

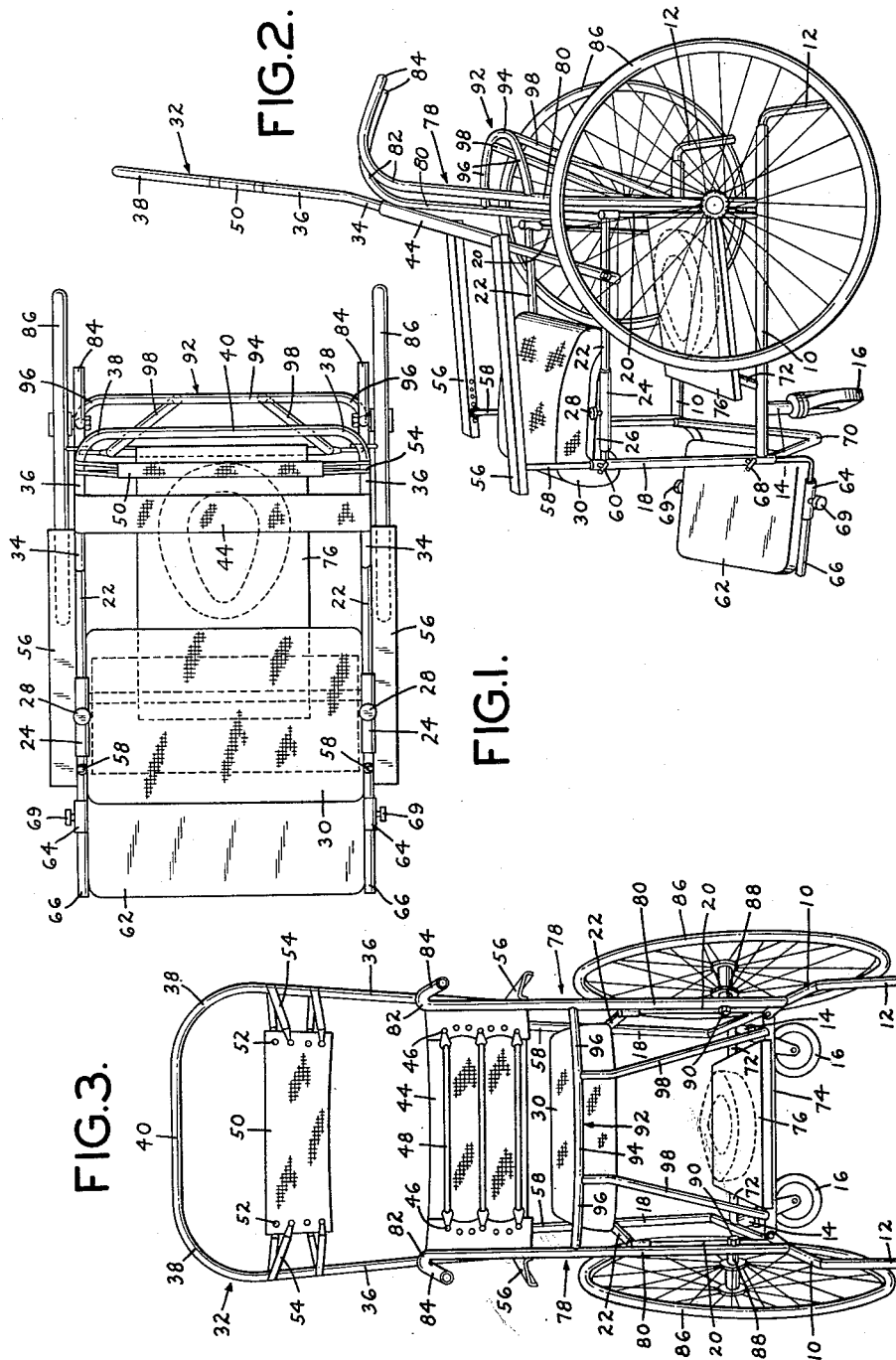
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INVALID CHAIR

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INVALID CHAIR

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This invention relates to a chair, and more particularly to a chair for the prevention and treatment of pressure sores in invalids.

Bedridden persons are susceptible to pressure sores, which are known medically as decubitus ulcers and commonly as bed sores. Pressure sores occur when thinly padded bony prominences are subjected to unrelieved pressure for more than 2 to 4 hours. Pressure sores in the ischial, sacral and trochanteric areas account for two-thirds of all such sores reported. A bedridden patient lies generally in a supine position and changes most frequently to a side position, thus sacral ulcers develop first, followed by trochanteric ulcers. When the patient can sit up in bed or in a chair, his weight is mainly on the ischial tuberosities; hence, these areas ulcerate next.

In the treatment of sores in the major pressure areas, there is a special need to avoid the supine and lateral positions and various expedients are used toward this end. One expedient is to place the patient in a prone position which is usually unpleasant to him. An alternative is to have orderlies change the position of the patient at frequent intervals, day and night, whether he is awake or asleep. This is not only intolerable to the patient, but is time-consuming to the hospital staff.

