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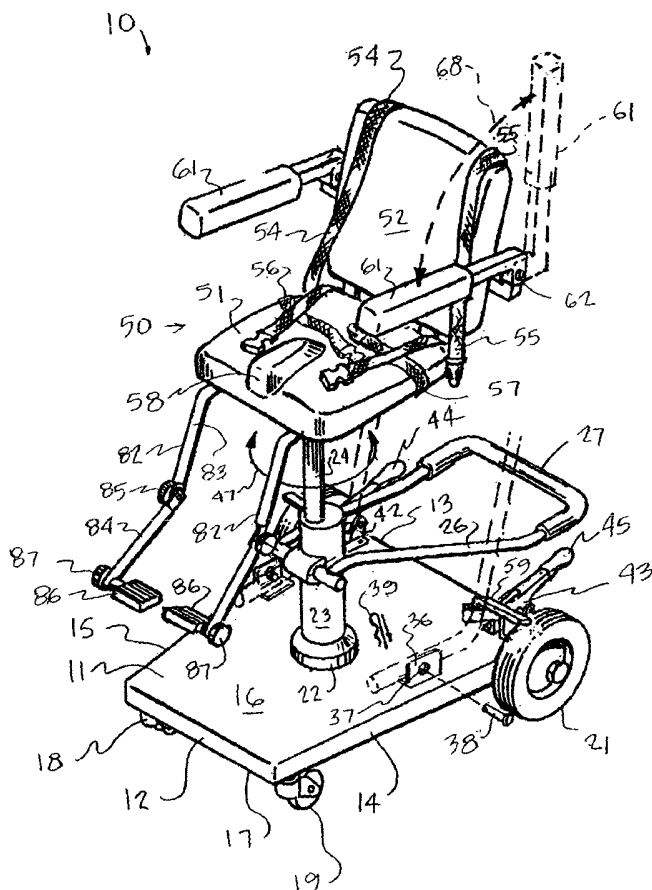
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[Continued on next page]

(54) Title: MOBILE ELEVATING CHAIR APPARATUS



(57) Abstract: A mobile elevation chair apparatus includes a base that has a periphery defined by front and rear edges and side edges. The base has a lower surface fitted at least to steerable casters as wheels and an upper surface. The base can be wider at the rear edge compared to the front edge so the side edges form an acute angle. A telescoping piston can be mounted to the upper surface of the base. A lever enables the piston to be elongated or shortened, the lever extending rearwardly from the piston. A chair is mounted to the top of the piston, the chair having a seat base and a seat back. A plurality of wheels can be mounted to the base including the front steerable casters that are mounted to the lower surface of the base at least partially at a position inside the periphery of the base and a pair of rear wheels mounted to the base at a position outside the periphery of the base. A brake mechanism can be provided for braking at least one of the wheels. The base can be formed to lower the center of gravity of the entire apparatus and increase its stability.

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PCT PATENT APPLICATION

TITLE OF THE INVENTION: "MOBILE ELEVATING CHAIR APPARATUS"

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CROSS-REFERENCE TO RELATED APPLICATIONS

10 In the US this is a continuation of US patent application serial number
10/244,875, filed September 17, 2002, priority of which is hereby claimed.

US patent application serial number 10/244,875, filed September 17, 2002, is
incorporated herein by reference, and priority of which is hereby claimed.

15 STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
DEVELOPMENT

Not applicable

REFERENCE TO A "MICROFICHE APPENDIX"

Not applicable

BACKGROUND OF THE INVENTION

20 1. Field of the Invention

The present invention relates to elevating chairs and more particularly to a mobile
elevating chair apparatus that has particular utility in the care of individuals that have
particular medical needs, including the need for assisted mobility and support.

2. General Background of the Invention

25 There are a number of wheeled devices that are available to persons having
particular medical needs, disabilities, injuries caused by trauma and the like. These
chairs are available in many different forms. One of the most common forms is the well
known wheelchair that can be either manually operable or motorized.

30 Wheelchairs are very bulky devices that are hard to maneuver. They do not
enable an individual to approach a table in virtually every restaurant or hotel situation for
example.

Many individuals have a desire to sit at a dinner table or to visit their favorite

restaurant when dining out notwithstanding their particular medical condition.

Several wheeled devices have been patented that attempt to solve the problems of providing transportation for individuals while providing improvements over the common wheelchair.

5 As an example, the Pratt Patent 2,609,862 discloses a hospital chair that has a triangular base with a single front wheel and two rear wheels, all of the wheels being positioned on the underside of the base. The Pratt chair includes a telescoping piston for elevating a chair that includes a seat back, seat base, and leg supports. The Pratt chair also includes armrests. A lever extends behind the piston for elevating and lowering the
10 seat relative to the base.

The Guyton Patent 4,184,524 discloses a seat that is adjustable in height that includes a footrest and a base that has four radially extending members, each with its own foot.

15 The Congleton Patent 4,552,404 discloses a neutral body position chair that includes a base having wheels and a pedestal that telescopes to elevate and lower the chair. The chair includes seat base and seat back portions.

A patient transfer device is shown in US Patent 5,438,722. The device includes a cushioned chair with wheels that facilitates patient transfer in and out of a hospital clinical bed. The patient transfer device provides an entirely different method of
20 transferring patients that avoids lifting the total body weight of the patient and that provides the maximum comfort for the patient.

An ambulatory care chair is the subject of US Patent 6,089,593.

25 The Harroun Patent 6,220,620 discloses a wheeled height adjustable rehabilitation chair. The device includes a base having wheels that are steerable and a chair that sits upon the base with a pedestal. The wheels are located outboard of the seat to enhance stability, while the legs are positioned to provide a free space for the user's legs to facilitate user propulsion of the chair when the user is either sitting or standing. The seat chair is of narrow depth, allowing freedom of leg motion when the user is seated.

30 Another elevating chair is shown in US Patent 6,296,310 that employs an actuator which is integral with a hydraulic cylinder that causes a piston to raise and lower.

The Pratt Patent 6,322,250 discloses an x-ray chair for providing support and comfort to a patient seated therein during an x-ray procedure.

A design patent Des. 354,176 issued to Schwaegerle discloses a medical lift chair that appears to show a base, a hydraulic cylinder having a lever for operating the chair, probably to elevate it, and a chair that has armrests, a headrest and a footrest portion. The applicant is only aware of this design patent. However, it is noted that the patent is
5 owed by Reliance Medical Products, Inc. of Mason, Ohio.

BRIEF SUMMARY OF THE INVENTION

The present invention provides an improved wheeled elevating chair apparatus. The device can have a trapezoidal shaped base that includes an upper surface, a lower surface, and a periphery defined by a front edge, a rear edge, and a pair of side edges.
10 In a trapezoidal base, the side edges form an acute angle and the rear edge defines the widest part of the base. However, in alternative embodiments, the base can be a variety of shapes such as square, rectangular, triangular, circular, and elliptical.

A pair of rear wheels can be mounted to the base at the rear edge.

A pair of steerable front wheels can be mounted to the base at the front edge, at
15 least part of the steerable front wheels being mounted within the periphery of the base.

Brakes can be mounted on the base and movable between released and locking positions, the rear wheels being locked to prevent rolling when the brakes are in the locking position.

A pedestal can be mounted on the base extending vertically above the base's
20 upper surface, the pedestal including a plurality of pedestal members that telescope, at least one of said pedestal members being a first pedestal member attached to the base and a second pedestal member that is attached to the first pedestal member and elevates relative to the base.

A hydraulic jacking mechanism can elevate the second pedestal member relative
25 to the first pedestal member. The jacking mechanism can include a lever arm that extends from the pedestal rearwardly to a position that is above and behind the base.

A chair can be mounted on the pedestal, the chair including a seat base and seat back. The chair is able to change elevation relative to the base by moving the second pedestal member when the second pedestal member is elevated or lowered using the
30 jacking mechanism.

The lower arm can elevate the chair when depressed and moved from a higher to a lower position and the chair and second pedestal member lower the chair when the

lever arm is depressed to a lowest position and maintained in that lowest position.

BRIEF DESCRIPTION OF THE DRAWINGS

For a further understanding of the nature, objects, and advantages of the present invention, reference should be had to the following detailed description, read in conjunction with the following drawings, wherein like reference numerals denote like elements and wherein:

Figure 1 is the perspective of the preferred embodiment of the apparatus of the present invention;

Figure 2 is a partial perspective of the preferred embodiment of the apparatus of the present invention;

Figure 3 is an elevation view of the preferred embodiment of the apparatus of the present invention;

Figure 4 is a top sectional view of the embodiment of Figure 3;

Figure 5 is a partial perspective of the preferred embodiment of the apparatus of the present invention;

Figure 5A is a fragmentary perspective of the preferred embodiment of the apparatus of the present invention illustrating the folding handlebar;

Figure 6 is a partial perspective of the preferred embodiment of the apparatus of the present invention illustrating the footrest portion thereof;

Figure 7 is a top view of an alternative embodiment;

Figure 8 is a side view of the embodiment shown in Figure 7;

Figure 9 is a top view of the base for the embodiment shown in Figure 7;

Figure 9A is a side view of the base for Figure 9;

Figure 10A a front view of an alternative embodiment for a leg rest;

Figure 10B is a side view of the leg rest of Figure 10A;

Figure 10C is a top view of the leg rest of Figure 10A; and

Figures 11A-C are sectional views of an arm rest assembly.

