

WALKING AID

Field of the Invention

[0001] This invention relates to a walking aid.

Background of the Invention

[0002] Walking aids are generally used by the infirm and aged to provide with them some confidence and support when walking. In this regard it is important for the good health and well being of infirm or aged patients and the rehabilitation of patients recovering from surgery or a debilitating event such as a stroke or injury to have the patient walking. However in providing assistance it is important that the user has a sense of confidence that they will be adequately supported at all times.

[0003] Many walking aids comprise a frame having a pair of handles which are located to each side of the frame and extend rearwardly from the frame and a set of legs which are spaced both laterally and longitudinally. In some cases the lower ends of the legs have wheels or castors at least some of which can be controlled by a braking mechanism operated from one or both of the handles. In use the user will access the walking aid from the rear to position themselves between the handles and then grasp the handles. The handles are used by the user to support themselves and to manipulate the frame to enable them to walk and in so doing the user will generally will lean forwardly onto the frame and can control the movement of the walking aid over the ground by use of the braking means. Other walking aids have a set of feet at the lower ends of the rear legs and wheels or castors at the lower end of the front legs where the wheels or castors are associated with a braking means having controls associated with the handles. In use the user will lift the rear feet from the ground and then move forwardly in a controlled manner utilising the braking means to control the motion of the frame. In other cases the frame is provided with feet at the lower end of each leg and in order for the user to move they must lift the frame from the ground and place it ahead of the original position. By this means the user moves in a step-by-step manner over the ground.

[0004] Examples of these walking means are disclosed in US4312505, US4277100 and US4226413.

[0005] In all cases the walking aids generally comprise a frame which is to be located in front of the user and the user is required to lean forwardly onto the frame. Whilst such frames can provide some degree of confidence to the user they can be difficult to manipulate particularly in negotiating obstructions such as in a conventional domestic situation. Furthermore the aids do not provide any rear or lateral support for the user and will not provide any support for the user in the event of the user falling to the ground or provide protection from falling sideways or backwards. In addition when the user needs to prepare themselves to sit down onto a chair, bed or toilet they must turn themselves and the walker through 180⁰ and then lower themselves onto the chair, bed or toilet. It is at this point at which they can be most vulnerable to a fall due to a lack of rearward or lateral support when making the transition in support from the walking aid. This lack of apparent support creates uncertainty in the user and can provide a disincentive to use the walking aid.

[0006] Other forms of walking aid are disclosed in US277100, and GB2368803 and provide a frame which can extend around the user however the access into the frame is difficult given the inherent disability of the intended user which needs to be anticipated.

[0007] The discussion throughout this specification, of the background and prior art to the invention is intended only to facilitate an understanding of the present invention. It should be appreciated that the discussion is not an acknowledgement or admission that any of the material or documents referred to was part of the common general knowledge in Australia or any where in the world as at the priority date of the application.

Summary of the Invention

[0008] Accordingly the invention resides in a walking aid comprising a frame comprising a pair of opposed side panel, a forward panel and a rear panel which define a space dimensioned to accommodate an occupant in a standing position and a seated position, a seat supported from one of the panels and positioned to support the occupant in the seated position, one panel being pivotally supported about an upright axis to be moveable from a closed position at which it is engaged with adjacent panels and an open

position at which it is supported from only one panel and extends outwardly from the space to enable entry and exit by an occupant to and from the space, the frame being supported from the ground by a set of wheels, the side panels each having a hand support being positioned to be able to be engaged by the hands and/or arms of the occupant to enable the occupant to support themselves from the frame when in the standing position, a braking means adapted to control the wheels, the braking means being connected to controls associated with the hand supports.

[0009] According to a preferred feature of the invention the height of the frame can be varied.

[0010] According to a preferred feature of the invention the panels are of substantially the same height.

[0011] According to a preferred feature of the invention the other panels are fixedly interconnected. According to a preferred feature of the invention two or more of the other panels are formed as a single panel element.

