

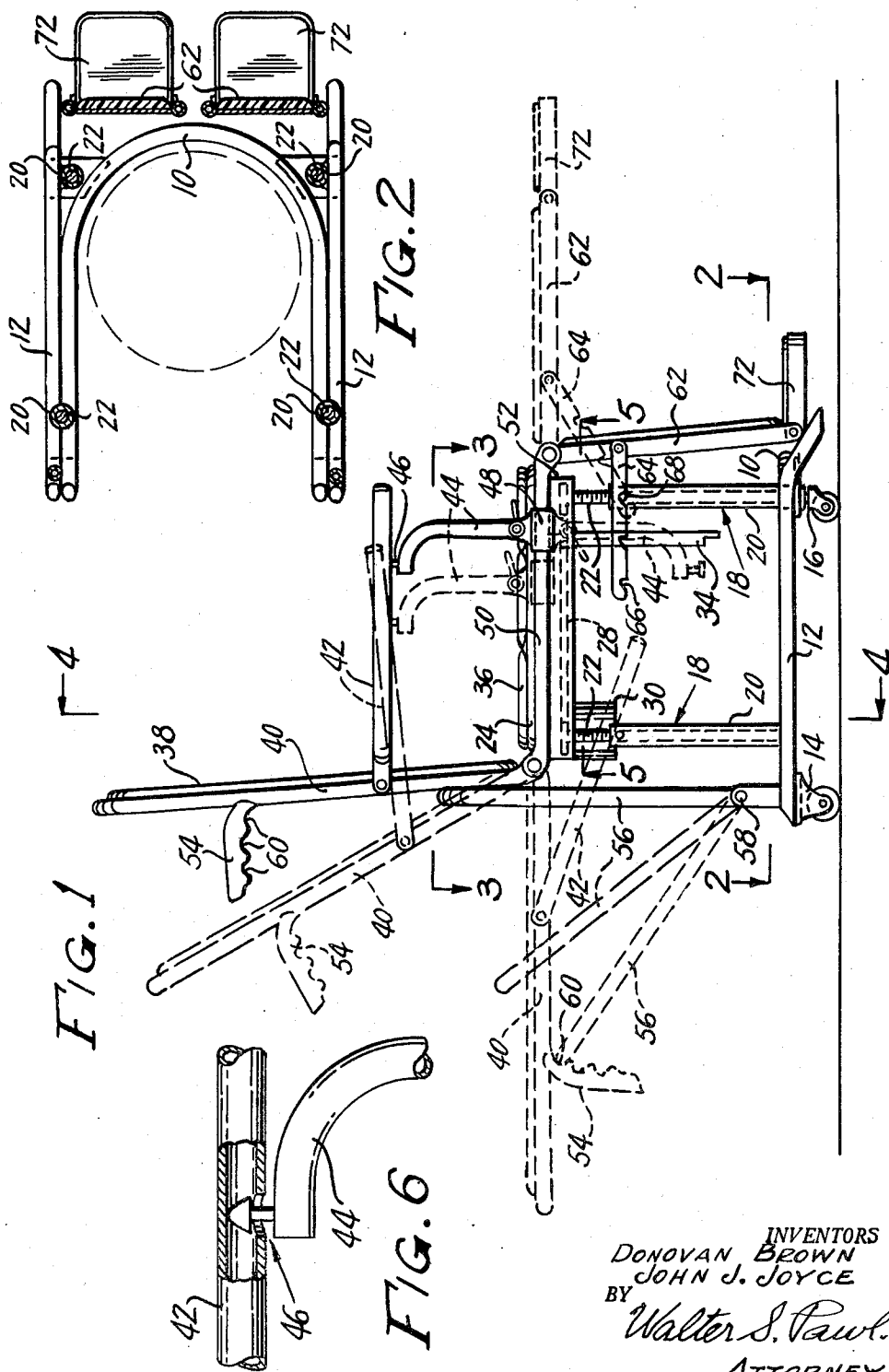
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D. BROWN ETAL
PARAPLEGIC HOSPITAL CHAIR

