

[54] **DECOMPOSITION TOILET**

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[22] Filed: **Apr. 1, 1974**

[21] Appl. No.: **456,821**

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[30] **Foreign Application Priority Data**

Apr. 3, 1973 Sweden 73034653

[52] U.S. Cl. 4/131; 4/111; 4/DIG. 12;
23/259.1; 71/9; 110/9 R

[51] Int. Cl.² **A47K 11/02**

[58] Field of Search ... 4/1, 111, 116, 118, 131-134,
4/10, 211, 216, 218, DIG. 12; 210/15; 71/9,
10; 23/259.1; 110/9 R

[56] **References Cited**

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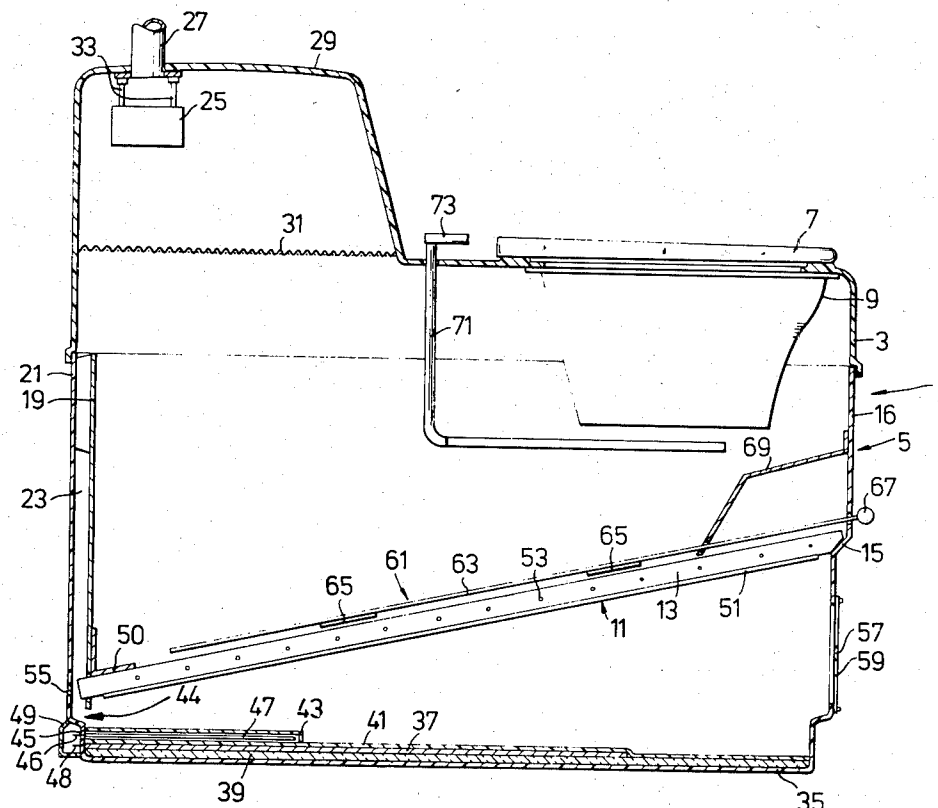
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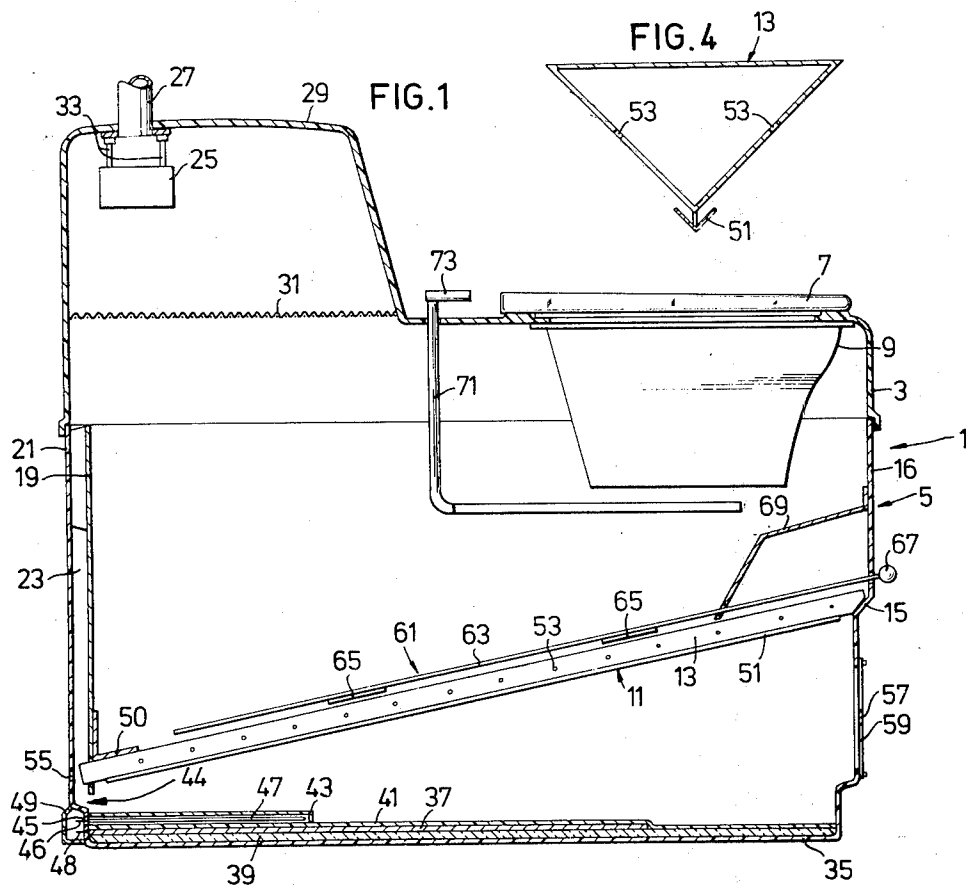
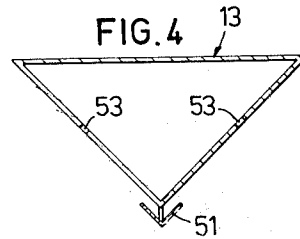
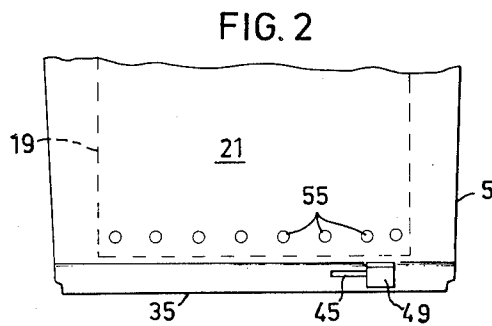
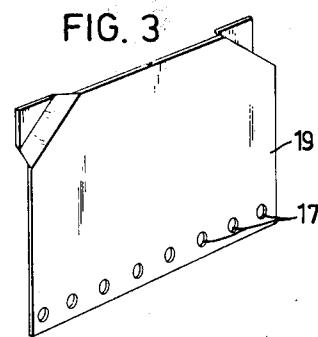
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ABSTRACT

