United States Patent [19]

Iannucci

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[54] **MOBILE BED FOR THE HANDICAPPED**

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[52] **U.S. Cl.** **5/86,** 5/92, 297/DIG. 4, 297/377

[51] **Int. Cl.** **A61g 1/02**

[58] **Field of Search** 5/66, 68, 86, 92; 128/33; 297/377, 411

[56] **References Cited**

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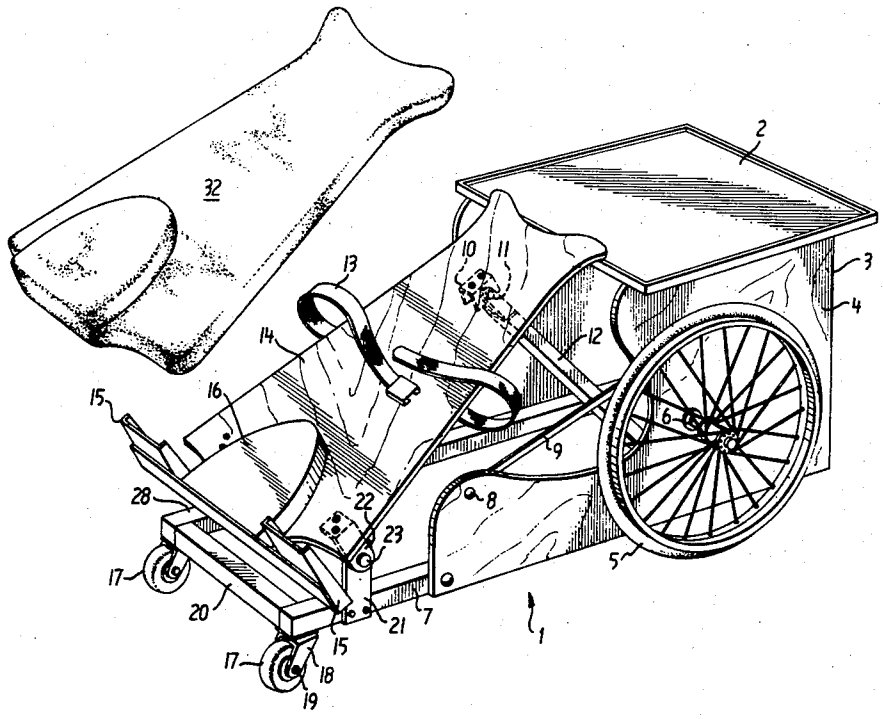
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[57] **ABSTRACT**

A mobile bed for the crippled or handicapped which has a fixed horizontal support surface providing an area for use by the occupant for playing or feeding and an adjustably inclined surface positioned for supporting the occupant while lying in the prone position which permits free movement of the arms for purposes of playing and feeding on the fixed horizontal support or moving the mobile bed by hand propulsion.

