

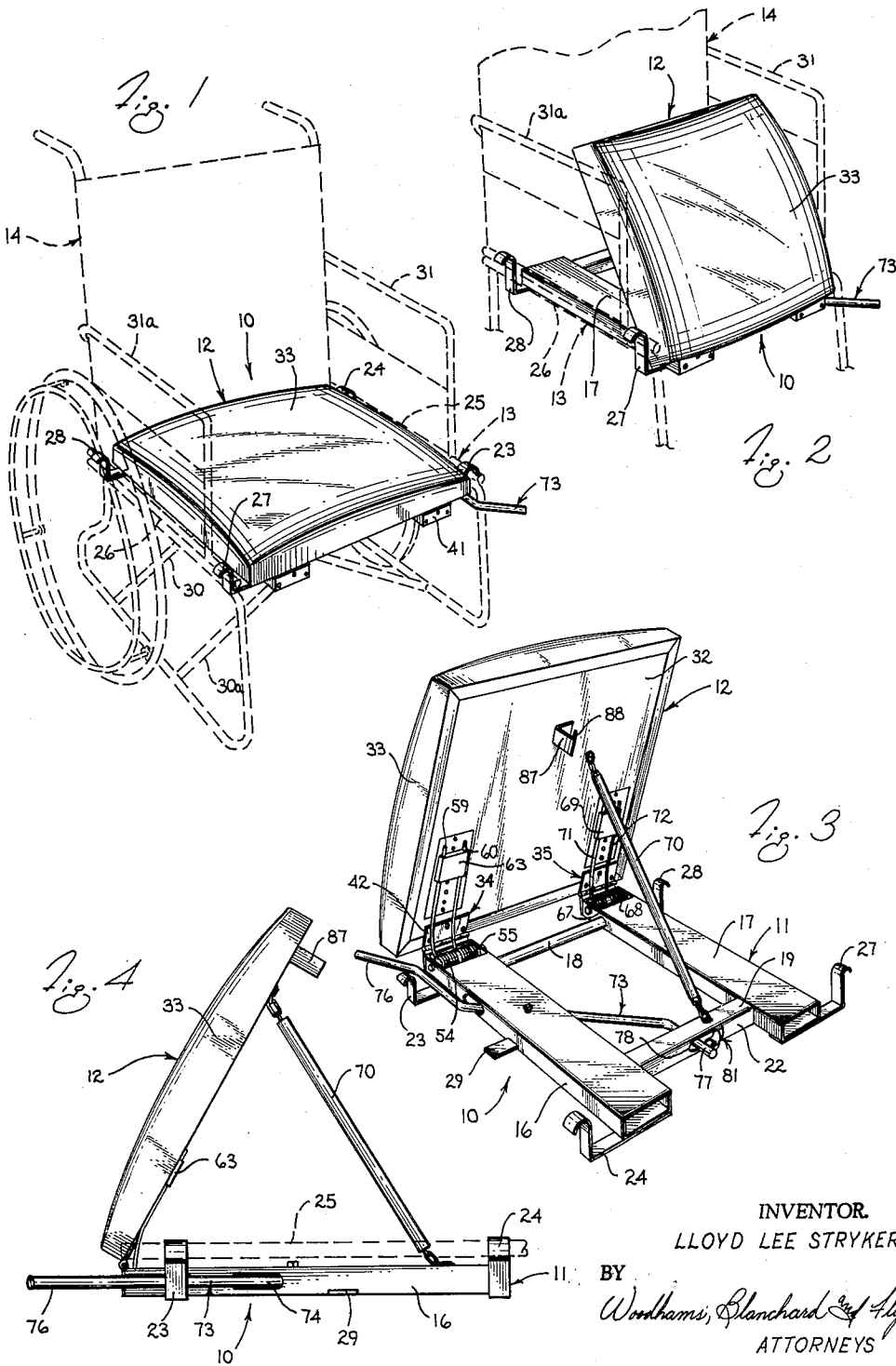
Nov. 24, 1964

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SEAT CONSTRUCTION

3,158,398

Filed Sept. 14, 1962

4 Sheets-Sheet 1



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Fig. 5

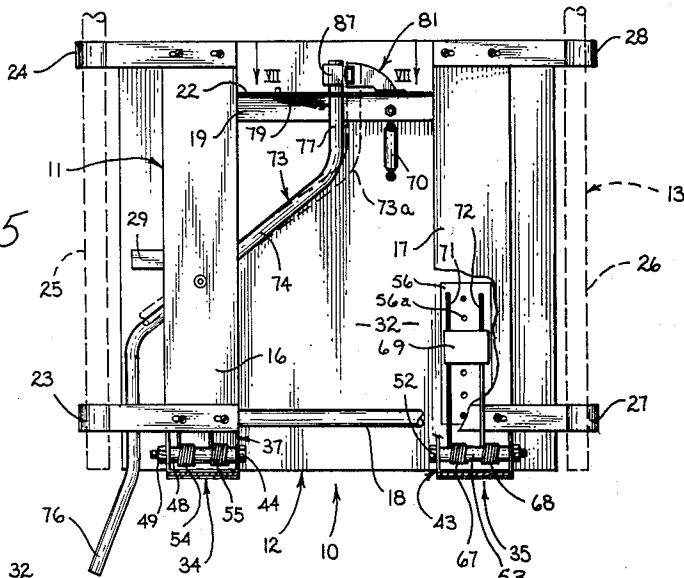


Fig. 7

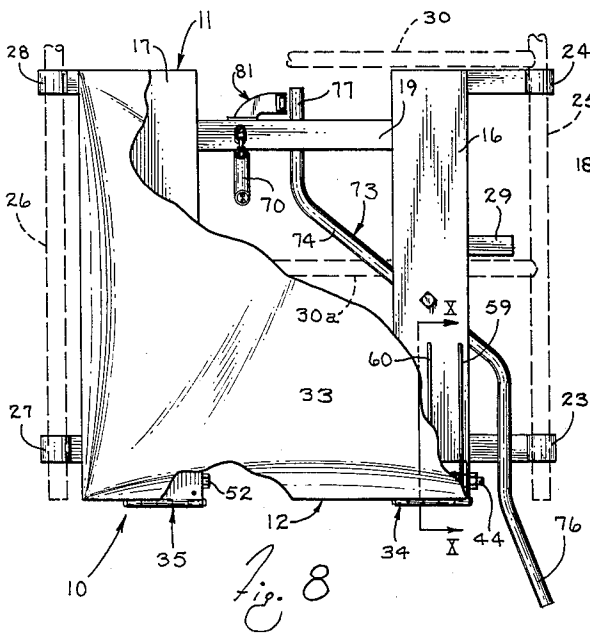
