

May 30, 1961

F. NOBILE

2,986,200

WHEEL CHAIR CONSTRUCTION

Filed April 2, 1959

2 Sheets-Sheet 1

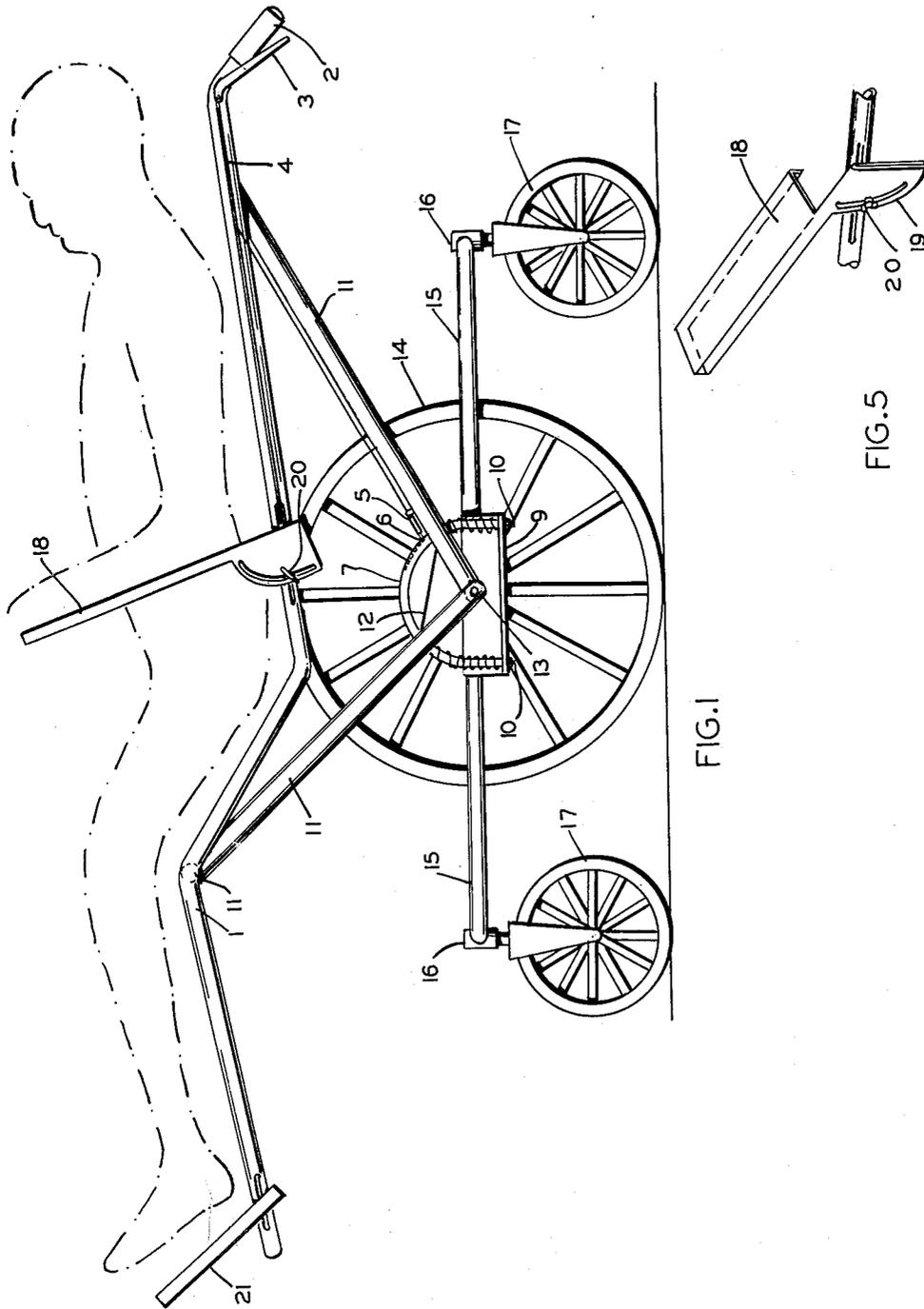


FIG. 1

FIG. 5

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2 Sheets-Sheet 2

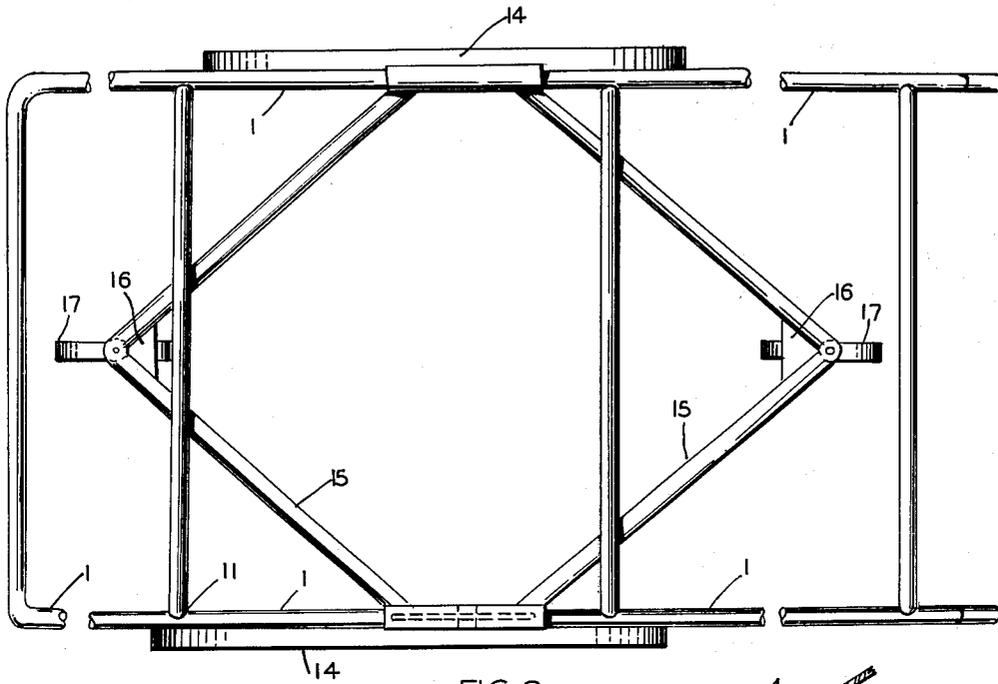


FIG. 2

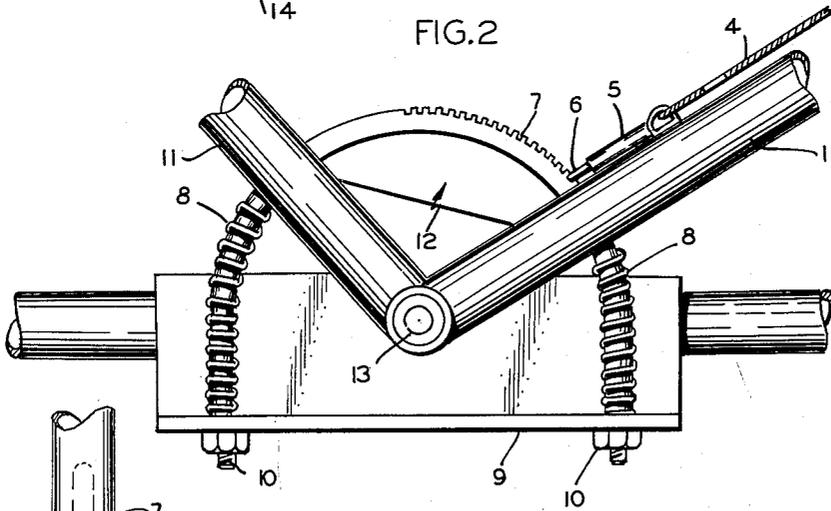


FIG. 3

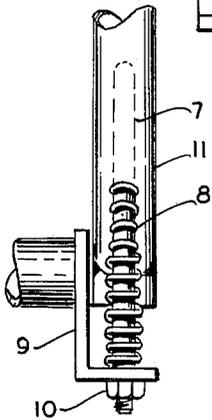


FIG. 4

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WHEEL CHAIR CONSTRUCTION

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6 Claims. (Cl. 155—30)

This invention relates to an apparatus for use by invalids and bed-ridden patients.

More particularly, this invention resides in a novel wheel chair structure useful to all patients including those who have little or no body movement.

Applicant's invention provides a chair which has a one piece body support structure, which can be formed to the required body shape, a body support requiring and possessing no bending, folding or disjointed portions. The wheel chairs heretofore used and those available commercially require the user to bend his body. Many patients are completely paralyzed as a result of injury to the spine or back, or an injury in the back or hip. Still further, there are patients who are placed in a plaster cast which immobilizes the body. All of these people are bed-ridden because of their affliction and are required to remain in a horizontal position in bed. Such persons have been unable to leave their bed or assume a sitting posture. In many cases these patients have been left lying in bed in a horizontal position over a long period of time. This situation has not only been unhealthy for bed-ridden patients, but also makes it extremely difficult for said patients to freely look around, eat, write or read.

Applicant's apparatus is especially useful for this type of person. The structure of this invention has a one piece body support requiring no bending or movement of the user's body. Even complete paralytics may easily use the chair of this invention. This wheel chair will allow the paralytic to freely move about a house, hospital or structure as he wishes, in the position most comfortable for him.

