

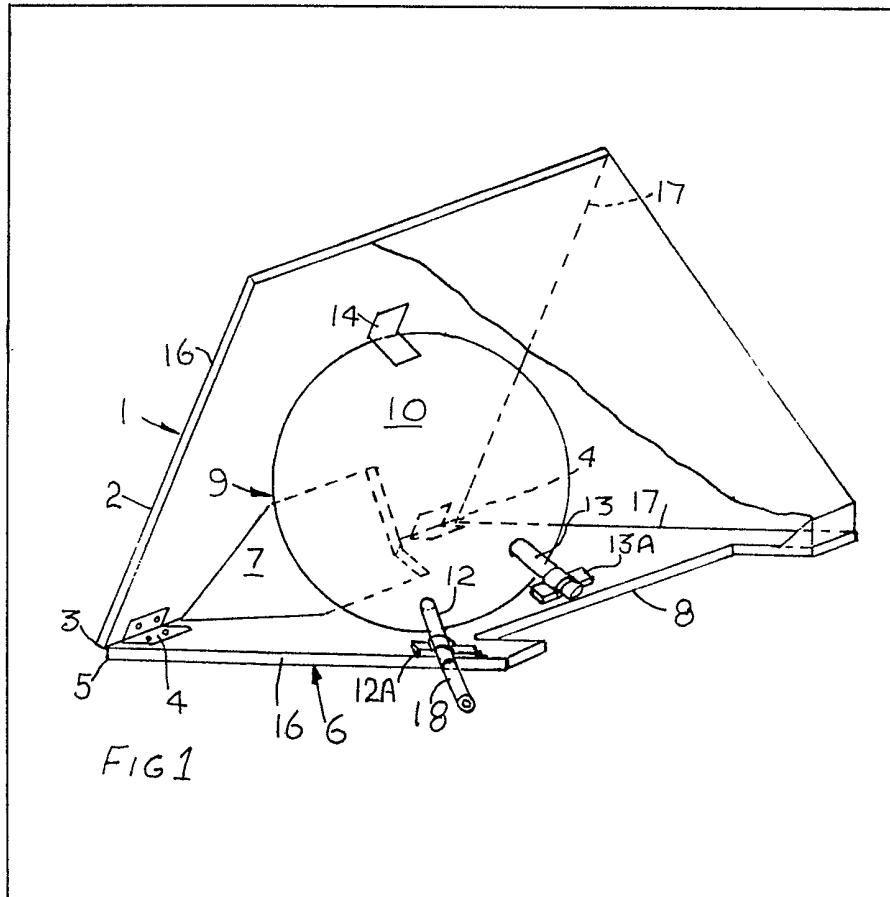
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(54) Bed back rest apparatus

(57) A bed back rest unit including an inflatable unit (9) which serves to control the inclination of a back rest plate (2) with respect to a base plate (6). The inflatable unit (9) is constituted by an inflatable bladder, ball or the like article made of rubber

or plastics material. The inflatable member is preferably provided with ears which are firmly anchored to the base plate, one ear (12) connecting with an air inlet pipe (18). A multiway switch controls a solenoid valve which allows the user to lift or lower the back rest plate or to hold it in a required position.