2 Claims, 3 Drawing Figures



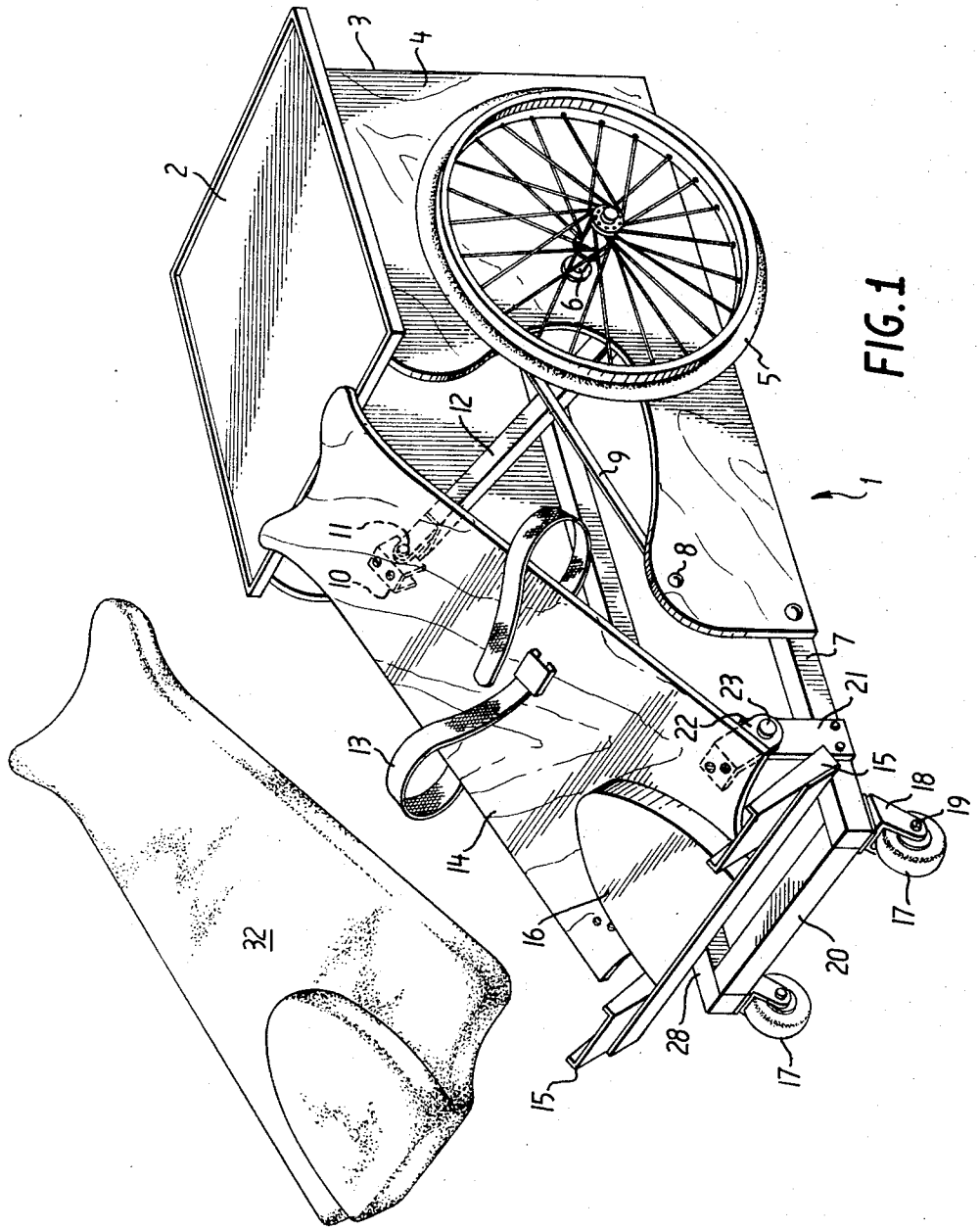


FIG. 1

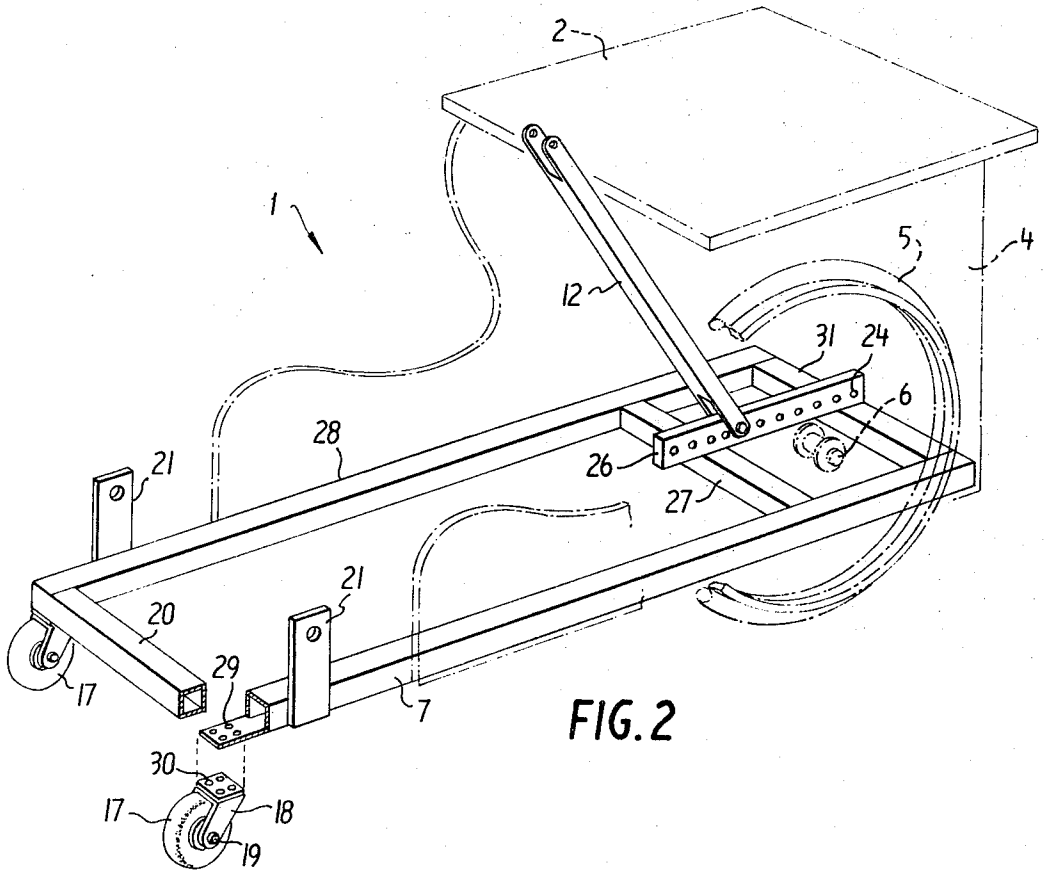

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FIG. 2

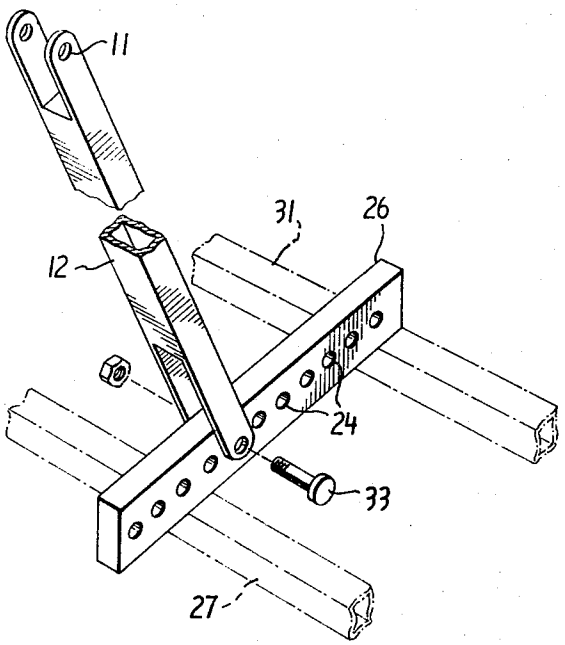

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FIG. 3

MOBILE BED FOR THE HANDICAPPED

BACKGROUND OF THE INVENTION

The problem of providing locomotion for crippled or handicapped persons has seen the development of many different types of vehicles. The foremost of these is the well known wheelchair, which may be hand propelled or motor driven. While the wheelchair is highly useful for providing locomotion for crippled persons, it has a number of disadvantages. One of these is that the wheelchair does not permit its occupant to assume a prone position. Additionally, the wheelchair does not readily permit its occupant to engage in activities which require a horizontal support surface such as playing and eating.

It is an object of this invention to provide an improved vehicle for the crippled or handicapped which provides a horizontal support surface for eating, playing and the like while the occupant assumes a prone position.