It is, therefore, one object of this invention to provide a wheel chair which is useful even to the completely paralyzed person.

It is another object of this invention to provide a structure which may be used in a horizontal position as a bed or stretcher, or in an inclined position as a chair.

Another feature of this invention is to provide a novel invalid's structure which is convertible to any comfortable position and will remain locked in any one of its adjusted positions until again adjusted by the users.

Still another object is to provide a chair-bed which will require no bending of the person's body even in a sitting position.

Other objects will become apparent to one skilled in the art upon reading this disclosure. A further feature of applicant's novel chair-bed is when it is used with a mattress there will be no bulges or bending in the mattress. The mattress will remain in a fixed position whether the user is in a sitting or horizontal position. The economics involved are also desirable. There is less maintenance required in a chair of this nature since because of its one piece structure, there are much less moving parts to be worn or broken.

The structure of this invention will be more easily

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understood upon a reading of the following detailed description and accompanying drawings.

In the drawings:

5 Figure 1 is a side elevation of the complete construction of the wheel chair.

Figure 2 is a detailed top view of the chair framework with wheels.

Figure 3 is an enlarged detailed view of the locking and adjusting means.

10 Figure 4 is a front enlarged detailed view of the locking and adjusting means as shown in Figure 3.

Figure 5 is a close-up view of the detachable arm rest.

Referring to Figure 1, a one piece rigid body support 1 is shown extending substantially the length of the chair.

15 This support may have any desired crossed supports as that is only a matter of choice, design or expediency. A mattress or pad may be used between the user's body and body support 1 if desired. Braces or brackets 11 rotatably support the body support 1 on the chair axle 13.

20 The braces 11 are rigidly connected to the body rest 1 in any desired manner. The one piece rigid support 1 terminates in its upper portion into two hand pieces 2 for steering or controlling the mobility of the structure. A rubber grip or hand piece may be used if required at hand piece 2.

25 A locking means handle or shift 3 is illustrated at the upper portion of the chair. This is placed in such a manner so that the adjuster if other than the patient may conveniently operate the locking means. If, however, the patient has use of his hands and so desires the adjusting handle means or shift 3 may conveniently be placed on the arm rest or any other suitable position according to the needs of the patient. Attached to shift 3 is the adjusting cable 4 which extends to and attaches to lock housing 5.

30 In the housing 5 is a spring or retractable means adapted to exert pressure to locking pin 6. Pin 6 acts as the male member of the locking means, and structure 7 acts as the receiving or female member of the locking means. Structure 7 is preferably a rigid tube or pipe having apertures to receive the pin 6; however, a flat member with notches may be used without departing from the spirit of this invention.

35 Encircling structure 7 is a rigid spring or resilient means 8 adapted to exert pressure on said support brace 11 in any position. Although only two springs 8 are illustrated, one could easily adapt the locking means to include as many resilient means as required. Below plate 9 are securing members or locking nuts 10.

40 Between braces 11 and connecting both is an angular plate structure 12. This plate maintains the separation of brace members 11 in a fixed relationship. The wheel axle is shown at 13. Two large wheels 14 supply the mobility means as in prior art chairs used. Wheel bars 15 extend from swivel wheels 17 through the axle of large drive wheels 14.

45 An angle plate is situated at the wheel bars 15 to maintain a rigid angular separation. Swivel wheels 17 are located one in the front and one in the back to balance all chair positions. Wheels 17 are also so positioned to permit easier turning and freedom of movement. At 18 the detachable arm rests are shown. These arm rests are so designed that any desired position can be attained. Complete removal is also provided for. Angular movement slat 19 and wing nut 20 provides means for adjusting or removing said arm rest.

50 At 21 is shown a foot rest rotatably mounted so as to be movable within 180° angle.

55 Figure 2 shows a top view of the chair frame. Swivel wheels 17 are attached to wheel bars 15 as a substantially midpoint position of the chair width. These wheels provide mobility and balance to the chair structure. Braces 16 maintain a rigid separation of wheel bars 15. Drive wheels 14 are shown at the structure sides. Body support

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1 is shown as a rigid one piece structure. A mattress or pad may be used on the one piece support if desired.

Referring to Figure 3, cable 4 is shown attached to lock housing 5. Locking pin 6 extends from housing 5 and acts as the male member of the locking means. Tube 7 has slots or apertures adapted to receive locking pin 6 to lock the chair in position. Spring means 8 exerts pressure on and supports braces 11. Braces 11 freely move along structure 7 when locking pin 6 is in a lifted position. Angular plate 12 maintains rigid separation of support braces 11. The wheel axle is shown at 13.

Figure 4 illustrates tube 7 as it passes through brace members 11. Also shown is L-plate 9 supporting springing means 8 and tube 7.

