April 26, 1966 H. M. UMANN 3,247,524

HYGIENIC APPARATUS FOR USE ON TOILET BOWLS

Filed Jan. 31, 1964 4 Sheets-Sheet 1

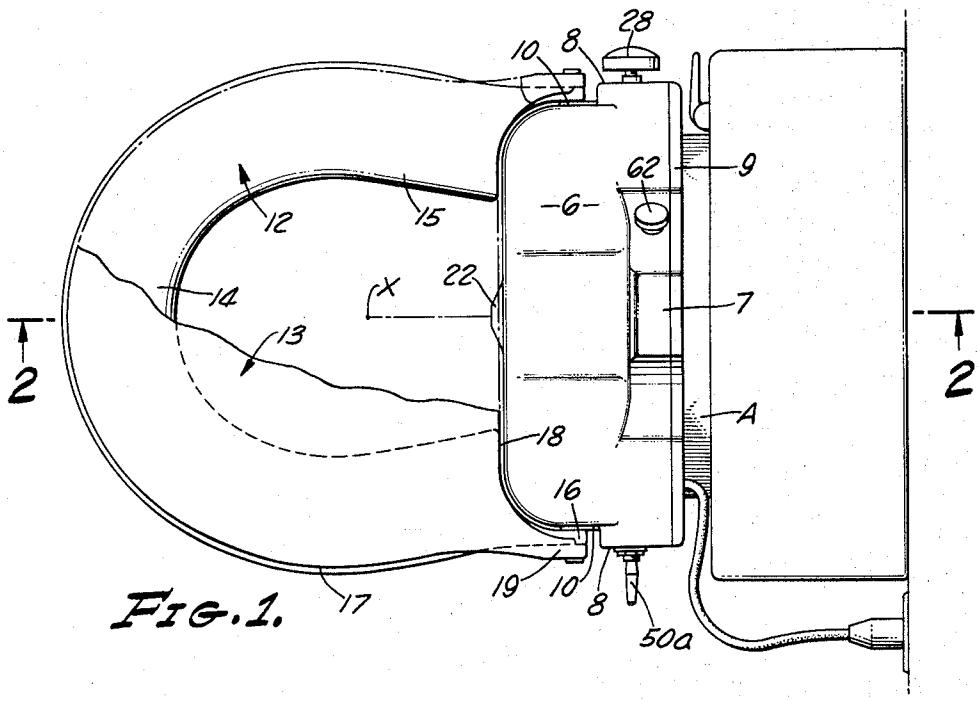


FIG. 1.

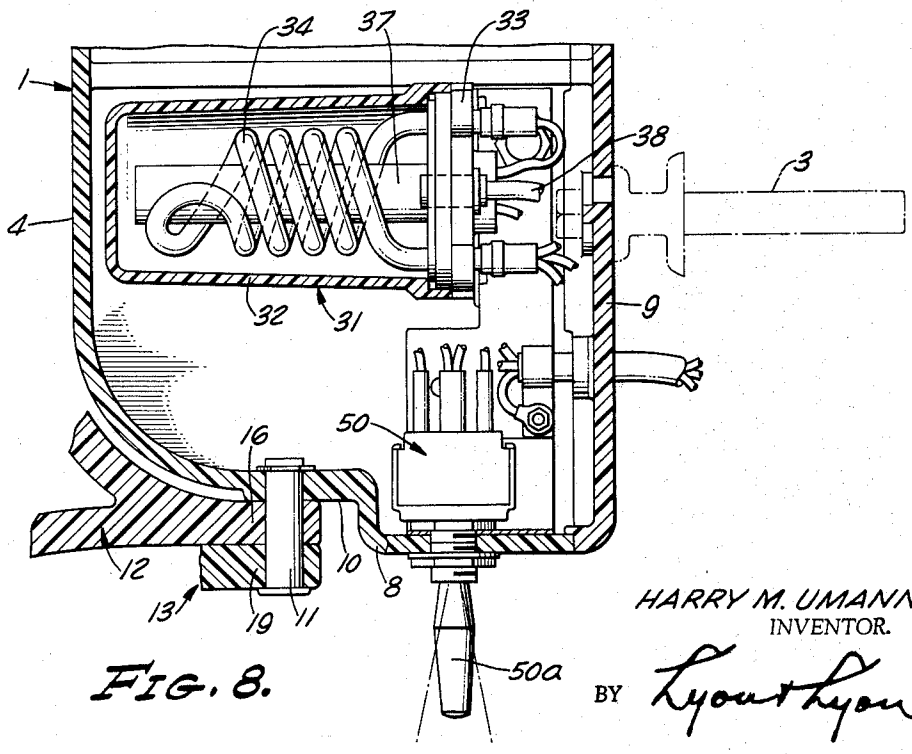


FIG. 8.

