

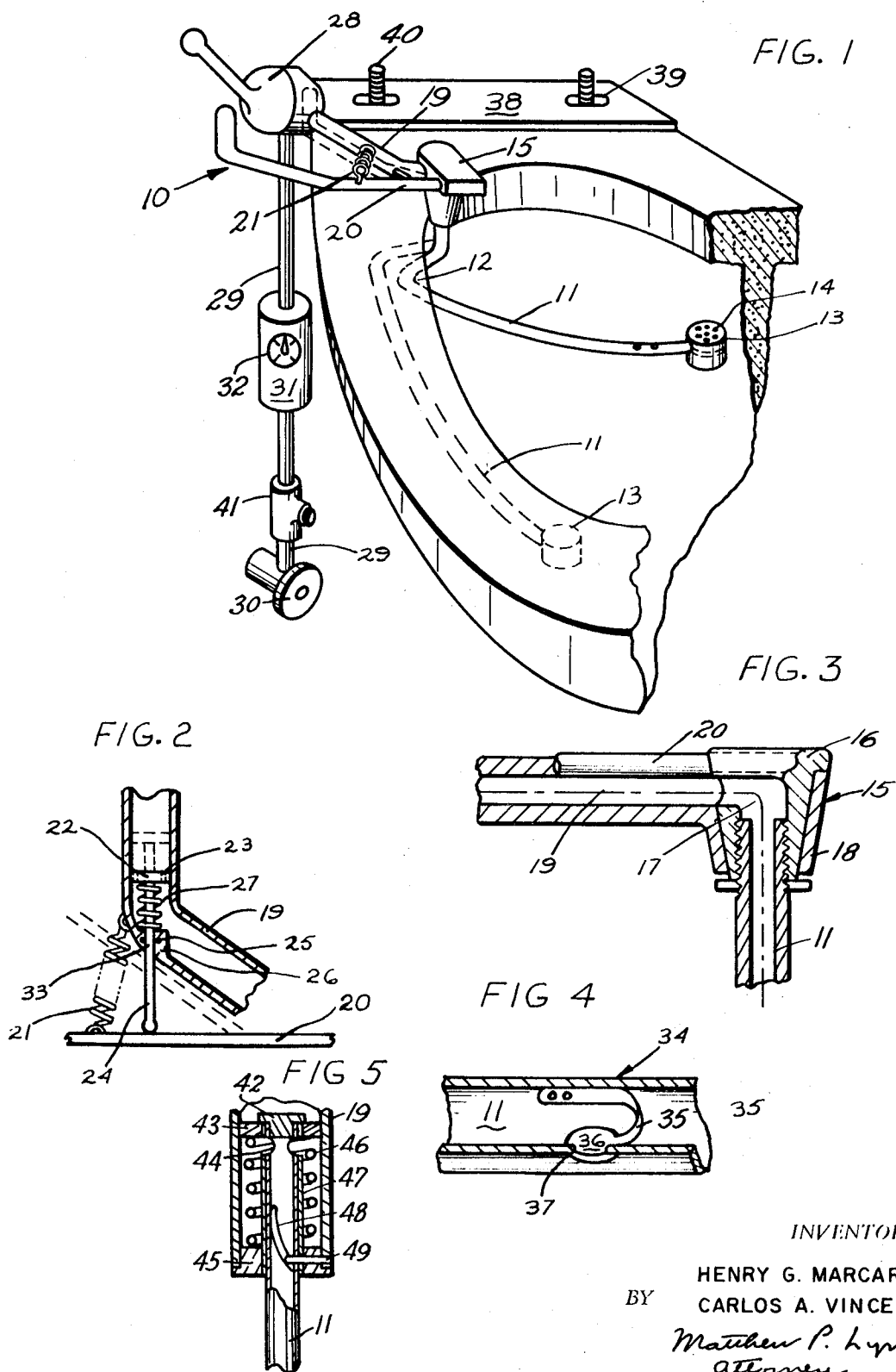
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PORTABLE BIDET

