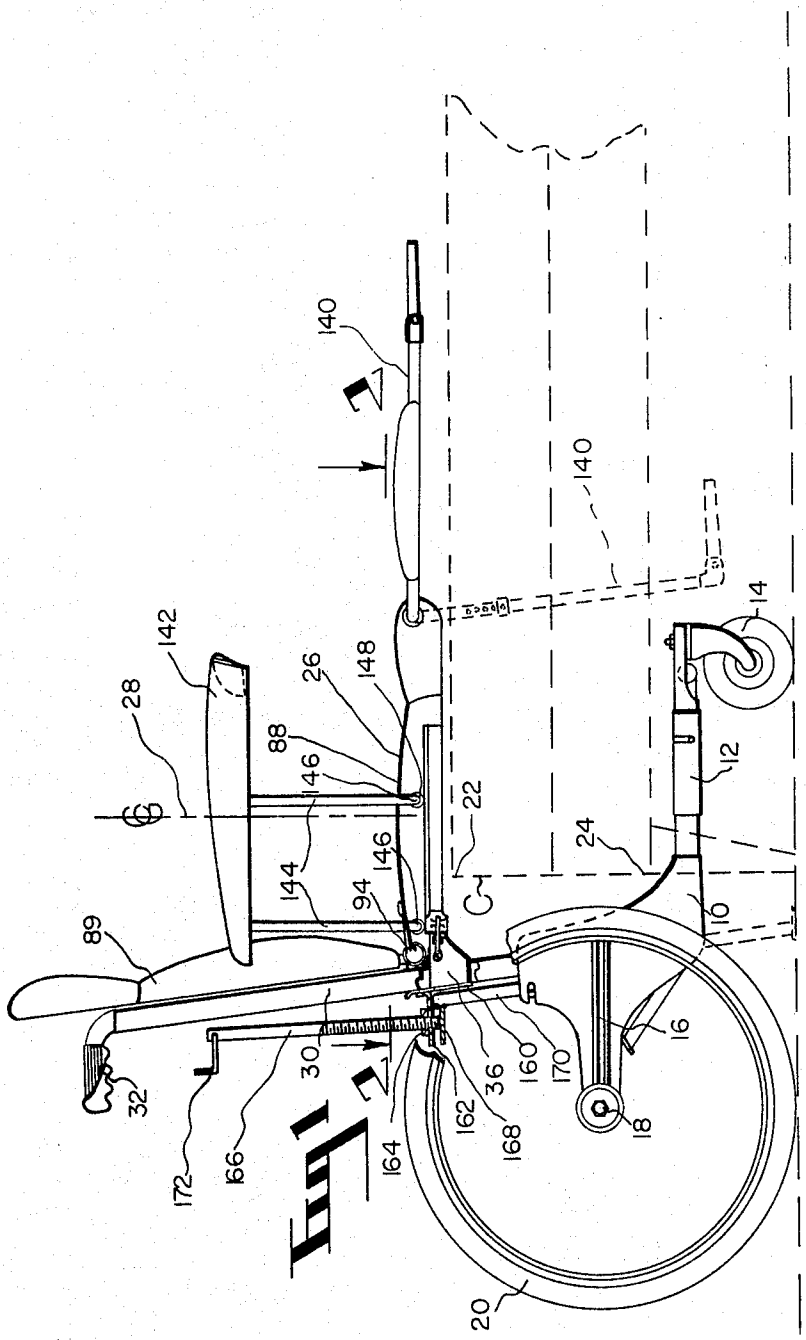
Nov. 15, 1966 J. V. KITRELL ET AL 3,285,619

