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[54] **TRACTION APPARATUS**
1 Claim, 8 Drawing Figs.

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[51] Int. Cl..... A61b 1/02
[50] Field of Search..... 128/75, 78,
84

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ABSTRACT: Inner and outer frame members are arranged on opposite sides of a headboard of a bed and connected at the top to rest on the top edge of the headboard, the frame members being provided with pulleys over which passes a nylon or other flexible member, one end of which is connected to a patient on a bed and the other end of which carries a weight to transmit traction to the patient in the bed.

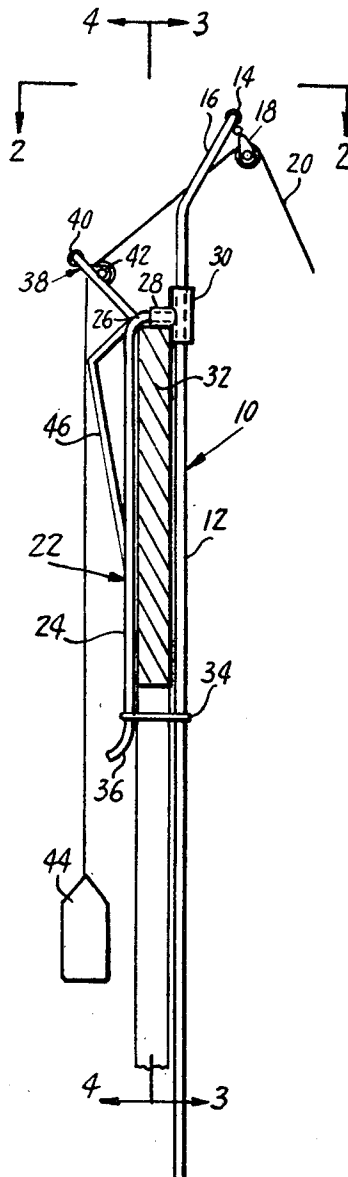


FIG. 1

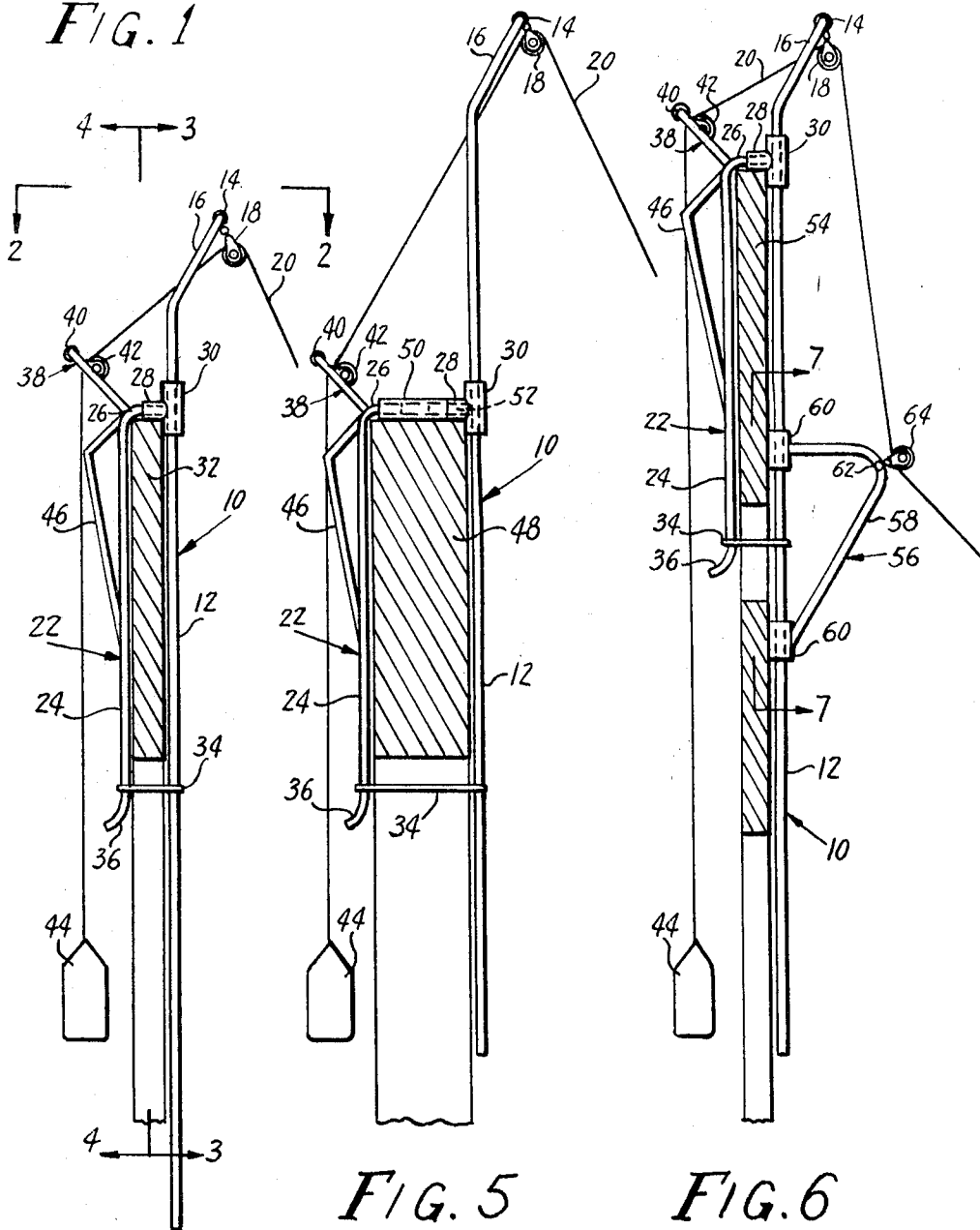


FIG. 2

