Nov. 15, 1966 G. S. GADELIUS 3,284,809

EARTH CLOSET

Filed July 13, 1964

FIG. 1

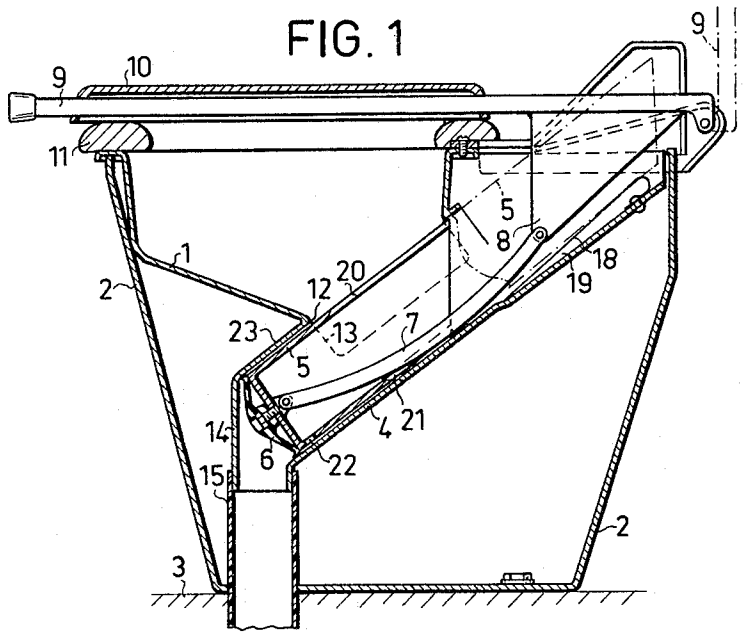


FIG. 2

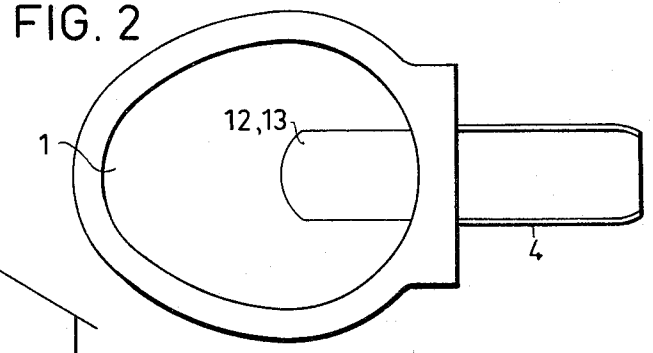


FIG. 3

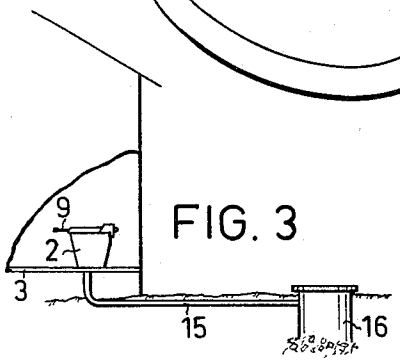
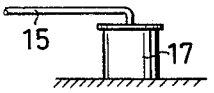


FIG. 4



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EARTH CLOSET

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10 Claims. (Cl. 4—111)

Lavatories may be divided into two main groups, namely, water closets and earth closets.

In a water closet an ample supply of flowing water is required because about two to three gallons of water are normally consumed for each flush. Further, the system ought to be provided with a satisfactory discharge system including some sort of a purification plant. However, in spite of these requirements it is a fact that the outflow from water closets cause an ever increasing pollution of lakes and water courses, and often even of subsoil water. This is particularly the case in more or less provisional systems, for instance in country cottages.

However, because of shortage of water it is often impossible to install a water closet, and in such cases some sort of a conventional earth closet or a so-called chemical toilette is used. From a sanitary point of view conventional earth closets are highly unsatisfactory because flies and other insects are likely to transfer bacteria from the evacuated matter. Besides it is difficult to empty earth closets.

The object of this invention is to provide an earth closet which is practically independent of the supply of water and can be devised such that the evacuated matter is always kept in a practically closed system.

In an earth closet of the type comprising a closet pan having a bottom discharge opening for evacuated matter the above object is attained in accordance with the invention by the provision of a cylinder located below the pan and provided with a plunger which in a retracted position uncovers a receiving chamber formed by said cylinder, the receiving chamber being in direct communication with the discharge opening of the closet pan and the discharge end of the cylinder being adapted to be put into communication with a drain pipe. When use is made of the closet the evacuated matter drops directly into the receiving chamber of the cylinder and is then discharged into the drain pipe by means of the plunger. Normally the evacuated matter will practically not come into contact with the walls of the closet pan, but eventual residuals can be readily rinsed off and collected in the receiving chamber to be discharged therefrom. When the closet is not in use the plunger is in its forward end position and isolates the drain pipe from the discharge opening of the closet pan. In this way eventual foul gases from evacuated matter in the drain pipe are prevented from forcing their way out into the room around the closet. Advantageously, the drain pipe is made of plastic and preferably communicates with a covered or closed collecting container so that evacuated matter will be kept in a closed system. Consequently, the consumption of water is extremely low as compared with water closets and in addition pollution of water courses in the neighbourhood is avoided, since the evacuated matter can be collected in a container.