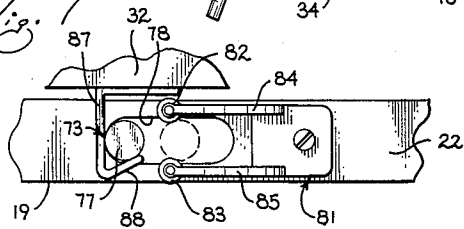


Fig. 8

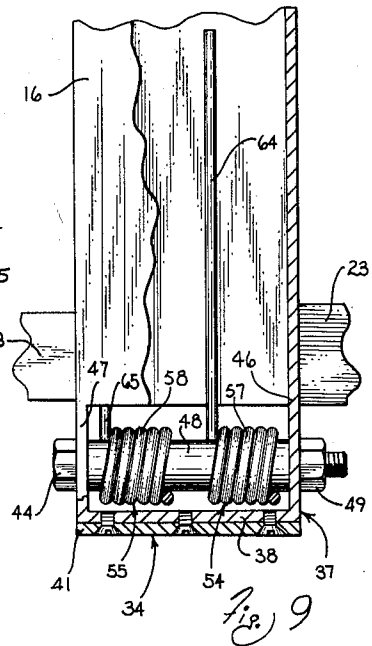


Fig. 9

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Filed Sept. 14, 1962

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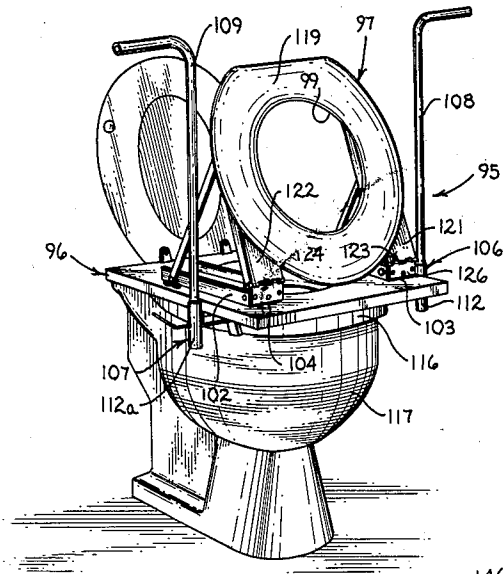


Fig. 11

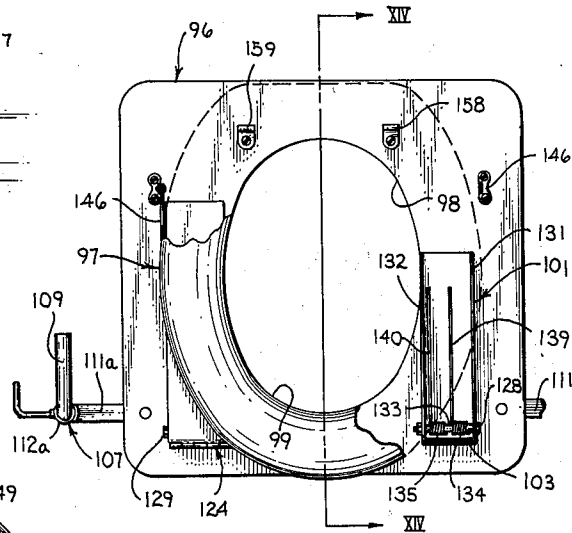
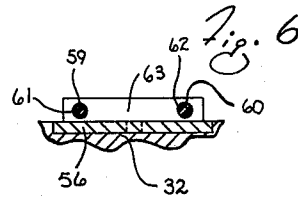


