A whirlpool tub and faucet/handheld shower combination which may be carried out in a variety of different embodiments. One embodiment includes a whirlpool tub, and a handheld shower mounted to flow water into the whirlpool tub, and with the proviso that the handheld shower is not connected to a diverter for diverting water from the handheld shower to another spout, shower device or faucet for flowing water into the whirlpool tub. Another embodiment includes a handheld shower assembly including at least two pieces. A first piece is an elongated member having a bore form therein and so that the bore and the through hole are aligned. A flexible hose is connected to a second piece of the handheld shower assembly and so that a portion of the flexible hose extends through the bore in the first piece and through the through hole formed in the whirlpool tub deck. The second piece includes a showerhead for flowing water into the whirlpool tub.
WHIRLPOOL TUP AND FAUCET/HANDHELD SHOWER COMBINATION

FIELD OF THE INVENTION

This invention relates to tubs, whirlpool tubs and handheld showers.

BACKGROUND OF THE INVENTION

FIG. 1 illustrates a prior art whirlpool tub system including a tub 12 having a sidewall 14 and a upper deck rail 16 connected to the sidewall 14. A cold water control valve 18 and an associated handle 20 are mounted to the upper deck rail 16 and a cold water inlet conduit 22 is provided and is connected to the cold water control valve 18. A cold water outlet conduit 24 runs from the cold water control valve 18 to a diverter valve 26. A diverter handle knob 28 is connected to the diverter valve 26. A hot water valve 30 and an associated hot water valve handle 31 are also mounted to the upper deck rail 16. A hot water inlet conduit 32 runs to the hot water valve 30 and a hot water valve outlet 34 runs from the hot water valve 32 to the diverter valve 26. A first diverter valve outlet conduit 36 runs from the diverter valve 26 to a vacuum breaker 38 positioned in an overflow box 40 mounted behind a bathroom wall 42. A vacuum breaker outlet conduit 46 runs from the vacuum breaker 38 to a handheld shower 50. The handheld shower mount 52 having a through hole form therein may be received in a through hole formed in the upper deck rail 16 to hold the handheld shower 50 in a mounted position. The vacuum breaker outlet conduit 46 includes a flexible portion connected to the handheld shower 50 to allow the handheld shower 50 to be retractably removed from the mount 52 and used by an occupant of the tub 12. A second outlet conduit 53 extends from the diverter valve 26 to a tub spout 55, that is also mounted to the upper deck rail 16, to allow water to flow into the tub 12 when the diverter valve is moved to change the flow of water from the handheld shower 50 to the tub spout 55. The area under the upper deck rail 16 in which the water piping or conduits must be connected and soldered specifically less than six inches. As a consequence, it may take a plumber more than six hours to install a whirlpool tub and handheld shower system as described above. Numerous elbows must be soldered together in a very small work area. The more soldered joints there are the increased likelihood of a leak. Furthermore, the use of a vacuum breaker 38 and a drain pipe 44 in an overflow box 40 that is mounted behind the drywall 42 of the bathroom typically limits the installation of this whirlpool tub and handheld shower combination to new home construction. Installing the overflow box 40 after the home has been built requires removal of any title and the drywall. Even more time would be associated with converting an existing installed whirlpool tub to include a handheld shower wherein the overflow box 40 would have to be installed behind an existing building drywall 42.

SUMMARY OF THE INVENTION

The present invention includes a whirlpool tub and handheld shower combination which may be carried out in a variety of different embodiments. One embodiment includes a whirlpool tub, and a handheld shower mounted to flow water into the whirlpool tub, and with the proviso that the handheld shower is not connected to a diverter for diverting water from the handheld shower to another spout, shower device or faucet for flowing water into the whirlpool tub.

Another embodiment includes a handheld shower assembly including at least two pieces. A first piece is an elongated member having a bore form therein and so that the bore and the through hole are aligned. A flexible hose is connected to a second piece of the handheld shower assembly and so that the portion of the flexible hose extends through the bore in the first piece and through the through hole formed in the whirlpool tub deck rail. The second piece includes a showerhead for flowing water into the whirlpool tub.

