The load carrying wheeled device in one form is a golf buggy for transporting a golf bag during a round of golf. In one form, the golf buggy has a pivotal frame having a front frame subassembly pivotally connected to a rear frame subassembly so that the buggy can be converted from a walk mode in which a person walks behind the buggy and ride mode in which a person rides upon the buggy by pivoting the front and rear subassemblies with respect to each other. A steering arrangement is pivotally connected to the front wheel assembly to assist in converting the buggy between the two modes and to control the direction of movement of the buggy by lifting the front wheel assembly to the desired direction and skidding the rear wheels in the desired direction. The rear wheels are driven by a suitable motor powered by an onboard battery having controls located on the steering arrangement. The advantage of the golf buggy is that the buggy can be used in the walk mode for part of the round of golf and when a person becomes tired, the buggy can be converted into a ride mode allowing the person to complete the round of golf where otherwise they may not have been able to because of fatigue. Other forms of the wheeled device include mobility assist vehicles, shopping carts, scooters or other low powered vehicles which can be used to increase the mobility of persons suffering from fatigue, infirmity, disability or the like.
Field of the Invention

The present invention relates to load carrying wheeled devices in general.

In one form, the present invention relates to load carrying wheeled devices for transporting goods, equipment and additionally, in some cases, people, having an assembly of steering wheels and an assembly of driven wheels in which the load can be carried over the assembly having the steering wheels.

In one form, the present invention relates to a load carrying wheeled device that is convertible between at least two different modes of use by an operator and to an assembly or arrangement allowing the wheeled device to be converted between the two modes of use at the discretion of the operator of the device.

In one form, the present invention relates to a sports vehicle device or mobility assist device to reduce the effort required in transporting a load between different locations or the effort required to travel from one location to another location by allowing the device to be used to transport goods, people, equipment, tools or the like for at least part of the way between the different locations by the operator being located on board the device during this part of the travel.

In one form, the present invention finds particular application as a golf buggy or cart, for use in carrying a
set of golf clubs in a bag or similar container, during a round of golf in which the golf buggy or cart has two modes of operation, one mode being a ride or ride-on mode in which the person is able to sit or otherwise be located upon the buggy or cart whilst travelling around the golf course, and a "walk" mode where the golfer walks beside or behind the buggy or cart whilst the buggy is in use wherein the golf bag containing the golf club set is supported on suitable supports provided on or attached to the assembly having the steering wheels.

Although the present invention will be described with particular reference to various forms of the golf buggy, it is to be noted that the scope of the present invention is not restricted to the described embodiment, but rather the scope of the present invention is broader by encompassing other arrangements and forms of the wheeled device and their use in other applications then specifically described and to other forms and arrangement of converting the buggy between the two modes of use.

It is to be noted that the golf clubs can also be carried on a separate member on the buggy, with the pivot point located adjacent to the steering arm, which can be rotated in the same vertical plane as the steering arm, to a position of choice by the golfer. It should also be noted that whilst the preferred choice of turning the buggy in the walk mode is with the steering arm secured as per a fixed arm buggy, the buggy can also be operated in the walk mode with the steering arm free to turn, such that turning the steering arm changes the direction of the buggy.
Background of the Invention

The present invention is particularly applicable to a golf buggy or cart and will be described with reference to this application. However, this is not the only form or application of devices of the present invention.

It is to be noted that the word cart used to describe the present invention includes devices variously known as golf buggies, golf carts, golf bags with wheels, mobility devices, personal scooters, mobility assistive devices, and the like including motorised vehicles for use by movement impaired persons, such as the elderly, infirm, incapacitated or the like. The word cart will be used in its general sense for ease of description to refer to all of the devices and is not meant to be limiting in any way to the scope of the invention in any way whatsoever. Accordingly, any wheeled device for carrying goods, people, equipment or the like, including a golf bag is included within the scope of the term "cart".

Furthermore, the cart is described with reference to its normal in use orientation so that words such as forward, up, and the like refer to its ordinary in use orientation with the wheels in contact with the ground or other supporting substrate.

The present invention will be described primarily in its application for transporting a golf bag during a round of golf. However, other uses and applications are possible. When playing a round of golf it is usual for the player to have a buggy or cart to carry and transport the player's golf bags and clubs from hole to hole during the round. Existing buggies can take a number of different forms.
extending from very simple forms, such as a hand drawn simple two wheel frames having a single support for retaining the bag on the buggy and a handle for manually pushing or pulling the buggy, to extremely large and complex equipment, such as large motorised vehicles referred to as golf carts, capable of transporting two or more people together with all their golfing needs and other equipment.

For elderly golfers or when difficult terrain is encountered, manually pushing or pulling the buggy for eighteen holes becomes extremely tiring. The elderly also begin to suffer from numerous minor medical ailments associated with their age. Thus, there is a need for some form of assistance to some golfers to allow them to complete a full round of golf. Although earlier attempts have been made to reduce the effort required in walking the full distance of a round of golf by providing motorised walk carts, as yet such carts are not convertible between different modes of operation and are not available with features of a normal motorised walk cart that can be easily converted as required to a ride-on cart with the provision of a footrest and a backrest and which is capable of being easily transported within the boot of a normal family sized car. One reason for this is that the weight of the cart has been too great to be lifted unaided into the trunk of a motor vehicle. Another reason is that the mechanism available to allow the conversion from between modes has been too complex for such devices to be transportable.

Accordingly, it is an aim of the present invention to provide a golf cart or other motorised cart that is
readily convertible between modes of operation, and also is capable of being transportable. The simplicity of the mechanism used to facilitate the change of modes of carts in accordance with the present invention makes it possible for golfers to choose where and when to walk or ride. Such a cart would enable many elderly golfers to continue to play golf, as compared to the majority who stop prematurely, because they are unable to walk the distance required to complete the game whilst pushing the manual cart, thereby losing the enjoyment that the game offers.

Similar considerations apply to movement impaired persons when required to travel between locations, particularly when carrying a load, such as for example, when shopping.

Accordingly it is an aim of the invention to provide a motorised cart, particularly a golf cart that can be converted between two different modes to assist a person in travelling from location to location, particularly when also transporting goods or equipment.

Accordingly, it is an aim of the invention to provide a cart which is adaptable for use as a "ride-on" buggy or a walking buggy that is adapted for carrying golf clubs.

Accordingly, it is an aim of the present invention to provide a cart that is convertible between different modes of operation, which cart is readily demountable for easy transportation in the boot of a motor car or similar.
Summary of the Invention

According to one aspect of the present invention, there is provided a wheeled device for carrying or transporting a load, said device having a steering assembly including a steering member, said device being convertible between a first mode of use in which the steering member is in a first orientation and a second mode of use in which the steering member is in a second mode of orientation, said device including two ground contacting wheel assemblies moveable with respect to one another in which one wheel assembly is steerable and the other wheel assembly is a wheel assembly capable of being driven by drive components, said wheel assemblies being connected to one another by two pivotal frame arrangements rotating predominantly in a vertical plane, such that movement of the frames with respect to each other moves the wheel assemblies with respect to each other so that the wheel base of the wheeled device is changed.

