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(54) **Supporting rest structures for toilets**

(57) A supporting rest structure for use with a toilet, the toilet comprising an outer pedestal cover and an inner pedestal chamber, wherein a void exists between the outer pedestal cover and the inner pedestal chamber, the supporting rest structure comprising a framework and at least one arm, the framework comprising a wall or floor fixing means which is connected to at least one arm support means, the at least one arm being releasably con-

nected to the at least one arm support means and being pivotally movable from a first in-use position to a second out-of-use position, wherein in use the framework is situated inside the void between the outer pedestal cover and the inner pedestal chamber, and the at least one arm support means provides a load bearing support for both the at least one opposing arm and the outer pedestal cover.

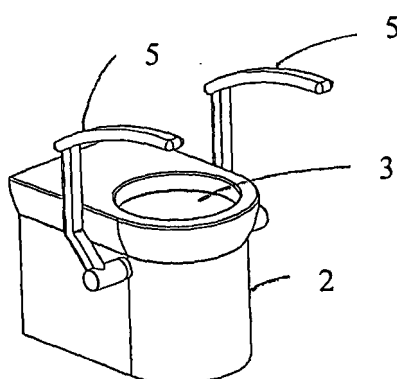


Figure 1d

## Description

**[0001]** The invention relates to toilets, and in particular is concerned with supporting rest structures for retrofitting onto standard toilets. The supporting rest structures of the invention aim to provide support for disabled users of toilets during getting on, using, and getting off the toilet.

**[0002]** Known support structures for toilets include wall mounted rails, hinged wall mounted rails, floor and ceiling mounted rails and poles. However, with these known arrangements, the user requires a certain amount of upper body strength and coordination to manoeuvre themselves on and off the toilet.

**[0003]** Further known support structures for toilets include toilet mounted armrests, with or without load bearing support structures. However with these known arrangements, hearing loads can be exerted upon the toilet structures themselves which can cause failure of the fixings which hold the toilet structure in place, or even failure of the toilet structure itself.

**[0004]** Supporting rest structures can be required in a range of environments, for example;

- a) environments solely used by a specific disabled user;
- b) environments used by a range of disabled/able users; and
- c) environments for use temporarily or permanently

**[0005]** In some environments, such as a private home, a range of users may need to be accommodated and in these cases cumbersome or indiscrete equipment can make the emotional integration of a disabled user into the home more difficult.

**[0006]** An object of the present invention therefore, is to provide a supporting rest structure which is easy to install in a wide range of toilets and which can be used by able and disabled users.

**[0007]** A further object of the present invention is to provide a supporting rest structure that aids the emotional integration of a disabled user.

**[0008]** A yet further object of the present invention is to provide a supporting rest structure that does not require the user to have a large amount of upper body strength, and that does not exert large loads upon the toilet structure itself.

**[0009]** According to the present invention there is provided a supporting rest structure for use with a toilet, the toilet comprising an outer pedestal cover and an inner pedestal chamber, wherein a void exists between the outer pedestal cover and the inner pedestal chamber, the supporting rest structure comprising a framework and at least one arm, the framework comprising a wall or floor fixing means which is connected to at least one arm support means, the at least one arm being releasably connected to the at least one arm support means and being pair pivotally movable from a first in use position to a second out-of-use position, wherein in use the framework

is situated inside the void between the outer pedestal cover and the inner pedestal chamber, and the at least one arm support means provides a load bearing support for both the at least one opposing arm and the outer pedestal cover.

**[0010]** Preferably the at least one arm is a pair of opposing arms, and the at least one arm support means is a pair of opposing arm support means.

**[0011]** With this arrangement the framework provides the toilet user with a load-bearing arm (or pair of opposing arms) upon which the user can rest. Further the framework acts to provide load-bearing support to the toilet structure itself, such that the extra load associated with disabled toilet usage does not impact upon the toilet structure. This load transferral to the framework enables standard toilets to be adapted for disabled use.

**[0012]** The framework may comprise a substantially vertical wall mounting means and one or two substantially horizontal arm support means, wherein the two arm support means are optionally joined by a crossmember. Alternatively the framework may comprise a substantially horizontal floor mounting means, wherein the arm support means can be similarly substantially horizontal, or can be substantially vertical or at an acute angle to the floor mounting means. Again an optional crossmember may join the two arm support means.