WHEEL CHAIR

Filed Feb. 11, 1965 5 Sheets-Sheet 1



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WHEEL CHAIR

Filed Feb. 11, 1965 5 Sheets-Sheet 2

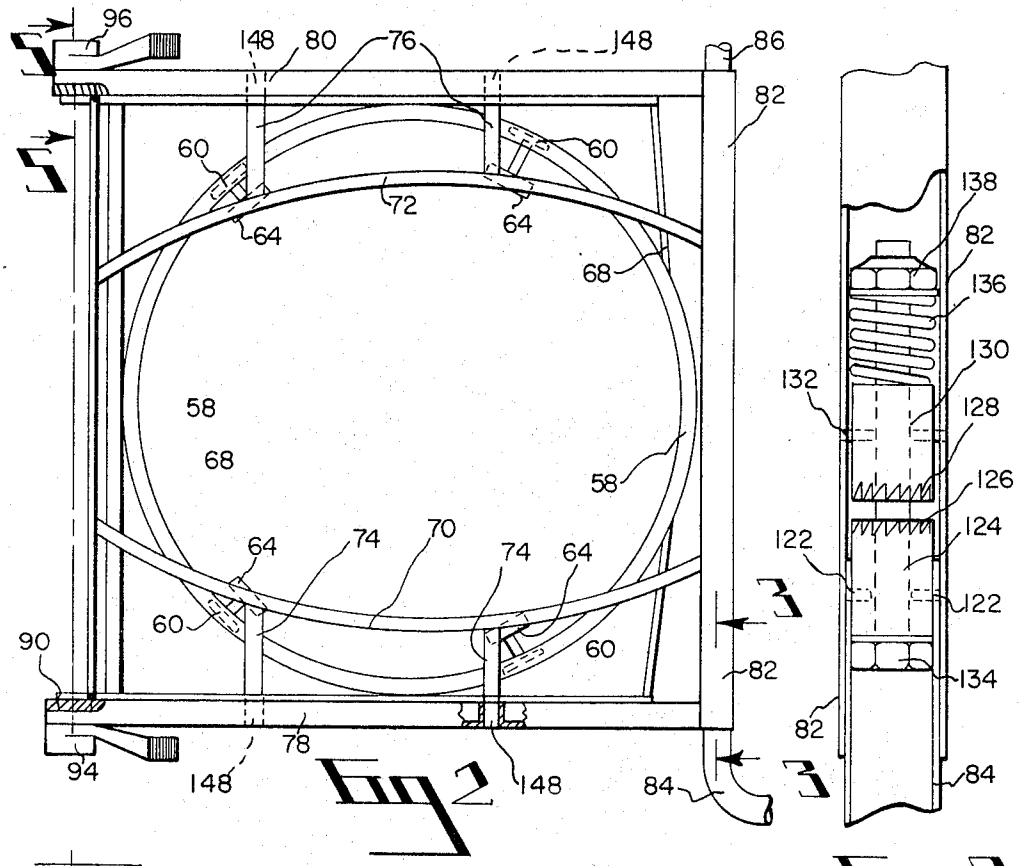


Fig 2



Fig 3

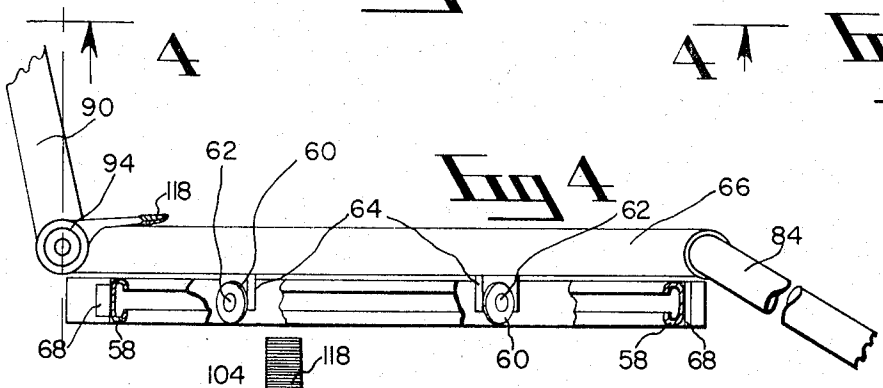


Fig 4

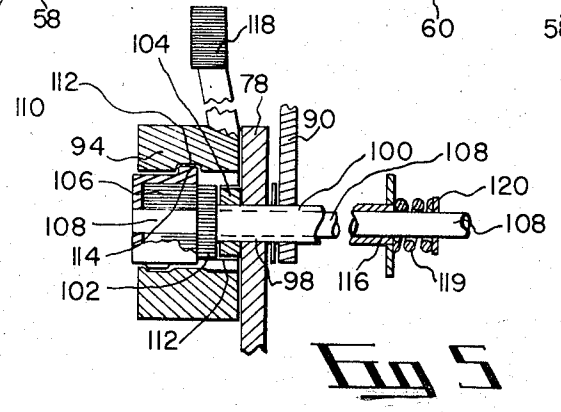


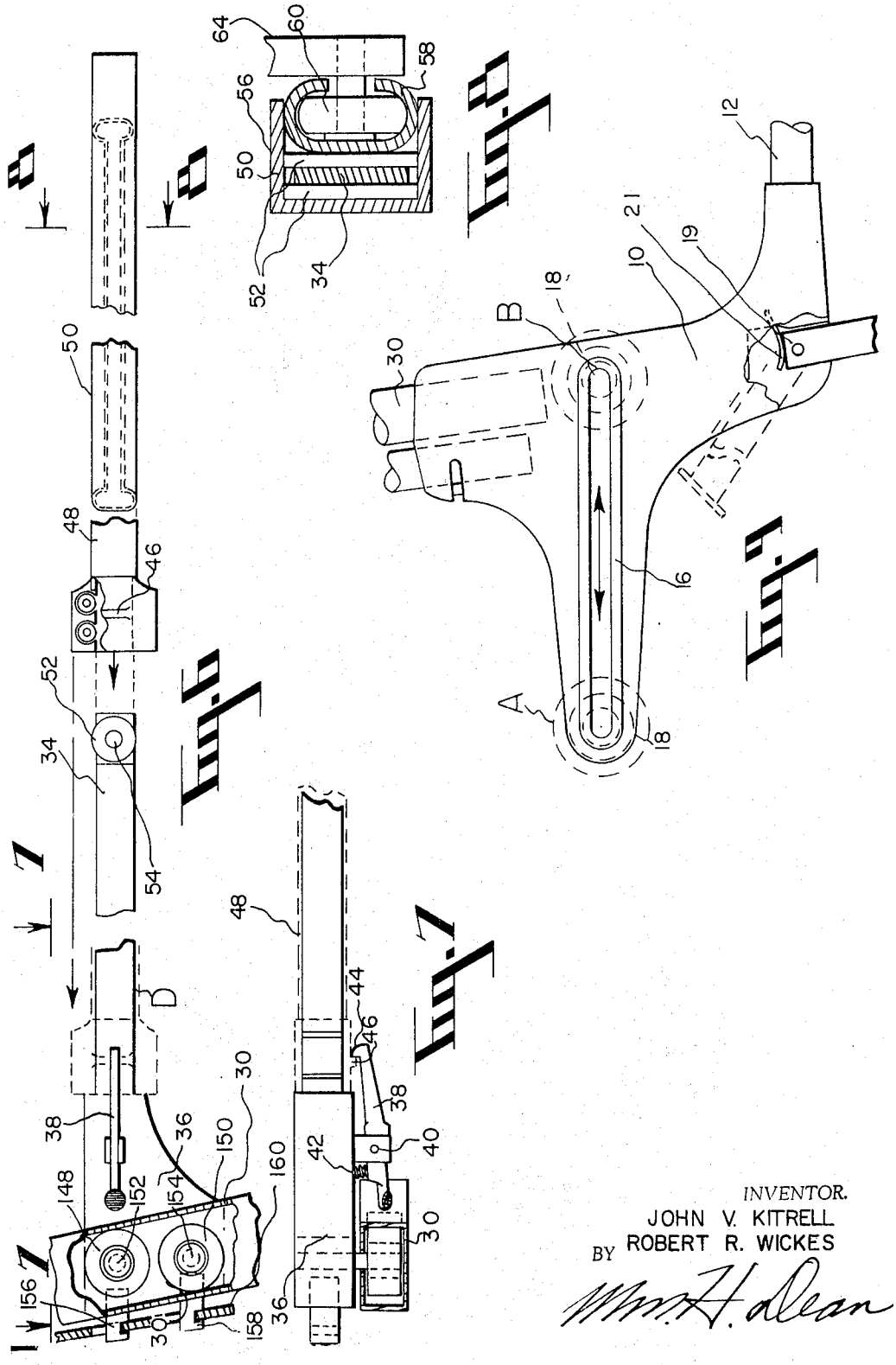
Fig 5

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WHEEL CHAIR

Filed Feb. 11, 1965 5 Sheets-Sheet 3

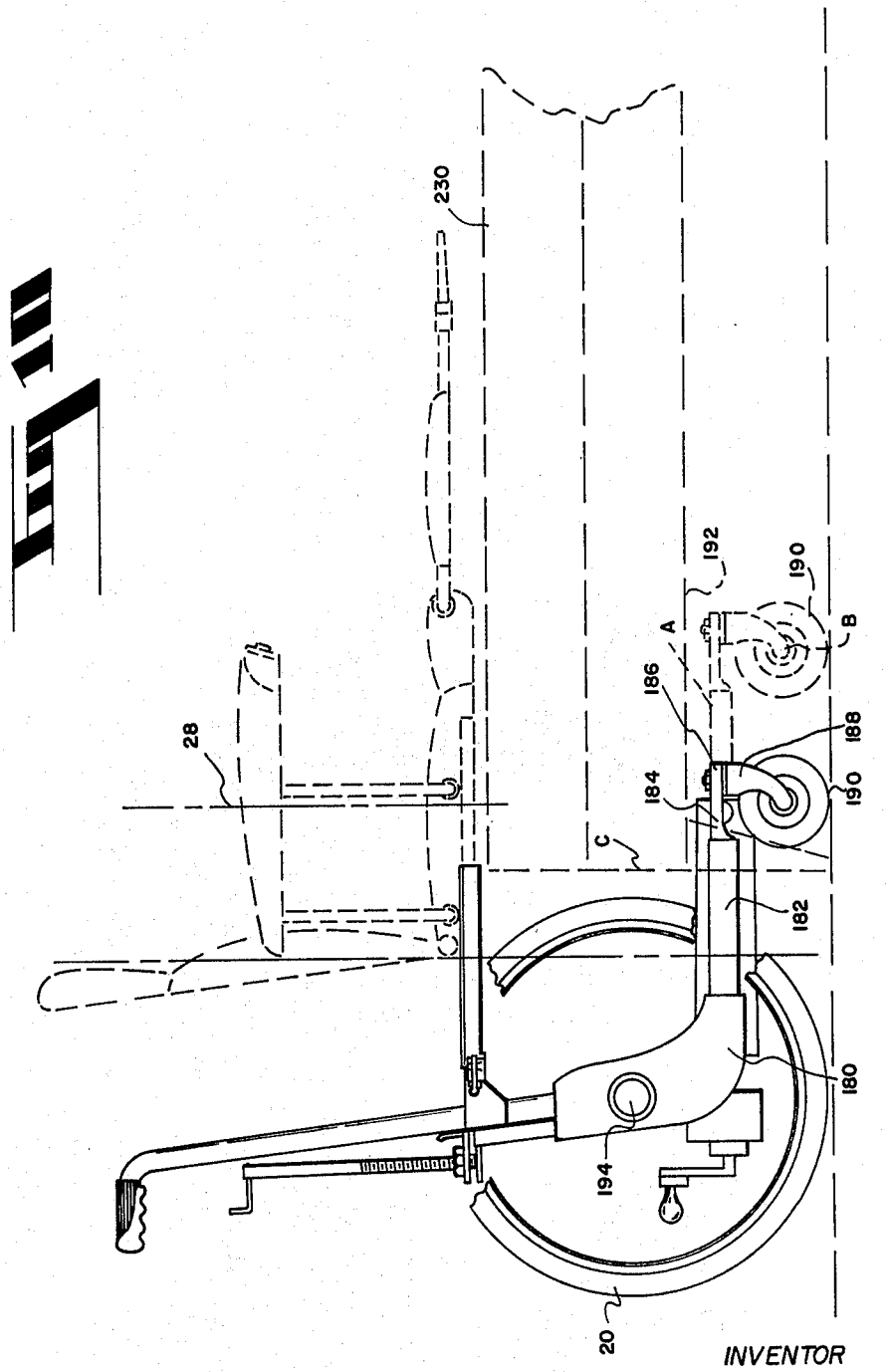