These and other embodiments of the present invention will become apparent from the following brief description of the drawings, detailed description of exemplary embodiments and appended claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a prior art assembly.

FIG. 2 illustrates one embodiment of the invention.

FIG. 3 illustrates one embodiment of the invention.

FIG. 4 illustrates one embodiment of the invention.

FIG. 5 illustrates one embodiment of the invention.

FIG. 6 illustrates one embodiment of the invention.

FIG. 7 illustrates one embodiment of the invention.

FIG. 8 illustrates one embodiment of the invention.

FIG. 9 illustrates one embodiment of the invention.

FIG. 10 illustrates one embodiment of the invention.

FIG. 11 illustrates one embodiment of the invention.

FIG. 12 illustrates one embodiment of the invention.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

The following description includes a variety of exemplary embodiments in which the present invention may take form or may be carried out. These exemplary embodiments are not intended to limit the scope of the invention but merely to provide illustrated examples of embodiments that fall within the scope of the invention which is defined by the appended claims.

Referring now to FIG. 2, one embodiment includes a handheld shower assembly 60 may include a first piece 62 having a bore 63 formed there through. The first piece 62 may include an abutment 64 which engages a deck 16 (for example, an upper deck rail 16 of the deck 16) of a tub 12. In a preferred embodiment the tub 12 is a whirlpool tub. The tub 12 is constructed and arranged to hold an adult human in a sitting position. The first piece 62 may also include an
extension 66 which may be threaded. The extension 66 extends through a through hole 67 formed in the deck 16 of the tub 12. A nut 68 may be placed over the threaded extension 66 to mount the first piece 62 to the deck rail 16. Of course, the first piece 62 may be mounted to the deck 16 by any of a variety of means known to those skilled in the art and is not limited to the specific combination of a threaded extension 66 and a nut 68.

[0020] The handheld shower assembly 60 may include a second piece 74 that is a handheld shower that includes a bore 71 formed therethrough. The handheld shower 74 includes a head 104 having a plurality of holes 106 form therein communicating with the bore 71 so that water may flow through the handheld shower 74 and out of the holes 106. An aerator 108 may also be provided in a handheld shower 74 for aerating water flowing out of the head 104. A flexible hose 70 includes a first end 72 connected to the handheld shower second piece 74. For example, the second piece 74 may include a threaded extension 75 in which the bore 71 extends therethrough. A connector 69 may be secured to the flexible hose 70 and threaded on the threaded extension 75 of the second piece 74.

[0021] A cold water inlet conduit 76 is provided for flowing cold water to the second piece 74 of the handheld shower assembly 60. An anti-backflow check valve 87 may be connected to the cold water inlet conduit 76. When a valve is referred to in this description the reference numerals indicate the general location of the valve and do not show actual valve structure because those are well known to those skilled in the art and the illustration of specific structures of valves is not necessary to understand the invention. The cold water inlet conduit 76 is connected to a valve 78 which is controlled by a cold water valve handle 80. A cold water outlet conduit 82 runs from the valve 78 to a T-shaped conduit 92 and connects to a first nipple 94 of the T-shaped conduit 92.

[0022] A hot water inlet conduit 84 is provided and is connected, for example, to a hot water heater at one end and at another end to a hot water valve 86 which is controlled by a hot water valve handle 88. An anti-backflow check valve 85 may be connected to the hot water inlet conduit 84. A hot water outlet conduit 90 is connected to the hot water valve 86 and extends to a second nipple 96 of the T-shaped conduit 92. A second end 100 of the flexible hose 70 is connected to a third nipple 98 of the T-shaped conduit 92. A connector 99 may be attached to the second end 100 of the flexible hose 70 and may be threaded on to the third nipple 98, soldered onto the third nipple 98 or otherwise attached to the third nipple 98 in a manner known to those skilled in the art.

