

[54] **NECK REST AND SHOULDER SUPPORT
STRUCTURE FOR PHYSICALLY
HANDICAPPED PATIENTS**

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[51] **Int. Cl.**..... **A47c 7/36, A47c 7/42**

[58] **Field of Search**..... 297/384, 390, 391,
297/397, 400, 409, 410, 230, 231; 5/317, 327

[56] **References Cited**

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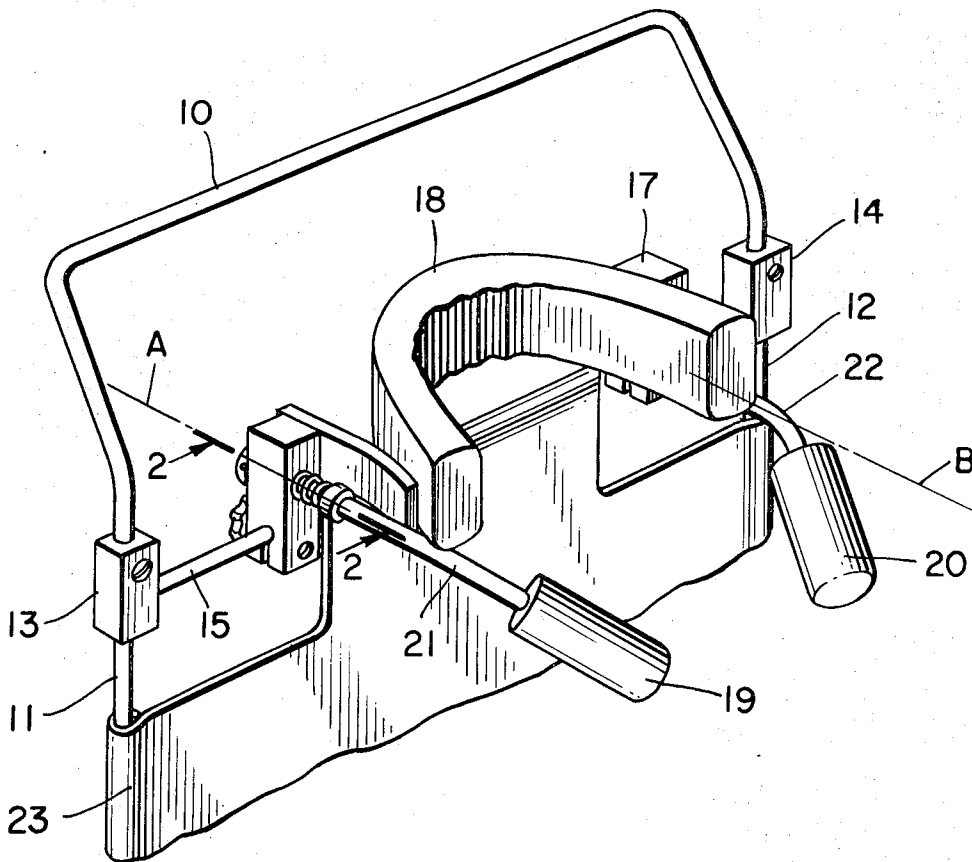
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[57] **ABSTRACT**

A frame structure which may form part of the back support of a wheel chair supports a U-shaped pad for cradling the rear and sides of a patient's neck. Right and left shoulder pad rolls in turn are coupled to the frame to extend on the right and left sides of the patient's lower neck portion over the shoulders respectively and thence downwardly and inwardly to gently engage the upper right and left chest areas of the patient to restrain him from pitching forward. The U-shaped neck cradling pad may be vertically, horizontally, and tiltably adjusted and the shoulder engaging pads may be swung outwardly and upwardly to provide easy access for a patient. The neck and shoulder support structure is particularly useful for cerebral palsy children.