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WHEEL CHAIR

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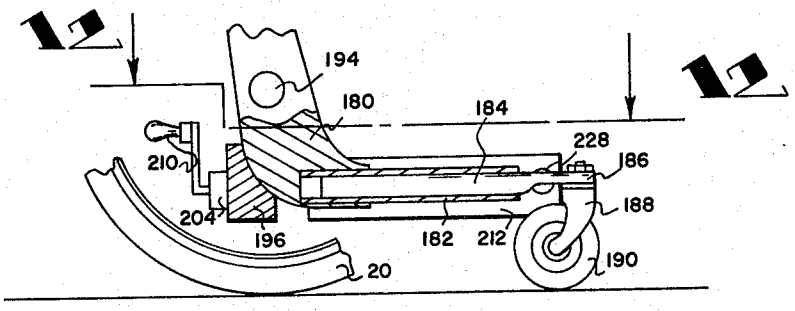


Fig. 11

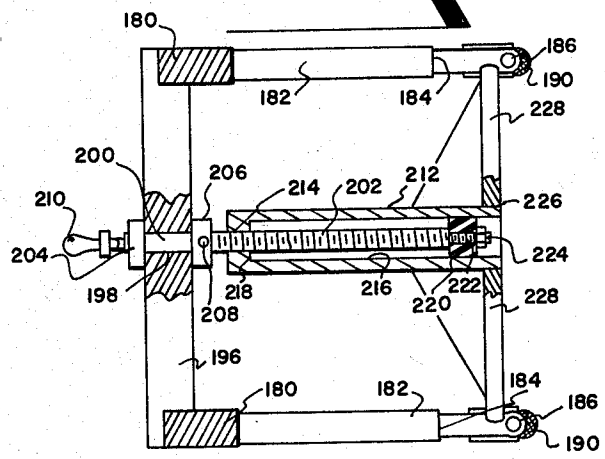


Fig. 12

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3,285,619

WHEEL CHAIR

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Filed Feb. 11, 1965, Ser. No. 431,956
5 Claims. (Cl. 280—34)

This invention relates to a wheel chair and more particularly to a wheel chair having novel features which facilitate the handling of disabled patients.

