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(54) **TOILET CLEANER SPRAY HOSE AND DEODORIZER**

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E03D 9/02 (2006.01)
E03D 9/08 (2006.01)
E03D 9/00 (2006.01)

(52) **U.S. Cl.**
CPC ***E03D 9/085*** (2013.01); ***E03D 9/005*** (2013.01)

(58) **Field of Classification Search**
CPC E03D 9/005
USPC 4/222–233
See application file for complete search history.

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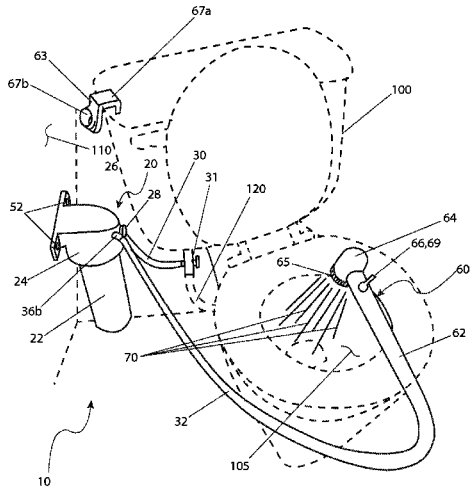
(57) **ABSTRACT**

A toilet sprayer having a mixing reservoir assembly for receiving incoming fresh water from a service line and for holding deodorizing tablets such that the deodorizing tablets mixes with incoming fresh water to form a solution. A spray hose in fluid communication with the mixing reservoir receives the solution. The spray hose connects to a hand-held spray wand assembly for emitting released solution from the spray hose. A shut-off valve can be used to shut off incoming water, a proportional valve can be used to adjust the concentration of the solution, a control valve controls the flow of solution from the spray wand assembly, and the spray wand assembly includes an adjustable spray head.

17 Claims, 3 Drawing Sheets



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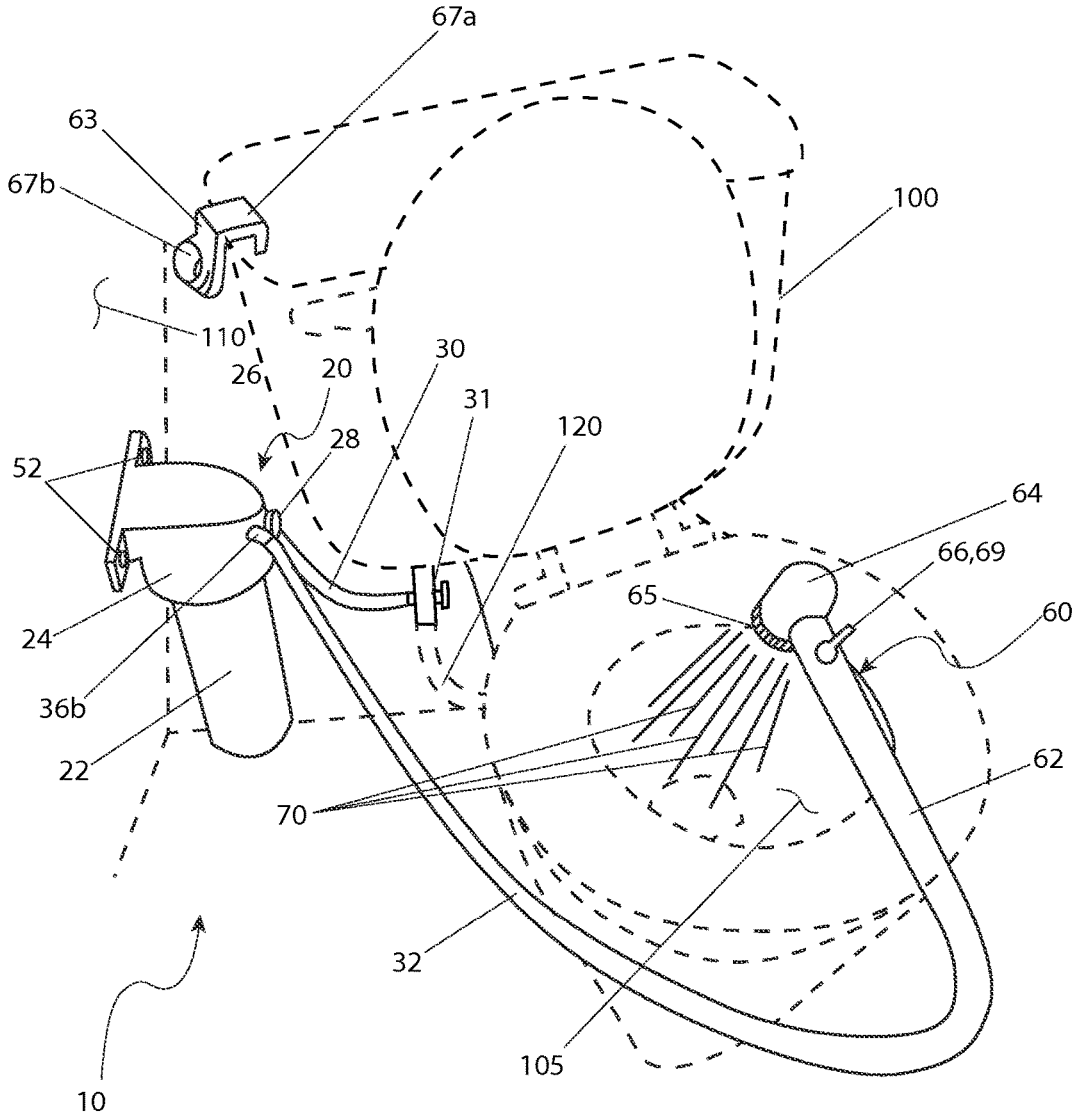
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Fig. 1