According to one aspect of the present invention, there is provided a wheeled transportation device having two modes of operation in use and being convertible between the two modes of operation comprising a first support assembly having a first support element and a second support assembly having a second support element, said support assemblies being movable with respect to one another such that when the support assemblies are in one configuration with respect to each other, the device is in the mode of operation of use in which the support elements are in a retracted position and when the support assemblies are in a second configuration with respect to one another, the device is in the second mode of operation of use in which
the support elements are in an extended position such that movement of one support assembly with respect to the other support assembly causes corresponding movement of the support elements with respect to each other between the retracted position and the extended position thereby converting the wheeled device between the two modes of operation of use.

According to one aspect of the present invention, there is provided a golf buggy capable of transporting a golf bag containing a set of golf clubs, said golf buggy being convertible between a walk mode in which the golfer walks in close proximity to the buggy in which the walk mode is a relatively compact mode and a ride mode in which the golfer is accommodated on the buggy, in which the ride mode is a relatively extended mode, said device having a first supporting frame assembly including a first frame section, and a second supporting frame assembly, having a second frame section, said first and second supporting frame assemblies being pivotally connected to each other to allow relative pivotal movement of the two supporting frame assemblies with respect to each other to facilitate conversion of the buggy between the walk and ride modes of operation, wherein when the golf buggy is in the walk mode, the first and second frame members are in a relatively close or compact position in which the first and second frame sections are aligned with each other, and when the golf buggy is in the ride mode, the first and second frame members are in a relatively spaced or even position with respect to each other in which the first and second frame sections are spaced apart from each other.
According to one aspect of the present invention there is provided, a wheeled device adapted for carrying or transporting a load, said device including a wheel assembly having at least one ground contacting wheel, capable of pivotal movement, to alter the direction of travel of the wheeled device, a steering member connected to the wheel assembly such that movement of the steering member causes corresponding movement of the wheel assembly to alter the direction of travel of the device, wherein when the steering member is connected to the wheel assembly and locked in a straight ahead position, movement of the steering member pivotally moves the wheel assembly to change direction of travel of the wheeled device, the steering member being provided with a load supporting or carrying means, such that the load moves in accordance with movement of the steering member, and wherein the wheeled device has a wheel base which can be changed to accommodate a golfer either walking behind and/or near to the wheeled device or riding on the wheeled device.

**Brief Description of Aspects of Embodiments of the Invention**

In one form, the first support assembly is a rear support assembly. In one form, the rear support assembly is a rear support frame having one or more front support frame members and/or sections. In one form, the first support element is a rear support element connected to the rear support frame. In one form, the rear support element is one or more wheels, rollers, or the like, typically, ground engaging or ground contacting wheels allowing movement of the wheeled device over the ground, surfaces, substrates or the like, preferably a driven wheel.
In one form, the rear support element is a rear wheel assembly having two ground contacting wheels arranged in spaced apart relationship on an axle.

In one form, the second support assembly is a front support assembly. In one form, the front support assembly is a front support frame having one or more front support members, elements, sections or parts. In one form, the second support element is a front support element connected to the front support frame. In one form, the front support element is one or more wheels, rollers or the like, typically ground engaging or contacting wheels. In one form, the front support element is a front wheel assembly having a single ground contacting wheel supported by a suitable wheel support structure. In one form, the wheel support structure includes a yoke, one or more bifurcated arms, or the like. Typically, the front wheel is a rolling wheel, roller or similar which is free to rotate when the wheeled device is driven by the rear wheel assembly.

In one form, the front wheel assembly is steerable so as to determine the direction of travel of the wheeled device. Typically, a steerable member is connected to the front wheel assembly so that directional movement of the front wheel assembly is caused by corresponding movement of the steerable member.

In one form, the wheel base of the wheeled device is changed, depending upon the mode adopted by the wheeled device. In one form, the positions of the rear wheel assembly and the front wheel assembly are movable with respect to each other so that when in one mode, the wheel
assemblies forming the wheel base of the wheeled device are relatively closer together when the device is in the retracted position corresponding to the walk mode, whereas in another mode, the wheel assemblies are further apart from each other when the device is in an extended position corresponding to the ride position.

The retracted position corresponds to the "walk" mode of use in which the operator of the wheeled device walks behind and/or to one side of the device and the extended position corresponds to the "ride on" mode of use in which the operator sits upon the device and is transported by the device, making walking alongside the device unnecessary.

In one form, the wheeled device of the present invention is a mobility assistive device for use by persons with reduced mobility. In one form, the device is a golf buggy or cart. In one form, the device is a scooter, wheelchair, ride-on device or the like. In one form, the wheeled device is a shopping cart or shopping trolley having one or more containers for storing/transporting goods, such as bags, panniers or the like. More typically, the buggy or cart is provided with a seat.

More typically, the seat is movable between at least two different positions, wherein one of the positions corresponds to a ride-on position in which the golfer sits upon the seat when riding on the buggy, whilst another position corresponds to a walking position in which the golfer walks behind and/or beside the buggy.

In one form, the front support frame is movably connected to the rear support frame, typically, pivotally movable
whereby the two frames can pivotally rotate with respect to each other about a pivot axis. In one form, the buggy is convertible between at least two positions by rotation of the front and rear frames about an axis of rotation that is substantially horizontal. More typically, the buggy is provided with a steering member, arrangement or subassembly, and is convertible between the walk and ride position by movement of the steering member. More typically, movement of the steering member causes the front and rear frames to pivotally move with respect to one another.

In one form, the device is provided with two sets of ground engaging wheels arranged in spaced apart relationship to one another. Typically, the wheeled device is capable of having the wheel base extended or retracted by rotation of two pivotal frames with respect to one another by the frames rotating in the same vertical plane which contains both frames. In one form, the two frames rotate in opposite directions of rotation with respect to each other. In one form, the front wheel assembly is connected to one end of the forward or front pivotal frame, and the drive unit assembly is connected to one end of the rear pivotal frame. In one embodiment, the end of one of the pivotal frames is restrained from movement by the inclusion of a brake or gearing to prevent its movement, all of the movement to change the mode of operation will occur at the other pivotal frame.

In one form of the wheeled device, the angle of inclination of the rear pivotal frame varies in accordance with the change of wheel base of the device. With the axle locked by brake or gearing, the wheel rotates with
the frame such that there is incremental rolling on the wheel by the angle of change of inclination giving longitudinal movement in accordance with the change of angle which in one form is about 100 mm of movement.

With axle free and the wheel restrained from longitudinal movement, the rotation of the rear pivotal frame occurs at the axle of the wheel.

In one form, the first supporting frame assembly is a front frame assembly. In one form, the front frame assembly is of a generally U-shape with extensions located at or towards the top of the "U". In one form, the U-shape is formed from a plurality of straight sections arranged at angles to each other. In one form, there is a straight central section located at the base of the U-shape frame corresponding to the web of the "U".

In one form, the second supporting frame assembly is a rear front frame assembly. In one form, the rear frame assembly is of a generally "L" shape having two straight sections angularly inclined at substantially 90° to one another. In one form, the base of the "L" shape is a base member or section.

When the cart is in the walk mode, the central section of the front frame is aligned with the base member of the rear frame. In one form, the central section and base section are aligned in substantially parallel relationship to one another.