It has been a problem to transfer a disabled patient from a bed to a wheel chair or from a wheel chair to a bed without substantial manual stress or strain on a disabled patient. In most instances, a disabled patient must be manually picked up and placed in a wheel chair in order to transfer him from a bed to another location. This is particularly true in convalescing patients who spend part of their time in a wheel chair and the remaining portion of their time in bed. Such patients being disabled to the extent that they are unable to handle themselves in the movements to and from a wheel chair.

Many such patients are heavy and many of the attendants or nurses are not physically equipped manually to transfer such heavy patients to and from a wheel chair and especially when the patient is being moved into or out of a bed relative to the wheel chair.

Various prior art wheel chairs have been devices to assist patients and their attendants. However, a great need has been recognized for a wheel chair which will readily transfer a patient directly onto the upper surface of a bed without any hazard of dropping the patient on the floor or creating undue discomfort of the patient.

Accordingly, it is an object of the present invention to provide a novel wheel chair which is particularly adapted to handle disabled patients and to deposit them directly onto the upper surface of a bed in such a manner that they are transferred to a median portion of the bed without the hazard of rolling off the edge of the bed during the placement of such patients thereon.

Another object of the invention is to provide a novel wheel chair for transferring patients to and from a bed which comprises a novel frame having supporting wheels disposed to run under the bed to support a load disposed over a median portion of the bed; said wheel chair structure also comprising a vertically swiveled cantilevered seat which is disposed to pass over the upper surface of the bed whereby the seat may be pivoted about a vertical axis and the back of the seat may be pivoted downwardly into horizontal position so that a patient may lie in horizontal position in the chair directly over the bed so that he may subsequntly be rolled onto a median portion of the bed at a considerable distance inwardly of the edge of the bed.

Another object of the invention is to provide a novel wheel chair particularly adapted for loading and unloading patients relative to the upper surface of a bed comprising novel wheel and frame structure disposed to receive a patient's bed below the wheel chair seat which is provided with novel pivoted foot and back supports which may be disposed horizontally subsequent to the pivotal movement of the seat about a vertical axis whereby the entire seat, foot rest, and back rest structure of the chair may be disposed in superimposed relationship over the upper surface of the bed at a considerable distance inwardly of the edge of the bed.

Another object of the invention is to provide a novel wheel chair structure which permits relatively frail attendants or nurses to load and unload relatively heavy patients when transferring them to or from a bed relative to the wheel chair of the present invention.

Another object of the invention is to provide a novel wheel chair which contributes to the comfort of patients being loaded and unloaded to or from a bed relative to the wheel chair of the present invention.

Another object of the invention is to provide a novel wheel chair construction having small wheels at the front of the chair which are small enough to be projected under a patient's bed and relatively larger wheels operable by the patient and which are provided with axle means adjustable horizontally and rearwardly relative to said forward wheels whereby the peripheries of the larger wheels may be moved back relative to the wheel chair frame so that the peripheries of these wheels may clear the side of the patient's bed during a time when the smaller wheels are projected under the bed a sufficient distance to lie beyond or below the center of gravity of the patient being unloaded from an elevated cantilever seat structure of the wheel chair and onto a bed above the small wheels.

Another object of the invention is to provide a wheel chair having small wheels at the forward portion of the chair; said small wheels being sufficiently small to be projected under a patient's bed; said small wheels having means in connection with the wheel chair frame for extending them forwardly to a sufficient distance under the bed to underlie the center of gravity of a patient being loaded or unloaded relative to an elevated cantilever chair portion of the wheel chair of the invention.

Other objects and advantages of the invention may be apparent from the following specification, appended claims, and accompanying drawings, in which:

FIG. 1 is a side elevational view of a wheel chair in accordance with the present invention, shown with the seat of the wheel chair overlying a bed structure and wheel supports of the chair disposed beneath the bed structure and illustrating varying positions of the chair, back rest, and leg supporting structure relative to the bed which is illustrated in broken lines;

FIG. 2 is an enlarged fragmentary plan sectional view taken from the line 2—2 of FIG. 1, but showing the padding of the seat structure removed and illustrating the seat frame and structure for pivoting it about a vertical axis relative to the chair frame;

FIG. 3 is an enlarged fragmentary sectional view taken from the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary side elevational view taken from the line 4—4 of FIG. 2, showing portions broken away and in section to amplify the illustration;

FIG. 5 is an enlarged fragmentary sectional view taken from the line 5—5 of FIG. 2, showing the reclining seat back hinge and lock assembly structure of the invention;

FIG. 6 is a fragmentary side elevational view of a portion of the wheel chair frame structure showing the turntable track assembly and its supporting forks in an exploded view;

FIG. 7 is a fragmentary sectional view taken from the line 7—7 of FIG. 6;

FIG. 8 is an enlarged fragmentary sectional view taken from the line 8—8 of FIG. 6, showing details of the turntable track structure and the supporting forks therefor;

FIG. 9 is an enlarged fragmentary side elevational view of the main wheel supporting frame structure of the invention disposed to permit forward and rearward adjustment of the main wheels of the wheel chair so that the frame of the wheel chair may receive the edge of a bed, as shown in FIG. 1 of the drawings;

FIG. 10 is a view similar to FIG. 1 but showing a modification of the present invention including small wheels at the forward portion of the wheel chair of the invention which are telescopically extendable to a sufficient position forwardly of the wheel chair to underlie the center of gravity of a patient being loaded or unloaded

relative to the upper surface of the bed by cantilever chair portion of the invention;

FIG. 11 is a fragmentary side elevational view of a portion of the wheel chair structure of the invention taken from a similar direction as that shown in FIG. 10, and showing portions broken away and in section to amplify the illustration of the telescopically extendable front wheels of the wheel chair; and

FIG. 12 is a plan sectional view taken from the line 12—12 of FIG 11.

