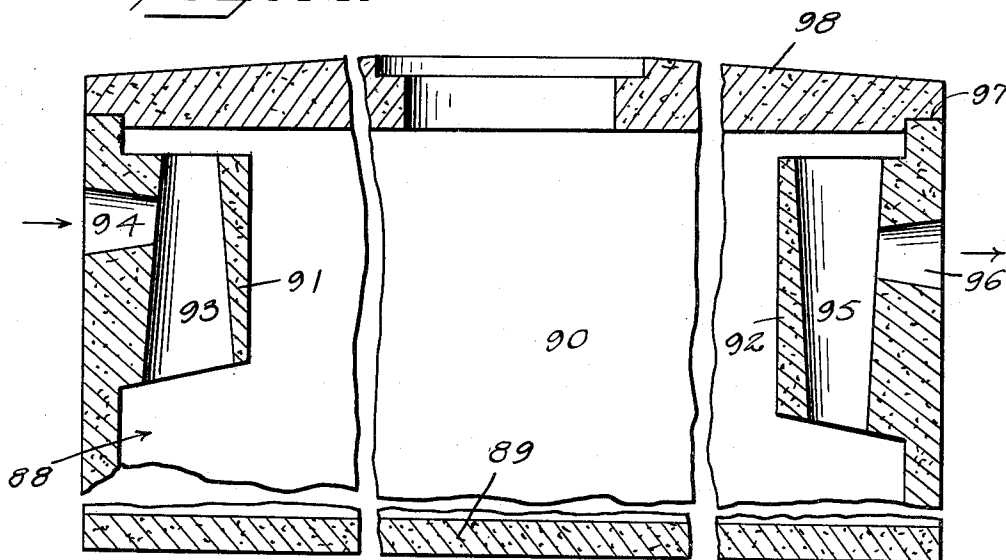


Fig. 5

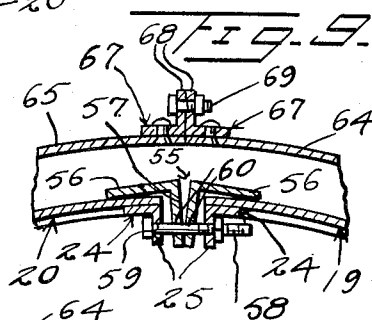


Fig. 9

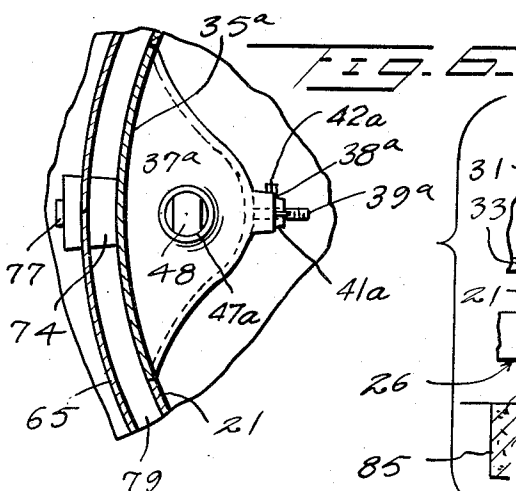


Fig. 6

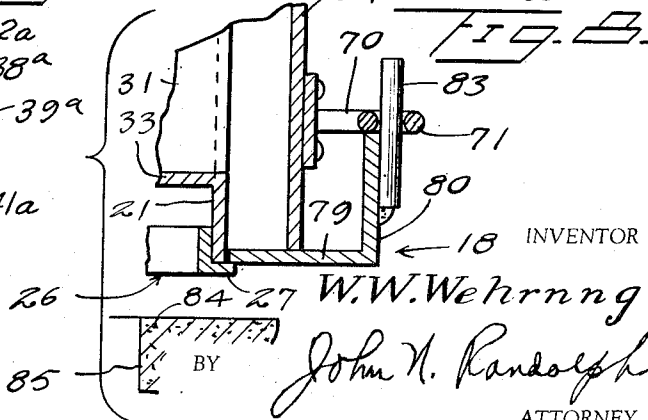


Fig. 2

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2,777,185

FORM FOR CASTING TANKS

Woodrow W. Wehrung, Ottsville, Pa.