It is a further object of this invention to provide a mobile bed especially suited for providing playing and eating surfaces for crippled or handicapped children who are reclining in a prone position.

It is still a further object of this invention to provide a vehicle for crippled or handicapped children having a first horizontal support surface suited for eating, playing and the like and a second adjustably inclined surface for supporting the front side of the occupant.

SUMMARY OF THE INVENTION

The invention comprises a support frame with a pair of large diameter wheels similar to those used on wheelchairs and a pair of smaller pivoted wheels attached to respective ends of the frame to permit locomotion by the occupant. Attached to the frame are a pair of upright members constructed of a rigid thin sheet of metal such as steel or aluminum. A horizontal support surface of adjustable height is attached to the top of these upright members. Also attached to the frame is an adjustable inclined support surface which forms an acute angle with respect to the frame. Suitable padding material may be secured to the support surfaces to improve the comfort of the occupant. A braking system is secured to the wheel assembly to permit controlled stopping by the occupant.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side perspective view of the mobile bed.

FIG. 2 is a perspective view of the frame of the mobile bed.

FIG. 3 is a view of the adjustment mechanism which is attached to the inclined support surface and the frame.

DESCRIPTION OF A SPECIFIC EMBODIMENT

Referring to FIG. 1, numeral 1 designates the mobile bed as a complete unit. The mobile bed has a frame (shown in FIG. 2) and a body. The body is constructed from a pair of upright rigid support panels 4 which may be constructed from steel, aluminum or other types of metal plate as well as wood. Secured to the top of the upright support panels is a horizontal support surface 2 which may be constructed from wood with water resistant cover surface such as Formica. The height of the support panel may be adjusted by means of any well known technique for mounting a planar surface at any one of a plurality of heights. Attached to the end of upright supports 4 is an end piece 3 which may be constructed from either metal or wood. At this point, it should be noted that the choice of material from which the body is constructed is governed by weight and strength considerations. A pair of wheels 5 are attached to the upright supports 4 via shafts 6 which extend through the side of plates 4 and are attached to suitable mounting plates which are not shown. It would be obvious to those skilled in the art that any suitable well known wheel, shaft and mounting assembly may be used. It also will be apparent to those skilled in the art that wheels 5 may be motor driven.

At the other end of the frame, a pair of smaller diameter wheels 17 are secured to the frame members 7 and 28. The wheels 17 are attached to the underside of the frame via downward extending vertical support members 18 which are pivotally connected to plates 30 which are in turn secured to the frame by bolts passing through apertures 29 or by any other suitable fastening means. The wheels 17 are attached to members 18 via shafts 19. Angle member 20 completes the front end of the frame.

Secured to angle members 7 and 28 are a pair of upward extending vertical members 21. Through the top part of vertical members 21, a pair of rotatable mounting members 22 are attached via pins 23. Attached to mounting members 23 is a planar support surface 14 whose base is preferably constructed of plywood. The dimensions of the planar support surface are determined by the size of the patient who will occupy the mobile bed. Any suitable padding material 32 is secured to the plywood base and covered by a material such as vinyl, plastic, etc. Attached to the base of support surface 14 are a pair of stirrups 15 or other foot supporting apparatus. Mounted between stirrups 15 and secured to support surface 14 is a triangular piece 16 for supporting the lower extremities of the occupant of the mobile bed. Secured to the sides of support surface 14 is a safety belt 13 which serves to retain and support the occupant who lies in the prone position. Inclined support surface 14 is mounted a distance which is within arms reach of the occupant from horizontal support surface 2, thereby allowing the horizontal support surface 2 to be used by the occupant in a plurality of ways.