As shown in FIG. 1 of the drawings, the wheel chair of the present invention is provided with a main frame 10 having cantilever caster arms 12 supported by wheel casters 14. These arms 12 are secured to the main frame 10 which is provided with a horizontal slot 16 in which an axle 18 of main wheels 20 may be horizontally adjusted to move the main wheel 20 for and aft, as desired, for the purpose of receiving a bed structure within the wheel chair frame, all as will be hereinafter described in detail.

With reference to the slot structure 16, attention is directed to FIG. 9 of the drawings, wherein the main frame 10 is shown on an enlarged scale. The axle 18 of the main wheels 20 may be moved to either or two positions, as indicated by broken lines A or B, in FIG. 9 or the axle 18 may be disposed in any intermediate position therebetween within the limits of the slot 16, as desired.

From an inspection of FIG. 1 of the drawings, it will be seen that bed, mattress, and box spring structures 22 and 24 are received above the arms 12 and that the casters 14 may be disposed thereunder a considerable distance from the outer edge C of the bed. Seat structure 26 is supported above the casters 14 which are beyond the normal center of gravity 28 of a patient on the seat structure 26. Thus, the wheel chair of the invention may be placed in a position wherein the casters 14 are below the bed and a considerable distance inwardly of the outer edge C and the seat 26 may be placed over the bed while the wheels 20, at their axles 18, may be disposed in the broken line position A in the slot 16. Thus, the periphery of the wheels 20 does not interfere with the placement of the seat structure 26 above the bed and inwardly of the outer edge C thereof.

A kick stand is provided for lifting the wheel chair frame and the main wheels 20 clear of the floor for the purpose of adjusting the wheel axles 18 in the slots 16. The kick stand is attached to the main frame 10 by bolts 19 above which the stand members 17 may rotate to broken line positions and be held in such positions by elliptical leaf springs 21 reacting against the main frame 10 and a flat side of the stand member 17. The kick stand members 17 are of a length sufficient to support the wheels 20 above a floor at an elevation of about 1 inch, all of which provides sufficient clearance for the hereinbefore described ajustment of the wheel axle longitudinally of each of the slots 16 in the frame members 10.

The main frame 10 is provided with vertical frame structures 30, there being two of these upstanding frame structures 30 terminating in handles 32, at their upper ends. These handles 32 may be utilized by attendants or nurses for handling the wheel chair with the patient therein.

Cantilevered from the upstanding members 30 which are fixed to the main frame 10 are fork members 34. These fork members are shown best in FIGS. 6 and 7 of the drawings and are cantilevered from respective upstanding members 30 by fixed bracket portions 36 having pivoted latch levers 38 secured thereto. These latch levers 38 are pivoted on pins 40 and are loaded by springs 42 so that hook portions 44 of the latches will engage protruding lugs 46 on tublar structures 48 of a turnable frame 50, as will be hereinafter described in detail.

Each of the fork members 34 is provided with rollers 52 pivoted on pins 54 near the extending ends of these forks 34.

The turntable carriage 50 is provided with side rails 56 in which the forks 34 are disposed, as shown in FIG. 8 of the drawings, when the tublar structures 48 are in the broken line positions D showin in FIG. 6, of the drawings.

Supported in the frame 50 is a circular substantially C-shaped in cross-section track 58 which carries rollers 60 which are rotatably mounted on pins 62 held in brackets 64 extending downwardly from the seat frame 66, all as shown best in FIG. 4 of the drawings.

Extending laterally between the channel-shaped frame members 56 are cross members 68 which support the C-shaped in cross-section circular track 58, all as shown best in FIGS. 2 and 4 of the drawings.

The seat frame 66 is preferably made of tubular material and is provided with curved members 70 and 72 secured by frame members 74 and 76 to side members 78 and 80 which are coupled to a tubular frame member 82 in the normally front portion of the seat structure 26. Foot rest bracket members 84 and 86 are pivotally secured to the tubular member 82 and a conventional seat padding structure 88 is secured on top of the seat frame 66 over the members 70, 72, 74, 76, 78, and 80, all as shown best in FIGS. 1 and 2 of the drawings.

A back rest structure 89 is connected to upstanding members 90 and 92 which are pivoted to the rear ends of the seat frame members 78 and 80. The seat back 89 is thus pivotal backwardly into horizontal position, as will be hereinafter described in detail.

As shown in FIG. 5 of the drawings, the reclining back hinge lock structures for holding the seat back 89 in juxtaposition are disclosed. These hinge locks are designated 94 and 96 in FIGS. 1, 2 and 4 of the drawings. These structures are similar and only the structure 94 will be hereinafter disclosed. The seat frame member 78, as shown in FIG. 5 of the drawings, is provided with a bore 98 in which a hollow shaft 100 is rotatable. The seat back frame member 90 is fixed to this hollow shaft and also fixed to the hollow shaft is an externally serrated or gear-toothed annular member 102 which is disposed axially aligned and adjacent to the similar externally gear-toothed annular member 104 which is fixed to the frame member 78.

An internally gear-toothed cup 106 is fixed to an end of a shaft 108 which is rotatable internally of the hollow shaft 100. An internal cam member 110 surrounds the cup 106 and is provided with a substantially helical internal cam track 112 engaged by a projection 114 of the cup 106. A handle 118 on the internal cam 110 permits it to be rotated for moving the helical track 112 and permitting the follower portion 114 of the cup 106 to move inwardly toward the frame 78. The internal teeth of the cup 106 couple the external teeth of the member 102 and the member 104 thereby locking them together. Since the member 104 is fixed to the frame 78 and since the frame 90 is fixed to the hollow shaft 100 which is fixed to the member 102. The cup 106 thus locks the frame 90 relative to the frame 78.