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PORTABLE BIDET

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ABSTRACT OF THE DISCLOSURE

A portable bidet for converting a flush toilet to a bidet, the bidet having a fluid delivery pipe rotatably connected to a pivot valve, the fluid delivery pipe adapted to rotate from its inactive position adjacent the internal rim of the toilet bowl to its operating position in the center of the bowl. A positioning means actuated by a flow of water, and adapted to automatically rotate the fluid delivery pipe to its operating position. A heater and thermostatic valve are provided to heat the water and provide an aromatic toilet bowl cleaning device.

BACKGROUND OF THE INVENTION

Certain sanitary devices have been used for centuries without any substantial novel or useful improvements. One of these devices is the common everyday water closet or toilet. All modern homes now have a flush toilet for use by an individual to sanitarily dispose of his excretions, however, this toilet while as common as the electric light has gone unnoticed by the advances of science.

Current flush toilets are extremely efficient in disposing of body wastes, however, they have certain attendant disadvantages, particularly from the standpoint of the personal hygiene and body health of the user. In a time when then manufacturers of body deodorants are breaking records in the sale of chemicals for the hiding of body odors a major cause of such odors is being virtually ignored at the expense of both the personal hygiene of the individual and the health of the community.

It is well known that a smear of grease on a person's body cannot be effectively removed by the rubbing with a piece of paper, particularly when the grease is located where the person cannot see it. A hit and miss dabbing and rubbing does nothing more than spread the grease around, and so it is with the current practice of trying to hygienically cleanse the anus of the remains of excretions, disposed of into a toilet, by the rubbing with paper or towels. Such a practice is at best inefficient and ineffective and at worst a cause for the spreading of germs and disease and a major cause of personal discomfort.

Additionally when paper is used to attempt to clean the anus of excess excretions or residues thereof there is a problem in that the hands of the user may become soiled and unsanitary and there is substantial risk of contamination and disease when subsequent users touch the same bathroom appliances as a previous user. Sometimes the used dirty paper is accidentally thrown on to the floor adjacent the toilet and serves to contaminate the surroundings. Insects are attracted by the contaminated paper and are drawn to it after which they inevitably alight upon it and then disperse carrying diseased microbes which have been known to cause illness and even epidemics in poorer communities. The avoidance of the use of paper will help prevent outbreaks of dysentery, typhoid fever and other sicknesses that spread rapidly and at great expense both in terms of human life and wasting of resources particularly in poorer highly congested living areas.

Many poorer people in an effort to economize do not buy the soft absorbent commercially available toilet paper because of its cost and therefore resort to newspaper,

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catalogs, paper bags and other slick, hard, harsh and unsanitary papers. The use of such makeshift toilet paper imposes many unnecessary hardships upon such people because the makeshift paper cannot be ingested and disposed of by the normal toilet and frequently clogs up the toilet causing great expense, hardship and unsanitary conditions until rectified by a plumber. This problem is in addition to the previously mentioned problem of improper cleansing and the attendant odor and disease resulting therefrom.

In order to eliminate or alleviate all the aforementioned problems the anus should be thoroughly washed after each bowel movement. This is commonly done in France by the utilization of a bidet, however, a bidet is very expensive and the people who need it the most can least afford it. Since everyone now has a standard flush toilet the obvious solution is to provide a device for converting a toilet to perform the same function as the bidet.

In addition to resolving the aforementioned problems, the bidet serves a number of other beneficial purposes, particularly in the area of feminine hygiene and in the treatment of anal disorders such as hemorrhoids.

SUMMARY OF THE INVENTION

A fluid delivery pipe connected to a suitable source of water through a valve is secured to the toilet bowl by a bracket which is attached to the existing bolts on the bowl to which the toilet seat is also attached. The fluid delivery pipe is adapted to rotate about a pivot valve from an "off" condition in juxtaposition to the inner rim of the bowl to an "on" position in the center of the bowl.

