

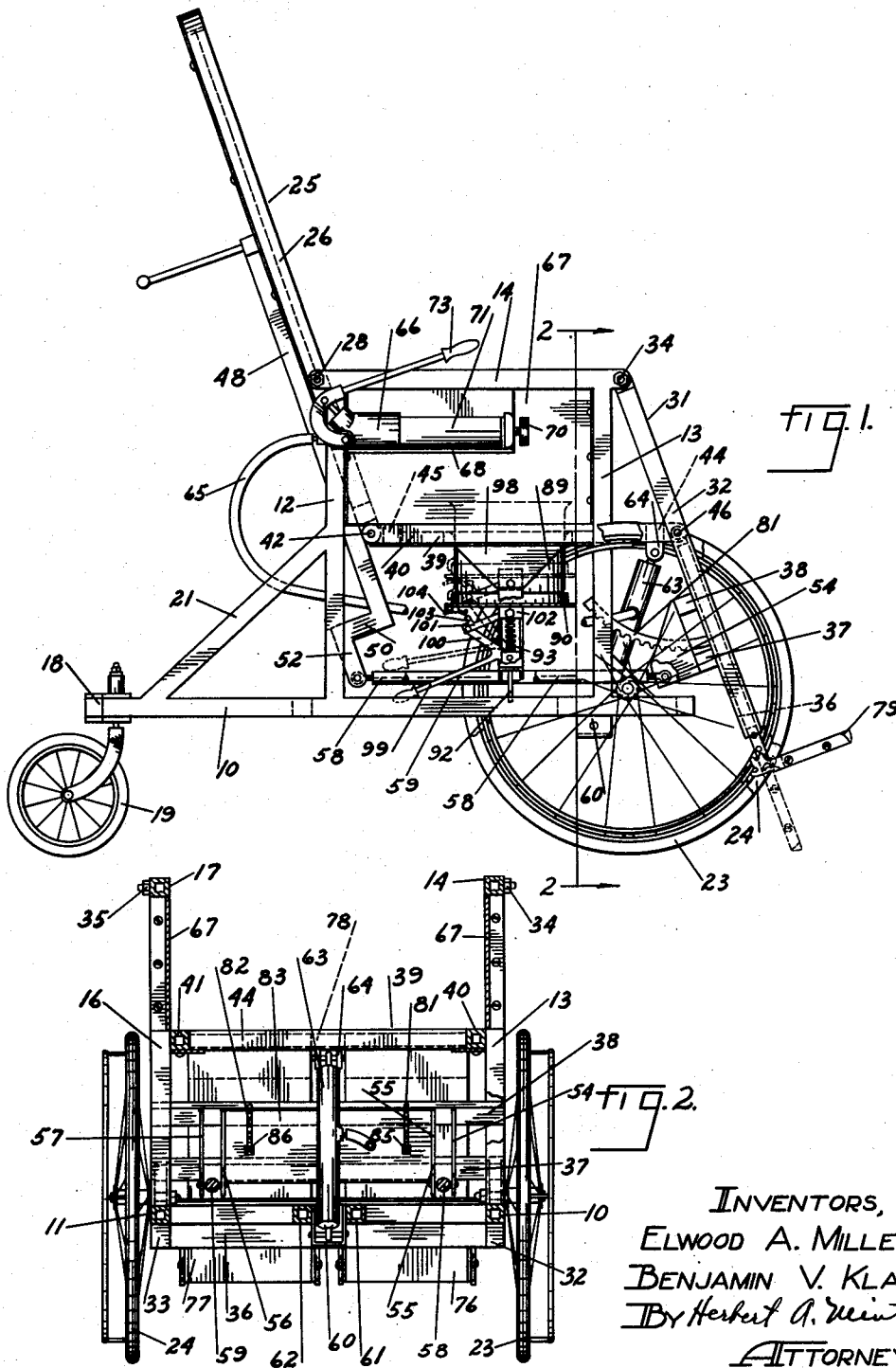
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ARMCHAIR THERAPY CART