Fig. 13

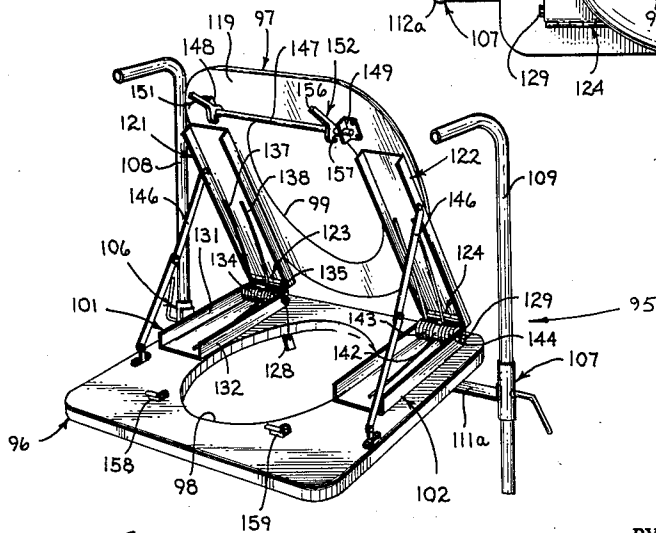


Fig. 12

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Filed Sept. 14, 1962

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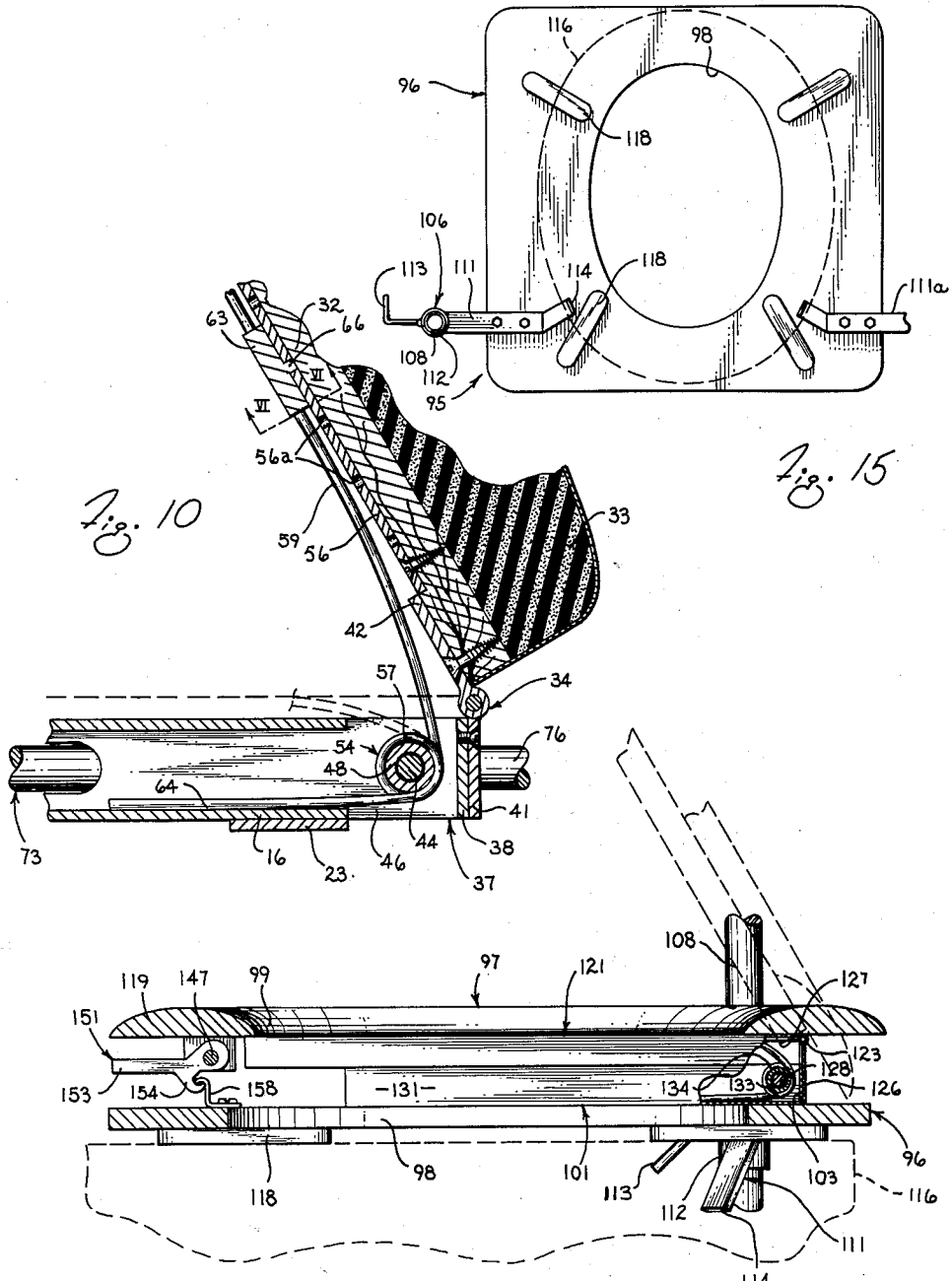


Fig. 10

Fig. 15

Fig. 14

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3,158,398

SEAT CONSTRUCTION

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 Filed Sept. 14, 1962, Ser. No. 223,628
 1 Claim. (Cl. 297—333)

This invention relates in general to a seat construction and, more particularly, to a portable type thereof which is especially designed for use by elderly or invalid people who have difficulty getting onto or off from a wheel chair, toilet or the like.