Another expedient to relieve direct pressure in the major areas lies in the use of balloon and foam rubber rings, which are not adequate physiologically. While such devices relieve direct pressure on the ulcer, they create an annular area of pressure and vascular constriction.

Bulky dressings, another expedient, cause other pressures, and air mattresses are inefficient.

Another alternative is the use of a surgical flap to close the sores. The post-operative treatment of the patient after such surgical procedure leads to other problems. For instance, bowel movements are discouraged for 5 to 7 days post-operatively so that the patient will not have to use a bed pan. Therefore, the post-operative diet is planned to be constipating, and the risk of obstruction due to such diet is incurred. Also, drains in the gluteal region are maintained for 48 to 78 hours after surgery and the treated areas are frequently left open after the removal of such drains. Such exposure for open healing is not always easy or safe. Fourteen days post-operatively, the patient is permitted some varied position in bed, but direct pressure on the treated area must be avoided, necessitating the use of pads, foam rubber air cushions and the like. Four to six weeks post-operatively, the patient is permitted limited use of the area operated on, but he must avoid prolonged periods of pressure to the surgical site. In short, the patient has a difficult post-operative course, including the risk of acquiring new pressure sores.

A device to treat pressure sores in only one or two of the three major areas is inadequate because it fails to provide pressure relief in the other areas and may aggravate the conditions therein.

It is an object of this invention to provide a device for simultaneously relieving pressure in the ischial, sacral and trochanteric areas, while the patient is continually in a resting position.

It is a further object of this invention to provide a chair for use in the prevention and treatment of pressure sores in the ischial, acral and trochanteric areas.

Further objects will be apparent to those skilled in the

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art of therapy from reading the following description taken in conjunction with the drawings in which:

FIGURE 1 is a plan view of a chair utilizing my invention;

FIGURE 2 is a side view of the chair; and

FIGURE 3 is a rear view of the chair.

The objects of this invention are achieved by a chair having a seat that underlies the full length of both thighs of the user beginning at a point distal to the ischial tuberosities and extending to just before the popliteal space. A back rest is mounted on the back frame and extends upwards from a point above the level of the iliac crests to just below the shoulders. Incidental support is provided by a footboard and a head rest. Thus the user of the chair is adequately and comfortably supported without any pressure in the ischial, sacral and trochanteric areas.

The chair is made up principally of a framework supporting a seat, and a back frame connected to the supporting frame and supporting a back rest. Referring to the drawings in detail, the supporting frame may consist of two essentially horizontal lower tubular beams 10 which may be supported at their rear extremities by rear legs 12 and may be supported intermediate the front and rear extremities by front legs 14. Front legs 14 may extend to the floor, but are preferably mounted on swiveled casters 16 for reasons discussed below.

At their front extremities lower tubular beams 10 may be fixedly butted into front tubular columns 18 near the lower ends thereof. Rear tubular columns 20 may be fixedly butted into lower tubular beams 10 intermediate the ends thereof. Upper tubular beams 22 may be fixedly butted into front tubular columns 18 near the upper ends thereof and into rear tubular columns 20 at the upper ends thereof. Tubes 24 may be slidably mounted on upper tubular beams 22. Seat 26 may be fixedly connected to sliding tubes 24. Adjusting screw 28 may be utilized to permit restraining the tubes 24 in any desired position on beams 22. Cushion 30 may be removably connected to seat 26.

The back frame 32 may be formed from a single tubular member into inclined straight segments 34 and dissimilarly inclined straight segments 36 joined by curved segments 38 to horizontal straight segment 40.

Back rest 44 may be slidably mounted between inclined straight segments 34. Back rest 44 may be made of heavy canvas of a width about equal to the distance between the user's iliac crests and shoulder areas, and of a length sufficient to pass around segments 34. The back rest may have grommets 46 adjacent the ends to receive tensioning bands 48 which maintain the back rest in a yieldable taut posture.

Head rest 50 may be made up of heavy canvas of a width adequate to engage the user's head and of a length less than the distance between segments 36. Head rest 50 may contain grommets 52 which receive tensioning bands 54 which may pass around segments 36 and maintain the head rest 50 in a yieldably taut posture.

Back frame 32 may be pivotally connected to upper tubular beams 22 by fasteners which may be comprised of a bolt and lock nut. Arm rests 56 may be pivotally connected to back frame 32 by fasteners which may be comprised of a bolt and lock nut. Arm rests 56 may be adjustably connected to arm rest supports 58 by any suitable means such as a series of holes which receive bolts and lock nuts. The angle of the back frame 32 may be varied by adjusting the position of arm rest 56 in arm rest support 58.

Arm rest support 58 may be arranged to telescope into front tubular column 18, the extent of telescoping being controlled by adjusting screw 60. Similarly the angle of arm rests 56 may be adjusted by positioning arm rest supports 58 in front tubular column 18.

