Oct. 24, 1961 M. J. BREEN 3,005,205

UNITARY WASHROOM

Filed Dec. 22, 1959 2 Sheets-Sheet 1

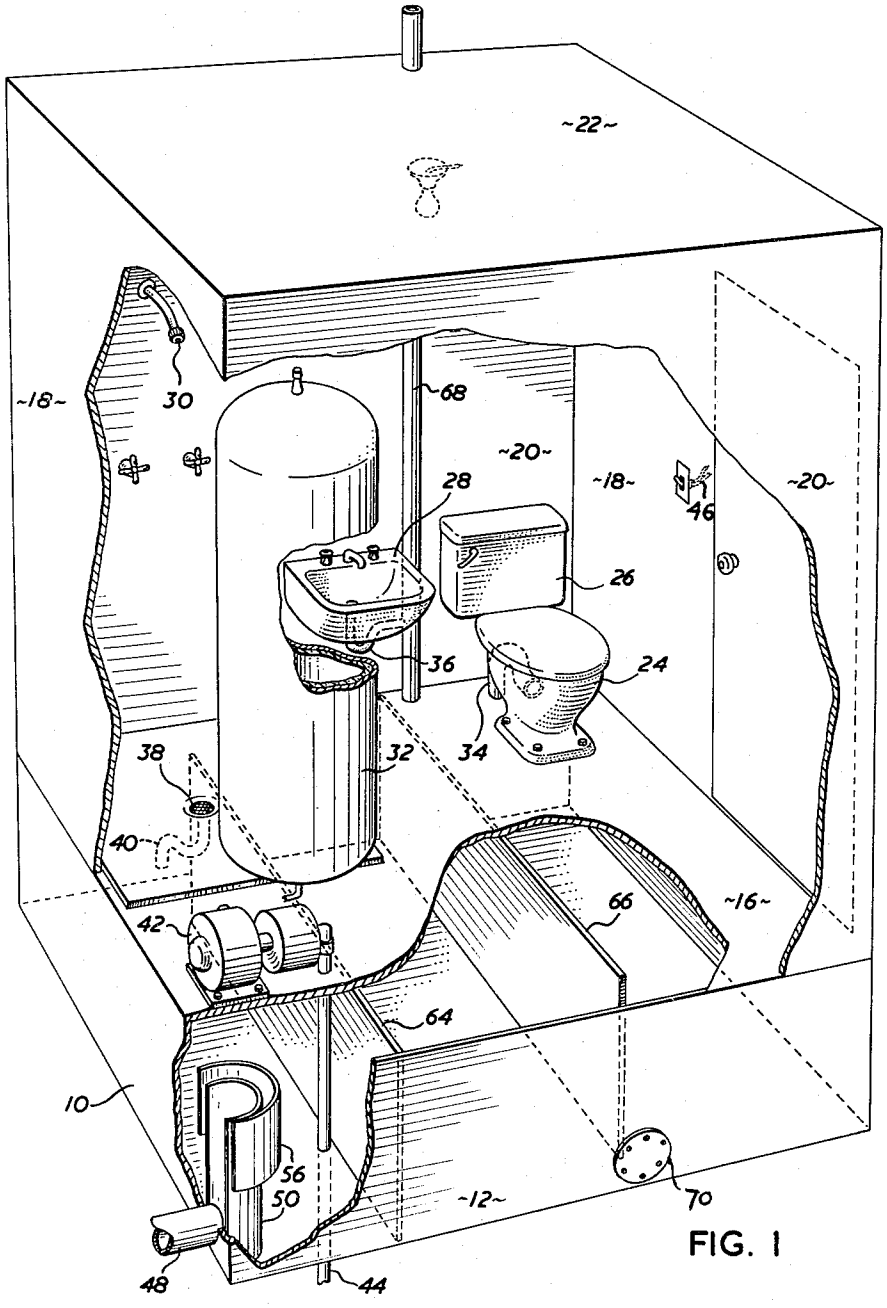


FIG. 1

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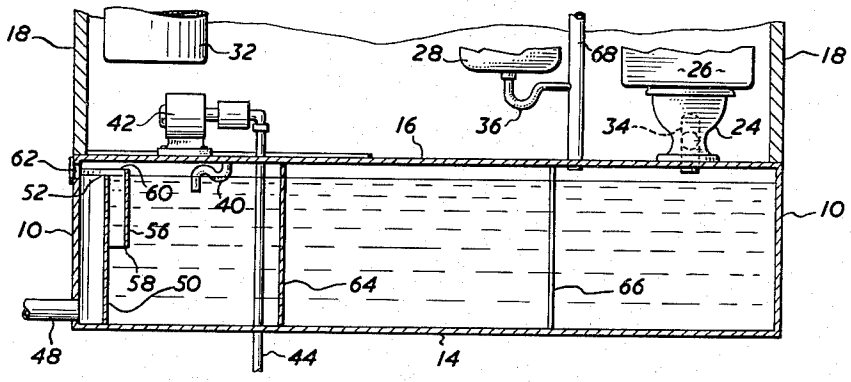


FIG. 2

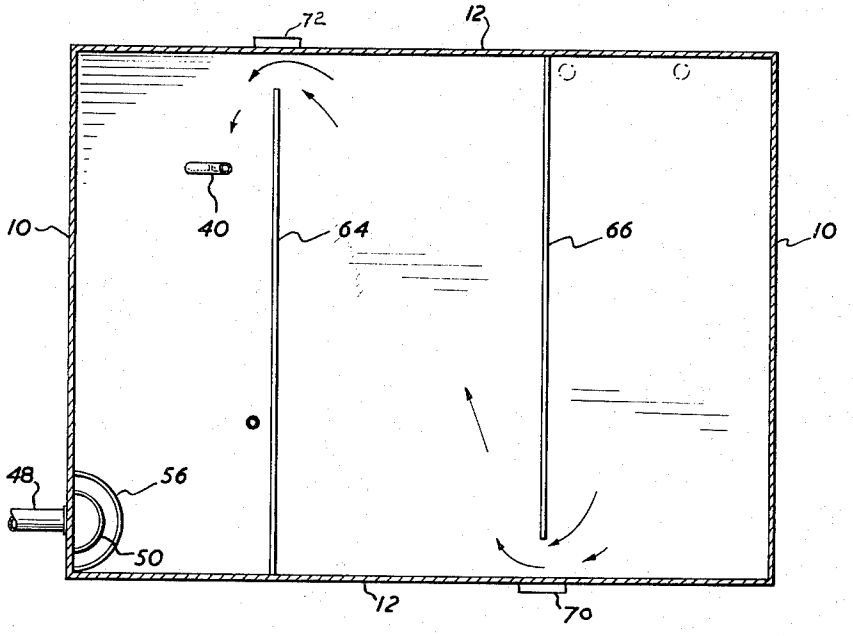


FIG. 3

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UNITARY WASHROOM

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3 Claims. (Cl. 4—1)

This invention relates to washroom assemblies suitable for prefabrication.

In summer cottages and in settlements remote from cities, one of the main problems of construction is the provision of toilet and/or washroom facilities.

It is an object of this invention to provide a washroom and/or toilet design wherein the fixtures may be united in a unitary construction with a septic tank, the design being adapted to prefabrication methods. The prefabricated unit may thus be shipped in completed form to cottage or remote areas ready for installation without the necessity for providing at the installation, a septic tank excavation or construction. The latter feature is a very material advantage since the terrain at the washroom site may be quite unsuitable for construction or excavation. The unitary construction of this invention may be merely taken to the site, set on the ground without substructure and connected for use.

It is an object of this invention to provide a washroom and/or toilet unit including a septic tank wherein the unit may be prefabricated and used either as a building in itself or as part of a larger building.

It is an object of this invention to provide a septic tank of a large plan area and small height whereby the tank may be placed below the washroom, without unduly increasing the height of the latter.

In drawings which illustrate an embodiment of the invention:

FIGURE 1 is a perspective of a unit in accord with the invention.

FIGURE 2 is a vertical cross-section of the unit; and

FIGURE 3 is a horizontal cross-section through the septic tank of the unit.