[0012] According to a preferred feature of the invention the frame is capable of being collapsed to a storable condition. According to one embodiment the adjacent panels are pivotally supported from each other. According to another embodiment the panels are able to be disconnected from each other.

[0013] According to a preferred feature of the invention the seat is movable to an active position at which it is positioned to support the occupant in the seated position and an inactive position at which it lies substantially clear of the space. According to one embodiment the seat is pivotally supported from the frame to be moveable between the active position and the inactive position. According to a preferred feature of the invention the vertical displacement of the seat is able to be varied. According to a preferred feature of the invention the seat is supported from the rear panel.

[0014] According to a preferred feature of the embodiment the frame supports a back rest which is positioned in relation to the seat to provide support for the back of the occupant seated when in the seated position. According to a preferred feature of the invention the vertical displacement of the back rest is able to be varied. According to a preferred feature of the invention the inclination of the backrest is able to be varied. According to a preferred feature of the invention the back rest is supported by the rear panel.

[0015] According to a preferred feature of the embodiment the frame supports a pair of arm rests located to each side of the seat and which are positioned to provide support for the occupant in the seated position. According to a preferred feature the angular displacement of each armrest about an upright axis is able to be adjusted. According to a preferred feature of the invention the arm rests are pivotally supported about a transverse axis for adjustment of their inclination. According to a preferred feature of the invention the armrests are supported from the side panels. According to a preferred feature the arm rests are supported from the rear panel and are movable to a retracted position to allow lateral movement of the occupant from the seat when in the seated position.

[0016] According to a preferred feature of the invention the frame supports a footrest positioned forward of the seat to be accessible by the occupant in the seated position. According to a preferred feature of the invention the footrest is pivotally supported from the frame for movement between a support position at which it can support the occupant's feet when the occupant is in the seated position and a retracted position at which it lies substantially clear of the space.

[0017] According to a further preferred feature of the invention the frame includes a leg rest positioned to be accessible by the occupant when in the seated position. According to a preferred feature of the invention the leg rest is moveable between an active position at which it is located forward of the seat and at a height to receive and support one or both legs of the occupant and an inactive position which it is located substantially clear of the space.

[0018] According to a further preferred feature of the invention the frame supports a generally level table surface located forward and upward of the seat. According to a preferred feature of the invention the table surface is movable in the fore and aft direction. According to preferred feature of the invention the table surface is associated with a storage space located below the table surface. According to a preferred feature of the invention the storage space comprises a drawer which is slidably received under the table surface. According to a preferred feature of the invention the storage space is accessible by displacement of the table surface away from the storage space. According to a preferred feature of the invention the table surface is pivotally supported about a transverse axis to provide said access.

[0019] According to a further preferred feature of the invention the upper portion of the frame, at least in the region of the intended position of the head of the occupant when in the standing position, is provided with a cushioning means surrounding the region, said cushioning means having the capacity to provide cushioning and visibility through the cushioning means. According to a preferred feature of the invention the cushioning means is formed of netting or like material, According to a preferred feature of the invention the netting or like material is in a state of tension.

[0020] According to a preferred feature of the invention the hand support are each associated with a second support supported from the respective side panel, said second support adapted to receive the armpits of the occupant in spaced relation above the respective hand supports. According to a preferred feature of the invention the height of the second supports relative to the hand supports can be varied.

[0021] According to a preferred feature of the invention the one panel comprises the rear panel. According to a preferred feature of the invention the forward panel and at least one side panel are formed as a single panel element.

[0022] According to a preferred feature of the invention the panels are formed as frames.

[0023] The invention will be more fully understood in the light of the following description of several specific embodiments.

Brief Description of the Drawings

[0024] The description is made with reference to the accompanying drawings of which:

[0025] Figure 1 is a side elevation of a walker according to the first embodiment;

[0026] Figure 2 is a rear elevation of a walker according to the first embodiment;

[0027] Figure 3 is a plan view of the walker according to the first embodiment;

Detailed Description of the Invention

[0028] Each of the embodiments comprises a walking aid which is intended to provide confidence to a occupant of limited mobility in order to engender in that occupant

a level of confidence sufficient to use the aid to promote that occupant to use the aid to walk and therefore maintain or develop their mobility as the situation requires.

