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(54) **LIQUID DISPENSING DEVICES INCLUDING AN ATTACHED CLEANING ELEMENT**

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(52) **U.S. Cl.** **401/140**

(57) **ABSTRACT**

Liquid dispensing devices, and more particularly liquid dispensing devices including an attached cleaning element are disclosed comprising a plunger/handle pole assembly, an exterior barrel capable of slidably receiving the plunger/handle pole assembly and including a liquid reservoir, and a brush head attached to a distal end of the exterior barrel which is in fluid communication with the liquid reservoir.

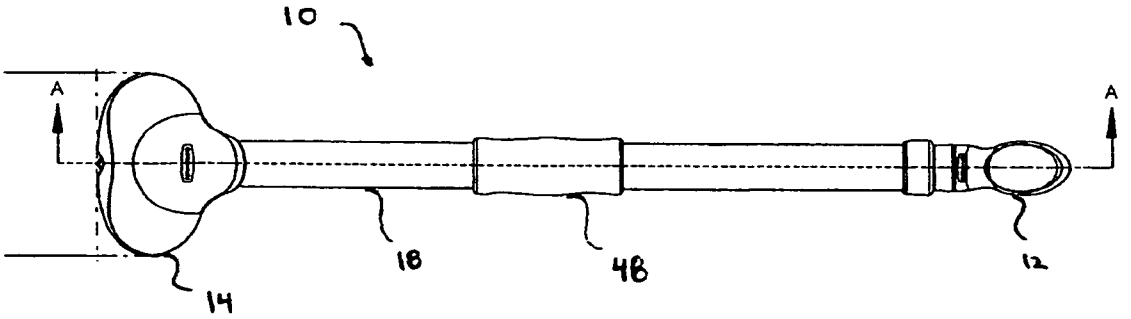


FIG. 1

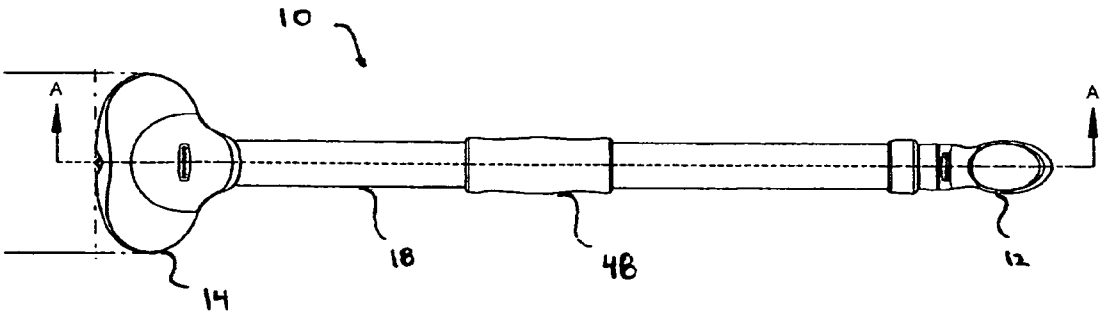


FIG. 2

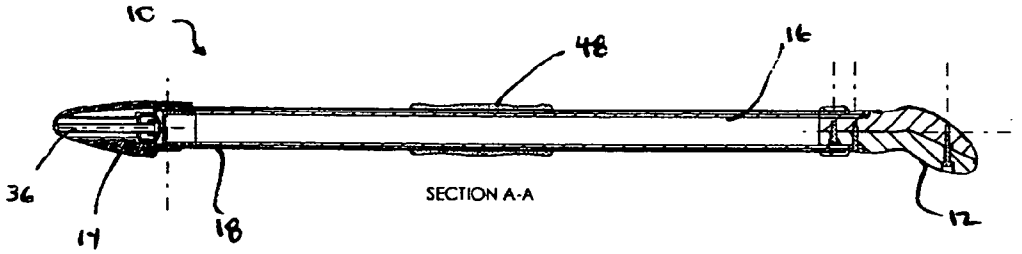


FIG. 3

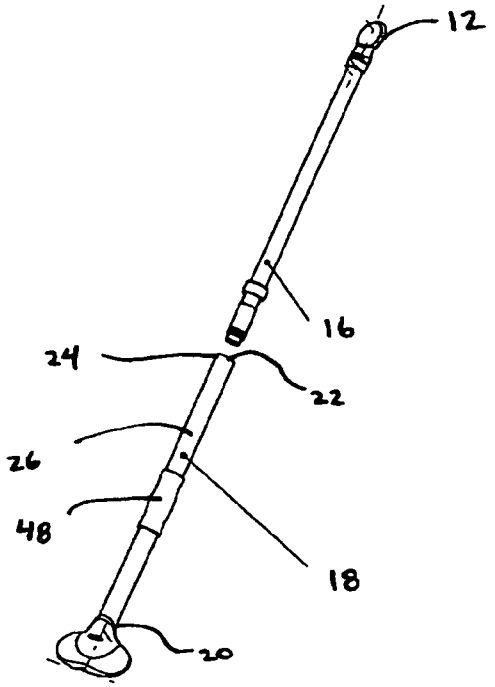


FIG. 4

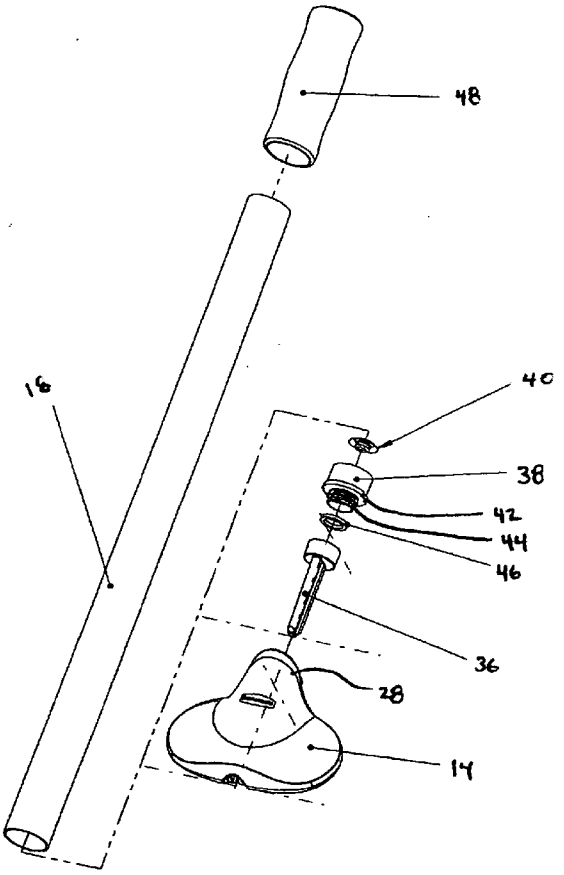


FIG. 5

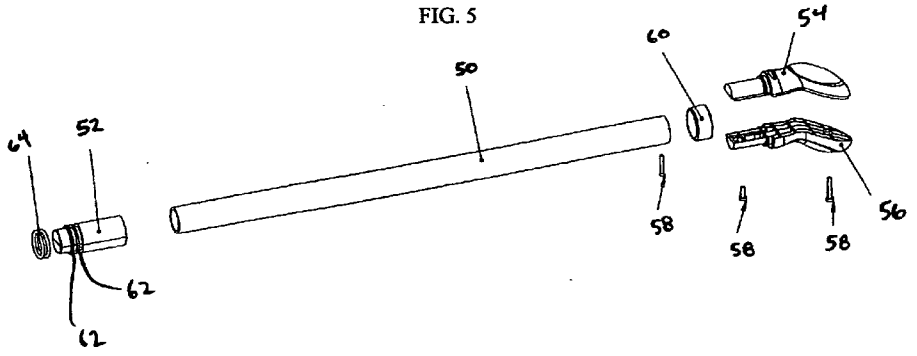


FIG. 6

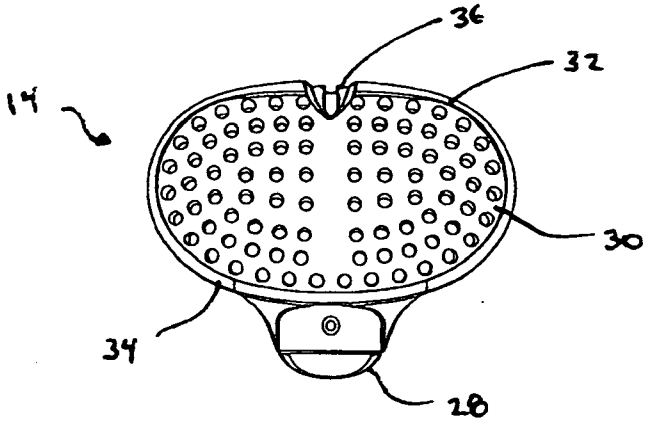


FIG. 7

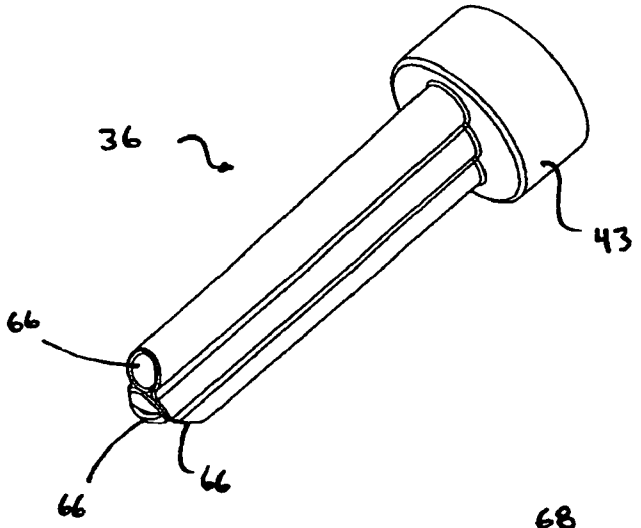


FIG. 8