**[0013]** The framework is preferably made of metal for example stainless steel or steel and the metal can be solid or tubular in cross section. Alternatively the framework may be durable plastic.

**[0014]** The wall or floor mounting means typically comprises a flat surface through which holes have been drilled, such that screws, nails or the like can pass through the holes and secure the framework to a wall or floor.

**[0015]** In a first aspect of the invention the arm support means preferably each comprise a releasable fixing means that connects to each arm whilst allowing pivotal motion of the arms at the point of connection. Suitable fixing means include a bore hole formed in the arm support means, in combination with a rod adapted to fit through the bore hole and be secured on one side by a stopper. The other side of the rod may pass through a similar bore hole made in the arm before similarly being secured by a stopper. Washers or other appropriate spacing devices may additionally be present, and optionally such devices are made of materials suitable for enabling rotational movement of the arm about the rod, such as lubricating plastics. The rod and any contacting parts may also be provided with a lubricant such as oil. The fixing means must be capable of transferring load from the toilet to the framework, and as such can be made from metal or durable plastic.

**[0016]** The arms of the supporting rest structure generally each comprise a lower limb, an upper limb and an arm rest. Each lower limb is generally pivotally mounted onto the framework, preferably one lower limb onto each arm support means. When the mounting is achieved via

a rod adapted to fit through a bore hole in the arm support means, each lower limb is adapted to comprise a bore hole through which the rod may pass.

**[0017]** The upper limb connects to the lower limb, preferably rigidly, and in the first in-use position both upper and lower limbs preferably extend generally upwardly, preferably with an angle of between 90-180° between them. In the first in-use position, the arm rests preferably extend generally horizontally on either side of the toilet. In the second out-of-use position the arm rests are generally reclined rearwardly to a generally vertical position out of the way.

**[0018]** In an alternative second aspect of the invention, the arm support means connects to each arm without allowing pivotal motion of the arms at the point of connection. Suitable fixing means include for example a nut and bolt arrangement, and again the fixing means must be capable of transferring load from the toilet to the framework.

**[0019]** In this alternative aspect, each arm again generally comprises a lower limb, an upper limb and an arm rest. The lower limb is connected to the upper limb such that the upper limb can pivot about the lower limb. In the first in-use position, both upper and lower limbs preferably extend generally upwardly, and the arm rests extend generally horizontally on either side of the toilet. In the second out-of-use position the arm rests are generally reclined rearwardly to a generally vertical position out of the way, and the lower and upper limbs pivot in relation to one another such that the upper limb is generally horizontal whereas the lower limb remains generally upwardly. In this embodiment, the arm can be connected to the framework at a point much closer to the back of the toilet, since the horizontal distance required for the arm to assume the out-of-use position is reduced.

**[0020]** In both the first and second aspects, the arm rest can preferably be shaped such that the forward facing end is higher than the rearward facing end when the arm is in its in-use position. For example the arm rest can be curved. This provides the most helpful support to users.

**[0021]** Again with regard to both first and second aspects, each arm can be pivoted independently of the other. Further stopping devices can be introduced to enable the arms to have discrete stopping positions at the in-use position, the out-of-use position, and preferably also at other intermediate positions.

**[0022]** As will now be readily understood, the supporting rest structure of the present invention preferably comprises (in both aspects) a framework that, in use, is placed inside a void between the outer pedestal cover and the inner pedestal chamber of a toilet. The framework is therefore concealed by the outer pedestal cover of the toilet. It is connected to the pair of opposing arms, which are situated outside the outer pedestal cover, by virtue of connections passing through the outer pedestal cover. In this regard it is necessary to create bore holes in the outer pedestal cover in order to fit the supporting rest

structure to standard toilets, if such holes do not already exist. The supporting rest structure provides load bearing support to the user by virtue of the opposing arms, and to the toilet by virtue of the connection that passes through the outer pedestal cover. Further load bearing support to the toilet can be provided by adapting the framework such that it contacts the outer pedestal cover or other parts of the toilet at yet further positions.

**[0023]** The arms as used in either aspect of the invention may comprise panels or pads to provide additional support to the user. These panels/pads may be fixed in position to the upper limbs or arm rests of each arm. Alternatively the panels/pads may be pivotally movable on said arm rests or upper limbs between in-use/out-of-use positions and/or between different usage positions.

