INVALID BATHING SEAT ASSEMBLY AND SYSTEM

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ABSTRACT

A bathing seat assembly for mounting on a bathtub includes a seat mounted on a turntable set on rails supported by a frame with adjustable legs engaging the floor next to the bathtub and the bottom of the bathtub. The bathing seat assembly also includes an arm and back rest mounted on the seat with front mounted stirrups for leg support and spray apertures in the arm and back rest to aid in bathing. The seat is lockable in position on the turntable and the turntable is lockable in position on the rails. The turntable with mounted seat can travel on the rails from a position outside the bathtub to directly over the bathtub and vice versa. The mounted seat can rotate on the turntable allowing the person to be bathed to sit with their back to the bathtub and then rotated to be in line with the bathtub. A bathing system using the bathing seat assembly is also disclosed.
INVALID BATHING SEAT ASSEMBLY AND SYSTEM

[0001] This application claims priority from U.S. Provisional application Ser. No. 60/836,568 ("the ’568 application") filed Aug. 9, 2006. The ’568 application is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] This invention relates to a seat and system for bathing the sick and infirm who lack the mobility and ability to perform daily living functions.

[0003] As people grow older, many become invalids due to the ravages of age or disease. Such people need help performing their daily functions, one of which is bathing. Bathing a person who has limited control of his or her bodily functions can be extremely difficult for the caregiver. Although many individuals can still walk with difficulty, they cannot raise their legs high enough to enter a conventional bathtub or maneuver safely while in the tub. In many instances, where the person is infirm because of age, the caregiver is the spouse who is probably also old and not strong. Thus, any device which will assist the caregiver is welcome and necessary.

[0004] At present there are available several versions of a static seat made to sit in a bathtub. However, none of these seats provide for a person unable to step into a conventional tub. Another disadvantage to the currently available seats is sanitation. An invalid seated on such a seat cannot be washed in soiled body areas without standing up. For a person unable to stand, this negates the purpose of the bath. Grab bars and rails are available for mounting in shower and bath stalls but these devices are of no use for a person unable to stand or walk.

SUMMARY OF THE INVENTION

[0005] The inventive bathing seat assembly and system allows a person to be easily and thoroughly bathed with a showerhead mounted on a hose. The inventive assembly and system requires no lifting, or sliding, of the person to be bathed. The inventive assembly and system allows a caregiver of limited physical strength to bathe an infirm person, to remove that person from the bath and easily clean the assembly and bathtub afterwards.

[0006] It is an object of this invention to provide an invalid bathing seat assembly and system for mounting over a conventional bathtub comprising a seat rotatably mounted on a lockable turntable wherein said turntable is mounted on rollers riding on a set of rails supported by four adjustable height legs, two in the bathtub and two outside the bathtub. The seat shall have arm and back rest and the arm rests shall have front posts to accept a set of stirrups to support the legs of the user in a raised position, preferably slightly above the horizontal to allow the legs to pass over the rim of the bathtub when the seat is rotated on the turntable.

[0007] It is a further object of the invention that the assembly be manufactured from non-corrosive material such as stainless steel for ease of cleaning and durability.

[0008] It is a further object of the invention that the arm and back rests be fitted with spray apertures to facilitate the bathing of the person.

[0009] In using the inventive assembly, the person to be bathed would be seated on the seat while facing away from the bathtub with the seat being parallel to the rails, and the turntable locked to prevent movement. Once seated, the legs would be placed in the stirrups. The turntable would then be unlocked and rolled with seat and seated person on the rails to a position over the bathtub. In this position, the seat is then turned on the turntable with the person facing the shower end of the bathtub and the turntable is then locked. Once in this position, the person can be easily bathed with a shower hose. The only portions of the body which cannot be reached while seated are those in contact with the toilet seat, all of which can be easily washed when the bather leaves the seat. The opening in the seat allows soiled areas of the body to be cleaned while seated.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view of the inventive bathing seat assembly.

[0011] FIG. 2 is a side view of the lower portion of the inventive assembly.

[0012] FIG. 3 is a front view of the lower portion of the inventive assembly.

[0013] FIG. 4 is a side view of the seat frame assembly.

[0014] FIG. 5 is a front view of the seat assembly.

[0015] FIG. 6 is a top view of the seat assembly.

[0016] FIG. 7 is a plan view of the seat mounted on the turntable over the rails.