A thermostatically controlled heater is mounted about the water supply pipe so that the temperature of the water emitting from the fluid delivery pipe can be controlled and in the event of a malfunction in the thermostatic control a bimetallic valve, adapted to dump the stream of water directly into the bowl, is mounted within the fluid delivery pipe. The dump valve is also used to assist in the automatic cleaning of the toilet bowl itself.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating the portable bidet in both its "on" position and its "off" position in juxtaposition to the internal rim of the toilet bowl.

FIG. 2 is a cutaway of a portion of the water supply pipe illustrating the positioning means.

FIG. 3 is a cross section of the pivoting valve through which the fluid delivery pipe is connected to the water supply pipe.

FIG. 4 is a cutaway of the fluid delivery pipe illustrating the bimetallic dump and cleansing valve.

FIG. 5 is a cutaway of an alternate embodiment of the positioning means and pivoting valve.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings wherein like reference numbers designate like corresponding parts throughout the several views, there is shown in FIG. 1 a portable bidet 10 having a fluid delivery pipe 11. The delivery pipe 11 is configured at section 12 in a manner such that the pipe 11 is adapted to rotate out of sight under the internal rim of the toilet when not in use in a manner illustrated by the phantom lines in FIG. 1.

Secured to the outer free end of the delivery pipe 11 is a removable spraying nozzle 13. The spraying nozzle 13 has a plurality of orifices 14 therein which regulate the spraying pattern of the water discharging from the fluid delivery pipe 11. If it is desired to change the spraying pattern or replace the nozzle for hygienic reason the nozzle 13 can be easily unscrewed from the pipe 11 and a new nozzle substituted therefor. While normally the ori-

fices 14 of the nozzle 13 are orientated so that a stream of water passing therethrough will be directed against the anus of the user, the nozzle 14 can be rotated 180° so that the stream of water is directed downwardly into the toilet bowl to provide a means of cleaning the inside of the 5 bowl.

The opposite upwardly extending end of the fluid delivery pipe 11 is threaded into a pivot valve 15 as best illustrated in FIG. 3. The pivot valve 15 consists of an inverted truncated cone 16 having a channel 17 therein. 10 The truncated cone 16 is rotatably mounted in a housing 18 to which a secondary water supply pipe 19 is secured. Connected to the upper end of the cone 16 in juxtaposition to the secondary water supply pipe 19 is a lever 20. The lever 20 is adapted to cause the cone 16 to rotate about its vertical axis when the lever 20 is moved towards or 15 away from the delivery pipe 19.

The lever 20 is biased towards its normal position in juxtaposition to the pipe 19 by a spring 21 which is secured by one end to the pipe 19 and by its other end to 20 the lever 20. When the spring 21 is in its natural state the lever 20 is in juxtaposition to the pipe 19 and the fluid delivery pipe 11 is in its inactive or off position in juxtaposition to the internal rim of the bowl. This position is considered the off position because when the 25 truncated cone 16 is rotated to cause the delivery pipe 11 to be in juxtaposition to the inner rim of the bowl the channel 17 of the cone 16 is not in alignment with the opening of the secondary supply pipe 19 and water is prevented from passing from the supply pipe 19 to the 30 delivery pipe 11.

In order to open the pivot valve 15 by rotating the cone 16 about its axis and cause the delivery pipe 11 to move into operating position in the center of the toilet bowl a positioning means having a hydraulic piston 22 35 is located within the secondary supply pipe 19 as illustrated in FIG. 2. The piston 22 has a plurality of orifices 23 therein which allow the water to pass through the piston 22 to the delivery pipe 11, however, the force of the water against the face of the piston 22 is sufficient to overcome the biasing force of the spring 21. Extending from one face of the piston 22 substantially perpendicu- 40 larly thereto and extending through a cut out 33 in the supply pipe 19 is a push rod 24. An O-ring 25 is disposed in a reinforced portion 26 of the secondary supply pipe 19 encircling the cut out 23 and providing a seal between the push rod 24 and the cut out 33 so that water cannot flow out through the cut out 33. Surrounding the push rod 24 and disposed between the reinforced portion 26 and 45 a face of the piston 22 is a return spring 27. The lever 20 is held in constant abutting contact with the free end of the push rod 24 which extends through the cut out 33 by the inward biasing force of the spring 21.

