

54 of 172 DOCUMENTS

UNITED STATES PATENT AND TRADEMARK OFFICE PRE-GRANT
PUBLICATION

20070130682

(Note: This is a Patent Application only.)

[Link to Claims Section](#)

June 14, 2007

Grab Bar

INVENTOR: Farrow, David L. - Castle Hayne, North Carolina, United States (US)

APPL-NO: 677526 (11)

FILED-DATE: February 21, 2007

LEGAL-REP: GREENBERG & LIEBERMAN, LLC - 2141 WISCONSIN AVE, N.W. SUITE C-2, WASHINGTON,
District of Columbia, 20007

PUB-TYPE: June 14, 2007 - Utility Patent Application Publication (A1)

PUB-COUNTRY: United States (US)

REL-DATA:

Continuation-in-part of Ser. No. 10940188, September 14, 2004, ABANDONED

US-MAIN-CL: 4#576.1

CL: 4

IPC-MAIN-CL: [8] A47K 003#024 (20060101) Advanced Inventive 20070614 (A F I B H US)

ENGLISH-ABST:

A load bearing grab bar to be used in public and household restrooms to aid elderly or handicapped people in lowering or raising themselves from a toilet or wheelchair. The grab bar is attached to the baseboard of the wall or an existing handrail, and has an adjustable support leg to provide better stability when weight is applied. The grab bar rotates from a vertical stored position to a horizontal in-use position to allow for better and safer mobility around home bathroom or public toilet stall.

NO-OF-CLAIMS: 11

NO-DRWNG-PP: 4

PARENT-PAT-INFO:

[0001] This is a continuation-in-part of application Ser. No. 10/940,188 filed on Sep. 14, 2004 and priority is claimed thereto

SUMMARY:

FIELD OF INVENTION

[0002] The present invention relates to a grab bar apparatus that may be used to enable an individual to improve their balance, positioning, and weight bearing status when transferring from a toilet seat or a wheelchair to a standing position. More particularly it is a grab bar that is foldable, improves safety when transferring in the bathroom, secure, and helps users to regain/maintain their independence.

BACKGROUND OF THE INVENTION

[0003] Severe accidents often occur in the bathroom of residential homes or public restrooms. The reason for this is that many bathroom items, such as bathtubs, toilets, and floors, are made out of smooth solid material, such as porcelain, tile, marble, and metal. Complicating matters worse, these materials have a tendency of becoming slippery when wet. This factor proposes a dangerous threat to bathroom users, as slipping on such surfaces can result in serious physical injury. For the disabled, elderly, and young children the risk of serious injury increases, despite whether or not surfaces in the bathroom are wet. A main problem for such persons, especially the elderly and disabled, becomes using the bathroom. This problem is particularly cumbersome for those frail persons residing in their own residential homes that are not getting in-depth care or assistance, such as the care provided in a hospital or by a full-time nurse. Such persons are by and large capable of caring for themselves but are still fairly weak, thus simple tasks like using the bathroom become greatly burdensome.

[0004] In an attempt to lower the risk of injury in the bathroom and aid users with disabilities, an assortment of grab rails have become widespread in bathroom facilities. Handrails are mounted on the walls adjacent to toilets to provide a source of support, which a person can utilize to get into standing or sitting position. An assortment of handrails has been formed to address the need for aid, especially in the bathroom.

[0005] A popular form of handrail is the conventional straight grab bar, which is a stationary fixed rail bolted or otherwise attached to a wall that allows a user to grab with their hands in order to aid in the transition between a seated and standing position. Yet such devices are often made of rigid material that employ a tubular rail with a large diameter along the length. This configuration provides complications for people with small or frail hands who cannot grab the handrail securely, and thus the handrail becomes useless for such users and the danger of serious injury remains present.

[0006] U.S. Pat. No. 5,690,237 issued to Richard E. Marzee on Nov. 25, 1997 and U.S. Pat. No. 6,112,344 issued to Torbett B. Guenther on Sep. 5, 2000 both show forms of conventional straight grab bars that are mounted on the wall, yet unlike the present invention these devices are mounted a small distance off the wall thus making them difficult for the user to reach, as well as limit mobility for the user to obtain a strong two-handed grasp. Also given that that these devices require the user to push themselves up, which requires more upper body strength as compared with pulling with both hands, these devices may cause strain or stress in the wrists of the user as the swing or sway onto or off a toilet seat as well as in or out of a wheelchair. These forms of handrails do not provide adequate assistance in maneuvering in a bathroom stall.