Application May 25, 1953, Serial No. 357,008

2 Claims. (Cl. 25—124)

This invention relates to a novel form for casting tanks or similar receptacles and has for its primary object to provide a structure whereby septic tanks may be readily cast from concrete or the like; however, the apparatus are likewise readily adapted for producing tanks and receptacles for numerous other purposes.

Another and particularly important object of the present invention is to provide an apparatus whereby receptacles or tanks are cast in an inverted position which greatly facilitates the pouring and casting operations and materially simplifies the problem of removing the cast tank or receptacle from the form.

A further object of the invention is to provide a form having an extensible and retractable inner section to facilitate removal of the cast tank therefrom.

Another object of the invention is to provide a form having an inner part including adjustable portions movable to positions to provide clearances for the cast internally disposed integral inlet and outlet baffles in removing the tank from the inner part of the form.

Numerous other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a top plan view of the assembled form;

Figure 2 is a side elevational view looking toward the inner side of one section of the inner part or core of the form;

Figure 3 is an enlarged vertical sectional view of the form taken substantially along a plane as indicated by the line 3—3 of Figure 1;

Figure 4 is a horizontal sectional view taken substantially along a plane as indicated by the line 4—4 of Figure 3;

Figure 5 is a fragmentary vertical sectional view taken substantially along a plane as indicated by the line 5—5 of Figure 3;

Figure 6 is a fragmentary horizontal sectional view taken substantially along a plane as indicated by the line 6—6 of Figure 3;

Figure 7 is a fragmentary vertical sectional view on an enlarged scale, taken substantially along a plane as indicated by the line 7—7 of Figure 4;

Figure 8 is an enlarged fragmentary vertical sectional view taken substantially along a plane as indicated by the line 8—8 of Figure 4;

Figure 9 is an enlarged fragmentary horizontal sectional view taken substantially along a plane as indicated by the line 9—9 of Figure 3;

Figure 10 is a fragmentary side elevational view showing connected portions of the two outer form sections;

Figure 11 is a fragmentary vertical sectional view of the upper portion of a septic tank cast in the form and after removal therefrom, and

Figure 12 is a horizontal sectional view taken substantially along a plane as indicated by the line 12—12 of Figure 7.

Referring more specifically to the drawings, the novel

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tank or receptacle casting mold in its entirety and comprising the invention is designated generally 15 and generally includes an inner form part or core 16, an outer form part or shell 17 and a pallet 18.

The inner form part or core 16 is substantially cylindrical, as illustrated in Figure 4, and has an open bottom and a closed top, as illustrated in Figure 3. The core 16 is formed of substantially semicylindrical half sections 19 and 20 each including a side wall 21 defining substantially a half of a cylinder and a semicircular top wall 30. Each core section 19 and 20 is reinforced by a bottom channel member 22 which extends across the lower part thereof and is secured at its end to portions of the side edges of the wall 21. Each core section also includes a similar top channel member 23 which likewise extends across the open side of the section and is secured to portions of the side edges of the wall 21 and to the underside of the top wall 30 adjacent the inner edge thereof. The channel members 22 and 23 open inwardly of the core section of which they form a part. Each of the core sections is provided with angle members 24 which are secured to and extend along the side edges of the wall 21 thereof between the channel members 22 and 23. As seen in Figure 4, said angle members 24 provide inwardly extending substantially parallel spaced flanges disposed in the planes of the side edges of the walls 21 and designated 25. A substantially semicircular angular base member 26 is secured around the inner side of the bottom portion of each wall 21 and has an outwardly extending bottom flange 27 projecting outwardly from beneath the bottom edge of said wall 21, as best seen in Figures 3 and 8. The bottom part of each core section is braced by a pair of brace members 28 which extend between the wall 21 and the bottom channel member 22 and which may be formed of channel iron or angle iron. Likewise, the upper part of each core section is braced by two similar brace members 29 which extend between the upper portion of the wall 21 and the upper channel member 23 and which are additionally secured to and brace the top wall 30.