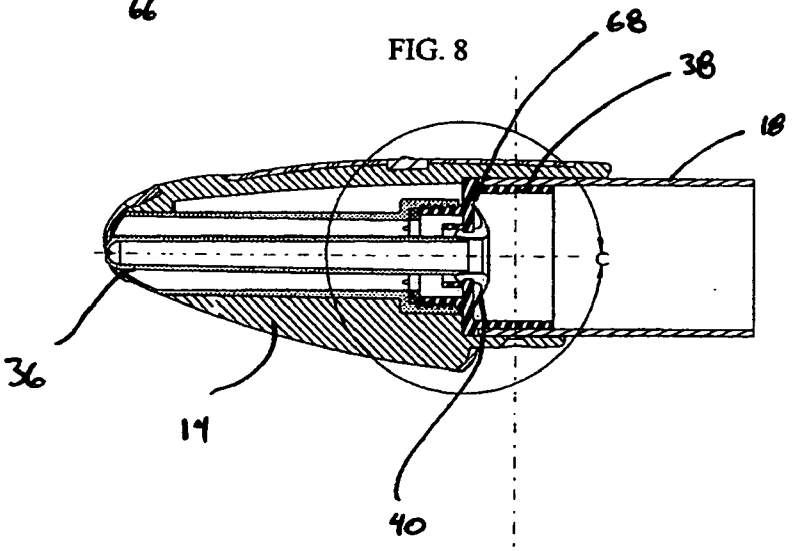


FIG. 9

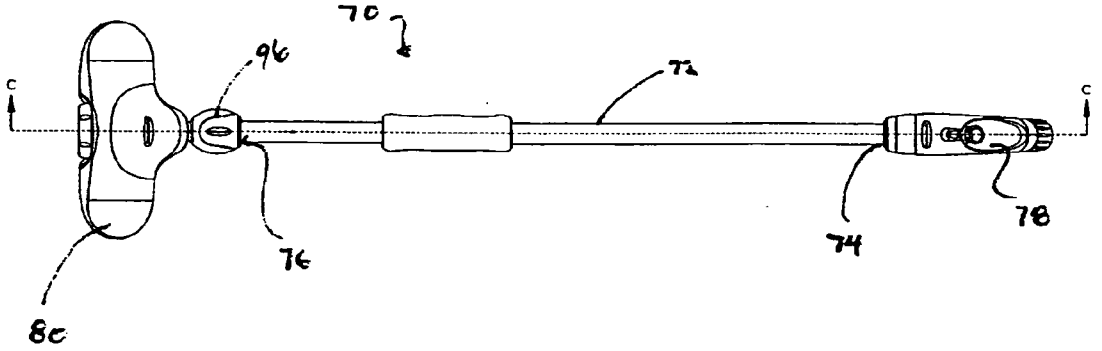


FIG. 10

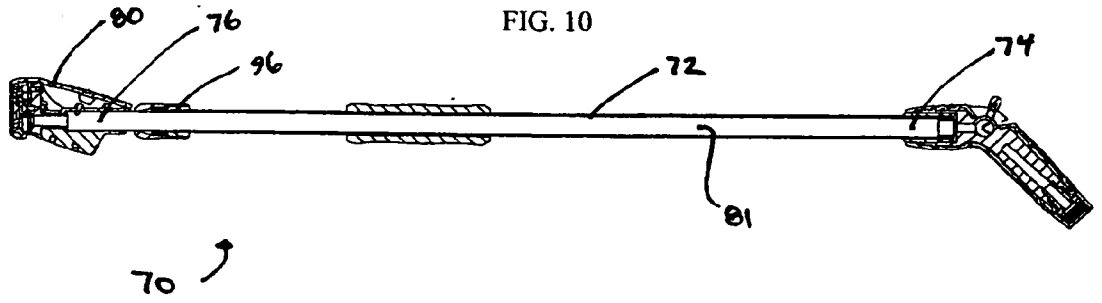


FIG. 11

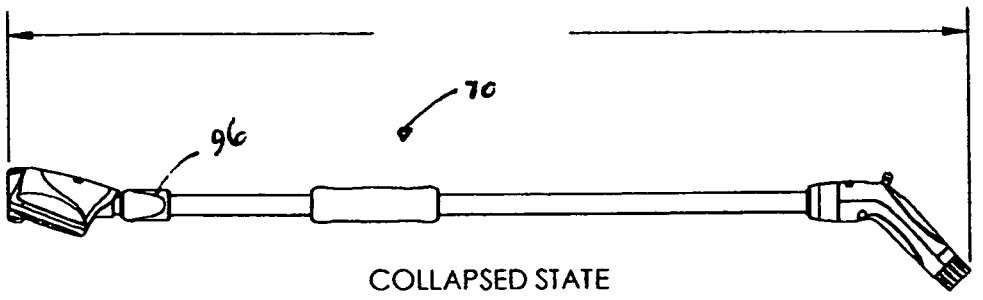


FIG. 12

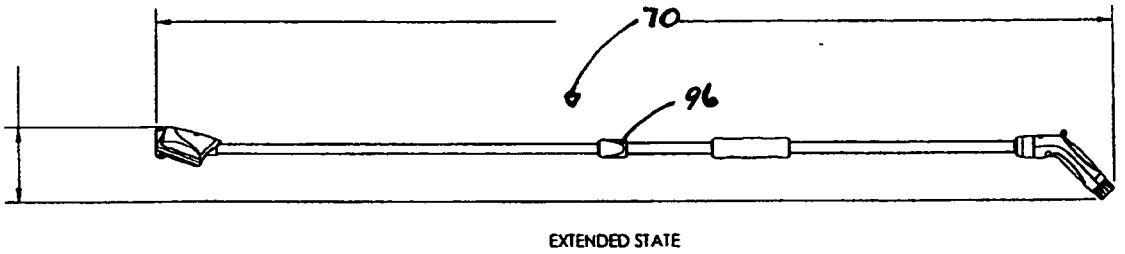


FIG. 13

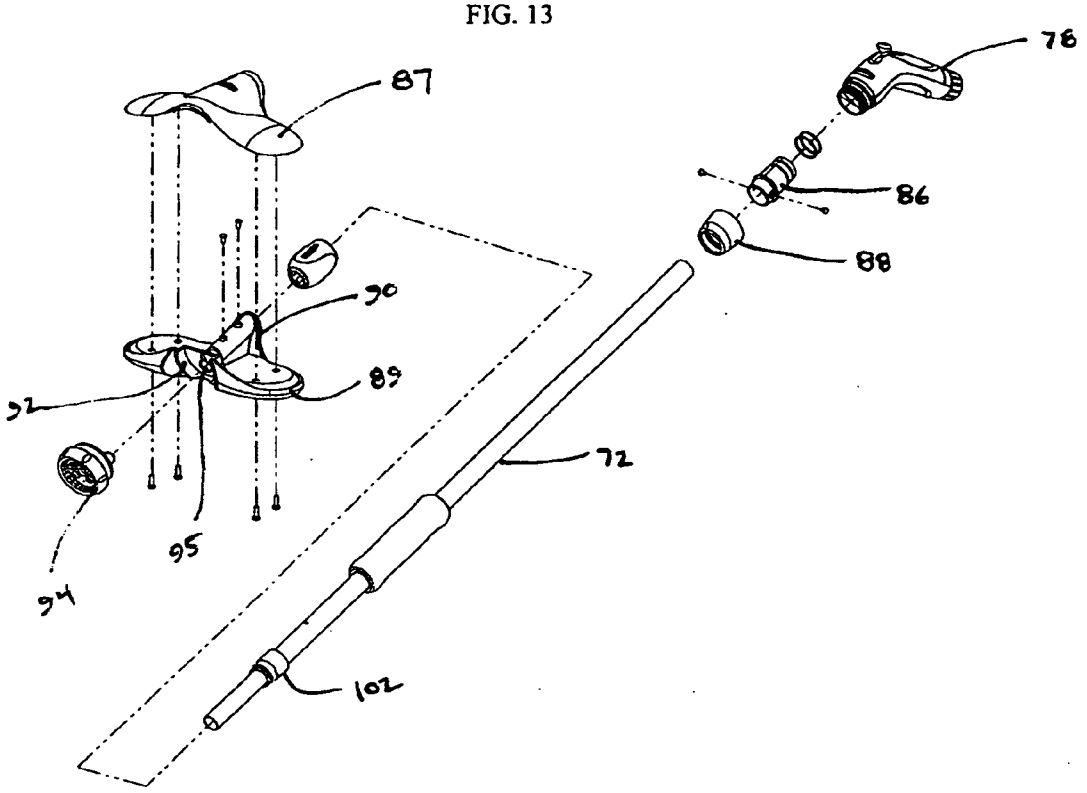


FIG. 14

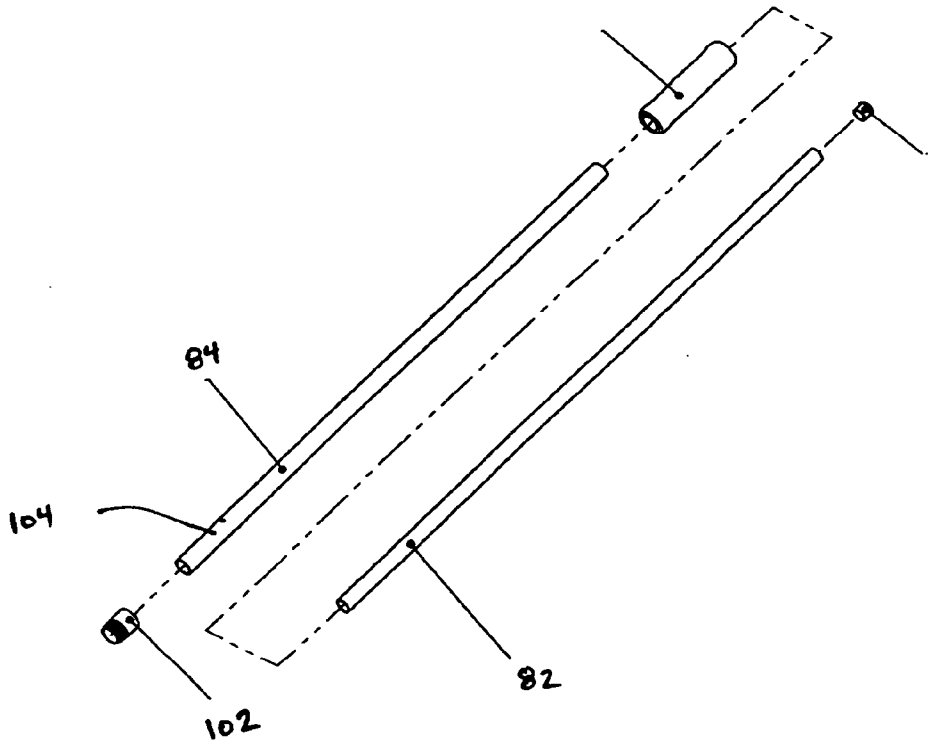


FIG. 15

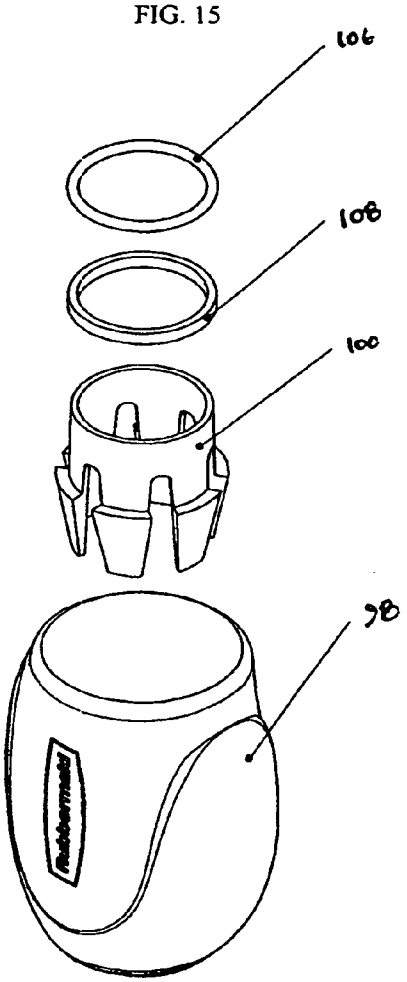


FIG. 16

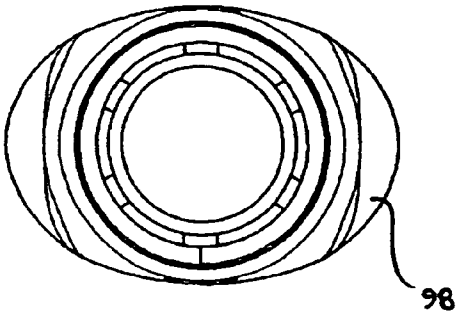


FIG. 17

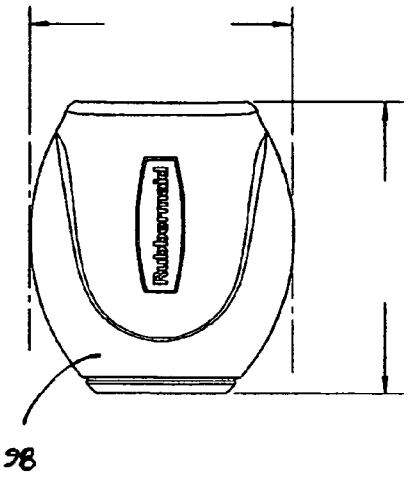
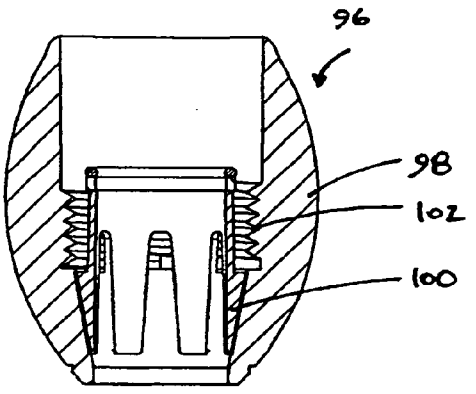