It is well known that there are many invalids, for example, who can sit upright comfortably and maneuver themselves around a house in a wheel chair. Many of these invalids are capable of taking a few steps, after they have reached a standing position, as for the purpose of moving from their wheel chair to a toilet stool. However, many such invalids are unable to move between a sitting and standing position without help. Accordingly, such invalids are often placed under continual care or observation, even though they require only occasional assistance from an adult or strong youth when it becomes necessary for them to move into or out of a sitting position.

Attempts have been made to provide spring mechanisms of various types associated with a seat construction for the purpose of assisting persons to move between the standing position and the seated position. However, such attempts have not resulted in constructions suited for the applicant's purposes because such seat constructions have been too complicated, hence costly, for the average user, or because the mechanisms thereof have been made as an integral part of the chair or the like upon which they are mounted, or because the seat constructions have not been specifically designed for use by invalids and/or elderly people.

Moreover, existing seat constructions do not have simple, easily adjustable means for changing the tension of the seat springs to adapt them for use by persons of different weights. That is, the springs in present seat constructions may be considerably stronger or weaker than desired for satisfactory operation.

Accordingly, a primary object of this invention has been the provision of a seat construction especially designed for assisting an invalid and/or elderly person into and out of a seated position.

A further object of this invention has been the provision of a seat construction, as aforesaid, which is portable, simple in structure, extremely easy to maintain and operate, and which is easily adaptable for use as a conventional seat structure as well as a toilet seat construction.

A further object of this invention has been the provision of a seat construction, as aforesaid, having adjustable mechanism for varying the tension of the springs which are provided for raising the seat member with respect to the base member upon which it is supported.

Other objects and purposes of this invention will become apparent to persons familiar with this type of equipment upon reading the following specification and examining the accompanying drawings, in which:

FIGURE 1 is a perspective view of a seat construction embodying the invention in association with a wheel chair which is shown in broken lines.

FIGURE 2 is a perspective view of said seat construction in a different position of operation and including a fragment of said wheel chair.

FIGURE 3 is a perspective view of the seat construction in its raised position and as viewed from the rearward side thereof.

FIGURE 4 is a side elevational view of said seat construction as viewed from the leftward side thereof.

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FIGURE 5 is a broken bottom view of said seat construction.

FIGURE 6 is a sectional view taken along the line VI—VI in FIGURE 10.

FIGURE 7 is a fragmentary view substantially as taken along the cutting line VII—VII in FIGURE 5.

FIGURE 8 is a broken top view of the seat construction.

FIGURE 9 is a broken fragment of the structure appearing in FIGURE 8.

FIGURE 10 is a sectional view taken along the line X—X in FIGURE 8.

FIGURE 11 is a perspective view of a modified seat construction, which is adapted for use as a toilet seat, in conjunction with a toilet stool.

FIGURE 12 is a perspective view of said toilet seat construction, as viewed from the rearward side thereof.

FIGURE 13 is a broken top plan view of said toilet seat construction in the collapsed position.

FIGURE 14 is a broken sectional view taken along the line XIV—XIV in FIGURE 13.

FIGURE 15 is a broken bottom view of said toilet seat construction.

For the convenience of description, the terms "upper," "lower," and words of similar import will have reference to the seat construction embodying the invention as appearing in FIGURES 11 and 12. The terms "front," "rear," "left" and "right" will have reference to the corresponding sides of a person occupying one of the seat constructions. Accordingly, the front and right sides of the seat construction appear in FIGURES 1 and 11. The terms "inner," "outer" and derivatives thereof shall have reference to the geometric center of said seat construction.

General Description

The objects and purposes of the invention, including those set forth above, have been met by providing a portable seat construction including a base member which is removably supportable upon the frame of a wheel chair, for example, and a seat member which is hingedly connected to and supported upon said base member for pivotal movement around a hinge axis adjacent to one edge of the seat member and base member. Resilient means is provided for continuously urging the seat member upwardly away from the base member. Latch means is provided for holding the seat member adjacent the base member, and limit means is provided for limiting the movement of the seat member away from the base member due to the urging of the resilient means.

An alternate construction of the invention includes a base member and seat member which are particularly adapted for use upon a toilet stool. In this alternate construction, both the seat member and base member have large central openings and handle bars are mounted upon the base member to assist the invalid in his movement into and out of the sitting position.

Detailed Construction

The seat construction 10 (FIGURES 1, 2 and 3), which has been selected to illustrate one embodiment of the invention, includes a base member 11, a seat member 12, and various mechanisms connected therebetween for effecting the location of the seat member with respect to the base member. The base member 11 is preferably constructed for removable support upon a structure, such as the seat frame 13 of a collapsible wheel chair 14, part of which is shown by broken lines in FIGURES 1 and 2.