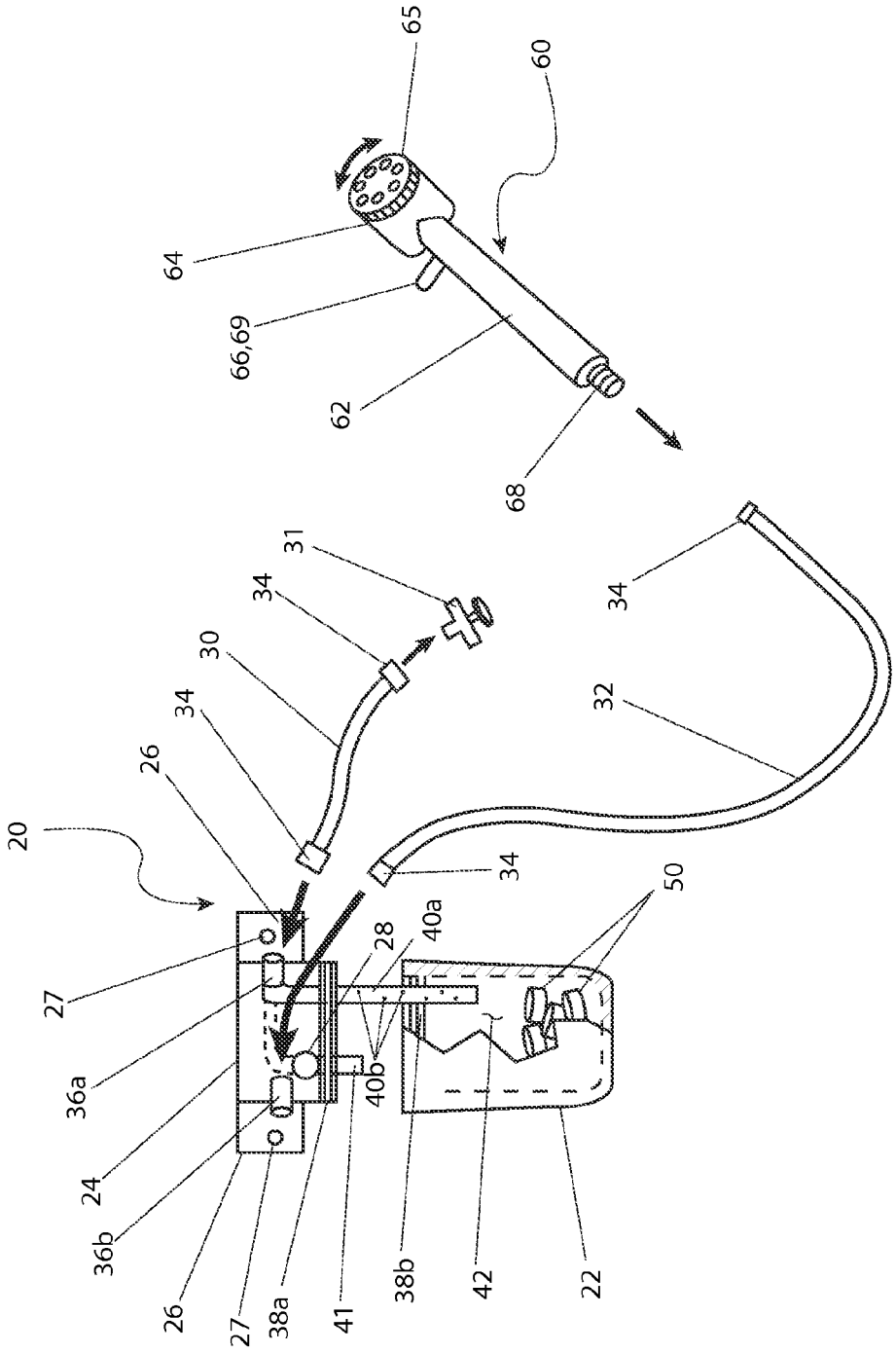
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Fig. 2