FIG. 18



SECTION D-D

FIG. 19

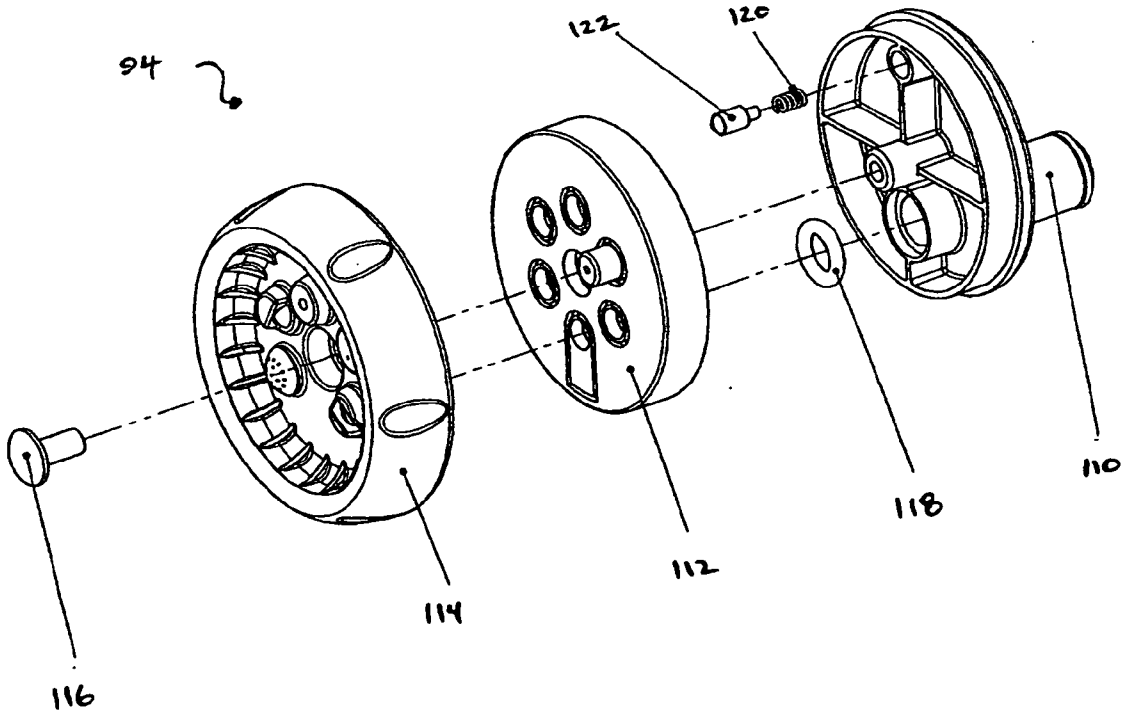


FIG. 20

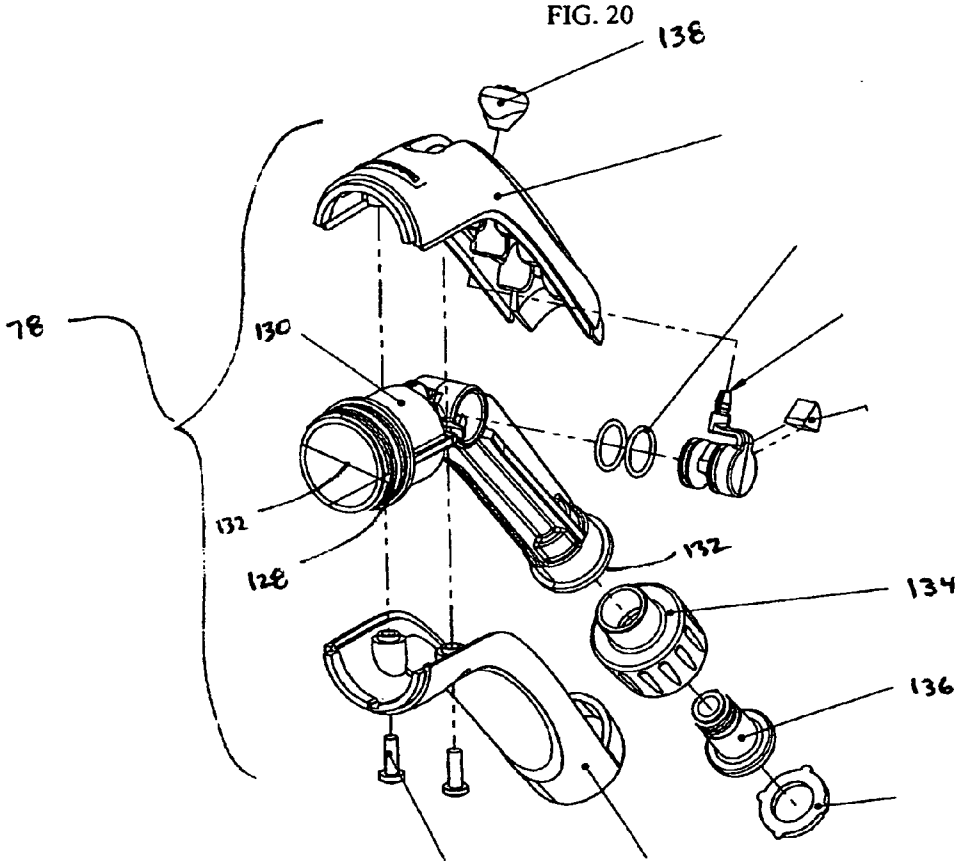


FIG 21

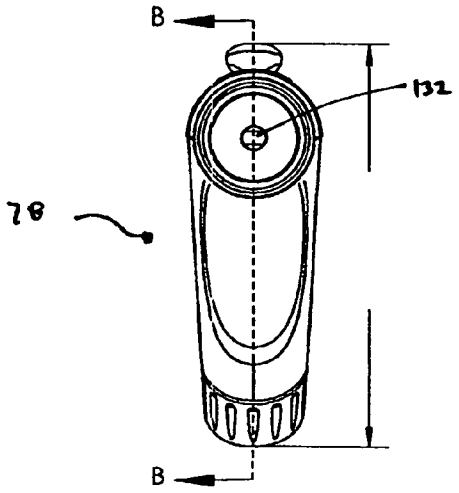


FIG 22

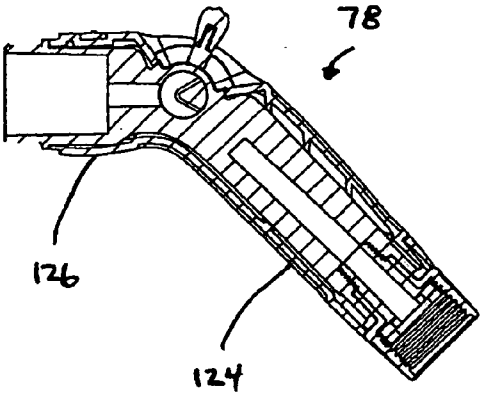


FIG. 23

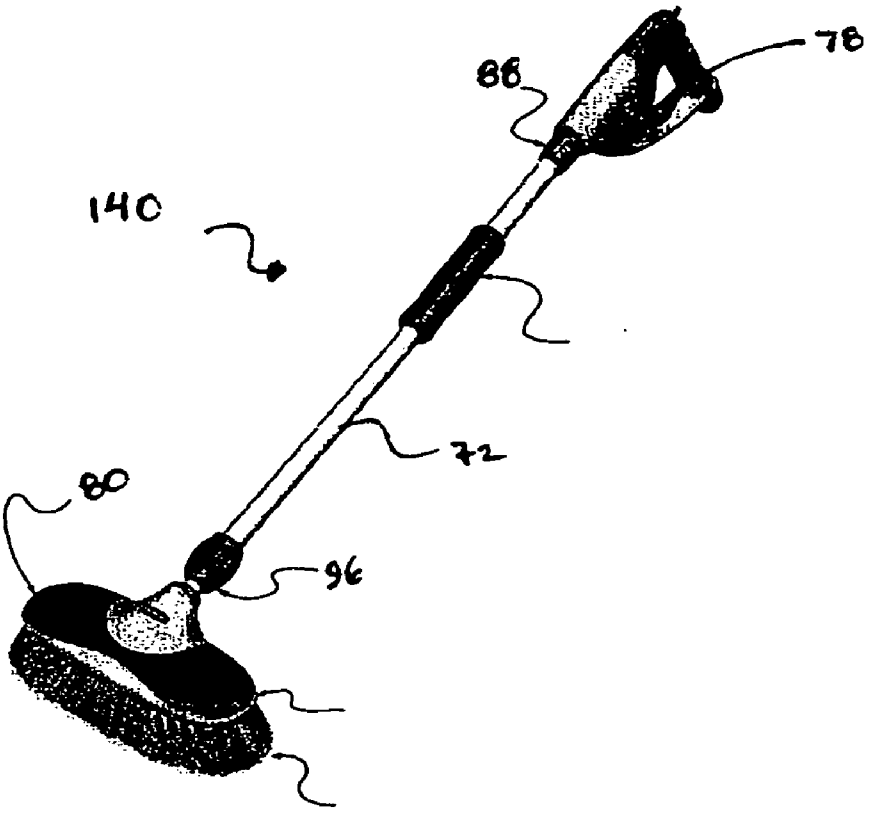


FIG. 24

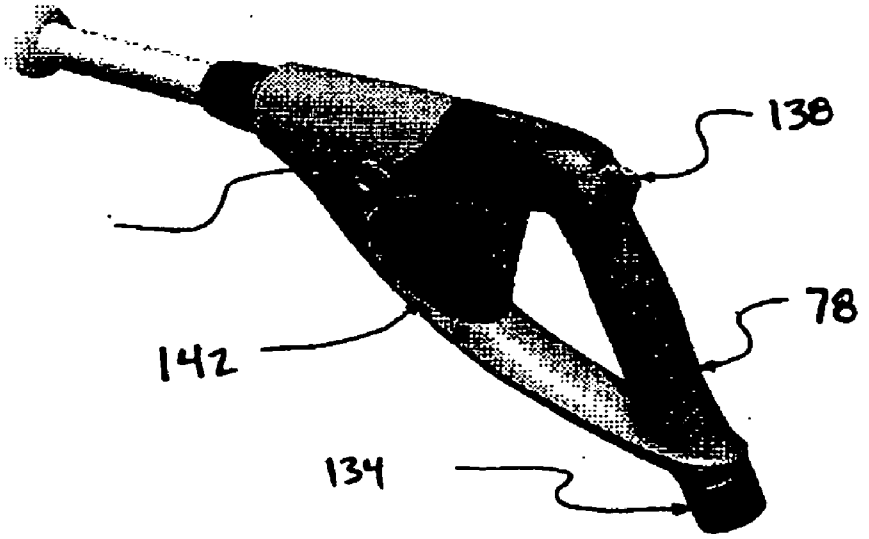


FIG. 25

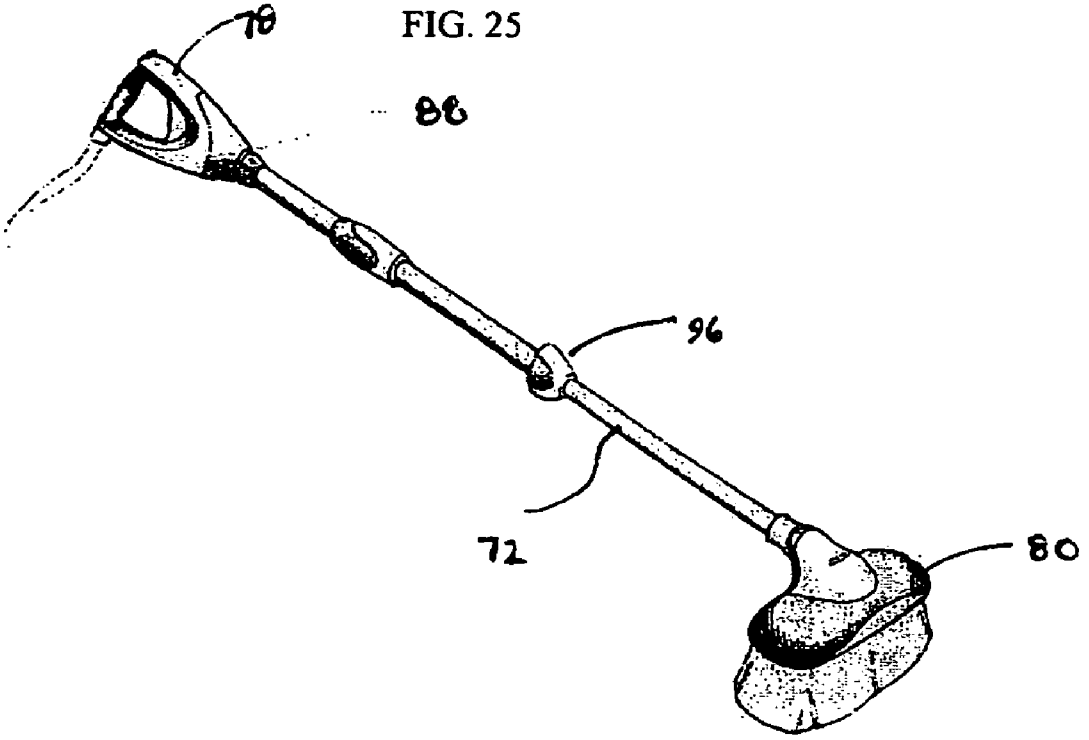
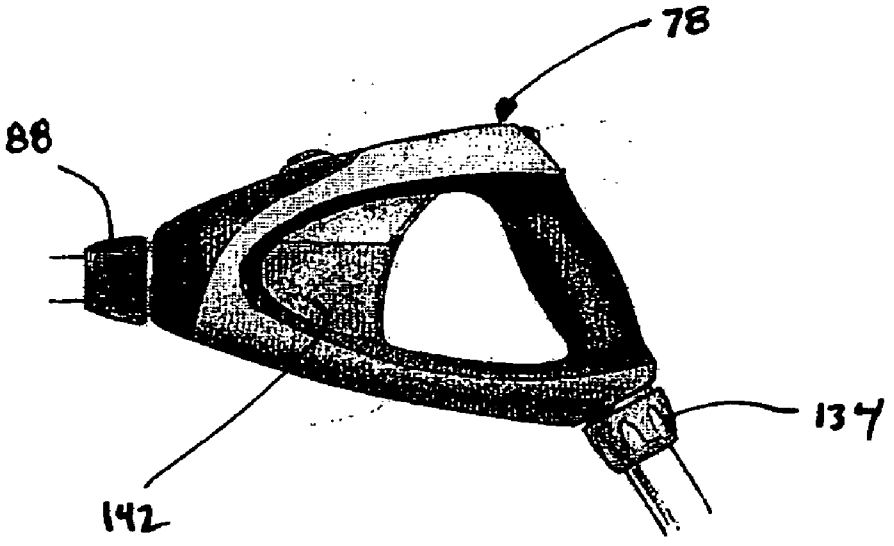


FIG. 26



LIQUID DISPENSING DEVICES INCLUDING AN ATTACHED CLEANING ELEMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Provisional Application U.S. Application No. 60/667,187 filed on Mar. 30, 2005, the contents of which are herein incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention is generally directed to liquid dispensing devices, and more particularly to liquid dispensing devices including an attached cleaning element.

