March 3, 1953 G. E. FRIEDMAN 2,630,160

ADJUSTABLE MOBILE CHAIR FOR SPASTIC CHILDREN

Filed Sept. 19, 1950 2 SHEETS--SHEET 1

FIG. 1.

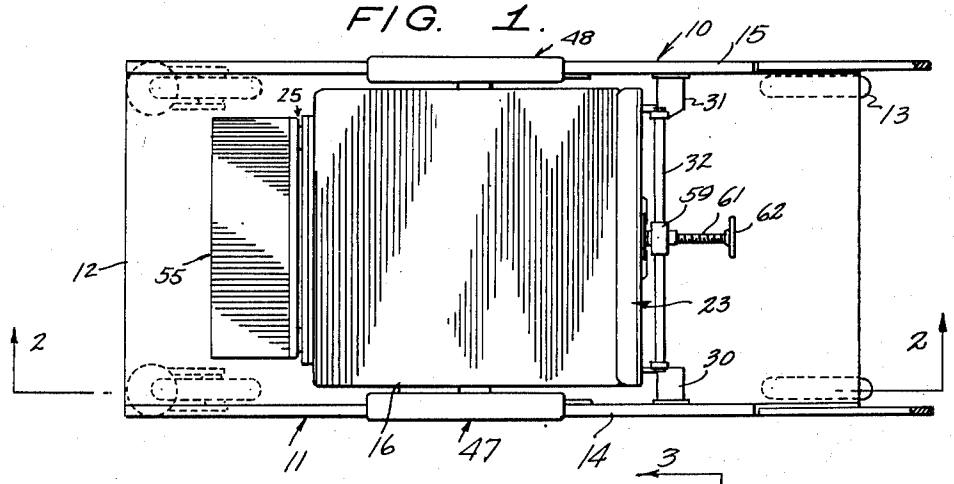
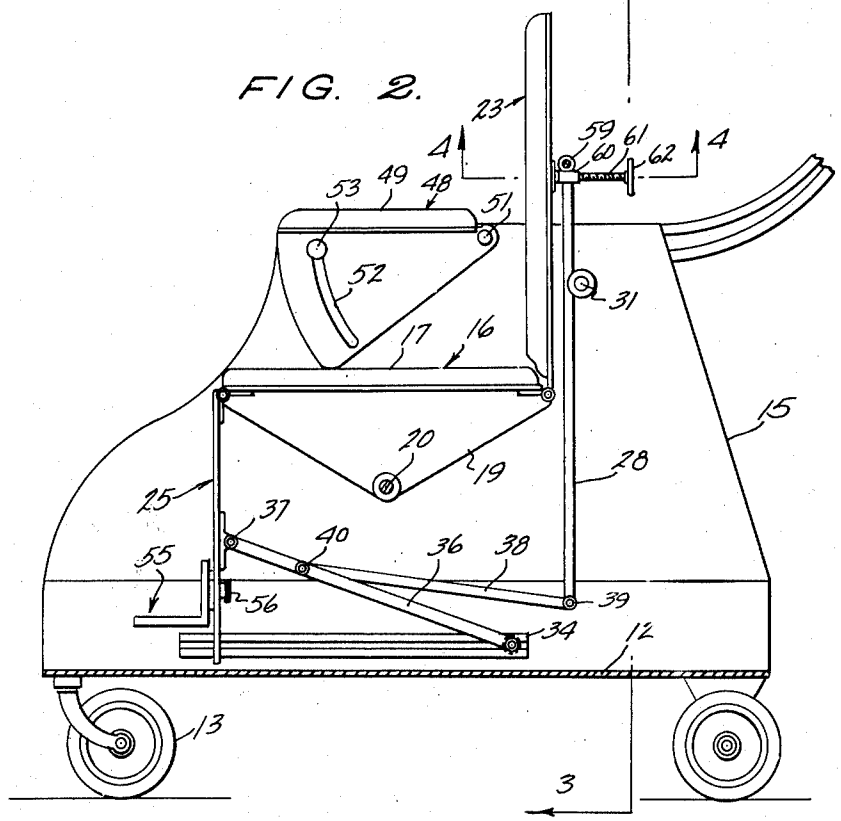


FIG. 2.



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FIG. 3.