The base member 11 (FIGURE 5) is preferably fabricated from metal and it is comprised of a pair of spaced and parallel side beams 16 and 17 which extend from the front end of the rear end of the base member. The beams 16 and 17, which are preferably flat and tubular, are connected near their front and rear ends, respectively,

to the opposite ends of the crossbars 18 and 19. The rear crossbar 19 may be a metal angle having a substantially vertical flange 22 along its rearward edge. A pair of outwardly and upwardly projecting hook members 23 and 24 are secured to the side beam 16 for engagement with a side bar 25 on the seat frame 13 (FIGURE 1). A pair of hook members 27 and 28 project sidewardly and upwardly from the side beam 17 for engagement in a similar manner with another side bar 26 on the seat frame 13. The hook members 23, 24 and 27, 28 preferably provide the principal support for the base member 11, hence the entire seat construction 10, upon the wheel chair 14. A positioning element 29 (FIGURE 8) projects sidewardly from the side beam 16 near the center thereof. Said positioning element 29 and the rear hook member 24 are respectively disposed adjacent and between the opposing surfaces of the brace rods 30 and 30a (FIGURES 1 and 8) which extend downwardly from the seat frame 13, whereby forward and rearward movement of the base member 11 along the seat frame 13 is positively opposed, when said base member 11 is supported thereon. The wheel chair 14 has arm rests 31 and 31a.

The seat member 12 (FIGURE 3) includes a flat, substantially rectangular mounting plate 32, which may be fabricated from plywood, and a seat cushion 33 which is secured upon the mounting plate 32 in a substantially conventional manner. The mounting plate 32 is pivotally connected along its front edge to the front ends of the side beams 16 and 17 by means of the hinges 34 and 35, respectively. More specifically, the side beam 16 has at its front end an integral, rearwardly opening and U-shaped bracket 37 which projects frontwardly from said side beam 16. Said hinge bracket 37 has a front plate 38 substantially perpendicular to the lengthwise extent of the side beam 16, to which one side 41 of the hinge 34 is rigidly secured. The other side 42 of said hinge 34 is rigidly secured to the bottom of the mounting plate 32 near the front edge thereof. The other hinge 35 is similarly secured to the mounting plate 32 and to the hinge bracket 43 on the side beam 17 so that said hinges have a common hinge axis.

A spring supporting pin 44 (FIGURE 9), which may be a bolt, is received through and extends between the flanges 46 and 47 of the hinge bracket 37 so that said bolt 44 is substantially parallel with the hinge axis. An elongated, cylindrical sleeve 48 is rotatably supported upon the bolt 44 between the flanges 46 and 47, and said bolt is held in place by a nut 49. A bolt 52 and sleeve 53, which are similar to the bolt 44 and sleeve 48 described above, may be mounted in a similar manner upon the hinge bracket 43.

Resilient means (FIGURES 9 and 10), such as the torsion springs 54 and 55, are arranged so that their coiled body portions 57 and 58 encircle the sleeve 48. The upper end elements 59 and 60 of the springs 54 and 55, respectively, are slidably received through parallel guide openings 61 and 62 (FIGURE 6), respectively, in the flat and rectangular guide member 63 which is mounted upon the lower surface of the mounting plate 32. More specifically, a metal positioning strip 56 is preferably embedded in (or alternatively secured upon) the lower surface of the plate 32 and is provided with a plurality of pin openings 56a therethrough at intervals lengthwise thereof. The guide member 63 has an integral pin 66 which is receivable into the openings 56a for positioning said guide member lengthwise of the strip 56. The tensions of the springs 54 and 55 can be varied substantially by changing the position of the guide member 63 lengthwise of the strip 56. The strip 56 can be omitted if the openings 56a are provided in the plate 32.

Lengthwise movement of the elements 59 and 60 through the guide member 63 is essential to the pivotal movement of the seat member 12 with respect to the base member 11, because the hinge axis therebetween is spaced

upwardly from the common axis of the bolts 44 and 52. The lower, integral end elements 64 and 65 of the springs 54 and 55, respectively, extend into the adjacent end of the beam 16.

A pair of torsion spring 67 and 68 (FIGURE 3), which are preferably similar to the above described torsion springs 54 and 55, are mounted in a similar manner upon the sleeve 53. A guide member 69 is mounted upon the mounting plate 32 to guidingly engage the upper elements 71 and 72 of the torsion springs 67 and 68, and the lower elements of said torsion springs extend into the front end of the side beam 17. The guide member 69 is adjustable forwardly and rearwardly of the seat member 12, in the same manner as described above with respect to the guide member 63, to vary the tensions of the springs 67 and 68.

Movement of the seat member 12 away from the base member 11 due to the urging by the springs 54, 55, 67 and 68 is limited by the elongated, flexible and non-extensible element 70, which is connected at its opposite ends to the seat member 12 and base member 11 near their rearward edges.