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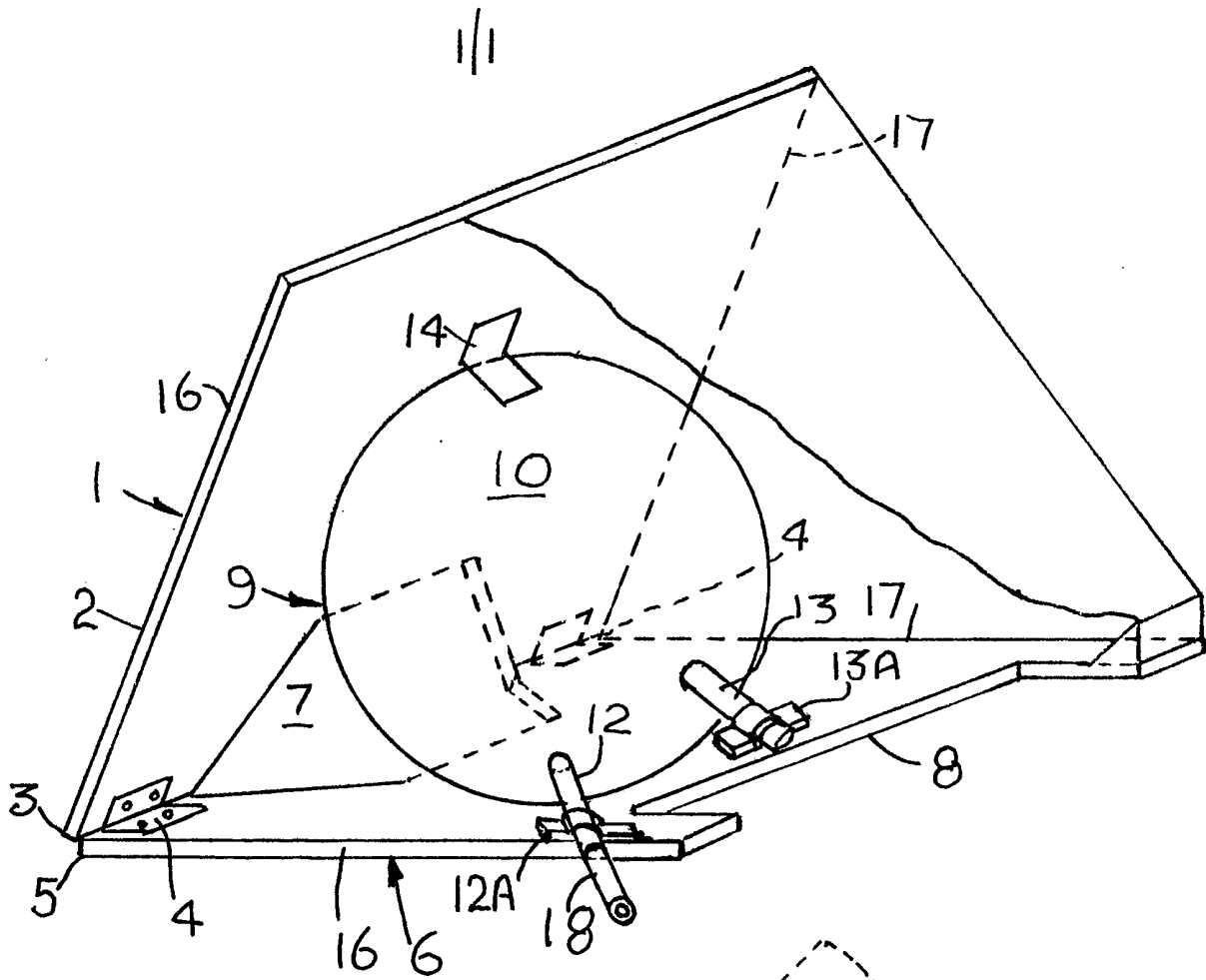