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April 26, 1966 H. M. UMANN 3,247,524

HYGIENIC APPARATUS FOR USE ON TOILET BOWLS

Filed Jan. 31, 1964 4 Sheets-Sheet 2

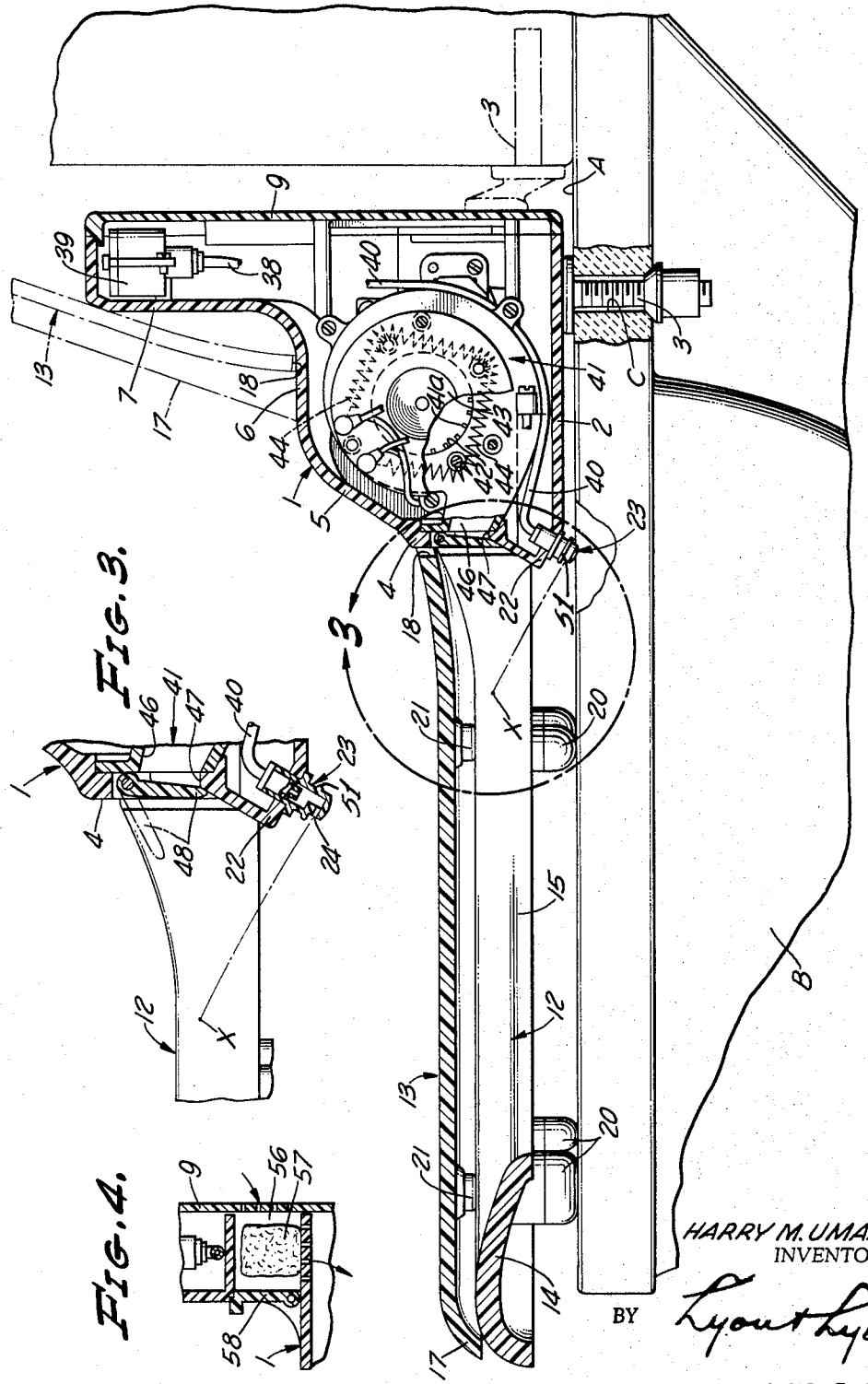


FIG. 2.

FIG. 3.

FIG. 4.