BACKGROUND

[0003] Liquid dispensing devices including an attached cleaning element have been used to wash various structures including but not limited to vehicles, windows, walls, and boats. One exemplary liquid dispensing device is disclosed by U.S. Pat. No. 6,142,693. U.S. Pat. No. 6,142,693 describes a liquid dispensing device including an attached discharge head providing a chenille mop. Liquid is dispensed through the mop head. An exemplary extension pole assembly including a collet lock assembly is disclosed by U.S. Pat. No. 5,823,578.

SUMMARY OF THE INVENTION

[0004] The invention provides liquid dispensing devices including an attached cleaning element. One embodiment according to the disclosure provides a liquid dispensing device comprising a plunger/handle pole assembly, an exterior barrel capable of slidably receiving the plunger/handle pole assembly and including a liquid reservoir, and a brush head attached to a distal end of the exterior barrel which is in fluid communication with the liquid reservoir. The brush head generally comprises a neck portion, a base portion having a front edge and a rear edge, and a spray nozzle disposed proximate to the front edge of the base portion. The spray nozzle provides a channel through the brush head body and into the fluid reservoir that permits liquids to be dispensed from the fluid reservoir. The spray nozzle can include an umbrella valve or a similar two-way valve to control fluid flow in and out of the fluid reservoir. The plunger/handle pole assembly and exterior barrel including a liquid reservoir function similar to a syringe and in combination with the brush head provide a convenient portable water source for cleaning various structures.

[0005] A second embodiment according to the invention provides a liquid dispensing device comprising a flow-through pole assembly having first and second ends, a flow-through handle attached to and capable of pivoting about the first end, and a brush head attached to the second end. The flow-through pole assembly includes a channel from the first end to the second end, and is therefore capable of permitting the flow of fluids from the first end to the second end. In some embodiments, the flow-through pole assembly is an extension flowthrough pole assembly including an inner pole and an outer pole that is capable of slidably receiving the inner pole. In such embodiments, a collet lock assembly can be used to control the length of the extension flow-through assembly, i.e., a collet lock assembly can be used to define the position (and therefore the length) of the inner pole relative to the outer pole. The flow-through handle includes a grasping portion and a connecting portion. In some embodiments, the grasping and connecting portions are positioned relative to each other so as to define an angle of between about 95 degrees and 140 degrees in order to comfortably accommodate a user's grip during use. The flow-through handle generally comprises a threaded collar. The flow-through handle further generally comprises grooves for receiving threads on an interior surface of the grasping portion. The brush head generally comprises a neck portion, a front portion, and a nozzle assembly disposed in the front portion. Providing the nozzle assembly in the front portion of brush head allows users to controllably and visibly prewet surfaces to be cleaned before scrubbing is commenced. Moreover, positioning nozzle assembly in the front portion allows fluid to be dispensed over a large area instead of simply dripping through a bottom surface of brush head into brush bristles and then onto the surface to be cleaned. The brush head generally includes an integral channel for permitting fluid communication between the nozzle assembly and the channel of the flow-through pole assembly that permits liquids to be dispensed from the nozzle assembly.

[0006] A third embodiment according to the disclosure provides a liquid dispensing device comprising a flow-through pole assembly having first and second ends, a flow-through handle attached to and capable of pivoting about the first end, the flow-through handle further including an integrated soap dispensing mechanism, and a brush head attached to the second end.

[0007] The liquid dispensing devices disclosed herein can be used to dispense a variety of liquids. Typically, the liquid dispensing devices are used to dispense a cleaning solution including water and, optionally, a surfactant. In some embodiments, the liquid dispensing devices may be used to dispense a finishing solution including water and a wax, for example.

[0008] These and other objects will become apparent from the foregoing and ongoing specification, the drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Objects, features, and advantages of the liquid dispensing devices according to the disclosure will become apparent upon reading the following description in conjunction with the drawing figures, in which:

[0010] FIG. **1** shows one example of a liquid dispensing device in accordance with the disclosure;

[0011] FIG. **2** shows a cross-sectional view of the liquid dispensing device of FIG. **1** taken along line A-A;

[0012] FIG. **3** shows a plunger/handle pole assembly and an exterior barrel capable of slidably receiving the plunger/handle pole assembly including a brush head attached to its distal end;

[0013] FIG. **4** shows an exploded view of the exterior barrel including a brush head attached to its distal end;

[0014] FIG. **5** shows an exploded view of the plunger/handle pole assembly; FIG. **6** shows a base portion of the brush head;

[0015] FIG. **7** shows a suitable spray nozzle for use in the liquid dispensing device;

[0016] FIG. **8** shows an enlarged cross-sectional view of the brush head shown in FIG. **2**;

[0017] FIG. **9** shows a second example of a liquid dispensing device in accordance with the disclosure;

[0018] FIG. **10** shows a cross-sectional view of the liquid dispensing device of FIG. **9** taken along line C-C;

[0019] FIG. **11** shows a liquid dispensing device including an extension flow-through pole assembly in a collapsed state;

[0020] FIG. **12** shows the liquid dispensing device of FIG. **11** in an extended state;

[0021] FIG. **13** shows an exploded view of the liquid dispensing device of FIG. **9**;

[0022] FIG. **14** shows an exploded view of the extension flow-through pole assembly;

[0023] FIG. **15** shows an exploded view of a collet lock assembly;

[0024] FIG. **16** shows a top view of the collet lock assembly;

[0025] FIG. **17** shows a side view of the collet lock assembly

[0026] FIG. **18** shows a cross-sectional view of the collect lock assembly of FIG. **17**;

[0027] FIG. **19** shows a nozzle assembly;

[0028] FIG. **20** shows an exploded view of a flow-through handle;

[0029] FIG. **21** shows a front view of a flow-through handle;

[0030] FIG. **22** shows a cross-sectional view of flow-through handle of FIG. **21** taken along line B-B;

[0031] FIG. **23** shows a third example of a liquid dispensing device in accordance with the disclosure;

[0032] FIG. **24** shows a flow-through handle including an integrated soap dispensing mechanism;

[0033] FIG. **25** shows a fourth example of a liquid dispensing device in accordance with the disclosure; and,

[0034] FIG. **26** shows an alternative flow-through handle including an integrated soap dispensing mechanism.

DETAILED DESCRIPTION

[0035] FIG. **1** illustrates a first embodiment of a liquid dispensing device according to the disclosure. Liquid dispensing device **10** generally includes a handle **12**. As exemplified, handle **12** is shaped to permit a user to comfortably grasp handle **12**, but the handle **12** may be of any suitable shape. Liquid dispensing device further includes a brush head **14**.

[0036] FIG. **2** shows a cross-sectional view of the liquid dispensing device of FIG. **1**. Liquid dispensing device **10** generally includes a plunger/handle pole assembly **16** and an exterior barrel **18** capable of slidably receiving the plunger/handle pole assembly, as best shown in FIG. **3**. Brush head **14** is typically attached to a distal end **20** of exterior barrel **18**. An aperture **22** at proximal end **24** of exterior barrel **18** is sized to receive plunger/handle pole assembly **16**. Exterior barrel **18** also includes a liquid reservoir **26**, as will be explained in more detail below. Brush head **14** is in fluid communication with liquid reservoir **26**.