[0007] Swing away grab bars are of a triangular configuration and mount to the wall and floor. These devices pivot away from the wall, and snap, lock, or drop into place. Yet unlike the present invention, such devices can become obstructive and hinder movement of the user, as they do not allow for enough legroom if the user wears a leg brace or

cast.

[0008] U.S. Pat. No. 6,131,213 issued to Lawrence L. Sarff on Oct. 17, 2000 shows a U-shaped wall mounted hand rail, which flips down and locks in place, yet unlike the present invention this device does not allow for excessive weight bearing down. The amount of weight bearing capacity is wholly dependent upon the construction of the wall it is being installed on. If mounted on a sidewall, the apparatus does not extend far enough in front of a user to offer enough leverage. If installed on a facing wall, this device will only be functional if the facing wall is in close enough proximity to the toilet to be of assistance.

[0009] U.S. Pat. No. 5,590,440 issued to Thomas E. Pelt on Jan. 7, 1997 shows a grab bar assembly consisting of an elongated D-shaped bar, wall mounted, which folds up against the wall when not in use. Yet unlike the present invention, this device has a small mounting base, which does not allow for a great deal of force to be used in pulling the user from the toilet or a wheelchair, or in weight bearing down upon the device. This device could also be pulled from the wall quite easily. Another limitation of the device not present in the present invention is that when flipped into a storage mode, the device extends into the walkway and hinders movement of the user. Furthermore, the bottom support arm of the device poses an injury risk should a user lose their balance and fall on the sharp bottom edge.

[0010] U.S. Pat. No. 3,414,904 issued to Mike A. Provi on Dec. 10, 1968, U.S. Pat. No. 4,417,361 issued to Alfred A. Smith on Nov. 29, 1983, U.S. Pat. No. 5,050,252 issued to Rik Cuttriss on Sep. 24, 1991, U.S. Pat. No. 5,105,483 issued to Robin Levien on Apr. 21, 1992, U.S. Pat. No. 5,659,904 issued to Paul J. Doczy on Aug. 26, 1997, show safety handrails. Yet unlike the present invention, these devices are configured for bathtubs and Jacuzzis and therefore would not provide any assistance for a user on a toilet seat.

[0011] Thus there is a need for a handrail that provides a solid, secure lever that can withstand the forces of both pulling against and pushing to aid in the mechanism of assisted standing for a user, while also being convenient and efficient to use.

SUMMARY OF THE INVENTION

[0012] The present invention improves upon the various previous methods of assisting a user in moving between a toilet seat and standing stance, as well as cited patents by being efficient to use, convenient, space saving, all while not hindering the movement of the user.

[0013] The present invention has two main bars. A first bar mounts to an existing conventional hand bar. The first bar is configured to rotate roughly 90 degrees about the conventional hand bar. In use, the first bar rotates from a position where it is nearly parallel to a vertical wall to a position relatively perpendicular to a vertical wall. A second bar mounts to the first bar at a first end the second bar. The second bar mounts to a conventional floor, wall, or other fixed surface at a second end of the second bar. In use, the second bar is relatively parallel to a vertical wall when the present invention is not deployed. When the present invention is deployed, the second bar shifts to an angle (preferably about 10 degrees) from the vertical wall. Thus, when the present invention is deployed, the first bar rotates from a position where it is nearly parallel to a vertical wall to a position relatively perpendicular to a vertical wall; and the second bar shifts to an angle from the vertical wall that is preferably about 10 degrees.

[0014] The present invention employs a third bar that is connected at a first end to the first bar, and at a second end to the second bar. When the present invention is deployed, the third bar moves roughly 120 degrees so as to allow the first bar to move from a vertical to a horizontal position. Also, when the third bar moves roughly 120 degrees, the second bar moves roughly 10 degrees from the vertical wall.