**[0024]** In the latter case, the pads/panels may be movable between a rear supporting position to support a user's back, or a side supporting position to support a user laterally. In the former case, the pads/panels may be removable. Furthermore, the pads/panels may be rotatable to provide more laterally extending support or longitudinally extending support for a user.

**[0025]** The pads are preferably provided on a pad plate or movable pad assembly. The panels may provide a curvature so as to provide a more ergonomic support to a user.

**[0026]** Both aspects of the above-described invention can be used with a range of different toilet structures, for example a wall mounted cistern, a floor mounted cistern, or a hidden cistern unit. Further, the pedestal may have a variety of shapes and contours to which the framework can be adapted.

**[0027]** The invention will now be described further by way of example only and with reference to the accompanying drawings in which:

Figure 1a is a side view of a supporting rest structure being used with a toilet according to a first embodiment of the invention, wherein one arm is in an out-of-use position and one arm in an in-use position.

Figure 1b is a side view of a supporting rest structure being used with a toilet according to a first embodiment of the invention, wherein both arms are in an out-of-use position.

Figure 1c is a perspective view of a supporting rest structure being used with a toilet according to a first embodiment of the invention, wherein both arms are in an out-of-use position.

Figure 1d is a perspective view of a supporting rest structure being used with a toilet according to a first embodiment of the invention, wherein both arms are in an in-use position.

Figure 2 is an exploded perspective view of the framework and a single arm of a supporting rest

structure according to a first embodiment of the invention.

Figures 3a and 3b are perspective views of a supporting rest structure being used with a toilet according to a second embodiment of the invention.

Figure 4 is an exploded perspective view of the framework and a single arm of a supporting rest structure according to a third embodiment of the invention.

Figures 5a and 5b are perspective views of a supporting rest structure being used with a toilet according to a fourth embodiment of the invention.

Figure 6a is a partial exploded view of a supporting rest structure comprising a pad according to a fifth embodiment of the invention.

Figure 6b is a perspective view of the complete supporting rest structure of figure 6a.

**[0028]** In Figures 1-5, a toilet pedestal 1 conventionally comprises an outer pedestal cover 2 and an inner pedestal chamber 3. A void exists between this outer pedestal cover 2 and inner pedestal chamber 3. The supporting rest structure of the invention comprises a framework 4 and a pair of opposing arms 5. The framework 4 is, in use, situated inside the void between the outer pedestal cover 2 and inner pedestal chamber 3.

**[0029]** In a first embodiment of the invention as shown in Figures 1a-1d, the arms 5 are shown in various in-use and out-of-use positions. As shown by Figure 1a, the two opposing arms 5 can be moved independently of one another. The arms 5 are pivotally attached to the framework 4 (not shown) via rod arrangements 6 which pass through bore holes in the outer pedestal cover 2. The arm 5 comprises lower limb 7 and upper limb 8, which are both generally horizontal when in the out of use position (Figures 1b and 1c) and generally vertical when in the in-use position (Figure 1d). The arm 5 also comprises an arm rest 9 which is generally horizontal when in the in-use position, and generally upwardly in the out-of-use position.

**[0030]** As can be seen, in the out-of-use position the arms 5 do not cause obstruction to toilet users.

**[0031]** The first embodiment of the invention is further shown in Figure 2, wherein the framework 4 comprises a substantially vertical wall mounting means 10 and two substantially horizontal arm support means 11. These arms support means 11 are joined by a crossmember 12. The substantially vertical wall mounting means 10 can be affixed to a wall by screws or the like via holes 13. The arm 5 comprises a bore hole 15 through which the arm 5 can be connected via a rod arrangement 6 to the arm support means 11. In order to do this, the rod arrangement 6 passes through a hole 14 in the pedestal

cover 2. The rod arrangement comprises a bolt arrangement 16 comprising at least one washer 17.

**[0032]** In a second embodiment of the invention as depicted in Figures 3a and 3b the arms 5 have an elongated lower limb 7 and a short curved upper limb 8. The arm rest 9 is substantially the same as in the first embodiment.

**[0033]** In a third embodiment of the invention, as depicted in Figure 4 the framework 4 comprises a substantially horizontal floor mounting means 18 with substantially horizontal arm support means 11. The arm 5 is connected to the arm support means 11 by the same mechanism as in Figure 2.