2,676,643

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3 Sheets-Sheet 1



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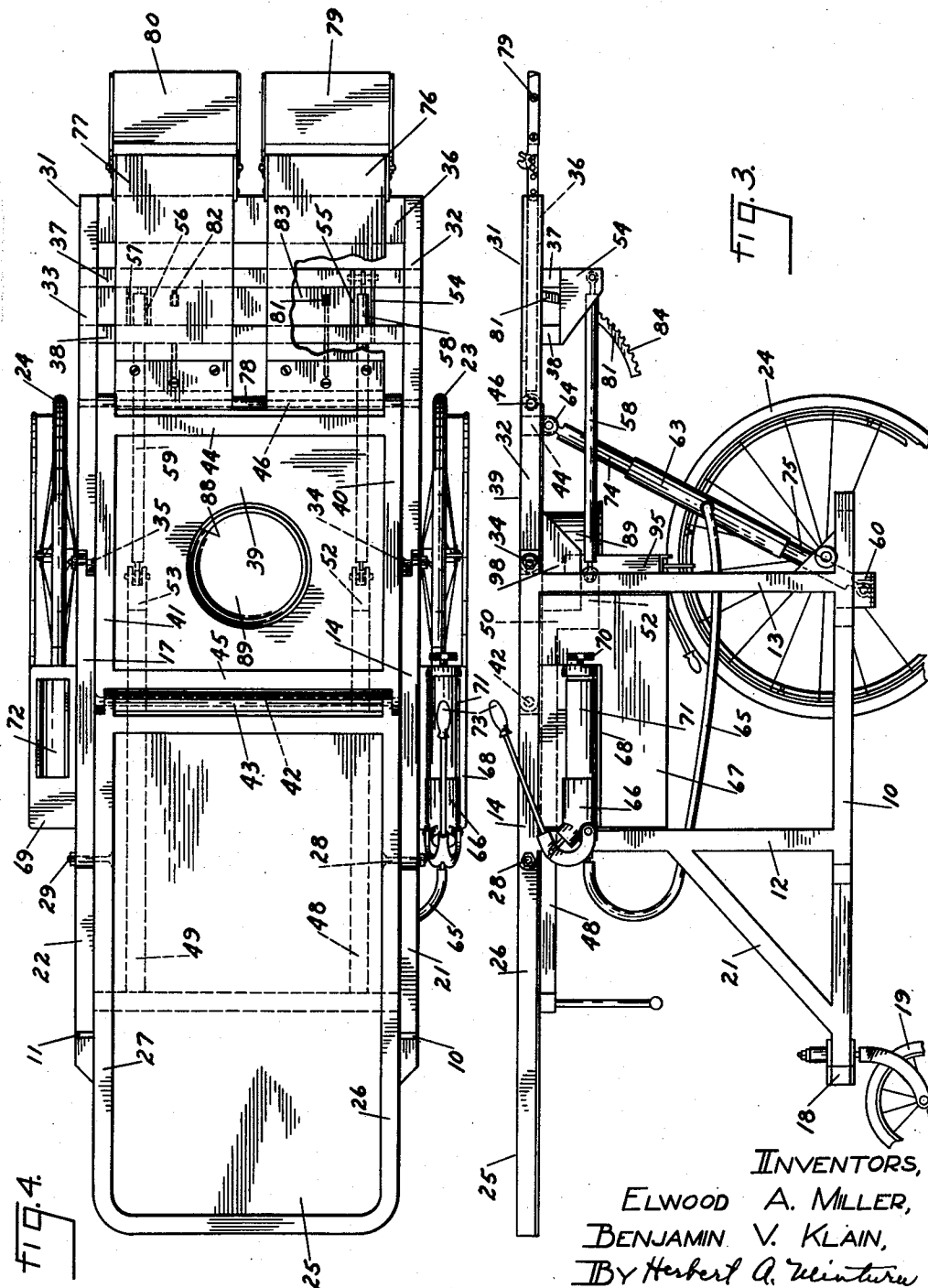
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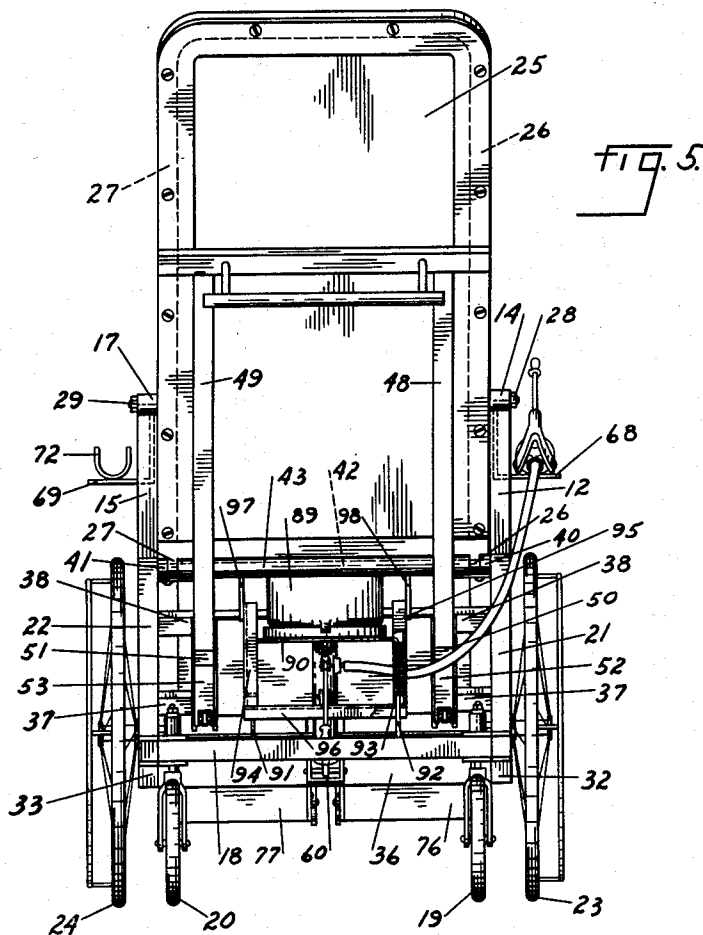
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UNITED STATES PATENT OFFICE