When the cart is in the ride mode, the central section and base section are spaced apart from each other and are
arranged to extend angularly with respect to the positions adapted by each other. In one form, the base member is substantially perpendicular to the surface on which the buggy is located and the central section is substantially parallel to the surface upon which the buggy is located.

In one form, the top of the one arm of the "U" shape or extension of one are of the "U" shape forming the front frame is pivotally connected to one end of the upright of the "L" shape forming the rear frame to allow pivotal movement of the two frames with respect to each other.

Typically, when the wheeled device is in the retracted position the wheel base is at a minimum or has a near minimum wheel base zone and corresponds to restrained use of the steering arm in the walk mode in which downward pressure on the handle, or the golfer pulling back on the handle, will lift the front wheel clear of the ground thereby allowing a sideways or lateral force to be applied to the steering arm to cause the buggy to turn by lifting the front wheel off the ground. In one form, the effort required to raise the front wheel off the ground can be changed by adjustment of the position of the front wheel relative to the rear wheels, and/or by the weight applied to the rear wheels so as to facilitate turning of the wheeled device.

Typically the front wheel assembly is a forked arrangement which is generally T-shaped in which the fork is pivoted on the vertical leg of the T. The horizontal leg of the T has attached end plates, which are shaped to connect to the steering assembly or one or more components of the steering assembly, and a U-shaped sprung wheel support for
supporting the wheel. Typically in the restrained walk mode movement of the steering arm to the left causes the buggy to move to the right and vice versa.

In one form, the front of the buggy is turned by lifting the front wheel off the ground and pivoting about the rear wheels to form a skid turn or to skid the rear of the buggy so the buggy adopts a new direction.

Typically the steering member is fixedly connected to the front wheel assembly to assist in skidding the rear of the buggy to turn by pivoting the front wheel off the ground. Alternatively, the steering member is movably connected to the front wheel assembly such that the steering member can adopt a number of different positions, preferably at least two different positions with respect to the assembly such as for example, a lowered position and a raised position in the vertical plane so as to facilitate turning of the buggy.

One of the different positions adapted by the steering member corresponds to the walking position in which the steering member is located in a relatively more horizontal or lowered position, in which the steering member extends more rearwardly towards the rear of the buggy so that it can be gripped by the golfer when walking behind the buggy. Another position is a "ride-on" position in which the steering member is relatively more vertical or in a raised position allowing the steering member to be moved by the golfer when sitting on the buggy in a more conventional manner. Typically, the steering member is a steering arm tiller or the like.
Typically, the steering arm is provided with means of controlling the operation of the motor or motors of the buggy, even more typically the motor control means are located such that they are accessible to the golfer, when the device is in both the walk and ride positions.

Typically, the control means of the buggy of the present invention, includes a selector switch to determine whether the walk or ride potentiometer, is controlling the motor speed. Typically, the walk speed is about 60% of the ride speed.

Typically, the steering arm is provided with a lock for retaining the steering arm in the vertical position when the cart is in the ride mode. A steering arm lock is also provided, for restraining the steering arm in the walk mode, with sideways rotation being prevented by a recess on or associated with the seat, and vertical movement is restrained by means of a fixed and moveable roller, which is attached to the rear pivotal frame, in a position directly under the seat notch for maintaining the seat in position.

Typically the wheel base of the buggy can be extended and retracted, the retracted position being compact for walking with the handle and golf bag supported on the steering assembly in the lowered position and extended to provide the space to accommodate a sitting golfer, with the steering handle and bag in the upright position and the lower part of the body of the golfer, such as the feet and legs being located between the front and rear support frames.
Typically, the steering assembly further comprises load support elements. In one form, the load support elements are golf bag support elements for supporting a golf bag. In one form, the golf bag support elements are located at positions to support both the top and bottom of the golf bag, with the bottom support being pivoted from the bottom of the steering arm for providing both vertical and radial support for the golf bag, and the upper support extending from below the hinge of the lower steering element, to provide radial support to the top of the bag thereby securing the golf bag in place without hindering steering of the cart.

More typically, the balance of the golf cart can be changed to accommodate different loads. In one form, the load on the front wheel can be varied by changing the location of the batteries to provide a counter balance for the front mounted load. In one form, balance of the buggy is assisted by positioning of the weight of the golfer with respect to the buggy, such as the body of the golfer being substantially located between the rear wheels and the front wheel.

Typically the steering element is in two segments, sections or parts, which are interconnected by one or more hinges, the lower section connecting the wheel assembly and extending upwards to the hinge, and the upper section being T-shaped with the centre leg connecting to the hinge and the other sides of the T being the control handles as a hand grip for the golfer. More typically the hinge assembly contains locking means for locking the two steering elements at the desired angle of inclination when in either the lowered walk mode or the raised ride on
mode. Even more typically the hinge assembly provides a lock release control, in the form of a button that permits the golfer to release the lock, such that the position of the steering handle can be changed. In one form, the steering handle contains means of controlling the operation of the buggy, preferably for controlling the operation of the motor or motors of the buggy. More typically, the controls are such that they are accessible to the golfer in the walk mode when the golfer is walking behind the buggy, and in the ride mode when the golfer is sitting on the buggy.

In one form, when the golf cart is in the walk mode, movement of the steering arm is restrained in all directions. This allows the golfer to adjust the balance of the buggy according to the terrain. Turning movement of the steering arm in the walk mode is prevented by a minimal clearance notch in the seat. The steering arm is prevented from being raised by a hinged, and spring loaded roller. In one form, to release the steering arm, the upper roller is pushed downwards such that the roller shaft clears the retaining hook, allowing the upper roller to be pivoted clear of the steering arm.

Movement of the steering handle in the ride mode causes the golf buggy to turn. The steering arm is restrained in the vertical plane in the ride mode by a lock at the steering arm pivot, such that a golfer has support from handles for inertia effects and hilly terrain. The lock is released by the golfer pressing a lever located on the wheel fork in order to lower the handle to the walk mode.
In one form, the wheeled device is a shopping trolley. The shopping trolley is provided with an auxiliary support. In one form, the auxiliary support is a wheel, roller, or similar. In one form, the wheel is a caster wheel, preferably a spring loaded caster wheel. In one form, the caster wheel is located at the rear of the trolley.

In one form, the auxiliary support includes a foot operated device. Typically, the foot operated device is used to select the maximum deflection of the caster arm.

In one form, the caster wheel is mounted on or carried by a caster arm. Typically, the caster arm provides for minimal deflection when used on flat surfaces.

In one form, the shopping trolley is provided with bags, such as for example, pannier bags or the like.

In the walk mode of operation, the wheel base is retracted to a minimum position. This position corresponds to the trolley being approximately balanced about the drive axle. Use of this feature is made, such that the trolley can be used as a fixed arm trolley in a similar manner to the golf buggy, in which the distribution of weight is such that when the front wheel is in contact with the ground, the buggy will run in a straight line. To turn the buggy, the handle must be pushed downwards to lift the front wheel clear of the ground and a sideways force to the handle causes the buggy to turn.

As the buggy is approximately balanced about the drive axle, additional downward pressure is exerted to the front
wheel such that, with the bags empty and on a level surface, minimal effort will be required to lift the front wheel from the ground.