[0015] The end of the first bar preferably has an end cap to seal the end of the first bar, which the user may grip. In an alternative embodiment, the first bar may be designed in an angled or curved configuration, as opposed to being a straight bar, to provide a better grip for the user.

[0016] The first bar extends perpendicular from the wall, when pulled upward to a horizontal position for use. This configuration provides enough surrounding area to securely grip the bar in order for the user to lower or rise from a seated position comfortably.

[0017] When the present invention is raised into a horizontal position for use, second bar, which is connected to the first bar via the third bar at roughly a 10 degree angle from the vertical wall. The second bar could be fastened to the baseboard on the wall, the wall itself, a bathroom stall wall, or alternatively to the floor. In this way, the present invention does not pose a tripping hazard for the user because the second bar is attached to or as close to a vertical surface as possible at its second end. Such a configuration allows the user to bear weight on the first bar, the first bar then transferring the weight to the second bar, safely and securely. The second bar features a height adjustment component that allows the user to adjust the second bar to a desired height, thus making the present invention fit the proper distance between a conventional hand bar and a conventional floor.

[0018] After a user is finished using the present invention, the present invention folds neatly out of the way as the first bar rotates about the conventional hand bar to move from a horizontal position to a nearly vertical position. Moreover, after a user is finished using the present invention, the present invention folds nearly out of the way as the second bar shifts from its deployed roughly 10 degree from the vertical position to a vertical or close to vertical position beside the vertical wall. The cylinder slides up the third bar as the present invention is deployed and the second bar moves to a 10-degree position from vertical as the third bar moves to horizontal.

[0019] When the third bar is vertical, then the cylinder slips down upon a collar, which is a partial cylinder that is mounted at the first end of the third bar. The collar's partial cylinder has a height that slopes down as the cylinder moves around the third bar from the side of the bar that faces toward a conventional vertical wall. When the cylinder slips down upon the collar, the cylinder is rising along the slope of the partial cylinder of the collar

[0020] The engagement piece is positioned along the second bar, below the second pivot bar. The engagement piece is slid up along the second bar so that it pushes the cylinder up so that the cylinder clears the top of the collar. Once that is done, the cylinder no longer is frictionally engaged with the high point of the collar, and thus, under the power of gravity, the third bar moves down back to its original position. As it moves in such a way, the third bar pivots about the first pin and the second pin.

[0021] The cylinder slides (under the power of gravity), slides down the third bar coming to rest atop the first pin.

[0022] When the present invention is not in use, the device is folded up against a wall, with the leg folded up under the bar. The device will stay in place until it is used again. In order to use the present invention, the user pulls the grip bar arm down from its upward stored position, until the grip bar arm locks in its downward horizontal position. The grip bar arm acts as a secure lever that can withstand the forces of pulling and pushing against, in order to aid the user in standing up or sitting down.

[0023] The support leg may be pulled down and adjusted to a desired height in order to provide optimum support and comfort for the user. In an alternative embodiment, the support leg is adjustable in order to provide for less expensive manufacturing costs.

[0024] An end cap is located on the end of the first bar in order to seal the leg and provide non-skid support, providing security and stability for the user.

DRWDESC:

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIG. 1 shows a front view of the present invention from the perspective of a user sitting on a conventional toilet or wheelchair.

[0026] FIG. 2 shows a side view of the present invention from the perspective of a user looking toward the wall while the present invention is attached with a standard bar.

[0027] FIG. 3 shows another view of the front of the present invention and solely focuses on the first bar (150), cylinder (85), collar (80), engagement piece (70) and second pin (100).

[0028] FIG. 4 shows a top view of the present invention.

DETDESC:

DETAILED DESCRIPTION OF THE DRAWINGS

[0029] FIG. 1 and FIG. 2 display views of the present invention from both the perspective of a user as in FIG. 1 and of a more disassociated observer as in FIG. 2. Both display in general how the foot mounting (50) provides an adaptable base to support the second bar (60). Many of the smaller elements that make up the present invention, such as the engagement piece (70) and collar (80) also are seen from the views depicted in FIG. 1 and FIG. 2. Above the moveable parts associated with the collar (80) area of the present invention, FIG. 1 and FIG. 2 show the placement of the first bar (150). The present invention essentially is supported by the adaptable foot mounting (50) and can be attached to the wall by other means, including but limited to, a conventional hand bar (180) as seen in FIG. 2. The various views also show that the present invention is configured for a vertical pivoting movement between an upward stored position and a horizontal in-use position.