DETAILED DESCRIPTION OF AT LEAST ONE PREFERRED EMBODIMENT

Figures 1-3 show a preferred embodiment of the apparatus of the present invention designated by numeral 10. Mobile chair apparatus 10 preferably includes a trapezoid shaped base 11 that has a front edge 12, rear edge 13, and a pair of opposed side edges 14-15, that together define a periphery.

The left side 14 and right side 15 can form an acute angle as shown in Figure 4 so that the dimension A of rear edge 13 is longer than the dimension B designated by the numeral 41 of the front edge 12. In addition, a special wheel placement for a plurality of preferably four wheels that can be attached to base 11, preferably at least two being
5 attached to underside 17, enabling the apparatus 10 of the present invention to be very easily maneuvered into tight places such as between the legs of a small table. Thus the present invention enables a person with special medical needs to be able to maneuver to a position next to a standard table (e.g. restaurant table) or a table with narrow dimensions.

10 Apparatus 10 can be provided with a pair of front wheels 18, 19 under base 11 and within its periphery at least in part. Casters 18, 19 can be swivel wheels such as swiveling casters. These casters 18, 19 swivel 360 degrees about a vertical axis and enable the apparatus 10 to be easily steered.

The plurality of wheels that support base 11 can include two rear wheels 20, 21.
15 The rear wheels 20, 21 can be positioned at the rear edge 13 of base 11 and outboard and laterally spaced away from the sides 14, 15 as shown in Figure 4. Conversely, the steering casters 18, 19 that define the front wheels can be positioned under base 11, being attached to underside 17 as shown in Figures 1-4. Therefore, steering casters 18,19 do not interfere with placement of base 11 between the legs of a table.

20 A pair of spaced apart struts 48 can be attached to base 11 at rear edge 13 as shown in figures 3 and 4. Rear struts 48 prevent tipping over if an occupant of chair 50 happens to push against an object in front of the chair 50 (e.g. table, wall, etc.) when the brakes 42, 43 are locked.

The upper surface 16 of pedestal 11 can support a pedestal 22. Pedestal 22 can
25 be a hydraulic cylinder arrangement that includes hydraulic cylinder 23 and elevating push rod 24 that elevates and lowers as illustrated by the arrow 25 in Figure 3.

Actuator arm 26 can provide a footrest or foot pedal 27 enabling a user to stand behind the chair apparatus 10 and either raise or lower the chair 50 part of the apparatus 10 and at the same time elevate a user 60 that occupies the seat 51 part of chair 50.
30 Pedestal 22, its hydraulic cylinder 23 and push rod 24 arrangement as well as actuator 26 are commercially available and have in the past been provided for elevating a seat such as on common barber chairs and those chairs used in beauty salons.

As best shown in Figure 5, apparatus 10 can be provided with a handlebar 28 enabling a friend or family member to maneuver apparatus 10 while a user 60 occupies chair 50. Handlebar 28 can be a two part apparatus and includes a lower inclined section 29 that is pivotally attached to an upper incline section 30. The upper inclined section 30 which can help a friend or family member maneuver apparatus 10, can include a gripping surface 31 that can be for example covered in foam or other material. Pivotal connections 32 can be provided connecting upper inclined section 30 to lower inclined section 29. An adjustment knob 33 can be used to tighten the pivotal connection 32 when in the operating position of Figures 3 and 5.

As shown in Figures 5 and 5A, lower horizontal section 29 can be provided with two spaced apart horizontal sections 34, each having an opening enabling handlebar 28 to be attached in a removable fashion to base 11. As shown in Figure 1, a pair of spaced apart support brackets 36 can be provided for forming a connection with handlebar 28. Each support bracket can have generally L-shaped cross section as shown in Figure 1, providing an opening 37 that is receptive of locking pin 38. Locking pin 38 can pass through opening 37 of support bracket 36 and opening 35 of horizontal section 34 in order to lock handlebar 28 to base 11. A retainer clip 39 can be provided for insuring that locking pin 38 does not become inadvertently dislodged.

In Figure 4, dimension line 40 designates dimension A which is the width of rear edge 13 of base 11. Dimension line 41 in Figure 4 designates the width as dimension B of front edge 12 of base 11. The length of base 11 between edge 12 and edge 13 can be a distance that is greater than the rear width 40.

A pair of brakes 42, 43 can be provided, one for each rear wheel 20, 21. Each brake is preferably a cam operated brake that provides a brake lever for a full 45 respectively. Brakes 42, 43 can employ a push down lever clamp mechanism that can be purchased from Rockler Woodworking and Hardware (e.g. item number 20731 in the Rockler catalog dated Summer, 2002. Such a mechanism is fitted with a transverse bar 59 that grips the wheel 20 or 21 to be locked in a braked, non-rolling position. In this fashion, a user simply depresses the brake lever 44 or 45 as illustrated by arrow 46 in Figure 3. Bar 59 then locks wheel 20 or 21. In the lower position shown in Figure 3, the brake is locked so that the rear wheels 20, 21 cannot rotate relative to base 11.

As shown in Figures 1-3, seat 50 can include a seat bottom 51 and a seat back 52.

The seat bottom 51 and seat back 52 can be connected with a plurality of brackets 53 as shown in Figure 2. A plurality of belts can be provided for holding an occupant or user 60 to seat bottom 51 and seat back 52 as shown in Figure 3. These belts can include a pair of shoulder belts 54, 55 that are preferably diagonally positioned across the chest and torso of an occupant 60 as shown in Figure 3 during use. Each belt 54 can be a two part belt connected with a buckle. A seatbelt can also be provided that attaches to the seat bottom 51. The seatbelt can include seatbelt sections 56, 57 that can be connected using a commercially available buckle.

Leg spacer at 58 can be provided on the upper surface of seat 51 for separating the legs of an occupant 60 at the occupant's knee area as show in Figure 1 and 3 for providing greater stability to user 60 not having perfect use of his or her legs.

A pair of armrests 61 can be provided, each pivotally connected at pivotal connection 62 to telescoping support 63 extending across the back of seat back 52 (see Figure 2). Telescoping support 63 enables the distance between armrests 61 to be varied to fit a particular occupant 60. A telescoping support 63 can be comprised of two telescoping sections 64, 65 that can be affixed at a selected telescoping position using adjustment nuts 67. The adjustment nuts 67 are preferably in the form of two spaced apart, left and right adjustment nuts 67, each having a bolt head that travels in vertical rail 66. As indicated by arrow 69 in Figure 2, the telescoping support 63 and the connected arms 61 can thus be elevated or lowered to fit a particular occupant 60. The arrow 68 in Figure 2 illustrates pivotal movement of the arms 61. The arrow 70 in Figure 2 illustrates telescoping lateral expanding movement of the telescoping support 63.

As shown in Figure 2, a pair of vertical rails 61 can be provided on the rear surface of seat back 52. The rails 71 can be positioned in between rails 66 that support telescoping support 63. Each rail 71 receives a vertical slide 72 having a bushing 74 at its upper end portion. Bushing 74 forms a pivotal connection with arm 78. Each arm 78 supports a curved pad 76 that is shaped generally to conform to the head or neck area of an occupant 60 as shown in Figure 3.

Each arm 78 can pivot inwardly and outwardly relative to an occupant 60 as indicated by arrows 79. In order to affix the position of each arm 78 and its pad 76 relative to an occupant's head 80, wing nuts 75, 77 can be provided. A pivotal connection 81 can be provided between the free end of arm 78 and curved pad 76.

A pair of leg supports 82 can extend from the underside of seat bottom 51 as shown in Figures 1 and 3. Each leg support 82 can include an upper section 83, lower section 84 and pivotal connection 85. At the lower end portion of lower section 84 can be provided a footrest 86. The position of the footrest can be adjusted 360 degrees and
5 locked in position using knob 87.

Horizontally positioned rails 88 can be affixed to the underside of seat bottom 51 for forming a connection with the horizontal slide 89 portion of each leg support 82 and locked in position using a threaded know 90 as shown in Figure 6.

