April 14, 1942. H. G. MARTIN 2,279,578

LATRINE

Filed July 10, 1941

Fig. 1.

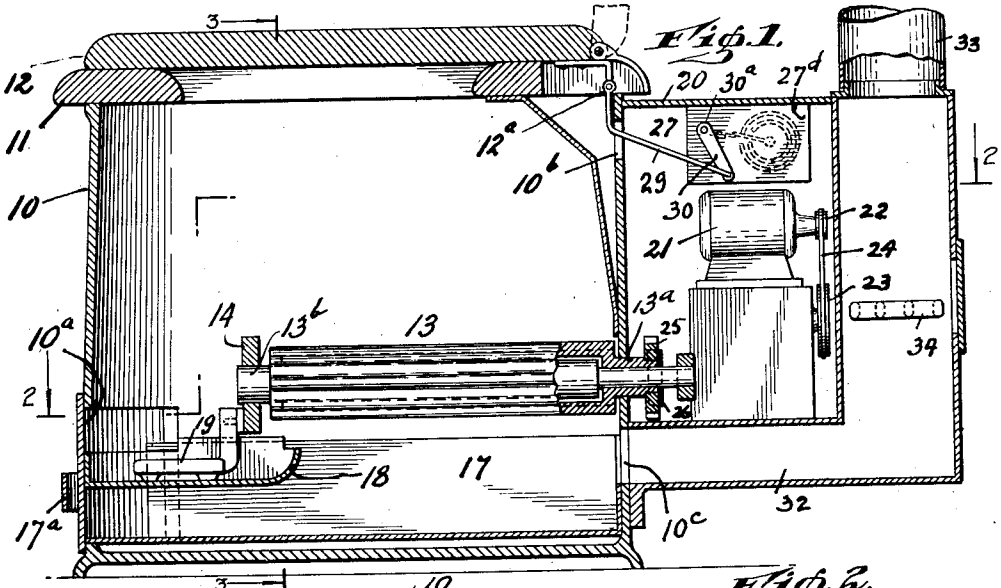


Fig. 2.

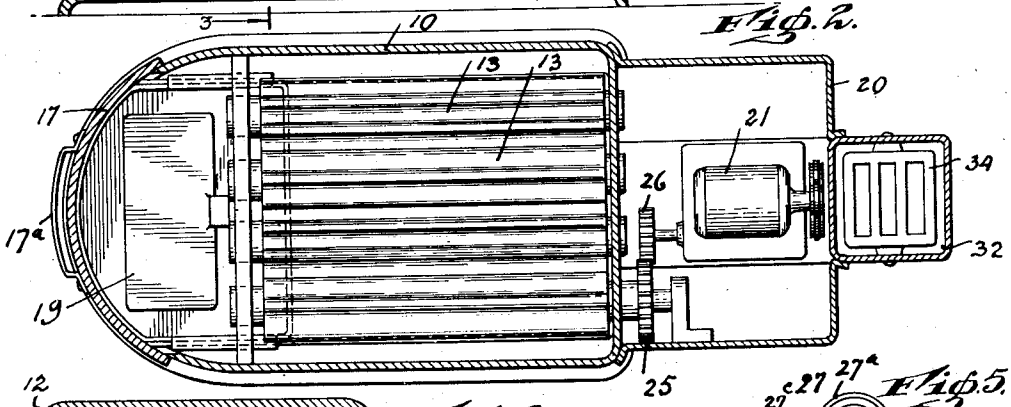


Fig. 3.

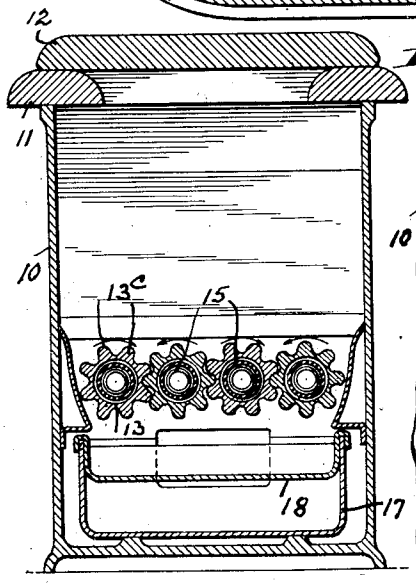


Fig. 4.

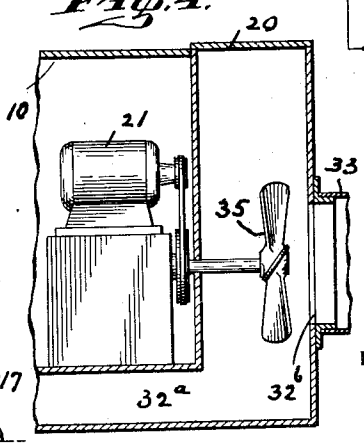
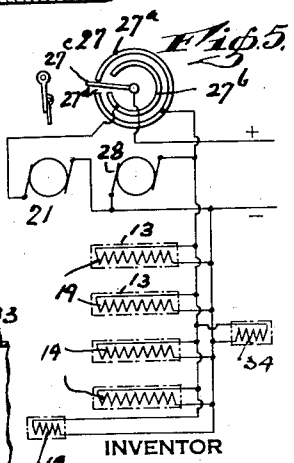


Fig. 5.