[0030] In FIG. 1 there is shown a foot mounting (50), second bar (60), engagement piece (70), collar (80), second pin (100), first pin (90), cylinder (85), first bar (150) and end cap (120). The first bar (150) is configured to rotate about 90 degrees in relation to the conventional hand bar (180), making the first bar (150) capable of being both parallel and perpendicular to a wall when in usage.

[0031] The second bar (60), meanwhile, is mounted to the first bar (150). This second bar can then be mounted to a variety of areas ranging from a conventional wall or floor based on the adaptability of the foot mounting (50). In this way, the present invention can easily be placed in the most unobtrusive and safest position possible. When the present invention is deployed, the position of the second bar shifts from an angle parallel to a standard wall to an angle of about but not limited to 10 degrees as shown in FIG. 1. In effect, when the present invention is deployed, the second bar (60) shifts to the angle while the first bar (150) rotates from a position parallel to the wall to perpendicular.

[0032] FIG. 2 shows us that a third bar (160) is connected to an end of the first bar (150) and also an end of the second bar (60). When the present invention is deployed, this third bar (160) moves about 120 degrees. The significance of the movement of the third bar (160) is that it allows the first bar (150) to move from a vertical position to a horizontal position to maximize the desired usage of the present invention. In addition, when the third bar (160) moves to its deployment position, the second bar (60) will move about 10 degrees from the wall. Both of these movements are designed to assist the user in maximizing the full potential of the present invention.

[0033] Moreover, FIG. 1 shows us that an end cap (120) is connected to the end of the first bar (150). The end cap (120) can be made of rubber or other material that permits the user to get a good grip on the first bar (150) as the user attempts to lift him or herself up. Also related to the grip and handle of the present invention is the movement of the first bar (150). As mentioned above, the first bar (150) extends perpendicular from the wall when pulled upward to a horizontal position for deployment by the user. This is meant to provide the user with enough area to securely grip the first bar (150) of the present invention in order to rise from the seated position in a comfortable manner.

[0034] At the time when the first bar (150) is raised to a horizontal deployment position, the second bar (60) is a stabilizing element of the present invention through its various ways to be attached to a fixed structure via the second bar (60) itself and the foot mounting (50). Again, as FIG. 1 and FIG. 2 demonstrate, the foot mounting (50) can be easily angled based on its rotating design to fit flat on a floor or wall. The positioning of the second bar (60), which is connected to the first bar (150) through the third bar (160), is important. Because the second bar (60) is the stabilizing force, the first bar (150) is capable of accepting the force and weight of the user as he or she attempts to rise from the seated position. The weight from the first bar (150) is then transferred to the second bar (60) to provide the safest and most efficient use of the present invention. In addition, the second bar (60) features a height-adjustment component (51) that permits the user to fit the present invention with the proper distance between a conventional hand bar and the floor.