An elongated latch bar 73 (FIGURES 5 and 8), which is slightly Z-shaped, has a central portion 74, which extends transversely at an acute angle through the side beam 16, approximately midway between the ends thereof. Said central portion is connected by a vertical pivot pin to said beam 16 for movement around an axis substantially perpendicular to the plane of the base member 11. The front end portion 76 of the latch bar 73 preferably projects beyond the front, left corner of the base member 11 for convenient manual engagement by a person occupying the seat construction. The rear end portion 77 of the latch bar 73 extends through and slightly beyond the opening 78 in the flange 22 on the rear crossbar 19. Said opening 78 is horizontally elongated to permit the horizontal movement of the end portion 77, lengthwise of the crossbar 19.

A spiral spring 79 (FIGURE 5) is connected between the rear end portion 77 of the latch bar 73 and the rear crossbar 19 to urge said rear end portion 77 continuously toward the side beam 16. A substantially U-shaped gripper 81 is mounted upon the rear crossbar 19 for releasably holding said rear end portion 77 of said latch bar 73 in an inoperative position 73a and against the contrary urging of said bar 73 by said spring 79 toward the latching position. Rollers 82 and 83 on the flanges 84 and 85, respectively, facilitate the engagement and the release of the latch bar 73 by the gripper 81.

A latch hook 87 (FIGURE 3) is rigidly secured to the bottom surface of the mounting plate 32 so that said hook can engage and hold the rear end portion 77 of the latch bar 73, when said latch bar is in said latching position. However, said latch hook 87 cannot engage said latch bar 73 when said latch bar is held by said gripper in said inoperative position 73a. The lower surface 88 of the latch hook 87 is beveled toward the open side of the hook to facilitate its engagement with the latch bar 73 when the seat member 12 is moved downwardly toward the base member 11 and the latch bar 73 is in its locking position. That is, the beveled surface 88 engages the rear portion 77 of the latch bar 73 and moves it sidewardly, against the contrary urging of the spring 79, so that the latch bar can move into engagement with the latch hook 87.

Operation

The seat construction 10 (FIGURES 1, 2 and 3) is easily arranged for operation by mounting same upon the seat frame 13 of a wheel chair 14 so that the hook members 23, 24 and 27, 28 engage elements 25 and 26, respectively, of the seat frame 13, as shown in FIGURES 5 and 8. The positioning element 29 and hook member 24 are disposed between and engage opposing surfaces of the brace rods 30 and 30a, respectively, to limit posi-

tively the forward and rearward movement of the seat construction 10 with respect to the seat frame 13. Obviously, additional, including permanent, connection means may be provided on the base member 11 for rigidly securing same to the seat frame 13, if desired. However, the particular structure disclosed in the seat construction 10 permits its completely satisfactory use with a wheel chair 14 which is of the collapsing type.

With the seat construction 10 in its FIGURE 2 position, it is immediately ready for use by an invalid, who merely places his buttocks against the seat cushion 33, and while manually engaging the arm rests 31 and 31a on the wheel chair 14, permits his body to move toward the sitting position upon the cushion 33.

The torsion springs 54, 55, 67 and 68 (FIGURE 3) oppose the movement of the seat member 12 toward the base member 11 with increasing resistance as the seat member 12 approaches its FIGURE 1 position. Said torsion springs are preferably selected so that the weight of the invalid who normally uses the seat construction 10 will be somewhat greater than the force of said torsion springs which urges the seat member 12 toward its FIGURE 2 position. The guide members 63 and 69 can be adjusted, preferably in the same amount, toward and away from the front edge of the seat member 12 to vary appreciably the tension upon the springs associated therewith. Such adjustment is sufficient to adapt a single seat construction for satisfactory use (one at a time) by persons whose weights differ as much as twenty-five pounds.

The latch bar 73 is preferably in its solid line position of FIGURES 5 and 8 when the invalid occupies the seat construction, so that said latch bar 73 will automatically engage, and then be gripped by, the latch hook 87 when the seat member 12 moves into its FIGURE 1 position. That is, the sloped lower surface 88 of the latched hook 87 will move the rear end portion 77 of the latch bar 73 rightwardly toward, but not into, its inoperative position 73a, as the latch hook 87 moves downwardly. Thus, as soon as the hook portion of the latch hook 87 moves downwardly past the latch bar 73, the spring 79 will move the latch bar 73 rightwardly, as appearing in FIGURE 8, so that it can be engaged by the latch hook 87, thereby holding the seat member 12 in its position of FIGURE 1. If the latch bar 73 is in its inoperative position 73a (FIGURE 5) when the seat member 12 is moved from its FIGURE 2 position into its FIGURE 1 position, the occupant of the seat construction can manually grasp the latch bar 73 and move it from its broken line position 73a into its solid line position (FIGURE 5), hence into locking engagement with the latch hook 87.

When the invalid wishes to move off of the seat cushion 73, he manually moves the latch bar 73 (FIGURE 5) into its broken line position 73a, whereby said bar is disengaged from the latch hook 87. The invalid then leans forward and the torsion springs 54, 55, 67 and 68 will urge the invalid upwardly and forwardly toward the standing position with sufficient force to substantially reduce, if not eliminate, any exertion by the invalid in achieving the erected position. If necessary, the invalid can assist his upward and forward movement by manually engaging the arm rests 31 and 31a. The flexible element 70 (FIGURES 3 and 4) will positively limit the upward movement of the seat member 12 away from the base member 11 due to the urging of said torsion springs.