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ARMCHAIR THERAPY CART

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1 Claim. (Cl. 155—30)

1

This invention relates to a cart of substantially the same height as the top side of the customary hospital bed whereby a patient may be readily transferred from the bed to the cart, and then the cart, at will, may be transformed into a wheel chair by easy manipulation of a single lever, the wheel chair being adjustable in respect to the height of the seat and the inclination of the back.

The invention involves a structure which is extremely rigid when in the cart condition, and likewise is sturdy and free of any twisting action in any of the chair conditions. In the cart condition, there is a bed surface formed, the top side of which is in a common plane without any interruptions thereacross. In either the cart or chair position, the structure is extremely stable and is mounted on wheels for easy movement from place to place.

Medical authorities are now insisting upon patients having certain heart conditions to be up out of bed in a chair particularly, and yet these authorities are urging that a minimum amount of exertion be had in getting the patients into chairs and back from the chairs into bed for the prone position. This invention is particularly adapted for use by such persons, although its use is not limited thereto.

To those versed in the art, many advantages of the invention will become apparent in the following description of one particular form of the invention as illustrated in the accompanying drawings, in which

Fig. 1 is a view in side elevation and partial section of a structure embodying the invention shown in the chair condition;

Fig. 2 is a vertical section on the line 2—2 in Fig. 1;

Fig. 3 is a view of the same structure in side elevation shifted to the cart condition;

Fig. 4 is a top plan view of the structure in the cart condition; and

Fig. 5 is a view in rear elevation of the structure in the chair condition.

A foundation frame structure is formed to consist of the parallel fore and aft rails 10 and 11; the spaced apart, vertically disposed posts 12 and 13 on the right hand side interconnected by a horizontally disposed top rail 14; and spaced apart vertical posts 15 and 16 on the left hand side rising from the rail 11, interconnected by a top horizontally disposed rail 17. The side rails 18 and 19 extend rearwardly from the upright posts 12 and 15 a distance to be interconnected by their rear end portions by the cross rail 18. Near the

2

junctions of the cross rail 18 with the lower rails 10 and 11 there are mounted the caster wheels 19 and 20. Preferably braces 21 and 22 are employed to extend diagonally upwardly from near the rear end portions of the side rails 10 and 11 to the rear upright posts 12 and 15.

The lower side rails 10 and 11 extend forwardly beyond the front posts 13 and 16 and carry hand operated carriage wheels 23 and 24. These wheels 23 and 24 are preferably mounted upon a common horizontal axis at right angles to the rails 10 and 11.

A back section generally designated by the numeral 25 is formed to have side rails 26 and 27 carried in parallel relation, and rockably pivoted intermediate the ends of those respective rails 26 and 27 with rear end portions of the top rails 14 and 17. The bolts 28 and 29 constitute the pivot means in the present disclosure.

A foot board support generally designated by the numeral 31 has outer side rails 32 and 33 which are respectively hinged by their upper rear end portions to the forward ends of the top rails 14 and 17. These side rails 32 and 33 are pivoted to the rails 14 and 17 by means of the bolts 34 and 35. This board support 31 has the side rails 32 and 33 interconnected by a lower transverse member 36 and two intermediate cross members 37 and 38.