A washer 116 of the hollow shaft 100 is engaged by a spring 119 which engages another washer 120 on the shaft 108. In operation, the spring 119 thus tends to retract the shaft 108 and the cup 106 into engagement with the gear-toothed members 102 and 104. Thus, when the cam member 110 is rotated by the handle 118, the spring 119 forces the internally gear-toothed cup 106 to engage the externally gear-toothed members 102 and 104 thus locking the back rest 89 in a certain angular position relative to the seat 26. Thus, the back rest 89 may be disposed at an incline to the horizontal. It may be vertical, or it may be horizontally disposed, as desired, and as will be hereinafter described in detail.

Each of the foot rest brackets 84 and 86 are also pivotal about the axis of the tubular member 82 so that the foot rest structures may be disposed in a solid line position, as indicated in FIG. 1, or may be pivoted upwardly to a broken line position so that it may be disposed

above the bed, as indicated in broken lines in FIG. 1 of the drawings.

Each of the foot rest brackets **84** and **86** is provided with a detent structure for holding these foot rest structures in various angular positions, all as shown best in FIGS. 2 and 3 of the drawings.

The bracket **84** is a tubular member disposed internally and rotatably mounted in the tubular member **82**. Fixed by pins **122** to the tubular member **84** is a ratchet-toothed member **124**. This ratchet-toothed member **124** is provided with an annular row of buttress teeth **126** disposed to engage similar teeth **128** of a detent member **130** fixed by pins **132** to the tubular member **82**.

A bolt **134** passes through both of the detent members **124** and **130** and a compression spring **136** is disposed on the bolt and held in compressive engagement with one end of the detent member **130** by means of a nut **138**. The bolt **134** and spring **136** thus tend to force the buttress teeth **126** and **218** together and to retract the bracket member **84** inwardly of the tubular member **82** inasmuch as the pins **132** hold the detent member **130** stationary and the spring **136** is engaged therewith. Thus, the foot rest structure generally indicated at **140** in FIG. 1 of the drawings, may be pivoted upwardly by simply raising the foot rest structure **140** due to the inclination of the buttress teeth **126** and **128** which will slide over each other by alternate compression of the spring **136**.

When it is desired to pivot the foot rest assembly downward, the tubular brackets **84** and **86** are pulled outwardly of the tube **82**, thus forcing the spring **136** under compression to separate the buttress teeth **126** from the teeth **128** thereby permitting freely pivotal movement of the tubular brackets **84** and **86** relative to the tube **82** and thus permitting downward pivotal movement of the entire foot rest assembly **140** to a desired angular or vertical position.

Arm rests **142**, at opposite sides of the seat **26**, are supported on vertically disposed brackets **144** having lower ends **146** supported in sockets **148** in the seat frame members **74** and **76**, all as shown best in FIGS. 1 and 2 of the drawings.

Rotatably mounted on the brackets **36**, are rollers **148** and **150**; these rollers **148** and **150** being supported on pins **152** and **154**, carried by the respective brackets **36**.

The rollers **148** and **150** are vertically movable in hollow track structure of the upstanding members **30** so that the cantilevered fork structure carrying the seat of the present wheel chair may be vertically adjusted up and down the vertical members **30**, as will be hereinafter described in detail.

Projecting from the brackets **36** are hooks **156** and **158** which project through complimental openings in a bracket **160** to which is connected a lateral clip **162** carrying an internally screwthreaded nut **164** fixed thereto. Screwthreadably engaged with this nut **162** is an elevating screw **166** which bears against a thrust bearing **168** carried by a cross bar structure **170** supported on the members **10**.

Accordingly, it will be seen that operation of the screw **166** by a crank handle **172** provides for elevation of or lowering of the seat **26** in connection with the brackets **36** carrying the rollers **148** and **150** which traverse the internal track structure of the upstanding members **30**. This adjustment permits the vertical adjustment of the seat **26** to a position above the upper corner **22** of a bed C, so that various beds of varying elevations may be negotiated in such a manner that the seat **26** and foot rest **140** may be positioned to overlie the bed and to handle patients relative to the upper surface thereof.

In operation, a patient may be carried in the wheel chair of the present invention, sitting on the seat structure **26** and resting against the back rest **89** which may be reclined between the upstanding members **30**, if desired. The foot rest structure **140** may be disposed vertically or horizontally or it may be disposed in various angular positions relative to the vertical and horizontal. Normally, however, the patient is carried with the back rest **89** in the upwardly direction position, as shown in FIG. 1 of the drawings, and the foot rest structure **140** in the solid line position, as shown in FIG. 1. The wheel axle **18** may be in the normally rear end of the slot **16**, in the position A, as shown in FIG. 9, so that the periphery of the wheel will clearly permit the wheels **14** to be disposed under the bed and the wheel **20** will not contact the edge C of the bed. Thus, the patient may be transported from some area toward his bed and when the bed is approached, the foot rest structure may be moved upwardly into the broken line or horizontal position, as shown in FIG. 1 of the drawings, so that the wheel **14** or caster **14** may be disposed under the bed and the foot rest structure **140** may be disposed over the upper surface of the bed. Subsequently, then, the seat structure **26** is rotated about a vertical axis through the center of the circular track **58** by means of the rollers **60** which run in this circular track **58** forming a turntable for the seat structure **26** and permitting it to be pivoted about a vertical axis. The supports **64** carried by the seat frame **66** support the seat structure **26** on the circular track **58** and the seat, together with the foot rest **140** are pivoted around to a position 90 degrees from that shown in FIG. 1, into a substantially parallel position with the bed, as shown in FIG. 1 of the drawings. It will be appreciated that the wheel chair, as shown in FIG. 1, is disposed at the side of the bed and that the view of FIG. 1 is taken from the end of the bed. When the seat structure **26** is rotated substantially 90 degrees, the seat and foot rest assembly will then be parallel to the longitudinal axis of the bed and the seat back **89** may then be released by the members **94** and **96** permitting the seat back **89** to pivot downwardly into a horizontal position so that the entire body structure of the patient may lie horizontally over the bed and may then be rolled onto the bed inwardly of the edge C without any hazard of dropping the patient over the edge C when loading him onto the bed. It will be appreciated by those skilled in the art that this operation may be carried on in handling a very heavy patient and may be accomplished by a diminutive operator as a small nurse without undue stress on either the nurse or the patient.