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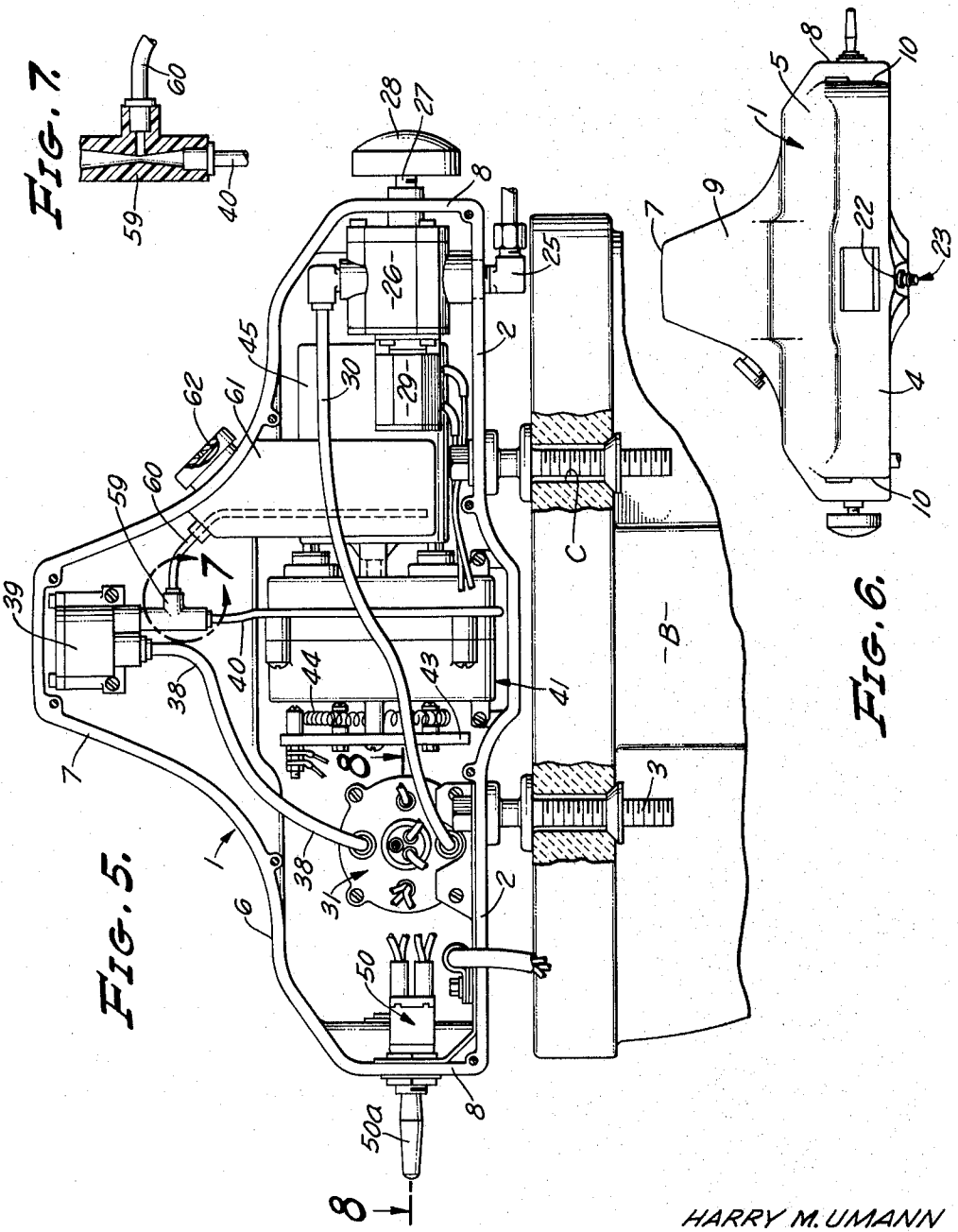
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April 26, 1966 H. M. UMANN 3,247,524

HYGIENIC APPARATUS FOR USE ON TOILET BOWLS

Filed Jan. 31, 1964 4 Sheets-Sheet 3



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April 26, 1966 H. M. UMANN 3,247,524

HYGIENIC APPARATUS FOR USE ON TOILET BOWLS

Filed Jan. 31, 1964 4 Sheets-Sheet 4

FIG. 9.

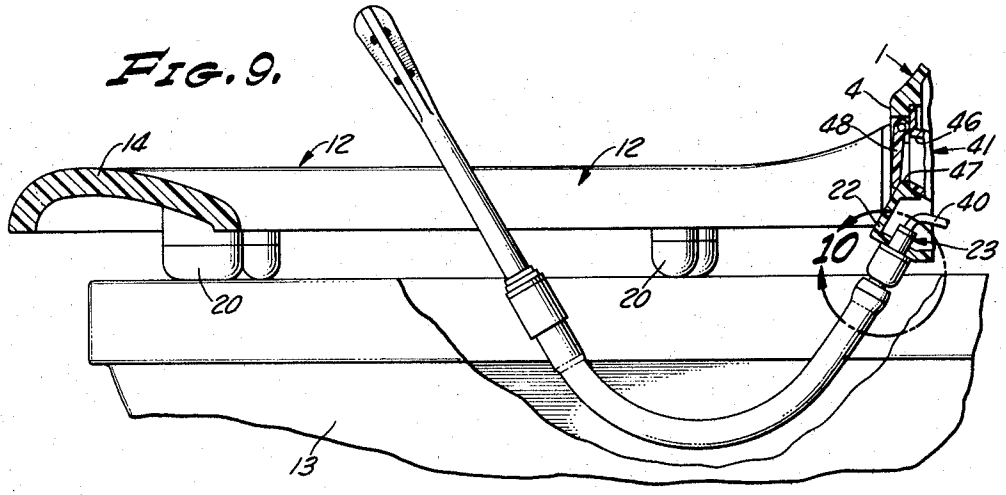


FIG. 11.

