United States Patent [19]

Averill

[11] **3,711,877**

[45] **Jan. 23, 1973**

[54] **INVALID LIFT AID**

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[21] Appl. No.: **120,966**

[52] **U.S. Cl.** **5/81,** 5/86, 5/89

[51] **Int. Cl.**.....**A61g 7/10,** A61g 1/02

[58] **Field of Search**.....5/81, 83–88, 89; 297/287, 44!, 457

[56] **References Cited**

UNITED STATES PATENTS

1,961,119	5/1934	Ettinger	5/89
2,666,212	1/1954	Flanders	5/86
2,539,346	1/1951	Feist	5/86
3,137,011	6/1964	Fischer	5/86
2,509,451	5/1950	Reinholz	297/287

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[57] **ABSTRACT**

My invalid lift aid is very comfortable for the occupant and can be adjusted both vertically and rotatable about a vertical axis with a minimum of effort. The lift aid may also be folded into a compact unit so that it may be stored in the truck or rear seat of an automobile.

2 Claims, 12 Drawing Figures

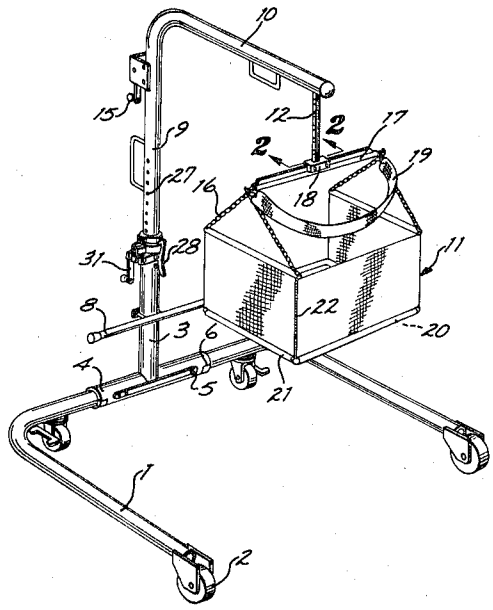
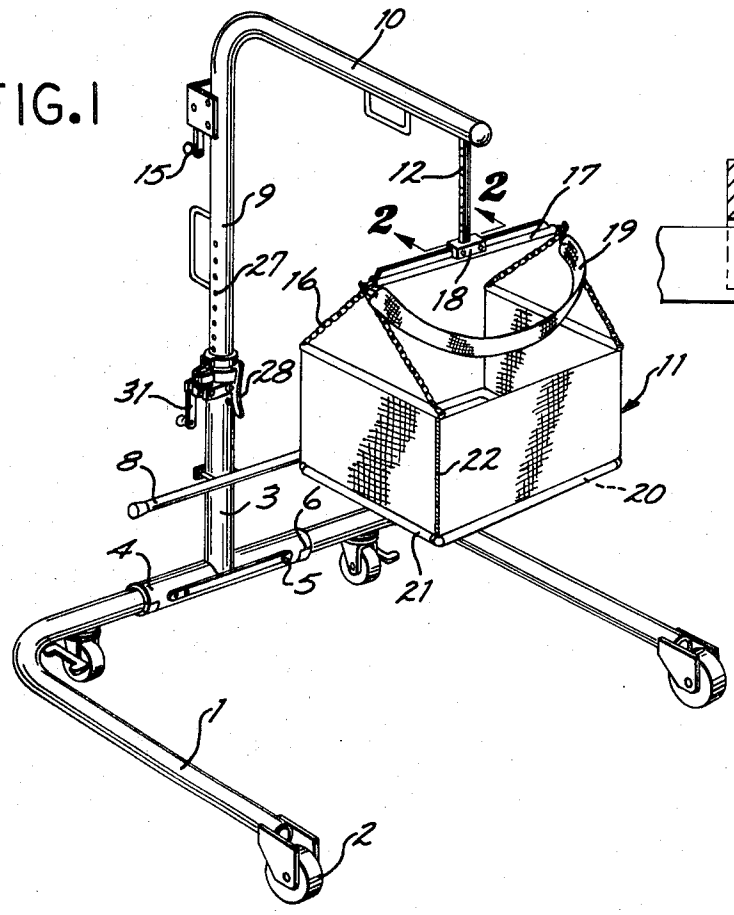


