April 22, 1958 G. COBB 2,831,482

BEDSTEAD ATTACHED CERVICAL TRACTION MEANS

Filed Nov. 25, 1955

Fig-1

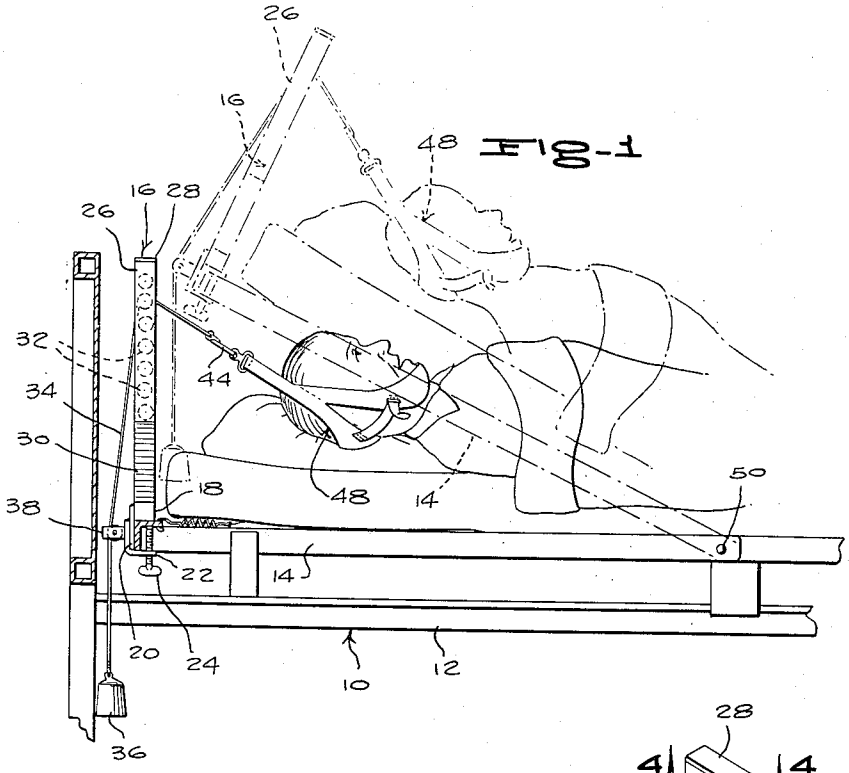


Fig-4

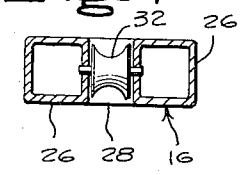
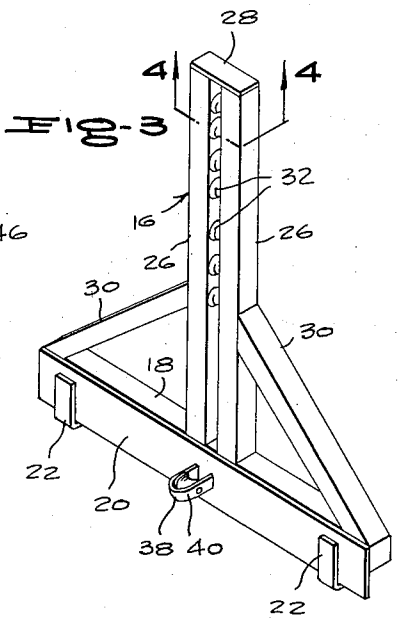


Fig-2

Fig-3



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United States Patent Office 2,831,482 Patented Apr. 22, 1958

2,831,482

BEDSTEAD ATTACHED CERVICAL TRACTION MEANS

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Application November 25, 1955, Serial No. 548,946

5 Claims. (Cl. 128—84)

This invention relates to traction devices, and more particularly has reference to traction apparatus usable to particular advantage on hospital beds of the type having portions supporting the head of the patient which portions are vertically swingable to selected positions of adjustment, so that the patient can be supported either in a fully prone position or alternatively, in any of various seated positions.

Ordinarily, cervical or neck traction devices are so designed that the line of pull along which the tractive force is exerted will change whenever the patient is adjusted between prone and seated positions, unless corresponding adjustments of the associated weights are effected. Usually, it is necessary to restring or reposition the weights to produce the proper angle, when the hospital bed is adjusted for changing the patient's position and this, of course, is a time-consuming practice, sometimes involving in addition considerable discomfort so far as the patient is concerned.