Figures 7 through 9 show an alternative embodiment for base 11 providing
10 additional stability during movement of mobile elevating chair apparatus 10. Figure 7 is a top view of alternative base 11; Figure 8 is a side view; and Figure 9 is a top view. Base 11 can be comprised of a front beam 12A, rear beam 13A, and a pair of opposed side beams 14A, 15A. A middle beam 90 can span between side beams 14A and 15A. Wheels 20 and 21 can be attached to the rear beam 13.

15 Wheels 18 and 19 can be attached close to the front beam 12A and can be swivel wheels such as swiveling casters. Wheels 18 and 19 can be attached by stems 18A and 19A. As swiveling casters, wheels 18, 19 swivel 360 degrees about a vertical axis and enable the apparatus 10 to be easily steered. As shown in Figures 7 and 9, wheels 20, 21 can be rotatably attached to beam 13A via axles 20A and 21A. Rear wheels 20, 21 can
20 be positioned at the rear edge of beam 13A and outboard and laterally spaced away from side beams 14A, 15A, as shown in Figure 7. Conversely, wheels 18, 19 can be positioned under side beams 14A, 15, being attached as shown in Figures 7 and 8. As shown in Figure 7, dimension 190 is the spacing between wheel stems 18A and 19A and dimension 180 is the spacing between the centerlines of wheels 20 and 21.

25 Middle beam 90 can support hydraulic pedestal 22. Pedestal 22 can be a hydraulic cylinder arrangement that includes hydraulic cylinder 23 and elevating push rod 24 that elevates and lowers as illustrated by the arrow 25 in Figure 8. The movement of pushrod 24 can be controlled by actuator arm 26, where arm 26 is moved in the direction of arrow 26A.

30 Side beams 14A and 15A can be constructed in a substantially similar manner. Sidebeam 15A is shown in Figure 9A. Sidebeam 15 A can be comprised of a horizontal component and raised portion 91. Raised portion 91 can be comprised of inclined

component 91A and horizontal component 91B. Raised portions 91 and 92 allow larger diameter wheels 18 and 19 to be used while minimizing the distance of base 11 from ground surface 125 and increasing the overall stability of apparatus 10.

As shown in Figure 8, dimension 130 is the distance between the center of wheel 18 from ground surface 125; dimension 140 is the distance between the top of wheel 18 from ground surface 125; dimension 150 is the distance between the bottom of beam 15A from ground surface 125; dimension 160 is the distance between the center of wheel 21 from ground surface 125; and dimension 170 is the distance between the top of beam 15A from ground surface 125.

For overall stability, it is preferred that dimension 130 be at least fifty percent of dimension 160. It is more preferred that dimension 130 be at least 2/3 of dimension 160. It is also preferred that dimension 130 be greater than dimension 150.

As with the embodiment shown in Figures 1-6, a pair of brakes 110, 120 can be provided, one for each rear wheel 20, 21. Additionally an arm 100 operatively attached to each brake 110, 120 can be provided to simultaneously activate both brakes.

Figure 10A, 10 B, and 10 C are front, side, and top views of an alternative embodiment for a leg rest. A pair of leg supports 200 can extend from the underside of seat bottom 51, being connected by a pair of top plates 230. Each leg support 200 can include an upper section 210, lower section 220, and bottom plate 240. Upper and lower sections 210,220 can be slidingly connected to each other to allow adjustable movement of bottom plates 240. Attached to bottom plate 240 can be a footrest. Upper sections 210 can be pivotally connected to top plates 230.

Figures 11A(rear), 11B(right side), and 11C(top) are sectional views of an alternative arm rest pivot connection assembly. A pair of armrests 61 can be provided, each pivotally connected at pivotal connection 62. Armrest 61 can be pivotally connected to mount 260 held in place by bolt 270. Pivot connection 62 can comprise a shoulder 280 and pin 290 connection. Shoulder 280 can include a pathway wherein pin 290 can travel, but be stopped when the pathway end. A washer 300 can be placed between shoulder 280 and mount 260. Accordingly, partial rotational movement of armrest 61 can be obtained.

The following is a list of suitable parts and materials for the various elements of the preferred embodiment of the present invention.

PARTS LIST

	<u>DESCRIPTION</u>	<u>PART NUMBER</u>
	mobile elevating chair apparatus	10
	base	11
5	front edge	12
	front beam	12A
	rear edge	13
	rear beam	13A
	left side	14
10	left beam	14A
	right side	15
	right beam	15A
	upper surface	16
	lower surface	17
15	front wheel	18
	stem	18A
	opening	18B
	front wheel	19
	stem	19A
20	rear wheel	20
	axle	20A
	rear wheel	21
	axle	21A
	pedestal	22
25	hydraulic cylinder	23
	pushrod	24
	arrow	25
	actuator arm	26
	arrow	26A
30	foot rest	27
	handlebar	28
	lower inclined section	29

	upper inclined section	30
	gripping surface	31
	pivotal connection	32
	adjustment knob	33
5	horizontal section	34
	opening	35
	support bracket	36
	opening	37
	locking pin	38
10	retainer clip	39
	dimension line	40
	dimension line	41
	brake	42
	brake	43
15	brake lever	44
	brake lever	45
	arrow	46
	arrow	47
	rear strut	48
20	gap	49
	seat	50
	seat bottom	51
	seat back	52
	bracket	53
25	shoulder belt	54
	shoulder belt	55
	seat belt section	56
	seat belt section	57
	leg spacer	58
30	transverse bar	59
	user	60
	arm rest	61

	pivotal connection	62
	telescoping support	63
	section	64
	section	65
5	vertical rail	66
	adjustment nut	67
	arrow	68
	arrow	69
	arrow	70
10	rail	71
	vertical slide	72
	arrow	73
	bushing	74
	wing nut	75
15	curved pad	76
	wing nut	77
	arm	78
	arrow	79
	head	80
20	bushing	81
	leg support	82
	upper section	83
	lower section	84
	pivotal connection	85
25	foot rest	86
	knob	87
	horizontally positioned rails	88
	beam	90
	raised portion	91
30	inclined component	91A
	horizontal component	91B
	raised portion	92

	inclined component	92A
	horizontal component	92B
	brake arm	100
	brake	110
5	brake	120
	ground	125
	dimension line	130
	dimension line	140
	dimension line	150
10	dimension line	160
	dimension line	170
	dimension line	180
	dimension line	190
	leg support	200
15	upper section	210
	lower section	220
	top plate	230
	bottom plate	240
	foot rest	250
20	armrest mount	260
	bolt/fastener	270
	pin	280
	shoulder	290
	washer	300

25

The foregoing embodiments are presented by way of example only; the scope of the present invention is to be limited only by the following claims.

CLAIMS

1. A mobile elevation chair apparatus comprising:
 - a) a base that has a periphery defined by front and rear edges and side edges, said base having a lower surface, and an upper surface, the base being wider at the rear edge
5 compared to the front edge so that the side edges form an acute angle;
 - b) an telescoping piston mounted on the upper surface of the base;
 - c) a lever that enables the piston to be elongated or shortened, the lever extending rearwardly from the piston;
 - d) a chair mounted upon the top of the piston, the chair having seat base and seat
10 back portions, the seat back portion mounted to the piston;
 - e) a plurality of wheels mounted to the base, including a pair of front, steerable wheels that are mounted to the lower surface of the base at a position inside the periphery of the base and a pair of rear wheels mounted to the base at a position outside of the periphery of the base; and
15 f) a brake mechanism for braking at least one of the rear wheels.
2. The mobile elevation chair apparatus of claim 1 wherein the chair has a pair of arm rests that are adjustable in a vertical direction relative to the seat back.
3. The mobile elevation chair apparatus of claim 1 wherein the chair has a pair
20 of leg supports that each have a foot rest, the foot rest extending forwardly of the seat base.
4. The mobile elevation chair apparatus of claim 1 further comprising head supports that are attached to the seat back portion and that extend to left and right sides of an occupant's head when the occupant is sitting upon the seat base.
- 25 5. The mobile elevation chair apparatus of claim 1 further comprising a plurality of belts for securing an occupant to the chair including at least seat belts.
6. The mobile elevation chair apparatus of claim 1 further comprising a plurality of belts for securing an occupant to the chair including at least shoulder belts.
7. The mobile elevation chair apparatus of claim 1 further comprising a
30 handlebar attached to the base and extending behind the seat for enabling an attendant to push and steer the base.
8. The mobile elevation chair apparatus of claim 2 further comprising a joint for at least one of the arm rests that enables the arm rest to pivot.

9. The mobile elevation chair apparatus of claim 1 further comprising a spacer mounted to the seat base for maintaining a user's legs in space apart positions.