In the drawings: a septic tank is defined by end walls **10**, side walls **12**, bottom wall **14** and top wall **16**. The septic tank so defined is shallow so that the height is considerably less than the width and length.

Walls define a habitable washroom enclosure over the septic tank including end walls **18** and side walls **20** which walls preferably extend along the projected planes of tank walls **10** and **12** respectively. A top wall **22** for the washroom joins the upper edges of washroom walls **18** and **20** to form an enclosed washroom.

Since the washroom and septic tank are a unit the walls of one will be rigidly connected to the walls of the other. It is therefore immaterial whether corresponding end walls **10** and **18** (or side walls **12** and **20**) are separate sheets rigidly joined (as shown) or whether the corresponding walls are integral so that a single wall member extends from the bottom of the septic tank to the top of the washroom. The latter construction will in some instances be easier of manufacture.

Since top wall **16** of the septic tank separates the habitable washroom enclosure from the septic tank which together form a unit, it will in the disclosure and claims be also referred to as an "intermediate wall."

In the construction shown, the top wall **16** of the septic tank forms the structural floor of the washroom although the upper surface thereof may be ornamented, tiled or painted as desired.

In the washroom are the normal fixtures, toilet bowl **24**, tank **26** for bowl, sink **28**, shower **30** and also there may be a hot water tank **32** for heating the water for sink and shower.

The toilet bowl **24** is rigidly mounted on the wall or

floor **16** and contains the normal trap **34**. The trap outlet opens directly through an aperture in wall **16** into the septic tank.

The sink **28** is mounted on one of the walls and the drain is connected through a trap **36** to the septic tank.

The shower **30** has its drain opening **38** in the wall **16**, hence the lower surface of wall **16** surrounding opening **38** is provided with a pipe **40** provided with a trap connection before opening into the septic tank.

Thus it will be seen that the outlet connection for each washroom element of the unit, namely: toilet, sink and shower, is provided with a trap which prevents any escape of offensive odours from the septic tank to the habitable washroom enclosure. In the case of sink and toilet these traps are above wall **16** and in the case of the shower the trap is below wall **16**.

A pump **42** is connected to an inlet line **44** which extends out through wall **16**, the septic tank and wall **14** to the outside of the unit to a water supply. Running the inlet line **44** through the septic tank allows heat exchange to take place between the material in the septic tank and the incoming water and therefore to heat, to some extend, the incoming water. The pump **42** supplies through conventional connections (not shown) cold water for the heating tank **32**, sink **28** and shower **30** and toilet bowl tank **26**. The hot water tank is connected by conventional connections (not shown) to the sink **28** and shower **30** for the supply of hot water thereto.

Electrical leads **46** are provided for the heating supply for the hot water tank and for a switch and lighting fixture for the washroom, and are connected thereto by connections (not shown.)

The septic tank is supplied with an outlet **48** in one end wall **10** adjacent the bottom wall **14** and a first, preferably semicircular, baffle wall **50** joins the end wall **10** on each side of the opening and extends about the opening, and vertically from the bottom wall to a top edge **52** a very short distance generally (about 1½") from the top of the tank. Thus the only communication between the tank proper and the outlet is over the top edge **52** of the wall **50**. A second preferably semicircular baffle wall **56** joins the end wall **10** on each side of the first baffle wall **50** and extends about the first wall and vertically from a bottom edge **58** predetermined distance above the bottom wall to a top edge **60** a short distance from the top of the tank. The top edge **60** of the second baffle wall is slightly higher than the top edge **52** of the first.

The spacing of the two baffle walls **50** and **56** from top wall **16** of the tank, allows air circulation over the baffles.

The height of the top edge **52** of first baffle wall **50** sets the level of the liquid and solid in the tank and ensures that the maximum proportion of the tank may be used to contain liquid and solid material. This design allows the liquid level to approach much closer to the top of the tank than when an upper outlet from the tank is used. Such outlets are 3–4" in diameter and the level of liquid in the tank is therefore up to the lowest part of the outlet opening or 3–4" from the top. The height differential between the upper edges **52** and **60** of the inner and outer baffle walls **50** and **56** prevents the normal flow of liquid over the outer baffle wall **56** but forces it to flow thereunder.