[0023] An anti-backflow check valve 77 may also be provided in the second piece 74 of the handheld shower assembly 60. A button 154 may be provided on the second piece 74 of a handheld shower assembly 60 for moving a valve (not shown) in the second piece 74 to direct the flow of water first through the aerator 108 or directly through the holes 106 in the head 104 of the second piece 74. FIG. 3 illustrates another view of the second piece 74 showing the head 104, plurality of holes 106, and an aerator 108.

[0024] Referring now to FIG. 4, in one embodiment the tub 12 may be a whirlpool tub having a plurality of venturi jet units 110 that may be connected to a sidewall 14 of the tub. The sidewall 14 is connected to a upper deck 16 (which may extend generally in a horizontal direction) to which the handheld shower assembly 60 is also mounted to the deck 16. The handheld shower assembly 60 includes the first piece 62 mounted to the tub deck 16 and the second piece 74 which may be retractably mounted to the first piece 62. Cold water handle 80 and hot water handle 88 may also be mounted to the deck 16 as previously described. The tub 12 may abut a wall 58 of the building along at least one side of a tub 12. The tub 12 may also include an outer wall 54 which does not abut a wall of the building.

[0025] Referring now to FIG. 5, another embodiment includes the whirlpool tub 12 including a floor 130. Sidewalls 14 extend upward from the floor 130 and connected to a deck rail 16' which may extend generally in a horizontal direction. One portion of the whirlpool tub may include an outer wall 54 extending downward from the deck rail 16' and supported by a floor 132 of the building. The outer wall 54 is spaced a distance from any wall 58 of the building as will be best appreciated from FIG. 4. The distance between the outer face 15 of the sidewall 14 and the inner face 56 of the outer wall 54, as illustrated by arrow B, is less than six inches. Despite this relatively small space (six inches) in which to make connections, the present invention can be easily installed utilizing the flexible hose assembly. Typically, the installation will take less than 2 hours.

[0026] The handheld shower assembly 60 may be utilized with any type of whirlpool tub known to those skilled in the art. FIG. 6 illustrates one embodiment of a whirlpool tub and handheld shower assembly combination. For example, the plurality of jet units 110 may individually be connected to a water pipe 112 that is also connected to a water manifold 114. A pump pipe 116 may be provided and connected to the water manifold 114 at one end and to a pump 118 at another end. The pump 118 may also be connected to a recirculation pipe 120 that has one end connected to a recirculation port 122 for drawing water from the inside of the whirlpool tub and through the pump 118. The pump 118 may have variable speeds which may be controlled by a pump control knob 128 connected to the upper deck 16. The plurality of jet units 110 may be also be connected to air pipes 156 that are connected to an air manifold 124. The amount of air allowed to flow into the air manifold 124 and the air pipes 156 may be controlled by an air control knob 126 also mounted on the deck 16. The whirlpool tub 12 may abut a building wall 58, and a floor 130 of the whirlpool tub may rest on a floor 132 of the building. As previously described, the handheld shower assembly 60 may include the first piece 62 mounted to the deck 16 and a second piece 74 retractably mounted to the first piece 62. The flexible hose 70 extends from the second piece 72 through the first piece 62 and through a through hole (not shown in FIG. 6) of the deck 16 (or deck rail 16). The amount of water flowing through the second piece 74 of the handheld shower assembly 60 may be controlled by a lever 150 in a manner which will be described hereafter.

[0027] Referring now to FIG. 7, one embodiment includes a handheld shower assembly 60 including a first piece 62 mounted to the deck 16 of the tub 12 and a second piece 74 having a flexible hose 70 attached thereto. The flexible hose 70 extends through a bore 71 formed in the first piece 62. The hot water inlet 84 (not shown) and the cold water inlet 76 are connected to a single valve 158 in the assembly 60. The flexible hose 70 is also connected to the single valve 158 in the assembly 60. A single handle 150 is provided and
connected to the single valve 158 for controlling the flow of both hot water and cold water into the flexible hose 70 in a manner known to those skilled in the art. In one embodiment the first piece 62 extends above the deck 16 the distance, as shown by arrow A, of at least one inch.

