

A Bathing Apparatus With Recycling System

Field of Invention

5 The present invention relates to a bathing support apparatus for persons who are physically incapable of bathing themselves, particularly the disabled and elderly with limited mobility.

Background of the Invention

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Various bathing facilities have been specially developed to address difficulties that are generally suffered by people with limited mobility such as the disabled and elderly, particularly those who are confined to wheelchairs, during their bath and/or shower. Such facilities include walk-in bathtubs, wheel-in showers and walk-in showers, which
15 generally have a doorway-type of opening formed in one sidewall of the bathtub to provide accessibility of a wheelchair into the bathtub.

Despite the fact that the above-described bathing facilities are able to provide a simpler access for the elderly and disabled persons to enter the bathtub, they however are not
20 widely-employed for home use. This is mainly due to the relatively expensive costs for installation, and also largely due to the requirement of a substantially large space before they can install the doors, lifts, and tracks of the bathtubs. Furthermore, these are not

usable by everyone in the household except the disabled users. As such, they may not be suitable for use as typical bathrooms of most private homes.

Accordingly, it is the primary object of the present invention to alleviate limitations associated with these existing bathing facilities for the disabled users by providing a collapsible moveable bathtub that is transferable from one location to another, without the need to be permanently installed or positioned in a standard bathroom, which generally are stymied by limited space.

It is yet another object of the present invention to provide a bodysuit having straps that is slidably connected to a transverse supporting bar provided in a bathroom by means of an extendable and retractable cable, and which configured to lift and to hold the body of the disabled users so that they can step in or out of the moveable bathtub themselves with minimal risk of falling.

It is yet another object of the present invention to provide a platform configured to provide the disabled users a zero-step walkway connecting to the moveable bathtub.

Other objects of this invention will become apparent on the reading of this entire disclosure.

Summary of the Invention

In one aspect of the present invention, provided a bathing apparatus specifically configured for elderly and disabled persons so that he/she could safely access the

bathroom. The bathing apparatus having a lower body includes an engine components, an upper body mounted on the lower body includes a watertight enclosure adapted to accommodate a person therein, wherein the engine components in the lower body configured to manage the water in enclosure of the upper body by receiving water therein
5 from outside and pumping the water into the upper body.

The bathing apparatus having the engine components include at least one electric pump.

The bathing apparatus having the upper body is a watertight enclosure having four sides with front panel open providing a person to step into or out.

The upper body includes space for allowing a person to sit, stand or accommodating a
10 wheel chair of a disabled.

The front panel of the bathing apparatus is configured with a drawbridge to step into the upper body arranged with rough surface.

The front panel of the bathing apparatus is configured with a swing door.

The front panel of the bathing apparatus is arranged with a rubber sealer to filling the gap
15 avoiding the water leaking out.

The bathing apparatus having an upper body is fixed on the lower body by means of metal stand of the lower body driven into the holes of the upper body.

The bathing apparatus having an upper body comprises an extendable or retractable cable to release or draw the wheel chair into the bathing apparatus.

20 The bathing apparatus having the engine components in the lower body pump the water into upper body by means of a shower bath arrangement or by a simple pump.

In another aspect of the present invention, provided a bathing apparatus specifically configured for recycling the used water to continuously access the bathroom without any

deficiency of water. The bathing apparatus with a recycling of water includes a lower body comprising an engine components, a used water tank holding used water and a clean water tank holding clean water; an upper body mounted on the lower body includes a watertight enclosure accommodating a person therein, receiving the clean water from the clean water tank and releasing used water into the used water tank, wherein the engine components in the lower body includes at least one electric pump configured to receive the used water from used water tank and pumping into clean water tank via at least one membrane filter.

The bathing apparatus having the engine components in the lower body pump the water into upper body by means of a shower bath arrangement or by a simple pump.

The bathing apparatus further includes an additional water tank to hold the clean water for future use.

In another aspect of the present invention, a bathing apparatus made from plurality of partitions, includes a click and lock system on ends of said partitions, arranging the partitions in rectangular shape with front end open for user entry, said front end is closed by means of front panel.