A decomposition toilet with a casing having a downwards-rearwards sloping grid for faeces and a heating element in the casing bottom for heating urine by conduction. A thermostat for switching the heating element on and off is located immediately on top of the heating element so as to detect presence or absence of urine. An air inlet is located at the casing front below the grid and air passes over the casing bottom, through a duct inside the casing rear wall to an exhaust fan at the rear top casing portion.

2 Claims, 4 Drawing Figures





1 DECOMPOSITION TOILET

The present invention relates to a decomposition toilet comprising a casing with an opening surrounded by a seat, under said opening there being arranged a grid-like bed for faeces, the casing including an air intake, a fan, an air outlet, and heating means to effect decomposition of the faeces lying on the grid so that the mould generated thereby falls through the grid to a mould container.

Similar known decomposition toilets have the disadvantage that breaking down faeces to mould is easily disturbed, and can cease if the toilet is not looked after carefully. The process of decomposition can be very slow in certain circumstances.

It is the intention of the present invention to eliminate these problems and to provide a reliable, easily managed decomposition toilet which is cheap and simple at the same time.

According to the invention this is achieved by a toilet which, as mentioned, has the distinguishing features disclosed in the attached claim 1.

With a previously known type of decomposition toilet, the heating means have been placed in the grid, and have thus directly heated the faeces. If the supply of faeces is not mainly constant, the faeces are dried out, causing bacteria growth to cease and the decomposing process stops completely or partly. This is avoided by the heating means according to the invention being arranged separate from the grid.

As the heating means, advantageously in the form of an electric heating element, is arranged at the bottom of the toilet casing in contact with the liquid (urine) which is present, the further advantage is obtained that the liquid is heated so that a warm damp atmosphere is created inside the toilet casing. This atmosphere promotes the activity of the bacteria culture, with considerably less risk for drying-out than in known decomposition toilets.

According to a further feature of the invention, a thermostat for switching on and off the heating element is located immediately on top of the heating element so as to detect the presence of any liquid thereon and switch on the heating element.

Further advantages and features of the invention are set forth in the description below, while referring to the accompanying drawings, where

FIG. 1 shows in a longitudinal section an embodiment of the toilet according to the invention,

FIG. 2 shows the toilet seen from behind,

FIG. 3 shows in perspective an air duct plate arranged on the inside of the back wall of the toilet and

FIG. 4 shows one of the grid pipes in cross-section and to a larger scale.

The decomposition toilet shown in FIG. 1 comprises a casing 1 consisting of an upper portion 3 and a lower portion 5, made of glass fibre reinforced polyester plastics. Upper portion 3 is provided with a seat 7 surrounding an opening, under which a removable funnel 9 is placed, to lead the faeces to a grid 11 arranged in lower portion 5. The grid 11 is arranged to slope backwards and downwards in lower portion 5, and consists of eight mutually parallel pipes 13. Pipes 13 rest on a support 15 at the front wall 16 of the lower portion 5, and are carried at their rear ends by their being stuck each into a hole 17, in a substantially vertical plate 19. Plate 19 is attached at a distance from the inside of the rear wall 21 of casing 1, so that between said plate and

2
wall 21 a substantially vertical upwardly open air duct 23 is formed. Upwardly in the upper portion 3 of casing 1, and adjacent the rear wall 21 above air duct 23, a fan 25 is arranged adjacent an air outlet pipe 27. By means of rubber attachments 33, fan 25 is suspended for vibration damping at a distance from air outlet pipe 27. Under fan 25, which is mounted in a dome-like protuberance 29 of upper portion 3, a protection net 31 is arranged to prevent paper, for example, being sucked up into the fan.