[0037] FIG. **4** shows an exploded view of exterior barrel **18** including brush head **14** attached to distal end **20**. Brush head **14** generally comprises a neck portion **28**, a base portion **30** having a front edge **32** and a rear edge **34**, and a spray nozzle **36** disposed proximate to front edge **32** of base portion **30**. Providing spray nozzle **36** at front edge **32** of brush head **14** allows users to controllably and visibly prewet surfaces to be cleaned before scrubbing with the brush bristles (not shown) extending from brush head **14** is commenced. Moreover, positioning spray nozzle **36** at front edge **32** allows fluid to be dispensed over a large area instead of simply dripping through base portion **30** of brush head **14** into brush bristles (not shown) and then onto the surface to be cleaned. Reservoir **26** of exterior barrel **18** is sealed by cap **38** and valve **40**. Cap **38** includes a circumferential collar **42** and a threaded portion **44** extending therefrom. Spray nozzle **36** includes a base portion **43** including grooves (not shown) disposed on an inside surface thereof which are capable of receiving threaded portion **44** of cap **38** in order to couple these components. A nozzle gasket **46** may also be positioned between cap **38** and spray nozzle **36**. Additionally, a foam grip **48** may be provided about exterior barrel. Spray nozzle **36** and brush head **14** are generally coupled using adhesives and/or conventional fastening means such as screws, rivets, interference fasteners, and the like.

[0038] FIG. **5** shows an exploded view of a plunger/handle pole assembly **16** in accordance with the present invention. Plunger/handle pole assembly **16** generally includes handle **12**, plunger pole **50**, and plunger cap **52**. As exemplified, handle **12** comprises a first portion **54** and a second portion **56**, but handle may alternatively be of unitary construction. First and second portions **54**, **56** can be coupled using adhesives and/or conventional fastening means **58** such as screws, rivets, interference fasteners, and the like. A retainer ring **60** may also be provided to couple first and second portions **54**, **56** to plunger pole **50**.

[0039] FIG. **5** also illustrates that plunger cap **52** can include grooves **62** about the circumference thereof for receiving standard O-rings **64**. The O-rings **64** are sized to provide an interference fit between the plunger/handle pole assembly **16** and the inside diameter of exterior barrel **18** such that a seal can be formed between these components. The seal allows a pressure differential to be established between the liquid reservoir **26** and an external liquid source (not shown), thereby permitting fluid to be taken into reservoir **26** through spray nozzle **36** by suction. Of course, the seal between these components also permits a user to dispense a fluid contained in reservoir **26** when plunger/pole assembly **16** is inserted into exterior barrel **18** when plunger/pole assembly **16** is moved towards the brush head **14**. Similarly, plunger/pole assembly **16** may be used to draw liquid into the reservoir **26** by inserting the brush head **14**, including spray nozzle **36**, into a liquid reservoir and pulling the plunger/pole assembly **16** away from the brush head **14**.

[0040] FIG. **6** illustrates base portion **30** of brush head **14**. Spray nozzle **36** may be disposed at front edge **32** of brush head **14**, for the reasons previously described.

[0041] FIG. **7** illustrates spray nozzle **36** in further detail. Spray nozzle **36** provides at least one channel **66** through brush head **14** and into liquid reservoir **26** that permits liquids to be dispensed from and taken up into liquid reservoir **26**. As shown, spray nozzle **36** includes three separate tubular channels **66** extending from base portion **43**. The exemplified spray nozzle includes three tubular channels **66** to facilitate water uptake by liquid dispensing device **10**, but any number of tubular channels can be provided. Multiple tubular channels **66** are preferred because intaking fluid through a single nozzle tubular channel would take a very long time and frustrate the user.

[0042] FIG. **8** shows an enlarged cross-sectional view of brush head **14**. Spray nozzle **36** may generally be coupled to brush head **14** using adhesives, but other conventional fastening means such as screws, rivets, interference fasteners, and the like can alternatively be used. As shown, spray nozzle includes an umbrella valve **40**, but any similar two-way valves can be used to control fluid flow into and out of liquid reservoir **26**. Umbrella valve **40** allows for quick intake of liquid through tubular channels **66**, but limits the outward flow to the central tubular channel **66**, thereby conserving water and providing good coverage (fluid is dispensed over a large area). Umbrella valve **40** is typically secured by a snap fit or interference/friction fit to an interior face **68** of cap **38** and may be made of any material as conventionally known by those of ordinary skill including elastomeric materials such as rubber and the like. Alternatively, umbrella valve **40** may be replaced by a floating collar valve having a flange for covering the two outer channels of spray nozzle **36** and including ribs for keeping the valve from disengaging from cap **38**. The ribs allow the collar to float between an open position allowing fluid flow through all **3** channels **66** and a closed position allowing fluid flow only through the center channel **66**.

[0043] To suck water into the reservoir **26**, the nozzle **36** is submerged into a water supply. Pulling plunger/handle pole assembly **16** from exterior barrel **18** causes a pressure differential (a vacuum) which lifts the outer flange(s) of umbrella valve **40**, thereby causing water to be taken up into each of tubular channels **66** (and not simply central tubular channel). When the user stops pulling plunger/handle pole assembly **16**, the flange of the umbrella valve reverts to its natural position compressed slightly against interior face **68**, thereby sealing off the two tubular channels **66** adjacent to the central tubular channel **66**. When the user pushes plunger/handle pole assembly **16** back into barrel **18**, the fluid in reservoir **26** is compressed, and the outer flange of umbrella valve **40** is further compressed against interior face **68**, thereby completely sealing the two tubular channels **66** adjacent to the central tubular channel **66**. This forces the water to escape through the central passage in the umbrella valve to the central tubular channel, allowing water to flow under pressure out of spray nozzle **36**.

[0044] FIG. **9** shows a second example of a liquid dispensing device in accordance with the disclosure. Liquid dispensing device **70** comprises a flow-through pole assembly **72** having first and second ends **74**, **76**, a flow-through handle **78** attached to and capable of pivoting about the first end, and a brush head **80** attached to the second end **76**.

[0045] FIG. **10** shows a cross-sectional view of the liquid dispensing device of FIG. **9** illustrating that flow-through pole assembly **72** includes a channel **81** from first end **74** to the second end **76**, and is therefore capable of permitting the flow of fluids from first end **74** to second end **76**. In some embodiments, flow-through pole assembly **72** is an extension flowthrough pole assembly. FIG. **11** shows liquid dispensing device **70** including an extension flow-through pole assembly **72** in a collapsed state, and FIG. **12** shows liquid dispensing device **70** including extension flow-through pole assembly **72** in an extended state.

[0046] FIG. **13** shows an exploded view of liquid dispensing device **70**. Liquid dispensing device **70** generally includes flow-through handle **78**, a free rotation coupler **86**, which permits rotation of flow-through handle **78** about flow-through pole assembly **72**, and a retaining collar **88**, which couples flow-through handle **78** to flow-through pole assembly **72**. The ability of flow-through handle **78** to rotate about flow-through pole assembly allows a user to easily manipulate liquid dispensing device **70** without struggling to orient the water source (i.e., hose) at the point of attachment to flow-through handle **78**. This feature allows the weight of the hose (or hand strength) to easily orient the flow-through handle **78** into its natural downward gripping position. Liquid dispensing device **70** generally includes brush head **80**. Brush head **80** includes a brush head cover **87** and brush head base **89**, which are coupled together using adhesives and/or standard fastening means as previously described. Brush head **80** generally comprises a neck portion **90**, a front portion **92**, and a nozzle assembly **94** disposed in front portion **92**. Brush head **80** also generally includes an integral channel **95** for permitting fluid communication between the nozzle assembly **94** and channel **81** of flow-through pole assembly **72** that permits liquids to be dispensed from the nozzle assembly.