Figure 5 shows the removable arm rest 18. Illustrated also is the arm adjusting means or wing nut 20.

It should also be mentioned that this invention provides a foot rest 21 which is also adjustable to any desired position.

In the drawings and description set forth, the preferred embodiment is set forth, various ramifications and modifications will occur to those skilled in the art upon a reading of this basic disclosure. These are intended to be embodied within the scope of this invention.

I claim:

1. A movable invalid's chair comprising in combination a wheel structure means, a rigid one-piece body rest, a body rest adjusting means and a pair of body rest supporting braces, said one-piece body rest tiltably mounted on said wheel structure and adapted to be adjusted and locked in a desired position by said adjusting means, said rigid one-piece body rest comprising integral therewith a back rest portion, a seat portion, and a leg rest portion, said back rest portion inclined outwardly and upwardly from said seat portion, said leg rest portion inclined outwardly and downwardly from said seat portion; said body rest supporting means comprising a pair of V-shaped braces each positioned on the opposite side portions of said chair, the upper portion of said V-shaped braces secured to said one-piece body rest and the lower portion of said V-shaped braces in contact with and secured adjacent to the axle portion of said wheel structure means.

2. A movable invalid's chair comprising in combination a wheel structure means, a rigid one-piece body rest, a body rest adjusting means and a pair of body rest supporting braces, said one-piece body rest tiltably mounted on said wheel structure and adapted to be adjusted and locked in a desired position by said adjusting means, said rigid one-piece body rest comprising integral therewith a back rest portion, a seat portion, and a leg rest portion, said back rest portion inclined outwardly and upwardly from said seat portion, said leg rest portion inclined outwardly and downwardly from said seat portion; said body rest supporting means comprising a pair of V-shaped braces each positioned on the opposite side portions of said chair, the upper portion of said V-shaped braces secured to said one-piece body rest and the lower portion of said V-shaped braces in contact with and secured adjacent to the axle portion of said wheel structure means, said body rest adjusting means extending radially around and surrounding the upper portion of said axle means.

3. A movable invalid's chair comprising in combination a wheel structure means, a rigid one-piece body rest, a body rest adjusting means and a pair of body rest supporting braces, said one-piece body rest tiltably mounted on said wheel structure and adapted to be adjusted and locked in a desired position by said adjusting means, said

rigid one-piece body rest comprising integral therewith a back rest portion, a seat portion, and a leg rest portion, said back rest portion inclined outwardly and upwardly from said seat portion, said leg rest portion inclined outwardly and downwardly from said seat portion; said body rest supporting means comprising a pair of V-shaped braces each positioned on the opposite side portions of said chair, the upper portion of said V-shaped braces secured to said one-piece body rest and the lower portion of said V-shaped braces in contact with and secured adjacent to the axle portion of said wheel structure means, said body rest adjusting means comprising a semi-circular apertured structure, a locking pin, and a spring means, said semi-circular apertured structure extending radially around and surrounding the upper portion of said axle means, said locking pin adapted to fit into and lock with the apertures in said semi-circular structure, and said spring means wound around said semi-circular structure and adapted to exert a spring-locking effect in said body rest adjusting means.

4. A movable invalid's chair comprising in combination a wheel structure means, a rigid one-piece body rest, a body rest adjusting means and a pair of body rest supporting braces, said one-piece body rest tiltably mounted on said wheel structure and adapted to be adjusted and locked in a desired position by said adjusting means, said rigid one-piece body rest comprising integral therewith a back rest portion, a seat portion, and a leg rest portion, said back rest portion inclined outwardly and upwardly from said seat portion, said leg rest portion inclined outwardly and downwardly from said seat portion; said body rest supporting means comprising a pair of V-shaped braces each positioned on the opposite side portions of said chair, the upper portion of said V-shaped braces secured to said one-piece body rest and the lower portion of said V-shaped braces in contact with and secured adjacent to the axle portion of said wheel structure means, said body rest adjusting means comprising a semi-circular apertured structure, a locking pin, and a spring means, said semi-circular apertured structure extending radially around and surrounding the upper portion of said axle means, said semi-circular structure passing through the lower portion of said V-shaped braces, said locking pin adapted to fit into and lock with the apertures in said semi-circular structure, said spring means wound around said semi-circular structure and in contact at its upper portion to the lower outside portion of one of said V-shaped braces.

5. The chair of claim 4 wherein said spring is positioned substantially perpendicular to and substantially supporting said V-shaped braces when in a locked position.

6. The chair of claim 5 wherein there is positioned an adjustable foot rest and removable arm rests, said arm rests removably attached to said one-piece body rest and situated on both side portions of said chair, said adjustable foot rest adapted to be fixed at 0°-180° angles relative to the leg rest portion of said body rest.

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