[0029] The first embodiment as shown at Figures 1, 2 and 3 comprises a frame 11 having in plan, the configuration of a rectangle and comprises a rear panel 13, side panels 15 and 19 and a forward panel 33. The lower end of the frame is supported at the corners of the frame by a set of wheels 12. The frame generally has a height greater than that of the occupant who is to use the frame when that occupant is in a standing position.

[0030] The rear panel is hingedly supported at one side by a set of hinges from a side panel 15. A latching mechanism 17 is provided at the other side of the rear panel to cooperate with the other side panel 19 of the frame and retain the rear panel in the closed position (as shown).

[0031] The side panels 15 and 19 each include a transverse strut 21 and each strut 21 is provided with a hand support in the form of a handgrip 23 and a crutch-like second support 25. The position of the strut 21 can be varied in its height on the frame to accommodate for the height of the occupant and similarly the height of the crutch-like second support 25 can be varied to accommodate for variations in the height of the occupant.

[0032] The wheels are provided with a braking means which is controlled from controls associated with the hand supports whereby the user is able to control the movement of the frame over the ground.

[0033] The rear panel 13 supports a seat panel 27 which is pivotally supported from the rear panel to be moveable between an active position as shown at which it provides a generally horizontal surface extending forwardly from the interior of the door to provide a seating surface and an inactive position at which it lies in a generally upward position closely adjacent the rear panel and clear of the space defined by the frame. In addition the rear panel supports a backrest 29 which cooperates with the seat panel 27 when in the active position to provide backrest for the seat provided by the seat panel. In addition the frame supports a pair of arm rests (not shown) which are located in association with the seat panel when in the active position for use by the occupant when seated. The seat panel, back rest and arm panels are upholstered to provide long term comfort for the occupant.

[0034] The frame further supports a footrest 31 which extends rearwardly from the front panel 33 and is located ahead of the seat panel 27 and below the level of the seat panel when in the active position in order to provide a footrest for the occupant. The footrest is capable of being moved between an active position as shown and an inactive position at which it will extend upwardly and substantially parallel with the front panel 33 and clear of the space defined by the frame.

[0035] The front panel 33 further supports a leg rest 35 which is located ahead of the seat panel and is moveable between an active position as shown at Figure 1 at which it is generally horizontal and lies in front of the seat panel 27 and a substantive vertical position at which it lies generally within the confines of the front panel 35 and clear of the space defined by the frame. The leg rest 35 is positioned to be able to receive one or both of the legs of the occupant when in the seated position on the seat panel.

[0036] The frame further supports a table 37 which extends rearwardly from the front panel 33. If desired the table can be removable from the frame. The table 37 is associated with a tray 39 which is slidable rearwardly from underneath the table 37 and provides a drawer in association with the table 37.

[0037] The frame further supports head restraint 41 which is formed of a suitable netting and is intended to surround the head of the occupant in a spaced relation to the head. The head restraint 41 is supported from the corners of the frame by suitable ties 43 which maintain the head restraint in the state of tension.

[0038] The rear of each side frame is provided with a handle (not shown) which can be used by a carer to wheel the walker as required.

[0039] The frame according to the first embodiment is foldable in order that it can be collapsed to be stored and/or transported. In addition at least some of the elements such as the seat, back rest, arm rests, foot rest, leg rest and/or table can be readily removed to facilitate the collapse of the frame and to reduce its weight when collapsed.

[0040] The second embodiment as shown at Figures 4, 5, 6 and 7 comprises a frame 111 having in plan, the configuration of a rectangle and comprises a rear panel 113, side panels 115 and 119 and a forward panel 133. The lower end of the frame is supported at the corners of the frame by a set of wheels 112. The frame generally has a height such that when an occupant is in a standing position within the space defined by the frame the upper transverse strut 121 of the side frames can be grasped by the occupant.