Referring now to FIG. 5, there is shown a spin down valve which in the alternate embodiment replaces both 55 the pivot valve and the positioning means in a single device. The spin down valve incorporates the functions of the pivot valve and the positioning means and is disposed within the secondary water supply pipe 19 and provides a valved interconnection between the secondary 60 pipe 19 and the fluid delivery pipe 11. Secured to a portion of the fluid delivery pipe 11 along its upper end and in concentric spaced relationship to the secondary water supply pipe 19 is a sleeve 47 having a groove 48 disposed 65 therein intermediate its ends. Disposed between the lower ends of the secondary water supply pipe 19 and the sleeve 47 and securely fixed to the secondary pipe 19 is a stopper 45 which provides a seal about the sleeve 47 while allowing the sleeve 47 and the delivery pipe 11 to reciprocally rotate therethrough. Secured to the upper open end of the 70 delivery pipe 11 is an elongated head 42 and slidably disposed about the sleeve 47 is a floating piston 43 which in its normal position is held in abutting relationship to the undersurface of the head 42 by a spring 46 which is positioned between the sleeve 47 and the secondary water 75

supply pipe 19 with its opposite ends in abutting relationship to the floating piston 43 and the stopper 45. The sleeve 47 and the delivery pipe 11 have a plurality of orifices 44. The orifices 44 are located so that when the floating piston 43 is in its normal position abutting the under- 5 surface of the elongated head 42 the orifices are beneath the piston 43. A guide pin 49 is disposed through the secondary water supply pipe 19 and the stopper 45 so that one end thereof resides within the groove 48 of the sleeve 47.

A control valve 28 is connected between the opposite end of the secondary supply pipe 19 and a primary supply pipe 29. The control valve 28 is the main valve for controlling the flow of water from the primary supply pipe 29 to the delivery pipe 11 through the aforementioned 10 associated structure. The primary supply pipe 29 is connected to a source of water through a regulating valve 30.

Disposed about the primary supply pipe 29 is an induction heater 31, the heater 31 has a regulator 32 by which an operator can control the temperature of the water by regulating the output of the heater 31. Induction heaters for heating water passing therethrough are well known in the art and since the specific type of heater utilized is not part of this invention the electrical circuitry which 15 may be utilized has not been illustrated for the sake of simplicity of description. In order to provide complete safety and assure that a user will not be accidentally scalded by water that is too hot, a thermostatic valve 34 is positioned within the fluid delivery pipe 11 as illustrated in FIG. 4. The thermostatic valve 34 consists of a bimetallic support member 35 which is secured to the 20 upper internal surface of the fluid delivery pipe 11. Attached to the free end of the bimetallic member 35 is a stopper 36 which in its normal or closed position overlies a drain hole 37 disposed in the bottom of the delivery pipe 11. The bimetallic member 35 is configured such that when the water passing through the delivery pipe 11 and about the member 35 exceeds a predetermined temperature the expansion of a portion of the member 35 25 changes its configuration thereby causing the stopper 36 to move upwardly and away from the drain hole 37. Obviously when the stopper 36 is not overlying the drain hole 37 the water passing through the delivery pipe 11 will exit through the drain hole 37 instead of through the spraying nozzle 13. The diverting of the water, which has been heated to a temperature greater than predetermined temperature, to the drain hole 37 instead of the spraying nozzle 13 serves a two-fold purpose. The obvious purpose is, as hereinbefore stated, namely to prevent the user from being harmed by water which may be too hot. The other purpose is less obvious but an important feature of this invention and that is to provide a method of cleaning the internal surface of the toilet bowl. 30 When it is desired to clean the toilet bowl the temperature regulator 32 is turned up to a temperature greater than the predetermined temperature at which the thermostatic valve 34 opens thereby allowing the hot water to pass through the drain hole 37 directly into the toilet bowl. The lever 20 can then be manually moved to cause the delivery pipe 11 to sweep across a sector of the bowl and allow the hot water to impinge upon that portion of the toilet bowl which may be dirty.