FIG. 1



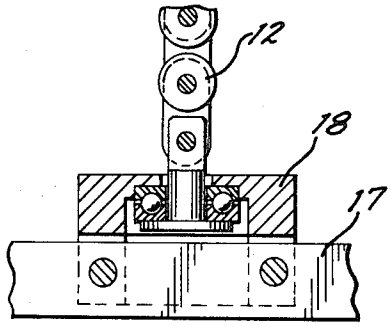


FIG. 2

FIG. 3

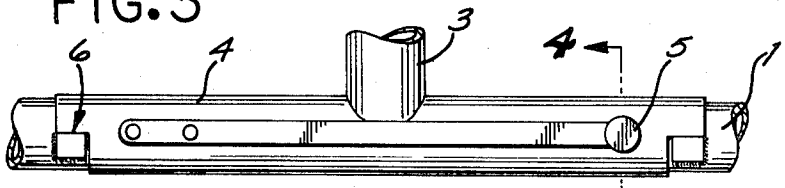


FIG. 4

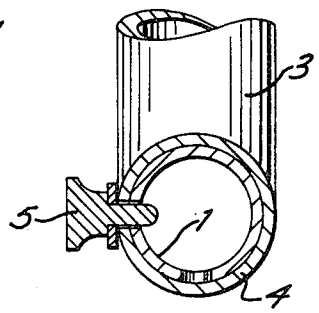


FIG. 5

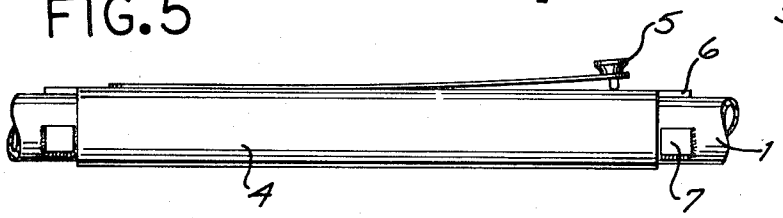
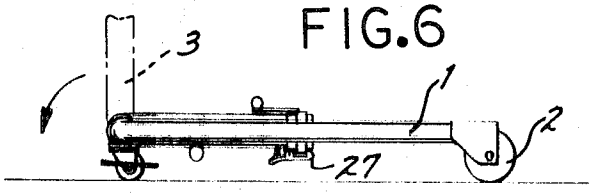