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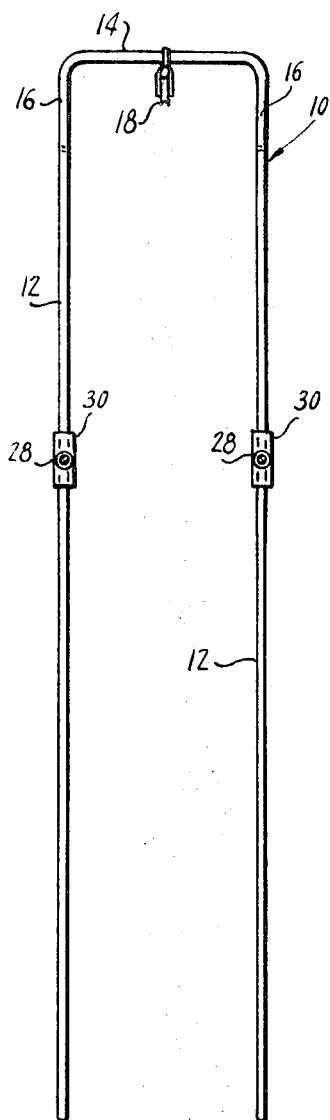


FIG. 3

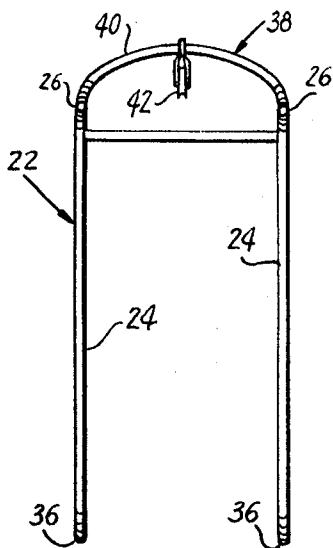


FIG. 4

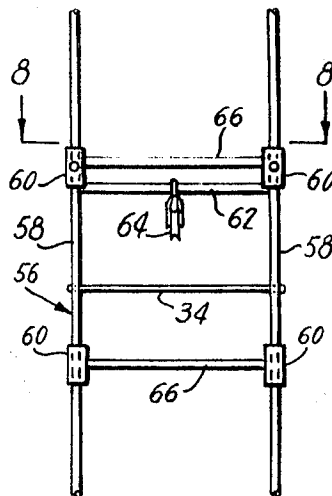


FIG. 7

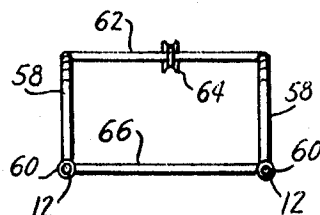


FIG. 8

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TRACTION APPARATUS

FIELD OF THE INVENTION

The invention relates to traction apparatus for exerting a pull on a patient in a bed for the treatment of cervical, so-called backlash and other similar injuries. Such apparatus involves the use of a flexible element, and usually beyond the foot of the bed it is provided with a weight at the outer end of the flexible element, the inner end of the flexible element being connected by a suitable harness to the patient to maintain the desired traction.