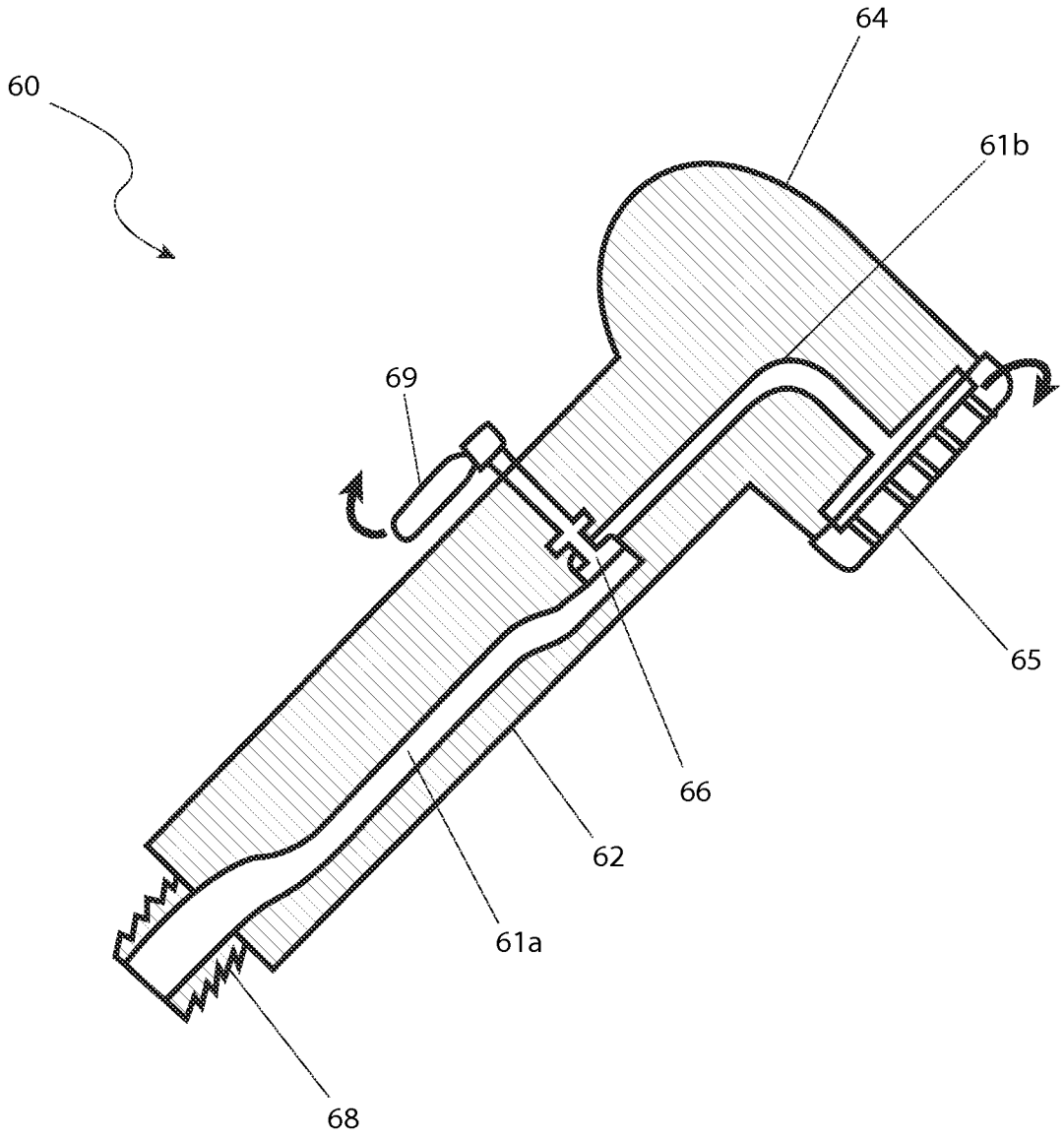

Fig. 3

TOILET CLEANER SPRAY HOSE AND DEODORIZER

RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 62/042,489, which was filed Aug. 27, 2014, the entire disclosures of which are incorporated herein by reference.

FIELD OF THE INVENTION

The presently disclosed subject matter relates to cleaning and deodorizing bathrooms. More particularly, it is directed to a toilet sprayer for delivering a controlled flow of deodorizing and cleaning solution into a toilet bowl.

BACKGROUND OF THE INVENTION

Whether performed by a professional or by the person that cleans the house, as many a person can attest dealing with a messy bathroom is an unsanitary and thankless task. Regarding one task in particular one may long wait in vain for a volunteer who is willing to clean a toilet bowl.

The rather revolting bodily waste, stains, and other mineral deposits make the task of actually obtaining a clean and hygienic toilet is difficult to accomplish. Obtaining the proper deodorizers and cleaners as well as the required brushes for the task at hand can be difficult and time consuming. Then, actually cleaning the toilet, particularly its bowl, is trying. Many times cleaning with a strong sanitizing solution is necessary and, most unfortunately, repeated scrubbing and wiping is usually required.

Therefore, a device that makes cleaning a toilet bowl easier and faster would be advantageous. Preferably such a device would enable a hygienic and easy way to clean a toilet bowl. Preferably such a device would reduce or eliminate human contact with a toilet.

SUMMARY OF THE INVENTION

The principles of the present invention provide for a device that makes cleaning a toilet bowl easier and faster. The device also enables a hygienic and easy way to clean a toilet bowl with either reduced or no human contact with the toilet.

A toilet sprayer in accord with the present invention includes a mixing reservoir assembly for receiving incoming fresh water from a service line and for holding at least one (1) deodorizing tablet such that the deodorizing tablet mixes with incoming fresh water to form a solution. Also included is a spray hose that is in fluid communication with the mixing reservoir so as to receive the solution. The spray hose connects to a hand-held spray wand assembly for emitting released solution from the spray hose.