In one form, the steerable wheel assembly has a free turning caster wheel when in the walk mode. The caster wheel can be locked in the straight ahead position for normal use when in the ride-on mode. The free turning caster wheel is suitable for use with one bag, on uneven pavement and a partially extended wheel base.

**Brief Description of the Drawings**

One embodiment of the present invention will now be described by way of non-limiting example with reference to accompanying drawings in which:

Figure 1 is a side elevation of one form of the cart of the present invention in the walk mode in which the ground wheels are relatively closer together and in which the golfer walks behind the cart.

Figure 2 is a side elevation view of the form of the cart of Figure 1, but in the ride mode, in which the ground wheels are extended from each other and in which the golfer rides upon the cart.

Figure 3 is a top plan view of the cart of Figure 2 in ride mode.

Figure 4 is a front elevation view of one form of the drive unit transaxle of the cart of Figure 1 showing the ground wheels having the carry handle.
Figure 5 is a front elevation view of an alternative drive unit to that of Figure 4 which alternative drive unit has a separate drive unit associated with each wheel.

Figure 6 is a side elevation view of the cart of Figure 1 having one form of the front wheel assembly showing the connection of the steering arm to the wheel support and wheel.

Figure 7 is a front elevation view of the front wheel assembly of Figure 6.

Figure 8 is a perspective view of the cart of Figure 2 showing the outline of the forward and rear pivotal frames relatively extended from each other when the cart is in the ride mode.

Figure 9 is a perspective view of the cart of Figure 1 showing in outline one form of a compartment or container for one or more batteries.

Figure 10 is a partial top plan view and partial sectional view from above of one form of the steering handle and steering arm lock when the cart is in the walk mode.

Figure 11 is a partial cross-sectional view of one form of the tapered connection for connecting the drive unit to the rear pivotal frame.

Figure 12 is an end elevation of the tapered connection of Figure 11 for connecting the drive unit to the rear pivotal frame.
Figure 13 is a perspective exploded view of one form of the front wheel fork and of the steering arm lock for the ride mode.

Figure 14 is a cross-sectional view of the steering arm lock, for restraining the steering arm in the walk mode.

Figure 15 is an end elevation view of the steering arm lock of Figure 14 showing the anti lift restraint.

Figure 16 is an end elevation view of the lock of Figure 4 showing the rear pivotal frame connection.

Figure 17 is a side elevational view of another form of the cart being a shopping trolley in a walk mode.

Figure 18 is a side elevation view of the embodiment of Figure 17 in a ride-on mode.

Figure 19 is an exploded view of a further embodiment of the steerable wheel assembly.

**Brief Descriptions of Embodiments of the Invention**

One embodiment of the cart of the present invention will now be described with reference to each of Figures 1 to 16 which show different views of the cart, generally denoted as 100.

Cart 100 includes a number of subassemblies which are interconnected together to form cart 100. One subassembly is steering subassembly 102 located at or towards the top
rear of cart 100 and extending downwards through cart 100 in a general direction towards the front of the cart for use in steering cart 100 when in both modes of operation. In one form, subassembly 102 includes steering handle 12, hinge 42, steering arm 40 and the front wheel assembly.

Another subassembly is the pivotal rear frame assembly 104 comprising generally "L" shaped rear frame member 10, hinged battery support 11, seat 13, hinged backrest 16 and an anti-lift restrainer.

Another subassembly includes forward frame assembly 106 having a forward frame member 18 and footrest 21. The forward and rear frame assemblies 104, 106 are pivotally connected towards one another at respective one end thereof allowing pivoting movement of the front and rear frames for converting cart 100 between the two modes of operation as will be described in more detail later in this specification.

Cart 100 further comprises another subassembly in the form of drive unit 108 for driving rear ground wheels 1. Drive unit 108 includes frame 4, transaxle 3, wheels 1, and hinged foot 8, and is connected to rear frame member 10. Front frame member 18 is connected to front ground wheels 34. A load carrying arrangement 110 is connected to or forms part of steering assembly 102 for carrying a load, which in one form of the invention, is a golf bag 64 for containing a set of golf clubs 66.

Turning now to each of the assemblies in turn, drive unit 108 is mounted on rear frame arrangement 104. A light gauge metal round tubular frame member 4 of a generally H-
shape, extends downwardly from rear frame member 10. In one form, tube member 4 has an arcuate transverse section and two side extending sections. The one ends of side extension sections are clamped or otherwise fixedly connected to transaxle 3 at or towards locations close to inside edges of both rear ground wheels 1 located at either side of transaxle 3, such that each tubular side elevation section extends upwards and then is bent to an angle approaching 90 degrees to terminate at a taper joint assembly 2 provided on rear support frame member 10, at each side of cart 100. Each side of the side extensions of frame 4 terminates with a male section taper 5, of a size slightly in excess of the size of the tubing from which tube 4 is made. Taper section 5 at the ends of tube 4 are plugged internally with an internally threaded hole or bore 5a centrally located therein of a type to accommodate or receive the end of externally threaded clamping screw 6 as shown more particularly in Figure 11. Each rising side extension of tubular section 4 are interconnected by a lifting handle located between the two side extensions having a generally arcuate shape which extends predominantly horizontally between the side extensions to connect each tube to form the frame. The frame is designed to allow slight deflection to cater for slight misalignment and with enough strength for its purpose by providing some "give" to enable a connection to be made.

Rear pivotal frame member 10 forming part of rear pivotal frame arrangement 104, is designed to connect to the transaxle frame 4 by providing strategically located mating female tapers 6, such as illustrated in Figure 11 at spaced apart locations on rear pivot frame 10 as
required. Connection of the transaxle frame 4 to the rear of pivot frame member 10 is secured by clamping screws 66. It is to be noted that, the angle of the taper is for location only. To disassemble the connection, frictional forces from slight misalignment are overcome by rotating a hinged lever 9 shown more particularly in Figures 11 and 12, connected to the rear of clamping screw 66, and then turning the clamping screw anticlockwise, against the hinged lever. Pressure from the clamping screw forces taper 5 and taper 6 apart to separate tube 4 from frame 10.

A hinged foot 8 which depends downwardly from transaxle 3, is clamped to transaxle 3 adjacent to the inside of wheel 1 as shown in Figures 4 and 16, such that when drive unit 108 is placed on the ground by support from the handle, the distribution of weight causes the drive unit to rotate until the hinged foot contacts the ground, the drive unit is then in the correct position to receive rear pivotal frame assembly 104. The connection of tapers is made, and then the wheel end of cart 100 is lowered, causing rotation about the rear wheels until the front wheel 34 contacts the ground, this rotation also raises hinged foot 8 clear of the ground. Clamping screws 66 are then used to secure the connections.

Rear pivotal frame 10 is constructed from light gauge round steel tube, and is of sufficient width to accommodate the width of two batteries 15 spaced in side by side relationship with enough clearance between them and to their respective sides, in between to allow the forward pivotal frame 18 to pass between the batteries as the forward pivotal frame retracts to provide a minimal
wheel base. Batteries 15 are carried by battery carriage 15 connected to the lower end in use of rear pivotal frame. Battery carriages 11 are hinged from rear pivotal frame 10 for minimal space during transport. Rear pivotal frame 10 is generally L-shaped with one leg 10a, of the L extending predominantly upwards, when cart 100 is in the ride mode, and the other leg 10b of the L being predominantly horizontal for supporting seat 13. Seat 13 pivots at hinge 14 located forwardly at each side of seat 13, thereby permitting seat 13 to be raised for access to an onboard electronic battery charger which can be stored on cart 100 by being attached to the underside of seat 13.