**[0034]** In a fourth embodiment of the invention, as depicted in Figures 5a and 5b, the arm support means 11 (not shown) connects to the lower limb 7 without allowing pivotal motion at the point of connection 19. Instead the pivotal motion is provided at point 20, where the lower limb 7 connects to the upper limb 8.

**[0035]** In this fourth embodiment, the in-use position as depicted in Figure 5a is characterised by the lower limb 7 and upper limb 8 being substantially vertical and the curved arm rest 9 being substantially horizontal. The out-of-use position shown in Figure 5b illustrates that the arm rest 9 becomes substantially vertical, the lower limb 7 remains substantially vertical, and the upper limb 8 becomes almost horizontal. This embodiment shortens the distance needed between the pivot and the toilet cistern or back wall.

**[0036]** Figures 6a and 6b depict a fifth embodiment of the invention, wherein the upper limb 8 comprises pads 21 to provide lateral support to a toilet user. As shown in Figure 6a, the pads 21 are connected to the upper limb 8 via a bracket 22 and securing means 23. The pad 21 is made of a pad plate 24 comprising a protruding section 25 and a soft region 26 that provides comfort to the user.

**[0037]** It is to be appreciated that any of the embodiments may comprise any of the different arm or framework arrangements described above. Further it is to be understood that the invention is not intended to be restricted to the details of the above embodiments, which described by way of example only.

## Claims

1. A supporting rest structure for use with a toilet, the toilet comprising an outer pedestal cover and an inner pedestal chamber, wherein a void exists between the outer pedestal cover and the inner pedestal chamber;  
the supporting rest structure comprising a framework and at least one arm;  
the framework comprising a wall or floor fixing means which is connected to at least one arm support means;  
the at least one arm being releasably connected to at least one arm support means and being pivotally movable from a first in-use position to a second out-

of-use position;

wherein, in use, the framework is situated inside the void between the outer pedestal cover and the inner pedestal chamber, and the at least one arm support means provides a load bearing support for both the at least one arm and the outer pedestal cover.

2. A supporting rest structure according to claim 1, wherein the at least one arm is a pair of opposing arms, and wherein the at least one arm support means is a pair of opposing arm support means. 10
3. A supporting rest structure according to either of claims 1 or 2, wherein the framework comprises a substantially vertical wall mounting means and at least one substantially horizontal arm support means. 15
4. A supporting rest structure according to claim 3, wherein the framework comprises two arm support means. 20
5. A supporting rest structure according to claim 4, wherein the two arm support means are joined by a cross member. 25
6. A supporting rest structure according to either of claims 1 or 2, wherein the framework comprises a substantially horizontal floor mounting means and at least one arm support means that is substantially horizontal, substantially vertical or at an acute angle to the floor mounting means. 30
7. A supporting rest structure according to claim 6, wherein the framework comprises two arm support means that are joined by a cross member. 35
8. A supporting rest structure according to any preceding claim, wherein the framework is made of metal or durable plastic. 40
9. A supporting rest structure according to any preceding claim, wherein the at least one arm support means comprises a releasable fixing means that connects to the at least one arm whilst allowing pivotal motion of the arm in the support means. 45
10. A supporting rest structure according to any preceding claim, wherein the at least one arm comprises a lower limb, an upper limb and an arm rest. 50
11. A supporting rest structure according to either of claims 9 and 10, wherein the lower limb of the at least one arm is pivotally mounted onto the at least one arm support means. 55
12. A supporting rest structure according to claim 11, wherein the structure exhibits (i) a first in-use position

wherein both upper and lower limbs extend generally upwards and the arm rest extends generally horizontally; and (ii) a second out-of-use position wherein the arm rest is generally reclined rearwardly to a generally vertical position out of the way.

13. A supporting rest structure according to any of claim 1-8, wherein the at least one arm support means connects to the at least one arm without allowing pivotal motion of the arm at the point of connection.
14. A supporting rest structure according to claim 12, wherein the at least one arm comprises a lower limb, an upper limb and an arm rest, wherein the lower limb is connected to the upper limb such that the upper limb can pivot about the lower limb.
15. A supporting rest structure according to claim 14, wherein the structure exhibits: (i) a first in-use position wherein both upper and lower limbs extend generally upwardly and the arm rest extends generally horizontally; and (ii) a second out-of-use position wherein the arm rest is generally reclined rearwardly to a generally vertical position out of the way, and the lower and upper limbs pivot in relation to one another such that the upper limb is generally horizontal whereas the lower limb remains generally upwardly.