Obviously if the aforedescribed bidet is to be portable it must be capable of being easily and simply attached to a standard toilet. The portable feature of the subject bidet is achieved by its unique mounting structure which allows the bidet to adapt to any standard toilet. The mounting structure consists of a bracket 38 which is connected to the control valve 28 and the secondary water supply pipe 19 in a manner such that the pivot valve 15 35 and the fluid delivery pipe 11 are supported thereby. Disposed along the longitudinal axis of the bracket 38 are a pair of elongated slots 39, the slots 39 are of a configuration suitable to accept a bolt 40 which is a normal part

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of a standard toilet. The bolts 40 are normally used for the mounting of a toilet seat thereon.

Disposed on the primary water supply pipe 29 between the induction heater 31 and the regulating valve 30 is a standard T pipe coupling 41. The T 41 is shown in its capped condition, however, if it is desired to adapt the portable bidet 10 to provide a stream of warm air in lieu of the warm water, the T coupling 41 is uncapped and a warm air source such as a hair dryer is connected to the T. Before the warm air can be used the regulating valve 30 must be shut off so that water will not flow through the supply pipe 29. Any residual water that may be left in the pipes 29, 19 and 11 will be forced out by the air and then the air will exit through the orifices 14 in the spraying nozzle 13.

In installation, the standard toilet seat is removed and the bolts 40 inserted through the slots 39 in the bracket 38, then the toilet seat is replaced on top of the bracket 38 and a fastener screwed on the bolts 40 to hold the seat and portable bidet 10 in place. The primary supply pipe 29 is then connected to a source of water through the regulating valve 30 and the unit is now ready for use.

In operation, the user adjusts the heater regulator 32 to a comfortable water temperature and then turns the control valve 28 on, allowing the water to pass through the primary supply pipe 29 to the secondary water supply pipe 19. As the water passes through the primary supply pipe 29 the induction heater 31 heats the water to the desired temperature as set by the regulator 32. The water in flowing through the secondary water supply pipe 19 impinges against the face of the hydraulic piston 22, causing the piston to move against the force of the spring 27 and thereby causing the push rod 24 to extend outwardly through the cut out 33. Since the push rod 24 abuts the lever 20 the outward movement of the push rod 24 moves the lever 20 outward causing the inverted truncated cone 16 to rotate which in turn rotates the fluid delivery pipe 11 causing it to advance from its off position in juxtaposition to the internal rim of the bowl to its on position in the center of the bowl. As the cone 16 rotates the channel 17 comes into alignment with the water supply pipe 19 allowing the water to pass through the valve 15 into the delivery pipe 11 and thence to the spraying nozzle 13 and upwardly through the orifices 14. If it is desired to move the delivery pipe 11 to a position different than that determined by the length of the push rod 24, the lever 20 can be manually moved against the force of the spring 21. This feature is necessary to allow the cleaning of the entire bowl by the water exiting through the drain hole 37.