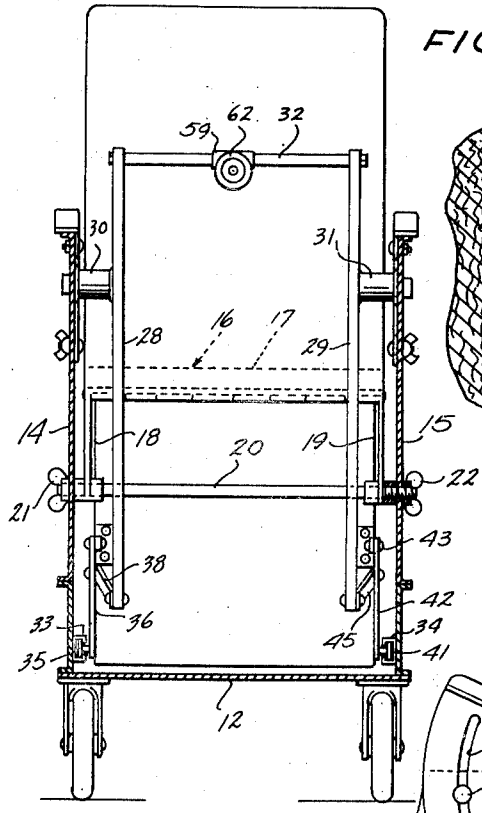


FIG. 4.

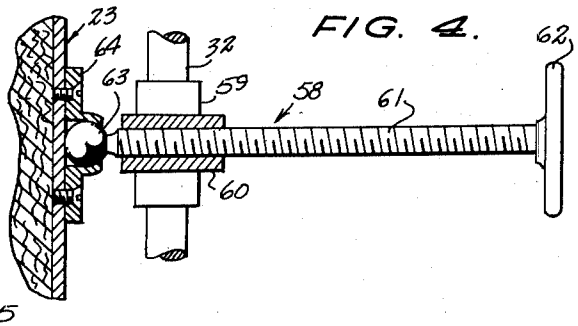
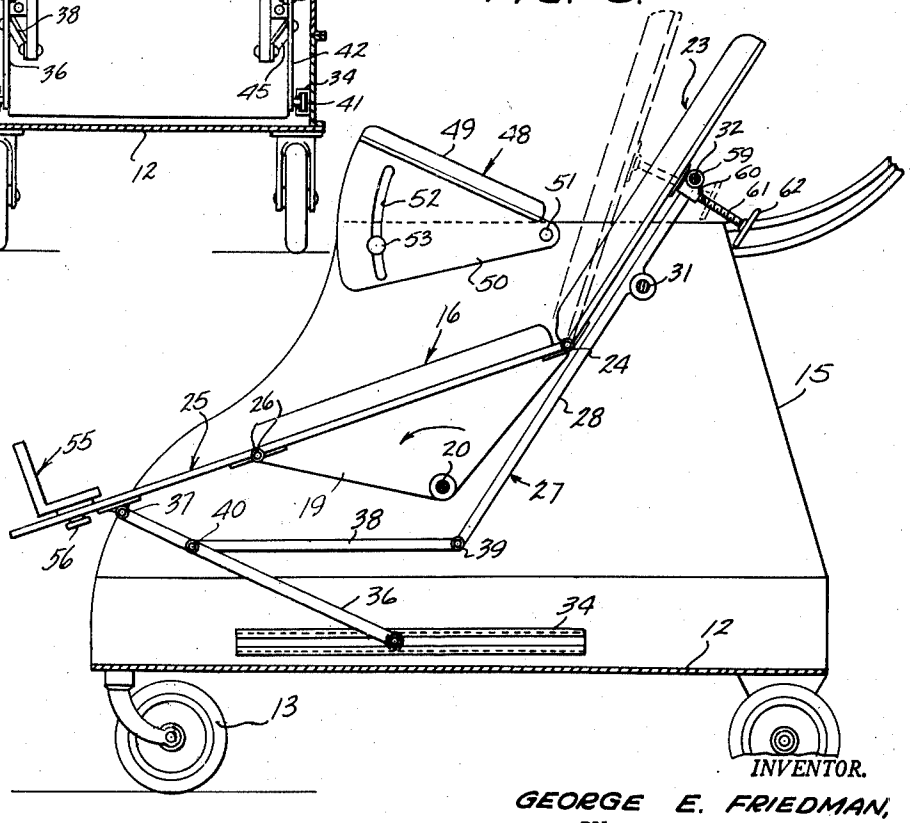


FIG. 5.



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ADJUSTABLE MOBILE CHAIR FOR SPASTIC CHILDREN

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Application September 19, 1950, Serial No. 185,530

4 Claims. (Cl. 155—30)

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This invention relates to chairs, and more particularly to an adjustable mobile chair for spastic children.

An object of this invention is to provide an adjustable mobile chair having a movable seat and back which particularly adapts the chair for use by spastic children.

