

- [54] **DEVICE FOR RAISING THE HEAD END AND/OR FOOT END OF A BED**
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- [51] **Int. Cl.**..... **A61g 7/10**, A61g 7/06
- [58] **Field of Search** 5/64, 66, 68, 69, 5/91, 317, 327 R, 348

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[57] **ABSTRACT**
A device for raising an lowering the head end and/or foot end of a mattress of a bed from a bedstead comprising an inflatable pad positioned at the head end and/or foot end of the bedstead between the bedstead and the mattress to raise or lower the associated end of the mattress. The pad is mounted in a frame which is composed of upper and lower hinged U-shaped parts each of which includes a plate of thin rigid material fixedly attached to the parallel legs of the associated frame part. The pad is attached only to the plate of the bottom part and is free to slide on the plate of the upper part when the mattress is raised and lowered in the course of inflation and deflation of the pad.

5 Claims, 4 Drawing Figures

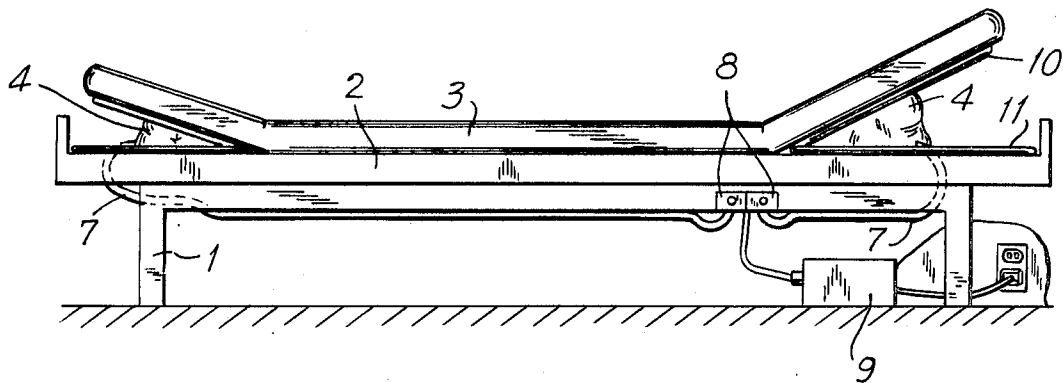


FIG. 1

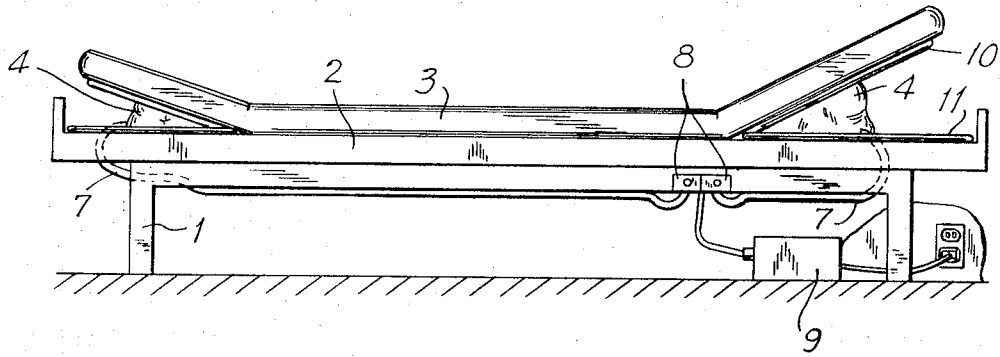


FIG. 2

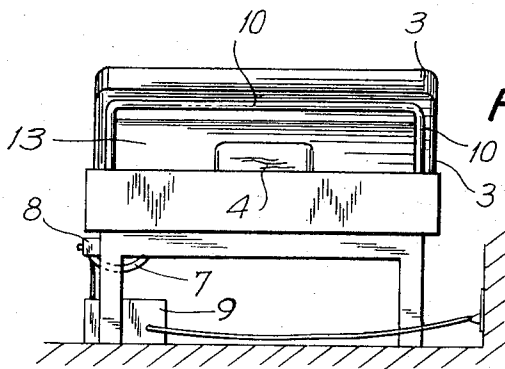


FIG. 3

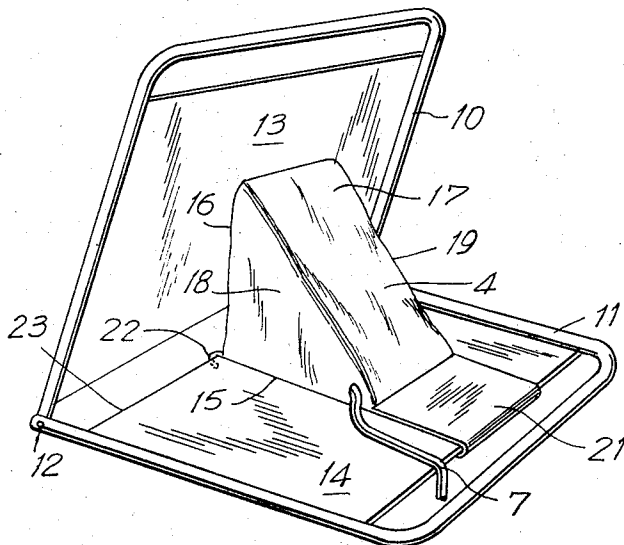
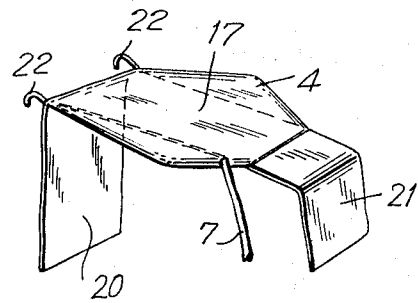


FIG. 4

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DEVICE FOR RAISING THE HEAD END AND/OR FOOT END OF A BED

This invention relates to a device for raising the head end and/or foot end of a bed from a bedstead.

A bed of this type usually is provided with a pivotally mounted portion of the bed bottom which can be raised by a linkage operated by a hydraulic cylinder, which is connected to a hydraulic pump driven by an electric motor. The linkage, motor, hydraulic pump and hydraulic cylinder are mounted in the bedstead and give rise to many inconveniences. An electric motor of this size is risky in electrical respect and gives rise to noise and vibrations. Moreover, the device is complicated, difficult to keep clean and can cause damage by pinching.