The lower edge **58** of the second baffle wall **56** is at a height to allow liquid as opposed to solid to flow thereunder. Solid excrement and other waste will not mix with the liquid but will float to the top or sink to the bottom, leaving the central vertical portion of the tank material liquid. The lower portion of the first baffle wall **50** traps the sunken solids while the second baffle wall **56** extends upwardly to trap the floating solids. The lower edge of the second baffle wall **56** is at a height to allow the central liquid of the tank to flow thereunder, up, over

the top edge 52 of the first baffle wall 50 and out the outlet 48.

The solids aerobically react after a time to become inoffensive material of a common specific gravity with the liquid and can then travel away with it over the escape route just indicated.

Although the advantages of the lower septic tank opening in combination with the baffle walls have been defined, the terrain on which the unit is placed will sometimes make it more convenient to use a conventional upper outlet 62 also shown. Normally however the lower outlet will be used allowing the upper outlet to be closed and the heretofore described advantages to accrue.

A pair of baffles 64 and 66 take the form of walls extending parallel to end walls 10 to divide the septic tank into three roughly equal sections. The baffles 64 and 66 extend from bottom wall 14 to top wall 16 and respectively from opposed walls 12 but respectively stop short of opposite walls 12 to provide a tortuous path for the solids from the toilet as shown. The toilet 24 is placed at the opposite end of the tank from the outlet 48 so that the material must travel about both baffles before reaching the outlet 48 and is thus given a maximum time to react before reaching the outlet.

Cleaning ports 70 and 72 are provided in opposed side walls 12 opposite each space between a baffle 64 and 66 respectively and a wall 12 to allow cleaning in each case on each side of the adjacent baffle.

An air vent conduit 68 extends upwardly from the air space in the septic tank through wall 16, the washroom enclosure and wall 22 to be open to the atmosphere. For convenience the lower portion of the air vent outlet 68 forms the outlet for sink 28.

Although the septic tank shown is of rectilinear shape with end walls 10, side walls 12 and top and bottom walls 14 and 16 mutually perpendicular and joined at the edges, it will be obvious that one or more of such edges could be eliminated by a rounded design wherein one or more of the walls contiguously extends into another.

Heretofore it had been thought that septic tanks had to be deep and narrow, that is the height must be the longest dimension but it has now been found that with the construction described it is possible to provide a shallow tank wherein height is the shortest dimension. This allows the construction of the unit whereby the septic tank adds very slightly to the height of the bathroom unit and allows a compact unit to be produced which may if desired be simply set on top of the ground.

There has thus been produced, a compact unit combining washroom and septic tank which may be used internally as part of a larger structure or may form its own separate structure. The unit is thus suitable for prefabrication and shipping to cottage or remote installations. The electric leads, the water inlet, extend out through the exterior walls for easy connection to the available electric and water supplies. The water outlet may be connected to any drainage line.

I claim:

1. A washroom construction comprising: a septic tank defined by top, bottom and side walls, the upper defining wall of said tank being the structural floor of the habitable portion of said washroom, means allowing continual discharge from said tank while maintaining liquid in said tank at a predetermined level, a toilet bowl rigidly attached to and located above said upper defining wall and having an outlet connected to said tank through said upper defining wall, means whereby water may be supplied to said toilet bowl, means for flushing said toilet bowl and at least one port allowing the removal of materials from said septic tank.

2. A washroom construction as claimed in claim 1 where said means for supplying water to said water bowl extends through said septic tank.

3. A washroom comprising side, end, top and bottom walls, an intermediate wall parallel to said bottom wall attached to said side and end walls defining with them and with said bottom wall a septic tank, means allowing continual discharge from said tank while maintaining liquid in said tank at a predetermined level and defining with said side and end walls and said top wall a habitable washroom, a toilet bowl including a trap attached to the upper side of said intermediate wall, means connecting the outlet of said trap to said septic tank, means for supplying flush water to said bowl and for flushing said bowl, and means for the removal of material from said tank.

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