[0047] FIG. **14** illustrates an extension flow-through pole assembly **72**, which includes an inner pole **82** and an outer pole **84** that is capable of slidably receiving inner pole **82**. In embodiments including extension flow-through pole assembly **72**, a collet lock assembly **96** can be used to control the length of the extension flow-through assembly, i.e., a collet lock assembly **96** can be used to define the position (and therefore the length) of inner pole **82** relative to outer pole **84**. FIG. **15** shows an exploded view of an exemplary collet lock assembly (but without the corresponding collet screw **102**), but any suitable collet lock assembly may be used. When engaged, collet lock assembly **96** generally includes a collet grip **98**, a collet lock **100**, and a collet screw **102**, which is typically disposed on a distal end **104** of outer pole **84**. Collet lock assembly may further include a collet O-ring **106** and a collet washer **108**. Collet screw **102** provides a threaded surface for engaging grooves disposed on an interior of collet grip **98**, as best shown in FIG. **18**. Thus, to engage collet lock assembly **96**, a user simply has to thread collet grip **98** onto collet screw, in order to provide an interference fit between the collet lock **100** and the inner pole **82**, as best shown in FIG. **18**. Collet grip **98** is exemplified as having an oval shape to best facilitate a user's ability to turn collet grip **98** so as to engage collet lock **100**, which is particularly useful for example, when collar grip is wet (or otherwise somewhat slippery).

[0048] FIG. **19** shows an exploded view of nozzle assembly **94**. As exemplified, nozzle assembly **94** includes a base

plate **110**, a seal plate **112**, and a nozzle plate **114**, capable of rotating about fastener **116**, thereby providing a variety of settings for varying the form of the water spray provided by liquid dispensing device **70**. Typically, nozzle assembly **94** includes an O-ring **118**, a spring **120**, and a indexing tip **122**.

[**0049**] Flow-through handle **78** includes a grasping portion **124** and a connecting portion **126**, as best shown in FIG. **22**. In some embodiments, the grasping and connecting portions **124**, **126** are positioned relative to each other so as to define an angle of between about 95 degrees and 140 degrees in order to comfortably accommodate a user's grip during use. Flow-through handle **78** generally comprises a threaded collar **128** which provides threads capable of interacting with grooves disposed on an interior of retaining collar **88** to couple flow-through handle **78** to flow-through pole assembly **72**. Flow-through handle **78** further generally comprises grooves for receiving threads on an interior surface of the grasping portion, so as to be connected to a conventional hose. As best shown in FIG. **20**, flowthrough handle **78** generally includes a main body portion **130** including a pathway or channel **132** defined therethrough, a free rotation coupler **134**, which permits rotation of flow-through handle **78** about the attached water source or hose (not shown). The ability of flow-through handle **78** to rotate about the attached water source or hose allows a user to easily manipulate liquid dispensing device **70** without struggling to orient the water source (i.e., hose) at the point of attachment to flow-through handle **78**. This feature also allows the weight of the hose (or hand strength) to easily orient the flow-through handle **78** into its natural downward gripping position. Flow-through handle **78** generally also includes retaining element **136** for coupling free rotation coupler **134** to flow-through handle **78**. Flow-through handle **78** also generally includes a valve lever **138** for controlling the flow of water through flow-through handle **78**.

[**0050**] FIGS. **23-26** illustrate a third embodiment of a liquid dispensing device **140** according to the disclosure. Liquid dispensing device **140** is similar to liquid dispensing device **70**, but further includes an integrated soap container **142**. Accordingly, similar structural elements are numbered as previously described. FIGS. **23** and **24** illustrate a handle configuration similar to that depicted in liquid dispensing device **70**. FIGS. **25** and **26** illustrate a varied handle configuration. The embodiments of FIGS. **23-26** allow a user to control water and soap flow.

[**0051**] Although certain liquid dispensing devices have been described herein as being in accordance with the teachings of the present disclosure, the scope of coverage is not limited thereto. On the contrary, this covers all embodiments of the teachings of the disclosure that fairly fall within the scope of permissible equivalents.

[**0052**] Following from the above description and invention summaries, it should be apparent to those of ordinary skill in the art that, while the methods and apparatuses herein described constitute exemplary embodiments of the present invention, the invention contained herein is not limited to this precise embodiment and that changes may be made to such embodiments without departing from the scope of the invention as defined by the claims. Additionally, it is to be understood that the invention is defined by the claims and it is not intended that any limitations or elements describing the exemplary embodiments set forth herein are to be incorporated into the interpretation of any claim element unless such limitation or element is explicitly stated. Likewise, it is to be understood that it is not necessary to meet any or all of the identified advantages or objects of the invention disclosed herein in order to fall within the scope of any claims, since the invention is defined by the claims and since inherent and/or unforeseen advantages of the present invention may exist even though they may not have been explicitly discussed herein.

What is claimed is:

1. A liquid dispensing device comprising:

a plunger having a handle attached thereto and a cap on an end thereof;

an exterior barrel shaped to slidingly receive said plunger and including a liquid reservoir therein;

a cleaning head having a spray nozzle therein, said cleaning head attached to said exterior barrel and including a spray nozzle therein in fluid communication with said reservoir, said spray nozzle including at least two passages therethrough; and

a valve between said fluid reservoir and said spray nozzle for selectively allowing fluid flow into said reservoir through all of said passages while preventing fluid flow out of said reservoir through at least one of said passages.

2. The liquid dispensing device of claim 1 wherein said cleaning head is rotatably attached to said exterior barrel.

3. The liquid dispensing device of claim 1 wherein said spray nozzle outlet is positioned proximate a front edge of said cleaning head.

4. The liquid dispensing device of claim 1 wherein said valve is an umbrella valve.

5. The liquid dispensing device of claim 1 wherein said spray nozzle includes three linearly aligned passages and said valve prevents fluid flow out from the reservoir through the two outer passages.

6. The liquid dispensing device of claim 1 further comprising a grip positioned on said exterior barrel.

7. The liquid dispensing device of claim 6 wherein said grip is a foam grip.

8. The liquid dispensing device of claim 1 further comprising at least one O-ring positioned on said cap.

9. The liquid dispensing device of claim 1 wherein said handle is attached to said plunger by a retainer ring.

10. The liquid dispensing device of claim 1 further comprising a circumferential collar for rotatably attaching said cleaning head to said exterior barrel.

11. A liquid dispensing device comprising:

a plunger having a handle attached thereto and a cap on an end thereof;

an exterior barrel shaped to slidingly receive said plunger and including a liquid reservoir therein;

a cleaning head having a spray nozzle therein, said cleaning head rotatingly attached to said exterior barrel and including a spray nozzle therein in fluid communication with said reservoir, said spray nozzle including at least two passages therethrough; and

a valve between said fluid reservoir and said spray nozzle for selectively allowing fluid flow into said reservoir

through all of said passages while preventing fluid flow out of said reservoir through at least one of said passages.

12. The liquid dispensing device of claim 11 wherein said spray nozzle outlet is positioned proximate a front edge of said cleaning head.

13. The liquid dispensing device of claim 11 wherein said valve is an umbrella valve.

14. The liquid dispensing device of claim 11 wherein said spray nozzle includes three linearly aligned passages and said valve prevents fluid flow out from the reservoir through the two outer passages.

15. The liquid dispensing device of claim 11 further comprising a grip positioned on said exterior barrel.

16. The liquid dispensing device of claim 15 wherein said grip is a foam grip.

17. The liquid dispensing device of claim 11 further comprising at least one O-ring positioned on said cap.

18. The liquid dispensing device of claim 11 wherein said handle is attached to said plunger by a retainer ring.

19. The liquid dispensing device of claim 17 wherein said cap includes two O-rings

20. A liquid dispensing device comprising:

a plunger having a handle attached to one end thereof and a cap on an opposite end thereof, said cap including at least one O-ring positioned thereon;

an exterior barrel shaped to slidingly receive said plunger and including a liquid reservoir therein;

a cleaning head having a spray nozzle therein, said cleaning head rotatably attached to said exterior barrel and including a spray nozzle therein in fluid communication with said reservoir, said spray nozzle including three linearly aligned passages therethrough; and

an umbrella valve between said fluid reservoir and said spray nozzle for selectively allowing fluid flow into said reservoir through all of said passages while preventing fluid flow out of said reservoir through the two outer passages.

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