An object of the present invention is to provide a bed with a device for raising the head and/or foot end in which these inconveniences are eliminated. According to the invention this has been achieved in that an inflatable pad is positioned at the head end and/or foot end of the bedstead between the bedstead and a mattress positioned on the bedstead, which pad is positioned in a frame comprising an upper part and a bottom part, which parts are pivotally joined to each other and are adapted to be mutually operated by said pad. The device according to the invention is uncomplicated, stable and cheap and is operated without noise and vibrations, and does not need an electric motor attached to the bedstead. Moreover, the dimensions of the pad are less than the width and length of the upper and bottom parts of the frame, which gives rise to small air or gas consumption when the pad is operated.

According to a preferred embodiment of the invention the upper and the bottom parts of the frame are U-shaped, the upper part being positioned within the bottom part and the free ends of the upper part being positioned adjacent the free ends of the bottom part and said pairs of adjacent ends being pivotally joined, in addition to which each of said parts of the frame is provided with a plate consisting of thin rigid material, e.g. a thin-walled metal plate, fixedly attached to the parallel legs of the associated part of the frame. Thus, the pad may be strapped on the plate of the bottom part and is adapted to freely support the bottom face of the plate of the upper part. Accordingly, the pad may slidably engage the plate of the upper frame part when the pad is operated.

The following is a more detailed description of an embodiment of the invention given by way of example, reference being made to the accompanying diagrammatic drawing in which

FIG. 1 is a side view of a bed provided with a device according to the invention at each end of the bed,

FIG. 2 is an end view of the bed shown in FIG. 1,

FIG. 3 is a perspective view of the device shown in FIGS. 1 and 2, and

FIG. 4 is a perspective view of the pad shown in FIG. 3 in collapsed condition.