Referring to FIG. 3, adjustment of the angle of inclination of the support surface 14 is produced by changing the position of arm 12 with respect to member 26. Arm 12 may be positioned in any one of holes 24 by removing a nut and bolt assembly 33. The member 26 which retains arm 12 is constructed from hollow stock and is secured to the frame as shown in FIG. 2. Any change in the position of member 12 with respect to holes 24 in member 26 causes support surface 14 to pivot about retaining pins 23 as well as retaining pin 11 which secures arm 12 to support surface 14 and attachment block 10 as shown in FIG. 1. The greater distance forward arm 12 is positioned in member 26 toward the smaller diameter wheels, the closer surface 14 moves toward the vertical.

Arms 9 (shown in FIG. 1) actuate a conventional braking apparatus which is not shown for the sake of clarity. It is to be understood that the details of the

brake assembly per se form no part of the present invention.

Referring to FIG. **2**, the details of the frame assembly may be seen. Angles **7, 20, 28** and **31** comprise the basic frame. The dimensions of the angles are determined by the size of the patient occupying the mobile bed. A telescoping frame may be used to permit adjustment of the frame dimensions. Preferably, the angles are constructed from aluminum stock although other materials may be utilized. Flat cross member **27** is added for rigidity and support of the adjustment mechanism. Secured to flat cross piece **27** and angle member **21** is hollow member **26.** The smaller diameter wheels are secured to the frame by bolts which connect perforated metal plate **30** to the bottom of the frame.

The operation of the mobile bed may be summarized as follows: The occupant, usually a crippled or handicapped child, is strapped onto support surface **14** in the prone position by safety belt **13.** The occupant may use horizontal platform for playing, eating or other types of activities requiring a horizontal support surface. While in the prone position, the occupant may either move the bed by hand turning wheels **5** or stop himself by pressing the arms **9** to actuate the brake assembly.

The apparatus of this invention thus provides means whereby a crippled person, particularly a child immobilized in the lower extremities, is able to move himself about in a comfortable position and at the same time is provided with a readily accessible work or play surface. Such device is not only a great convenience to the handicapped person but significantly decreases the amount of time required to care for the patient in moving him from place to place, and setting up food trays, playing surfaces, and the like for the patient.

The basic mobile bed assembly as described in the preceding parts of the specification may be modified to permit a patient to occupy the mobile bed while lying on his back. To permit this mode of operation, the position of the adjustably inclined support surface **14** is moved behind the horizontal support surface **2** so that the horizontal support surface **2** is located within arms reach in front of a patient who is lying on his back. The surface **14** should be modified to support the back of the patient's neck and head.

While the invention has been explained by a detailed description of certain specific embodiments, it is understood that various modifications and substitutions can be made in any of them within the scope of the appended claims which are intended to also include equivalents of such embodiments.

What is claimed is:

1. In a vehicle for the crippled or handicapped person, the combination comprising a frame with a plurality of wheels attached thereto including a pair of larger diameter driving wheels, each of said drivng wheels rotatable on one side of said frame at a first end of said vehicle, a pair of upright support members secured to said frame adjacent said first end of said vehicle, a horizontal support secured to the top of said upright supports adjacent said first end of said vehicle, an adjustably inclined support attached to said frame and forming an acute angle of inclination therewith, a support arm attached to the lower surface of said inclined support and adjustably mounted in any one of a plurality of positions on said frame with respect to the length thereof thereby providing for a variation in said angle of inclination when said support arm is mounted in any one of said plurality of said positions along the length of said frame, a padded support attached to the bottom central portion of the upper surface of said adjustably inclined support and a pair of feet-holding stirrups on the upper surface of the lower portion of said inclined support, thereby supporting the lower extremities of the crippled or handicapped occupant of said vehicle, and wherein the upper end of said inclined support is positioned with respect to said horizontal support and said pair of driving wheels so that the crippled or handicapped occupant of said vehicle can reach the upper surface of said horizontal support and said driving wheels with his arms.

2. A vehicle for the crippled or handicapped as set forth in claim **1** further comprising an actuation arm secured to said upright members within reaching distance of the crippled or handicapped person occupying the vehicle and attached to a braking mechanism thereby permitting stopping of said vehicle when said occupant moves said actuation arm.

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