ABSTRACT OF THE DISCLOSURE

A portable sanitary napkin incinerator comprising a heating chamber having reflecting surfaces for reflecting and concentrating heat to burn the sanitary napkin. There is further provided a removable tray for removing debris and a hood assembly with cooperative filter elements for eliminating undesirable odors and fumes emanating from the chamber.

BACKGROUND OF THE INVENTION

The disposal of sanitary napkins has been a problem, especially in public facilities such as lavatories. Attempts to dispose of these items by flushing them down the toilet have resulted in clogging of the toilet or of the plumbing associated therewith. Further attempts to provide ordinary receptacles in the public lavatories have also not met with success since these receptacles have not been used by the general public.

While attempts have been made to solve the problem of disposing of sanitary waste, such as human excrement, by incinerator systems, no prior attempts have been made to similarly dispose of sanitary napkins in such systems. Furthermore, the systems of the prior art concerned with sanitary waste disposal in general have been found to be cumbersome in construction and too costly for practical adaptation to dispose of sanitary napkins in public lavatories.

THE INVENTION

This invention relates to a portable sanitary napkin incinerator comprising a chamber having therein a heating unit arranged in grid fashion for supporting the sanitary napkin. The chamber has heat reflecting surfaces for concentrating the heat to a central portion in the chamber. The chamber also is provided with a napkin inlet and a removable tray, positioned below the heating unit. Communicating with the chamber, there is positioned a filter assembly to filter the undesirable odors and fumes emanating from the chamber so that the filtering gas may be routed out of this incinerator in a clean and harmless state.

This present invention thereby contemplates an essentially simple portable construction adapted to be hung on any wall in a lavatory in order to thereby conveniently, efficiently and economically dispose of sanitary napkins.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective overall view of this invention; FIG. 2 is a perspective view of the internal elements of the invention showing the external housing in dotted form; FIG. 3 is a view taken along line 3—3 of FIG. 2; FIG. 4 illustrates a modified switching mechanism of the invention; and FIG. 5 illustrates a circuit diagram of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the embodiment illustrated in FIGS. 1-3 of the drawings, there is shown a portable incinerator generally indicated by 1 and comprises a relatively small outer rectangular housing 2 having front, rear, top and bottom walls. The incinerator 1, in FIG. 1, is shown to be mounted against a wall 3 of any room, for example a public lavatory. Almost the entire interior surface of the housing 2 is provided with a heat insulating material 4, such as asbestos or fiber glass, so as to retain, within the housing, any heat evolved therewith.

The upper portion of the front wall of the housing 2 carries a door 5 which is secured to the front wall by a hinge 6. The lower end of the front face is provided with an elongated slot into which a slideable tray 7 is inserted. The tray 7 is of such a size that it covers substantially the entire surface of the bottom wall of the housing 2.

Immediately above the tray 7, a heating unit 8 is positioned within the housing 2. The heating unit 8, in the preferred form, is an electric coil. This coil 8 is anchored to elongated supports 10 which extend across the housing in such a way as to form a U-shaped grid structure for supporting a sanitary napkin when it is placed within the housing 2.

Within the housing 2 there are placed two planar reflecting surfaces 11. These surfaces 11 are positioned outwardly of the heating coil 8 and diverge upwardly from a point intermediate the tray 7 and the heating coil 8. The upper end of the reflecting surfaces 11 rests against the surface of the insulating material 4 mounted on the front and rear walls of the housing 2. The lower ends of the reflecting surfaces 11 terminate and form an ash outlet 12. The area defined between the two reflecting surfaces 11 is hereinafter referred to as a heating chamber 13.

Arranged within the upper portion of the housing 2 is a hood generally indicated by 14, having front and rear hood walls 15 and 16, respectively, which converge upwardly and communicate, at their upper ends, with a filter assembly, generally indicated by 17. The rear hood wall 16 extends downwardly and terminates against the insulating material 4 on the rear wall of the housing 2 immediately adjacent one of the reflecting surfaces 11. The lower end of the front hood wall 15, on the other hand, terminates at a point spaced from the insulating material 4 which is arranged on the inside surface of the front wall of the housing 2, thereby forming a sanitary napkin material inlet 18 for the heating chamber 13.

The door 5 is provided with an extension 20 which angularly projects into the housing 2. The extension 20 is adapted to close the material inlet 18. When the door 5 is fully opened as indicated by the dotted lines in FIG. 3.