2 Claims, 3 Drawing Figures



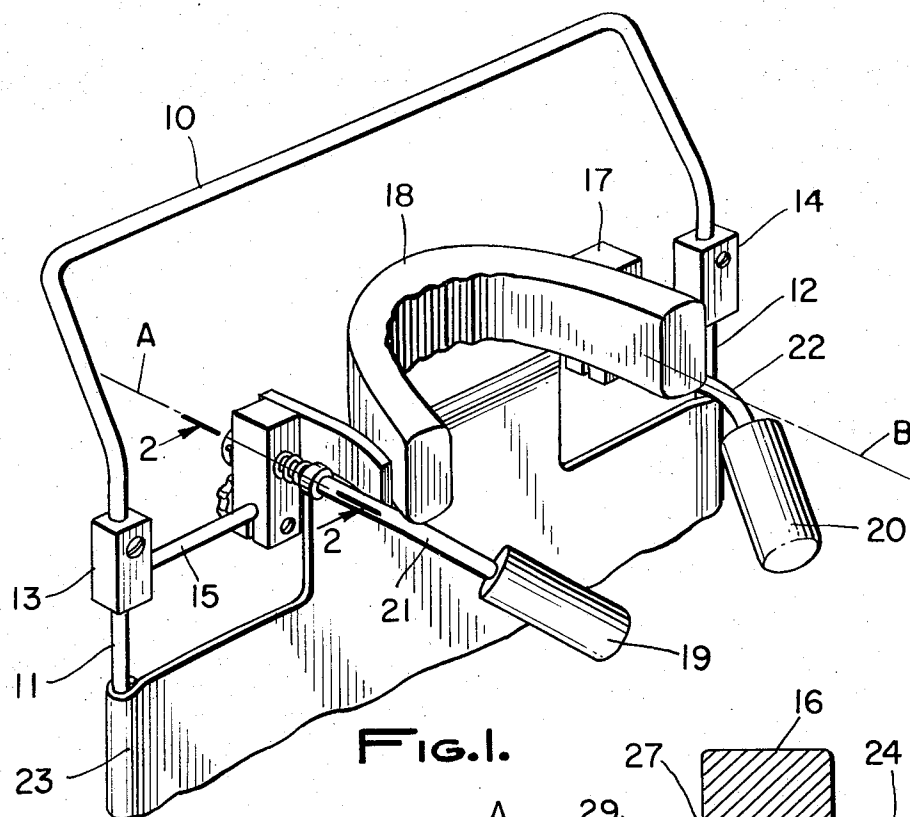


FIG. 1.

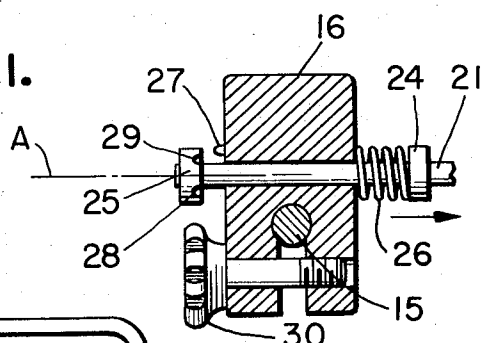


FIG. 2.