[0017] FIG. 8 is a cross section of the seat assembly taken in the direction of arrows 8-8 in FIG. 7.

[0018] FIG. 9 is a plan view of the stirrups.

[0019] FIG. 10 is a side view of the left stirrup.

DETAILED DESCRIPTION OF THE INVENTION

[0020] A perspective view of the inventive bathing seat assembly 1 is depicted in FIG. 1. While not shown, the inventive assembly would be placed over the side of a bathtub with the left rear leg 4 and right rear leg 5 in the bathtub and the left front leg 6 and right front leg 7 on the floor next to the bathtub. It should be noted that the right and left designations correspond to the right and leg legs of the person seated. Legs 4, 5, 6 and 7 are adjustable in length with leg adjustment slots 8 and retracted pins not shown. In this way, differences in elevation between the bottom of the bathtub and the floor can be accommodated. In addition, Legs 4, 5, 6 and 7 are all fitted with feet 9 of a suitable non-skid, non-scratching material such as synthetic rubber or plastic. The left legs 4 and 6 are affixed to the left leg frame 2, and the right legs 5 and 7 are affixed to the right leg frame 3.

[0021] As shown in FIG. 1, the seat 10 is positioned to receive a person from outside the bathtub with the seat 10 at a right angle from the normal longitudinal axis of the bathtub. A left stirrup 17 and a right stirrup 18 are also shown in an upright position in line with the seat 10, although it would be expected that the stirrups 17 and 18 would be rotated outwardsly when the person sat in the seat 10 and then rotated inwardly to receive the person's legs on the left stirrup support plate 21 and the right stirrup support plate 22. The stirrups 17 and 18 are supported on the front arm support rods 15 of the upper arm and backrest frame 13 by mounting pins 23 riding in mounting brackets 24. The
mounting pins 23 are affixed to the left and right stirrup support flanges 19 and 20. The mounting brackets 24 are provided with a vertical aperture to receive the mounting pins 23 allowing horizontal rotation of the stirrups 17 and 18.

[0022] Also shown in FIG. 1 is the lower arm and backrest frame 16, a front leg frame cross brace 25 and a rear leg frame cross brace 26.

[0023] FIG. 2 shows a side view of the lower portion of the inventive seat assembly 1 with right leg frame 3, right front leg 7 and right rear leg 5. The leg adjustment slots 8 and feet 9 are also shown in this depiction. Right rail 12 is shown affixed to the rear leg frame cross brace 26 and the front leg frame cross brace 25. Positioned above the right rail 12 is a circular turntable 27 with an outer channel configuration with an upper flange 44 and a lower flange 43. The upper face 45 of the lower flange 43, and the lower face 46 of the upper flange 44 are also shown along with the upper face 48 of the turntable 27 and the lower face 47 of the turntable 27.

[0024] Affixed to the lower face 47 are shown load and hook roller assemblies 28, intended to travel along the longitudinal axis of the right rail 12. Although not shown, it is understood that the load and hook roller assemblies 28 would also be affixed to the lower face 47 to travel along the longitudinal axis of the left rail 11. As depicted, vertical roller support rods 34 extend from the lower face 47. In FIG. 2, only the load rollers 35 on each of the support rods 34 can be seen because the lower hook rollers 33 are obscured by the right leg frame 3.

[0025] FIG. 3 shows an end view of the lower portion of the inventive seat assembly with left front leg 6 and right front leg 7 connected by front leg frame cross brace 25. The leg adjustment slots 8 and feet 9 are also shown in this depiction. The left rail 11 and the right rail 12 are shown affixed to the front leg frame cross brace 25. The circular turntable 27 is shown positioned above the left rail 11 and the right rail 12 riding on load and hook roller assemblies 28 with vertical roller support rods 34 extending from the lower face 47 of the turntable 27. One of the load rollers 35 is shown riding on the left rail 11 and the right rail 12. Although not shown it is intended that the turntable 27 be provided with a locking device to secure its position on the left rail 11 and the right rail 12.

[0026] FIG. 4 shows a side view of the seat frame with an upper arm and backrest frame 13, a lower arm and backrest frame 16, rear back rest support rods 14 and front arm rest support rods 15. Also depicted are stirrup mounting brackets 24, affixed to the front arm rest support rods 15. As shown in FIG. 1, the mounting brackets 24 are provided with a vertical aperture to receive the mounting pins 23 allowing horizontal rotation of the stirrups 17 and 18.