Seat 13 is provided with a movable backrest 16 for use to support a person sitting on seat 13 and is constructed from light gauge tube. Seat 13 is pivoted forwardly to move with respect to frame member 10 by suitable hinges located at point 14 which is the same hinge point for the two frames to allow access to the battery charger.

Backrest 16 adopts the lowered position against seat 13 during the walk mode as shown more particularly in Figure 1, and adopts the raised position during the ride mode, as shown more particularly in Figure 2. Seat 13 and backrest 16 are provided with an inner portion of foam rubber covered with a vinyl outer covering. An anti lift restrainer assembly 19, shown more particularly in Figure 14 comprises a close fitting notch 12 in seat 13, also located directly under the notch and attached to the frame is a bracket with a fixed roller 61 and a moveable roller 60. The moveable roller is held in place by a spring 62 and hook 63. The roller holds the steering arm down relative to the front wheel assembly to keep the steering arm in position in combination with the notch.
Forward pivotal frame 18, which is of a generally complex shape of different sections angularly inclined to each other, is hingedly connected to rear pivotal frame 10 on both sides of cart 100 by hinge 14. Forward pivot frame 18 which is of a generally distorted "U" shape, is made from a light gauge tube bent to shape so that the light gauge tube extends horizontally from the outer side inwardly and then from each hinge 14 perpendicularly and is bent at 90 degrees downwards to form central section 18a which extends in a predominantly downwards direction when in the ride mode, and then forwards in a more shallow direction towards the front wheel for a distance sufficient to accommodate the feet of a golfer riding on cart 100 for foot clearance of the golfer to form a central section 18b. Member 18 then has a forward section 18c that extends upwards and forwards to a point where member 18 is connected to a front wheel vertical support housing 20 which is located at the end of forward section 18c. A foot rest 21 is pivotally connected to central section 18b at hinge 22 as shown more particularly in Figure 2. Footrest 21 is aligned with the predominantly horizontal pivotal frame member for riding and then is raised to align with the rising pivotal frame member whilst in the walk mode.

Pivotal frames 10, 18 are extended and retracted by rotation at hinge 14 on both sides of the cart by means of a linear actuator 23 or other mechanical, electrical or manual device (not shown) to provide the necessary force to open or retract the pivotal frames 10, 18 with respect to each other. Linear actuator 23 is controlled by a momentary switch 24 located on the handle of steering
member 102 so the golfer has to hold the switch closed to operate the actuator in either direction. Release of switch 24, stops further movement of actuator 23 and thus pivoting movement of the frames. The actuator has built in limit switches at both ends of the actuator stroke. The retracted position of cart 100 corresponds to frames 10, 18 being located with respect to each other to form cart 100 into the walk mode leaving a minimum wheel base and the extended position corresponds to cart 100 being in the ride mode with a maximum wheel base.

With particular reference to Figure 13, the front wheel assembly at the forward end of cart 100 and how this wheel assembly is connected to frame arrangement 104, particularly front frame member 18, will now be described.

The wheel assembly comprises wheel fork assembly 25, which comprises two parallel side plates, vertical stub axle and a pressed channel section for receiving lower end of stub axle. In one form, the wheel assembly is partly made from modified components of a bicycle steering column. In order to provide a stub shaft which is predominantly vertical when cart 100 is in the ride mode, the stub shaft is welded to a cross member of channel section, such that the configuration of both the stub shaft and cross member forms a generally T-shape. Profiled side plates which form part of assembly 25, are welded to the ends of the channel. The upper profiling shape of the side plates provides connection points for the steering arm 40 which in one form is bifurcated in the form of a yoke having two substantially parallel spaced apart arms. The lower profile shape is to provide connection points for the wheel yoke 27 for carrying front ground wheels 34. The
steel fork is inserted into the housing with the corresponding bearings and secured with the corresponding nut and locknut at the top of the housing. See Figure 14.

steering arm lock is provided by means a notched tapered lever 28, mounted on a shaft 29, with operating lever 26 attached at one end of shaft 29 for releasing steering arm, and a torsion spring 30 to apply pressure to the lock.

The yoke on the end of the lower steering arm contains a section of metal which mates with the notch in the lock. The lock is engaged by the forward rotation of the steering arm thus giving the rider security when holding the steering handles. The wheel yoke is supported from the lower profiles by means a pin 31. Front wheel 34 is supported by a dead axle 35. A suspension spring 36 is provided on each side of wheel 34, and a threaded pin 38, spring seats and locknuts are added. Pin 38 has a U shaped yoke for connection to the wheel yoke 27, the upper end of the threaded pin passes through a hole in spring retainer 32, and the load on the compression springs 36 is adjusted by locknuts 39 at the top of the hole on the spring retainer 32. The spring retainers are secured by circlips, and the spring retainers are free to turn to suit the angle of inclination of the threaded pin.

Steering arm lower section 40, is connected to the front wheel fork with hinge pin 41. The lower end of the steering arm is U shaped to connect to each side of wheel fork 25. The steering arm is shaped for minimal transport space and extends upwards when in the ride mode, to hinge assembly 42. The steering arm is permanently connected to cylindrical hinge housing 43, of which one end is blanked
off at 90 degrees to the cylinder axis, with a disc, which is machined to connect to pin connector 44.

Pin connector 44 is square in section and aligned parallel to the cylindrical disc, and includes two pins which are equally spaced and parallel to the cylinder axis. A pin connector is moveable along a shaft 46 which is located on the centre axis of the cylindrical housing 43. The end disc of the cylindrical cylinder is provided with matching holes to the shaft 46 and pin connector 44. A removable disc 47 is machined to suit the other end of the cylindrical housing 43. Disc 47 is provided with a hole on the cylindrical axis to suit shaft 46. A compression spring 48 is mounted concentric to the shaft between removable disc 47, and pin connector 44, thus continually applying pressure to the pin connector to keep the pins at maximum penetration through the end disc of the cylindrical housing.

The steering handle 48 is connected to the hinge assembly 42, by means of side plates 49 & 50, which are of moulded plastic with metal inserts. Side plate 50 has a metal insert 45 machined to match the connector pins and central shaft 46. Metal insert also has two more holes positioned to suit the connector pins, when the handle is rotated when changing from the walk to ride mode. The pin connector 44 is disengaged by pressing plastic button 51, which is mounted on the end of shaft 46, and protrudes through the side plate 50. The end of the plastic button is machined such that a small flange retains the button within the cylindrical housing 43 but bears against the pin connector 44. The steering handle is locked in the desired walk or ride position, when the pin connector is
engaged with the relevant holes in the metal insert 45. The handle is released by pressing the button 51 such that the connector pins are clear of the metal insert, but is retained within the cylinder end disk. The steering handle 52 is rotated without holding the button, such that when the alternative holes in the metal insert align, the pin connector engages the holes and the handle is locked in the new position.

