HOSPITAL BED WITH INFLATABLE PATIENT TURNING MEANS

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Edmund M. Fountain
INVENTOR

BY Robert B. Gibson
ATTORNEY
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Edmund M. Fountain, 1114 Hermann Professional Bldg., Houston, Tex. 77025
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ABSTRACT OF THE DISCLOSURE

An inflatable bed or bed cover having a plurality of parallel-aligned segments, each segment being separately inflatable; vacuum and hydraulic pressure devices connected to said segments permitting them to alternately be inflated and deflated; and inflatable pads associated with said segments for preventing a patient's legs or knees from engaging with each other.

PRIOR ART

The following U.S. patents were received as a result of a search performed: Nos. 1,772,310, 1,981,666, 2,415,150, 3,026,541 and 3,176,732.

Sometimes, when a patient is undergoing treatment, he is immobilized and/or unconscious for an extended period of time. During such time, it is necessary that the patient be turned periodically to prevent bed sores developing as the result of pressure being exerted against the same areas of the body. Such turning has required the presence of helpers, such as nurses. Naturally, this increases the expense of operating a medical facility and further burdens an oftentimes overburdened staff.

This invention provides means for selectively and automatically inflating opposite sides of a bed or bed cover so that in effect the weight of the patient is shifted to different positions to alleviate the danger of his developing bed sores or other difficulties arising from such confinement.

Thus, this invention has as an object the provision of a device for turning a patient.

A further object is the provision of means whereby a patient may periodically and automatically be shifted in position.

These and still other objects and benefits will become apparent on considering the following description and drawings in which:

FIGURE 1 is a partly schematic end elevation with one side inflated;

FIGURE 2 is an elevation similar to that of FIGURE 1 with the opposite side inflated; and

FIGURE 3 is a top view.

Numerals 10 indicates generally a bed, or frame therefor, to which is affixed the inflatable portions hereinafter described. It is contemplated presently that the entire device, frame, inflatable portions and attached pressure means may be fabricated as a unit, or that the latter two items may be positionable on a relatively standard hospital bed frame.

Two oppositely disposed but somewhat overlapping cushions or pads 11, 12 are shown. These are individually inflatable and evacuable, as will be later described. FIGURES 1 and 2 suggest that each of said pads is inflatable as a single unit. However, it is contemplated that each pad may be segmented, as at A—G and A'—G', respectively. Such segmentation would permit portions normally accommodating various parts of the body to be inflatable to a different degree or contour. For example, it will be desirable to have the head be consistently elevated higher than the leg portion of a patient.

Each of the pads may be affixed at its outer edge, such as 13, 14, to the frame 10, as desired.

Mechanism identified generally at 30, is provided to alternately inflate pads 10, 11. Although such mechanism is subject to variation, an outlet switch 31 is connected to timer 32, and to 4-way valve 33. FIGURE 1 depicts pad 11, an air conduit (not shown) being provided therein, operatively linked, through valve 33, to a vacuum source 34 and a motor 35, therefor. Pad 12, in turn, is linked through valve 33 to a source of hydraulic pressure 36 and a motor 37, therefor. Although two motors are shown, one may provide a power source for both pressure and vacuum. FIGURE 2 shows the valve 33 to have been rotated so as to link pad 12 to the vacuum source 34, and pad 11 to the pressure source 36, thereby inflating pad 11.

FIGURE 3 shows straps 41, 42 to be affixed to the outer edges of respective pads 11, 12. When a patient is turned, it is advisable to prevent frictional engagement between proximate portions of the body, such as between knees or ankles. Thus, confining or positioning means such as straps 41, 42 will prevent such occurrence. Said straps may be inflatable and deflatable along with their respective pads. Rather than being hook-shaped when inflated, as shown, it may be desirable to have said straps relatively straight, i.e., when pad 12 is to be inflated strap 42 will become elongated by having end 43 thereof extended to the left of its position in FIGURE 3. On pad 11 being inflated, end 44 of strap 41 will be elongated to the right of its position in FIGURE 3, carrying end 43 back toward its position shown in FIGURE 3. Further, the width of said straps may be materially extended so as to accommodate substantially greater portions of a patient's legs, for example, they may have a width substantially that of segments E, F and G.

In operation then a patient may be placed on the bed as in FIGURE 3. The activating mechanism may then be energized. On activation, one of said pads, such as 11, will be connected to the pressure source 36 and thereby be inflated, as in FIGURE 2, with the patient inclined as shown. It may be noted here that the pads overlap substantially so that (1) substantially the patient's entire body may be accommodated by each pad, and (2) there will be no friction causing surface such as the edge of the pad under the spine of the patient. After a predetermined period, timer mechanism 32, through valve 33, will cause pad 11 to be evacuated by member 34, and pad 12 to be inflated by pressure means 36, the patient to assume the position of FIGURE 1. Such sequence may continue indefinitely without the necessity for an attendant to attempt to turn the patient. Inasmuch as the patient's weight is redistributed during each operation, the tendency to develop bed sores and respiratory difficulties is reduced.

Although limited embodiments have been described and discussed, it should be obvious that numerous modifications would be possible by one skilled in the art without departing from the spirit of the invention, the scope of which is limited only by the following appended claims.

1. An inflatable bed comprised of:
a pair of oppositely disposed inflatable pads, said pads having inflatable portions that overlap along the longitudinal center of the bed for the major portion of the length of said bed; and
means for selectively inflating one of said pads and deflating the other.
2. The bed of claim 1 wherein toward one end of at least one of said pads, said pad is provided with means, transverse to said bed, and insertable between the legs of a user for separating the legs of a user.
3. The bed of claim 2 wherein said leg separating means is inflatable.

4. The bed of claim 3 wherein both of said pads include said leg separating means and both of said leg separating means are inflatable along with their respective pads.

5. The device of claim 1 wherein said pad inflating and deflating means includes both pressure and vacuum sources, said sources being selectively connectable with either of said pads.

6. The device of claim 5 wherein said sources are connectable with said pads by virtue of valve means for linking said pressure source with one of said pads and said vacuum source with the other of said pads.

7. The device of claim 6 and including means for switching the linkage between said pads and said pressure and vacuum sources.

8. The device of claim 7 wherein said switching means includes timer means for causing said switching to occur periodically.

References Cited

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