The wall 21 of the core section 19 near its bottom edge but spaced therefrom is provided with an arcuate inwardly extending wall portion 31 defining an outwardly opening baffle forming recess 32. The bottom of the recess 32 is closed by a bottom wall 33, secured to a portion of the wall 21 and to the bottom edge of the wall portion 31, and which is provided with a restricted opening 34. The wall 21, above the recess 32, and a portion of the top wall 30 of the core section 19 are cut away to provide a door or hinged closure 35 which is swingably connected at the upper inner edge thereof by hinges 36 to the top wall 30 for swinging movement from a closed position, as illustrated in full lines of Figure 3, inwardly and upwardly to an open position, as illustrated in dotted lines of Figure 3. The bottom, free end of the closure or door 35 terminates in a downwardly and inwardly extending flange forming a top wall 37 of the recess 32, where the closure 35 is in a closed position, and which rests on the downwardly and inwardly inclined upper edge of the wall portion 31. Said recess top wall 37 at its inner free edge is provided with a downwardly extending lip 38 which is bifurcated to open downwardly and which receives a bolt 39 that is pivoted at 40 to the wall portion 31 for vertical swinging movement and which carries a wing nut 41 which may be tightened against the lip 38 to retain the closure 35 in its closed position. By loosening the wing nut 41, the bolt 39 will swing downwardly out of engagement with the lip 38 so that the closure 35 may be swung upwardly and inwardly to its open position. A relatively long chain or other flexible member 42 is fastened by an eye 43 to

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the inner side of the closure 35 and has a hook 44 at the free end thereof which detachably engages an eye 45, secured to and depending from the top wall 30 of the section 20, for releasably supporting the closure 35 in its open dotted line position of Figure 3. The flange 37 is provided with an opening 46, larger than the opening 34 in which the upper portion of a downwardly tapered tube 47 is seated. The restricted lower end of the tube 47 is seated in the opening 34 and said tube extends through the recess 32 and is spaced from the wall portion 31, as illustrated in Figures 3 and 4.

The side wall 21 of the core section 20 and the top wall 30 are cut out to provide a closure 35a, similar to the closure 35 but wherein the horizontal and vertical portions are of lesser length, as seen in Figure 3. Likewise, said wall 21 is provided with a recess portion 31a, similar to the recess portion 31 of the core section 19 and disposed directly opposite thereto and midway between the side edges of the wall 21. The wall portion 31a extends preferably to slightly above the level of the wall portion 31 to form an outlet baffle recess 32a having a bottom wall 33a, similar to the wall 33 but provided with a relatively large opening 34a. The closure 35a is swingably mounted by hinges 36a in the same manner as the closure 35 and at its lower end is provided with an inwardly and downwardly extending flange 37a for closing the upper end of the recess 32a and which has a depending bifurcated lip 38a at its inner end. A bolt 39a is pivotally mounted on the wall portion 31a in the same manner as the bolt 39 and has a wing nut 41a which functions therewith in the same manner and for the same purpose as the bolt 39 and wing nut 41, to releasably retain the closure 35a in its full line closed position of Figure 3. A short chain or flexible member 42a is fastened to the closure 35a and has a hook 44a at its free end to engage an eye 45a, which depends from the top wall 30 of the core section 19 to support the closure 35a in an open raised position as illustrated in dotted lines of Figure 3, above and within the open closure 35. The flange or top wall 37a is provided with an opening 46a, which is smaller than the opening 34a. An upwardly tapered tube 47a extends through the recess 32a and is seated adjacent its upper restricted end in the opening 46a and adjacent its lower enlarged end in the opening 34a. A supporting bar 48, as best seen in Figures 7 and 12, is pivotally supported at one end thereof by a headed fastening 49 which depends from the bottom wall 33a for swinging movement of said bar 48 therebeneath and in a plane parallel to the bottom 33a. The bar 48a is swingable into a position to engage the enlarged lower end of the tube 47a and when so disposed, has a notched free end 50 which engages the shank of a headed fastening or hanger 51 which depends from the wall 33a and the head of which supports the free end of the bar 48 so that said bar can in turn support the tube 47a. The bar 48 may be swung about its pivot 49 out of engagement with the enlarged end of the tube 47a so that said tube may be tapped at its upper end and displaced downwardly out of engagement with the walls 37a and 33a to remove the tube from the recess 32a.