The steering handle is T-shaped with the central leg of the T inserted between the two side plates 49 & 50. Bolts are then inserted through the side plates and the central leg of the T so that the handle is firmly clamped between the side plates. Two hand grips 53 & 54 make up the other leg of the T. Handgrips 53, 54 are rubber grips over light gauge tube. Although handgrip 53 is rotatable, the rotation is impeded by a torsion spring. A linkage connects the rotatable grip to a potentiometer in order to govern motor speed whilst riding. The right hand grip 54 is used for walking. It can be either fixed with a potentiometer speed control 65 within reach of the index finger, or a twist grip speed control as per the ride side.

Other controls on the handle are a battery condition meter 55, a selector switch on-off-on 33, to determine which potentiometer is governing the motor speed, and the actuator switch 24.

The supports for the golf bag when the bag is supported from the steering arm, are a lower support to the bottom and sides of the bag, and an upper support to the side of the bag. The lower bag support 56 is attached to hinge
57, on the lower steering arm 40. see fig 6. The bag support is restrained at the desired bag position, and comprises a light gauge tubular member extending from the hinge to the bottom of the bag, where it connects to an L shaped member, where one side of the L supports the underside of the bag, and the other side of the L extends upwards along the lowest side of the bag. A curved member to suit the profile of the bag is fixed to the side of the L shaped member. A holding strap is attached to the curved member and extends around the bottom portion of the bag securing the bag to the support. The upper bag support 58, is supported from hinge 59, and is restrained from further upwards rotation than the desired position. The light gauge member extends from the hinge and is fixed to a curved member with attached strap to suit the bag. The bag supports are hinged to permit rotation to a position of least occupied space for travelling.

In Figures 17 and 18, there is shown another embodiment of the cart of the present invention in the form of a shopping trolley that is extendable between a walk mode as shown in Figure 17 and a ride-on mode as shown as shown in Figure 18. Cart 200 is very similar to cart 100 as illustrated in Figures 1 to 16, but has some additional features, including one or more containers in the form of bags, such as for example, panniers 210, 212, 214 located at different locations. Bag 210 is loaded on or supported by front wheel assembly 216 so is supported when cart 200 is in both the modes of operation.

Additionally, bag 210 is supportable by steering member 218 when in the rise-on mode, such as shown in Figure 18. In addition, a front strut, brace, arm or similar 220,
supports the forward end of bag 210. A spring loaded catch 220 is provided to assist in retaining bag 210 in place and to allow release of bag 210.

Additionally, cart 200 is provided with outrigger support arm 222 and caster wheel 224 extending rearwardly from the rear of the rear wheel assembly, including the transaxle and lifting bracket. Arm 222 and caster wheel 224 are movable between a lowered position, which is a ground contacting position as shown in Figure 17 and a raised position in which caster wheel 224 is clear of the ground or surface upon which cart 200 is travelling or being supported.

The shopping trolley 200, as described, is for the mildly disabled, such that they would be able to either push a freewheeling shopping trolley through a shop, or into a lift or onto a powered walkway, or alternatively control the shopping trolley when powered by a battery operated motor via a spring loaded twist grip speed controlled. Alternatively, a person could ride the transformed trolley as a scooter, once the person is no longer within the confines of the shop or supermarket.

In Figure 19, there is illustrated a further embodiment of the invention in the form of a cart having an alternative steerable wheel assembly that includes a caster wheel steering when in the walk mode.

The modifications required to include this alternative steerable wheel assembly include the following:
Remove the lower profile side plates that connect the wheel fork to the wheel yoke, add a horizontal steel plate with a semicircular profile 301 welded between the side plates. A hinge housing 302 is welded perpendicular to plate 301 with the profile radius point at the hinge axis. A caster shaft 303 is T-shaped with two parallel plates at each end of the T. A lever 304 is secured to the top end of the caster shaft, by means of a roll pin or similar means, such that the lever moves in unison with the caster shaft. The wheel yoke 305 is attached to the caster shaft at hinges 306 located on the vertical parallel plates. The axle 307 supports wheel 308, and spring 309 maintains downward pressure between the wheel and the ground. The wheel is free to turn when pin 310 is raised clear of plate 301 and is locked in the straight ahead position when the pin engages a hole located in plate 301.

Advantages of the present invention include the following.

The golf buggy of the present invention is readily convertible between the "ride-on" mode and "walk" mode by:

Pressing a two directional switch, such that the linear actuator retracts and the front wheel moves towards the rear wheels. The lock on the steering arm is released and the steering arm is lowered to the desired walk position where it is secured at the seat, the button on the hinge lock is depressed releasing the steering handle which is raised to the walk position.

Additionally, the conversion from the walk mode to ride mode is accomplished by:
Releasing the steering arm from the seat lock, raising the steering arm to the ride position, pushing the button on the hinge lock and lowering the steering handle to the ride position, then pressing the actuator switch such that the actuator fully extends such that the front wheel is fully extended from the rear wheels.

The described arrangement has been advanced by explanation and many modifications can be made without departure from the spirit and scope of the invention which includes every novel feature and novel combination of features herein disclosed.

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. It is understood that the invention includes all variations and modifications which fall within the spirit and scope.
CLAIMS:

1. A wheeled device for carrying or transporting a load, said device having a steering assembly including a steering member, said device being convertible between a first mode of use in which the steering member is in a first orientation and a second mode of use in which the steering member is in a second mode of orientation, said device including two ground contacting wheel assemblies moveable with respect to one another in which one wheel assembly is steerable and the other wheel assembly is a wheel assembly capable of being driven by drive components, said wheel assemblies being connected to one another by two pivotal frame arrangements rotating predominantly in a vertical plane, such that movement of the frames with respect to each other moves the wheel assemblies with respect to each other so that the wheel base of the wheeled device is changed.

2. A wheeled transportation device having two modes of operation in use and being convertible between the two modes of operation comprising a first support assembly having a first support element and a second support assembly having a second support element, said support assemblies being movable with respect to one another such that when the support assemblies are in one configuration with respect to each other, the device is in the mode of operation of use in which the support elements are in a retracted position and when the support assemblies are in a second configuration with respect to one another, the device is in the second mode of operation of use in which
the support elements are in an extended position such that movement of one support assembly with respect to the other support assembly causes corresponding movement of the support elements with respect to each other between the retracted position and the extended position thereby converting the wheeled device between the two modes of operation of use.

3. A golf buggy capable of transporting a golf bag containing a set of golf clubs, said golf buggy being convertible between a walk mode in which the golfer walks in close proximity to the buggy in which the walk mode is a relatively compact mode and a ride mode in which the golfer is accommodated on the buggy, in which the ride mode is a relatively extended mode, said device having a first supporting frame assembly including a first frame section, and a second supporting frame assembly, having a second frame section, said first and second supporting frame assemblies being pivotally connected to each other to allow relative pivotal movement of the two supporting frame assemblies with respect to each other to facilitate conversion of the buggy between the walk and ride modes of operation, wherein when the golf buggy is in the walk mode, the first and second frame members are in a relatively close or compact position in which the first and second frame sections are substantially aligned with each other, and when the golf buggy is in the ride mode, the first and second frame members are in a relatively spaced or even position with respect to each other in which the first and second frame sections are spaced apart from each other.
4. A wheeled device adapted for carrying or transporting a load, said device including a wheel assembly having at least one ground contacting wheel, capable of pivotal movement, to alter the direction of travel of the wheeled device, a steering member connected to the wheel assembly such that movement of the steering member causes corresponding movement of the wheel assembly to alter the direction of travel of the device, wherein when the steering member is connected to the wheel assembly and locked in a straight ahead position, movement of the steering member pivotally moves the wheel assembly to change direction of travel of the wheeled device, the steering member being provided with a load supporting or carrying means, such that the load moves in accordance with movement of the steering member, and wherein the wheeled device has a wheel base which can be changed to accommodate a golfer either walking near to the wheeled device or riding on the wheeled device.