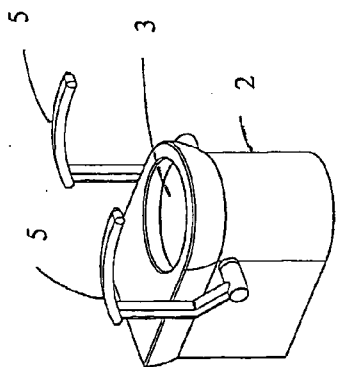


Figure 1d

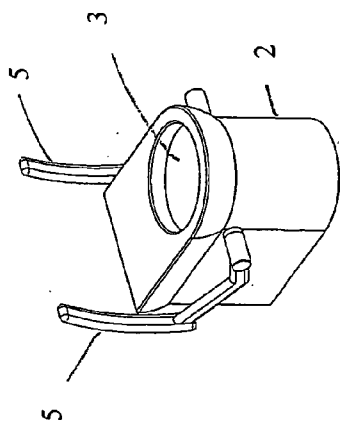


Figure 1c

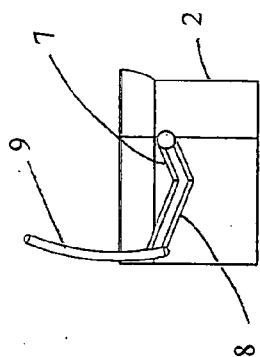


Figure 1b

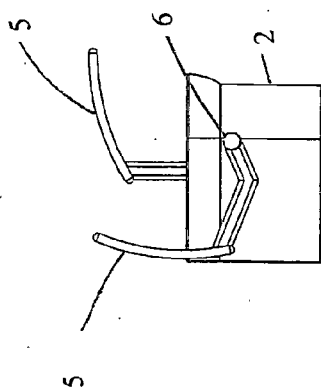