[0028] Referring now to FIG. 8, another embodiment includes a first piece 62 of the handheld shower assembly 60 which may extend vertically straight up from a deck 16 and includes a bore 71 formed in a side thereof into which a portion of a second piece 74 is received to hold the second piece 74.

[0029] Referring now to FIG. 9, in another embodiment the handheld shower assembly 60 may include only the second piece 74 which is constructed and arranged to be received in the through hole 67 formed in the deck 16. The flexible hose 70 extends through the through hole 67 and the deck 16 and is connected to hot and cold water supplies in a manner illustrated in FIGS. 7 or 2, or in any other manner known to those skilled in the art with the proviso that no diverter is connected to the flexible hose 74 for diverting water from the second piece 74 to another spout, shower device or faucet for flowing water into the tub 12.

[0030] Referring now to FIG. 10, another embodiment of the invention includes a handheld shower assembly 60 including the second piece 74 as previously described and a flexible hose 70 connected to the second piece 74 at one end 72, and at the second end 100 the flexible hose 70 is connected to hot and cold water supplies, for example, through a T-shaped connector having a third nipple 98. The tub 12 may abut a building wall 58. The first piece 62 may optionally be provided and mounted to the deck 16. The flexible hose 70 may extend through the second piece 74 and through a through hole formed in one of the deck 16. The first piece 62 may be positioned or bent to prevent water from flowing through the through hole when the second piece 74 is in an elevated position. A handheld shower holder 134 is mounted to the wall 58 at a position that is at least three feet, as designated by arrow C, above the deck rail 16. The handheld shower holder 134 may be a single piece, or two pieces wherein one piece is movable with respect to the other to adjust the position of a second piece 74 of a handheld shower assembly 60. One embodiment of a two-piece handheld shower holder 134 is illustrated in FIG. 11, and includes a first piece 160 having a body portion 136 mounted to the building wall 58. Spaced apart projections 138 extend from the body portion 136. A second piece 162 is provided and may include spaced apart arms 142 defining a space 144 therebetween through which the flexible hose 170 may be passed. The second piece 74 of the handheld shower assembly 60 may be supported by the arms 142. A tail 146 extends from the arms 142 and may have a through hole formed therein. The projections 138 may also have a through hole formed therein, and a pin 148 may extend through the projections 138 and the tail 146 in a manner to allow the second piece 162 of the handheld shower holder 134 to pivotally move about the pin 148 in a manner to adjust the position of the second piece 74 of the handheld shower assembly 60.

[0031] Referring now to FIG. 12, one embodiment for the invention includes a valve control including single handle 150 and a rotatable knob 152 attached thereto which may be used in unison to turn the water supply on by moving the handle 150 in a linear direction and controlling the amount of hot and cold water by rotating the knob 152 in a manner which is known to those skilled in the art.

[0032] As will be appreciated from the foregoing, numerous embodiments eliminate the need for a diverter connected to the flexible hose 70. Further, numerous embodiments may be installed in less than two hours thus drastically reducing the time of assembly, and the associated costs of prior art assemblies such as that shown in FIG. 1. In one embodiment, an existing installed whirlpool tub may be easily retrofitted to include a handheld shower 74.

What is claimed is:

1. A combination comprising:
   a tub comprising a whirlpool tub comprising at least one deck, the deck having a through hole form therein;
   a handheld shower assembly positioned to flow water into the tub and having a portion constructed to be received in the through hole formed in the deck;
   a flexible hose connected to the handheld shower assembly and operatively connected to a hot water conduit and to a cold water conduit to supply hot and cold water to the handheld shower assembly and with the proviso that the handheld shower assembly is not connected to a diverter for diverting water from the handheld shower assembly to another spout, shower device or faucet for flowing water into the whirlpool tub.

2. A combination as set forth in claim 1, wherein the handheld shower assembly comprises a first piece and a second piece, the first piece comprising an elongated portion having a bore formed therethrough and comprising a portion constructed and arranged to be received in the through hole formed in the deck, the flexible hose extending through the bore formed in the first piece, and the flexible hose including a first end connected to the second piece of a handheld shower assembly.