5. A wheeled device for carrying or transporting a load, said device being convertible between the first mode of use in which the steering member is in the first orientation, and a second mode of use in which the steering member is in the second mode of orientation, characterised in that the device includes two ground contacting wheel assemblies, one steerable, the other driven by drive components, both assemblies being connected by two horizontally pivotal frames, rotating predominantly in the vertical plane, such that the wheel base is changed by counter rotation of the frames with respect to each other.
6. A wheeled device according to any preceding claim characterised in that the wheeled device has two frames of specific profile design in proportion to suit a seat and footrest, hinged horizontally such that the free end of one frame, with the footrest, when rotated moves away from or towards the free end of the second frame with the seat, the movement of the frame with the seat being restricted by the drive unit transmission or brake.

7. A wheeled device in accordance according to any preceding claim characterised in that there is a steerable wheel assembly having at least one ground contacting wheel, connected to the end of the forwardly located pivotal frame with the footrest, such that movement of the steering member causes corresponding movement of the steerable wheel, to alter the direction of travel of the device.

8. A wheeled device according to any preceding claim characterised in that rotation of the forward and rear pivotal frame in opposite directions causes the front steerable wheel assembly and the rear wheel assembly, to move away from each other or retract towards each other, such that fixing the forward pivotal frame, would cause the rear pivotal frame to rotate so causing the rear drive wheels to extend or retract from the steerable wheel assembly.

9. A wheeled device according to any preceding claim characterised in that the front wheel assembly is
extended from, or retracted to the rear wheels, by pushing or pulling on a control handle.

10. A wheeled device according to any preceding claim characterised in that the pivotal frames are moved in opposite directions by mechanical/electrical means such as a linear actuator being connected to both frames such that movement by the device causes corresponding movement to the frames, the maximum or near maximum extension of the device, corresponding to the ride position and maximum contraction or near maximum contraction of the device corresponds to the walk position.

11. A wheeled device according any preceding claim characterised in that the relative position of the front wheel to the rear wheels, can be adjusted by a linear actuator or similar means in order to vary the load on the front wheel assembly, as preferred by the golfer when used as a fixed arm buggy.

12. A wheeled device according to any preceding claim characterised in that rotation of the pivotal frames in opposite directions causes the drive unit and batteries to rotate in unison with the rear pivotal frame.

13. A wheeled device according to any preceding claim characterised in that said steering member is connected to the steerable wheel assembly so that movement of the steering arm in the ride mode of operation causes the causes movement of the steerable wheel altering the direction of travel of the device.
14. A wheeled device in accordance with any preceding claim characterised in that said steering member is connected to the steerable wheel assembly but fixed centrally to the rear pivotal frame with the seat, converts buggy to a fixed arm device for the walk mode of operation.

15. A wheeled device according to any preceding claim characterised in that the wheeled device further comprises a load supporting member for supporting the load in use such that the load when being supported by the load supporting member moves in accordance with the steering member in both the ride and walk operating positions, and said steering member is provided with a lock or detent for locking the steering member in the straight ahead position for walking and a lock for retaining the steering member in the riding position during the riding mode.

16. A wheeled device according to any preceding claim characterised in that when in the walk mode of operation the direction of travel is changed by the golfer applying a force on the steering handle to tilt the buggy to lift the locked steerable front wheel assembly clear of the ground, and also applying a force along the steering handles normal to the direction of travel, causes the buggy to turn.

17. A wheeled device according to any preceding claim characterised in that the pivotal handle or pivotal upper portion of the hinged steering arm is predominantly horizontal position when in the walk
mode and predominantly in the vertical position when in the ride.

18. A wheeled device according to any preceding claim characterised in that the device is in the form of a motorised walk golf buggy, or motorised ride-on golf buggy, or shopping trolley.

19. A wheeled device according to any preceding claim characterised in that the seat and pivotal backrest are fixed to the rear pivotal frame and move in unison with the rear pivotal frame presenting a suitable riding position of the seat for a mature golfer when in the ride mode and a suitable walking position for the seat for a mature golfer when in the walk mode.

20. A wheeled device according to any preceding claim characterised in that the drive unit is attached to the rear pivotal frame by means of two tapered connections such that screw located centrally to each taper is used as a clamp to tighten and maintain connection, and same screw when used to disengage joint when unscrewed to contact stop fixed against direction of screw movement.

21. A wheeled device according to any preceding claim characterised in that a pivoted footrest is supported from a hinge on the forward pivotal frame such that the footrest is positioned to suit the location of the golfer's feet whilst riding and the footrest is pivoted vertically to clear the battery carriage when in the walk mode.
22. A wheeled device according to any preceding claim characterised in that the hinge joining the upper and lower steering elements contains a lock for securing the steering element in the walk or ride position, the lock being released by push button operation to release and self locking to secure.

23. A wheeled device according to any preceding claim characterised in that the position of the steering handle in the walk and ride mode is determined by preset limits within the hinge adjoining upper and lower steering arm elements.

24. A wheeled device according to any preceding claim characterised in that the golf bag is mounted on a support which is pivoted to rotate in the same vertical plane as the golf bag vertical plane but is mounted on the forward pivotal frame, such that the steering arm can move independently of the golf bag in both the walk and ride position.

25. A wheeled device according to any preceding claim characterised in that the buggy can be either steered in the walk mode with the steering arm free to rotate by the golfer such that movement of the steering arm changes the direction of the buggy, or steered as affixed arm buggy, when there is no steering arm rotation.

26. A wheeled device according to any preceding claim characterised in that the load on the front wheel can
be increased by locating one or more batteries in the vicinity of the front wheel.

27. A wheeled device according to any preceding claim characterised in that the load is a bag.

28. A wheeled device according to any preceding claim characterised in that the load is a bag of golf clubs.

29. A wheeled device according to any preceding claim characterised in that when in the ride position the operator of the device is transported by the device and in the walk position the operator of the device walks behind the device.

30. A wheeled device according to any preceding claim characterised in that the steering member is in the predominantly vertical position, with the steering handle in the predominantly downward position from the hinge, for the ride position, and the steering arm is in the more inclined towards the rear of the buggy with steering handle is in a predominantly more horizontal position from the hinge when in the walk position.

31. A wheeled device according to any preceding claim characterised in that the pivotal footrest in the lowered position for riding, is raised by the batteries, as the forward pivotal frame passes between the batteries.
32. A wheeled device according to any preceding claim characterised in that the wheeled device further comprises a spring loaded caster wheel at the rear of the shopping trolley.

33. A wheeled device according to any preceding claim characterised in that the movement of the caster arm can be determined by the shopper to suit either flat surface use as per a shopping complex or exterior use as suited roads and paving.