The filter assembly 17 is composed of two separate filter elements 21 and 22 arranged in juxtaposition to one another such that any gases emanating within the heating chamber 13 must pass through both of the filter elements 21 and 22 before they exit from the housing 2. The filter elements 21 and 22 are mounted within filtering frames 23 which surround the peripheral edges of the filter elements 21 and 22. The filter elements and their corresponding frames are removable held over the upper ends of the hood walls 15 and 16 by means of brackets 24 which are secured to the side walls of the housing 2.

The interior surface of the door 5 is provided with a vertical extending flange 25. An extensible spring 26 is secured at one of its ends, to the upper end of the flange 25, and is anchored, at its other end, to the bracket 24. A flip-flop valve, generally indicated by 29, is secured to the outside surface of insulating material 4 on a filter hood wall 15. The valve 29 carries a valve extension 27, which is adapted to extend across the material inlet 18. The valve extension 27 is connected to the door flange 25 via a cable 28 which is slidably anchored at an intermediate point to the front hood wall 15. The valve 29 is constructed so as to actuate the door 5 is closed. Alternatively, when the door 5 is opened, the valve extension is rotated about a fixed axis 30 until...
it rests near the surface of the insulating material 4 on the front hood wall 15. Mounted above the filter assembly 17 and against the insulating material 4 on the inside surface of one of the side walls there is positioned an exhaust fan 31. This fan 31 is connected through a clean gas exhaust 32 which extends through the side wall of the housing 2.

The lower end of one of the side walls of the housing 2 carries an air inlet 33 for providing gas circulation through the interior of the housing 2.

The top wall of the housing 2 carries a switch 34 which is connected to operate a switching mechanism for activating and deactivating the passage of current through the heating coil 8. The front wall of the housing 2 also is provided with a light signal 35 which is associated with the switch 34 as hereinafter described.

FIG. 5 illustrates a circuit diagram used in the invention. The switch 34 is connected in series with the heating coil 8 through a terminal of a switching mechanism 36. The heating coil 8 is also connected in series with both the motor M of the fan 31 and the light signal 35. The motor M is also connected to a separate terminal in the switching mechanism 36.

The switching mechanism 36 is preferably a simple timer similar to that disclosed in Pat. No. 3,304,599 but it may alternatively be a temperature sensitive mechanism, such as a thermocouple.

The operation of the circuit is such that, when the switch 34 is closed, current flows through the switching mechanism 36 directly to the heating coil 8 and to the motor M of the fan 31. The light signal 35 will be lighted indicating that the incinerator is in operation. Either upon the expiration of a time interval or upon the presence of a specific temperature in the heating chamber, the current to the heating coil 8 will be terminated and the current will be directly passed to the motor M of the fan 31 which will operate the fan 31 for a specified period of time after the heating coil 8 is deactivated.

The operation of the sanitary napkin incinerator may be described as follows. When it is desired to insert the sanitary napkin, or the like, into the incinerator 1, the door 5 is rotated about its hinge 6, thereby simultaneously raising the valve extension 27 to a position near the insulating material 4 on the front hood wall 15.

The sanitary napkin is then inserted through the door opening and allowed to fall and rest against the door extension 20 which closes the material inlet 18. The door 5 is then closed, thereby enabling the door extension 20 to rotate downwardly to allow the sanitary napkin to fall onto the heating coil 8 and at the same time enabling the valve extension 27 to close the material inlet 18.

The switch 34 is then depressed which activates both the heating coil and the motor M of the fan 31, as indicated by the light signal 35. The heat supplied by the heating coil 8 burns the sanitary napkin to ash which falls, by gravity, through the heating coil 8 into the removable tray 7 where the debris is collected. The heat supplied by the heating coil 8 is reflected by the angularly positioned heat reflecting surfaces 11 and concentrated at a central point within the heating chamber 13. By this technique the sanitary napkin is efficiently burned.

Air passing into the housing 2 through air inlet 33 also aids in both the combustion of the sanitary napkin and the conveyance of the undesirable fumes and odors to the filter assembly 17. The fumes and odors, circulated by the incoming air, thereby pass only through the filter elements 21 and 22, since the material inlet 18 is closed at this time by the valve extension 20.

The dual acting filter assembly 17 filters the gases passing therethrough and removes any undesirable odors and fumes so that only filtered and clean gases may be returned to the immediate environment of the room through the clean gas outlet 32. The exhaust fan 31 operates to aid in the removal of the gas but it is to be understood that the positioning of the fan 31 in the housing is merely optional.

