W. E. THOMAS AND W. L. FURR.

KNOCKDOWN REINFORCED CONCRETE TANK.

APPLICATION FILED SEPT. 11, 1919.

1,334,192.

Patented Mar. 16, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

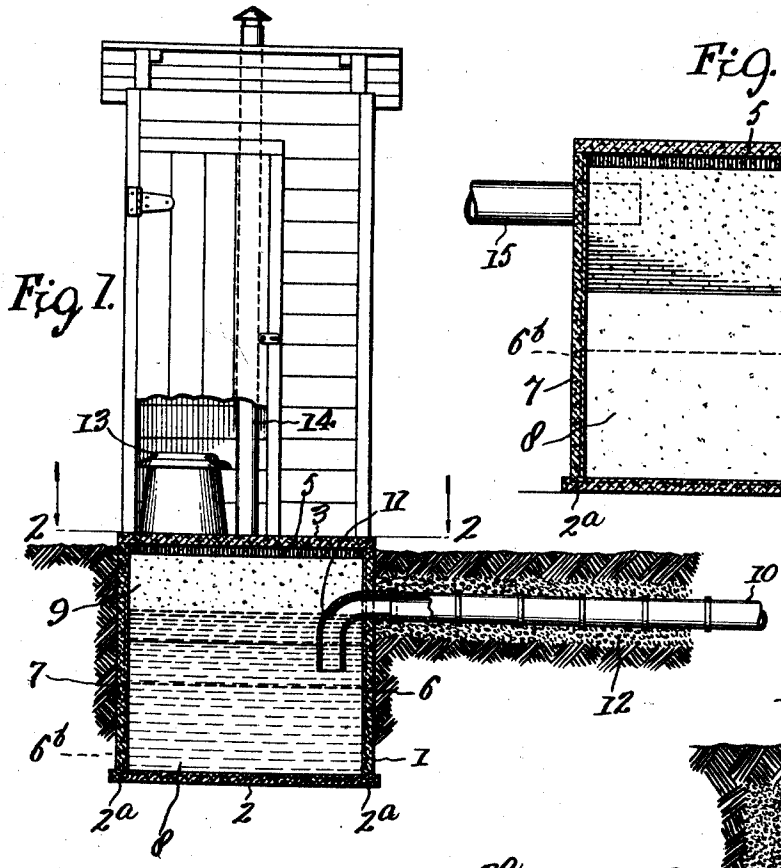


Fig. 6.

Fig. 7.

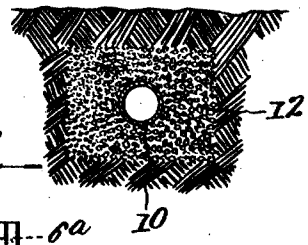
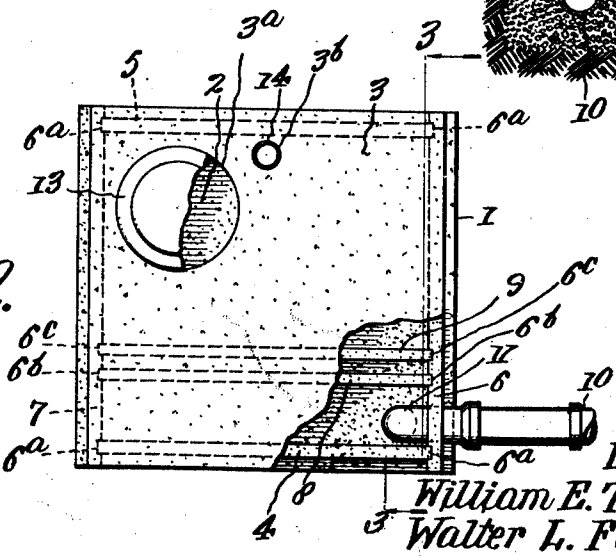


Fig. 2.



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2 SHEETS—SHEET 2.

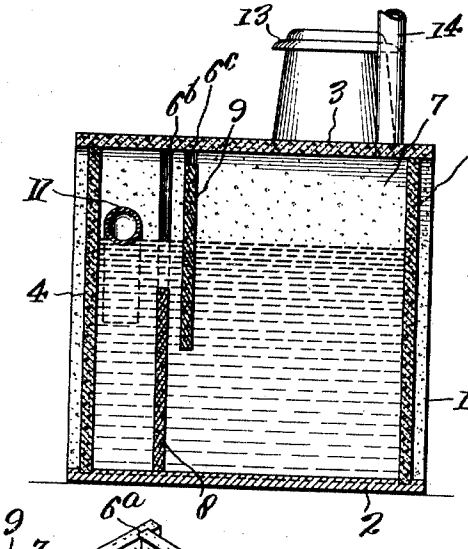


Fig. 3.