The toilet sprayer can include a cylindrical lid that holds the mixing reservoir. Preferably the mixing reservoir is threaded onto the cylindrical lid. That cylindrical lid may include a mounting ear having a fastener aperture for receiving a fastener to attach the cylindrical lid to a wall proximate a toilet. The cylindrical lid may further include a fresh water inlet and a solution outlet that is connected to the spray hose. There may be a supply valve disposed inline between said fresh water inlet and a water service line. That supply valve enables a user to selectively shut off the flow of fresh water to the fresh water inlet.

In practice the cylindrical lid can also include an internal inlet tube that is attached to the fresh water inlet and that extends downward to the bottom of the reservoir. The inlet tube may then include at least one (1) inlet tube aperture that directs fresh water to promote dissolving of the deodorizing tablets. There may also be an outlet tube for directing solution to the outlet connection as well as a proportioning valve that is attached to the outlet tube. The proportioning valve can be used by a user to selectively direct fresh water past the reservoir to vary the concentration of the solution.

Beneficially, the toilet sprayer has a spray hose of a sufficient length of flexible hosing to position the distal end of the spray hose over a toilet bowl. That distal end may include a hose fitting for connecting to a hose connector of the spray wand assembly. The spray wand assembly should have a wand handle with a spray head. That spray head should extend perpendicular from the remainder of the wand handle to enable a user to easily direct the flow of the solution. That wand handle may include a spray valve for controlling the flow of solution. The spray valve is beneficially spring biased to automatically shut off the flow of solution. The spray valve may be provided with a user accessible valve handle. The toilet sprayer can also have a holster that is configured to receive the spray head along a side of a toilet. The holster can have an inverted "U"-shaped holster appendage and a cup-shaped holster aperture for receiving a spray nozzle.

BRIEF DESCRIPTION OF THE DRAWINGS

The advantages and features of the present invention will become better understood with reference to the following more detailed description and claims taken in conjunction with the accompanying drawings in which like elements are identified with like symbols and in which:

FIG. **1** is an environmental view of a toilet sprayer **10** that is in accord with a preferred embodiment of the present invention when in an in-use state;

FIG. **2** is an exploded view of the toilet sprayer **10** shown in FIG. **1**; and,

FIG. **3** is a sectional view of a spray wand assembly **60** portion of the toilet sprayer **10**.

DESCRIPTIVE KEY

10 toilet sprayer
20 reservoir assembly
22 reservoir
24 lid
26 mounting ear
27 fastener aperture
28 proportioning valve
30 supply hose
31 supply valve
32 spray hose
34 hose fitting
36*a* inlet connection
36*b* outlet connection
38*a* male threaded region
38*b* female threaded region
40*a* inlet tube
40*b* inlet tube aperture
41 outlet tube
42 reservoir chamber
50 deodorizing tablet
52 fastener
60 spray wand assembly

61*a* first port
61*b* second port
62 wand handle
63 holster
64 spray head
65 spray nozzle
66 spray valve
67*a* holster appendage
67*b* holster aperture
68 hose connection
69 valve handle
70 spray solution
100 toilet
105 toilet bowl
110 wall
120 water service line

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment of the present invention is depicted within FIGS. **1-3**. However, the invention is not limited to what is specifically illustrated and described. A person skilled in the art will appreciate that many other embodiments of the invention are possible without deviating from the basic concept of the invention. Any such work around also falls with the scope of this invention.

The terms "a" and "an" herein do not denote a limitation of quantity, but rather denote the presence of at least one of the referenced items. In addition, unless otherwise denoted all directional signals such as up, down, left, right, inside, outside are taken relative to the illustration shown in FIG. **1**.