Modified Construction

Although the seat construction 95 (FIGURES 11 and 12) has been specifically designed for use upon a toilet stool, it will be recognized that the structural details in the seat construction 95 can be applied to a seat construction having a seat member similar to the seat member 12 shown in FIGURE 1.

The seat construction 95 (FIGURE 13) includes a base member 96 and a seat member 97 which have large cen-

tral openings 98 and 99, respectively, which openings are in vertical registry when said base member and seat member are in substantially parallel adjacent positions. The base member 96 is flat and substantially rectangular in shape and may be fabricated from plywood, plastic or the like. A pair of channel-shaped beams 101 and 102 are rigidly secured to the base member 96 in parallel positions on opposite sides of the central opening 98, so that they extend up to the front edge of the base member 96 with their flanges projecting upwardly. The beams 101 and 102 have transverse end plates 103 and 104, respectively, at their frontward ends.

A pair of post support brackets 106 and 107 (FIGURE 12) are rigidly secured to the base member 96 on opposite sides thereof and near the front edge thereof for the purpose of adjustably supporting the upright, manually engageable posts 108 and 109, respectively. The post bracket 106, for example, (FIGURE 15) includes a bar 111 which is rigidly secured between its ends to the lower surface of the base member 96. The outer end of the bar 111 is rigidly secured, as by welding, to a tube 112 whose central axis is perpendicular to the plane of the base member 96. The support post 108 is slidably disposed within the tube 112 and a screw 113 is threadedly received through the side of the tube 112 for releasably holding the support post 108 in a selected position with respect to the tube 112.

The inner end 114 (FIGURE 14) of the bar 111 is bent downwardly for the purpose of engaging the upper rim 116 on the toilet stool 117, whereby rearward movement of the seat construction 95 with respect to the stool 117 is positively opposed. The upper end of the support post 108 is bent into a substantially horizontal position for easy manual engagement by the person using the seat construction 95. The post bracket 107, its bar 111a and tube 112a are preferably substantially mirror images of the post bracket 106, its bar 111 and tube 112. A plurality of resilient bumpers 118 are placed upon the lower side of the base member 96 to protect the rim of the stool 117.

The seat member 97 (FIGURES 11 and 12) may include a substantially conventional toilet seat 119, which has an oval shape, as shown, or which has any other conventional shape, and which may be fabricated from wood, plastic or the like. A pair of channel-shaped beams 121 and 122 are rigidly secured to the lower surface of the seat member 97 in spaced parallel positions on opposite sides of the central opening 99. The beams 121 and 122 are preferably located so that their flanges are directly and respectively superimposed upon the flanges of the beams 101 and 102 when the seat member 97 is parallel with and adjacent to the base member 96, with their central openings 98 and 99 in registry.

A pair of hinges 123 and 124 are connected between the front ends of the beams 101 and 121, and 102 and 122, respectively, so that said hinges have a common hinge axis adjacent to the front edges of the base member 96 and seat member 97. More specifically, the hinge 123 has one side 126 thereof rigidly secured to the end plate 103 and the other side 127 rigidly secured to the bottom surface of the seat member 97 near the front edge thereof. The hinge 124 is similarly connected between the front end of the beams 102 and 122. Accordingly, the seat member 97 can move between its broken and solid line positions of FIGURE 14 around the common axis of the hinges 123 and 124.

A pair of spring supporting bolts 128 and 129 (FIGURE 12) extend between and are supported upon the flanges of the beams 101 and 102, respectively, near the front ends thereof. More specifically, the bolt 128 is supported upon and between the flanges 131 and 132 of the beam 101. A sleeve 133 is rotatably supported upon the bolt 128 between the flanges 131 and 132 (FIGURE 13), and a pair of torsion springs 134 and 135 are loosely coiled around the sleeve 133. The upper end elements 137 and 138 of the springs 134 and 135 are disposed within the beam 121 (FIGURE 12), and the lower elements

139 and 140 of the springs 134 and 135 (FIGURE 13) are disposed within the beam 101. The arrangement of the bolt 128, sleeve 133 and torsion springs 134 and 135, whereby the seat member 97 is urged upwardly away from the base member 96, may be substantially the same as described in detail above with respect to the bolt 44, sleeve 48 and torsion springs 54 and 55.

The bolt 129 is encircled by a sleeve 142 which in turn supports the torsion springs 143 and 144 in substantially the same manner as set forth above with respect to the sleeve 133 and torsion springs 134 and 135. A pair of guide members (not shown), which are similar to the guide members 63 and 69 (FIGURE 3), may be mounted upon the seat member 97 to engage portions of the torsion springs 134, 135 and 143, 144, in the same manner and for the same purposes as disclosed above with respect to the seat construction 10.

Articulated hinge limits 146 are connected between the base member 96 and seat member 97 adjacent the opposite corresponding edges thereof for limiting the movement of the seat member 97 away from the base member 96 due to the urging of the torsion springs 134, 135 and 143, 144.