10. A wheeled elevating chair apparatus, comprising:

- 5 a) a trapezoidal base having an upper surface, a lower surface, a front edge, a rear edge and a pair of side edges that form an acute angle, wherein the rear edge defines the widest part of the base;
- b) a pair of rear wheels mounted to the base at the rear edge;
- c) a pair of steerable front wheels mounted to the base at the front edge;
- 10 d) brakes mounted on the pedestal and movable between released and locking positions, the rear wheels being locked to prevent rolling when in the locking position;
- e) a pedestal mounted on the base and extending vertically above the base upper surface, the pedestal including a plurality of pedestal members that telescope, at least one of said pedestal members being a first pedestal member attached to the base and
15 a second pedestal member that is attached to the first pedestal member and elevates relative to the base;
- f) a hydraulic jacking mechanism that elevates the second pedestal member relative to the first pedestal member, said jacking mechanism including a lever arm that
20 extends from the pedestal rearwardly to a position that is above and behind the base;
- g) a chair mounted to the pedestal, the chair having a seat and seat back the chair changing elevation relative to the base by moving with the second pedestal member when the second pedestal member is elevated or lowered using the jacking mechanism; and
- 25 h) wherein the lower arm elevates the chair when it is depressed and moved from a higher to a lower position; and
- i) wherein the chair and second pedestal member lower the chair when the lever arm is depressed to a lowest position and maintained in that lowest position.

30 11. The mobile elevation chair apparatus of claim 10 wherein the chair has a pair of arm rests that are adjustable in a vertical direction relative to the seat back.

12. The mobile elevation chair apparatus of claim 10 wherein the chair has a pair of leg supports that each have a foot rest, the foot rest extending forwardly of the seat

base.

13. The mobile elevation chair apparatus of claim 10 further comprising head supports that are attached to the seat back portion and that extend to left and right sides of an occupant's head when the occupant is sitting upon the seat base.

5 14. The mobile elevation chair apparatus of claim 10 further comprising a plurality of belts for securing an occupant to the chair including at least seat belts.

15 15. The mobile elevation chair apparatus of claim 10 further comprising a plurality of belts for securing an occupant to the chair including at least shoulder belts.

10 16. The mobile elevation chair apparatus of claim 10 further comprising a handlebar attached to the base and extending behind the seat for enabling an attendant to push and steer the base.

15 17. The mobile elevation chair apparatus of claim 11 further comprising a joint for at least one of the arm rests that enables the arm rest to pivot.

15 18. The mobile elevation chair apparatus of claim 10 further comprising a spacer mounted to the seat base for maintaining a user's legs in space apart positions.

19. A mobile elevation chair apparatus comprising:

a) a base that has a periphery defined by front and rear edges and side edges, said base having a lower surface, and an upper surface;

b) a telescoping piston mounted on the upper surface of the base;

5 c) a lever that enables the piston to be elongated or shortened, the lever extending rearwardly from the piston;

d) a chair mounted upon the top of the piston, the chair having seat base and seat back portions, the seat back portion mounted to the piston;

10 e) a plurality of wheels mounted to the base, including a pair of rear wheels mounted to the base at a position outside of the periphery of the base pair of front, and a front pair of steerable wheels mounted to the base;

f) wherein the diameter of the front wheels is greater than or equal to the radius and less than the diameter of the rear wheels; and

g) a brake mechanism for braking at least one of the rear wheels.

15

20. The chair apparatus of claim 19, wherein the base comprises a pair of side beams, each side beam comprising an inclined portion and a plurality of horizontal portions, and wherein each of the front wheels are attached to one of the horizontal portions.

20 21. The chair apparatus of claim 20, wherein each of the inclined portions extend in an upward direction moving from the rear edge to the front edge of the base.

22. The chair apparatus of claim 19, wherein each of the rear wheels are attached to one of the horizontal portions for each side beam which was not attached to one of the front wheels.

25 23. The chair apparatus of claim 19, wherein the brake mechanism comprises a bar, wherein activation of the bar causes braking of both rear wheels.

24. The chair apparatus of claim 19, wherein the chair has a pair of arm rests that are adjustable in a vertical direction relative to the seat back.

30 25. The chair apparatus of claim 24, further comprising a joint for at least one of the arm rests that enables the arm rest to pivot.

26. The chair apparatus of claim 25, further comprising at least one pin operatively connected to at least one of the arm rests, the pin restricting the range of armrest rotation.

27. The mobile elevation chair apparatus of claim 19 wherein the chair has a pair of leg supports that each have a foot rest, the foot rest being slidingly connected to the seat base.

28. The mobile elevation chair apparatus of claim 19 further comprising a
5 spacer mounted to the seat base for maintaining a user's legs in space apart positions.

29. The mobile elevation chair apparatus of claim 19 further comprising head supports that are attached to the seat back portion and that extend to left and right sides of an occupant's head when the occupant is sitting upon the seat base.

30. The mobile elevation chair apparatus of claim 19 further comprising a
10 plurality of belts for securing an occupant to the chair including at least seat belts.

31. The mobile elevation chair apparatus of claim 19 further comprising a plurality of belts for securing an occupant to the chair including at least shoulder belts.

32. The mobile elevation chair apparatus of claim 19 further comprising a
15 handlebar attached to the base and extending behind the seat for enabling an attendant to push and steer the base.

33. The chair apparatus of claim 19, wherein the base comprises a pair of
inclined portions, each of the inclined portions being attached to at least one of the front
wheels and allowing at least fifty percent of the base to be at or below the top of the front
20 wheels.

34. The chair apparatus of claim 33, wherein each of the inclined portions extend in an upward direction moving from the rear edge to the front edge of the base.

35. A mobile elevation chair apparatus comprising:
- a) a base that has a periphery defined by front and rear edges and side edges, said base having a lower surface, and an upper surface;
 - b) a telescoping piston mounted on a mount on the upper surface of the base;
 - 5 c) a lever that enables the piston to be elongated or shortened, the lever extending rearwardly from the piston;
 - d) a chair mounted upon the top of the piston, the chair having seat base and seat back portions, the seat back portion mounted to the piston;
 - e) a plurality of wheels mounted to the base, including a pair of rear wheels
10 mounted to the base at a position outside of the periphery of the base pair of front, and a front pair of steerable wheels mounted to the base; and
 - f) wherein the mount for the piston to the base extends below the height of the front wheels.
36. The chair apparatus of claim 35, further comprising a brake mechanism
15 comprising a bar, wherein activation of the bar causes braking of both rear wheels.
37. The chair apparatus of claim 35, wherein the chair has a pair of arm rests that are adjustable in a vertical direction relative to the seat back.
38. The chair apparatus of claim 37, further comprising a joint for at least one of the arm rests that enables the arm rest to pivot.
- 20 39. The chair apparatus of claim 38, further comprising at least one pin operatively connected to at least one of the arm rests, the pin restricting the range of armrest rotation.
40. The mobile elevation chair apparatus of claim 35 wherein the chair has a pair of leg supports that each have a foot rest, the foot rest being slidingly connected
25 to the seat base.
41. The mobile elevation chair apparatus of claim 35 further comprising a spacer mounted to the seat base for maintaining a user's legs in space apart positions.
42. The mobile elevation chair apparatus of claim 35 further comprising head supports that are attached to the seat back portion and that extend to left and right sides
30 of an occupant's head when the occupant is sitting upon the seat base.
43. The mobile elevation chair apparatus of claim 35 further comprising a plurality of belts for securing an occupant to the chair including at least seat belts.
44. The mobile elevation chair apparatus of claim 35 further comprising a

plurality of belts for securing an occupant to the chair including at least shoulder belts.

45. The mobile elevation chair apparatus of claim 35 further comprising a handlebar attached to the base and extending behind the seat for enabling an attendant to push and steer the base.

5 46. The chair apparatus of claim 35, wherein the base comprises a pair of inclined portions, each of the inclined portions being attached to at least one of the front wheels and allowing at least fifty percent of the base to be at or below the top of the front wheels.

10 47. The chair apparatus of claim 45, wherein each of the inclined portions extend in an upward direction moving from the rear edge to the front edge of the base.