Brief Description of the Drawings

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Other objects, features, and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the

drawings, wherein like reference numerals denote corresponding parts throughout the several views:

Figure 1 illustrates a bathing apparatus with accordance to a preferred embodiment of the present invention;

Figure 2 illustrates an exploded view of the bathing apparatus with accordance to the preferred embodiment of the present invention;

Figure 3a-3d illustrates the front panel of the bathing apparatus with accordance to a preferred embodiment of the present invention;

Figure 4 illustrates an overview of recycling system of the bathing apparatus with accordance to a preferred embodiment of the present invention;

Figure 5 illustrates an internal view of recycling system of the bathing apparatus with accordance to a preferred embodiment of the present invention; and

Figure 6 illustrates a sliding door bathing apparatus according to another embodiment of the present invention. **Figure 7a-7c** illustrates a rotatable bathing apparatus according to another embodiment of the present invention.

Figure 8a-8b illustrates a click and lock method of making bathing apparatus.

Figure 9 illustrates an expanding or retractable cable extending from the bathing apparatus to retract or release the wheel chair with accordance to a preferred embodiment of the present invention

Detailed Description of the Preferred Embodiments

Referring to **Figure 1**, there is illustrated a bathing apparatus (100) specifically configured for elderly and disabled persons so that he/she could safely access the bathroom, with accordance to one preferred embodiment of the present invention. The bathing apparatus (100) includes a lower body (102), an upper body (108) fixed or placed on lower body (102), a thread-less bolts (104) extending from the lower body (102) configured to assist the placement of upper body. The upper body (108) includes plurality of holes to pass through the thread-less bolts (104) allowing to fit the upper body (108) on to lower body (102). The thread-less bolts (104) are joined by a horizontal bar (106) allowing the user to hold and move the bathing apparatus (100).

Referring to **Figure 2** illustrates an exploded view of the bathing apparatus with accordance to the preferred embodiment of the present invention. The bathing apparatus includes lower body (202), upper body (208) placed on lower body (202), a thread-less bolt (206) aligning the upper body (208) on lower body (202). A plurality of wheels (212) fitted on the bottom panel of the bathing apparatus (200) is also provided to allow the user to move the bathing apparatus (200) from one location to another location.

According to the preferred embodiment of the present invention, the upper body (208) is a water tight enclosure having four sides with front panel (214) configured for a person to step-in or step-out.

According to the preferred embodiment of the present invention, the upper body (208) includes a seating arrangement for a person while utilizing bathing apparatus (200).

According to the preferred embodiment of the present invention, the bathing apparatus having a rubber sealer (216) filling the gap for the front panel (214) open or close.

Figure 3a-3d illustrates the front panel designs of the bathing apparatus with accordance to a preferred embodiment of the present invention. Figure 3a illustrates the prior art design of the front panels (302, 304).

In **Figure 3b** illustrates an improved front panel (306) design for the bathing apparatus.

5 The design of the front panel (306) is selected as a swing door in the upper body to close and open the front panel for accessing the bathing apparatus.

In **Figure 3c** illustrates another improved front panel (308) design for the bathing apparatus. The design of the front panel (308) is selected as a draw bridge in the upper body to close and open the front panel for accessing the bathing apparatus. The draw
10 bridge door is advantageous to users who have difficulties walking or cannot lift their feet over even 1 inch obstacles can walk up through the draw bridge door further installed with some safety guard rails to lead user into the bathing apparatus.

In **Figure 3d** illustrates various views of the bathing apparatus in the closed front panels.

Referring to **Figure 4** illustrates an overview of recycling system of the bathing apparatus
15 with accordance to a preferred embodiment of the present invention. The recycling system (400) is arranged in the lower body. The recycling system (400) receives the used water (404) from the upper body and releases the clean water (406) hence recycling the used water. The recycling system (400) having an electric pump (402) managing the water in the upper body, by pumping the clean water into upper body.

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Figure 5 illustrates an internal view of recycling system of the bathing apparatus with accordance to a preferred embodiment of the present invention. The recycling system (500) having a used water tank (504) collecting the used water from upper water tank

(508), clean water tank (506) collecting the clean water passed through an electric pump (502) and membrane filter (510). As shown in figure 5, consists of an additional component such as shower bath connected to the clean water tank (506).

According to the preferred embodiment of the present invention as shown in figure 5, a
 5 separate electric pump to pump the water into shower head for bathing.