3. A combination as set forth in claim 2, wherein the second piece of a handheld shower assembly comprises at least bore formed therethrough and a head having a plurality of holes formed therethrough and communicating with the bore formed in a second piece to provide a water passage through the second piece.

4. A combination as set forth in claim 3, wherein the second piece further comprises an aerator constructed and arranged to aerate water passing through the passage.

5. A combination as set forth in claim 1, wherein the handheld shower assembly comprises an elongated portion having a passage therethrough and an extension constructed and arranged to be received in a through hole formed in the deck, the elongated portion including a decorative portion extending above the deck at least one inch, and wherein the flexible hose comprises one end connected to the extension extending through the through hole in the deck.

6. A combination as set forth in claim 1, and further comprising a first valve and a first valve handle operatively connected to the first valve to open and close the same, a second valve and a second valve handle operatively connected to the second valve for opening and closing the same, the first valve connected to the hot water conduit, the second valve connected to the cold water conduit, and a T-shaped conduit having the first nipple, a second nipple, and a third nipple, the first nipple connected to the hot water conduit.
downstream of the first valve, the second nipple connected to the cold water conduit downstream of the second valve, the third nipple connected to the flexible hose to supply hot and cold water to the handheld shower assembly.

7. A combination as set forth in claim 1, further comprising a valve, the hot water conduit connected to the valve to flow hot water into the valve, the cold water conduit connected to the valve for flowing cold water into the valve, the flexible hose connected to the valve to lower water out of the valve to the handheld shower assembly.

8. A combination as set forth in claim 7, further comprising a single controller connected to the valve for controlling the amount of hot water and cold water flowing into the flexible hose from the valve.

9. A combination as set forth in claim 8, wherein the single controller comprises a single handle moveable in a linear direction and a rotatable knob connected to the single handle, the rotatable knob operatively connected to the valve to control the amount of hot water and cold water flowing into the flexible hose.

11. A combination as set forth in claim 1, wherein the whirlpool tub further comprises of at least one inside wall extending from the deck and a floor connected to the inside wall, and floor defining at least, in part, a bathtub area sufficient to hold an adult human, and further comprising an outside wall extending downwards from the deck, and the outside wall being spaced a distance from any building wall.

12. A combination as set forth in claim 11, wherein the outside wall is spaced a distance one foot from any building wall.

13. A combination as set forth in claim 12, wherein the through hole is formed in the deck at a location adjacent to the outside wall of the whirlpool tub that is spaced a distance of at least one foot from any building wall.

14. A combination as set forth in claim 13, wherein the space between the inside wall and the outside wall of the whirlpool tub immediately under the deck rail is less than six inches.

15. A combination as set forth in claim 1, further comprising an inside wall extending downward from the deck and a floor connected to the inside wall, and wherein the deck abuts a building wall and the distance immediately underneath the deck rail between the inside wall of the whirlpool tub and the building wall is less than six inches, and a through hole is formed in the deck at the location adjacent to the building wall.

16. A combination as set forth in claim 1, wherein the whirlpool tub further comprises water jet units.

17. A combination as set forth in claim 16, further comprising a handheld shower holder for mounting at least a portion of the assembly in an elevated position with respect to the whirlpool tub.

18. A combination as set forth in claim 16, with the proviso that no other spout is mounted to the building wall adjacent to the whirlpool tub for flowing water into

19. A combination comprising a whirlpool tub and a handheld shower assembly, the whirlpool tub comprising a tub sidewall and a plurality of jet units mounted in the sidewall, and a deck connected to the sidewall, the deck having a through hole formed therein, the handheld shower assembly comprising of first piece comprising an elongated element extending above deck at least one inch and having a bore formed there through, the first piece mounted to the deck so that the bore formed in the first piece communicates with the through hole to provide a continuous passage through the deck and the first piece of the handheld shower assembly, the handheld shower assembly further comprising a second piece including a showerhead having a plurality of holes formed therethrough and a connector, and a bore extending from the connector of a second piece through tile holes in the head of the second piece, and a flexible hose connected to the connector of the second piece and wherein a portion of the flexible hose extends through the bore in the first piece of the handheld shower assembly and through the through hole formed in the deck.