Referring now to FIG. **1**, the present invention describes a toilet sprayer **10** which provides a means to clean and deodorize a toilet **100**. The toilet sprayer **10** provides a mixing reservoir assembly **20** that contains a quantity of deodorizing tablets **50**. The toilet sprayer **10** further includes a spray hose **32** and a hand-held spray wand assembly **60**. The toilet sprayer **10** is envisioned as being installed adjacent an existing toilet **100** and in fluid communication with an existing water service line **120**. The water service line **120** provides a supplying of fresh, pressurized water to the reservoir assembly **20**. The water mixes with the deodorizing tablets **50** to form a cleaning and deodorizing spray solution **70**. The toilet sprayer **10** is envisioned as being made of rugged plastic or metal that is finished in a variety of colors and patterns to match an existing bathroom décor.

Referring now also to FIG. **2**, the reservoir assembly **20** has a cup-shaped reservoir **22** with an internal reservoir chamber **42** that holds the deodorizing tablets **50**. In use the deodorizing tables **50** are dissolved to produce the spray solution **70**. The reservoir **22** may also contain various other commercially-available products such as additional cleaners, deodorizers, fragrance enhancer and the like. Those products can be chosen based upon a user's preferences to refresh and restore the toilet bowl **105** of the toilet **100**.

The reservoir **22** threads into a cylindrical lid **24** which is preferably fixed on a wall **110** that is adjacent the toilet **100** via integral mounting ear **26**. The mounting ears **26** each include a fastener aperture **27** which receives a fastener **52** which connects the lid **24** to the wall **110**. Of course, the lid **24** may be mounted to another suitable structure in close proximity to the toilet **100** or to the wall using another fastening technique. The lid **24** includes an integral inlet and an integral outlet which are threaded piping features that form the inlet connection **36***a* and an outlet connection **36***b*. The inlet connection **36***a* supports a fluid connection to a supply valve **31** that is inserted between the inlet connection **36***a* and an existing water service line **120**. The supply valve **31** enables a user to selectively shut off the fresh water to the toilet sprayer **10**. The integral outlet connection **36***b* provides a threaded plumbing connection to a proximal end of a flexible spray hose **32**.

Turning now also to FIG. **3**, the spray hose **32** provides a sufficient length of flexible hosing to position the distal end of the spray hose **32** over the toilet bowl **105**. The distal end includes a threaded hose fitting **34** for connecting to a hose connector **68** of the spray wand assembly **60**. The spray wand assembly **60** enables a user to service the toilet **100** by spraying the spray solution **70** into the toilet bowl **105** in a hand-held spraying manner.

As shown in FIG. **1**, the toilet sprayer **10** also includes a holster **63**. The holster **63** enables a user to park a spray head **64** of the spray wand assembly **60** along the side of the toilet **100**. The holster **63** is a unitary molded plastic member having an inverted "U"-shaped holster appendage **67***a* for hanging the holster **63** on the edge of the toilet **100**. The holster **63** also includes a cup-shaped holster aperture **67***b* that is sized to receive and retain a spray nozzle **65** of the spray wand assembly **60**.

Referring now primarily to FIG. **2**, as previously noted the reservoir assembly **20** mixes incoming fresh water with the deodorizing tablets **50** and with any other product placed in the reservoir assembly **20** to produce the spray solution **70**. The incoming fresh water is supplied via the supply valve **31** and the supply hose **30**. The spray solution **70** is then conveyed through the spray hose **32** to the spray wand assembly **60**.