SUMMARY OF THE INVENTION

The present invention is attached to the headboard of a bed rather than being associated with the foot of the bed as is customary. The apparatus comprises a pair of frame members each including spaced parallel vertical members connected at their upper ends. The frame member behind the headboard is provided with forward extensions engageable in sockets on the other or main frame member and the forward projections and the sockets rest upon the upper edge of the headboard to support the apparatus in position. Each of the frame members is provided adjacent the top thereof with a pulley around which passes a nylon or other suitable flexible element, one end of which is connected to a conventional harness attached to the patient, and the other end of which, behind the headboard, carries a weight to exert a steady pull to maintain the desired traction on the patient.

For thicker headboards of beds, the forward projections of the secondary frame behind the headboard are provided with extensions to compensate for the increased thickness of the headboard, such extensions bearing on the upper edge of the headboard to support the apparatus in position.

In using the apparatus with a particularly high headboard, a supplementary frame is attached to the main frame. This supplementary frame is provided with a pair of tubular members slideable over the vertical members of the main frame and connected to supplemental frame elements arranged in spaced parallel relation and each in a common plane with one of the main vertical frame members. These auxiliary frame members are connected by a crossmember which carries a pulley at the proper height relative to the patient, such pulley being substantially below the pulley of the main frame when the apparatus is used with a particularly high headboard. Under such circumstances, the flexible element, after passing over the pulley at the top of the main frame, passes around and beneath the pulley of the auxiliary frame to be attached to the patient.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a vertical sectional view through a portion of a headboard of average height showing the invention applied thereto;

FIG. 2 is a plan view of the device looking down thereon as suggested by the line 2-2 in FIG. 1;

FIG. 3 is a section on line 3-3 of FIG. 1, the headboard being omitted;

FIG. 4 is a similar view on line 4-4 of FIG. 1;

FIG. 5 is a section similar to FIG. 1 showing the apparatus attached to a substantially thicker headboard;

FIG. 6 is a similar view showing the apparatus attached to a substantially higher headboard;

FIG. 7 is a section on line 7-7 of FIG. 6 with the headboard omitted; and

FIG. 8 is a horizontal sectional view on line 8-8 of FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 to 4, inclusive, the number 10 designates a main frame bent into substantially inverted U-form to provide elongated vertically spaced parallel legs 12 connected at their upper ends by a crossmember 14 integral

therewith. The upper end of the frame 10 is angled forwardly as at 16, and the crossmember 14 supports a pulley 18 around which passes a nylon or other suitable flexible element 20, the lower inner end of which is connected to a suitable harness attached to the patient to be maintained under traction. The frame 10 is preferably formed of relatively rigid tubular stock.

A secondary frame 22 is arranged at the back of the headboard and is also formed of tubular stock and provided with spaced parallel vertical members 24 spaced apart a distance equal to the spacing of the vertical members 12. The upper ends of the frame members 24 turn forwardly as at 26 (FIG. 1) to be received in sockets 28 of Tees 30, the main runs of which are carried by the frame members 12 and fixed thereto in any suitable manner. The sockets 28 bear upon the upper edge of the headboard 32 of the bed, and beneath the crossmember of which headboard a heavy rubberband 34 extends across the frame members 12 with the looped ends of the rubberband slipped over the lower ends of the frame members 24. To insure against the disconnection of the rubberband from the lower ends thereof, the frame elements 24 preferably curve as at 36 away from the headboard.