FIG 1

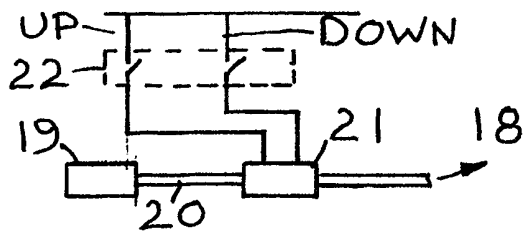
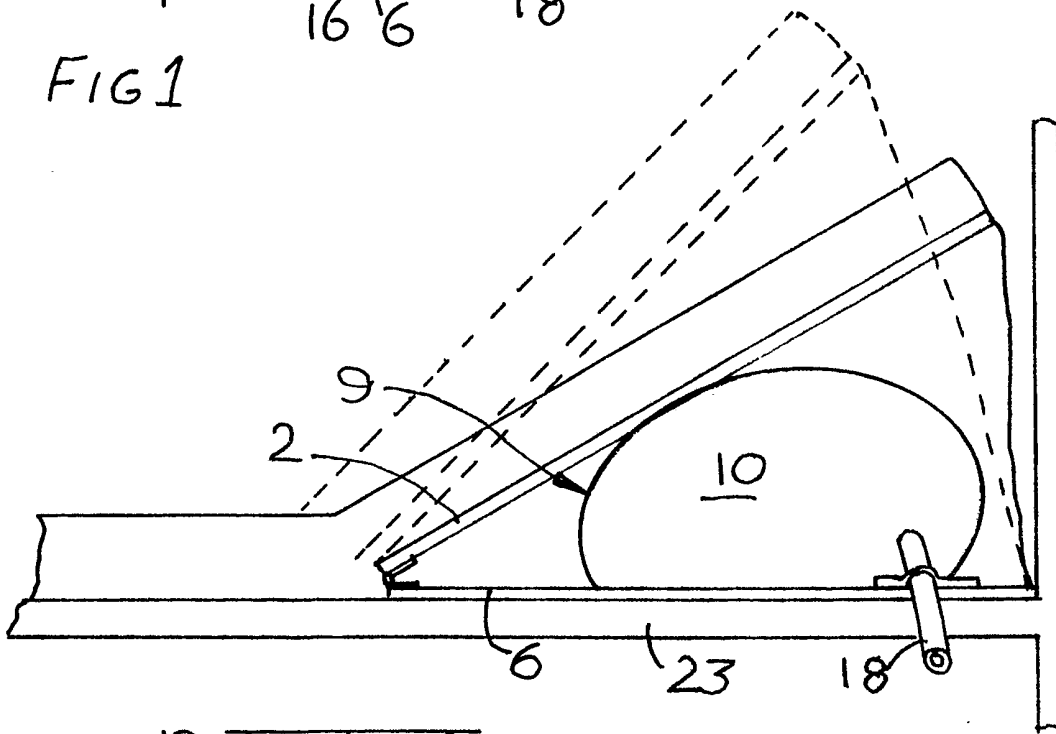


FIG 2

SPECIFICATION

Bed back rest apparatus

This invention relates to apparatus for enabling adjustment of the inclination to the horizontal of a person lying on a bed, settee, divan or the like.

It is frequently desirable, for example, in relation to a person who is incapacitated or otherwise confined to bed to be able to adjust the position of the person between a fully supine position and a substantially upright position.

It is an object of the present invention to provide a selectively adjustable back rest support unit for enabling such positional adjustment.

Broadly, according to an aspect of the present invention there is provided a back rest support unit for a bed, settee, divan or the like, the unit including a back rest plate which is pivotally connected to a base plate such that the back rest plate can move between a closed position in which it lies substantially adjacent to the base plate and an elevated position in which it is inclined with respect to the base plate, and means for enabling selective variation of the inclination of the back rest plate.

Preferably, the means for enabling the selective variation includes pneumatic means incorporating an inflatable bladder, ball, or other pneumatically tight chamber, anchored to at least one of the plates such that inflation thereof pivots the back rest plate, relative to the base plate according to the extent of inflation, and on deflating the inflatable means the back rest plate is enabled to return towards the base plate, and means for controlling the extent of inflation and deflation.

Preferably, the inflatable means is anchored to both plates.

Conveniently, the inflatable means comprises a ball-like article having at least one tubular extension adapted to provide a means for anchoring the ball-like article to one of said plates and also as a means for enabling connection of an air inlet pipe for the inflation means.

For a better understanding of the invention and to show how to carry the same into effect reference will now be made to the accompanying drawings in which:

Figure 1 is a schematic perspective view, part cut-away of apparatus incorporating the features of the invention; and

Figure 2 is a schematic side view of the apparatus of Figure 1, the Figure illustrating two operational settings of the apparatus.

Referring now to the drawings an adjustable back rest unit 1 includes a back rest or support plate 2 which connects at its lower edge regions 3 by way of hinges 4, to the adjacent edge 5 of a base plate 6.

The two plates 2, 6 have a generally rectangular shape from which parts have been removed to provide cut-out areas 7, 8. The formation of the cut-out areas assists inter alia in reducing the overall weight of the back rest unit and avoids a ridge like region at the central area of the hinged parts of the two plates which ridge like

65 region could prove to be uncomfortable to the user.

The back rest plate is intended to be displaceable from a rest or closed position to a required angle of inclination with respect to the base plate 6 by a selectively adjustable inclination producing unit 9.

In the drawings this inclination producing unit is provided by a pneumatically inflatable member 10 which is anchored to the base plate 6 and to the back rest plate 2 and which is selectively inflatable by an air pumping system 11.