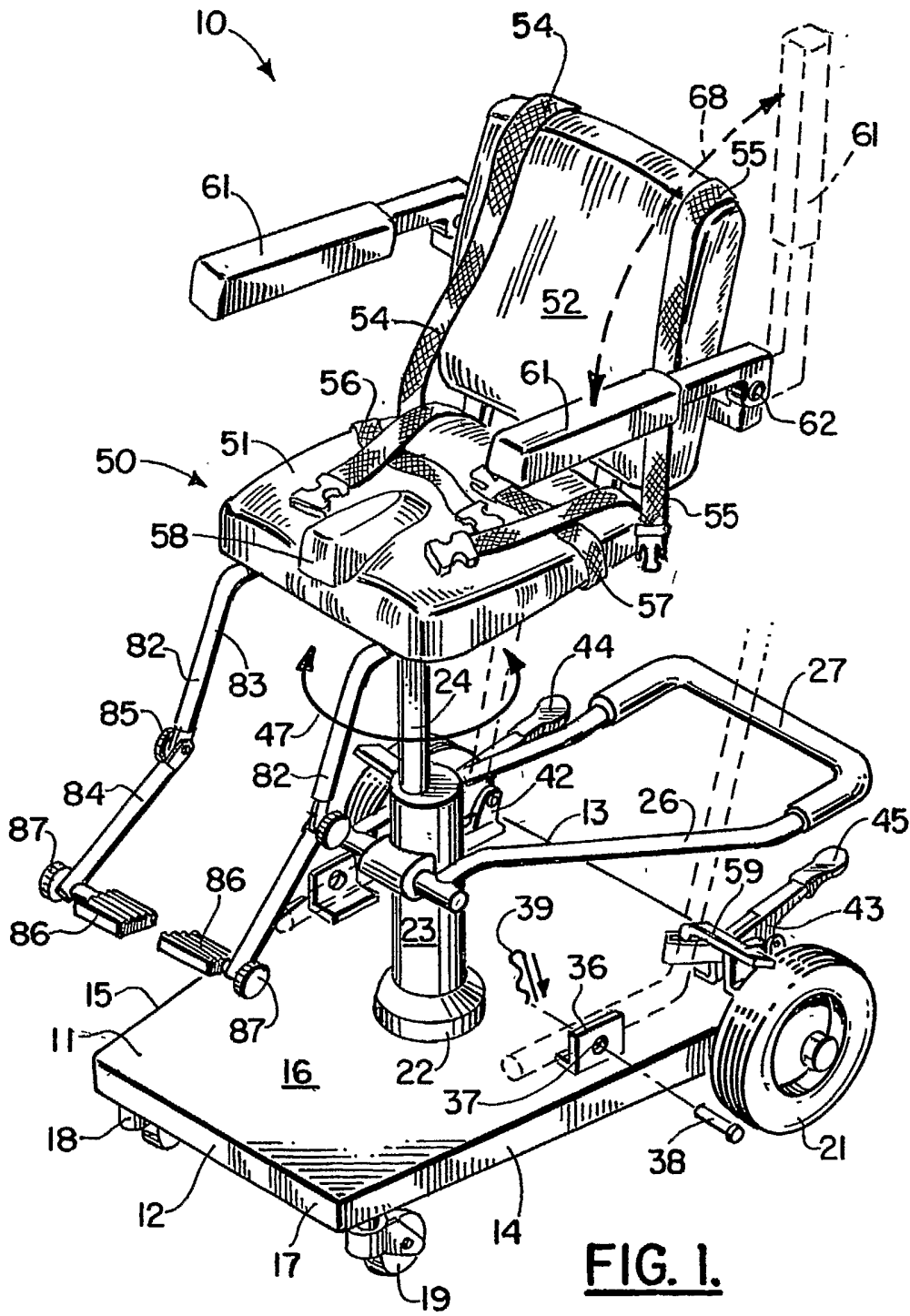


FIG. 1.

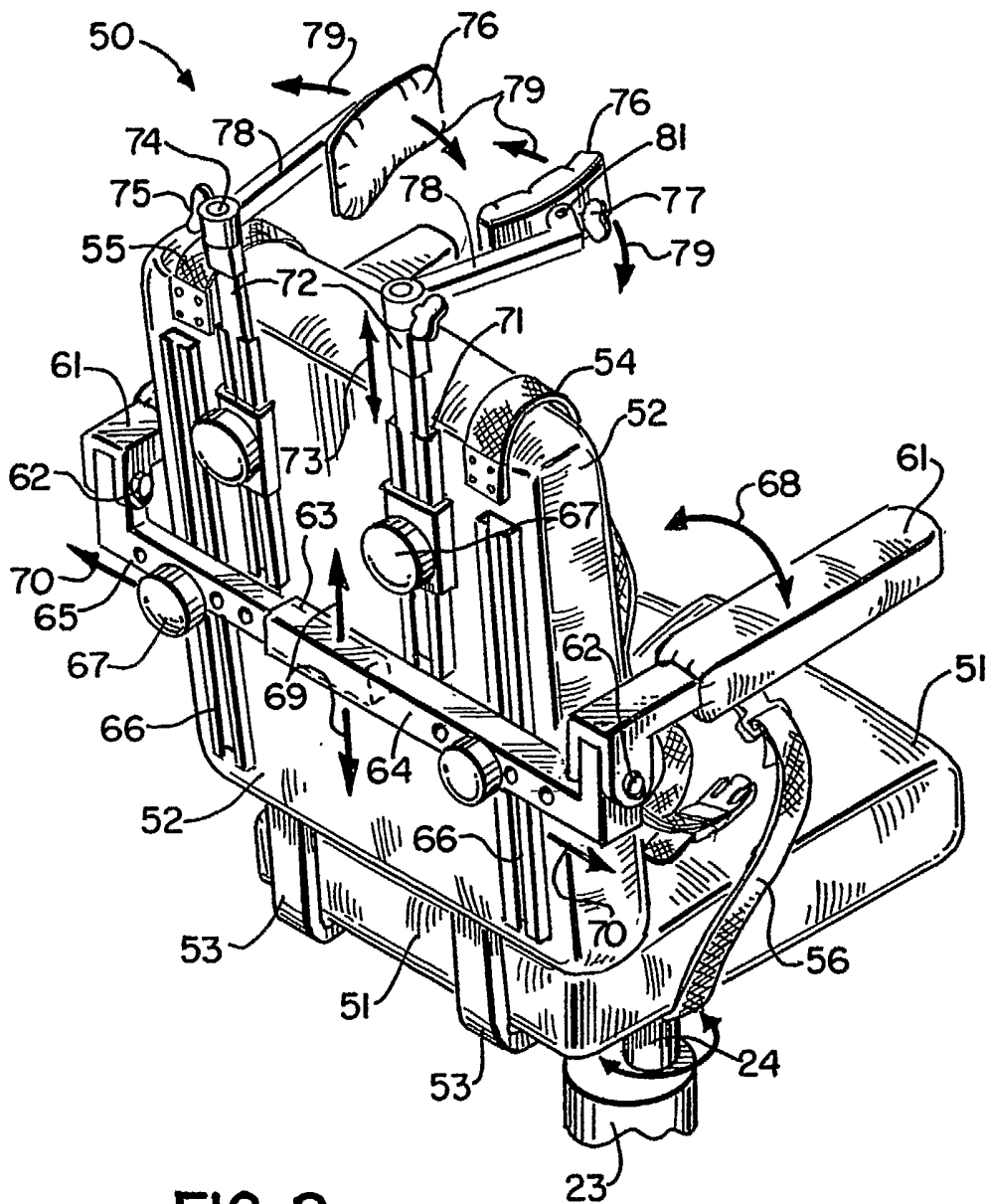


FIG. 2.