Figure 1a

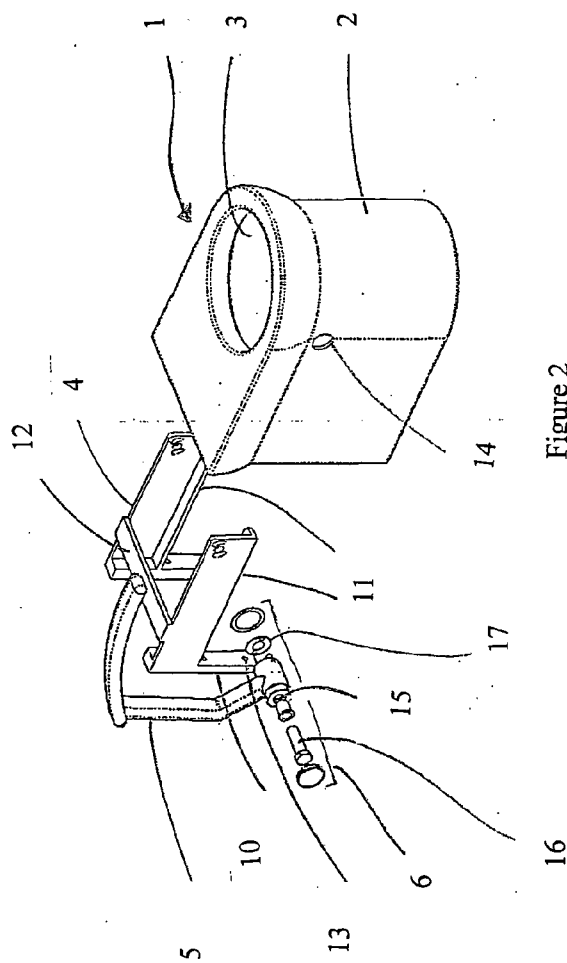


Figure 2

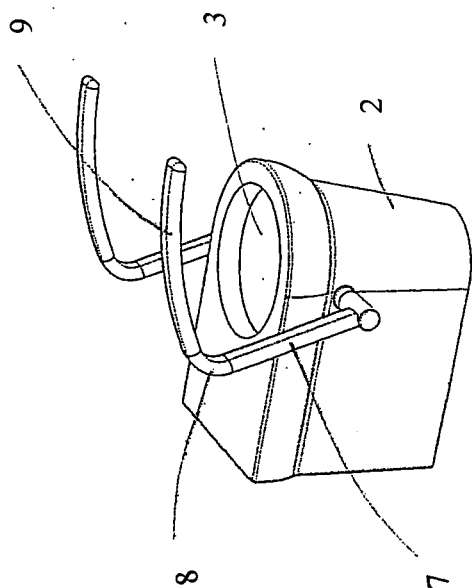


Figure 3a

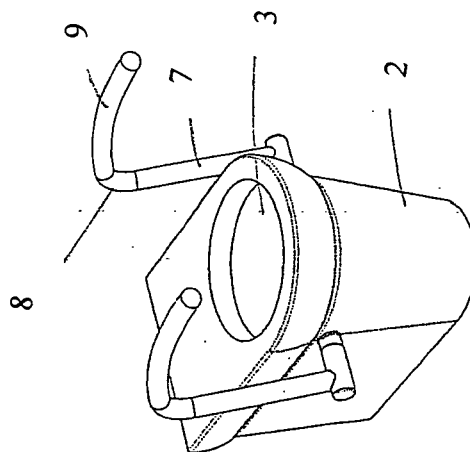


Figure 3b

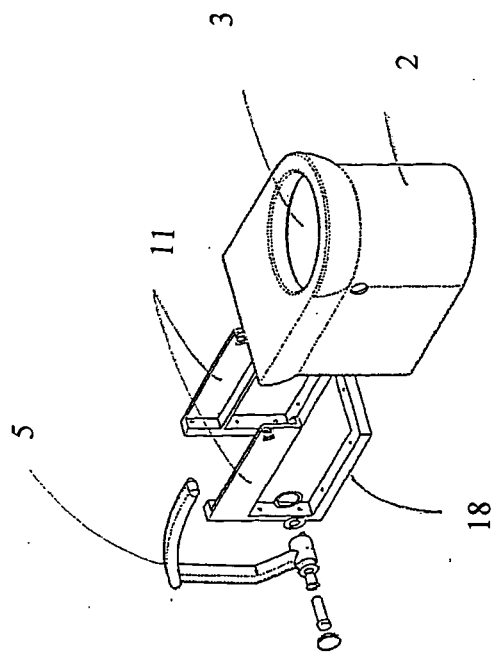