10 On the bottom 35 of lower portion 5 a heating element 37 is provided, in the form of an electrical resistance foil placed on a heat insulating plate 39. The foil 37, suitably covered with a thin layer of reinforced polyester plastics 41, can hereby constantly keep the liquid collected on the bottom 35 at a high temperature, so that great evaporation is attained. In or above plastics layer 41, a cassette 43 is arranged having an opening 45 through the rear wall 21. A thermostat 47 is arranged in the cassette 43, to sense the temperature of plastics coating 41, thereby directly reacting to the presence or absence of liquid on the bottom 35 of lower portion 5 for switching the heating element 37 on or off, respectively. Thermostat 47 can be withdrawn through opening 45 for exchange, if so required. During operation, the supply cable 46 to the thermostat is taken through opening 45 to a connection box 49 arranged on the outside of rear wall 21, the connecting cable 48 for foil 37 being also taken to the same box.

30 Plate 19, forming the air duct 23 is extended under grid 11, defining the lower air intake opening 44 of the duct 23. To prevent mould falling down through the grid and blocking opening 44, a substantially L-shaped protecting plate 50 is mounted on pipes 13 against plate 19. The pipes 13 of grid 11 have a triangular cross-section, as shown in FIG. 4. The pipes are arranged with an apex facing downwards, under the apex there being attached a trough 51 extending along each pipe, said trough catching liquid running down the sides of the pipe and leading the liquid to the rear part of the toilet. The sides of the pipe 13 facing downwards are provided with air holes 53, through which the interior of pipe 13 communicates with air duct 23 through the rear end of the pipe. Behind the ends of pipes 13, air intakes 55 are provided in rear wall 21.

45 Downwards on the front wall 16 of lower portion 5, air intake openings 57 are provided in a removable front hatch 59, on the front wall 16 under the support 15 of grid 11. Mould which has fallen down onto bottom 35 can be removed through the front hatch by means of a rake.

50 Above the grid 11 a scraper 61 is arranged, consisting of a rod 63 parallel to pipes 13, said rod having attached to it two transverse blades 65. By means of a handle 67 projecting outside front wall 15 the rod 63 is displaceable backwards and forwards in its longitudinal direction. The portion of rod 63 coming outside the front wall 16 on being pulled out is protected against contact with faeces by a cover plate 69 mounted on the inside of the front wall, said plate also forming the guiding means for rod 63. An L-shaped leveler 71, pivotally mounted behind the seat 7 on the upper side of upper portion 3, is swingable from side to side under funnel 9, to prevent the waste pile from coming above the desired level.

65 Heating means in the form of an electric resistance foil has been described above and shown in the drawings. Alternatively, other heating means of electrical or

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other nature may be used without departing from the invention. According to the invention it is important that the heating means can heat by conducting any liquid collected on the bottom of the casing, and that the thermostat is located in such a manner that it reacts immediately when the liquid has evaporated and when new liquid collects, respectively.

What I claim is:

1. A decomposition toilet comprising a casing having an opening surrounded by a seat, said casing have a bottom wall, a rear wall and an intermediate wall spaced from said rear wall to form an air duct there between, the latter having an air intake at its lower end adjacent to and slightly spaced from the bottom wall and an air outlet at its upper end, a fan at the rear portion of the casing facing the air outlet, a grid-like bed for faeces under said opening, said grid-like bed comprising a plurality of sloping pipes having their lower ends carried by said intermediate wall, a trough positioned beneath each of said pipes and extending longitudinally thereof to catch running liquid and lead it to the rear of said casing, a mould container beneath said bed, heating means to effect decomposition of the fae-

4

ces lying on said grid-like bed, so that the mould generated thereby will fall through the grid-like bed to said mould container, said heating means being arranged at the bottom of said casing in contact with the liquid collected at the bottom for heating of said liquid.

2. A decomposition toilet comprising a casing with an opening surrounded by a seat, a grid-like bed for faeces under said opening, a mould container beneath said bed, said casing including an air intake, a fan and an air outlet, heating means to effect decomposition of the faeces lying on the grid so that the mould generated thereby falls through the grid to the mould container, said heating means being arranged at the bottom of the casing, in contact with liquid collected at the bottom, for heating the liquid, said heating means comprising an electric resistance foil mounted on the bottom of said casing, a protecting plastic layer covering said resistance foil, a cassette mounted in direct contact with said plastic layer, a thermostat for switching the heating means on and off mounted in said cassette, said cassette having an opening accessible through the rear wall of the casing for removal of said thermostat.

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