A seat frame generally designated by the numeral 39 has parallel side members 40 and 41 each respectively connected by its rear ends with the lower ends of the back side rails 26 and 27. This interconnection between those respective rails is through a rod 42 passing through a spacer tube 43. The side members 40 and 41 are interconnected by frame members 44 at the front, and 45 at the rear, Fig. 4.

The forward ends of these side rails or members 40 and 41 are rockably interconnected with the foot support member side rails 32 and 33, by means of a through rod 46. The location of the rod 42 in reference to the pivot bolts 28 and 29 is at a distance therefrom equal to the distance between the bolts 34, 35 and the rod 46 as measured along the respective rails 32 and 33. That is, the rails 40 and 41 are at all times parallel to the top rails 14 and 17.

There are provided a pair of spaced apart rails 48 and 49 secured to the back side of the frame 25 to extend downwardly therealong and below the pivot rod 42, Fig. 1, to have a lower end portion turned substantially perpendicularly backwardly therefrom designated by the numerals 50 and 51 respectively, from the rear ends of which

there are turned downwardly the legs 52 and 53 respectively in parallel relation to the members 48 and 49. Then there are provided two pairs of spaced apart plates 54, 55 and 56, 57 bridging across the cross members 37 and 38. The rods 58 and 59 pivotally interconnect lower ends of the legs 52 and 53 to extend therefrom forwardly to be pivotally interconnected respectively by their forward ends between the plates 54, 55 and the plates 56, 57. The locations of the ends of these tie rods 58 and 59 are made to be such that the rods themselves are maintained in parallel relations with the seat frame side members 40 and 41.

A bracket 60 is carried in fixed position centrally between the frame side rails 10 and 11, such as upon the intermediate rails 61 and 62. A hydraulic cylinder 63 is rockably mounted on this bracket 60 to extend forwardly and upwardly to interconnect through a bracket 64 with the forward end portion of the seat frame 39. The bracket 64 is herein shown as being mounted on the front cross rail 44 of this member 39. The cylinder 63 is preferably of the double acting type, and is interconnected with a fluid supply hose 65 which in turn connects with a hydraulic pump and reservoir 66 which may be selectively mounted and attached to either the right or left hand side of the device. The upper spaces between the vertical posts 12 and 13 on the one side and 15 and 16 on the other side is preferably filled in by a plate 67 in each instance. There is mounted on this plate 67 to extend outwardly therefrom a shelf 68 on the right hand side and 69 on the left hand side. On each of these shelves is respectively fixed U-shaped spring clips 71 and 72 respectively within which the unit 66 may be yieldingly received and retained. The unit 66 has an operating handle 73 directed upwardly and forwardly herein shown as being positioned alongside the rail 14, Fig. 2.

By suitable up and down rocking of the lever 73, the unit 66 is actuated to force fluid therefrom under pressure through the line 65 to the cylinder 63 so as to cause the piston rod ends 74 and 75, Fig. 3, to extend therefrom, and tend to push the forward end of the seat member 39 upwardly. This upward travel can be had only by causing the back member 25 to rock about its pivot bolts 28 and 29 which will lower the upper end of that member 25 and lift the lower end, and simultaneously rock forwardly and upwardly the foot board support member 31, to bring eventually all of the members into the cart position as indicated in Figs. 3 and 4, where the back member 25, the seat member 39, and the leg support member 31 are in straight line positions with their top sides in substantially a common plane, this plane being horizontally disposed. The various members, 25, 29, and 31, can be brought to any desired intermediate positions depending upon the degree of manipulation of the handle 73, and those members will remain stationary as those selected positions may be determined. In other words, the device may be shifted from the chair condition as shown in Figs. 1, 2 and 5 to the cart condition as shown in Figs. 3 and 4 simply by manipulation of the lever 73. To return the various members from the cart position to the chair position, the valve control member 70 may be manipulated to release the pressure in the line 65 so that the various members will tend to return to their positions under the influence of gravity, that is to the chair position. The under structure embodying the frame members 10 and 11 and the posts 12, 13 and 15, 16 are so

proportioned in relation to the sizes of the wheels 19, 20 and 23, 24, that when the device is in the cart position as indicated in Figs. 3 and 4, the upper side thereof will be in substantially the same horizontal plane as that of the standard hospital bed. It is to be understood, of course, that the structure being shown and described will normally carry upholstering or mattress-like covering across the members 25 and 39 as well as on the foot boards which are to be described, this covering or upholstery being omitted for the sake of preventing confusion in the illustration of the various parts and their interconnection.

The foot board support 31 has hinged thereover a pair of foot boards 76 and 77, these boards 76 and 77 being hinged on the rod 46 which, as above described, constitutes the pivot rod on which the member 31 itself is hinged to the forward ends of the side members 32 and 33. These foot boards 76 and 77 are spaced along the rod 46 by a central tubular spacer 78. The lower ends of these foot boards 76 and 77 carry the usual step boards 79 and 80 which may be adjustable from the positions shown in solid lines, Fig. 1, to positions shown by the dash lines substantially in a common plane with the boards 76 and 77. The exact means for interengaging the step boards 79 and 80 with the foot or leg boards 76 and 77 is of standard construction, well known to those versed in the art, and therefore is not herein described.

These foot or leg boards 76 and 77 may be elevated by rocking them about the pivot rod 46 in relation to the member 31, and held in the rocked positions by means of the arcuate rack bars 81 and 82 which are fixed to the rear sides of the boards respectively to extend through a plate 83 which is fixed on the forward sides of the cross frame members 37 and 38, Fig. 2. The teeth 84 of the rack bar in each instance interengage with the margin of the holes 85 and 86 through which the bars extend.

The seat 39 is provided with a hole 88 there-through, through which a pan 89 may be raised and lowered. This pan 89 is supported upon a platform 90, in turn supported by diametrically spaced apart vertically attached posts 91 and 92 which pass through a spring 93 in each instance carried by vertically disposed channel irons 94 and 95. These channel irons 94 and 95 are tied together at their lower ends by a cross bar 96. The upper ends of the channel bars 94 and 95 are attached to brackets 97 and 98 in turn secured to the under side of the seat 39.

By means of that structure the framework consisting of the channels 94, 95, 96 and brackets 97 and 98 are carried with the seat 39 as it may be raised and lowered in respect to the cart and chair positions of the various elements above described.

The raising and lowering of the pan 89 is accomplished by means of operating a rearwardly directed lever 99 which is pivoted centrally of the cross bar 96 and carries an arm 100 to form with the lever 99 a bell crank. From the outer end of the arm 100 there is a second lever 101 pivotally connected thereto, by one end, and by its other end pivotally connected to a bracket 102 attached to the under side of the platform 90. By rocking the lever 99 upwardly to the position shown in the dash lines, Fig. 1, the pan 89 may be elevated to some such position as indicated by the dash lines above the seat 39. The pan 89 may be maintained in the elevated position by any suitable latching means, herein shown as by

5

means of the hook 103 engaging the releasable latch 104 carried on the underside of the platform 90. By rocking the lever 99 downwardly, upon releasing the latch 104, the platform 90 is lowered against the springs 93 to permit the pan 89 to be removed from the under side of the seat 39, preferably from the rear side thereof.

Thus it is to be seen that we have provided a simplified structure which may be employed not only as a cart onto which patients may be readily placed from the usual bed, but may be then manipulated very readily without exertion to any appreciable extent by the patient into a chair formation. Then the reverse is true that the patient may be shifted while on the chair into the entirely recumbent position as on the cart form, from which the patient may be readily transferred from the bed at the same level.

Therefore while we have described the invention in the one particular form, it is obvious that structural changes may be employed without departing from the spirit of the invention, particularly in the mechanical design of the supporting framework and the like, and we therefore do not desire to be limited to that precise form beyond the limitations which may be imposed by the following claim.

We claim:

A combined wheel chair and cart comprising a foundation structure having a pair of fixed, uppermost horizontally disposed side rails; a back frame having side rails; said back frame rails at points intermediate at their upper and lower ends being directly pivoted to the rear ends of said foundation rails; a foot board support frame having side rails, the upper ends of which rails are directly pivoted to the front ends of said foundation rails to hang downwardly therefrom;

6

a seat frame having side rails; the rear ends of which rails are directly pivoted to the lower ends of said back frame rails, and the front ends of which seat rails are directly pivoted to said foot board support frame rails below said foundation rails; said seat and foundation rails being parallel to each other, and the lengths between pivot points thereon being the same; a pair of members extending downwardly from the lower end of said back frame rails with front faces in approximately the plane of the back side of the back frame; a pair of tie rods pivotally connected by rear ends with lower end portions of said members and pivotally interconnected by their forward ends to said foot board support frame to be in parallel relation with said seat frame rails; and a hydraulic cylinder motor connected by a lower end to a forward portion of said foundation structure below said seat frame and inclined forwardly and upwardly to connect by its upper end with a forward end portion of said seat frame, rockably shifting and holding said back, seat, and foot support frames between chair and cart, and intermediate position, the axis of said motor being forwardly inclined in all of said positions.

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