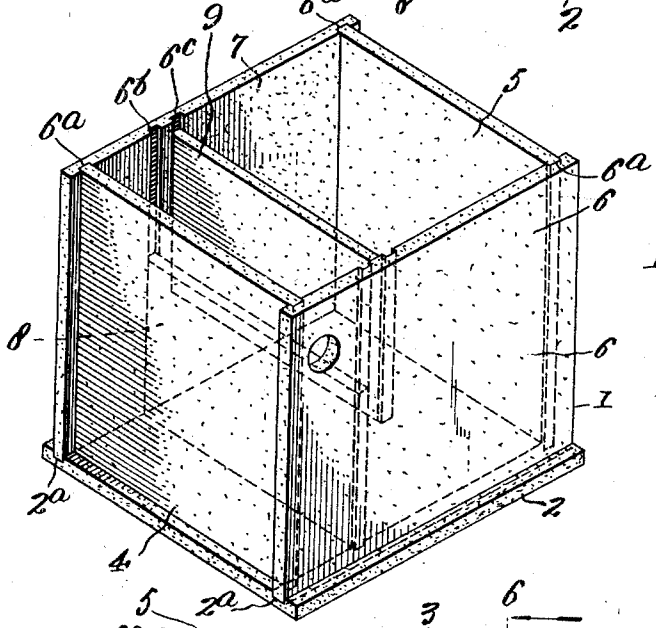


Fig. 4.

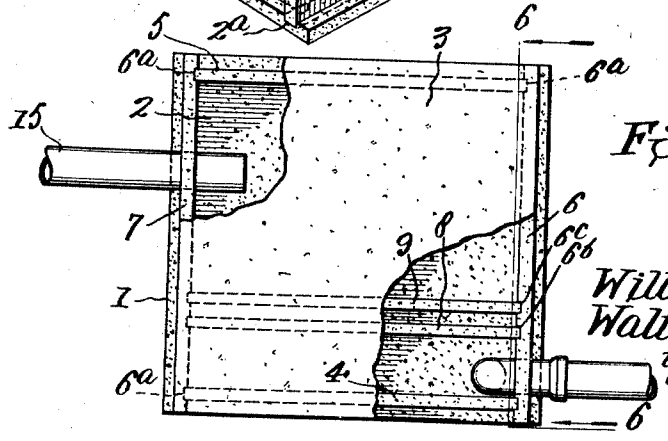


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM EDWARD THOMAS AND WALTER L. FURR, OF CHARLOTTE, NORTH CAROLINA.

KNOCKDOWN REINFORCED-CONCRETE TANK.

1,334,192. Specification of Letters Patent. Patented Mar. 16, 1920.

Application filed September 11, 1919. Serial No. 323,149.

To all whom it may concern:

Be it known that we, WILLIAM EDWARD THOMAS and WALTER L. FURR, citizens of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Improvements in Knockdown Reinforced-Concrete Tanks; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in septic tanks intended for use with sanitary tank closets or privies and sanitary sewage disposal outfits adapted for use in localities not provided with the city sewerage systems.

Various apparatuses of this kind have been devised in which are provided tanks which are not likely to become stopped up, may be of extra large capacity and may be simple and inexpensive, with nothing to get out of order. In such apparatus the bacterial action decomposes the sewage, and a few buckets of water weekly carry away the residue. There are no chemicals to buy, and no expense after first cost. These apparatuses are odorless in operation, and require no complete cleaning out if small quantities of scum and sludge are removed at long intervals, which may be anywhere from one to five years.

Our invention relates more especially to the provision of a knock-down reinforced, concrete, cement tank, which may be conveniently manufactured in slab-like sections and may be set up above the ground, or preferably submerged in the ground, and which will last for an indefinite period without being injured by the acids or other corrosive chemicals generated within or supplied to the same, and which will not become impregnated with offensive matter subject to decomposition within the tank. Our invention will be more fully understood after reference to the accompanying drawings, in which like parts are indicated by similar reference symbols throughout the several views, and in which:—

Figure 1 shows the tank used in connection with an outdoor closet, parts of the closet being broken away and the tank being shown in section.

Fig. 2 shows a section along the line 2—2 of Fig. 1, and looking in the direction of the arrows.

Fig. 3 shows a section through the tank along the line 3—3 of Fig. 2, and looking in the direction of the arrows.

Fig. 4 is a perspective view of the tank as set up before the top is applied or before the initial charge of water and other bacteria-forming material is added.

Fig. 5 shows the tank used as a sewage disposal outfit in connection with an individual house sewerage system, using running water, the parts being broken away; and

Fig. 6 shows a section along the line 6—6 of Fig. 5, and looking in the direction of the arrows.