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UNITED STATES PATENT OFFICE

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LATRINE

Horace G. Martin, Brooklyn, N. Y.

Application July 10, 1941, Serial No. 401,735

10 Claims. (Cl. 4—131)

This application is a continuation in part of my application Serial #391,443, filed May 2, 1941, and the invention thereof relates to latrines provided with incinerators.

The object of this invention is to provide a portable latrine with an incinerator, as a complete unit, capable of mass production and of being kept in stock ready for installation in any dwelling, railroad train, aeroplane or the like, in lieu of the present water closets or the very unsanitary backhouses used in country places, without requiring any constructional changes in said dwelling or the like, except the provision of a stove pipe or flue for the escape of fumes and odor from the incinerating chamber.

In the present example I have chosen an electric incinerator comprising high resistance coils, such as those commonly used with electric toasters, irons or the like. However, I do not wish to restrict myself to these means, since high or low frequency circuits such as those used with electric furnaces may be advantageously employed.

With the objects hereinbefore mentioned and others that will appear from the detailed description of my invention, the latter substantially consists in the novel construction, combination and arrangement of parts as will be hereinafter specified and defined in the appended claims.

In the accompanying drawing which constitutes part of this specification and in which similar reference characters denote corresponding parts:

Figure 1 is a vertical section of a portable latrine equipped with an incinerator.

Figure 2 is a horizontal cross section on line 2—2 of Figure 1 seen in the direction of the arrows;

Figure 3 is a vertical cross section on line 3—3 of Figure 1 seen in the direction of the arrows;

Figure 4 is a fragmentary vertical section of the rear end of a modified construction of a latrine and

Figure 5 is a diagram of the electric circuit and of the automatic control of the incinerator.

Referring to the drawing more in detail and first to the construction shown in Figures 1 to 3, 10 denotes a box like receptacle of metal or any other suitable strong and rigid non-combustible material, which on its open top has suitably fixed to it a toilet seat 11 of suitable material and a lid 12 which may be hinged at 12a or otherwise pivotally secured to said receptacle or said seat.

Fixed below said seat and at a suitable elevation from the bottom of the receptacle are a plurality of rotary heaters which in this example are shown to comprise tubular metal members 13 arranged in a substantially horizontal row in close proximity to one another and forming a sort of grate. Each of said members extends from the rear wall of the receptacle toward the front wall thereof terminating a short distance from the latter, and is formed at its ends with hollow journals 13a, 13b. The rear journals 13a of said members rotatively bear in the rear wall of the receptacle while the front journals 13b thereof rotatively bear in a cross bar 14 fixed within the receptacle. The circumferential surfaces of said members are provided with uniformly distributed longitudinally extending tooth like projections 13c, which like those of spur gears are adapted to mesh with one another (Fig. 4). Extending through the hollow of each member 13 is a heating element 15 in form of a high resistance coil of well known construction, which coils are adapted to heat the tubular members to a temperature sufficient to burn to ashes the excrement accumulating thereon. The side walls of the incinerating chamber at parts near the heaters that lie at the ends of the row may be formed with inwardly curved baffle plates 16 which are adapted to prevent the matter from dropping down into the ash collecting space below said heaters.

The ash collector 17 is adapted to extend through the entire depth of the receptacle and is slidably mounted on the bottom thereof. The front wall of said collector, which is in form of a drawer projects outwardly through a front opening 10a provided near the bottom of the receptacle and has a handle 17a. Provided near the top of said drawer and extending below the free space between the front ends of the heaters and the front wall of the receptacle is a pan shaped urinal 18 in which is suitably supported an electric evaporating element 19.

Suitably attached to the rear wall of the receptacle 10 is a housing 20 in which are mounted the means for operating the heaters. These comprise an electric motor 21 which through pulleys 22—23 belt 24 and gears 25—26 is adapted to rotate the heaters 13, an automatically actuated means 27 for controlling the circuits operating the said motor and the heaters.

The automatically actuated means 27 comprise a circuit make and break mechanism composed of two split circular concentric contact

shoes 27a—27b insulated from one another and a contact arm 27c mounted on the output shaft of a speed reducing mechanism (not shown) driven from a second electric motor 28 diagrammatically shown in Figure 5. The edges at one end of the gap 27d formed at the split portion of the contact shoes are in radial alignment while the opposite edges are offset relative to one another. The arm 27c is radially extended beyond the contact shoes and in its inoperative position lies within the insulated gap 27d. The hinge 12a of the lid 12 is formed with an angular extension or lever 29 which projects through an opening 10b provided in the rear wall of the receptacle 10. The rear end of said lever is pivotally connected to an arm 30 fulcrumed at 30a to the casing 27d of the make and break mechanism. The arm 30 is provided with a resilient or yielding member or finger 31 adapted when the lid 12 is swung into closed position to engage the free end of the contact arm 27c and to displace the latter from its inoperative position onto the longer contact segment 27a, so as to first close the electric circuit through the motor 28 and thereby setting the contact arm 27c into rotation. Just as soon as the arm 27c has reached the position of the offset edge of the shorter contact segment 27b the second circuit through the motor 21 will be closed setting the heaters into rotation.