FIG. 6



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FIG.7

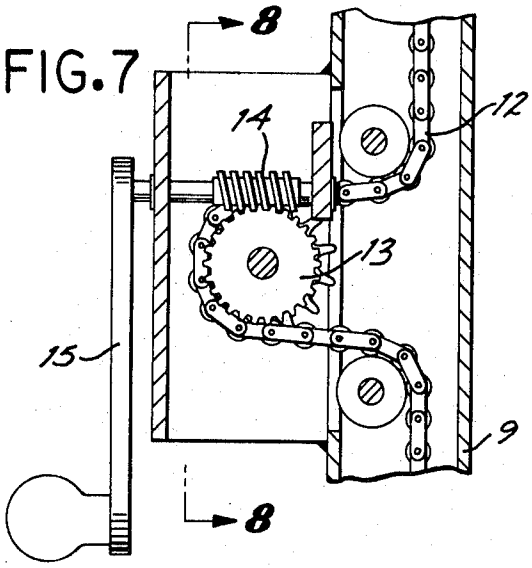


FIG.8

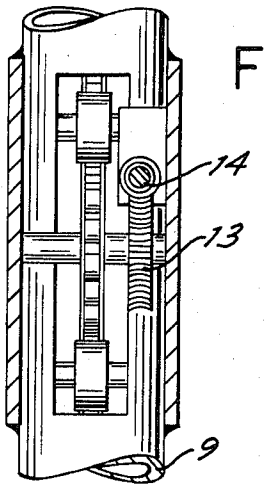


FIG.9

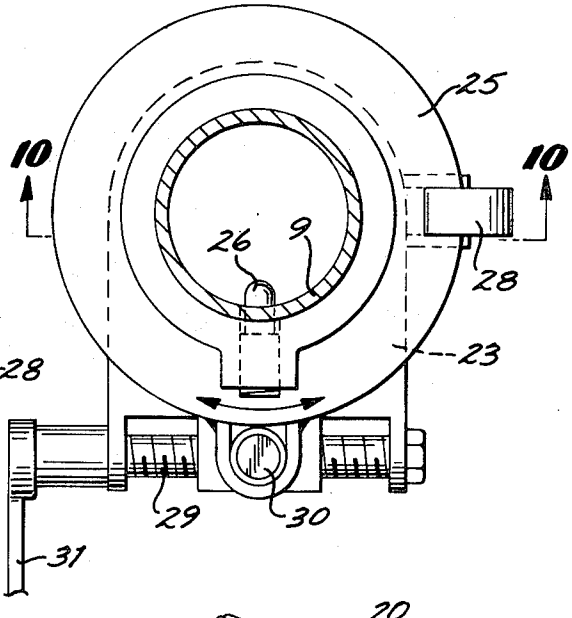
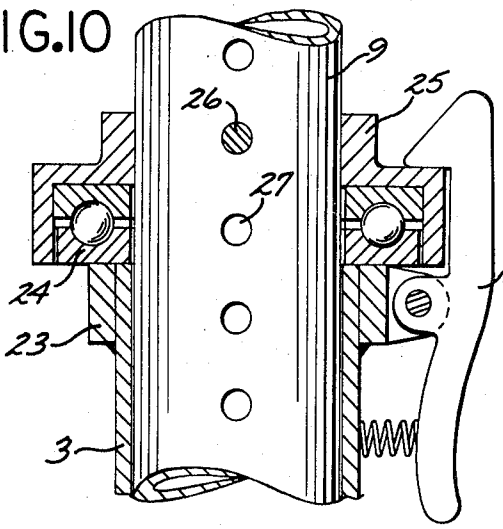


FIG.10



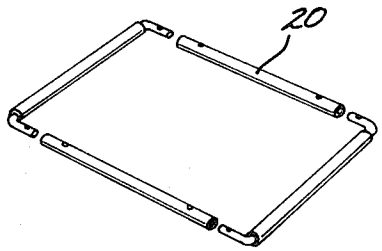
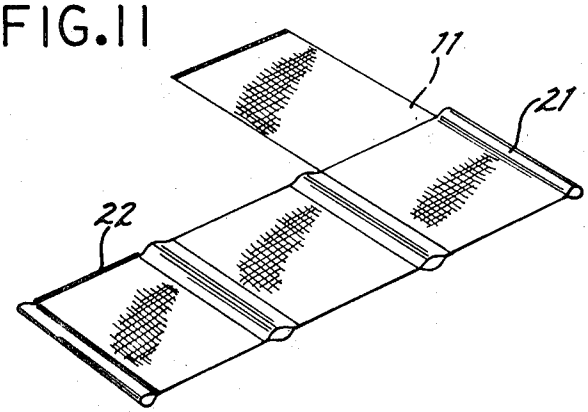


FIG.12

FIG.11



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INVALID LIFT AID

An object of my invention is to provide an invalid lift aid in which the base has a wide stance and is, therefore, very stable and is provided with large wheels or casters so that it may readily be moved as required.

Another object of my invention is to provide an invalid lift aid including a boom which carries a seat in which the occupant rests, and the boom may be adjusted vertically to different heights.

Still another object is to provide a lift aid in which the boom may be latched in either vertical or horizontal position, depending upon whether the lift aid is stored or is operative.

Still another object is to provide a lift aid in which the boom may be partially rotated to properly position the occupant over a wheel chair or within the seat of an automobile.

Still another object is to provide an invalid aid in which the seat is fully supported in a horizontal plane and is not a flexible sling. This supporting of the seat is accomplished through a rectangular frame which can be removed, if desired, to store the seat.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claims.

In the drawings:

FIG. 1 is a perspective view of my invalid lift aid.

FIG. 2 is a fragmentary sectional view taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary front view of the support sleeve mounting.

FIG. 4 is a transverse sectional view taken on line 4—4 of FIG. 3.

FIG. 5 is a top plan view of the sleeve mounting structure.

FIG. 6 is an end view of the bottom frame.

FIG. 7 is a vertical sectional view of the chain operating means.

FIG. 8 is a fragmentary sectional view taken on line 8—8 of FIG. 7.

FIG. 9 is a horizontal sectional view of the supporting boom and the operating mechanism therefor.

FIG. 10 is a sectional view taken on line 10—10 of FIG. 9.

FIG. 11 is an expanded view of the seat.

FIG. 12 is a perspective view of the seat frame.

Referring more particularly to the drawing, the numeral 1 indicates a substantially U-shaped bottom frame, preferably constructed of tubular material. A plurality of large diameter wheels 2 are swivelly mounted on the bottom frame 1 and serve to support this frame and the occupant of the invalid aid. A sleeve 3 is pivotally mounted on the frame 1 by means of the tube 4 which encircles the back member of the frame 1, as shown in FIG. 1. The tube 4 can rotate on the frame 1 to position the sleeve in either horizontal or vertical position, as will be subsequently described. The tube 4 is held in either horizontal or vertical position by means of a spring pressed latch pin 5 which enters appropriate holes in the frame. The tube 4 is provided with a notch 6 on each end thereof which engages a stop lug 7 to limit the rotatable movement of the tube. Thus it will be evident that the tube 4 can be rotated to position the sleeve 3 either vertically or horizontally. A footrest 8 may be provided on the sleeve 3 to permit the occupant to rest his feet thereon.