34. A wheeled device according to any preceding claim characterised in that the buggy is adapted for shopping use by the inclusion of specifically designed bags including a bag pivotal in the vertical plane, being attached to a hinge at the lower section of the steering arm, a bag attached to the rear of the seat backrest, or two portable bags for use as required.

35. A wheeled device for carrying or transporting a load substantially as herein described with reference to the accompanying drawings.

36. A wheeled transportation device having two modes of operation, substantially as herein described with reference to the accompanying drawings.

37. A golf buggy capable of transporting a golf bag containing a set of golf clubs substantially as herein described with reference to the accompanying drawings.
38. A wheeled device adapted for carrying or transporting a load substantially as herein described with reference to the accompanying drawings.

39. A wheeled device for carrying or transporting a load, said device containing two pivotal frame assemblies, such that the change of angle of inclination of the rear pivotal frame, measured in the vertical plane, varies in accordance with the change of wheel base of the buggy.

40. A wheeled device in accordance with claim 39, whereby the rotation of the rear pivotal frame with the axle located by brake or gearing will cause longitudinal movement of the device in accordance with the change of angle of inclination of the rear pivotal frame, and with the axle free and the longitudinal movement restrained will cause rotation of the rear pivotal frame about the axle of the wheel.

41. A wheeled device in accordance with claim 2 wherein the front steerable wheel can have a free turning caster action when in the walk mode and be locked in the straight ahead position for normal operation when in the

42. A wheeled device for carrying or transporting a load, said device being convertible between the first mode of use in which the steering member is in the first orientation, and a second mode of use in which the steering member is in the second mode of orientation substantially as herein described with reference to the accompanying drawings.
INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2010/000138

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.
B62K 5/00 (2006.01)  B62B 3/02 (2006.01)  B62K 13/00 (2006.01)
A61G 5/04(2006.01)  B62D 21/14 (2006.01)  B62K 15/00 (2006.01)
A61G 5/08(2006.01)  B62D 51/00 (2006.01)
A61G 5/14 (2006.01)  B62D 63/00 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPDOC, WPI: IPC B62B1/-, 3/-, 13/-, B62D51/-, B62K13/-, 15/-, A01D90/-, B62M1/-, A61G1/-, 5/-, A61H3/04 & Keywords (wheel base, convert+, transform+, extend+, pivot+, rotat+, steer-t, different+, dual, mode, operation, trolley, cart) and like terms.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X Further documents are listed in the continuation of Box C
X See patent family annex

* * * Special categories of cited documents:
A - document defining the general state of the art which is not considered to be of particular relevance
E - earlier application or patent but published on or after the international filing date
L - document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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X - document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
Y - document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
& - document member of the same patent family

Date of the actual completion of the international search
21 April 2010

Date of mailing of the international search report
1 APR 2010

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INTERNATIONAL SEARCH REPORT

PCT/AU20 10/000138

Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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| 1. | Claims Nos.:  
| | because they relate to subject matter not required to be searched by this Authority, namely: |
| 2. | XJ Claims Nos.: 35-38, 42  
| | because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically: |
| | The claims do not comply with Rule 6.2(a) because they rely on references to the description and/or drawings. |
| 3. | Claims Nos.:  
| | because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a) |

Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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<th>Box No. III</th>
<th>Observations where unity of invention is lacking (Continuation of item 3 of first sheet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.</td>
</tr>
<tr>
<td>2.</td>
<td>No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 5, 6-34</td>
</tr>
<tr>
<td>3.</td>
<td>As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.</td>
</tr>
<tr>
<td>4.</td>
<td>As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:</td>
</tr>
</tbody>
</table>

Remark on Protest

| | The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee. |
| | The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation. |
| | No protest accompanied the payment of additional search fees. |

Form PCT/ISA/210 (continuation of first sheet (2)) (July 2008)
The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single inventive concept.

In assessing whether there is more than one invention claimed, I have given consideration to those features which can be considered to potentially distinguish the claimed combination of features from the prior art. Where different claims have different distinguishing features they define different inventions.

This International Searching Authority has found that there are different inventions as follows:

1) Claims 1, 5 and 6-34 (inpart) are directed to a wheeled device having a steering assembly including a steering member, the device being convertible between a first and second mode of use where the steering member is in different orientations. The device including two ground contacting wheel assemblies moveable with respect to one another in which one wheel assembly is steerable and the other wheel assembly capable of being driven by drive components and the wheel assemblies being connected by two pivotal frame arrangements rotating predominantly in a vertical plane such that movement of the frame changes the wheel base. It is considered that the wheeled device having a steering assembly and two wheel assemblies being connected by two pivotal frame arrangements rotating predominantly in a vertical plane such that the wheel base of the wheeled device is changed with movement of the frame comprises a first "special technical feature".

2) Claims 2, 6-34 (inpart), and 41 are directed to a wheeled transportation device being convertible between two modes of operation comprising two support assemblies each having a support element, the support assemblies moveable with respect to one another, such that when the support elements are in a retracted position, the support assembly is in one configuration and when the support elements are in an extended position, the support assembly is in another configuration. Movement of one support assembly with respect to the other causes corresponding movement of the support elements with respect to each other, thereby converting between the two modes of operation. It is considered that the two moveable support assemblies comprise a second "special technical feature".

3) Claims 3 and 6-34 (inpart) are directed to a golf buggy capable of transporting a golf bag and being convertible between a walk mode and a ride mode having a first supporting frame assembly including a first frame section and a second supporting frame assembly having a second frame section, the first and second supporting frame assemblies pivotally connected to each other to facilitate conversion of the buggy between the walk and ride mode. In walk mode the first and second frame members are substantially aligned with each other (compact mode) and in ride mode the first and second frame members are spaced apart from each other (extended mode). It is considered that the golf buggy convertible between a walk and a ride mode comprises the third "special technical feature".

4) Claims 4 and 6-34 are directed to a wheeled device including a wheel assembly having at least one ground contacting wheel capable of pivotal movement to alter the direction of travel of the wheeled device, a steering member connected to the wheel assembly such that movement of the steering member pivotally moves the wheel assembly to change direction of travel, the steering member is provided with a load supporting or carrying means and a wheel base which can be changed to accommodate a person walking near or riding on the wheeled device. It is considered that the steering member that pivotally moves the wheel assembly comprises a fourth "special technical feature".

5) Claims 39-40 are directed to a wheeled device containing two pivotal frame assemblies such that inclination of the rear pivotal frame, measured in the vertical plane, varies in accordance with the change of the wheel base of the wheeled device. It is considered that the change in the wheel base which varies the inclination of the rear pivotal frame comprises a fifth "special technical feature".
Supplemental Box
(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No: III

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

The only feature common to all of the claims is a wheel base which can be changed and the wheeled device being convertible into a compact mode. However this concept is not novel in the light of:

- EP 1378431 A1 (BUSH) 7 January 2004

This means that the common feature cannot constitute a special technical feature within the meaning of PCT Rule 13.2, second sentence, since it makes no contribution over the prior art.

Because the common feature does not satisfy the requirement for being a special technical feature it follows that it cannot provide the necessary technical relationship between the identified inventions. Therefore the claims do not satisfy the requirement of unity of invention aposteriori.
This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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</table>

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX