

Sept. 2, 1958

L. F. WILSON
INVALID CHAIR ASSEMBLY

2,850,075

Filed April 27, 1956

5 Sheets-Sheet 1

FIG. 1

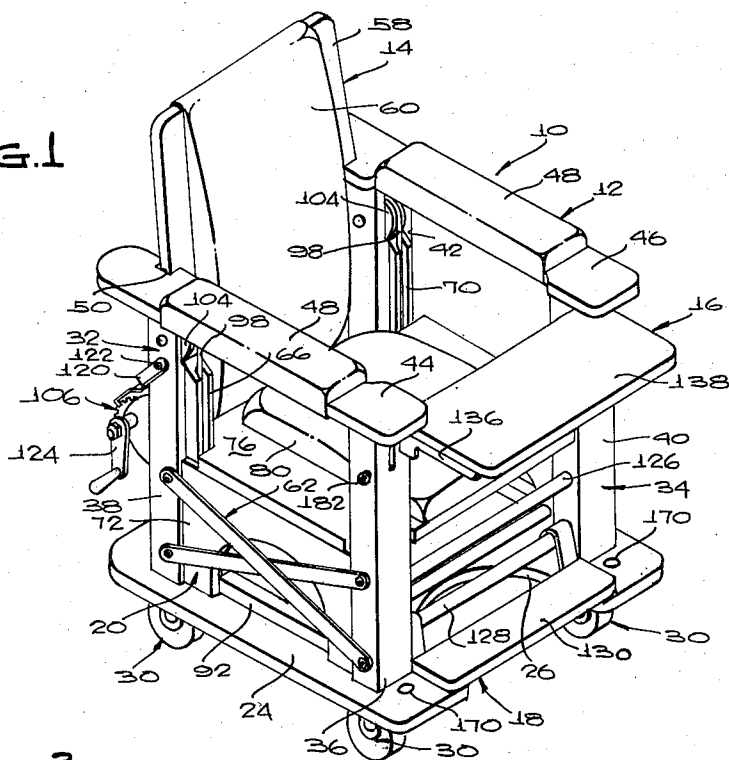
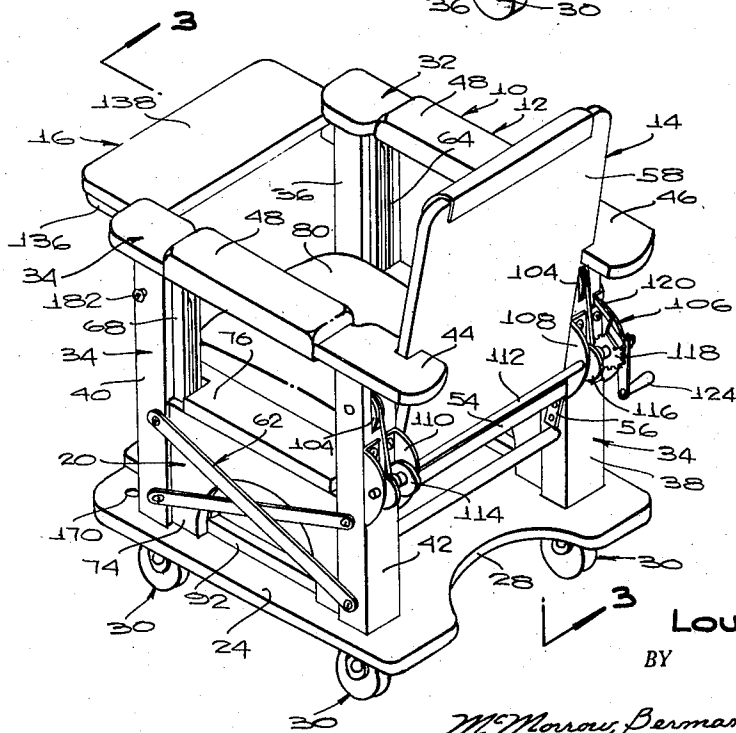


FIG. 2



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FIG. 3

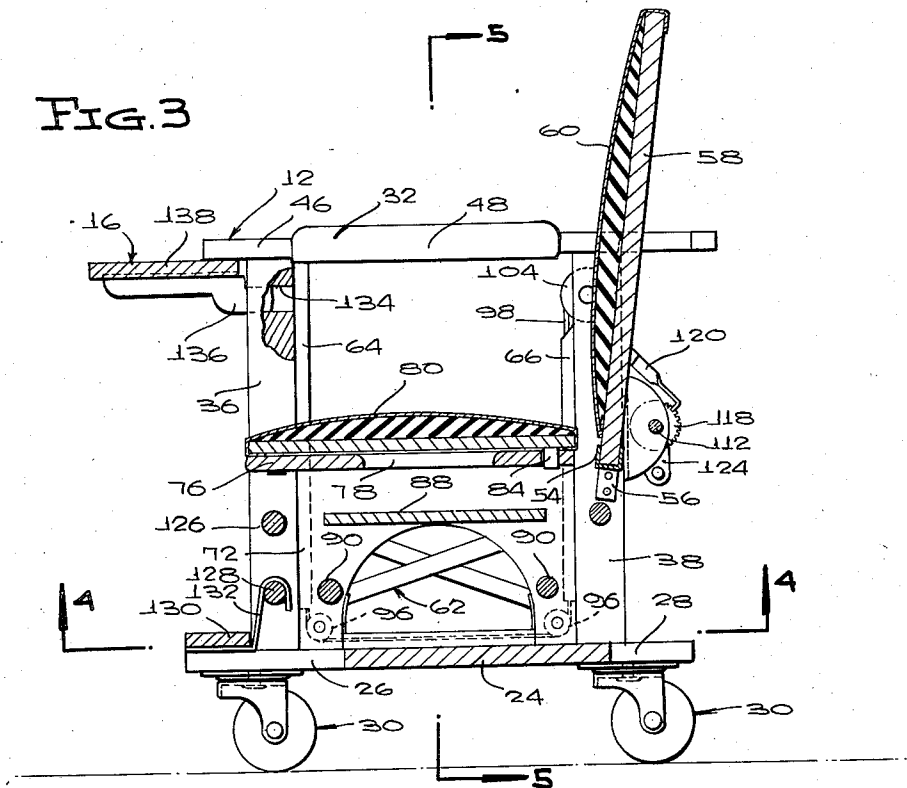
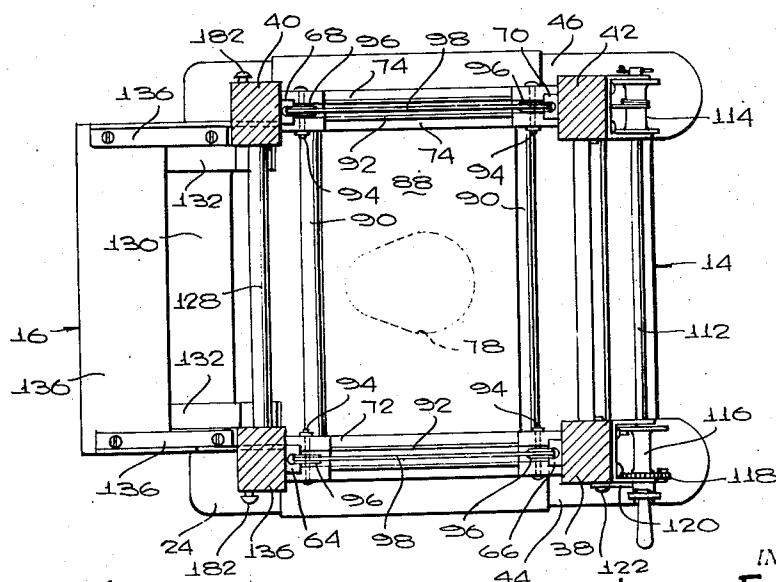


FIG. 4



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FIG. 5

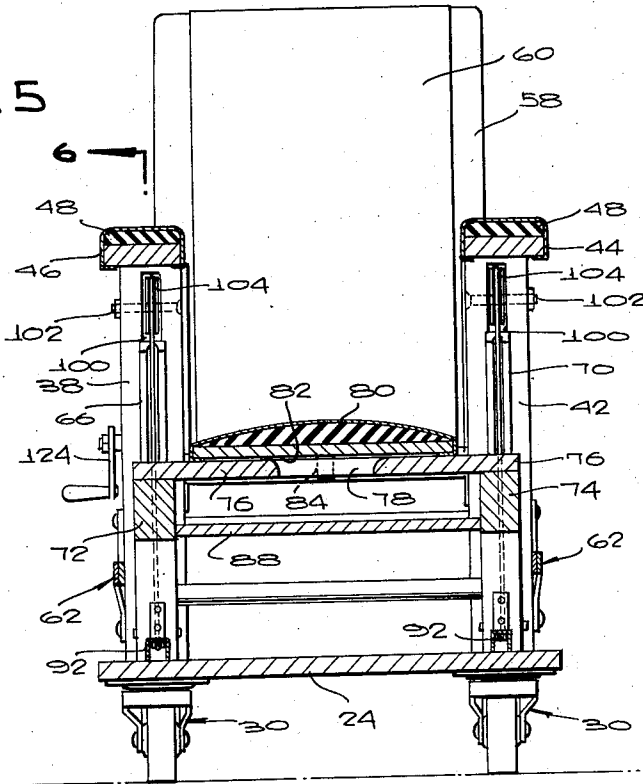
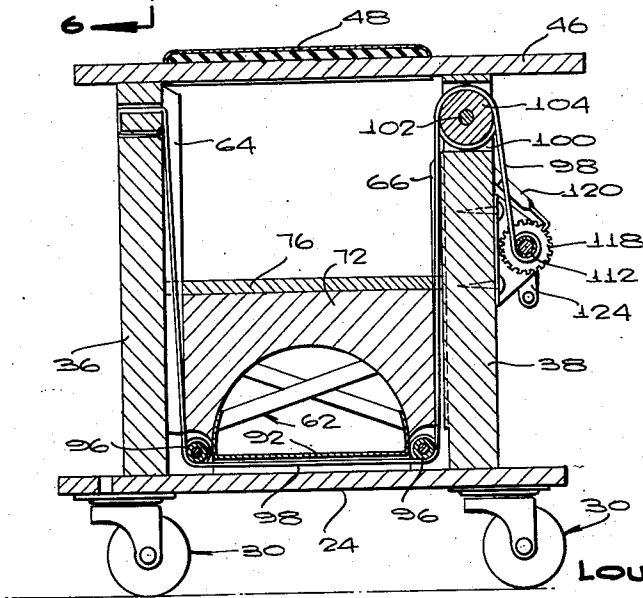


FIG. 6



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FIG. 7

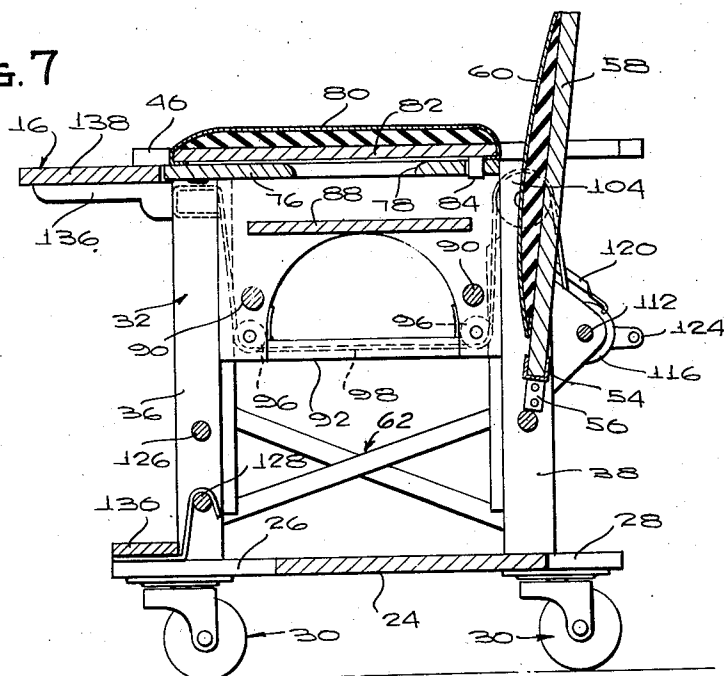
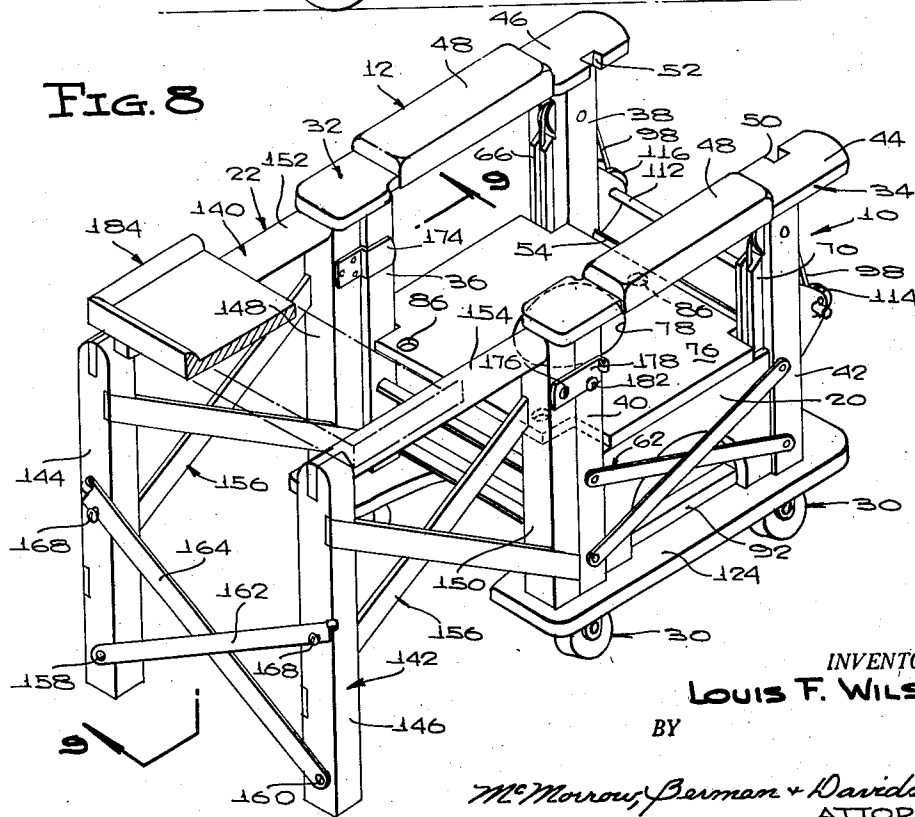


FIG. 8



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This diagram shows a side cross-section of the device. It features a vertical support member 10 with a horizontal arm 184 at the top. A diagonal brace 156 connects the vertical member to a lower horizontal member 144. The bottom of the device includes a base plate 24 with a wheel 30 attached via a pivot 172. Various fasteners and adjustment points are labeled, including bolts 162, 164, 166, 168, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000.

FIG. 10 is a perspective view of a frame assembly. The assembly includes a vertical member 150, a horizontal member 152, and a diagonal member 142. The vertical member 150 has a top flange 166 and a bottom flange 160. The horizontal member 152 has a top flange 142 and a bottom flange 156. The diagonal member 142 is connected to the vertical member 150 at its top end by a joint 164 and to the horizontal member 152 at its bottom end by a joint 172. A cross-section detail of the joint 172 is shown in FIG. 11, which includes a vertical member 150, a horizontal member 152, and a diagonal member 142. The detail shows a cross-section of the joint 172, which includes a vertical member 150, a horizontal member 152, and a diagonal member 142. The detail shows a cross-section of the joint 172, which includes a vertical member 150, a horizontal member 152, and a diagonal member 142. The detail shows a cross-section of the joint 172, which includes a vertical member 150, a horizontal member 152, and a diagonal member 142.

FIG. 11

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INVALID CHAIR ASSEMBLY

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2 Claims. (Cl. 155—30)

This invention relates generally to furniture and the like and is more particularly concerned with a novel invalid chair assembly.

A primary object of invention is to provide a novel invalid chair assembly including means for facilitating the transfer of a patient from a bed, for example, including means for providing for the personal comfort of such patients as well as means for providing exercising facilities for such patients.

A further object of invention in conformance with that set forth is to provide a novel invalid chair assembly including a support frame assembly incorporating side frame members having an upper transverse arm rest portion, a vertically adjustable carriage assembly reciprocally supported between the side frame members and including a horizontal bearing surface adjustable to a substantially planar aligned position relative to the arm rest portions, further including removable foot rest and tray members and a vertically displaceable and removable back rest member.

Another object of invention in conformance with that set forth is to provide a novel invalid chair assembly of the character involved a parallel-bar support assembly removably secured in spaced forwardly extending longitudinal relationship relative to the side frame members of the chair assembly.

And yet another object of invention in conformance with that set forth is to provide in a novel invalid chair assembly of the character involved a removable cover or seat member overlying a relief aperture in the horizontal bearing surface portion of the carriage assembly and further including means for readily supporting a removable relief container disposable beneath the aforementioned relief aperture.

And yet another object of invention in conformance with that set forth is to provide in a novel invalid chair assembly of the character involved power means for raising and lowering the carriage assembly of the invalid chair which includes a sling member disposed beneath the carriage assembly and including a winch assembly for changing the effective length of the sling for raising and lowering the carriage assembly, said winch assembly including means for retaining the carriage assembly in various positions of vertical adjustment.

And a still further object of invention in conformance with that set forth is to provide a novel invalid chair assembly which is readily and economically manufactured, readily used and maintained, and highly practical, serviceable and acceptable for the purpose intended.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a front perspective view of the novel invalid chair assembly;

2.

Figure 2 is a rear perspective view of the novel invalid chair assembly;

Figure 3 is a sectional view taken substantially on line 3—3 of Figure 2;

Figure 4 is a sectional view taken substantially on line 4—4 of Figure 3;

Figure 5 is a sectional view taken substantially on line 5—5 of Figure 3;

Figure 6 is a sectional view taken substantially on line 6—6 of Figure 5;

Figure 7 is a sectional view similar to Figure 3 showing the carriage assembly of the novel invalid chair assembly in an elevated position;

Figure 8 is a perspective view of the novel invalid chair assembly with the back rest member thereof removed, the removable cover member of the bearing surface portion removed, and showing the parallel-bar assembly in its installed position, a portion of a removable tray disposable on the parallel-bar assembly being broken away and shown in section;

Figure 9 is a fragmentary sectional view taken substantially on line 9—9 of Figure 8;

Figure 10 is an enlarged fragmentary sectional view taken substantially on line 10—10 of Figure 9; and

Figure 11 is a perspective view of one of the rail assemblies of the parallel-bar assembly.

Referring to the drawings in detail, as seen in Figure 1, the novel invalid chair assembly is indicated generally at 10 and includes a support frame assembly 12, a removable back rest member 14, a removable tray member 16, a removable foot rest member 18, a vertically adjustable carriage assembly 20, and as seen in Figure 8, a removable parallel-bar assembly 22.

The support frame assembly 12 includes a horizontal base member 24 of a rectangular shape having forward and rear cut-out portions 26 and 28, respectively, permitting a person handling a patient to be disposed on the chair assembly to move adjacent such a patient, the base member 24 having suitably secured on the lower surface portion thereof adjacent the corners caster wheel assemblies 30 of any suitable character which facilitate the maneuverability of the invalid chair assembly.

The base member 24 has extending vertically in suitable secured relationship on the upper surface thereof, side frame members indicated generally at 32 and 34, said side frame members including pairs of vertically extending posts 36 and 38, and 40 and 42, the posts 36 and 40 being the forward posts and the posts 38 and 42 being the rear posts. The posts 36 and 38, and 40 and 42 have extending longitudinally between upper end portions thereof and secured in any suitable manner thereto arm rest elements 44 and 46, respectively, intermediate portions of which having suitably secured thereon a padded portion 48 which may conveniently comprise a foam rubber foundation covered by a suitable leather or plastic covering material. The arm rests portions 44 and 46 include adjacent the rear ends thereof opposed notch portions 50 and 52, respectively, see Figure 8, which overlie an upwardly opening support channel element 54; which extends transversely between opposed inner surface portions of the posts 38 and 42, being secured thereto by means of integral angular flange portions 56 on said channel member 54 which are suitably apertured for receiving therethrough suitable fastening elements, see Figure 3, for example.

The back rest member 14 includes a substantially rectangular panel member 58, opposite side portions of which extending through the notches 50 and 52 of the arm rest portions 44 and 46, the lower edge portion of panel 58 being removably received within the upwardly opening channel member 54. The central portion of the panel member 58 of the back rest member may be suitably up-

holstered as indicated at 60, see Figure 3, for example, the upholstery conveniently comprising a base or foundation of foam rubber, for example, being covered by a suitable sheet of leather or plastic material, for example.

In order to maintain the posts 36 and 38, and 40 and 42 in a substantially rigid assembled condition suitable brace assemblies indicated generally at 62 may be secured in transverse relationship therebetween adjacent the lower end portions of said posts.

The posts 36 and 38 have suitably secured on opposed inner surface portions vertically extending guide channel or track elements 64 and 66, respectively, and the posts 40 and 42 include on similar opposite inner surface portions suitably secured guide rails or track elements 68 and 70, respectively, see for example Figures 1 and 2.

The vertically adjustable carriage assembly 20 includes side panel portions 72 and 74 which respectively extend transversely between the guide rails or track elements 64 and 66, and 68 and 70. Said panel portions having suitably secured therebetween a horizontal bearing surface portion comprising a panel member 76 which has a centrally located relief aperture portion 78 extending therethrough. Disposed in overlying removable relationship on panel 76 for covering the relief aperture 78 is a cover member 80 which is conveniently upholstered for comfort of a patient using the chair assembly, conveniently including a foam rubber base and leather outer surface covering as clearly seen in Figures 3 and 5, for example. The cover member 80 includes a lower panel portion 82 having a plurality of downwardly extending positioning pegs 84 which are extendable through suitable apertures 86 in the transverse panel member 76. The panel member 76 is notched at its corners to receive the respective posts 38 through 42 therein, and the side panels 72 and 74 include vertical groove or channel portions overlying the previously mentioned guide ribs or track elements permitting the carriage assembly to be adjusted to a vertical position as seen in Figure 7, for example, wherein a cover or seat portion 80 is in substantially planar alignment with the upholstered arm rest portions 48 of the support frame assembly. When the carriage assembly is so adjusted, the structure for accomplishing this purpose to subsequently be described, a patient may be readily transported from a bed inasmuch as the arm rests will be approximately the same level as the upper surface of a bed upon which a patient is reclining.

The side panel members 72 and 74 have extending transversely therebetween and secured in any suitable manner thereto a support shelf member 88 which will support on the upper surface thereof in underlying relationship relative to the relief aperture 78 a removable relief container, such as a urinal, for example.

The side panel portions 72 and 74 may have suitably secured in transverse relationship therebetween brace rod elements 90, see Figure 4, and may include semi-circular downwardly opening cut-out portions as clearly seen in Figures 1 and 2, for example. Each of the side panel portions 72 and 74 include on the lower edge thereof a longitudinally extending downwardly opening guide channel member 92 suitably secured thereon, said panel portions 72 and 74 including at opposite forward and rear ends transverse support shafts 94 which have journaled thereon pulley elements 96, see Figures 3 and 4, for example, which have threaded thereon an intermediate portion of a lifting sling 98, said sling comprising a suitable flexible wire cable, for example. The sling 98 extends vertically through the respective track elements 64 through 70, it being noted that two slings are provided in the chair assembly, the forward end portion of said slings 98 being threaded through suitable apertures in the upper end of the forward legs 36 and 40, see Figure 6, for example. The rear legs 38 and 42 have extending transversely through upper end portions thereof and in alignment with the guide tracks 66 and 70, see Figures 5 and 6, transverse slot portions 100 which have extending trans-

versely therethrough support shafts 102 upon which are suitably journaled guide pulleys 104 over which the slings 98 are journaled.

Power means comprising a winch assembly indicated generally at 106 is provided for changing the relative length of the sling assemblies 98 for the purpose of raising and lowering the carriage assembly 20. The power means or winch assembly 106 includes aligned journal bracket elements 108 and 110 respectively secured in any suitable manner on rear surface portions of the legs 38 and 42, said bracket elements having extending therebetween a transverse shaft member 112. The shaft 112 has suitably secured thereon in spaced relationship a drum element 114 and 116 which are in planar alignment with the guide pulleys 104 which comprise pairs of spaced disc elements, and an end portion of the sling 98 is secured to the shaft 112 between said disc elements, see Figure 2. The disc element 118 of the drum element 116 is serrated at its outer periphery as clearly seen in Figure 2, being engageable with vertically pivotal latch element 120 pivotally supported at 122 in the post 38, see Figure 1. The shaft 112 has suitably secured on the end portion thereof a manually operable crank member 124, and thus when the latch element 120 is raised from engagement with the serrated disc 118 the handle 124 may be rotated for obtaining various desired positions of vertical adjustment of the carriage assembly 20.

The posts 36 and 40 have extending therebetween suitably secured vertically spaced transverse support rods 126 and 128. The foot rest member 18 includes an elongated bottom member 130 having extending from opposite ends thereof hook elements 132, see Figures 3 and 4, for example, which are extendable in overlying relationship relative to the transverse support rods 126 or 128 wherein the bottom member 130 will be disposed in overlying relationship relative to the base member 24 of the support frame assembly or in engagement with the forward side portions of the posts 36 and 40.

The posts 36 and 40 include forwardly opening slot portions 134, see Figure 3, for example, which receive therein mutually parallel arm portions 136 which are secured on an undersurface portion of a support member 138 of the tray member 16 adjacent opposite side edge portions thereof. Thus the tray member 16 is readily removable facilitating the placing of a patient in the chair assembly. The rear portion of the panel member 138 is disposed between the arm rests 44 and 46 wherein when weight is placed on the forward surface portion thereof said tray member will be retained against accidental displacement from the leg members 36 and 40.

The parallel-bar support assembly includes a pair of inverted U-shaped rail assemblies indicated generally at 140 and 142 which include forward vertical leg elements 144 and 146, respectively, rear vertical leg elements 148 and 150, respectively, the leg elements 144 and 148 having extending transversely therebetween and secured in any suitable manner to the upper end portions thereof a bight 152 and constituting a handrail element, the leg elements 146 and 150 having secured to their upper end portions a bight 154 and constituting a similar hand rail element. The aforementioned structure is most clearly seen in Figures 8 through 11. For the purposes of rigidity, suitable brace assemblies are permanently secured between the leg elements 144 and 143, and 146 and 150 said brace assemblies being indicated generally at 156. Pivotally supported by means of suitable pivot elements at 158 and 160 on lower forward surface portions of the leg elements 144 and 146 are detachable brace elements 162 and 164, respectively, which include a notch portion 166, see Figure 11, which is extendable over the forwardly extending support pin element 168, see Figure 8, disposed in vertically spaced relationship relative to the pivot elements 158 and 160 wherein when the parallel-bar support assembly is assembled as

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seen in Figure 8, the brace elements 162 and 164 will be diagonally disposed as clearly seen in Figure 8.

The leg elements 148 and 150 are shorter than the forward leg elements 144 and 146, respectively, and extend between an upper surface portion of the support base 24 and an under-surface portion of the arm rest elements 46 and 44, respectively. The base portion 24 has extending transversely therethrough aperture portions 170, see Figure 1, receiving therein longitudinally extending pin elements 172 extending from the bottom of leg elements 148 and 150. The leg elements 148 and 150 have extending laterally therefrom strap elements 174 (only one being shown) engageable with an inner surface portion of the posts 36 or 40, and pivotally secured on the opposite side of the leg elements 148 and 150 by means of the pivot pin element 176 is a vertically rotatable latch element 178. The latch element 178 includes a lower notched edge portion 180, see Figure 11, engageable over laterally extending pin elements 182 extending from opposite sides of the posts 38 and 40. Thus the parallel-bar support assembly may be readily mounted on the support frame assembly providing an exercising facility for a patient utilizing the chair.

Indicated generally at 184, see Figures 8 and 9, is a removable tray assembly which extends transversely across the hand rail portions 152 and 154 of the rail assemblies 140 and 142.

Thus there has been disclosed a novel invalid chair assembly which fully conforms with the objects of invention heretofore set forth.

Various positional directional terms such as "upper," "lower," etc. are utilized herein to have only a relative connotation to aid in describing the device and it is not intended to require any particular orientation with respect to any external elements.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not intended or desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed is:

1. In an invalid chair assembly, a mobile horizontal base member having a forward edge, a rear edge and a pair of side edges, an upstanding side frame member positioned along each of the base member side edges, each of said side frame members including a pair of posts and an armrest element extending between and supported on the upper ends of the posts and positioned

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so that the armrest element extends along the adjacent base member side edge with one of the posts adjacent the base member forward edge and the other of the posts adjacent the base member rear edge and having the lower ends of the posts fixedly secured to said base member, a track element extending along the portion of each of said posts between said base member and the adjacent armrest element, the track elements on the posts adjacent the base member forward and rear edges facing each other, a carriage assembly superimposed upon the portion of said base member between the posts of said side frame members, said carriage assembly comprising a pair of upstanding side panel members and a horizontal panel member extending between and supported on the upper ends of said panel members and arranged so that each of the side panel members rests upon said base member with the side edges slidably received in the facing track elements of the contiguous posts adjacent the base member forward and rear edges, a cover member superimposed upon the horizontal panel member, said cover member being normally below and spaced from said armrest elements, and means carried by said side frame members and operatively connected to said carriage for selectively elevating said carriage to a position in which said cover member is closer to or in substantial planar alignment with said armrest elements.

2. The invalid chair assembly according to claim 1 which includes in addition an upwardly opening support channel element extending transversely between the posts of each said side frame members adjacent the rear edge of said base member contiguous to and spaced above said base member and carried by said posts, and a vertically displaceable back rest member having the lower end removably supported in said channel element and having the side edges removably received in means formed in the armrest elements of said side frame members.

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