A boom 9 is fitted in the sleeve 3 and can be adjusted vertically in the sleeve, as will be subsequently described. The boom 9 includes a horizontal extension 10 on the outer end of which the seat 11 is mounted. A chain 12 extends through the boom 9, and particularly the extension 10 thereof, and this chain passes over a sprocket 13, which sprocket is rotated by the worm gear 14 propelled by the crank 15. By rotating the crank 15 the chain 12 can be moved relative to the boom extension 10 to properly position the occupant of the seat 11.

The seat 11 is formed of flexible material and side lift chains 16 are secured thereto. The chains 16 are provided with an appropriate hook to engage the ends of the horizontal lift bar 17. This lift bar is attached to a block 18 which is secured to the outer end of the chain 12. Thus it will be evident that the seat 11 can be raised or lowered as the chain 12 is manually adjusted by the operator. A back strap 19 may also be attached to the ends of the bar 17 if required. The seat 11 is held in extended position (not a sling) by means of a rectangular frame 20, which frame fits into appropriate pockets 21 in the seat. In the operative position the zippers 22 of the seat 11 are closed, thus holding the sides of the seat in a vertical position, as shown in FIG. 1. For storage purposes the frame 20 may be removed from the seat if desired.

The boom 9 can be adjusted vertically within the sleeve 3 to properly position the seat 11 in the following manner: A ring 23 is fixedly secured to the upper end of the sleeve 3. A bearing 24 rests on this ring and the bearing supports an annular flange 25, which is also rotatable about the boom 9. A pin 26 extends through the flange 25 and into appropriately spaced holes 27 to permit the boom to be adjusted vertically within the sleeve 3 as required. A manually operable latch 28 is pivotally mounted on the ring 23 and engages the flange 25, as best shown in FIG. 10. Thus the boom 9 is adjustably secured to the sleeve 3.

To permit the boom 9 to be rotated about its longitudinal axis through an angle of about 20° lift and right, I provide a screw adjustment consisting of the horizontal screw 29 which is rotatably mounted in the ring 23. The screw 29 is threaded through the nut 30, which nut is fixedly attached to the flange 25. By rotating the handle 31 the screw 29 can be rotated to rotate the flange 25, thus adjusting the boom 9 to the desired position.

IN OPERATION

The operator rotates the crank 15, thus adjusting the chain 12 to raise or lower the seat 11. With the passenger in the seat the frame 1 is moved to the place required and the seat 11 is moved into the vehicle or the like by inserting the boom extension 10 within the vehicle and then again raising or lowering the chain 12 to position the user on the proper seat. Before the user is placed in the invalid aid the boom 9 can be raised or lowered so that the extension 10 is at the proper height. This is accomplished by adjusting the pin 26 in the proper hole 27 in the boom.

The invalid lift aid can be folded after the invalid is in the vehicle or the like by lifting the spring latch pin 5 to release the tube 4 and permitting the tube with the sleeve 3 to rotate on the frame 1. The sleeve 3 will now be in a position substantially parallel to the arms of the

frame 1. By removing the pin 26 the boom 9 can be removed from the sleeve 3 if it is necessary for storage purposes.

Having described my invention, I claim:

1. An invalid lift aid comprising a base frame, a boom extending upwardly from said base frame in one position of the parts, a seat, a chain extending through said boom, means securing one end of the chain to the seat, a sprocket journaled on the boom, said chain extending around the sprocket, manual means to rotate the sprocket, and means journaling the boom on the base frame to permit partial rotation of the boom on said base frame, said means journaling the boom on the base frame comprising a tube journaled on the base frame, said tube being fixedly mounted on the boom, said means journaling the boom on the base frame comprising a tube journaled on the base frame, said tube being fixedly mounted on the boom, and releasable latch means on the tube engageable with the base frame to hold the boom in either of two positions, and adjusting means on the boom to vary the length thereof.

2. An invalid lift aid comprising a base frame, a boom extending upwardly from said base frame in one position of the parts, a seat, a chain extending through said boom, means securing one end of the chain to the seat, a sprocket journaled on the boom, said chain extending around the sprocket, manual means to rotate the sprocket, and means journaling the boom on the base frame to permit partial rotation of the boom on said base frame, said means journaling the boom on the base frame comprising a tube journaled on the base frame, said tube being fixedly mounted on the boom, and releasable latch means on the tube engageable with the base frame to hold the boom in either of two positions, and manually operable means engaging the boom to rotate said boom about a vertical axis.

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