Threaded apertured lugs 52 are fixed to and project from the adjacent flanges of the channel members 22 and 23, near the ends of said channel members. The aligned lugs 52 of the core sections 19 and 20 receive the oppositely threaded ends of connecting bolts 53 which may be turned in one direction manually by the handle members 54 thereof for displacing the core sections 19 and 20 away from one another to expand the core 16, or which may be turned in the opposite direction for drawing the core sections toward one another to retract the core. A gap closing member 55 is disposed over the gap between the adjacent edges of the side walls 21 and the top wall 30 and includes flanges 56 which overlie said adjacent edges and bear on said walls and inwardly ex-

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tending converging flanges 57 which extend into the gaps between said walls. Supporting bolts or pins 58 extend loosely through aligned openings 59 of the flanges 25 of the core sections 19 and 20 and loosely through openings 60 of the flanges 57 for supporting the gap closing member 55 and to permit the core sections to slide toward and away from one another relatively to said gap closing member. The bottom channel members 22, intermediate of their ends, are provided with aligned openings 61 for loosely receiving a double headed pin 62 which slidably engages said openings for sliding movement of the core sections toward and away from one another relatively to said pin. The flanges 27 of the bottom angle members 26 are provided with spaced depending blocks forming foot members 63.

The outer form or shell 17 comprises substantially semicylindrical shell sections 64 and 65, each of which is provided with a plurality of handles 66 which are circumferentially spaced and preferably located near the upper edges of said shell sections. Angle members 67 are secured to the outer sides of the shell sections adjacent the vertical edges thereof and have outwardly projecting apertured flanges 68 for receiving fastenings such as nuts and bolts 69 by which the shell sections are detachably connected to form a cylinder. Each shell section adjacent to but spaced from its bottom edge is provided with a plurality of circumferentially spaced outwardly projecting brackets 70 which are fixed thereto and each of which is provided at its outer end with an elongated loop 71, the axis of which is disposed concentric to the semicylindrical shell wall.

The shell sections 64 and 65, intermediate of their ends and near their bottom edges, are provided with openings 72 to receive tapered passage forming members 73 and 74 which extend inwardly therethrough and which are provided with concavely arced inner ends 75 which seat flush against portions of the tubes 47 and 47a, respectively. The members 73 and 74 each have a crossbar 76 extending across the enlarged outer end thereof through which the shank of a headed bolt 77 loosely extends. The tubes 47 and 47a are provided with internal bosses 78 which are internally threaded and which open outwardly of said tubes for threadedly receiving the bolts 77. The pallet 18 is of L-shaped cross section including an annular bottom 79 and an upstanding annular outer wall 80 which rises from the outer edge of the bottom 79. A plurality of hook members 81 are suitably secured to the outer side of the wall 80 and are arranged to open downwardly. Each hook member 81 has a foot portion 82 extending downwardly from the pallet 18. A plurality of pins 83 are fixed to and extend upwardly from the outer side of the pallet wall 80 and fit the loops 71 to permit the shell sections 64 and 65 to be turned circumferentially relatively to the pallet 18 and core 16 but to prevent radial movement of the shell sections toward or away from the core and the pallet wall 80.

The core 16 is disposed with its foot members 63 resting on a supporting surface 84, preferably around a pit 85, as illustrated in Figure 3. The core 16 is expanded as previously described and will appear as illustrated in Figures 3 and 4. A bar or anchor member 86 extends across and is anchored in the pit 85 and a flexible member such as a chain 87 of a relatively short length is anchored to the member 86 and is connected to the pin 62. The pallet 18 is then applied over the expanded core 16 with the inner edge of the pallet bottom 79 resting on the outwardly extending flange 27 and with the foot members 82 resting on the supporting surface 84. The shell sections 64 and 65 are then applied around the core 16 with the loops 71 engaging the pins 83 and said shell sections are connected by the fastenings 69 and are supported by engagement on the pallet bottom 79 and in spaced substantially concentric relationship to the core sections 19 and 20. The members 73 and 74 are then