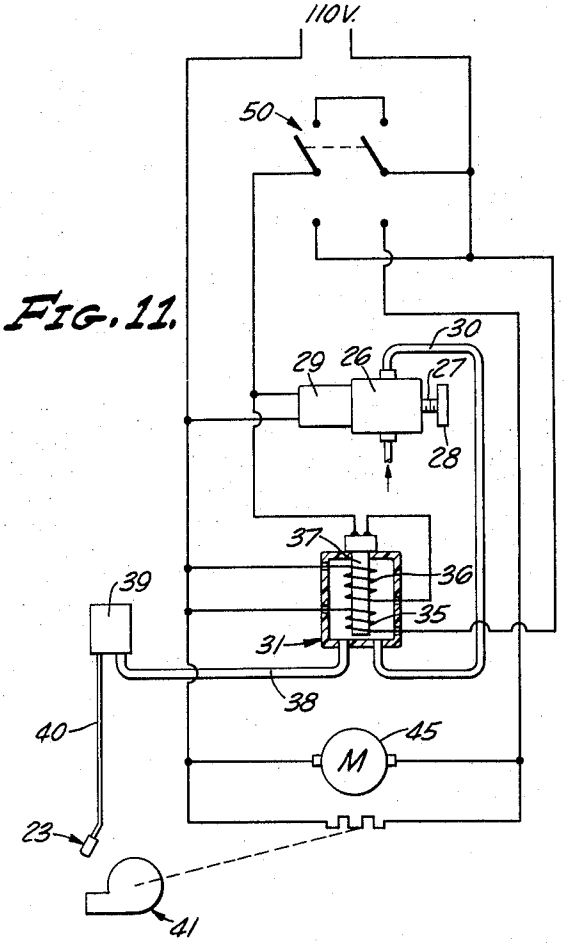
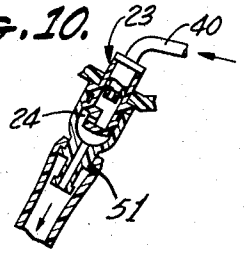


FIG. 10.



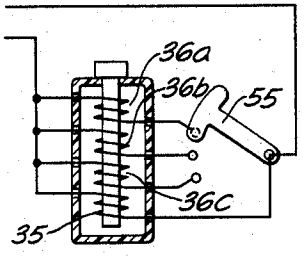


FIG. 12.

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United States Patent Office 3,247,524 Patented Apr. 26, 1966

3,247,524

HYGIENIC APPARATUS FOR USE ON TOILET BOWLS

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Filed Jan. 31, 1964, Ser. No. 341,792
13 Claims. (Cl. 4—7)

This invention relates to hygienic apparatus for use on toilet bowls, and included in the objects of this invention are:

First, to provide a hygienic apparatus which is adapted to be mounted on a toilet bowl in place of the conventional seat, and which is arranged to direct a jet of warm water of small diameter at the anus or adjacent body openings in such a manner that the water is confined essentially to the relatively small region to be cleaned rather than covering large areas of the buttocks.

Second, to provide a hygienic apparatus of this type which, because the water jet is confined to the region to be cleansed, not only is a minimum volume of warm water required but also a minimum of warm air is required to dry the region, thereby permitting construction of the apparatus in a particularly compact form and minimizing the amount of electrical power required to heat the water and air.

Third, to provide a hygienic apparatus wherein various components, such as a water heater, air heater and blower, regulator and shut-off valve, and vacuum relief valve are all contained in a compact housing secured at the rear of the toilet bowl, forwardly of the flush tank; and wherein the toilet seat and cover are hinged or otherwise joined to the housing to form therewith an integral unit, which may be readily attached to the conventional toilet bowl.

Fourth, to provide a hygienic apparatus of this type which incorporates means whereby a preliminary supply of water is maintained at essentially body temperature, so that even the initial portion of the water contacting the body does not produce a temperature shock.

Fifth, to provide a hygienic apparatus of this type which is so arranged that a douche attachment may be quickly attached or removed, and which eliminates the need of a long hose line between the hygienic apparatus and the douche tip.