[0035] Many of the elements that actually make up the movement of the present invention can be seen in FIG. 3. In FIG. 3, we see the collar (80), cylinder (85), second pin (100) and engagement piece (70). When the present invention is deployed, a number of events occur. Upon deployment, the cylinder (85) slides up the third bar (160) while the second bar (60) moves to the aforementioned angle of about 10 degree as shown in FIG. 1. Meanwhile, the third bar (160) moves into a more horizontal position. The engagement piece (70) is positioned along the second bar (60). When the user wishes to return the first bar (150) to a position relatively parallel to the wall, then the user slides the engagement piece (70) up along the second bar (60) and the third bar (160). This process actually pushes the cylinder (85) up to the point where the third bar (160) is able to collapse down because it is no longer restrained by the cylinder (85). The collar (80) is generally cylindrically shaped, except for a curved sidewall (200) so that the collar (80) does not prevent movement of the third bar (160). Also, the curved sidewall (200) permits the cylinder (85) to slide down in front of the collar (80) when the engagement piece (70) forces the cylinder (85) up, and engagement piece (70) and collar (80) are pulled quickly down and third bar (160) begins to fall from a vertical position. When the third bar (160) moves, the cylinder (85) is no longer engaged by friction to the collar (80). Therefore, gravity pushes the third bar (160) back to its original position. As it moves, the third bar (160) pivots about both the first pin (90) and the second pin (100). Also due to gravity as the present invention is in motion, the cylinder (85) slides down the third bar (160) before coming to a rest after being stopped by the position of the first pin (90). It is important to note that the collar (80) sits atop the rear side of the engagement piece (70) and thus, the collar (80) is higher than the front of the engagement piece (70). When the engagement piece (70) pushes the cylinder (85) upward it propels the cylinder (85) to clear the top of the collar (80). Some of the movement of the present invention can be described as similar to the legs of a card table that slide and lock into place. In that analogy as is the case with the present invention's moveable parts as seen in FIG. 3, the components operate together to ensure that the pivotal transition from an upward stored position to a downward in use position is a steady shift not characterized as a dangerous fast drop. Such a configuration ensures safety for the user, and allows the first bar (150) to stop in movement once it is in a horizontal position. The second bar (60) extends to the base of the wall, allowing a user to bear weight on the present invention, which makes maneuvering to and from a toilet or wheelchair safe.

[0036] FIG. 4 shows us the view of the present invention in a view from above. From this angle, one can see the conventional hand bar (180). The first bar (150) is actually bowed as it connects to the conventional hand bar (180) in two different places. The bowed element (190) of the first bar (150) passes around the central area of the present invention that contains such items as the collar (80), cylinder (85) and third bar (160). This bowed element (190) permits greater leverage and helps make the present invention much simpler and more durable and stable to use, especially for individuals who may not have strength to lift themselves up otherwise. The bowed element of the first bar (150) effectively pulls from one end and pushes from the other end for maximized stability.

[0037] The present invention also is designed to minimize its area when not in use. This is done by folding the present invention. To achieve this goal the user can rotate the first bar (150) so it moves from the horizontal position to nearly vertical. At the same time, the second bar (60) shifts from the aforementioned 10-degree angle to an almost completely vertical position along the wall.

ENGLISH-CLAIMS:

Return to Top of Patent

I claim:

1. A grab bar comprising: a first bar; a third bar in communication with said first bar, said third bar capable of rotating 180 degrees; and a second bar in communication with and under said third bar.

2. The grab bar of claim 1, wherein said first bar is configured to attach to a conventional handle bar.

3. The grab bar of claim 1, wherein said second bar is configured to communicate to a conventional floor.

4. The grab bar of claim 1, wherein said second bar is configured to communicate to a conventional wall.

5. The grab bar of claim 1, wherein said second bar has a height adjustment component and a foot mount.

6. The grab bar of claim 1, further comprising a cylinder mounted on said third bar.

7. The grab bar of claim 1, further comprising an engagement piece that slides up said third bar.

8. The grab bar of claim 6, further comprising an engagement piece that slides up said third bar.

9. The grab bar of claim 8, wherein said engagement piece is configured to push said cylinder up along said third bar.

10. The grab bar of claim 9, further comprising a collar mounted atop said engagement piece, said collar configured to allow said cylinder to cover said collar, and said collar configured with a curved sidewall to allow said cylinder to slide down and forward of said collar.

11. A grab bar comprising: a first bar; a third bar in communication with said first bar, said third bar capable of rotating 180 degrees; a second bar in communication with and under said third bar; wherein said first bar is configured to attach to a conventional handle bar; wherein said second bar is configured to communicate to a conventional floor; wherein said second bar is configured to communicate to a conventional wall; wherein said second bar has a height adjustment component and a foot mount; further comprising a cylinder mounted on said third bar; further comprising an engagement piece that slides up said third bar; wherein said engagement piece is configured to push said cylinder up along said third bar; and further comprising a collar mounted atop said engagement piece, said collar configured to allow said cylinder to cover said collar, and said collar configured with a curved sidewall to allow said cylinder to slide down and forward of said collar.

LOAD-DATE: August 31, 2007