Referring first to Figs. 1 to 4, the tank 1 is shown as composed of a series of separate slabs of reinforced concrete, which when assembled form a closed tank or chamber comprising the bottom slab 2, the top slab or cover 3, the end slabs 4 and 5, and the side slabs 6 and 7; the whole forming a closed rectangular box.

The bottom slab 2 is preferably provided with grooves 2^a to receive the lower ends of the side slabs 6 and 7, and these side slabs are provided with vertical grooves 6^a to receive the ends of the end slabs 4 and 5. The side slabs are also provided near one end with grooves 6^b extending to the bottom to permit the dropping in of the lower baffle plate 8, and with grooves 6^c extending part of the way down only to provide for the dropping in of the upper baffle plate 9. These baffle plates should also be made of reinforced concrete.

The cover may be left plain on the bottom, as shown in Fig. 3, or it may be provided with similar grooves to register with the tops of the side and end slabs hereinbefore referred to.

These various slabs constituting the tank may be shipped in the knock-down condition, piled one upon another like so many boards, and thus the pieces may be stowed in a compact state in shipment or in storage, and the pieces may be handled separately, thus avoiding the necessity of transporting or handling large, bulky and heavy packages in a single piece.

After the parts are assembled, the joints of the tank should be made liquid and gas tight in any convenient way, as by luting the cracks with a mixture of cement and water, and preferably the entire interior of the

tank should be treated with a cement wash before the top is applied, thus rendering the concrete less porous and absorptive.

In place of the cement mixture herein referred to, any suitable water-proofing material may be used in making the joints tight; but it will be obvious that any small leaks will soon clog up especially if the tanks be sunk in the ground, which is the preferred construction.

It will be seen that the baffle plates 8 and 9 separate the tank into two chambers, the larger chamber adapted to receive the waste matter, and the smaller chamber adapted to carry off the more or less clear water which is formed from the decomposition of the material in the larger chamber. The water from the smaller chamber is carried off by a suitable waste pipe 10, which should dip down beneath the level of the water, as at 11. This pipe and the crooked elbow 11 may be made of galvanized iron, earthenware, reinforced concrete, or other suitable material. This pipe may be led through a bed of cinders 12, or other suitable absorbing material, the water trickling through open joints in the pipe and being absorbed in the cinders or other porous material.

When used for an outdoor closet, the cover 3 should be provided with an opening 3^a for the seat 13, and with an opening 3^b for the vent pipe 14.

When the tank is used as a reservoir for a sewage disposal outfit to receive the sewage from one or more houses, the cover may be made imperforate, as shown in Figs. 5 and 6, and a drain pipe 15 from the sewerage system of the house or houses may be supplied, opening into the larger chamber of the tank 1.

It will be seen that we provide a knock-down tank made of concrete, composed of a series of slabs which may be handled separately and shipped or stowed in compact form, and which, when set up, provides a practically indestructible receptacle which may be used without danger of clogging up, or the need of any repairs whatever for an indefinite period; and the interior of which may be readily reached by removing the cover whenever it is desired for any purpose to inspect or cleanse out the interior or to remove the contents therefrom.

The receptacle is substantially non-porous and may be made absolutely water-tight without any danger from corrosion as occurs with metal tanks, more espectially iron tanks, or without danger of leakage which is likely to occur with tanks made of wood or masonry.

These and the various other advantages of the herein described construction will readily suggest themselves to one skilled in the art.

The theory on which said apparatus operates is well known in the art and is not a part of our invention at all; but what we claim is the particular arrangement of the knock-down reinforced concrete tank as constructed substantially as shown, and with the connections substantially as herein described.

It will be obvious that various changes in the dimension, location and arrangement of the parts may be made which could be used without departing from the spirit of our invention, and we do not mean to limit the invention to such details except as particularly pointed out in the claim.

Having thus described our invention what we claim and desire to secure by Letters Patent of the United States is:—

A knock-down tank for use in apparatus of the character described comprising a series of separate flat reinforced concrete slabs fitted together to form a rectangular box-like structure provided with an opening to receive the waste matter, and a second opening located lower down to carry off the excess water, the side slabs of said tank being each provided with a pair of vertically disposed grooves, spaced apart on the inside of each slab, one groove of each pair extending from the top of the side slab to the bottom thereof, and the other groove of each pair extending only partly down the side slab, to a point below the normal level of the liquid in the tank, with reinforced concrete baffle plates let into said grooves in overlapping relation, the height of the baffle plate engaging in the deeper pair of grooves being less than the normal depth of the liquid contained in the tank, whereby a free passage for liquid is permitted past said plates but a water seal is secured, the two baffle plates separating said tank into a larger chamber to receive the waste material, and a smaller chamber for the water separated therefrom, in combination with a drain pipe opening into said smaller chamber for carrying off the excess of water.

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