A pivot rod 147 is rotatably supported near its opposite ends by the brackets 148 and 149 upon the lower surface of the seat member 97 near the rearward edge thereof so that said rod is parallel with the hinge axis. A pair of latch members 151 and 152 are secured to the pivot rod 147 adjacent the brackets 148 and 149, respectively. The latch member 151, for example, includes a rearwardly extending manually engageable bar 153 and a downwardly projecting catch 154 which faces the front end of the seat member 97. The latch member 152 (FIGURE 12) includes a bar 156 and catch 157. A pair of spaced and rearwardly opening latch hooks 158 and 159 are secured to the upper surface of the base member 96 near the rearward edge thereof so that they are engageable by the catches 154 and 157, respectively, when the seat member 97 is adjacent the base member 96, for the purpose of holding them in this position. Release of the catches from the hooks can be effected by moving either of the bars 153 and 156 upwardly toward the seat member 97.

Operation of Modified Seat

In general, the operation of the seat construction 95 (FIGURE 11) may be the same as the operation of the seat construction 10. That is, the base member 96 is placed upon the stool 117 of a conventional toilet so that it rests upon the rim 116 of said stool. Alternatively, the base member can rest upon the usual toilet seat, which is supported upon the toilet stool. The inner ends of the bars 111 and 111a engage the front edge of the rim 116 and thereby limit rearward movement of the seat construction 95 with respect to the stool 117.

In using the seat construction 95, the invalid backs against the front side of the seat member and, where necessary, manually grasps the upper ends of the support post 108 and 109. The invalid then moves his hips backwardly against the seat member 97 so that his body moves toward the seated position. During such movement, the force of the torsion springs 134, 135, 143 and 144 is overcome whereby said seat member 97 moves downwardly with the invalid into the solid line position of FIGURE 14. As the seat member 97 approaches the base member 96, the catches 154 and 157 become locked with the latch hooks 158 and 159, respectively, so that upward movement of the seat member 97 away from the base member 96 is positively prevented, even if the weight of the invalid is removed from the seat member 97.

When the invalid wishes to return to the standing position, he manually engages one of the bars 153 or 156 and pulls it upwardly toward the seat member 97 while he is still sitting on the seat member. This automatically disengages both of the catches 154 and 157 from their latch hooks 158 and 159. The invalid now leans forwardly and moves upwardly toward the standing position,

such movement being strongly urged and assisted by the torsion spring. The invalid can augment the force of the springs by manually engaging one of the support posts 108 and 109, with the hand which is not used in operating one of the bars 153 and 156, and pulling himself upwardly.

The torsion springs 134, 135, 143 and 144 can be carefully matched to the weight of the invalid using the seat construction 95 so that only a slight amount of strength and energy are required by the invalid to initiate his upward movement from the seated position toward the standing position. The torsion springs will apply a greater force while the invalid is making the initial, more difficult movement toward the standing position. As the invalid approaches the standing position, where such movement can be effected with less difficulty, the torsion springs will be applying a somewhat lesser force so that a safe operation is insured. Adjustment of the tension can be varied by means of guide members, such as those disclosed in FIGURE 3 at 63 and 69, which are mounted upon the seat member 97.

The hinge limits 146 are constructed so that their center hinge joints do not pass the dead center position. Thus, they will always bend with the weight of the invalid as the seat member moves toward the base member 96.

Although particular preferred embodiments of the invention have been disclosed above in detail for illustrative purposes, it will be understood that variations or modifications of such disclosures, which come within the scope of the appended claim, are fully contemplated.

What is claimed is:

- A portable seat construction for a wheel chair having a seat supporting frame, comprising:
 - a substantially flat and rigid base member;
 - mounting means on said base member removably engageable with said frame for supporting and positioning said base member upon said frame;
 - a flat and rigid seat support member, and seat cushion means thereon;
 - a pair of similar, spaced and coaxial hinge assemblies secured to said seat member and said base member so that the axis of said hinge assemblies is adjacent to and substantially parallel with an edge of said seat member and an edge of said base member, each hinge assembly including first bracket means connected to said base member and second bracket means connected to said seat member, a pivot pin concentric with said axis and operably connected to said first and second bracket means, and an axially elongated sleeve rotatably supported upon said pivot pin;
 - a pair of torsion spring means respectively and operatively associated with said pair of hinge assemblies, each spring means including a coil closely encircling said sleeve and a pair of integral end elements extending from the opposite ends of said coil transversely of said axis, said elements being respectively engaged with said seat member and said base member for urging same to pivot away from each other;
 - cooperating latch means on said seat member and said base member for releasably holding said seat member adjacent to and substantially parallel with said base member, said latch means including a latch hook on said seat member near the edge thereof remote from said hinge axis, and an elongated lever pivotally mounted between the ends thereof on the base member for movement around an axis substantially perpendicular to the plane of said base member, one end of said lever being engageable by said hook member for holding said seat member substantially parallel with said base member and the other end of said lever being manually engageable adjacent said hinge axis;
 - resilient means continuously urging said lever into a position for engagement by said hook member;

gripping means on said base member engageable with
 said lever for releasably holding same out of said
 position against the contrary urging of said resilient
 means; and
 an elongated flexible element positively limiting move- 5
 ment of said seat member away from said base mem-
 ber under the urging of said spring means.

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