Another object of this invention is to provide an adjustable mobile chair provided with novel means for simultaneously effecting the movement of the seat, back and foot sections to thereby particularly adapt a chair for use by spastic children and the like.

A further object of this invention is to provide an adjustable chair in which manipulation of the tiltable back thereof effects the movement of said seat and foot sections of the chair into select, predetermined positions with respect to said back section.

A still further object of this invention is to provide an adjustable mobile chair which permits the adjustment of the seat section and foot section to different inclinations or angles with respect to each other and with respect to the tiltable back section.

A still further object of this invention is to provide an adjustable mobile chair for spastic children which is relatively simple in structure and cheap to manufacture.

The above and still further objects and advantages of the present invention will be apparent upon consideration of the following detailed description of the invention when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a top plan view of the adjustable mobile chair of the present invention;

Figure 2 is a side elevational view of the adjustable mobile chair of the present invention taken along the line 2—2 of Figure 1;

Figure 3 is a sectional view taken along the line 3—3 of Figure 2;

Figure 4 is an enlarged fragmentary sectional view taken along the line 4—4 of Figure 2; and

Figure 5 is a sectional view taken along the line 2—2 of Figure 1, showing the seat, foot and back sections of the chair moved into a select position with respect to each other to form an inclined support for a child.

Referring now more particularly to the drawings, wherein like reference numerals have been used throughout the several views to designate like parts, there is shown the adjustable mobile chair of the present invention, generally designated by the reference numeral 10, which embodies a mobile frame 11 which is open at both ends and has an open top. The frame 11 includes a bottom 12 on which are dependingly supported the spaced, rotatable wheels 13 for the mobile frame. The mobile frame 11 further embodies a pair of spaced, upstanding side walls 14, 15, each of which has its lower end secured to the bottom 12.

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Positioned intermediate the ends of the frame 11 is a seat section 16 which is mounted on the latter for rocking movement from a horizontal position into various inclined positions with respect to the horizontal. The seat section 16 embodies a flat body-receiving portion 17 and spaced, depending plates 18, 19 carried by the opposite sides of the body-receiving portion 17. Extending transversely through the side walls 14, 15 of the mobile frame 11 and the plates 18, 19 of the seat section 16 is a bolt 20 which is journaled on the mobile frame and is secured to the seat section 16 and provides the horizontal rotary axis for the latter. Any suitable means, such as the wing nuts 21, 22, Figure 3, can be employed for detachably securing the bolt 20 against rotation with respect to the mobile frame 11 to thereby fixedly position the seat section 16 in any select position of its rocking movement.

Extending upwardly from one end of the seat section 16 is a back section 23 which has its lower end pivotally mounted on the one end of the seat section 16 by means of the hinges 24, whereby as the seat section is tilted to an inclined position the lower end of the back section 23 moves upwardly and the upper end of the back section moves downwardly.

Extending downwardly from the other end of the seat section 16 is a foot section 25 which has its upper end pivotally mounted on the said other end of the seat section by means of the hinges 26, whereby as the seat section is tilted to an inclined position the upper end of the foot section moves downwardly.

Suitable linkage means, generally designated by the reference numeral 27, are operatively connected to the seat section 16, the back section 23 and the foot section 25, for connecting the sections together for simultaneous movement upon movement of any one of the sections. The linkage means 27 is selected so that the angular adjustment of the various sections with respect to each other provides the desired support for the spastic child. For example, in Figure 2 there is shown the normal position in which the back section 23 extends upwardly from and is perpendicular to the seat section 16, and the foot section 25 depends from the seat section 16 and is perpendicular thereto. In Figure 5 there is shown the sections in a select position of their movement with respect to each other in which the foot section 25 is disposed in substantially coplanar relation with respect to the seat section 16 and the back section 23 is disposed at an angle with respect to the assembly of the seat section 16 and the foot section 25. In the position illustrated in Figure 5, the chair is particularly adapt-

ed for supporting a spastic child in an inclined position.

The linkage means 27 embodies a pair of spaced arms 28, 29 which are mounted intermediate their ends for rotary movement about aligned horizontal axes, the arms 28, 29 being connected together. As clearly shown in Figure 3, the arm 28 is mounted on a stub shaft 30 which has one end fixedly secured to the arm and has the other end rotatably journaled in the side wall 14 of the mobile frame 11. The arm 29 is mounted on a second stub shaft 31 which is disposed in end-to-end spaced aligned relation with respect to the stub shaft 30 and has one end fixedly secured to the arm 29 and has the other end rotatably journaled on the side wall 15 of the mobile frame 11. The arms, contiguous to their upper ends, are connected together by a connecting bar 32.