Figure 4

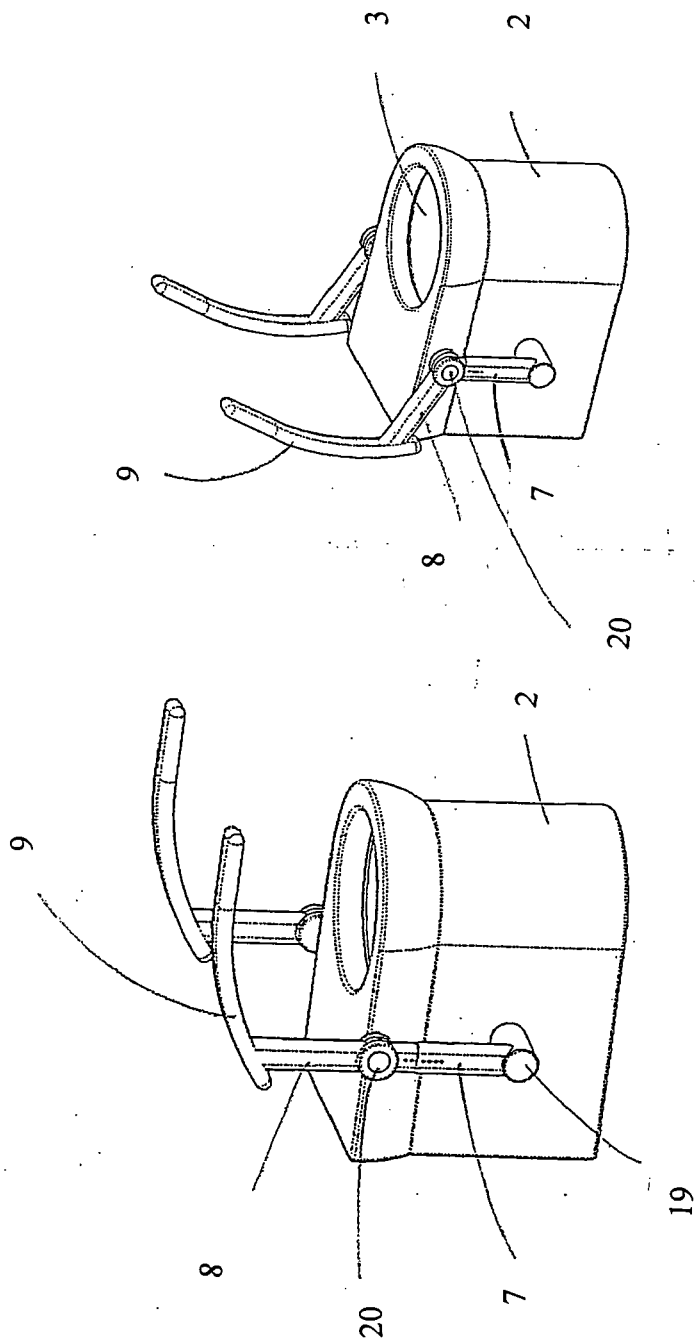


Figure 5b

Figure 5a



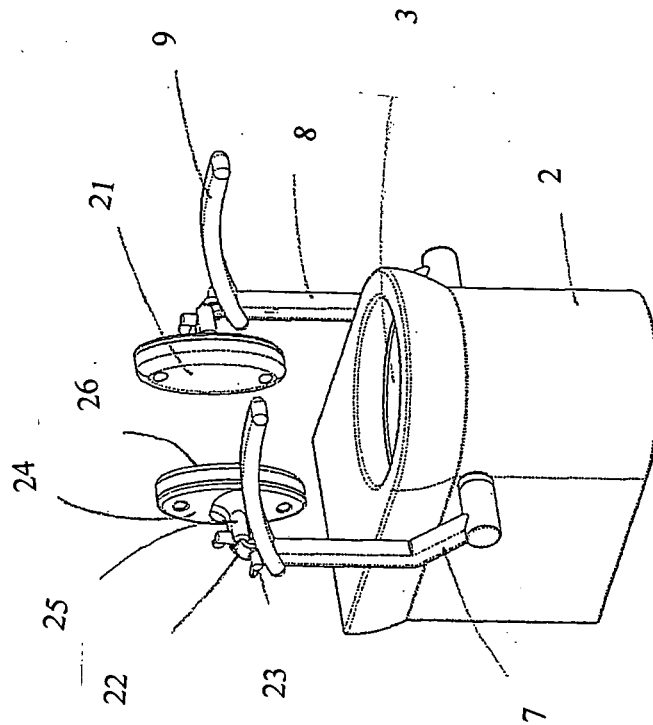


Figure 6b

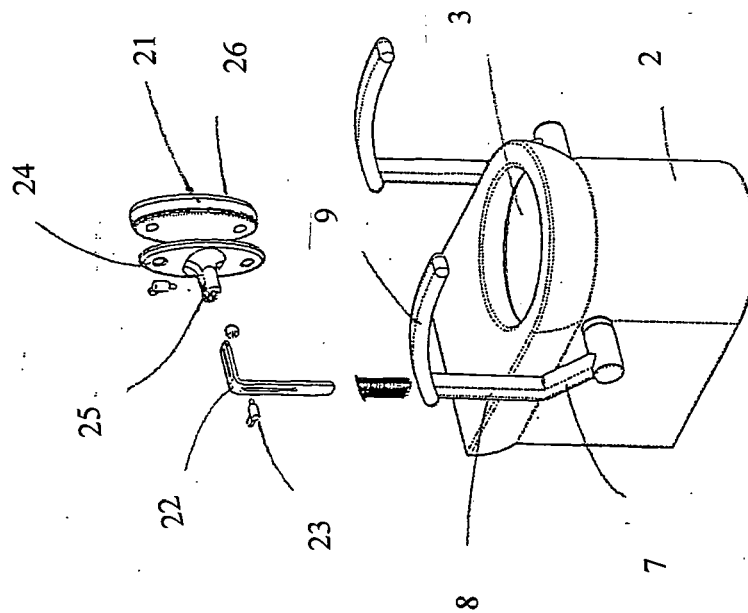


Figure 6a