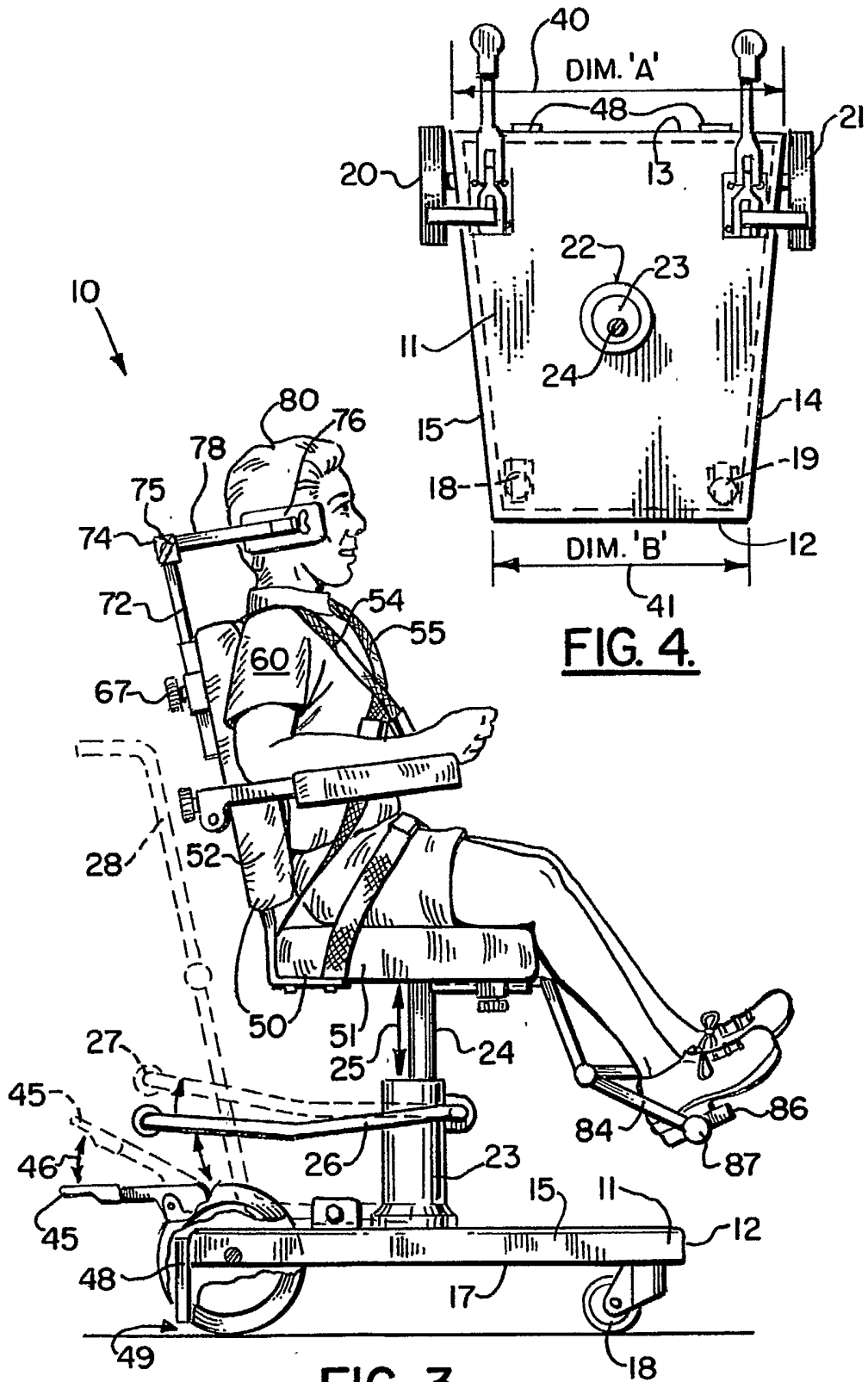


FIG. 4.

FIG. 3.

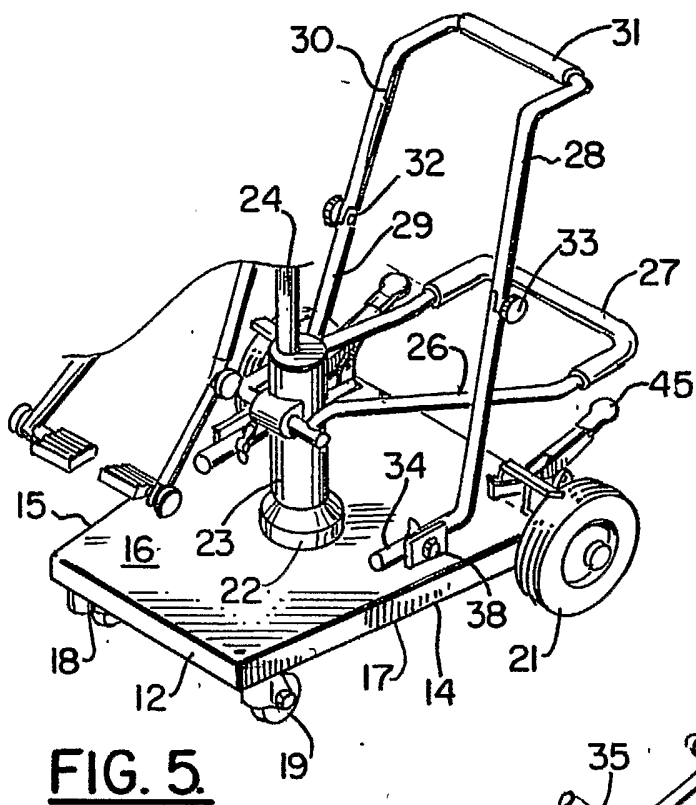


FIG. 5.

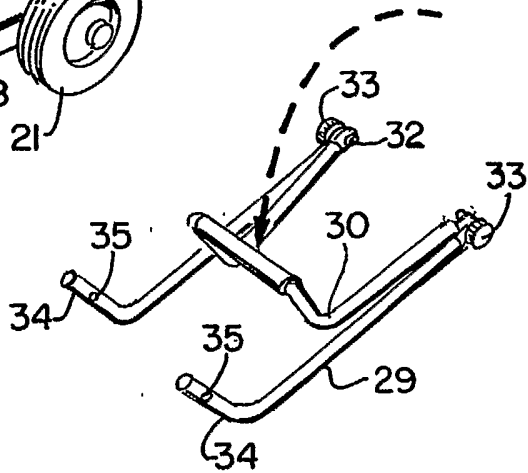


FIG. 5A.

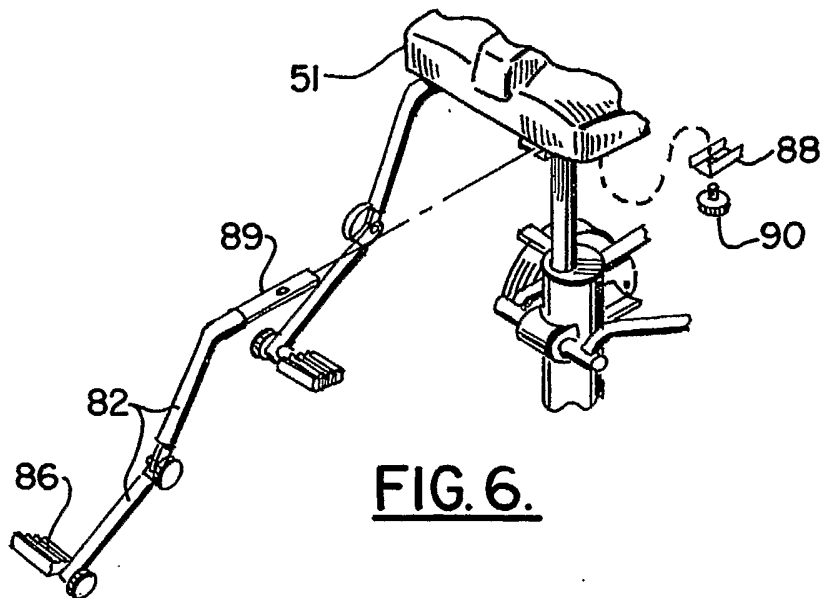


FIG. 6.

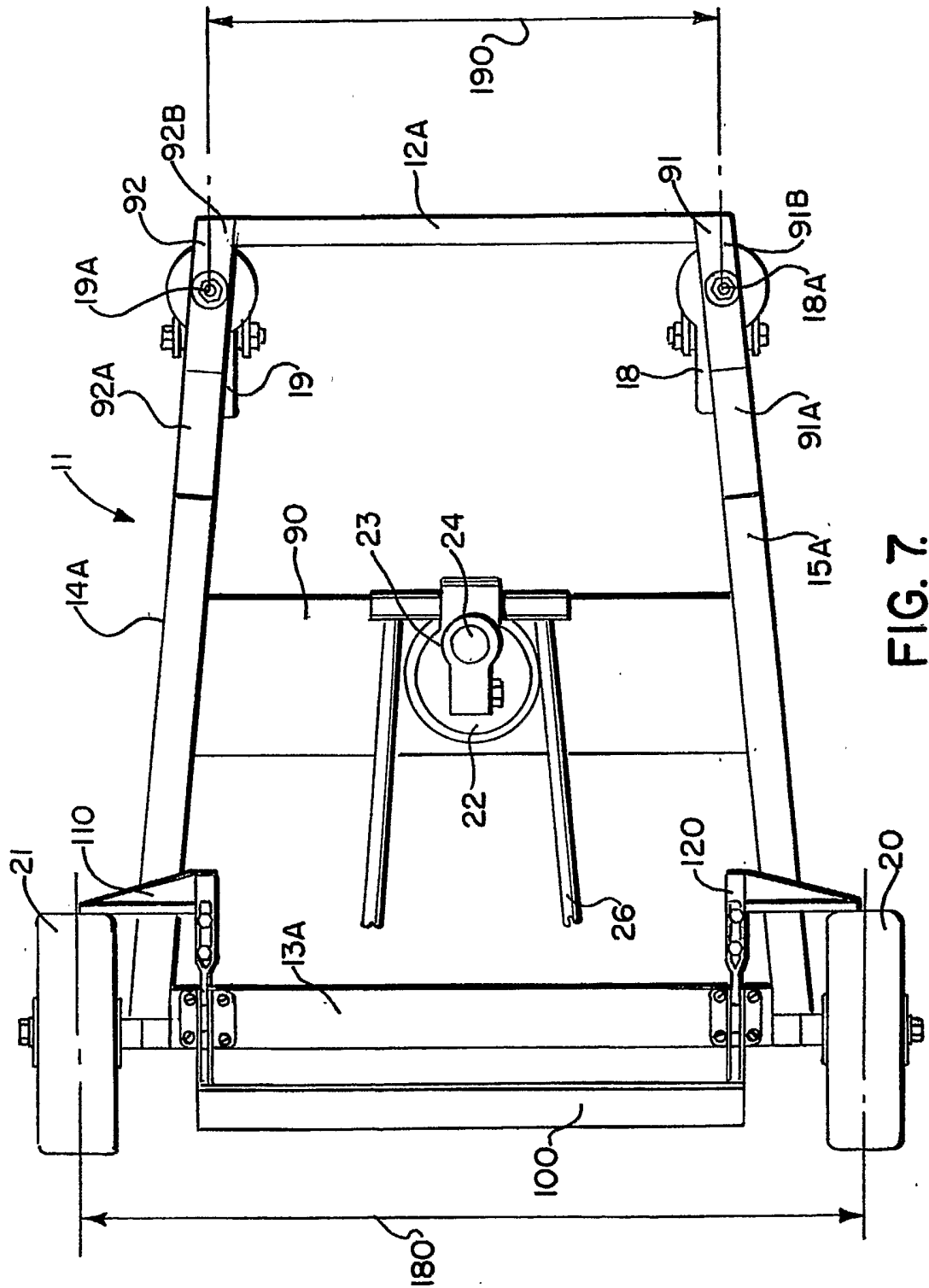


FIG. 7.