The electric connections are such that the heating elements 15 of the heaters 13 will be energized through the circuit closed by the arm 27c the instant it is brought into contact with the longer contact segment 27a, so that by the time the heaters are set into rotation they are already sufficiently heated to cause the burning of the matter dropped onto them. The incinerating process continues until the contact arm slides off both contact shoes and enters the insulated gap 27d breaking the electric circuits.

Near its bottom the receptacle 10 is formed with a fume and odor escape opening 10c from which leads a channel 32 terminating into a stove pipe 33 mounted on top of the housing 20.

Inside said channel 32 may be provided a heating grid 34, whose object is to induce draft and also to complete combustion of escaping unburned particles.

In the modification shown in Figure 4 a fan 35 driven from the motor 21 may be mounted in the flue 32a opposite an escape opening 32b leading into a stove pipe.

The operation is as follows:

As long as the lid is in open position the incinerator is out of operation. When after use of the latrine the lid is moved into closing position the contact arm 27c will be turned from the gap 27d onto the longer contact segment 27a, thereby closing the electric circuit through the motor 28 which will set the arm 27c into rotation and also energize all heating elements 14—19 and 34. When the arm 27c reaches the offset edge of the shorter contact segment 27b it will close the electric circuit through the motor 21 which then will set the heaters into rotation.

The intermeshing revolving heaters will act as mangles comminuting all matters dropped onto them and at the same time causing said matter to be burned to ashes and feeding said ashes into ash collecting tray or drawer 17.

To prevent clogging the heaters 13 may be suitably so supported in their bearings as to be yielding transversely relative to one another.

I do not wish to restrict myself to electric incinerators, nor to any details of construction described and shown herein, since various changes may be made therein without departing from the spirit of my invention.

What I claim is:

1. A portable latrine comprising a receptacle having a toilet seat and lid, an incinerator within said receptacle, a flue leading from said receptacle, a removable ash collector below said incinerator, and automatic means for setting into operation said incinerator said means being operatively connected to and adapted to be actuated by said lid when the latter is moved into closing position.

2. A portable latrine having a movable lid, an incinerator, a removable ash collecting receptacle below said incinerator, a flue leading outwardly from the incinerator, draft producing means in said flue, means operatively connected to said lid for setting said incinerator into operation when said lid is moved into closing position and means for automatically discontinuing the operation of said incinerator.

3. A portable latrine comprising an incinerator composed of a plurality of heaters arranged in form of a grate, an ash collecting receptacle below said grate, a urinal supported in said ash collecting receptacle and a vaporizer in said urinal.

4. A portable latrine comprising an incinerator composed of a plurality of movable heaters arranged in form of a grate, an ash collecting receptacle below said grate, a urinal stationarily supported in forward extension of said heaters, a vaporizer in said urinal and means for moving said heaters.

5. A portable latrine comprising an incinerator below the seat thereof composed of a plurality of rotary heaters arranged in form of a grate, a removable ash collecting receptacle below said grate, a urinal supported in longitudinal forward extension of said heaters, a vaporizer in said urinal means for revolving said heaters and means for automatically controlling said last named means, said heaters and vaporizer.

6. A portable latrine comprising an incinerator, an ash collector below said incinerator, the latter including a plurality of rotary heaters arranged in close proximity to one another and formed with interengaging means serving to comminute the matter deposited thereon and to discharge the burned matter into said ash collector.

7. A portable latrine comprising an incinerator, an ash collector below said incinerator, the latter including rotary tubular heaters arranged in close proximity to one another in form of a grate, heating elements within said tubular heaters, means on said tubular heaters for comminuting the matter dropped onto them and for simultaneously discharging the burned matter into said ash collector, a urinal arranged in forward extension of said heaters, a vaporizer in said urinal, and means for automatically controlling the rotation of said heaters, said heating elements and vaporizer.

8. A portable latrine having a movable lid for its toilet seat, an electric incinerator therein and means operatively connected to and adapted to be actuated by said lid when the latter is moved into closing position so as to automatically set into operation said electric incinerator.

9. A portable latrine having a movable lid for its toilet seat, an electric incinerator comprising electric rotary heaters, a removable ash collecting receptacle below said heaters, a urinal in for-

ward extension of said heaters, an electric vaporizer in said urinal, electric means for rotating said heaters and a circuit make and break mechanism actuated by the movement of said lid for automatically controlling said electric means, said heaters and vaporizer.

10. A latrine comprising an incinerator including a plurality of movable heaters arranged in close proximity to one another and means associated with said heaters for comminuting the matter deposited thereon.

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