3,038,174

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2 Sheets-Sheet 1



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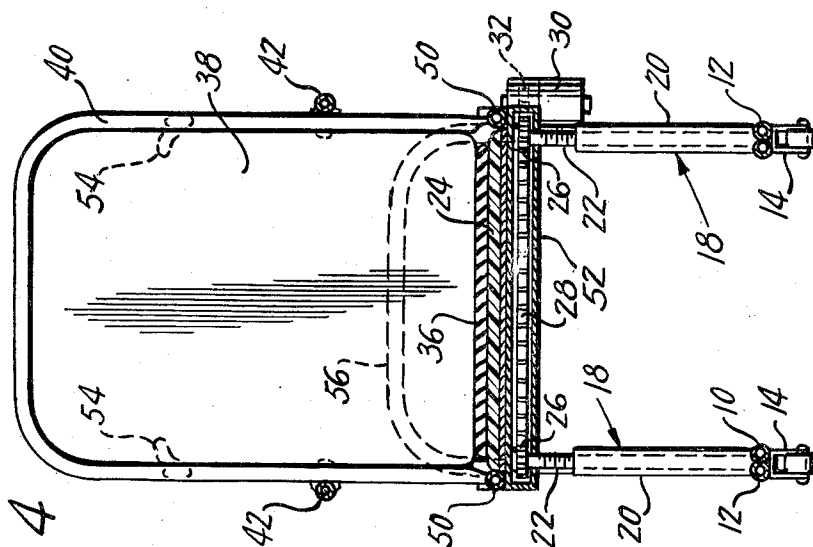
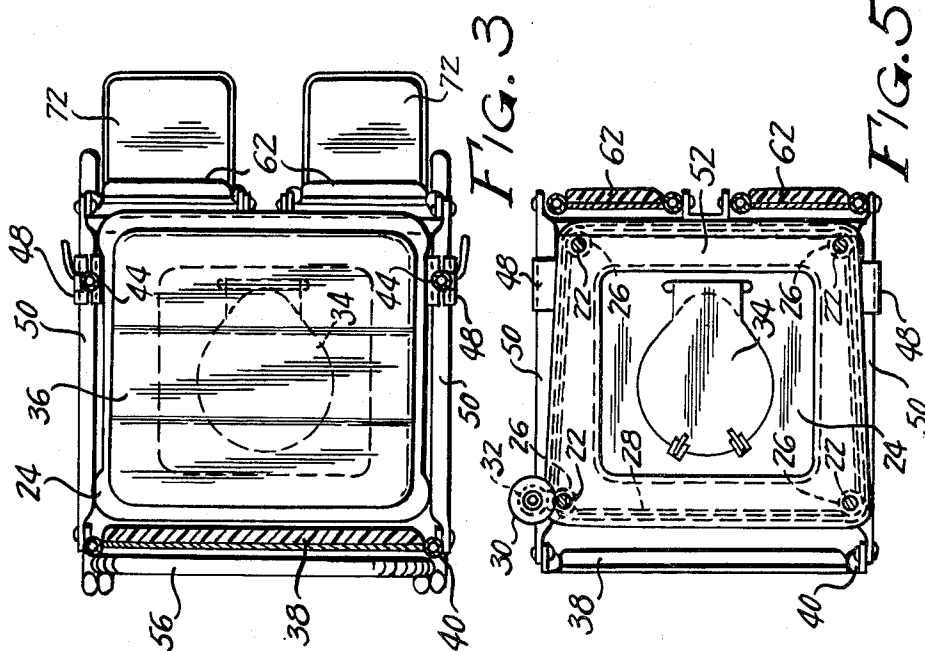


FIG. 4

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PARAPLEGIC HOSPITAL CHAIR

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This invention relates to paraplegic chairs on wheels, which may be readily converted to stretchers for moving the patient in a prone position alongside his bed for transfer thereto or vice versa.

The object of this invention is to make an invalid chair which can be easily converted to a stretcher to move the patient in a prone position alongside his bed and provide means for raising him to the level of the bed for easy transfer thereto of therefrom with minimum assistance from the attendant or nurse.

A further object is to provide this chair with an open area under the seat so that it may be rolled back over a commode, the chair seat having a suitable hinged closure portion which may be lowered forwardly on its front hinge to provide an open seat for the purpose over the commode, thus affording the use of the commode without leaving the chair.

A further object is to provide a light tubular frame construction for this chair having a straight padded seat with a straight padded back hinged to the back of the seat, straight padded legs and foot rests serially hinged to the front of the seat, said hinged portions being adjustable to any suitably related positions including a horizontally level stretcher position.

A further object is to provide a U-shaped base frame for the chair open at the rear and having rollers at the corners, the front rollers preferably swivelled.

A further object is to provide jack-screws for the four chair legs at the four corners of the seat, the bases of the jack-screws being fixed to the base frame and the screws having rotatable thrust bearings in the bottom of the seat, means being provided to turn the screws simultaneously for raising or lowering the seat.