[0041] The front panel and side panels are fixedly interconnected to provide an integral frame having a generally U-shaped configuration while the rear panel is hingedly supported at one side by a set of hinges from one side panel 115. A latching mechanism 117 is provided at the other side of the rear panel to cooperate with the other side panel 119 of the frame and retain the rear panel when in the closed position (as shown).

[0042] As stated above the side panels 115 and 119 each include an upper transverse strut 121 and each strut 121 is provided with a hand support in the form of a handgrip 123 and a crutch-like second support 125. The position of the strut 121 can be varied in its height on the frame to accommodate for the height of the occupant and similarly the height of the crutch-like second support 125 can be varied to accommodate for variations in the height of the occupant.

[0043] The at least some of the wheels are provided with a braking means (not shown_ which is controlled from controls (not shown) associated with the hand supports whereby the user is able to control the movement of the frame over the ground.

[0044] The rear panel 113 supports a seat panel 127 which is pivotally supported from the rear panel to be moveable between an active position as shown at which it provides a generally horizontal surface extending forwardly from the interior of the door to provide a seating surface and an inactive position at which it lies in a generally upward position closely adjacent the rear panel and clear of the space defined by the frame.

[0045] In addition the rear panel supports a backrest 129 which cooperates with the seat panel 127 when the seat panel is in the active position to provide backrest for the occupant when in the seated position on the seat panel. Thee backrest can also provide some rearward support for the occupant when in the standing position.

[0046] In addition the frame supports a pair of arm rests 143 which are located in association with the seat panel when in the active position for use by the occupant when seated. The seat panel, back rest and arm panels are upholstered to provide long term comfort for the occupant. The arm rests are capable of a pivotal movement on the side frames such that their inclination can be varied.

[0047] The frame further supports a footrest 131 which extends rearwardly from the front panel 133 and is located ahead of the seat panel 127 and below the level of the seat panel when in the active position in order to provide a footrest for the occupant. The footrest is capable of being moved between an active position as shown and an inactive

position substantially parallel with the front panel 133 such that it lies substantially clear of the space defined by the frame.

[0048] The front panel 133 can further support a leg rest (not shown) which is located ahead of the seat panel and is moveable between an active position at which it is generally horizontal and lies in front of the seat panel and a substantially vertical position at which it lies generally within the confines of the front panel 133 and clear of the space defined by the frame. The leg rest is positioned to be able to receive one or both of the legs of the occupant when in the seated position on the seat panel.

[0049] The frame further supports a table 137 which extends rearwardly from the front panel 133. If desired the table can be removable from the frame. In addition the table is slidable longitudinally on the frame to an outermost position at which it lies substantially clear of the space defined by the frame and a rearward position which will enable the occupant to use it as a work surface or to eat from. The table 37 is associated with a compartment 139 which slidably supports a tray or drawer which is slidable rearwardly from underneath the table 137.

[0050] The rear of each side frame is provided with a handle 145 which can be used by a carer to wheel the walker as required.

[0051] In use the walking aid according to the first and second embodiment is to be occupied by the occupant using the frame who can enter the space defined by the frame through the rear panel 13 or 113 when in the open position. Once the rear panel 13 113 has been closed the occupant is then able to support themselves by utilisation of the handgrips 33 or 133 and/or by the crutch-like second supports 25 or 125 which are received under the armpits of the user and in the case of the first embodiment with the head located within the confines of the head restraint 41. By controlling the braking means provided in association with the support the user is then able to readily move over the ground. Because the hand grips are located to each side of the user and the frame provides support to the front, rear and both sides of the user the degree of confidence established by the user is greatly increased compared to the walking aids currently in use. In addition in the case of the first embodiment, in the event that the frame should tip over, the head restraint 41 serves to protect the head against any significant impact forces that are likely to be sustained otherwise as a result of the occupant's head striking the ground. In addition the walking aid incorporates a seat whereby the user is able to occupy a seated position

whilst within the frame. In this regard, the seat can be located at a height such that occupant is able to walk themselves over the ground whilst in the seated position by having their feet in engagement with the ground or can be wheeled over the ground by another occupant in which case the occupant would utilise the footrest 31 or 131 or alternatively the leg rest 35 or 135.