The bed shown in FIGS. 1 and 2 comprises a bedstead 1 with a bed bottom 2 supporting a mattress 3. An adjusting device including an inflatable pad 4 is positioned between the bed bottom 2 and the mattress 3 at each end of the bed. Each pad is made of flexible material and is provided with a hose 4 connecting the pad via a control valve 8 with an air pump 9 driven by an electric motor. Alternatively the pads 4 may be connected to a supply line for compressed air. By operating

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the control valves 8, the pads 4 can be supplied individually with compressed air and converted from a flattened condition to the condition shown in FIG. 1, or an intermediate condition, so that the ends of the mattress are raised. By opening outlet openings of the valves 8, the air is permitted to escape so that the pads revert to the flattened condition.

As clearly shown in FIGS. 3 and 4, the pad 4 is positioned between a U-shaped upper part 10 and a similar bottom part 11 of a frame, the free ends of which are pivotally joined to each other by fulcrum pins 12. The pad and its frame parts form a separate unit which is adapted to be placed under one end of the mattress, as shown in FIG. 1. The upper part 10 of the frame is provided with a plate 13 consisting of a very thin-walled, rigid aluminum plate fixedly attached to said part, and this part 10 is positioned substantially along the inner contour of the bottom part 11 of the frame, on the under side of which part 11 a plate 14 similar to plate 13 is fixedly attached to the legs of this part 11. In inflated condition, the pad 4 is defined by three substantially rectangular walls 15, 16, 17 and two substantially triangular side walls 18, 19.

The pad, or preferably a covering enclosing the pad, is provided with fastening strips 20, 21 extending around the plate 14, the ends of which are joined in a suitable manner on the under side of the plate 14, e.g. by a Velcro tape. The fastening strips are also provided with two small hooks 22 for securing the pad to the inner edge 23 of the plate 14.

At inflation and emptying of the pad, the upper wall 16 slidably engages the under face of the plate 13 whereas the bottom wall 15 is fixedly attached to the upper face of the plate 14 by the fastening strips 20, 21 and the hooks 22.

The pad 4 having the shape shown in FIG. 3 is automatically converted into the flat shape shown in FIG. 4 when the upper part 10 collapses due to emptying of pad 4.

By the suitable shape of pad 4, it is possible to raise the upper part 10 of the frame to a position in which this part 10 forms an angle of 90° or even more, e.g. 110°, with the bottom part 11.

What I claim is:

1. A device for raising and lowering the head end and/or foot end of a bed from a bedstead, said device comprising an inflatable pad positioned at the head end and/or foot end of the bedstead between the bedstead and the mattress, a frame supporting said pad and comprising a U-shaped upper part and a U-shaped bottom part, hinge means pivotally joining said parts together at the free ends thereof, the upper part being positioned within the bottom part, each said part of the frame including a plate of thin rigid material fixedly attached to the parallel legs of the associated part of the frame, and means attaching the pad to the plate of said bottom part, said pad being free of said plate of the upper part in order to permit said upper part to freely slide on said pad as said end of the mattress is raised and lowered in the course of inflation and deflation of said pad.

2. A device as claimed in claim 1 wherein said means which attaches the pad to the plate of said bottom part comprises strips extending from said pad in opposite directions and detachably engaged with said plate of the bottom part.

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3. A device as claimed in claim 2 wherein said strips are of a length to wrap around the plate of said bottom part at opposite ends thereof.

4. A device as claimed in claim 2 wherein said means which attaches the pad to the plate of said bottom part further comprises hooks extending from said pad and engaging said plate at the end thereof closest to the hinge means.

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5. A device as claimed in claim 1 wherein said pad has a bottom face which is secured to the plate of said bottom part and a side face which contacts the plate of said upper part, said bottom face and side face having substantially smaller length and width dimensions than said plates.

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