Contiguous to the lower ends of the side walls 14, 15 of the mobile frame, there is secured the longitudinally extending channel bars 33, 34. Slidably received and supported within the channel bar 33 is a lug 35 on which is pivotally supported the adjacent end of a first lever 36 which has its other end pivotally connected to the adjacent side of the foot section 25, as illustrated by the reference numeral 37. Extending between the lever 36 and the adjacent free end of the arm 28 is a first link 38 which has one end pivotally supported on the lower end of the arm 28, as designated by the reference numeral 39, and has its other end pivotally supported intermediate the ends of the lever 36, as designated by the reference numeral 40. Similarly, a second lug 41 is slidably received and supported within the longitudinally extending channel 34, the lug 41 pivotally supporting the adjacent end of a second lever 42 which is disposed in substantially spaced, parallel relation with respect to the lever 36. The free end of the lever 42 is pivotally connected to the adjacent side of the seat section 25, as designated by the reference numeral 43. Extending between the adjacent free end of the arm 29 and the lever 42 is a second link 45 which has one end pivotally connected to the free end of the arm 29 and has the other end pivotally connected intermediate the ends of the lever 42. The second link 45 is disposed in substantially spaced, parallel relation with respect to the first link 38. By selectively varying the length of the arms 28, 29, the levers 36, 42 and the first and second links 38, 45, the angular disposition of the seat section 16 and the foot section 25 with respect to the back section 23 in any select position of the movement of the latter can be varied.

Carried on each side of the mobile frame 11 contiguous to the open top thereof are the arm rests 47, 48. Since the structure and mounting of each of the arm rests are alike, it will suffice to describe only one in detail. The arm rest 48 embodies an arm-supporting portion 49 which carries a depending, triangularly-shaped plate 50 which is pivotally supported by a bolt 51 on the side wall 15 of the mobile frame 11. The plate 50 is provided with an arcuate slot 52 which is disposed concentrically with respect to the bolt 51, the slot receiving a wing nut 53 which is supported on the side wall 15. Accordingly, upon engaging the wing nut 53 with the portions of the plate 50 contiguous to the slot 52, the plate 50 can be locked in any select position of its rocking movement between the limits of the ends of the arcuate slot 52. Accordingly, the angular disposition of the supporting portion 49 of the arm rest 48 can be varied.

Disposed transversely of the end of the foot section 25 remote from the seat section 16 is a foot rest 55 which is adjustably supported on the foot section 25. The foot rest is mounted on a bolt 56 which is slidably received and supported within a longitudinally extending slot, not shown, provided in the foot section 25. The bolt 56 is provided with any suitable means, not shown, for locking the foot rest 55 in a select supported position on the foot section 25.

Supported contiguous to the back section and engageable therewith is a manually actuated element 58 for separably effecting the movement of the back section 23 toward and away from the seat section 16 when the sections are locked in any select position of their movement with respect to each other. The manually actuated means 58 embodies a tubular body 59 circumposed about and pivotally supported on the connecting bar 32. Disposed transversely of the body 59 is a sleeve 60 which is fixedly secured thereto and is interiorly threaded, as clearly illustrated in Figure 4. Supported within the threaded sleeve 60 is a feed screw 61 which has one end provided with a hand wheel 62 and has the other end provided with a ball 63 received within a socket 64 carried by the back section 23. Accordingly, upon effecting the rotary movement of the feed screw 61 by manually grasping the hand wheel 62 and imparting a rotary movement thereto, the back section 23 can be moved toward and away from the seat section 16.

In actual use, the seat section 16, the back section 23 and the foot section 25 can be secured in the position illustrated in Figure 2, to provide an upright seat for a spastic child. In this position, it may be desirable to have the arm rests 47, 48 in a position wherein the arm-supporting portions 49 thereof are substantially horizontal. In the event that an inclined position is desired, the wing nuts 21, 22 are loosened, whereupon the sections can be moved into the positions illustrated in Figure 5. In these positions, it may be desirable to incline the arm rests 47, 48 with respect to the horizontal. The positioning of the arm rests can be effected by loosening the wing nuts 53 and effecting the rotary movement of the arm sections about the pivotal axes 51 thereof. When the desired position of adjustment of the arm rests has been obtained, the wing nuts 53 can be tightened down to thereby preclude further movement of the arm rests. As clearly shown in Figure 5, the back section 23 can be moved toward and away from the seat section 16 in any select position of movement of the sections with respect to each other by merely imparting a rotary movement to the hand wheel 62. One position of movement of the back section 23 toward the seat section 16 is shown in phantom in Figure 5.

From the foregoing, it is readily apparent that the adjustable mobile chair of the present invention is particularly adapted for use in supporting spastic children in various comfortable positions.