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inserted inwardly through the openings 72 and secured to the tubes 47 and 47a, as previously described. The thus assembled form 15 is illustrated in Figure 1 and in full lines of Figure 3 and it will be noted that the outer shell 17 extends upwardly to above the level of the top wall 30 of the core section. Concrete is then poured into the open top of the shell 17 to fill the space between the shell and core including the recesses 32 and 32a around the tubes 47 and 47a. The shell is filled with the concrete to above the level of the core top wall 30 and to beneath and adjacent the level of the upper edge of the shell 17. After the concrete is set to form an inverted tank, the fastenings 77 are removed to permit removal of the members 73 and 74 after which the fastenings 69 are removed so that the shell sections 64 and 65 may be grasped by the handles 66 and removed from the pallet 18 and the cast tank. An operator can enter or partially enter the interior of the core 16 from the pit 85 and by tapping on the lower end of the tube 47 can remove said tube upwardly from the walls 33 and 37. The supporting bar 48 is swung out of engagement with the lower end of the tube 47a so that this tube may be tapped downwardly and removed from the walls 37a and 34a. The bolts 53 are then turned to draw the core sections toward one another and out of engagement with the cast tank. The operator then loosens the nuts 41 and 41a to allow the bolts 39 and 39a to swing downwardly out of engagement with the bifurcated lips 38 and 38a. The closure 35a is then swung inwardly and upwardly by the operator and the hook 44a is engaged with the eye 45a, after which the other closure 35 is swung upwardly and inwardly and suspended by its chain 42, as illustrated in dotted lines in Figure 3. Any suitable hoist means, not shown, is then connected to the pallet hooks 81 and by exerting an upward pull thereon, the pallet and the cast tank supported thereby can be raised upwardly and out of engagement with the core 16. The closures 35 and 35a in their open positions afford clearances through which the tank portions molded in the recesses 32 and 32a may pass upwardly from the core 16. It will thus be seen that a concrete tank may be cast in one operation in an inverted position in the form 15 and readily removed therefrom and when turned over it will appear as illustrated in Figure 11. In removing the cast tank 88, as previously described, the core tethering member 87 allows the core to be rocked slightly in any direction to maintain the core in alignment with the direction of pull on the hooks 81 so that should the pull not be in a direct vertical line, the tank 88 will not bind but will still be capable of being drawn readily off of the retracted core 16.

The cast tank 88 after removal from the core 16 and pallet 18 and after it has been inverted to a normal position includes a bottom 89 which is cast above the core top 30, a cylindrical side wall 90, which is cast between the core 16 and shell 17, an inlet baffle 91 cast in the recess 32, and an outlet baffle 92 which is cast in the recess 32a. The downwardly tapered tube 47 forms a downwardly tapered inlet passage 93 of the baffle 91 and the member 73 forms the inlet port 94 which opens into the baffle passage 93 and outwardly of the wall 90. The upwardly tapered tube 47a forms a downwardly tapered outlet baffle passage 95 and the member 74 forms the outlet port of the baffle 92, designated 96, which opens into the passage 95 and outwardly of the tank wall 90. The baffles 91 and 92 are spaced from the open end 97

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of the tank 88 which is cast by the pallet bottom 79 so that the underside of a separately cast tank cover 98 when supported on the open top 97 of the tank will have its underside spaced from the upper ends of the baffle passages 93 and 95.

It will thus be seen that the form 15 provides a novel method and means for casting a tank in a single operation and wherein a septic tank having inlet and outlet baffles may be thus cast in a single operation in an inverted position from concrete or other similar materials.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A mold of the character described comprising a core including a top wall and a side wall, a pallet removably disposed around the lower end of said core, a shell supported on said pallet around the core and extending to above the upper end of the core and spaced outwardly from the side wall thereof to define a space between the core and shell and above the core in which a tank or receptacle is adapted to be cast in an inverted position, said core having oppositely disposed outwardly opening recessed portions formed in the side wall thereof in which internal portions of the tank are adapted to be cast integrally with a side wall of the tank, and said core having hinged wall portions disposed above said recessed portions and swingable upwardly and inwardly to provide clearance openings in the core above the cavities formed by said recessed portions.

2. A mold of the character described comprising a core having a side wall, a top wall and an open bottom, a pallet detachably disposed around a bottom portion of said core, a shell removably mounted on said pallet and disposed concentrically around and spaced outwardly from the core and extending upwardly to above the top wall of the core and having an open upper end, and means for contracting the core out of engagement with a tank or receptacle cast between the core and shell to facilitate removal of the cast receptacle with the pallet off of the core after removal of the shell, the side wall of said core having outwardly opening recesses, bore forming members extending vertically through said recesses and detachably mounted therein, said core having swingably mounted wall portions disposed above said recesses and swingable inwardly of the core to define passages above the recesses through which receptacle portions molded in said recesses may pass as the cast receptacle is elevated and removed from the core on the pallet.

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