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THERAPEUTIC AMBULATORY AND EXERCISE AID

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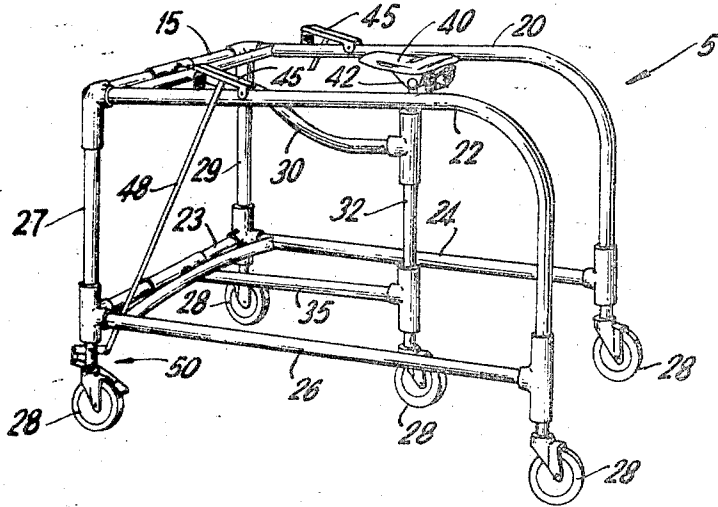


FIG. 1

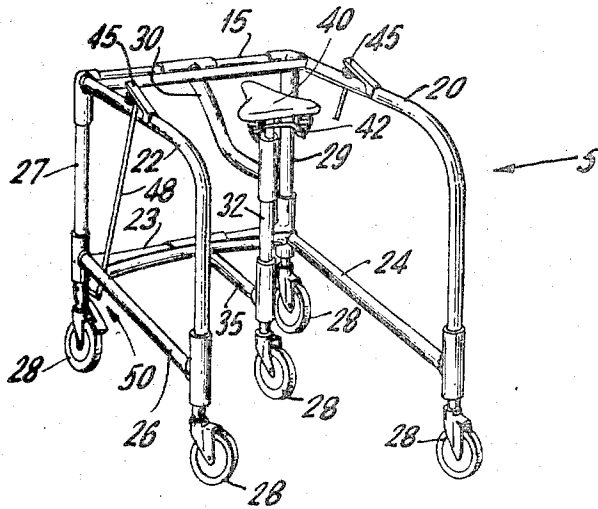


FIG. 2

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3 Claims

ABSTRACT OF THE DISCLOSURE

An ambulatory and exercise aid, useful in the rehabilitation and recuperation period of subjects who are not permitted to stress their lower extremities, is easily mounted and dismounted, and is operative to obviate flexion contractures of selected body joints.

DISCLOSURE OF INVENTION

This invention relates to medical apparatus and, more specifically, to an ambulatory and exercise aid which is useful during the recovery process associated with certain orthopedic and other situations.

Patients recovering from certain medical problems are required to keep all significant weight off one or both of their lower limbs for a relatively extended period of time. This situation arises, for example, when the subject has suffered bilateral femoral shaft fractures in both legs, or fractures about the hip joint. Accordingly, such patients reside principally in a horizontal position during the recuperation period. As a result of their extended rehabilitation period in this posture, flexion contractures develop in the joints in the patient's lower extremity, causing such joints to assume an abnormal position. This will cause the patient discomfort and require an increased energy expenditure when he again become ambulatory. Further, the flexion contractures may be permanent, thus prohibiting future ambulation.

It is therefore an object of the present invention to provide an ambulatory and exercise aid to assist a patient during recovery from certain orthopedic and other problems.

More specifically, an object of the present invention is the provision of such a recovery and rehabilitation aid with which a patient can attain a vertical position, with hips and knees extended, and yet not load his lower extremities.

It is another object of the present invention to provide a recovery aid which may advantageously be easily mounted and dismounted by the patient, without requiring assistance.

The above and other objects, features and advantages of the present invention are realized in an illustrative rehabilitation aiding arrangement, shown in the accompanying drawing, in which:

FIGURE 1 is a side perspective view of an illustrative rehabilitation ambulatory and exercise aiding apparatus embodying the principles of the present invention; and

FIGURE 2 is a rear perspective view of the apparatus depicted in FIG. 1.