These and other characteristics of the invention and advantages attained thereby will be more closely explained in the following description of an embodiment of the invention exemplified in the annexed drawing.

FIG. 1 is a longiutdinal sectional view of a closet according to the invention. FIG. 2 is a top view of the closet pan. FIG. 3 is a diagrammatic view of a dwelling house equipped with a closet according to the invention, and FIG. 4 illustrates the connection of a drain pipe of the closet to a transportable collecting container.

The closet pan **1** is supported by a foot in the form of a downwardly tapering casing **2** which is bolted for instance to a floor **3**.

Secured below the pan **1** is an obliquely downwardly sloping cylinder **4** provided with a plunger **5** having a sealing member **6** at its front end.

In FIG. 1 the plunger is shown in solid lines in its forward end position and with chain-dotted lines in its retracted end position.

By means of a link **7** the plunger is connected to a plate **8** secured to a pivotally mounted lever **9** which carries a lid **10**. If the lever is swung down and the plunger assumes its forward end position, the lid **10** covers the closet seat **11**.

At the rear part of its bottom the closet pan **1** has a discharge opening **12** in direct communication with a corresponding opening **13** in the upper side of the cylinder **4**.

At its discharge end the cylinder has a restricted portion in the form of a short vertical pipe **14** which is connected to a drain pipe **15**. The drain pipe passes through a hole in the floor and extends outwards for instance to a covered sink **16**, FIG. 3, or to a closed transportable collecting container **17**, FIG. 4.

The drain pipe **15** and preferably also the other parts of the closet are advantageously made of plastic so that evacuated matter and other dirt can readily glide away from the surface of the plastic.

If the closet is to be used the lever **9** is swung upwards together with the lid **10** to the position indicated by chain-dotted lines. As a result of this movement the plunger is retracted to its rear end position in which the rear end of the plunger is slightly lifted by sliding up onto a plate spring **18** secured to the bottom of the cylinder. Due to the resulting oblique position of the plunger the bottom of the cylinder is effectively scraped clean by the sealing member **6**.

In the retracted end position of the plunger a possibility of draining below the plunger is provided by a channel-shaped recess **19** which extends ahead of the front end of the plunger.

The plunger has longitudinally extending slots **20**, **21** which permit angular movement of the link **7**.

At its front end the plunger has a drain hole **22**.

Evacuated matter drops through the openings **12**, **13** and deposits in the forward end of the cylinder which is of sufficient volume to hold the dropping matter.

If thereupon the lever **9** is swung down the lid **10** covers the closet pan and the plunger **5** is forced down to its front end position. The plunger isolates the discharge openings **12**, **20** and **21** from the drain pipe and the evacuated matter is forced under compression through the short pipe **14** into the drain pipe **15**. Due to the compression in the pipe **14** and due to the fact that the drain pipe **15** is of greater internal diameter than the pipe **14**, evacuated matter will drop into the drain pipe **15** without significant obstruction.

Since evacuated matter does not adhere to the surface of the plastic pan, the pan **1** and the openings **12**, **13** can be readily rinsed if required, with a minimum amount of water.

What is claimed is:

1. A closet comprising a closet pan having a bottom discharge opening for evacuated matter, a cylinder located below the pan and provided with a plunger which in a retracted position uncovers a receiving chamber formed by said cylinder, the chamber being in direct communi-

cation with the discharge opening of the closet pan and the discharge end of the cylinder being adapted to be put into communication with a drain pipe.

2. A closet as claimed in claim 1, in which the cylinder slopes obliquely downwards.

3. A closet as claimed in claim 1 in which the front end of the plunger is provided with a sealing member.

4. A closet as claimed in claim 1 comprising a clear ance between the cylinder and the retracted plunger which clearance permits the rear end of the plunger to be slightly lifted under the action of a spring device at the bottom of the cylinder, whereby to have the bottom of the cylinder scraped clean during the discharge stroke of the plunger.

5. A closet as claimed in claim 1 in which the bottom of the cylinder has a longitudinally extending channel-shaped recess which in the retracted position of the plunger extends slightly ahead of the front end of the plunger and rearwards to permit draining from the space behind the plunger in the retracted position thereof.

6. A closet as claimed in claim 1 in which the plunger is operated by means of a pivotally mounted lever which carries a lid adapted to be placed over the closet seat as the lever is swung down and the plunger performs its discharge stroke.

7. A closet as claimed in claim 1 in which the front end of the plunger in its forward end position isolates the discharge opening from the drain pipe to prevent

gases from the contents of the drain pipe from forcing their way up through the discharge opening.

8. A closet as claimed in claim 1 in which the front end of the cylinder is restricted to compress evacuated matter.

9. A closet as claimed in claim 8, in which the restriction is in the form of a short vertical pipe to which the drain pipe is connectible, the difference between the internal diameters of the drain pipe and the said short pipe resulting in that the matter compressed in the restricted portion is movable in the drain pipe without significant obstruction.

10. A closet as claimed in claim 1 in which the front end of the plunger has a drain hole.

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