20. A combination as set forth in claim 19, further comprising a wall extending upwards from the deck and a holder mounted on the wall at least three feet above the deck, the holder being constructed and arranged to removably hold the handheld shower in a elevated position above the deck.

21. A combination as set forth in claim 20, wherein the holder comprises a first piece and a second piece and a pin, the first piece comprising a body and a pair of spaced apart projections extending from the body, and the second piece comprising a pair of spaced apart arms and a tail extending from the arms, the projections extending from the body and the tail each having a through hole formed therethrough and a pin received in the through hole defined in each of the projections and the tail to hold the first and second piece of the holder together and to allow the second piece to rotate with respect to the first piece, and wherein the space between the arms is sufficient to allow the flexible hose to pass between the arms and so that at least a portion of the handheld shower assembly is supported by the arms.

22. A combination as set forth in claim 20, wherein the wall extending upward from the wall is a portion of the whirlpool tub.

23. A combination as set forth in claim 20, wherein the wall extending upward from the deck is a part of a building.

24. A combination comprising a whirlpool tub and a handheld shower assembly, the handheld shower assembly comprising of first piece comprising an elongated portion extending at least one inch and having a bore therethrough, and a second piece having a head having a plurality of holes formed therein and a connector, and a bore formed in the second piece from the connector to the holes in the head, and further comprising a flexible hose connected to the connector of the second piece and the first piece being constructed and arranged to receive a portion of the flexible hose through the bore formed therein, and further comprising a holder for selectively holding the second piece of a handheld shower assembly in an elevated position above the whirlpool tub.

25. A combination comprising:

a tub;

a handheld shower positioned to flow water into the tub, and with the proviso that no diverter is present that diverts water from a spout, another shower device or a faucet to the handheld shower.

26. A combination as set forth in claim 25, wherein the handheld shower is retractably mounted to the tub.

27. A combination as set forth in claim 25 wherein the tub further comprising a deck rail, and wherein the handheld shower is retractably mounted to the rail.
28. A combination comprising:

a whirlpool tub having a deck, and deck having a through hole formed therein:

a handheld shower assembly comprising of at least a first piece and a second piece, and wherein the first piece comprises an elongated portion having a bore formed therein and the first piece mounted to the deck, the elongated portion extending at least one inch above the deck, and the bore formed in the elongated portion aligned with the through hole formed in the deck;

the second piece comprising in the head having a plurality of holes formed therein, and the second piece further comprising an connector, and a bore extending through the connector to the holes formed in the head;

a flexible hose connected to the connector of the second piece, and a portion of the flexible hose extending through the bore in the first piece and through the through hole formed in the deck.

29. A combination as set forth in claim 28, with the proviso that no diverter is present to divert water from the second piece to another shower device or spout for flow water into the whirlpool tub.

30. A combination comprising:

a tub, a handheld shower positioned to flow water into the tub, a flexible hose having a first end connected to the handheld shower and a water passage defined through the flexible hose and handheld shower;

the tub having a rail, and a through hole formed in the rail, and a portion of the flexible hose extending through the through hole; and with the proviso that no diverter is present to divert water from the handheld shower to another shower device or spout for flowing water into the tub.

31. A combination as set forth in claim 30, further comprising an anti-backflow check valve connected to at least one of the handheld shower and the flexible hose.

32. A combination as set forth in claim 30, further comprising an aerator position in the handheld shower to aerate water flowing out of the handheld shower.

33. A combination as set forth in claim 30 further comprising a cold water conduit and a hot water conduit each connected to the handheld shower and an anti-backflow check valve connected to at least one of the handheld shower, cold water conduit and hot water conduit.

34. A combination as set forth in claim 1 further comprising an anti-backflow check valve positioned in at least one of: upstream of the handheld shower assembly, and in the handheld shower assembly.