In the particular arrangement shown the inflatable means is constituted by an inflatable bladder, ball or like article made of rubber or plastics. In the preferred embodiment the inflatable article is of the kind which has two inflatable ears or extensions 12, 13 projecting from a generally globular main body. The ears 12, 13 are firmly anchored to the base plate 6 by associated clamping brackets 12A and 13A.

The ball-like article is also anchored to the back rest plate 6 by means of a flexible strap 14 which is secured to both the back rest plate and to the globular main body.

The globular body is generally centrally positioned with respect to the side edges 16 and 17 of the plates 2, 6.

The air inflation system is connected to one of the extensions 12 by means of an air feed pipe 18.

The air inflation system is very schematically shown in Figure 2 and as shown includes an electrically operated air pump 19 whose outlet 20 connects with the air line 18 by way of a solenoid controlled valve 21. A user control switch arrangement 22 is so electrically interconnected with the pump and valve the operation of the switch in a first sense enables operation of the pump to produce inflating air and to ensure that the valve allows passage of inflating air from the outlet 20 to the pipe 18 and thus the inflatable ball-like article. The switch arrangement has a second operational position in which the pump is not switched on and the valve is closed thereby to hold the air within the ball-like article. This second operational position is essentially a rest position for the switching arrangement. The switch has a third operational setting which is operator selected in which inflating air is allowed to evacuate from the ball-like article to allow the back rest plate to move downwardly to a lowered position. In this third operational setting it will be understood that the pump is not switched on.

It is also to be noted that for each of the operator selectable switch setting namely the inflation and deflation settings the amount of air admitted or released is related to the duration over which the operator holds the switch arrangement in the first or third settings.

The two plates and the ball-like article are enclosed in a flexible casing or covering. Conveniently, this covering can provide a means whereby the maximum inclination can be determined. Alternatively limit defining straps or the like may be used to inter-couple the two

plates.

If desired, a side rail attachment can be provided along either or both the sides of the back rest unit.

- 5 To accommodate such side rail attachments side rail attachment socket elements could be provided along each side of the back rest unit. A convenient form of side rail attachment for use with the bed back rest unit of the present invention is disclosed in our co-pending application Improvements in Side Rail Attachments.
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CLAIMS

- 15 1. A back rest support unit for a bed, settee, divan or the like, the unit including a back rest plate which is pivotally connected to a base plate such that the back rest plate can move between a closed position in which it lies substantially adjacent to the base plate and an elevated position in which it is inclined with respect to the base plate, and means for enabling selective variation of the inclination of the back rest plate with respect to the base plate.
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- 25 2. A back rest support unit as claimed in claim 1, wherein the means for enabling selective variation includes pneumatic means.

- 30 3. A back rest support unit as claimed in claim 1 or 2, wherein the means for enabling selective adjustment includes pneumatic means incorporating an inflatable bladder, ball or other pneumatically tight chamber, anchored to at least one of the plates such that the inflation thereof pivots the back rest plate relative to the base plate according to the extent of inflation, and on

- 35 35 deflating the inflatable means the back rest plate is enabled to return towards the base plate, and wherein means are provided for controlling the extent of inflation and deflation.

- 40 4. A back rest support unit as claimed in claim 3, wherein the pneumatic means is anchored to both plates.

- 45 5. A back rest support unit as claimed in claim 3 or 4, wherein the inflatable means comprises a ball-like article having at least one tubular extension adapted to provide a means for anchoring the ball-like article to one of said plates and also a means for enabling connection of an air inlet pipe for the inflation means.

- 50 6. A back rest support unit as claimed in claim 3 or 4, wherein the inflatable means is constituted by an inflatable bladder, ball or the like article made of rubber or a plastics material.

- 55 7. A back rest support unit as claimed in any one of the preceding claims wherein the means for enabling selective control of the inclination includes control means providing a first control position which allows the raising of the back plate; a second position which retains the back plate in the position to which it has been raised; and a third position in which the back plate is enabled to move towards its closed position, the arrangement being such that extent of movement of the back plate when the control means is in the first or third positions is related to the time period that the control means is set to said first and third positions.
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- 70 8. A back rest support unit constructed and arranged to operate substantially as hereinbefore described with reference to the accompanying drawings.