In operation, when utilizing the alternate embodiment of FIG. 5, the water flowing through the secondary water supply pipe 19 impinges against the faces of the elongated head 42 and the floating piston 43, thereby causing the sleeve 47 and the delivery pipe 11 to move downwardly against the force of the spring 46. As the sleeve 47 moves downwardly the guide pin 49 disposed within the groove 48 causes the sleeve 47 and the delivery pipe 11 to rotate because of the helical disposition of the groove 48. The downward rotational movement of the delivery pipe 11 causes the spraying nozzle 13 to move into its operating position in the center of the toilet bowl. When the spraying nozzle 13 is in its operating position the guide pin 49 bottoms out in the groove 48, thereby preventing the delivery pipe 11 from moving further. Since the movement of the delivery pipe 11 is now restricted, the continuing water pressure against the floating piston 43 causes the piston to move downwardly against the force of the spring 46 until the piston clears the orifices 44, thereby allowing the water to enter the fluid delivery pipe 11 and thence to the spraying nozzle 13 and upwardly through the orifices 14.

From a detailed consideration of this description it will be apparent to those skilled in the art that this invention may be employed in a number of different ways

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through the use of routine skill in this field. For this reason the present invention is not to be considered as being limited except by the appended claims defining the invention.

What is claimed is:

1. A portable bidet connected to a source of water, said bidet comprising:
 - a primary water supply pipe;
 - a secondary water supply pipe;
 - a fluid delivery pipe;
 - a pivot valve interconnecting said water supply pipe and said fluid delivery pipe;
 - a positioning means disposed within said fluid delivery pipe; and
 - a lever secured to said pivot valve and extending therefrom in abutting relationship to said positioning means.
2. A portable bidet in accordance with claim 1 wherein said positioning means comprises:
 - a piston slidably disposed in said secondary water supply pipe, said piston having an orifice therein;
 - a push rod secured to a face of said piston substantially perpendicular thereto and adapted to slide within a cut out in said water supply pipe; and
 - a return spring disposed about said push rod within said water supply pipe, whereby the flow of water through said water supply pipe moves said piston causing said push rod to slide outward through the cut out against the resistance of said spring and upon cessation of the flow of water said spring causes said piston and said push rod to return to their original position.
3. A portable bidet in accordance with claim 1 wherein said pivot valve comprises:
 - a housing connected to said secondary water supply pipe; and
 - an inverted truncated cone rotatably mounted within said housing, said cone having a channel therein for interconnecting said fluid delivery pipe with said secondary water supply pipe, said channel configured to prevent the flow of water from said secondary water supply pipe to said fluid delivery pipe until said fluid delivery pipe is in its operating position.
4. A portable bidet in accordance with claim 1 wherein said lever is retained in abutting contact with said positioning means by a spring, said spring being connected by its opposite ends to said secondary water supply pipe and said lever.
5. A portable bidet in accordance with claim 1 further comprising a heater disposed intermediate the source of water and said primary fluid delivery pipe, said heater having a regulator for controlling the temperature of the water.
6. A portable bidet in accordance with claim 1 further comprising a thermostatic valve disposed in said fluid delivery pipe and adapted to open a drain hole in said fluid delivery pipe when contacted by water having a temperature greater than a predetermined temperature, said drain hole allowing the overheated water to discharge directly into the bowl of a conventional toilet rather than through a spraying nozzle whereby said bowl may be cleaned by the flow of overheated water.
7. A portable bidet in accordance with claim 6 wherein said fluid delivery pipe is connected to said source of water by a pivot valve, said pivot valve adapted to rotate about its axis whereby said fluid delivery pipe may traverse a sector of the bowl of the toilet.
8. A portable bidet in accordance with claim 6 further comprising:
 - a heater disposed about said primary water supply pipe; and
 - a regulator adapted to regulate the output of said heater and thereby control the temperature of the water flowing through said heater.

9. A portable bidet in accordance with claim 8 further comprising an air blower secured to said primary water supply pipe and adapted to blow warm air through said fluid delivery pipe when the supply of water to said primary water supply pipe is discontinued.