Figure 6 illustrates a sliding door bathing apparatus according to another embodiment of the present invention. The bathing apparatus (600) includes sliding door (602) as a replacement of the front panel. The bathing apparatus (600) includes a control or push button switch (not shown) which automatically closes the bath door. The user sitting
 10 inside the bathing door feels comfortable for easy closing of the bathing apparatus. The sliding door (602) can be configured to close from sides or from bottom. There are also a set of wheels at the bottom on this sliding door bathtub which allows the device to be pushed to anywhere. Furthermore another advantage of this sliding door bathtub is that the user can (1) slide the door all the way to the top where only the head of the user or
 15 users is visible thereby allowing the user/s to use the bathtub even in the living room or garden in full view of others without exposing their body/s. (2) This bathtub can accommodate from one to 5 persons to take bath simultaneously as each person will sit in their own respective cubicle although the door will be using the same one. (3) Another advantage of this bath is that the user/s can have their bath with the door slide half way or
 20 all the way (for the model where the door slides from bottom to upwards).

Figure 7a-7c illustrates a rotatable bathing apparatus according to another embodiment of the present invention. The bathing apparatus (700) as illustrated in figures 7a-7b

includes a control or push button switch (not shown) that rotates the bathtub (702) whereby bathtub itself can be rotate, which allows the user to move into his seat, the first half of the bathtub will rotate from a pivot point to a level itself inside a one side opened box lie structure. Once the bathing apparatus is adjusted to safe position the user can take the shower or fill up the bathtub with water to soak himself as shown in figure 7c. Referring to figure 7b, the bathing apparatus (700) further includes a set of guide rails (704) on either side which acts as supports to the user who is facing difficulties in walking without support.

Figure 8a-8b illustrates the click and lock method of making bathing apparatus. The method includes multiple sides such as left side (802), right side (804), top side (806) and back side (808) partitions. These partitions come in different forms and sizes, but rectangular size is preferred. Each end of the partition (802, 804, 806, 808) is arranged with click to lock arrangement to join the adjacent partitions in making of bathing apparatus. Once the arrangement is made the front panel forms the entry into the bathing apparatus. The front panel is provided with a flap system to close the bathing apparatus after entry. The complete bathing apparatus is arranged on a rectangular shaped structure. The rectangular shaped structure and front panel allows holding the water while bathing. The water inlet and outlet pipes are connected to the bathing apparatus to receive the fresh water and release the used water. A rubber lining is arranged at the joining ends of the front door which prevents the water from leaking out.

According to an embodiment, the front panel can be closed by a gadget pulling a string or stainless wire and the like. The gadget is mechanically or hand operated wire rope/string

winding machine or can be an electrically operated type. By using the gadget user can close or open the front panel.

Figure 9 illustrates an expanding or retractable cable (902) extending from the bathing apparatus to retract or release the wheel chair (800) with accordance to a preferred embodiment of the present invention. The wheel chair (800) with the user sitting on it will be automatically be pulled in through either a cable pulling system (902) or through any other mechanical system whereby the user do not need to use his own personal strength to wheel the wheel chair (800) into the bathing apparatus.

According to the preferred embodiment of the present invention, the bathing apparatus includes additional water tanks mounted on both sides of bathing apparatus. So the users can have a non-stop bath by using the water shower as the water will recirculate round and round all by itself.

According to the preferred embodiment of the present invention, the bathing apparatus includes a seat that can be folded downwards to allow those users who need to come in together with their wheelchairs enough space to enable the entry of the wheelchair together.

Furthermore the invention can be more useful, if the patient is not well enough to walk to the bathroom, then the bathing apparatus can be pushed since it is mobile to the side of the bed of the patient and the patient being lead into it by a care giver. As very little water is required to take a long bath, so the bathing apparatus is very advantageous to who cannot afford to pay too much for water or they are living in an area where there is a shortage of water.

The invention can also be useful for kids as a lot of kids like to play with water while taking their bath but because the parents do not want to waste too much water, they therefore disallow the kid from taking a long bath.

The invention can also be useful for persons who live in the jungle or who need to pursue
5 some work inside the jungle where the water source is quite far from the work camp.

As will be readily apparent to those skilled in the art, the present invention may easily be produced in other specific forms without departing from its essential characteristics. The present embodiment is, therefore, to be considered as merely illustrative and not restrictive, the scope of the invention being indicated by the claims rather than the
10 foregoing description, and all changes which come within therefore intended to be embraced therein.