An inverted U-shaped member 38 (FIGS. 1 and 4) has the extremities of its legs welded or otherwise secured to the frame members 24. The member 38 includes an arched crossmember 40 carrying a pulley 42 over which the flexible member 20 passes as shown in FIG. 1. The lower end of the back portion of the flexible element 20 is provided with a suitable weight 44 to maintain the flexible element 20 under tension to apply the proper traction to the patient. If it is desired, the frame members 24 may be braced as at 46.

All of the elements of the apparatus shown in FIG. 1 are also included in FIG. 2 and are indicated by the same reference characters. This form of the invention is particularly intended for use with wider headboards, the crossmember of which is shown in FIG. 5 and indicated by the numeral 48. When used with this type of headboard, the ends 26 of the frame members 24 cannot reach the sockets 28, and in this case an extension 50 has a socket at one end to receive the ends 26 and has projections 52 extending into the sockets 28.

Some headboards of beds extend upwardly substantially further than others. When the apparatus is attached to such a headboard, the extension of the innerend of the flexible element 20 to the patient would be too nearly vertical to exert the proper traction lengthwise of the patient. In such case, the form of the apparatus shown in FIG. 6 is employed. Referring to such FIG., the numeral 54 designates the upper crossmember of a high headboard on which the apparatus is mounted in exactly the same manner as in the forms of the invention described. In this case, an auxiliary frame structure indicated as a whole by the numeral 56 is employed and such frame includes frame elements 58 arranged in a parallel plane and of substantially V-shape as shown in FIG. 6. The ends of the frame members 58 are provided with sleeves 60 slidable on the frame elements 12 and secured in adjusted positions in any suitable manner. The frame elements 58 are connected by a crossmember 62 to which is attached a pulley 64 (FIG. 7), and the flexible element 20 passes downwardly from the pulley 18 around and under the pulley 64 so that the flexible element will extend at the proper angle to the harness attached to the patient. If desired to brace opposite pairs of sleeves 60, cross members 66 may be connected therebetween.

OPERATION

The apparatus is mounted on a headboard as shown in FIG. 1 and is particularly effective for providing traction for cervical injuries and so-called backlash, as well as for other neck or back injuries as will be apparent. The apparatus may be mounted and dismounted in a matter of minute or so, it being merely necessary to set the apparatus in position on the upper edge of a headboard and then to attach the heavy rubberband 34 to tend to prevent the spreading of the lower ends of the frame elements 12 and 24. To provide traction for patients

with lumbar or similar injuries, the patient's head will be placed at the foot of the bed and a flexible element 20 will be connected to a suitable harness applied to legs or hips of the patient. When the headboard is particularly thick, the extensions (FIG. 5) will be used so that the frame ends 26 may be suitably attached to the sockets 28.

Where a headboard is particularly high, it is impractical to employ the forms of the invention shown in FIGS. 1 and 5 due to the steep angle of the flexible element 20, it being necessary to provide a greater horizontal pull. In such case the auxiliary frame 56 will be attached, as shown, and the flexible element 20 will pass beneath the pulley 64 in which case the flexible element extending to the patient will be at the proper angle. In the form of the invention shown in FIG. 5, the extensions 50 may be quickly and easily attached, and the same is true of the auxiliary frame 56 in FIG. 6.

From the foregoing it will now be seen that there is herein provided an improved Traction Apparatus which accomplishes all of the objects of this invention and others, including many advantages of great practical utility and commercial importance.

As various embodiments may be made of this inventive concept, and as many modifications may be made in the embodi-

ments hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. A traction apparatus attachable to the headboard of a bed, comprising a main frame having spaced vertical members adapted to be arranged forwardly of the headboard of the bed, a secondary frame comprising spaced vertical L-shaped members adapted to be arranged behind the headboard, connecting means slidably secured to said main frame members serving as the sole means for adjusting the height of said main frame members above the bed and having an adjustable socket receiving the short leg of said L-shaped members of varying length and adapted to rest on the upper edge of the headboard of varying thickness to support the apparatus in position, a pulley carried by the upper end of each of said frames and around which a flexible element passes for connection with a patient, the end of the flexible element passing over the pulley of the secondary frame carrying a weight at its lower end, and elastic means looped about the corresponding lower end of said frames serving as the sole means of holding said frames adjacent the headboard.

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