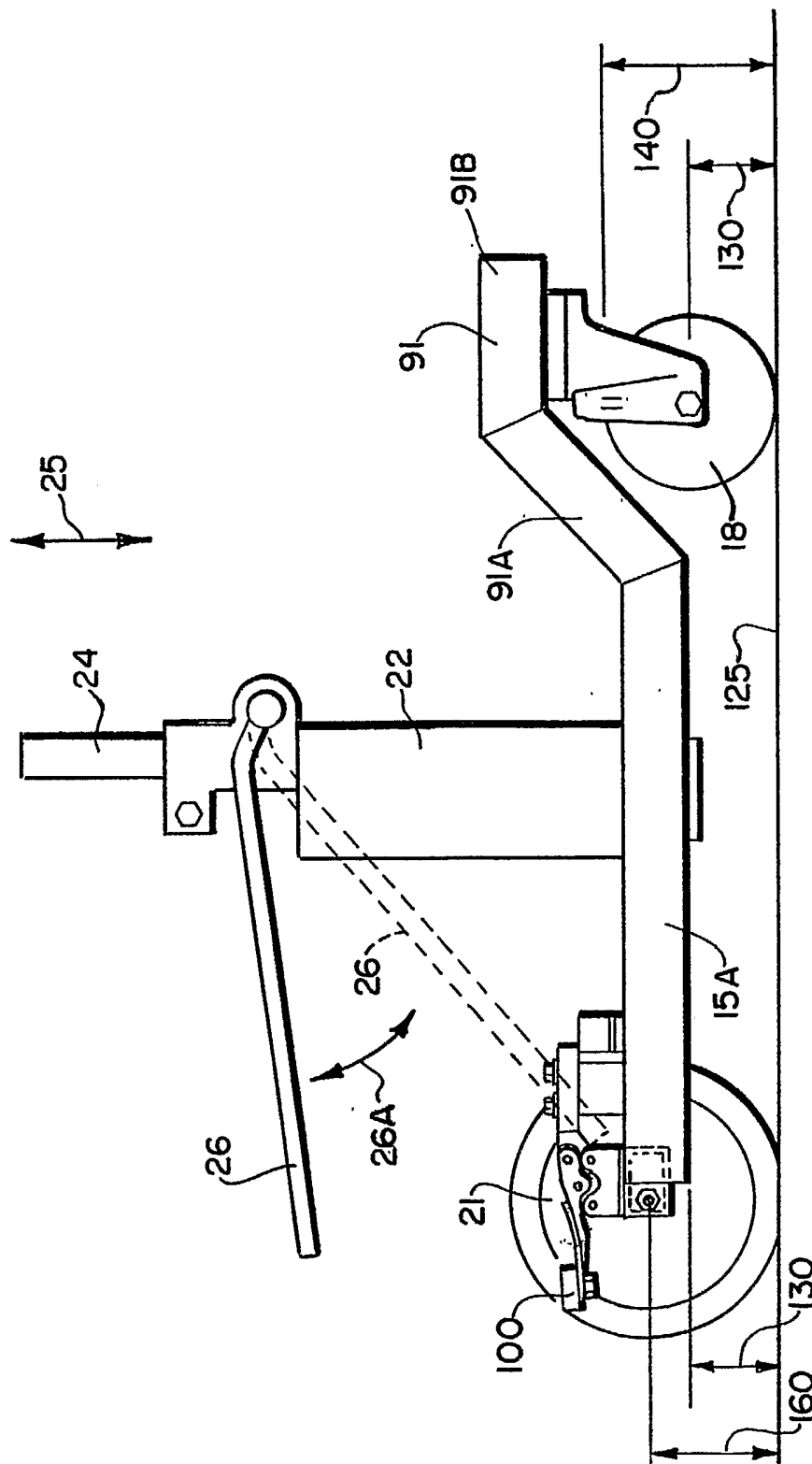


FIG. 8.

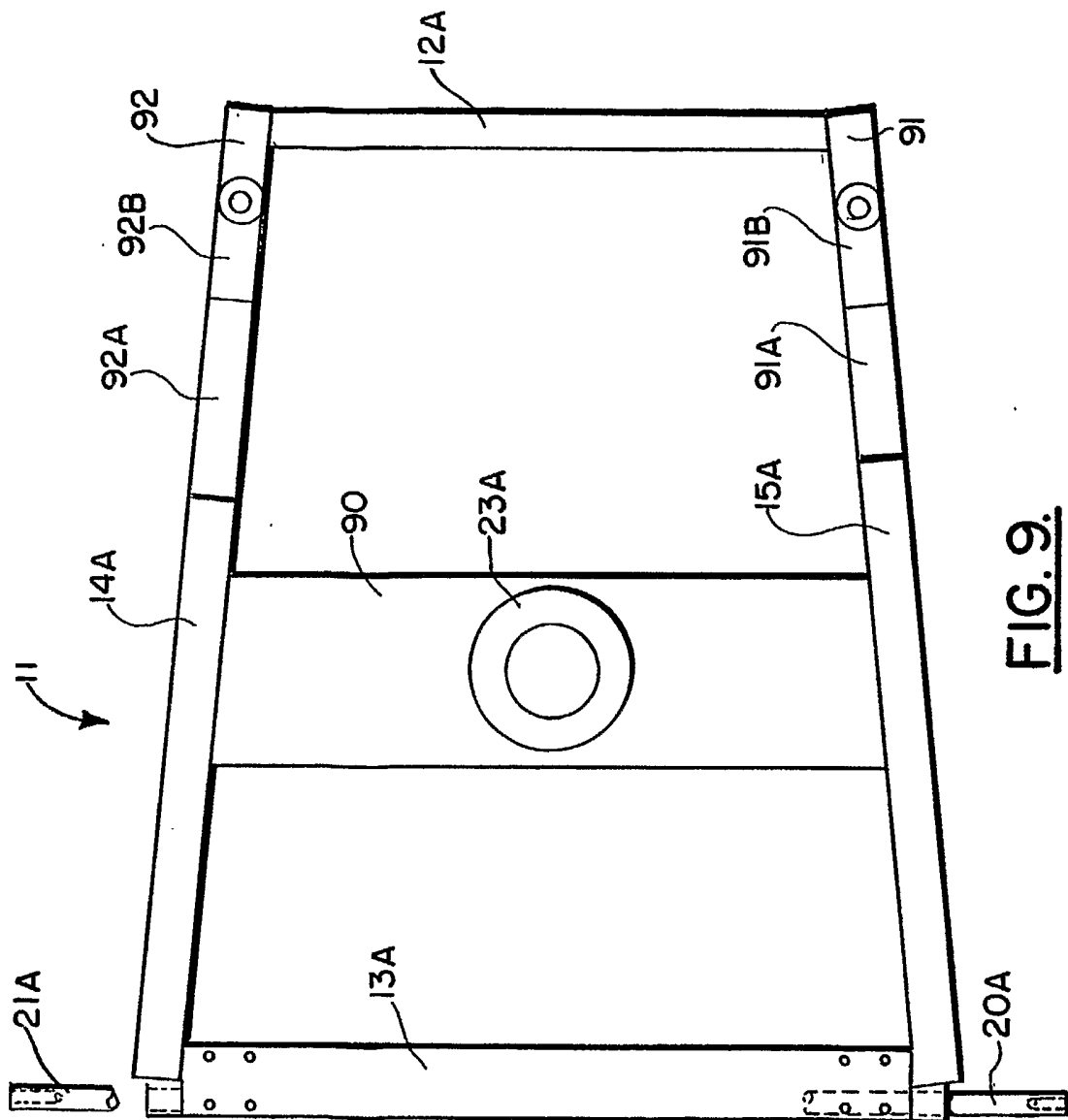


FIG. 9.