With the above and other objects in view, as may appear hereinafter, reference is directed to the accompanying drawings in which:

FIG. 1 is a top view of the hygienic apparatus shown in position on a toilet;

FIG. 2 is an enlarged, longitudinal, sectional view taken through 2—2 of FIG. 1 with portions of the toilet bowl and tank shown fragmentarily;

FIG. 3 is a further enlarged, fragmentary, sectional view taken within circle 3 of FIG. 2, indicating the particularly the nature of the water stream discharged from the water nozzle and the discharge end of the air duct, the toilet seat cover being omitted;

FIG. 4 is a fragmentary view illustrating a means whereby deodorant may be introduced into the air stream;

FIG. 5 is an enlarged, back view of the hygienic apparatus with the cover plate removed to show the arrangement of the operating components;

FIG. 6 is a front view of the housing with the toilet seat and toilet seat cover removed;

FIG. 7 is a fragmentary, sectional view taken through 7—7 of FIG. 5 showing an aspirator for introducing medicament, or the like, into the water stream;

FIG. 8 is an enlarged, fragmentary, sectional view taken through 8—8 of FIG. 5, showing the connection between the housing structure, toilet seat and toilet seat cover, the control switch, and the water heating unit;

FIG. 9 is a fragmentary view similar to FIG. 2 showing the manner in which a douche appliance is connected to the water nozzle;

FIG. 10 is an enlarged, fragmentary, sectional view taken within circle 10 of FIG. 8;

FIG. 11 is a diagrammatical view showing the fluid and electrical circuits involved in the hygienic apparatus;

FIG. 12 is a fragmentary, diagrammatical view showing a modified form of heater.

The hygienic apparatus includes a housing 1 which is adapted to be disposed over a shelf A provided at the rear of a conventional toilet bowl B. The lateral extent of the housing corresponds substantially to the lateral extent of the shelf A.

The housing 1 includes a lower wall 2 disposed contiguous to the shelf A and secured thereto by mounting studs 3 inserted through holes C normally provided in the shelf A for attachment of a conventional toilet seat. The lower wall 2 is joined to a relatively shallow, vertical forward wall 4 which merges into an upwardly and backwardly sloping wall 5, which in turn merges into an upper wall 6. Centered in the rear portion of the upper wall 6 is an upward extension 7.

The lateral ends of the housing 1 are provided with end walls 8 of approximately the same height as the forward wall 4. The end walls 8 merge into the upper wall 6.

The junctures between the forward wall 4, sloping wall 5, upper wall 6, and end walls 8, as well as the extension 7, are rounded to provide smooth transition from one wall to the next.

The rear side of the housing 1 is vertical and is closed by a cover plate 9. The cover plate may be provided with means to receive the mounting studs 3 for installations in which the mounting studs extend horizonally and rearwardly rather than downwardly, as indicated by broken lines in FIG. 2.

The forward portions of the end walls 8 are offset inward, as indicated by 10, and are provided with laterally extending pivot pins 11. Pivotally connected thereto is a toilet seat 12 and a toilet seat cover 13.

The toilet seat 12 is U-shaped in plan and includes a forward cross portion 14 and lateral arms 15, the rear or extended ends of which conform to the curvature of the housing 1, between the forward wall 4 and end walls 8 thereof, and terminate in journal elements 16 which fit the pivot pins 11. The toilet seat 12 is molded of plastic, and the cross portion 14, as well as the arms 15, are arched in cross section.

The toilet seat cover 13 overlies the toilet seat 12 and is provided with curved side and forward margins 17. The rear margin 18 of the cover 13 conforms substantially to the forward wall 4, and is provided at its lateral sides with extensions 19 which overlie and curve so as to fit outside the journal elements 16 of the toilet seat 12 and receive the pivot pins 11.

The contour of the housing 1 is such that the toilet seat cover 13 may be moved from a horizontal position closing the toilet seat 12 to a backwardly inclined open position, as indicated by broken lines in FIG. 2. The upward extension 7 serves as a stop for the cover 13.

The contour of the housing 1 in the region of the sloping wall 5 is such that the rear margin 18 of the cover

13 conforms thereto in both the closed and the open position of the cover 13. Suitable supporting pads 20 and 21 are provided under the toilet seat 12 and cover 13, respectively.

At the central portion of the housing 1 the forward wall 4 is provided with a rudimentary extension 22 having an inclined lower wall which is perforated to receive a nozzle member 23. The nozzle member 23 is located in a plane passing through the forward-rearward axes of the toilet bowl B.

At its forward side the nozzle member 23 is provided with a single upwardly and forwardly directed jet orifice 24, so designated that a single jet of water may be discharged in a trajectory which coincides with the forward-rearward axes of the toilet bowl B. The nature of the water jet discharged from the nozzle member 23 is crucial to the operation of the hygienic apparatus, and will be describtd in more detail hereinafter.

At a convenient location, preferably adjacent one end of the housing 1, there is provided a water supply line connection 25 which is joined to the inlet of a regulator and shut-off valve 26. The valve is shown in more detail in the copending application, Serial No. 341,794 filed January 31, 1964, entitled "Solenoid-Operated Shut-Off and Regulator Valve."