Although only one embodiment of the chair of the present invention has been described, it is readily apparent that numerous modifications can be made without departing from the spirit of the invention as set forth in the appended claims.

What I claim is:

1. An adjustable chair for spastic children comprising an open-ended and open-top mobile

frame, a seat section positioned intermediate the ends of said frame and mounted on the latter for rocking movement from a horizontal position to inclined positions with respect to the horizontal, a back section extending upwardly from one end of said seat section and having the lower end pivotally mounted on one end of the seat section, a foot section extending downwardly from the other end of said seat section and having the upper end pivotally mounted on the other end of said seat section, and linkage means cooperatively connecting said seat, back and foot sections together for simultaneous movement upon movement of any one of said sections, said linkage means including a pair of upstanding spaced arms positioned within said frame and rearwardly of said back section and mounted intermediate their ends on said frame for rotary movement about aligned horizontal axes, a bar extending between said arms adjacent the upper ends thereof and connected to said arms, means pivotally supported on said bar and connected to said back section, a pair of spaced links positioned within said frame adjacent the lower ends of said arms and each having one end pivotally connected to the lower end of the adjacent one of said arms, and a pair of spaced levers positioned within said frame adjacent the other ends of said links and each pivotally connected intermediate its ends to the other end of the adjacent one of said links, each of said levers having one end pivotally connected to said foot section and having the other end slidably connected to said frame.

2. An adjustable chair for spastic children comprising an open-ended and open-top mobile frame, a seat section positioned intermediate the ends of said frame and mounted on the latter for rocking movement from a horizontal position to inclined positions with respect to the horizontal, a back section extending upwardly from one end of said seat section and having the lower end pivotally mounted on one end of the seat section, a foot section extending downwardly from the other end of said seat section and having the upper end pivotally mounted on the other end of said seat section, linkage means operatively connecting said seat, back and foot sections together for simultaneous movement upon movement of any one of said sections, and means carried by said mobile frame and engaging one of said sections for locking said sections in a select position of their movement with respect to each other, said linkage means including a pair of upstanding spaced arms positioned within said frame and rearwardly of said back section and mounted intermediate their ends on said frame for rotary movement about aligned horizontal axes, a bar extending between said arms engaging the upper ends thereof and connected to said arms, means pivotally supported on said bar and connected to said back section, a pair of spaced links positioned within said frame adjacent the lower ends of said arms and each having one end pivotally connected to the lower end of the adjacent one of said arms, and a pair of spaced levers positioned within said frame adjacent the other ends of said links and each pivotally connected intermediate its ends to the other end of the adjacent one of said links, each of said levers having one end pivotally connected to said foot section and having the other end slidably connected to said frame.

3. An adjustable chair for spastic children comprising an open-ended and open-top mobile frame, a seat section positioned intermediate the ends of said frame and mounted on the latter for rocking movement from a horizontal position to inclined positions with respect to the horizontal, a back section extending upwardly from one end of said seat section and having the lower end pivotally mounted on one end of the seat section, a foot section extending downwardly from the other end of said seat section and having the upper end pivotally mounted on the other end of said seat section, linkage means cooperatively connecting said seat, back and foot sections together for simultaneous movement upon movement of any one of said sections, and manually actuated means supported contiguous to said back section and engageable therewith for separably effecting the movement of the latter toward and away from said seat section.

4. An adjustable chair for spastic children comprising an open-ended and open-top mobile frame, a seat section positioned intermediate the ends of said frame and mounted on the latter for rocking movement from a horizontal position to inclined positions with respect to the horizontal, a back section extending upwardly from one end of said seat section and having the lower end pivotally mounted on one end of the seat section, a foot section extending downwardly from the other end of said seat section and having the upper end pivotally mounted on the other end of said seat section, linkage means cooperatively connecting said seat, back and foot sections together for simultaneous movement upon movement of any one of said sections, and an arm rest carried on each side of said mobile frame contiguous to the open top thereof, said linkage means including a pair of upstanding spaced arms positioned within said frame and rearwardly of said back section and mounted intermediate their ends on said frame for rotary movement about aligned horizontal axes, a bar extending between said arms adjacent the upper ends thereof and connected to said arms, means pivotally supported on said bar and connected to said back section, a pair of spaced links positioned within said frame adjacent the lower ends of said arms and each having one end pivotally connected to the lower end of the adjacent one of said arms, and a pair of spaced levers positioned within said frame adjacent the other ends of said links and each pivotally connected intermediate its ends to the other end of the adjacent one of said links, each of said levers having one end pivotally connected to said foot section and having the other end slidably connected to said frame.

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