The reverse operation of loading the patient onto the wheel chair from the bed merely includes the rolling of the patient onto the wheel chair structure with the foot rest, seat, and back rest structures all aligned in a horizontal position above the bed and in close proxmity to the upper surface thereof.

When the patient is on the wheel chair, the back rest **88** may be moved upward into a substantially vertical position, as shown in FIG. 1 of the drawings. The seat **26** may then be rotated about a vertical axis concentric with the circular track **58** substantially 90 degrees, whereupon the wheel chair may be retracted away from the bed to permit downwardly pivotal movement of the foot rest structure **140** and to thereby place the patient into a normal upright sitting position for transportation or other activity, as desired.

It will be appreciated by those skilled in the art that the forks **34** may be released from the turntable track frame **50** by pivoting the latches **38** at their hook portions **44** out of engagement with the projections **46** on the frame **60**. Thus, the whel chair and the forks may be moved away from the entire seat, foot rest, and back rest structures when placed on a bed, if desired, so that the operator may load the patient onto the foot rest, seat, and back rest structures without being encumbered by the upstanding members **30** of the wheel chair frame. Further, it will be noted that the arm rest **142** may readily be removed from the sockets **148**, as hereinbefore described, so that a patient may be loaded onto the foot rest, seat, and back rest structures of the wheel chair, all in hori-

zontal position on the upper surface of the bed without interference from the arm rest **142** or the upstanding members **30** of the wheel chair structure. When the patient is loaded onto the patient supporting structure of the chair, the forks **34** may be forced into the channels **56** of the frame **50** by means of the rollers **52** acting as anti-friction members and thus, the entire foot rest, seat, and back rest structures may be picked up from the upper surface of the bed after the patient has been loaded thereon.

In the modification of the invention, as shown in FIG. 10, main wheel frame members **180** are provided in lieu of the frame members **10**, shown in FIG. 1 of the drawings. The frame members **180** support hollow tubular generally horizontal members **182** in which extendable caster supporting arms **184** are carried. These caster supporting arms **184** are supported at their outboard ends **186** by casters **188** having small caster wheels **190** sufficiently small to permit the passage of the arms **184** below the underside of the bed **192**. The main wheels **20** are mounted on stationary axles **194**, each individually connected to one of the frame members **180**. As shown in FIG. 2 of the drawings, there are a pair of the frame members **180** and between these frame members **180**, and interconnecting them, is a cross member **196** having a screw supporting bore **198**. A bearing portion **200** of a jack screw **202** is supported in the bore **198** and a fixed shoulder **204** at one end of the bearing member **198**, and integral therewith, bears on one side of the bar **196**, while a collar **206** is fixed to the jack screw **202** by a pin **208** and this collar **206** bears on the opposite side of the bar **196**. Thus, the jack screw **202** is rotatable relative to the bar **196**, but fixed longitudinally of its axis.

Secured to the jack screw **202** outwardly of the collar **204** is a bell crank manually operable handle **210** for use in rotating the jack screw **202**. It will be understood that this jack screw **202** may be operated by a small reduction gear motor or the like, if desired.

A hollow tubular member **212** surrounds the jack screw **202** and this member **212** is provided with an internally screw threaded nut portion **214**, which engages external screw threads on the jack screw **202**. This internally screw threaded nut serves when the jack screw **202** is rotated to actuate the tubular member **212** longitudinally of the axis of the screw **202**.

The tubular member **212** is provided with an internal bore **216** larger than the diameter of the jack screw **202**, leaving an abutment shoulder **218** at the juncture of the internally screw threaded nut portion **214** and the bore **216**.

A stud member **220** is fixed to a reduced diameter shank **222** of the jack screw **212** by a screw threaded nut **224**.

The periphery of the stud member **220** is closely conformingly slidable in the bore **216** and may abut the abutment **218** when the tubular member **212** is fully extended relative to the jack screw **202**.

An end portion **226** of the hollow tubular member **212** carries laterally projecting arms **228**, which are connected to the arms **184**, which are telescopically slidably mounted in the tubular members **182**, as hereinbefore described.

It will be seen that when the jack screw **202** is rotated to extend the hollow tubular member **212** that it carries the arms **228** and projects the arms **184** telescopically outwardly from the hollow tubular members **182** and thus projects the arms **184** to a broken line position A, consequently disposing an axis B of the wheels **190** to a substantial distance from an edge C of the bed, such that the axes of the wheels **190** are disposed forwardly of the normal center of gravity of the patient as designated at **28**, and thus, a patient may be loaded or unloaded relative to an upper surface **230** of the bed, as shown in FIG. 10 of the drawings, without causing the wheel chair to tip, it being understood that the seat of the wheel chair is rotatable about the C–G line **28**, and that the patient may be rolled onto the seat or off from the seat, depending upon loading or unloading operations and that the seat back, as hereinbefore described, will also be in horizontal position along with the leg and foot rest structures.

It will be apparent to those skilled in the art that the wheels **20** may be moved rearwardly or the wheels **190** may be moved forwardly with respect to the wheel chair frame, in order to attain a disposition of the wheels **190** a sufficient distance under the bed to be somewhat forwardly of the center of gravity of the patient as he is loaded and unloaded, with respect to the elevated seat of the wheel chair when it is disposed adjacent the upper surface of the bed, as hereinbefore described.

It will be obvious to those skilled in the art that various modifications of the present invention may be restored to in a manner limited only by a just interpretation of the following claims.