[0052] The table which is provided in association with the frame serves to provide a means whereby the occupant is able to use the table to eat or drink or as a work surface without needing to leave the frame.

[0053] In each of the embodiments the support elements of the frame such as the seat, back rest, arm rests, foot rest, leg rest and/or table are all capable of adjustment in order that the frame can be customised to accommodate for occupants of varying build and mobility.

[0054] In the case of each of the embodiments the frame can be provided with mirrors to enable the occupant to be aware of their surroundings to either side and/or to their rear. In addition seat belt or like restraints may be provided to provide emergency support for the occupant in the event of the walking aid tipping and/or striking an obstruction and coming to a sudden halt.

[0055] The frame of the each of the embodiments can be formed of any suitable material including plastics, fibre reinforced plastics or resin and /or metal.

[0056] The walking aid according to each of the embodiments provides a stable support environment for a occupant and as a result it is anticipated that the degree of confidence created by the use of the device can be greatly increased compared to current walking aids and thus increase the degree of incentive to a occupant to maintain their mobility. It is anticipated that the embodiments will provide lateral and rearward support for users and provide support for a user when preparing to sit on a chair, bed or toilet by providing support whilst the user is turning and in the transition in moving rearwardly from the walking aid to the chair, bed or toilet when they are most vulnerable. In addition the presence of the seat, foot rest, leg rest and table with a drawer encourage the use of the walking aid according to the embodiments for meals, writing, reading or resting to reduce the often undesirable tendency for a person to spend long periods in a chair, a lounge or bed. Therefore the walking aid provides a healthy alternative.

[0057] Throughout the specification, unless the context requires otherwise, the word “comprise” or variations such as “comprises” or “comprising”, will be understood to imply the inclusion of a stated integer or group of integers but not the exclusion of any other integer or group of integers.

[0058] It should be appreciated that the scope of the present invention need not be restricted to the particular scope of the embodiments described above.

Claims

The claims defining the invention are as follows:

1. A walking aid comprising a frame comprising a pair of opposed side panel, a forward panel and a rear panel which define a space dimensioned to accommodate an occupant in a standing position and a seated position, a seat supported from one of the panels and positioned to support the occupant in the seated position, one panel being pivotally supported about an upright axis to be moveable from a closed position at which it is engaged with adjacent panels and an open position at which it is supported from only one panel and extends outwardly from the space to enable entry and exit by an occupant to and from the space, the frame being supported from the ground by a set of wheels, the side panels each having a hand support being positioned to be able to be engaged by the hands and/or arms of the occupant to enable the occupant to support themselves from the frame when in the standing position, a braking means adapted to control the wheels, the braking means being connected to controls associated with the hand supports.
2. A walking aid as claimed at claim 1 wherein the height of the frame can be varied.
3. A walking aid as claimed at claim 1 or 2 wherein the panels are of substantially the same height.
4. A walking aid as claimed at claim 1 or 2 or 3 wherein the other panels are fixedly interconnected.
5. A walking aid as claimed at claim 4 wherein two or more of the other panels are formed as a single panel element.
6. A walking aid as claimed at claim 1 or 2 wherein the frame is capable of being collapsed to a storable condition.