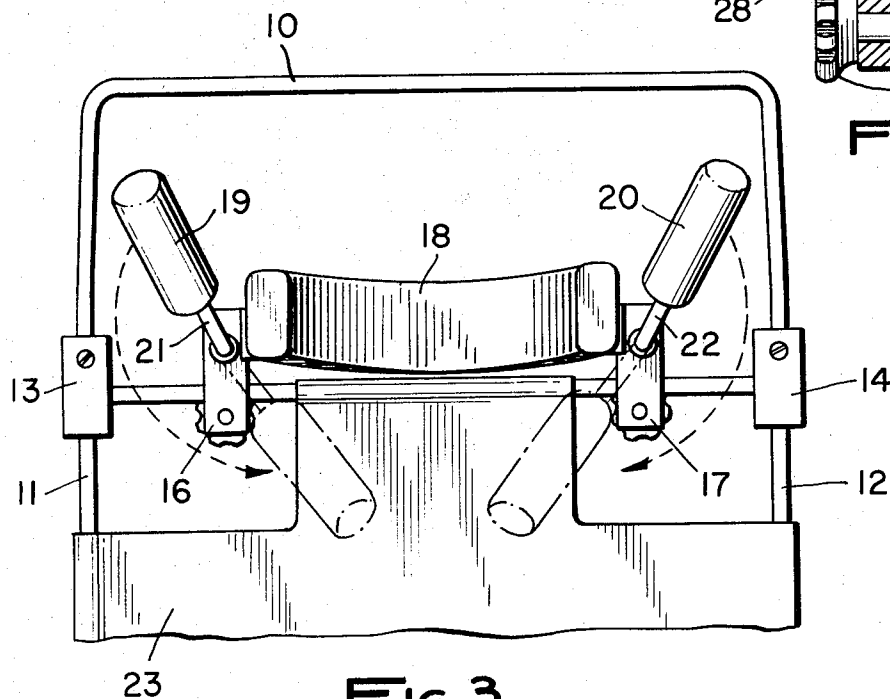


FIG. 3.

NECK REST AND SHOULDER SUPPORT STRUCTURE FOR PHYSICALLY HANDICAPPED PATIENTS

This application is a continuation in part of my co-pending patent application Ser. No. 230,607 filed Mar. 1, 1972, and entitled ADJUSTABLE CHAIR FOR CHILDREN WITH CEREBRAL PALSY.

The present invention is primarily directed towards the neck rest and shoulder support structure disclosed and claimed in combination with a wheel chair in my above-referred to co-pending patent application. The particular neck rest and shoulder support structure can be utilized with different types of chairs from that disclosed in my co-pending application and may be even used independently of a chair for providing specific support in the shoulder and neck area of a patient.

BACKGROUND OF THE INVENTION

Children afflicted with cerebral palsy, hypotonic children, and the like, often have poor neck and trunk muscle control and may only be able to sit up and hold their heads erect for short periods of time. Generally the children are forced to spend much of their time lying on the floor which is good for development of head control but detrimental to their respiratory systems. When seated in ordinary chairs or even when propped up in a bed, their heads tend to roll over to one side or pitch forward beyond range of their limited control and this action tends to cause their bodies to slump into a scoliotic curve which may become permanent.

My heretofore mentioned co-pending patent application provides an adjustable chair with a neck rest and shoulder support superstructure which solves many of the problems heretofore encountered. The present invention, as noted, is specifically directed to this superstructure portion which is found to be highly useful either in combination with the chair of my co-pending application, other chairs available on the market, or even independently of a chair but in a position to provide proper neck and shoulder support for a patient such as might be the case when he is propped in a bed.

BRIEF DESCRIPTION OF THE PRESENT INVENTION

With the foregoing in mind, the present invention is thus directed towards a frame positionable adjacent to the upper back and neck of a patient to be supported. A U-shaped pad constituting a neck rest is coupled to the frame for cradling the rear and sides of the patient's neck. Right and left shoulder pad means in turn are coupled to the frame and extend on the right and left sides of the person's lower neck over the shoulders respectively and thence downwardly and inwardly to gently engage the upper right and left chest areas of the patient to restrain him from pitching forward.