Mixing within the reservoir assembly **20** occurs when the water enters through the inlet connection **36***a* and an integral inlet tube **40***a*. The inlet tube **40***a* extends downward to the bottom of the reservoir **22** and has a closed bottom end. Water exits the inlet tube **40***a* via inlet tube apertures **40***b* that are beneficially equally-spaced along the inlet tube **40***a* to promote dissolving of the deodorizing tablets **50**. As water flows over the deodorizing tablets **50** and/or other products in the reservoir assembly **20** the cleaning and/or deodorizing spray solution **70** is created. The spray solution **70** exits the reservoir assembly **20** through the outlet tube **41** and its associated outlet connection **36***b*. The outlet tube **41** is located near the top of the reservoir **22** to prevent blockage of the outlet tube **41** by the deodorizing tablets **50**. The outlet connection **36***b* provides a threaded connection to the spray hose **32**, which in turn conveys the spray solution **70** to the spray wand assembly **60**. The reservoir assembly **20** also includes a proportioning valve **28** that is beneficially located upon the outlet tube **41**. The proportioning valve **28** acts as a bypass valve to enable a user to selectively direct a portion of the fresh water past the reservoir **22**, thereby vary the resulting concentration of the spray solution **70** if so desired.

The spray wand assembly **60** includes an ergonomic cylindrical wand handle **62** having an integral spray head **64**. The wand handle **62** also includes the integral hose connection **68** which enables a threaded attachment to the spray hose **32**. The spray head **64** is preferably arranged perpendicular to the wand handle **62** to direct the spray solution **70** into the toilet bowl **105** (best seen in FIG. **1**). The wand handle **62** also provides a lever-type spring-return spray valve **66** which allows a user to easily control flow. The spray valve **66** is spring biased to automatically close, thus preventing flow of the spray solution **70**. As the user rotates a valve handle **69** of the spray valve **66** the flow of the spray solution **70** passing through the spray nozzle **65** is controlled in a similar manner as in a common shower head.

Referring now primarily to FIG. **3**, the spray wand assembly **60** includes the hose connection **68**, a first port **61***a*, the spray valve **66**, the valve handle **69**, a second port **61***b*, and the spray nozzle **65**. In use, the spray solution **70** enters the first port **61***a* via the hose connection **68** where the solution is subsequently regulated by the spray valve **66** using the valve handle **69**. The spray solution **70** then flows through the second port **61***b* and out of the spray nozzle **65**. The spray nozzle **65** is rotatingly affixed to the spray head **64** to allow a user to select a desired spray, shower, or jet spray pattern.

It is envisioned that other styles and configurations of the present invention can be easily incorporated into the teachings of the present invention, and only one particular configuration shall be shown and described for purposes of clarity and disclosure and not by way of limitation of scope.

The preferred embodiment of the present invention can be utilized by the common user in a simple and effortless manner with little or no training. After initial purchase or acquisition of the toilet sprayer **10**, it would be installed as indicated in FIG. **1**. The method of installing and utilizing the toilet sprayer **10** may be achieved by: procuring a model of the toilet sprayer **10** having a desired color; mounting the lid **24** of the reservoir assembly **20** to a wall **110** (or other suitable structure), by installing fasteners **52** through fastener aperture **27** of each mounting ear **26** of the lid **24**; installing the supply hose **30** and the supply valve **31** in-line with an existing pressurized service line **120** supplying fresh water to the water closet using conventional plumbing methods; installing the supply hose **30** to the inlet connection **36***a* of the lid **24** using the hose fitting **34** of the supply hose **30**; installing the hose fitting **34** of the spray hose **32** to the outlet connection **36***b* of the lid **24**; connecting the spray wand assembly **60** to the spray hose **32** using the respective hose connection **68** and hose fitting **34**; hanging the holster **63** upon an edge of the toilet closet **100**; parking the spray wand assembly **60** in the holster aperture **67***b* of the holster **63**; loading a quantity of deodorizing tablets **50** or other desired products such as cleaning products, deodorizing products, fragrance enhanced solid and liquid products, and the like, into the reservoir chamber **42** to produce the spray solution **70**; installing the reservoir **22** onto the lid **24** by engaging a respective female threaded region **38***b* and a male threaded region **38***a*; initiating the flow of fresh water into the toilet sprayer **10** by remotely actuating the water supply valve **31**; grasping the wand handle **62** of the spray wand assembly **60**; aiming the spray head **64** toward a toilet bowl **105** of the toilet **100**; initiating a flow of spray solution **70** from the spray nozzle **65** by turning the valve handle **69** using one's fingers; rotating the spray nozzle **65** as needed to obtain a desired spray pattern from the spray head **64**; dispensing the desired volume of spray solution **70** into the toilet bowl **105**; restoring the valve handle **69**; placing the spray head **64** into the holster **63** until needed again; repeating the dispensing of the spray solution **70** periodically into the toilet bowl **105** as needed; adjusting the concentration of the spray solution **70**, as needed, using the proportioning valve **28** of the reservoir assembly **20**; utilizing the toilet sprayer **10** until the deodorizing tablets **50** are completely dissolved; replenishing the deodorizing tablets **50** by remotely shutting of the water supply and repeating the appropriate steps listed above; and, benefiting from convenient mixing and dispensing of a spray solution **70** used to clean and/or deodorize a toilet bowl **105** in a hand-held manner afforded a user of the present invention **10**.