A further object is to provide curved tubular extensions to the rear of the sides of the back frame for use as handles for guiding and moving the chair about on its rollers.

A further object is to provide a U-shaped bracket frame hinged at its ends to the ends of the base frame for bracing the chair back under the handles when converting the chair to a stretcher.

A further object is to provide hinged arm rests for the chair having detachable side brackets adjustable to hold the back at suitably inclined positions, and which may be swung down over the sides of the seat out of the way, if desired, when using the device as a stretcher.

Other and more specific objects will appear in the following detailed description of a preferred form of the invention as illustrated in the accompanying drawings, wherein:

FIG. 1 is a side view of the chair constructed in accordance with the present invention,

FIG. 2 is a sectional view taken on the line 2—2 of FIG. 1,

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 1,

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 1,

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 1, and

FIG. 6 is an enlarged detail view of the detachable connection between the arms and arm support brackets of the chair.

It will be observed that the use of this chair will ease

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the problem of removing a sick patient from bed and placing him in a sitting position in the chair, whereupon it may be used as an ordinary bedroom chair on wheels, with adjustable back and foot rests, which may be adjusted separately.

This chair will raise or lower to any bed height and will open to a full length flat stretcher, whereby the patient may be easily transferred from the bed to the stretcher or returned to the bed. Raising the back and lowering the foot rests brings the patient to a sitting position with ease. The chair may then be used in the bathroom where it may be wheeled around and moved directly over the standard toilet bowl, allowing the patient to use the toilet without leaving the chair. Both arm rests are so constructed that they may be moved out of the way easily whenever desired. On returning the patient to bed, the back may be lowered and propped up by the hinged U-shaped frame bracket in a substantially horizontal position, when the chair is raised to bed height.

A preferred form of this invention is illustrated in the accompany drawings, and comprises a U-shaped tubular base member 10, reenforced at the sides by base rail tubular members 12 and provided with rollers 14 mounted at the rear corners of the chair, the U member 10 having its sides extending rearwardly of the chair, and swivelled rollers 16 mounted at the front corners thereof. Four jack-screws 18 are mounted on the base to serve as chair legs, their internally threaded base posts 20 being fixed to the base, the upper ends of their adjustable screws 22 being rotatably supported in thrust bearings in the bottom of the seat 24, there being sprockets 26 fixed to the screws 22 just below said bearings for simultaneous operation by an endless drive chain 28 operatively connecting all four sprockets. An electric reversible drive motor 30 may be mounted at one of the corners of the seat, for connection through gearing 32 to the adjacent screw 22, or a hand crank drive (not shown) could be used in its stead, for manual raising or lowering operations if desired, where electrical outlets are not conveniently available.

The seat 24 may be padded and provided with a central toilet seat cut-out portion 34 hinged in front under the seat for opening downwardly to provide an open padded toilet seat, when the patient desires to use a toilet, by backing the chair over a standard toilet basin, with the standard toilet seat raised out of the way so that the patient does not have to leave his chair. A stiff padded cover 36 may be used to cover the toilet seat opening in place of using the cut-out portion 34. This cover is made foldable in two places across the seat to form three stiff slab cushions hinged together for easier removal from under the patient when required.

A padded back 38 having a tubular frame 40 is hinged to the back edge of the seat and is normally held in any adjusted inclination by either or both of the arm rests 42 which are pivoted to the sides of the back frame 40 and are detachably connected near their forward ends to the tops of arm support brackets 44 by a suitable snap connection 46. These support brackets have base clamps 48 slidably adjustable on tubular side frame members 50 of the seat frame. A protective guard casing 52 may be mounted around the sprockets and connecting chain, under the seat frame.

The back frame 40 may be provided with extensions 54 to serve as handles for guiding the chair around on its rollers as well as stops for the top of a U-shaped bracket support member 56 hinged to the rear corners of the base at 58, when the back is lowered to a horizontal position. The notches 60 are provided for receiving the support bracket 56 to adjust the back to a level position at various adjustments of elevation of the seat in accord-

ance with the height of the bed that might be involved.