Footboard 62 may be fixedly connected to slide 64 which may be slidably mounted on footboard support brackets 66. Footboard support brackets 66 may telescope into front tubular columns 18 being held in any desired position by set screw 68. The elevation of footboard 62 may be varied by adjusting set screw 68. The horizontal position of footboard 62 may be varied by adjusting set screw 69.

Stabilizer 70 may be a generally V-shaped tubular member fixedly connected to front tubular columns 18. Stabilizer 70 prevents overturning as the user enters and leaves the chair when the user's full weight is applied to footboard 62.

Front cross member 72 and rear cross member 74 serve to brace lower tubular beams 10 and also serve to support shelf 76. Shelf 76 may be fastened to cross member 72, 74 in any suitable manner, for instance, by bolts and lock nuts. Shelf 76 may be used to support a bed pan or drainage receptacles.

Thus far the description has been equally applicable to both a stationary chair and to a wheel chair. The preferred embodiment of this invention is a wheelchair and requires the following members which are not required by a stationary chair. Tubular columns 78 may be fixedly butted to lower tubular beams 10 intermediate rear legs 12 and rear tubular columns 20. Tubular columns 78 may be composed of straight segments 80 connected by curved segments 82 to handles 84. Wheels 86 may be connected to straight segments 80 by any suitable means, such as kingpins 88 held in place by nuts 90. Straight segments 80 may be strengthened by cross member 92 which may be comprised of straight segment 94 connected to curved segments 96 fixedly connected to straight segments 80. Braces 98 may be connected at one end to cross member 92 and at the other end to rear cross member 74 and serve to strengthen cross member 92.

Also, the swiveled casters 16 are required in the preferred embodiment of a wheel chair, but are not required in a stationary chair.

In use the chair may be adjusted to the stature of the user. The seat may be adjusted backward and forward; the back rest and head rest may be adjusted up and down. The angle of the back frame may be varied; the arm rests and footboard may be adjusted. These features permit the adjustment to the individual needs of the occupant for maximum support and comfort.

A user of the chair is adequately supported by his thighs and back without pressure in his ischial, sacral and trochanteric regions. The user need no longer be bedridden, but may even wheel himself out of his room which serves to sustain his optimism and improve his general psychological outlook.

Besides the shelf for supporting bed pan and drainage receptacles, the chair may be provided with means for attaching a drawsheet around the back of the chair to avoid unwanted exposure of wounds to infection and the view of visitors. Thus areas that have been operated on may be left open with little risk of contamination at the first dressing change. Also, bowel movements need not be discouraged. Rather, they are facilitated by anal exposure and the natural sitting position. Hence the risk of obstruction by constipating diets is obviated. The ease of care of the patient relieves the burden on the nursing staff. Furthermore, the surgeon is assured that his results will not be undone by failure of post-operative surveillance.

The chair of my invention, while designed to adequately meet the problem of pressure sores, also may be widely applied to the treatment of other medical and surgical conditions. Among such conditions are burns, abscesses and hemorrhoids, in all of which the patient would benefit by being out of bed and sitting up, with complete exposure of and without pressure in the anal, gluteal and sacral areas.

The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed. For instance, while tubular members have been described, many other shapes of members may be utilized in the construction of the chair.

What is claimed is:

1. A chair for relieving pressure in the ischial, sacral and trochanteric areas of a user comprising a supporting frame, a back frame connected to said supporting frame, a seat connected to said supporting frame, said seat being movable in a substantially horizontal plane with regard to said back frame and extending from a plane remote from the point of connection of said back frame to said supporting frame to a plane more remote from said point of connection, whereby said seat is adjustable to engage the thighs of the user between a point below the ischial tuberosities to just before the popliteal space, a back rest connected to said back frame, said back rest being movable in a substantially vertical plane with regard to said back frame and extending from a plane remote from the point of connection of said back frame to said supporting frame to a plane more remote from said point of connection, whereby said back rest is adjustable to engage an area of the back of the user from above the iliac crests to just below the shoulders.

2. A chair for simultaneously relieving pressure in the ischial, sacral and trochanteric areas of a user comprising a supporting frame, a back frame pivotally connected to said supporting frame, a seat connected to said supporting frame, said seat being movable in a substantially horizontal plane with regard to said back frame and extending from a plane remote from the point of connection of said back frame to said supporting frame to a plane more remote from said point of connection whereby said seat is adjustable to engage the thighs of the user between a point distal to the ischial tuberosities to just before the popliteal space, a back rest connected to said back frame, said back rest being movable in a substantially vertical plane with regard to said back frame and extending from a plane remote from the point of connection of said back frame to said supporting frame to a plane more remote from said point of connection whereby said back rest is adjustable to engage an area of the back of the user from above the iliac crests to just below the shoulders, a foot board connected to said supporting frame, said foot board being movable in both substantially horizontal and substantially vertical planes with regard to said back frame, a shelf connected to said supporting frame and disposed below said seat, and wheels connected to said supporting frame.

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