The foregoing descriptions of specific embodiments of the present invention have been presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, and obviously many modifications and variations are possible in light of the above teaching. The embodiments were chosen and described in order to best explain the principles of the invention and its practical application, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. A toilet sprayer, comprising:

a mixing reservoir assembly for receiving incoming fresh water from a service line and for holding at least one deodorizing tablet such that said deodorizing tablet mixes with incoming fresh water to form a solution;

a cylindrical lid that holds said mixing reservoir, including a mounting ear having a fastener aperture for receiving a fastener that connects said cylindrical lid to a wall proximate a toilet;

a spray hose in fluid communication with said mixing reservoir so as to receive said solution; and,

a hand-held spray wand assembly in fluid communication with said spray hose, said hand-held spray wand assembly for emitting released solution from said spray hose.

2. The toilet sprayer according to claim **1**, wherein said mixing reservoir is threaded onto said cylindrical lid.

3. The toilet sprayer according to claim **1**, wherein said cylindrical lid further includes a fresh water inlet and a solution outlet for connecting to said spray hose.

4. The toilet sprayer according to claim **3**, further including a supply valve disposed between said fresh water inlet and a water service line; wherein said supply valve enables a user to selectively shut off the flow of fresh water to said fresh water inlet.

5. The toilet sprayer according to claim **1**, wherein said cylindrical lid further includes an inlet tube attached to said fresh water inlet and that extends downward to the bottom of said reservoir.

6. The toilet sprayer according to claim **5**, wherein said inlet tube includes at least one inlet tube aperture that directs fresh water so as to promote dissolving of the deodorizing tablets.

7. The toilet sprayer according to claim **6**, further including an outlet tube for directing said solution to said outlet connection.

8. The toilet sprayer according to claim **6**, further including a proportioning valve that enables a user to selectively direct fresh water past the reservoir to vary the concentration of said solution.

9. The toilet sprayer according to claim **1**, wherein said spray hose includes a sufficient length of flexible hosing to position the distal end of the spray hose over a toilet bowl.

10. The toilet sprayer according to claim **9**, wherein said distal end of said spray hose includes a hose fitting for connecting to a hose connector of said spray wand assembly.

11. The toilet sprayer according to claim **10**, wherein said spray wand assembly includes a wand handle having a spray head.

12. The toilet sprayer according to claim **11**, wherein said spray head extends perpendicular from the remainder of said wand handle.

13. The toilet sprayer according to claim **12**, wherein said wand handle includes a spray valve for controlling the flow of solution through said spray head.

14. The toilet sprayer according to claim **13**, wherein said spray valve is spring biased to shut off the flow of solution.

15. The toilet sprayer according to claim **14**, wherein said spray valve is provided with a user accessible valve handle.

16. The toilet sprayer according to claim **1**, further including a holster configured to receive the spray head along a side of a toilet.

17. The toilet sprayer according to claim **16**, wherein said holster includes an inverted "U"-shaped holster appendage and a cup-shaped holster aperture for receiving a spray nozzle.

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