Neck rest adjusting means are provided to enable the U-shaped pad to be adjusted vertically, horizontally and tiltably. In addition, shoulder support adjusting means enable the right and left shoulder pad means to be moved from in front of the patient to an open position to permit a patient to be easily removed from his supported position.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the invention will be had by referring to the accompanying drawings in which:

FIG. 1 is a fragmentary perspective view of the upper portion of a neck rest and shoulder support structure in accord with the present invention;

FIG. 2 is a fragmentary cross section taken in the direction of the arrows 2—2 of FIG. 1; and,

FIG. 3 is a fragmentary front elevational view of the structure showing an open position for the shoulder support portions of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, there is shown a frame which may constitute part of the back support of a wheel chair and when used in this manner, includes an horizontal handle bar 10 having down-turned end portions defining generally vertical and parallel guide rods 11 and 12. Clamping blocks 13 and 14 in turn support a cross rod 15 extending between the guide rods 11 and 12. The clamping blocks 13 and 14 may include set screws or any other suitable means for clamping the block in selected vertical positions on the guide rods to thereby adjust the vertical distance of the cross rod 15.

Right and left tilt blocks 16 and 17 in turn are journaled on the cross rod 15 and serve to support a U-shaped neck pad 18 therebetween. The neck pad 18 is designed to cradle the rear and sides of a patient's neck and the pad is dimensioned so that it extends approximately from the inner top of the patient's shoulders up to the ear lobes.

Cooperating with the neck rest U-shaped pad 18 are shoulder pad means including enlarged, elongated right and left cylindrically shaped padded rolls 19 and 20 secured to the outer ends of bent rods 21 and 22. The inner ends of the rods 21 and 22 are journaled in the tilt blocks 16 and 17. The arrangement is such that the padded rolls 19 and 20 will gently engage the right and left chest areas respectively of a patient when the patient's neck is cradled in the U-shaped neck pad 18. A canvas backing 23 is shown extending between the guide rods 11 and 12 to support the upper back portion of the patient.

The tilt blocks 16 and 17 include neck rest adjusting means and also cooperate with the inner ends of the bent rods 21 and 22 for enabling adjustment of the positions of the chest engaging padded rolls 19 and 20. These various adjustment means will now be described with reference to FIG. 2. Since the adjustment of the block 16 and cooperating right shoulder pad portions 19 and 21 are identical to the adjustments provided by the left tilt block 17 and associated left shoulder pad means 20 and 22, description of one will suffice for both.

Thus, referring specifically to FIG. 2, the inner rod end 21 is journaled within the tilt block as shown and includes first and second clamping collars 24 and 25 on either side of the tilt block. A compression spring 26 is disposed between the clamping collar 24 and forward peripheral edge of the journal opening in the block 16. This spring normally urges the inner rod 21 to the right as viewed in FIG. 2 or forwardly until the clamping collar 25 engages the rear peripheral edge opening of the journaling bore in the block 16. In FIG. 2, the inner rod end 21 is shown urged to the left against the force of the compressions spring 26 to separate the clamping collar 25 from the rear of the block 16.

Cooperating indexing means are provided in the form of a small projection 27 on the peripheral edge of the

rear opening of the journal in the block 16 arranged to mate with first or second indents 28 and 29 circumferentially spaced on the clamp collar 25.

In FIG. 2 the cross rod 15 can also be seen journaled through the tilt block 16 at right angles to the journaling for the inner bent rod end 21. The bore for rod 15 is split as shown and a simple screw knob 30 may be provided to exert circumferential pressure on the rod and thus enable clamping of the tilt block 16 in any desired tilted position with respect to the rod 15 as an axis as well as a desired horizontal position along the rod.

FIG. 3 illustrates the manner in which the padded rolls 19 and 20 normally engaging the right and left chest portions of a patient may be swung outwardly and upwardly to assume an open position thereby providing easy access for a patient. Essentially, the pad means rotate about axes A and B as shown in FIG. 1 so that the pads 19 and 20 on the bent portions can assume the dotted and solid line positions illustrated in FIG. 3. In these respective positions, one or the other of the indexing indents 28 or 29 of FIG. 2 will be received in the single projection 27 so that the pads are held in their set position by action of the compression spring 26.