[0027] In FIG. 5, a front view of the seat assembly is shown. As shown, the seat 10 is affixed to the upper arm and backrest frame 13 through front support brackets 31 and rear support brackets 32 which are obscured in this view. Likewise, the upper arm and backrest frame 13 is supported by the front support rods 15 and rear support rods 14, both of which are affixed to the lower arm and backrest frame 16 which is not shown in this view.

[0028] Also shown in FIG. 5 is more than one spray aperture 29 in the upper arm and backrest frame 13 with a quick connector 30 to provide water under pressure to the spray apertures 29. It is intended that the spray apertures 29 be directed upward approximately 45 degrees toward the person seated in the inventive bathing seat assembly 1 to assist in bathing and rinsing. As shown, the upper arm and backrest frame 13 is of tubular construction.

[0029] Also shown on the front of the front armrest support rods 15 are the stirrup mounting brackets 24.

[0030] FIG. 6 is a top view of the seat assembly with the same features identified in FIG. 5. As depicted the seat 10 is enclosed but a suitable alternative would be an open ended seat. It is intended that the seat 10 be manufactured of stainless steel or other material of similar durability which can be easily cleaned or disinfected.

[0031] FIG. 7 is a plan view of the seat 10 in position on the turntable 27, which is riding on the left and right rails 11 and 12. Also depicted in FIG. 7 are the locations of the roller support rods 34 that extend vertically from the lower face 47 of the turntable 27 to support the load and hook roller assemblies 28 riding on the left and right rails 11 and 12, as well as the location of the turntable roller support rods 39 extending vertically from the lower face 49 of the seat 10 to support turntable rollers 41 riding in the turntable 27, all as more fully described in FIG. 8.

[0032] FIG. 8, which is a cross section taken in the direction of arrows 8-8 in FIG. 7 shows the details of the rotation of the seat assembly on the turntable 27 and the longitudinal motion of the turntable 27 on the left and right rails 11 and 12. In addition to a locking device to secure the position of the turntable 27 on the rails 11 and 12, a locking device will be provided to secure the position of the seat assembly on the turntable 27.

[0033] As shown in FIG. 8, roller support rods 34 extend vertically from the lower face 47 of the turntable 27. From each support rod 34, a horizontal hook roller shaft 37 extends to receive hook roller 35 held in place with a snap ring 38 and a horizontal load roller support rod 37a extends to receive a load roller 35a held in place with a snap ring 38. As can be seen, the load rollers 35a ride above and the hook rollers 35 ride below the left and right rails 11 and 12.

[0034] Extending vertically from the lower face 49 of the seat 10 of the seat assembly are at least three turntable roller support rods 39 affixed to a turntable roller shaft 40 supporting a turntable roller 41 which acts as both load and hook roller, held in position by a turntable roller snap ring 42. As can be seen, the turntable rollers ride in the channel opening of the turntable 27 between the turntable lower flange 43 and the turntable upper flange 44. Depending on loading, the turntable rollers 41 will be in contact with the upper face 45 of the lower flange 43 or the lower face 46 of the upper flange 44. Both the load rollers 35a, the hook rollers 35 and the turntable rollers 41 may be of oil-imregnated metallic material or other suitable non-metallic synthetic material, or roller or ball bearings.

[0035] In FIGS. 9 and 10, details of the left and right stirrups 17 and 18 are shown. As previously shown, the stirrups 17 and 18 are fitted with mounting pins 23 attached to the left and right stirrup support flanges 19 and 20. Extending from the bottom of their respective support flanges 19 and 20 are left and right stirrup shafts 50 and 51 respectively. Mounted over each shaft are left and right stirrup support plates 21 and 22 which may rotate up and away but not down because of the stirrup stops 52. The support plates 21 and 22 are held on their respective shafts 50 and 51 by retainers 53.

[0036] Each stirrup is mounted on the seat assembly by simply dropping the mounting pins into the aperture on the
stirrup mounting brackets 24. This arrangement allows the stirrups to be rotated away from the seat to allow a person to sit. Likewise the stirrup support plates 21 and 22 can be rotated up on their respective stirrup shafts 50 and 51 to clear access to the seat 10. Stirrups can be spread to open bathers legs allowing access to bathe hard to access body parts.