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CLAIMS

- 10 1. A multi-user collapsible and movable bathing apparatus (100) configured to be used by elderly user, disabled user or any other user for bathing, the apparatus comprising:
- a lower body (102) comprising an engine components;
 an upper body (108) mounted on said lower body (102) includes a watertight enclosure adapted to accommodate the user therein; and
15 an extendable or retractable cable (902) to release or draw a movable seating means (602) into the bathing apparatus (100) wherein said engine components in said lower body (102) configured to manage the water in enclosure of said upper body (108) by receiving water therein from outside and pumping the water into said upper body (108).
- 20 2. The bathing apparatus (100) of claim 1, wherein said engine components include at least one electric pump (402).
- 25 3. The bathing apparatus (100) of claim 1, wherein said upper body (108) is a watertight enclosure having four sides with front panel (214) open providing a person to step into or out.
4. The upper body (108) of claim 3 comprises space allowing a person to sit, stand or accommodating a wheel chair of a disabled.

5. The front panel (214) of claim 3 is configured with a drawbridge (308) to step into said upper body (108) arranged with rough surface.
- 5 6. The front panel (214) of claim 3 is configured with a sliding door (602), which automatically closes said front panel (214) by pressing a push button switch.
7. The sliding door (602) of claim 6 is configured to close from sides or from bottom.
- 10 8. The bathing apparatus (100) of claim 1 can be configured with a rotating bathing apparatus.
9. The rotating bathing apparatus (702) of claim 8 is configured to turn the bathing
15 apparatus into a first position and a second position.
10. The rotating bathing apparatus (702) of claim 8, wherein said first position allows the user into the bathing apparatus (100).
- 20 11. The rotating bathing apparatus (702) of claim 8, wherein said second position allows the user to take the shower bath in said bathtub or fill the bathtub with water.
- 25 12. The bathing apparatus (100) of claim 1, further includes a set of guide rails which allows the user to take support while entering into said bathing apparatus (100).
13. The front panel of claim 3 is arranged with a rubber sealer (216) to filling the gap avoiding the water leaking out.

14. The bathing apparatus (100) of claim 1, wherein said upper body (108) is fixed on said lower body (102) by means of metal stand (204) of said lower body (102) driven into the holes of said upper body (108).

5 15. The bathing apparatus (100) of claim 1, wherein the seating means (602) is a wheel chair .

10 16. The bathing apparatus (100) of claim 1, wherein said engine components in said lower body (102) pump the water into upper body (108) by means of a shower bath arrangement or by a simple pump.

17. A bathing apparatus (100) with recycling of water comprising:

a lower body comprising an engine components, a used water tank (504) holding used water and a clean water tank (506) holding clean water;

15 an upper body (508) mounted on said lower body includes a watertight enclosure accommodating a person therein, receiving said clean water from said clean water tank (506) and releasing used water into said used water tank (504);

an extendable or retractable cable (902) to release or draw a movable seating means (602) into the bathing apparatus (100),

20 wherein said engine components in said lower body includes at least one electric pump (502) configured to receive the used water from used water tank (504) and pumping into clean water tank (506) via at least one membrane filter (510).

25 18. The bathing apparatus (100) of claim 17, wherein said engine components in said lower body (102) pump the water into upper body (108) by means of a shower bath arrangement or by a simple pump.

19. The bathing apparatus (100) of claim 17 further comprises an additional water tank to hold the clean water for future use.

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20. The bathing apparatus (100,800) of claim 1 further comprises

a click and lock system on ends of a plurality of partitions (802, 804, 806, 808) wherein the partitions are arranged in rectangular shape to form the upper body (102) of the apparatus with a front end open for a user entry;

5 said front end is closed by means of front a panel (810) connected to the lower body (108).

21. The bathing apparatus (800) of claim 20, wherein said front panel is closed by means of gadget pulling a string or a stainless wire.

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22. The bathing apparatus (800) of claim 20, further comprising inlet and outlets to receive fresh water and release used water.

23. The bathing apparatus (800) of claim 20, wherein said front panel (810) further comprising a rubber lining to avoid the releasing of used water to outside.

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