Referring now to FIGS. 1 and 2, there is shown an illustrative arrangement 5 for supporting a recuperating patient, legs and hips extended, without placing undue weight upon the patient's legs. The arrangement 5 includes a main frame structure including a transverse front bar 15 and left and right (viewed from the rear) upper members 22 and 20. The bar 15 is supported by vertical struts 27 and 29, and the members 20, 22, 27 and 29 are secured and further interlocked by lower frame members 23, 24 and 26.

A seat 40 is connected to a rod 42 which, in turn, is telescoped within a vertical tube member 32. The height of the seat 40 is adjustable to accommodate subjects of varying height by regulating the length of the rod 42 permitted to reside within the tube member 32. The rod 42 may be secured in place by any conventional means, for example, by a set screw passing through a hole in the tube 32 and engaging the rod. Alternatively, a hydraulic pump arrangement may be employed. The vertical seat 40 securing tube member 32 is secured to the front transverse members 15 and 23 by connecting struts 30 and 35, respectively. It is observed that the seat, rod, and tube members 40-42-32 are connected only to the front of the rehabilitation aiding apparatus 5, and that there is no transverse obstruction across the back of the apparatus 5, or between the composite seat organization 30-32-35-40-42 and the sides thereof to hamper the mounting, dismounting, or use of the overall arrangement 5.

A plurality of wheels 28 are disposed on the bottom of the frame members 20, 22, 27, 29 and 32 to render the composite organization 5 readily movable by a slight effort on the part of the patient. To ensure that the exercise ad ambulatory aid 5 may be easily stopped by the subject without requiring an unacceptable frictional drag by the patient's legs, a hand braking system is provided. The braking system includes two hand actuating levers 45 mounted on the upper frame members 20 and 22 each connected by any suitable, well-known linkage 48 to a brake 50 mounted on the vertical support member 27 or 29. The brakes 50 may include any well-known device for undergoing frictional engagement with the front wheels 28 when selectively actuated by the levers 45. By depressing only one lever 45, the patient can readily turn the apparatus 5 in the direction of the selected lever.

To use the orthopedic recovery aid of FIGS. 1 and 2, the patient approaches the rear of the apparatus 5, as in a wheel chair or the like. Alternatively, the patient may first attain a sitting position on a bed, chair, stool or the like. He then grasps the upper frame members 20 and 22 near the position of the chair 40, and lifts himself upon the chair, without placing any stress upon his legs. This is readily accomplished since, as noted above, there is no transverse obstruction across the rear of the apparatus 5 to impede the patient from simply sliding or rotating his legs, which do not bear any weight, into position. When the seat 40 is properly adjusted, the patient will have his weight almost entirely upon the seat, knee extended in front of him and slightly bent, feet upon the floor.

The patient may then move the composite arrangement 5 by simply pushing his feet upon the floor with insignificant or minimal force, consonant with his physical condition and stage of recovery. To stop, the patient merely actuates the hand levers 45. Dismounting is effected in a manner inverse to mounting, i.e., the subject grasps the upper bars 20 and 22 and rotates himself to a rest position in a chair, bed or the like.

Thus, the patient, while using the ambulatory and exercise apparatus 5, is in a vertical position having his hips and knees extended. The subject can exercise his lower joints, under conditions of normal blood circulation, and move about with a normal gait, while not placing an injurious load upon his legs. Thus, the arrangement of FIGS. 1 and 2 will serve, inter alia, to obviate flexion contractures which would otherwise develop during recuperation.

It is to be understood that the above-described arrangement is only illustrative of the principles of the present invention. Numerous modifications and adaptations thereof will be readily apparent to those skilled in the art without departing from the spirit and scope of the

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present invention. For example, additional frame support means may be employed, for example, to connect the seat connecting members 30 and 35 to the side members 20, 22, 24 and 26 near the front of the composite arrangement 5.

What is claimed is:

1. In combination in rehabilitating and recuperation aiding apparatus, main frame means including side frame members and transverse connecting support members joining said side frame members about the front of said apparatus, seat means, means for connecting said seat means to said main frame means about the front of said apparatus, said seat means including a seat, means for supporting said seat, means for adjusting the height of said seat relative to said seat supporting means, wherein said seat connecting means includes means connecting said seat supporting means to said main frame means about the front of said apparatus only, wherein the rear of said apparatus is free of all transverse obstructions, and wherein said seat supporting means includes a vertical column, and further including a roller mounted on the bottom of said column.

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2. A combination as in claim 1 further comprising a plurality of rollers connected to said main frame means.

3. A combination as in claim 2 further comprising hand braking means including control means mounted on said main frame means and braking means connected to said control means for selectively engaging at least one of said rollers.

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