Upon the expiration of a specified time interval or upon the reaching of a specific temperature within the heating chamber 13, the current to the heating coil 8 is stopped; the fan 31 may be maintained in operation for an additional specified period of time in order to continue to exhaust any lingering gas from the front wall of the housing 2 near the door 5. The switch 37 carries a depression button 38 which extends outwardly from the surface of the front wall. Additionally, the door 5 is provided with an extended lip 40 which is adapted to contact and depress the button 38 of the switch 37 when the door 5 is in its closed position. It is thus evident that the activation and deactivation of the heating coil 8 is directly dependent upon the movement of the door 5 in this embodiment whereas, in the embodiment of FIGS. 1–5, the manual switch 34 initiates the supply of current to the heating coils.

While the preferred filter assembly is illustrated using two separate and distinct materials arranged in juxtaposition to one another, this invention also contemplates the use of any one well known filtering material as long as the material functions to remove both the undesirable fumes and odors from the gas within the heating chamber.

Further, the particular choice of materials used in the filter assembly may be those well known in the art. One filter material may consist of activated charcoal particularly adapted to remove smoke while the other material of the filtering assembly may be fiber glass which is well adapted to remove any undesirable odors.

While the preferred embodiment has been directed to a sanitary napkin incinerator in which the heating unit is composed of an electric coil 8, this invention also contemplates the use of other heating units well known in the art. For example, this invention could be modified to use a single or a plurality of gas burner jets for supplying the necessary heat to burn the sanitary napkins.

Having described the invention with particular reference to the preferred forms thereof, it will be obvious to those skilled in the art to which this invention pertains, after understanding the invention, that various changes and modifications may be made therein without departing from the spirit and scope of the invention.

I claim:

1. A sanitary napkin incinerator comprising:
   (a) a heating unit therein arranged for supporting and heating the napkin;
   (ii) heat reflecting plates having surfaces arranged therein to reflect the concentrated heat from the heating unit to a central portion of the chamber; and
   (iii) an inlet means for introducing the napkin to the heating unit;
   (b) a removable tray positioned below the heating unit; and
   (c) a filter assembly positioned in communication with said chamber and an outlet in said chamber to filter undesirable odors and fumes emanating therefrom through said outlet.

2. The sanitary napkin incinerator of claim 1 wherein said reflecting surfaces are spaced from one another and are positioned outwardly of said heating unit, said surfaces diverging upwardly from a point below the heating unit.

3. The sanitary napkin incinerator of claim 1 wherein said chamber also is provided with a hood arranged above said heating unit, said hood communicating with the filter assembly, and a door into the incinerator operatively connected to means for opening and closing said material inlet.
4. The sanitary napkin incinerator of claim 3 wherein said hood comprises a pair of walls which converge upwardly towards the filter assembly.

5. The sanitary napkin incinerator of claim 3 wherein said filter assembly comprises at least two filter elements arranged in juxtaposition, such that the odors and fumes pass through both filter elements, one of said filter elements characterized by being susceptible to retaining undesirable odors, the other being susceptible to retaining undesirable fumes.

6. The sanitary napkin incinerator of claim 2 including a switch connected to said heating unit for activating and deactivating it.

7. The sanitary napkin incinerator of claim 6 wherein said switch is provided with a temperature sensitive means for deactivating the heating unit in response to a temperature in the heating chamber.

8. The sanitary napkin incinerator of claim 6 wherein said switch is provided with a timer for deactivating the heating unit in response to a specified time interval.

9. The sanitary napkin incinerator of claim 6 wherein said switch is provided with a means for activating the heating unit in response to the closure of said inlet means.

10. A sanitary napkin incinerator comprising
(a) a chamber having
(i) a heating coil therein arranged in a grid form to support and heat a sanitary napkin; and
(ii) a pair of spaced plates having planar surfaces which are positioned outwardly from said heating coil and diverge upwardly from a point below the heating coil for reflecting and concentrating heat from the heating coil to a central portion in the chamber;
(b) a removable tray positioned below the heating coil;
(c) a filter assembly comprising two filter elements arranged in juxtaposition such that any odors and fumes from any burning in the chamber pass through both filters, one of said filters characterized by being susceptible to retaining undesirable odors, the other being characterized by being susceptible to retaining undesirable fumes;
(d) a hood arranged above the heating coil, said hood comprising a pair of walls which converge upwardly toward the filter assembly to provide communication therewith;
(e) a clean gas outlet situated above the filter assembly;
(f) a fan, positioned between the filter assembly and the clean gas outlet, to aid in the removal of the gas passing through the filter assembly from the chamber; and
(g) an electrical switching mechanism connected to the heating coil for activating and deactivating the heating coil in response to a predetermined condition.

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