I claim:

1. In a wheel chair the combination of: a main frame; a cantilever frame portion of said main frame; first wheels disposed to support said cantilever frame portion, said first wheels of small enough diameter to pass under a bed; first axle means for rotatably mounting said first wheels relative to said cantilever frame portion; second relatively larger wheels supporting said frame and disposed to support said wheel chair at a side of a bed, second axle means for said second wheels for rotatably coupling them to said frame, said relatively larger wheels having peripheries disposed and adapted to be operated by a patient in said chair; a seat frame pivotally mounted on said main frame on a substantially vertical axis, said seat frame cantilevered from said main frame and disposed in vertically spaced relation with and above said cantilevered frame portion and thereby adapted to be projected over a bed when said first supporting wheels are disposed under a bed; and means supported on said frame for holding said first and second axle means and said first and second wheels in various relative forward and rearward spaced positions on said frame to permit variations of operating positions of said first and second wheels in order to clear the peripheries of said second wheels relative to the side of a bed when said first supporting wheels are under a bed and forward relative to said frame and a patient supported on said seat frame above the bed; said means supported on said frame comprising extendable means in connection with said first wheels for extending them forwardly and rearwardly relative to said wheel chair frame.

2. In a wheel chair the combination of: a main frame; a cantilever frame portion of said main frame; first wheels disposed to support said cantilever frame portion, said first wheels of small enough diameter to pass under a bed; first axle means for rotatably mounting said first wheels relative to said cantilever frame portion; second relatively larger wheels supporting said frame and disposed to support said wheel chair at a side of a bed, second axle means for said second wheels for rotatably coupling them to said frame, said relatively larger wheels having peripheries disposed and adapted to be operated by a patient in said chair; a seat frame pivotally mounted on said main frame on a substantially vertical axis, said seat frame cantilevered from said main frame and disposed in vertically spaced relation with and above said cantilevered frame portion and thereby adapted to be projected over a bed when said first supporting wheels are disposed under a bed; and means supported on said frame for holding said first and second axle means and said first and second wheels in various relative forward and rearward spaced positions on said frame to permit variations of operating positions of said first and second wheels in order to clear the peripheries of said second wheels relative to the side of a bed when said first supporting wheels are under a bed and forward relative to said frame and a patient supported on said seat frame above the bed; said means supported on said frame comprising extendable means in connection with said first wheels for extending them forwardly

and rearwardly relative to said wheel chair frame, said extendable means comprising telescopic members horizontally extendable from said frame.

3. In a wheel chair the combination of: a main frame; a cantilever frame portion of said main frame; first wheels disposed to support said cantilever frame portion, said first wheels of small enough diameter to pass under a bed; first axle means for rotatably mounting said first wheels relative to said cantilever frame portion; second relatively larger wheels supporting said frame and disposed to support said wheel chair at a side of a bed, second axle means for said second wheels for rotatably coupling them to said frame, said relatively larger wheels having peripheries disposed and adapted to be operated by a patient in said chair; a seat frame pivotally mounted on said main frame on a substantially vertical axis, said seat frame cantilevered from said main frame and disposed in vertically spaced relation with and above said cantilevered frame portion and thereby adapted to be projected over a bed when said first supporting wheels are disposed under a bed; and means supported on said frame for holding said first and second axle means and said first and second wheels in various relative forward and rearward spaced positions on said frame to permit variations of operating positions of said first and second wheels in order to clear the peripheries of said second wheels relative to the side of a bed when said first supporting wheels are under a bed and forward relative to said frame and a patient supported on said seat frame above the bed; said means supported on said frame comprising extendable means in connection with said first wheels for extending them forwardly and rearwardly relative to said wheel chair frame; means for forcefully projecting and retracting said extendable means forwardly and rearwardly relative to said frame.

4. In a wheel chair the combination of: a main frame; a cantilever frame portion of said main frame; first wheels disposed to support said cantilever frame portion, said first wheels of small enough diameter to pass under a bed; first axle means for rotatably mounting said first wheels relative to said cantilever frame portion; second relatively larger wheels supporting said frame and disposed to support said wheel chair at a side of a bed, second axle means for said second wheels for rotatably coupling them to said frame, said relatively larger wheels having peripheries disposed and adapted to be operated by a patient in said chair; a seat frame pivotally mounted on said main frame on a substantially vertical axis, said seat frame cantilevered from said main frame and disposed in vertically spaced relation with and above said cantilevered frame portion and thereby adapted to be projected over a bed when said first supporting wheels are disposed under a bed; and means supported on said frame for holding said first and second axle means and said first and second wheels in various relative forward and rearward spaced positions on said frame to permit variations of operating positions of said first and second wheels in order to clear the peripheries of said second wheels relative to the side of a bed when said first supporting wheels are under a bed and forward relative to said frame and a patient supported on said seat frame above the bed; said means supported on said frame comprising extendable means in connection with said first wheels for extending them forwardly and rearwardly relative to said wheel chair frame; means for forcefully projecting and retracting said extendable means forwardly and rearwardly relative to said frame, said means comprising a screw jack mechanism supported on said frame and disposed between the individual extendable means respective to each of said first wheels.

5. In a wheel chair the combination of: a main frame; a cantilever frame portion of said frame; first wheels disposed to support said cantilever frame portion, said first wheels of small enough diameter to pass under a bed; first axle means for rotatably mounting said first wheels relative to said cantilever frame portion; second relatively larger wheels supporting said frame and disposed to support said wheel chair at a side of a bed, second axle means for said second wheels for rotatably coupling them to said frame, said relatively larger wheels having peripheries disposed and adapted to be operated by a patient in said chair; a seat frame pivotally mounted on said main frame on a substantially vertical axis, said seat frame cantilevered from said main frame and disposed in vertically spaced relation with and above said cantilevered frame portion and thereby adapted to be projected over a bed when said first supporting wheels are disposed under a bed; and means supported on said frame for holding said first and second axle means and said first and second wheels in various relative forward and rearward spaced positions on said frame to permit variations of operating positions of said first and second wheels in order to clear the peripheries of said second wheels relative to the side of a bed when said first supporting wheels are under a bed and forward relative to said frame and a patient supported on said seat frame above the bed; said means supported on said frame comprising extendable means in connection with said first wheels for extending them forwardly and rearwardly relative to said wheel chair frame; caster mechanisms pivotal on a vertical axis and interconnecting said first wheels and said extendable means.

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