The regulator and shut-off valve 26 includes a screw-threaded stem 27 which extends laterally from one end of the housing 1 and is provided with a knob 28, which is readily engaged by an occupant of the toilet seat 12. At the opposite end of the valve 26 there is provided a solenoid control 29 which operates the shut-off portion of the valve.

A flow line 30 extends from the regulator and shut-off valve 26 to a water heater unit 31. The water heater 31 includes a container 32 and a cover 33. The flow line 30 is connected to the cover 33 to supply water to the container 32. Supported by the cover 33 are the extremities of a heating element 34. The heating element may be a dual heating element, that is, one provided with a low wattage resistor 35 and a high wattage resistor 36, as indicated diagrammatically in FIG. 9.

Mounted on the cover 33 and extending into the container 32 is a thermostat 37. A flow line 38 extends from the water heater unit 31 to a vacuum relief valve 39 located in the upper portion of the extension 7. The relief valve 39 may be conventional, or may be the type shown more particularly in the copending application, Serial No. 341,796 filed January 31, 1964 entitled "Vacuum Relief Valve." A flow line 40 leads from the vacuum relief valve 39 to the nozzle member 23.

Centrally located in the housing 1 is a blower 41 having a horizontally directed inlet 42 covered by a plate 43 spaced from the inlet 42 so that air flows radially inward to the inlet. In the space between the plate 43 and inlet 42 is a heating element 44.

The blower 41 preferably includes a squirrel-cage type rotor 41*a* driven by a motor 45 which deliver air to an outlet scroll terminating in a duct 46, which leads to an outlet opening 47 provided in the forward wall 4 above the nozzle member 23. The blower 41 is more fully disclosed in the copending application, Serial No. 341,793 filed January 31, 1964 entitled "Hot Air Blower."

The outlet opening 47 is provided with a gate 48 having a pivot shaft 49 at its upper margin, so that the gate 48 normally occupies a closed position as shown by solid lines in FIGS. 2 and 3, but readily opens, as indicated by broken lines in FIG. 3, upon operation of the blower 41.

A control switch 50 is mounted at the end of the housing 1 opposite from the knob 28. The control switch 50 is provided with a handle 50*a* which normally occupies a neutral position, as indicated by solid lines in FIG. 6, but may be manually moved to either one of two inclined positions, the axes of which are indicated by broken lines in FIG. 6. When the switch 50 is moved

to one position, the shut-off portion of the valve 26 is opened, the high wattage resistor 36 of the heater is energized, and water discharges from the nozzle member 23. When the other position of the switch 50 is selected, the blower 41 and its heating element 44 are actuated and energized to discharge air from the outlet opening 47.

Operation of the hygienic apparatus is as follows:

A person seated on the toilet tends to be centered with respect to the seat so that the anus, as well as other openings in the region of the anus, is disposed in the plane of the trajectory of the water jet issuing from the jet orifice 24. The reach of the trajectory is determined by the water pressure.

The jet orifice 24 is so arranged that the water jet has a relatively small cross section, so that by the occupant moving forward or backward on the toilet seat, or by adjustment of the water pressure, the jet of water strikes rather precisely at the anus or other adjacent opening so that only the region to be cleaned receives water. This is of paramount importance for the reason that if the water is used efficiently, washing only the precise region which needs to be cleaned, then the volume of water required for this operation is minimized. By minimizing the amount of water required, the amount of energy required to heat this water is also minimized.

Upon completion of the washing operation, the occupant operates the blower 41 which discharges air in the general direction against the underside of the occupant along the general trajectory of the water so as to dry the wetted portions. Again, by reason of the fact that the area which has been wetted is minimized, the volume of heated air required is likewise minimized and the energy required to heat the air is correspondingly reduced. By reason of the fact that the energy required to heat the water and to heat the air is minimized, the various components may be packaged in the housing 1, thereby occupying a relatively small space in the rear of the toilet bowl B.

It will be noted in FIG. 9 that the low wattage resistor 35 remains energized continuously. The energy output of the resistor 35 is such that the volume of water filling the container 32 is maintained at a comfortable, warm temperature, and constitutes the initial volume of water discharged from the jet orifice 24 so that a temperature shock to the occupant is avoided. By the time the volume of water initially contained in the container 32 has been depleted, the high wattage resistor 36 has brought the incoming water to the desired temperature as determined by the thermostat 37.

It should be noted that while dual resistors are indicated, a single resistor may be utilized in conjunction with a step-down transformer so that in fact it functions as a low wattage resistor until discharge of water from the jet orifice 24.

The nozzle member 23 is provided with a rib 51 or a partial screw thread so as to receive a douche fitting 52, as shown in FIGS. 7 and 8. A short hose 53 is attached to the fitting 52 and in turn is attached to a conventional douche tip 54. It is therefore possible by ready attachment of a douche assembly to utilize the hygienic apparatus for douche operations.

As a further refinement, the main heating element of the water heater may be divided into two or several subelements 36*a*, 36*b*, and 36*c*, as indicated in FIG. 12. The subelements may be controlled by a stepping switch 55 so that the temperature of the water may be adjusted to suit individual requirements or to compensate for climatic conditions.

Inasmuch as air discharged from the blower 41 enters the housing 1 in order to enter the blower, the housing may be provided with a perforated entrance compartment 56, indicated in FIG. 4, which receives a stirilizing or scenting cartridge 57. A conveniently located door 58 is provided for insertion of the cartridge.

Similarly, a medicament, or the like, may be entrained in the water flowing in line 40 as shown in FIG. 5. This

is accomplished by an aspirator unit 59 having an intake tube 60 which leads to a container 61 mounted within the housing 1 and accessible through a cover 62.

While a particular embodiment of this invention has been shown and described, it is not intended to limit the same to the exact details of the construction set forth, and it embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

What is claimed is:

1. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) an apertured toilet seat joined to the lateral sides of said housing;
(d) a water orifice means disposed at the bottom of said housing for directing a jet stream in an upward and forward trajectory;
(e) manually-responsive valve means for causing discharge of water from said orifice means;
(f) stand-by-heater means for maintaining a predetermined volume of water at a warm temperature for initial discharge from said orifice means;
(g) and a main heater means, operable on opening of said valve means, to heat water supplied therethrough, thereby to supplyment said predetermined initial volume of warm water.

2. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing, the forward side of said housing forming an upwardly and backwardly sloping surface complementing said toilet seat for assisting said toilet seat in supporting the buttocks of a person seated in center relation thereon;
(d) a discharge fitting located at the bottom of said housing in center relation thereto and including an upwardly and forwardly directed orifice;
(e) means for supplying warm water to said fitting for discharge through said orifice;
(f) a douche implement;
(g) and means for attaching said douche implement to said discharge fitting.

3. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing, the forward side of said housing forming an upwardly and backwardly sloping surface complementing said toilet seat for assisting said toilet seat in supporting the buttocks of a person seated in centered relation thereon;
(d) a toilet seat cover also hinged to the lateral sides of said housing and including a rear margin movable in an arc approximating said sloping portion of the housing on movement of said seat cover between a position closing said toilet seat and an upright position, said housing including an upstanding extension engageable by said seat cover;
(e) a water orifice means disposed at the bottom of said housing for directing a jet of water in an upward and forward trajectory disposed in a plane common to the anus of a person centered on said toilet seat;
(f) and means in said housing for heating water for said orifice means.

4. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing, the forward side of said housing forming an upwardly and backwardly sloping surface complementing said toilet seat for assisting said toilet seat in supporting the buttocks of a person seated in centered relation thereon;
(d) an orifice means located at the bottom of said housing and directed upwardly and forwardly to discharge a jet of water in a trajectory intersecting the anal region of a person seated in a centered position on said toilet seat;
(e) means for supplying warm water to said orifice means;
(f) a liquid medicament container in said housing;
(g) and a device in said water supply means for entraining said medicament into the water supplied to said orifice means.

5. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing, the forward side of said housing forming an upwardly and backwardly sloping surface complementing said toilet seat for assisting said toilet seat in supporting the buttocks of a person seated in centered relation thereon;
(d) a discharge fitting located at the bottom of said housing in centered relation thereto and including an upwardly and forwardly directed orifice;
(e) means for supplying warm water to said fitting for discharge through said orifice;
(f) a liquid medicament container in said housing;
(g) and a device in said water supply means for entraining said medicament into water supplied to said discharge fitting.

6. A hygienic apparatus for use on a toilet bowl having a rear side, comprising:
(a) a housing dimensioned for installation at the rear side of a toilet bowl having a bottom and lateral sides;
(b) means for fixing said housing to the rear side of the toilet bowl;
(c) an apertured toilet seat extending from the lateral sides of said housing;
(d) a water orifice means disposed at the bottom of said housing for directing a jet stream in an upward and forward trajectory;
(e) means in said housing for heating water for said orifice means;
(f) a warm air blower in said housing having a discharge opening disposed above said water orifice means for discharging of air in a stream enveloping the trajectory of said water jet, and an inlet communicating with the interior of said housing;
(g) perforated means in said housing forming an inlet compartment for flow of air therethrough to said blower;
(h) and an access door for said inlet compartment for insertion of a substance to be entrained in the air flowing to said blower.

7. A hygienic apparatus for use on a toilet bowl having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) an apertured toilet seat hinged to the lateral sides of said housing structure;
(d) a toilet seat cover also hinged to the lateral sides of said housing structure;
(e) a water jet means at the front side of said housing structure adjacent the bottom side thereof directed forwardly and upwardly from said housing structure;
(f) means in said housing for heating water for said jet;
(g) an air discharge means within said housing and directed forwardly from said housing structure adjacent said water jet means;
(h) means in said housing structure for heating and directing air through said discharge means;
(i) and manually-operated control means for causing discharge of water and air.

8. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing structure, the forward side of said housing structure forming an upwardly and backwardly sloping surface complementing said toilet seat for supporting the buttocks of a person seated on said toilet seat;
(d) a water jet means at the front side of said housing structure adjacent the bottom side thereof directed forwardly and upwardly from said housing structure;
(e) means in said housing structure for heating water for said jet;
(f) an air discharge means within said housing and directed forwardly from said housing structure adjacent said water jet means;
(g) means in said housing structure for heating and directed air through said discharge means;
(h) and manually-operated control means for causing discharge of water and air.

9. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing structure, the forward side of said housing structure forming an upwardly and backwardly sloping surface complementing said toilet seat for supporting the buttocks of a person seated on said toilet seat;
(d) a toilet seat cover also hinged to the lateral sides of said housing structure and including a rear margin movable in an arc approximating said sloping portion of the housing structure on movement of said seat cover between a position closing said toilet seat and an upright position, said housing structure including an upstanding extension engageable by said seat cover;
(e) a water jet means at the front side of said housing structure adjacent the bottom side thereof directed forwardly and upwardly from said housing structure;
(f) means in said housing structure for heating water for said jet;
(g) an air discharge means within said housing and directed forwardly from said housing structure adjacent said water jet means;
(h) means in said housing structure for heating and directing air through said discharge means;
(i) and manually-operated control means for causing discharge of water and air.

10. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) a toilet seat extending forwardly from said housing structure; said toilet seat and the forward side of said housing structure being contoured to induce a person to be seated in a predetermined position thereon;
(d) a single orifice means located at the bottom of said housing and directed upwardly and forwardly to discharge a single jet of water in a trajectory confined to a vertical plane common to the anus of a person seated in said predetermined position on said toilet seat;
(e) means in said housing for heating water for discharge through said orifice;
(f) a pressure regulator in said housing for determining the pressure at which water discharges from said orifice thereby predetermining the trajectory of said water jet;
(g) and manual means for adjusting said pressure regulator.

11. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) a U-shaped toilet seat joined to the lateral sides of said housing structure, the forward side of said housing structure forming an upwardly and backwardly sloping surface complementing said toilet seat for supporting the buttocks of a person seated on said toilet seat, the contour of said toilet seat and forward side of said housing structure tending to induce a person to be seated in a predetermined position on said toilet seat;
(d) a single orifice means located at the bottom of said housing structure and directed upwardly and forwardly to discharge a single jet of water in a trajectory confined to a vertical plane common to the anus of a person seated on said toilet seat in said predetermined position;
(e) means in said housing housing structure for heating water for discharge through said orifice;
(f) a pressure regulator in said housing structure for determining the pressure at which water discharges from said orifice thereby predetermining the trajectory of said water jet;
(g) and manual means for adjusting said pressure regulator.

12. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:
(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;
(b) means for fixing said housing structure to the rear side of the toilet bowl;
(c) a U-shaped toilet seat hinged to the lateral sides of said housing structure, the forward side of said housing structure forming an upwardly and backwardly sloping surface complementing said toilet seat for supporting the buttocks of a person seated on said toilet seat, the contour of said toilet seat and forward side of said housing structure tending

to induce a person to be seated in a predetermined position on said toilet seat;

(d) a single orifice means located at the bottom of said housing and directed upwardly and forwardly to discharge a single jet of water in a trajectory confined to a vertical plane common to the anus of a person seated on said toilet seat in said predetermined position;

(e) means in said housing structure for heating water for discharge through said orifice;

(f) a pressure regulator in said housing structure for determining the pressure at which water discharges from said orifice thereby predetermining the trajectory of said water jet;

(g) manual means for adjusting said pressure regulator;

(h) and a toilet seat cover also hinged to the lateral sides of said housing and including a rear margin movable in an arc approximating said sloping portion of the housing structure on movement of said seat cover between a position closing said toilet seat and an upright position, said housing structure including an upstanding extension engageable by said seat cover.

13. A hygienic apparatus for use on a toilet bowl, having a rear side comprising:

(a) a housing structure dimensioned for installation at the rear side of a toilet bowl and including a bottom side, a back side, a front side and lateral sides;

(b) means for fixing said housing structure to the rear side of the toilet bowl;

(c) an apertured toilet seat secured to and extending from the lateral sides of said housing structure;

(d) a water orifice means disposed at the bottom of said housing structure for directing a jet stream in an upward and forward trajectory;

(e) means in said housing structure for heating water for said orifice means;

(f) an air duct in said housing structure terminating in an air outlet above said water orifice means for discharge of air in a stream enveloping the trajectory of said water jet;

(g) and means in said housing structure for heating said air.

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