OPERATION

Initially, the shoulder pad rolls 19 and 20 will be swung outwardly and upwardly to the open position illustrated in FIG. 3. A patient may then be positioned such that the neck pad 18 will properly cradle his neck in a manner to limit extreme ranges of motion to the side while allowing full rotational and forward flexion. Proper height adjustment of the pad 18 can be effected by shifting the vertical position of the clamping blocks 13 and 14 on the guide rods 11 and 12. Proper horizontal centering of the pad in turn is effected by shifting the tilt blocks 16 and 17 along the rod axis 15 and proper orientation or tilting of the pad can be effected by the tilting of the blocks 16 and 17 about the rod 15 as an axis. When all adjustments are made, set screws and tightening knobs are secured.

The shoulder pad rolls 19 and 20 may then be swung downwardly after pulling the rods from the rear against the force of the compression spring 26 to remove the indent from the projection and permit rotation of the inner ends of the bent rods. Alternatively, the shoulder pads may be pushed from the front gently rearwardly to release the indexing means and permit the rotation to take place. The shoulder pad rolls 19 and 20 will then engage the right and left upper chest portions of the patient in a gentle padded manner. The patient with poor neck and head control as well as trunk control is thus properly held and cannot pitch forward or roll to the side.

The support structure itself offers no resistance at the back of the head to neck extension, and when a person does push back the pressure on his neck tends to relax him rather than setting off an extensor pattern.

The angle of the bent rods supporting the cylindrical pad rolls results in the rolls engaging the pectoral muscles of the chest at a comfortable angle. This same angle of the bent rods permits the quick and easy removal of the pads from in front of the patient to an out of the way position.

While not specifically shown in the present drawings,

it is, of course, possible to mount the U-shaped neck pad 18 on the supporting tilt blocks 16 and 17 in a manner to permit longitudinal forward and rearward movement. This particular adjustment is shown and described in my co-pending application and is not repeated here as such adjustment has been found not always to be essential.

From the foregoing description, it will thus be evident that the present invention has provided a greatly improved neck rest and shoulder support structure for afflicted children particularly those with cerebral palsy.

What is claimed is:

1. A neck rest and shoulder support structure for physically handicapped patients including, in combination:
 - a. a frame positionable adjacent to the upper back and neck of a patient to be supported, said frame including a horizontal handle bar having downturned end portions defining generally vertical and parallel guide rods;
 - b. a U-shaped pad coupled to the frame for cradling the rear and sides of the patient's neck;
 - c. a neck rest adjusting means enabling said U-shaped pad to be vertically, horizontally, and tiltably adjusted, said neck rest adjusting means including a cross rod extending between the guide rods and terminating in clamping blocks vertically slideable on said guide rods and including means for clamping the blocks in selective vertical positions on the guide rods to thereby adjust the vertical distance of the cross rod; and right and left tilt blocks journaled on said cross rod and supporting said U-shaped neck pad therebetween; means for locking the tilt blocks to the cross rod in a given tilted position relative to the rod as an axis, and in given horizontal positions along the rod;
 - d. right and left shoulder pad means coupled to the frame and extending on the right and left sides of the patient's lower neck portion over the shoulders, respectively, and thence downwardly and inwardly to gently engage the upper right and left chest areas of the patient to restrain him from pitching forward,
 - e. shoulder support adjusting means enabling said right and left shoulder pad means to be moved from in front of the patient to an open position to permit a patient to be easily removed from his supported position, said shoulder support adjusting means including right and left bent rods having inner ends journaled in said right and left tilt blocks, respectively, the outer ends of the rods supporting said shoulder pad means in the form of enlarged, elongated right and left cylindrically shaped padded rolls for engaging the said right and left chest areas, rotation of the bent rods about their inner ends journaled in the tilt blocks swinging said padded rolls upwardly and outwardly to said open position.
2. A structure according to claim 1, in which the tilt blocks and inner ends of the bent rods include cooperating index means for holding the padded rolls in either their chest-engaging positions or in said open position.

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