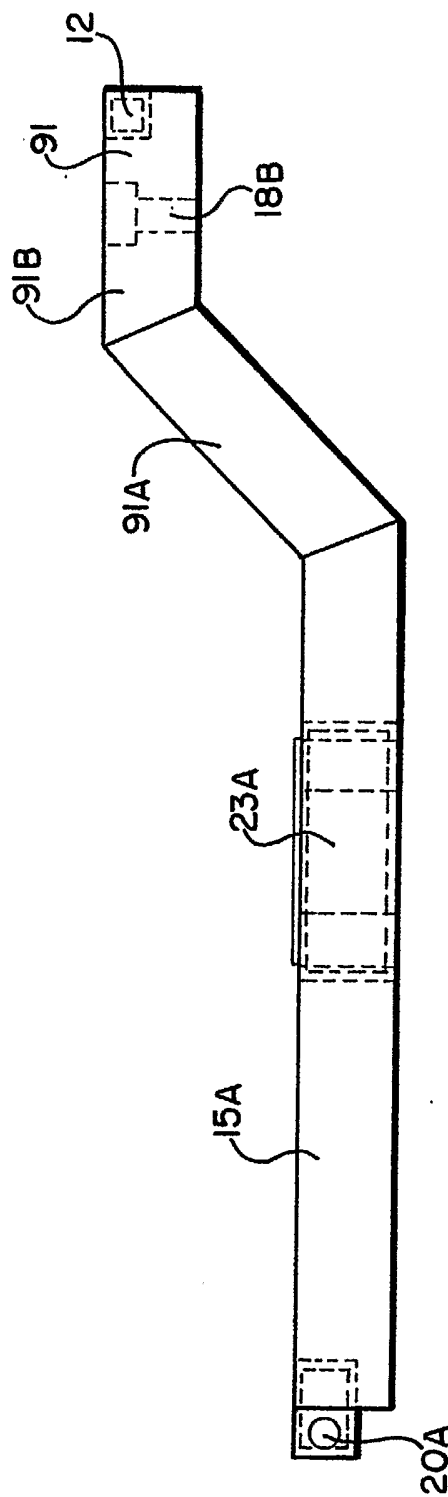
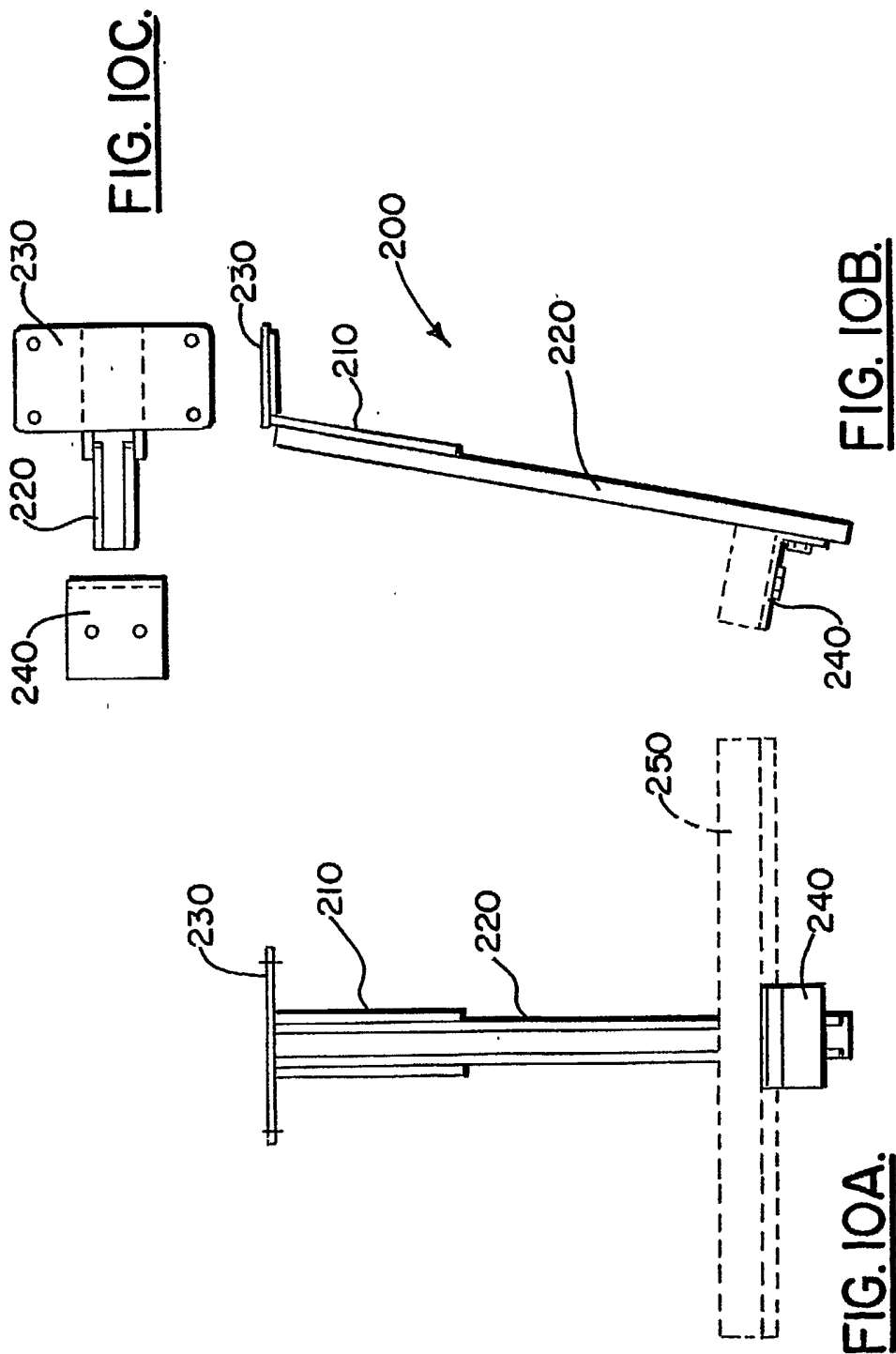


FIG. 9A.



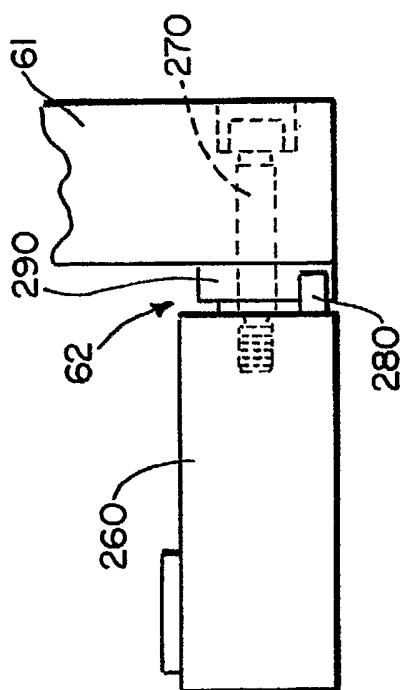


FIG. IIC.

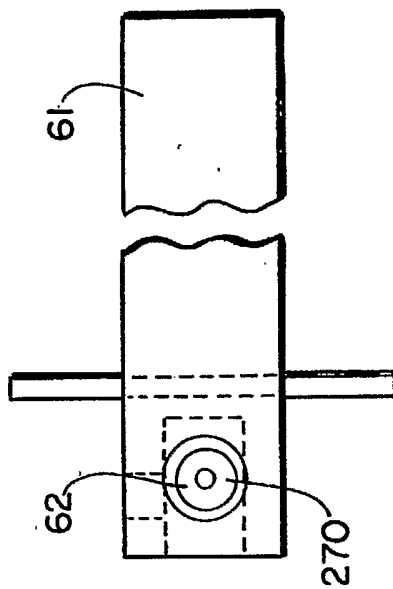


FIG. IIB.

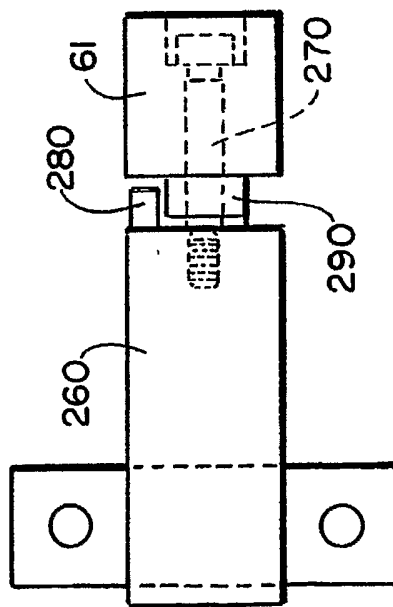


FIG. IIA.