7. A walking aid as claimed at claim 6 wherein the adjacent other panels are pivotally supported from each other.
8. A walking aid as claimed at claim 6 or 7 wherein the panels are able to be disconnected from each other.
9. A walking aid as claimed at any one of the preceding claims wherein the seat is movable to an active position at which it is positioned to support the occupant in the seated position and an inactive position at which it lies substantially clear of the space.
10. A walking aid as claimed at claim 9 wherein the seat is pivotally supported from the frame to be moveable between the active position and the inactive position.
11. A walking aid as claimed at claim 9 or 10 wherein the vertical displacement of the seat from the ground is able to be varied.
12. A walking aid as claimed at claim 9 or 10 or 11 wherein the seat is supported from the rear panel.
13. A walking aid as claimed at claim 9 or 10 or 11 wherein the frame supports a back rest which is positioned in relation to the seat to provide support for the back of the occupant seated when in the seated position.
14. A walking aid as claimed at claim 13 wherein the vertical displacement of the back rest is able to be varied.
15. A walking aid as claimed at claim 13 or 14 wherein the inclination of the backrest is able to be varied.]
16. A walking aid as claimed at claim 13 or 14 or 15 wherein the back rest is supported by the rear panel.

17. A walking aid as claimed at any one of the preceding claims wherein the frame supports a pair of arm rests located to each side of the seat and which are positioned to provide support for the occupant in the seated position.
18. A walking aid as claimed at claim 17 wherein the angular displacement of each armrest about an upright axis is able to be adjusted.
19. A walking aid as claimed at claim 17 or 18 wherein the arm rests are pivotally supported about a transverse axis for adjustment of their inclination.
20. A walking aid as claimed at claim 17 or 18 or 19 wherein the armrests are supported from the side panels.
21. A walking aid as claimed at claim 17 or 18 or 19 or 20 wherein the arm rests are supported from the rear panel and are movable to a retracted position to allow lateral movement of the occupant from the seat when in the seated position.
22. A walking aid as claimed at any one of the preceding claims wherein the frame supports a footrest positioned forward of the seat to be accessible by the occupant in the seated position.
23. A walking aid as claimed at claim 22 wherein the footrest is pivotally supported from the frame for movement between a support position at which it can support the occupant's feet when the occupant is in the seated position and a retracted position at which it lies substantially clear of the space.
24. A walking aid as claimed at any one of the preceding claims wherein the frame includes a leg rest positioned to be accessible by the occupant when in the seated position.
25. A walking aid as claimed at claim 24 wherein the leg rest is moveable between an active position at which it is located forward of the seat and at a height to receive

and support one or both legs of the occupant and an inactive position which it is located substantially clear of the space.

26. A walking aid as claimed at any one of the preceding claims wherein the frame supports a generally level table surface located forward and upward of the seat.
27. A walking aid as claimed at claim 26 wherein the table surface is movable in the fore and aft direction.
28. A walking aid as claimed at claim 26 or 27 wherein the table surface is associated with a storage space located below the table surface.
29. A walking aid as claimed at claim 26 or 27 or 28 wherein the storage space comprises a drawer which is slidably received under the table surface.
30. A walking aid as claimed at claim 26 or 27 or 28 or 29 wherein the storage space is accessible by displacement of the table surface away from the storage space.
31. A walking aid as claimed at claim 30 wherein the table surface is pivotally supported about a transverse axis to provide said access.
32. A walking aid as claimed at any one of the preceding claims wherein the upper portion of the frame, at least in the region of the intended position of the head of the occupant when in the standing position, is provided with a cushioning means surrounding the region, said cushioning means having the capacity to provide cushioning and visibility through the cushioning means.
33. A walking aid as claimed at claim 32 wherein the cushioning means is formed of netting or like material,
34. A walking aid as claimed at claim 33 wherein the netting or like material is in a state of tension.

35. A walking aid as claimed at any one of the preceding claims wherein the hand supports are each associated with a second support supported from the respective side panel, said second support adapted to receive the armpits of the occupant in spaced relation above the respective hand supports.
36. A walking aid as claimed at claim 35 wherein the height of the second supports relative to the hand supports can be varied.
37. A walking aid as claimed at any one of the preceding claims wherein the one panel comprises the rear panel.
38. A walking aid as claimed at claim 35 wherein the forward panel and at least one side panel are formed as a single panel element.
39. A walking aid as claimed at any one of the preceding claims wherein the panels are formed as frames.
40. A walking aid substantially as herein described with reference to the accompanying drawings.