In one embodiment of the inventive bathing seat assembly, all framing members including the legs 4, 5, 6 and 7, leg frames 2 and 3, cross braces 25 and 26, arm and backrest frames and support rods, 13, 14, 15, and 16 would be 1" diameter stainless steel tubing. Support plates 19, 20, 21, 22, 31 and 32 would be ⅛" stainless steel material. The turntable 27 would be fabricated from ⅛" stainless steel material.

As apparent from the figures, the system would involve locking the seat assembly on the turntable facing the outside of the bathtub, locking the turntable in its outermost position on the rails and then raising the stirrups out the way. Once so arranged, the person would sit on the seat and then have a stirrup placed under each leg when raised. Once the person is thus seated, the turntable can be unlocked from the rails and rolled over the bathtub and locked. At this point, the seat assembly is unlocked and the seat assembly rotated on the turntable to face in the normal direction along the longitudinal axis of the bathtub facing showerhead or faucets. At this point, the seat assembly is locked to the turntable and the person can be bathed. Once the bath is done, the procedure would be reversed.

It is claimed:
1. A bathing seat assembly for mounting on a bathtub comprising:
   a seat rotatably mounted on a lockable turntable, said turntable riding on a horizontally disposed set of rails supported by a set of frames having a front end and a back end extending over the side of the bathtub from above the floor next to the bathtub at the front end, and extending over the inside of the bathtub at the back end; said frames in turn supported at the front end by a plurality of adjustable front legs extending vertically to the floor next to the bathtub and at the back end by a plurality of adjustable back legs extending vertically to the bottom of the bathtub.
2. The bathing seat assembly of claim 1 wherein the seat further comprises an arm and back rest frame fixedly attached to said seat.
3. The bathing seat assembly of claim 2 wherein the arm and back rest frame further comprises rotatably mounted right and left stirrups.
4. The bathing seat assembly of claim 1 wherein said seat is rotatably mounted by seat hook rollers on said turntable and is lockable in place on said turntable; said turntable is mounted by turntable hook rollers to travel along said rails from the front end to the back end and from the back end to the front end and be lockable in place along said rails.
5. The bathing seat assembly of claim 4 wherein the seat further comprises an arm and back rest frame fixedly attached to said seat.
6. The bathing seat assembly of claim 4 wherein the arm and back rest frame further comprises rotatably mounted right and left stirrups.
7. The bathing seat assembly of claim 3 wherein said front legs are fitted with non-skid feet for engagement with the floor next to the bathtub and said back legs are fitted with non-skid feet for engagement with the bottom of the bathtub.
8. The bathing seat assembly of claim 6 wherein said front legs are fitted with non-skid feet for engagement with the floor next to the bathtub and said back legs are fitted with non-skid feet for engagement with the bottom of the bathtub.
9. The bathing seat assembly of claim 3 wherein the arm and back rest frame further comprises spray apertures.
10. The bathing seat assembly of claim 6 wherein the arm and back rest frame further comprises spray apertures.
11. The bathing seat assembly of claim 7 wherein the arm and back rest frame further comprises spray apertures.
12. The bathing seat assembly of claim 8 wherein the arm and back rest frame further comprises spray apertures.
13. A bathing system comprising the following:
   providing a seat with arm and back rest frame fixedly attached to said seat and right and left stirrups rotatably mounted to said arm and back rest; said seat rotatably mounted on a lockable turntable; said turntable riding on a horizontally disposed set of rails supported by a set of frames having a front end and a back end extending over the side of the bathtub from above the floor next to the bathtub at the front end, and extending over the inside of the bathtub at the back end; said frames in turn supported at the front end by a plurality of adjustable front legs extending vertically to the floor next to the bathtub and at the back end by a plurality of adjustable back legs extending vertically to the bottom of the bathtub; locking said turntable at front end of frames and locking said seat on turntable facing out from bathtub and rotating right and left stirrups away from seat; placing person to be bathed on seat and raising each leg of the person to be supported by a stirrup which is rotated back toward the seat; unlocking said turntable and moving turntable with locked seat and seated person on rails to a position at back end of rails over inside of bathtub; unlocking seat and rotate seated person in line with inside of bathtub and lock seat; bath seated person;
   unlock seat and rotate seated person to face outside of bathtub and lock turntable in that position;
   unlock turntable and move turntable and seat with seated person to front end of rails at outside of bathtub; lock turntable in position at front end of rails; rotate each stirrup away from seat and lower each leg of person to floor; remove person from seat.
14. The bathing system of claim 13 further comprising the provision of spray apertures in the arm and back rest and using said apertures to assist in bathing the person.

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