The leg rests 62 are padded and are hinged to the front edge of the seat 24 and have hinged bracket supports 64 at the sides with notches 66 for adjustable support over pins 68 on the outer sides of the front screw-jack posts 20. The foot rests 72 are hinged to the outer ends of the leg rests on hinges that may be locked to hold the respective foot rests in any desired angular position with respect to the leg rests. Thus they may be held in a horizontal extended position in alignment with the seat, back and leg rests when the chair is converted to a portable stretcher. While used as a chair, the arm rest 42 and bracket 44 on one side of the chair may be disconnected at the snapjoint 46 and moved out of the way whenever the attendant deems it necessary in order to facilitate handling of the patient.

The present construction is simple and light, yet sturdy, and requires no removal of thumb screws or the like in making adjustments or separation of parts.

Many obvious modifications in the details and arrangement of parts may be made in this chair construction without departing from the spirit and scope of this invention as defined in the appended claims.

What is claimed is:

1. A hospital chair comprising a seat with four legs mounted on a U-shaped base frame having rollers under it for easy portability, said legs comprising jack-screws having internally threaded posts fixed to the base frame and screws extending upwardly therefrom to thrust bearings in the bottom of the seat, means for simultaneously operating said jack-screws to adjust the elevation of said seat, said U-shaped frame being open rearwardly to enable the seat to be rolled backwardly over a toilet basin, said seat having a toilet seat opening and a removable cover for normally closing said opening, a back hinged to the rear edge of said seat, a pair of leg rests hinged to the front edge of said seat, a foot rest hinged to the outer end of each leg rest, means for adjusting the back to suitable inclinations between its vertical and horizontal positions, means for adjusting the leg rests up to a horizontal position, and means for adjusting the foot rests to any angle with respect to the corresponding leg rests, whereby all the hinged parts may be extended in horizontally extended alignment to form a flat stretcher when desired, said back adjusting means comprising arm rests hinged to the sides of said back, tubular guide rails fixed to the sides of said seat, arm rest support brackets slidably adjustable on said guide rails and having detachable snap connections to the forward ends of their respective arm rests, rearwardly extending arms at the sides of said back to serve as handles for guiding said chair around on its rollers, at least the forward rollers being swivelled, and a U-shaped bracket having its open ends hinged to the open ends of said base frame and normally resting in a tilted position against the back, said bracket providing support for the back under said handles to brace the back in a horizontally adjusted position, and notches under said handles for adjustable cooperation with the top of said support bracket to level said back at different adjustments in the elevation of said seat.

2. A hospital chair as defined in claim 1, said remov-

able seat cover comprising a cut-out portion normally filling said toilet seat opening, and hinged at its forward end under said seat.

3. A hospital chair as defined in claim 1, said removable seat cover comprising a flat cushion formed of plurality of stiff slabs extending crosswise over said seat and foldably connected to each other, to facilitate removal from under a patient when desired.

4. A hospital chair as defined in claim 1, said seat, back and base frame having light tubular frames and said seat, back and leg rests being suitably padded.

5. A hospital chair as defined in claim 1, said jack-screw operating means comprising a sprocket near the top of each of said screws, a sprocket chain connecting all four sprockets for simultaneous operation, and gear means adjacent one of said sprockets for operating said jack-screws in either direction.

6. A hospital chair as defined in claim 5, said gear means including a gear fixed to said sprocket, and a reversible electric motor mounted at the side of a rear corner of said seat and having a drive connection to said gear.

7. In a hospital chair, a seat with four legs mounted on a base frame having rollers under it for easy portability, said legs comprising jack-screws whereby the elevation of said seat may be adjusted, a back hinged to the rear of said seat, and means for adjusting the back to suitable inclinations between its vertical and horizontal positions, said means including arm rests hinged to the sides of said back, tubular guide rails fixed to the sides of said seat, arm rest support brackets slidably adjustable on said guide rails and having detachable snap connections to the forward ends of their respective arm rests, rearwardly extending arms at the sides of said back to serve as handles for guiding said chair around on its rollers at least the forward rollers being swivelled, and a U-shaped bracket having its open ends hinged to the open ends of said base frame and normally resting in a tilted position against the back, said bracket providing support for the back under said handles to brace the back in a horizontally adjusted position, and notches under said handles for adjustable cooperation with the top of said support bracket to level said back at different adjustments in the elevation of said seat.

8. In a horizontal chair as recited in claim 7, including additionally a pair of leg rests hinged to the front edge of said seat, a foot rest hinged to the other end of each leg rest, means for adjusting the leg rests up to a horizontal position, and means for adjusting the foot rests to any angle with respect to the corresponding leg rests, whereby all the hinged parts may be extended in horizontally extended alignment to form a flat stretcher when desired.

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