10. A portable bidet comprising:

a primary water supply pipe connected on one end to a source of water;

a secondary water supply pipe;

a control valve interconnecting said primary water supply pipe and said secondary water supply pipe;

a fluid delivery pipe;

means interconnecting said fluid delivery pipe and said secondary water supply pipe;

a spraying nozzle having a plurality of orifices therein connected to the free end of said fluid delivery pipe;

a positioning means disposed within said secondary water supply pipe and adapted to rotate said fluid delivery pipe about said pivot valve to its operating position, in response to the flow of water through said secondary water supply pipe;

means for holding said fluid delivery pipe in actuating relationship to said positioning means; and

a thermostatic valve disposed in said fluid delivery pipe and adapted to divert water hotter than a predetermined temperature into the bowl of the toilet.

11. A portable bidet in accordance with claim 10 further comprising a heater disposed intermediate said fluid delivery pipe and said source of water, said heater adapted to regulate the temperature of the water flowing there-through.

12. A portable bidet in accordance with claim 11 further comprising an air blower secured to said primary water supply pipe and adapted to blow air through said fluid delivery pipe when the supply of water to said primary water supply pipe is discontinued.

13. A portable bidet in accordance with claim 10 wherein said positioning means comprises:

a piston slidably disposed in said secondary water supply pipe, said piston having an orifice therein;

a push rod secured to a face of said piston and adapted to slide within a cut out in said secondary water supply pipe; and

a return spring disposed about said push rod within said secondary water supply pipe, whereby the flow of water through said secondary water supply pipe impinges upon the face of said piston and thereby moves said piston causing said push rod to slide outward through the cut out against the resistance of said spring and upon cessation of the flow of water said spring causes said piston and said push rod to return to their original position.

14. A portable bidet in accordance with claim 13 further comprising:

a lever extending outward from said pivot valve in complementary relationship to said positioning means, said lever being retained in abutting relationship to said push rod by said holding means, whereby said fluid delivery pipe is moved to its operating position by the outward movement of said push rod and returned to its inoperative position by said holding means when said push rod is retracted.

15. A portable bidet in accordance with claim 10 wherein said positioning means comprises:

a sleeve disposed about said fluid delivery pipe in spaced concentric relationship to the inner diameter of said secondary water supply pipe, said sleeve having a helical groove therein;

an elongated head on the upper end of said fluid delivery pipe;

a floating piston slidably disposed about said fluid delivery pipe;

5 resilient means adapted to bias said floating piston upwardly into juxtaposition to said elongated head;

a plurality of orifices disposed in said fluid delivery pipe below said floating piston when said piston is in juxtaposition to said elongated head; and

a guide pin secured to said secondary water supply pipe and adapted to engage the groove in said sleeve, whereby said pin and groove interconnection will cause said sleeve and fluid delivery pipe to rotate downwardly in response to the flow of water against said elongated head and said floating piston and said floating piston continues to move downwardly allowing the water to enter said fluid delivery pipe through said plurality of orifices.

16. A portable bidet having a water supply pipe and a fluid delivery pipe interconnected by a positioning means, said positioning means comprising:

a floating piston disposed about said fluid delivery pipe within said water supply pipe;

means adapted to bias said piston towards the end of said fluid delivery pipe disposed within said water supply pipe;

a plurality of orifices in said fluid delivery pipe below the biased position of said floating piston; and

means adapted to concurrently cause said floating piston and said fluid delivery pipe to rotate downwardly in response to a flow of water, whereby when said fluid delivery pipe reaches its operating position it is restrained and said floating piston continues to move downwardly relative to said fluid delivery pipe against the force of said biasing means, thereby allowing the water to enter said fluid delivery pipe through said orifices.

17. A portable bidet in accordance with claim 16, wherein said rotating means comprises:

a sleeve secured to said fluid delivery pipe, said sleeve having a helical groove therein; and

a guide pin secured adjacent said groove and adapted to engage said groove, whereby when the flow of water causes said fluid delivery pipe to move downwardly said groove and pin interconnection will cause said fluid delivery pipe to rotate.

18. A portable bidet in accordance with claim 17, wherein said biasing means comprises a spring disposed about said fluid delivery pipe in abutting relationship to the undersurface of said floating piston.

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