Heretofore, cervical traction devices of which I have knowledge have not been adapted to automatically retain the proper angle between the line of force along which the traction is exerted and the plane of the portion of the mattress frame on which the head of the patient is supported, during adjustment of said portion of the mattress frame. The main object of the present invention, accordingly, is to provide a generally improved cervical traction device that will retain said angle regardless of the position to which the associated portion of the bed frame is swingably adjusted.

Another object of importance is to provide a traction device of the character referred to so designed that said angle will be maintained, in selected positions to which the hospital bed is adjusted for changing the elevation of the patient's head, without making it necessary to restring or reposition the weight.

Another object is to provide a cervical traction device as stated which will exert the same amount of pull upon the patient in all positions to which the head-supporting portion of the mattress frame is adjusted.

Still another object of importance is to provide a cervical traction device as stated which will be designed to particularly facilitate the adjustment of the angle between the line of pulling force and the plane of the associated part of the mattress frame, with a minimum amount of difficulty.

Yet another object is to provide a cervical traction device as described which can be used with any of various conventional hospital beds or equivalent patient-supporting means, without requiring modification or redesign of said beds or other supports.

Still another object of importance is to form the cervical traction device in such a manner as to facilitate its swift attachment to or detachment from the associated support.

A further object of importance is to provide a cervical traction device as stated which will be of simple construction, will be rugged, and will nevertheless be fully

efficient under all circumstances, despite the relatively low cost of the construction.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a view of a hospital bed partly in side elevation and partly in longitudinal section, the traction device constituting the present invention being shown in side elevation attached to said bed, the device and bed being shown in full lines with the patient supported in a prone position, and in dotted lines with the patient supported in an inclined or semi-sitting position;

Figure 2 is a perspective view of the cervical traction device per se;

Figure 3 is a rear perspective view of the cervical traction device per se; and

Figure 4 is an enlarged transverse sectional view through said device taken on line 4—4 of Figure 3.

The reference numeral **10** generally designates a conventional hospital bed having a main frame **12** on which is supported an adjustable frame **14** swingable about a horizontal axis extending transversely of the bed and supporting the mattress and spring on which the patient lies. The frame **14** can be adjusted to a horizontal position shown in full lines in Figure 1, and in this position a patient will be fully prone. Alternatively, the adjustable frame **14** can be adjusted upwardly, as for example to the dotted line position of Figure 1, so as to dispose the patient in a full or semi-sitting position.

The cervical traction device constituting the present invention has been generally designated at **16**, and as distinguished from prior similar devices of which I have knowledge, is attached directly to the vertically swingable frame **14**. The device includes a base bar **18**, to the rear surface of which is fixedly secured a back plate **20** extending below the bottom surface of the base bar so as to cooperate therewith in forming a downwardly opening, angular recess receiving the end cross bar of the frame **14**.

Projecting from the bottom edge of the flange defined by plate **20** are brackets **22**, and threadable vertically in said brackets are clamp screws **24**. The brackets **22** extend below the bottom bar **18** of the device, and are capable of being turned upwardly against the cross bar of frame **14**, with said end cross bar seated in the angular recess defined at the base of the device. In this way, the frame of the device is fixedly but removably secured to the outer end of the vertically adjustable bed frame **14**, and is disposed in a plane normal to that of the frame **14**.

Fixedly secured at their lower ends to the midlength portion of the base bar **18** are upwardly projecting standards **26**. These are spaced laterally of one another, and at their upper ends are fixedly connected by a cap plate **28**.

The standards **26** are braced in their upright positions by inclined, upwardly converging brace bars **30**, fixedly connected between the outer ends of the base bar **18** and the intermediate portions of the respective standards.

The standards define between them a vertical slot **31**, and rotatably mounted in said slot are pulleys **32**. The pulleys are spaced uniformly longitudinally of the standards **26**, for use of any selected pulley in obtaining a proper angle along which the line of force is to be exerted by the traction device.

Trained about a selected one of the pulleys **32** is a flexible element **34** such as a rope, and connected to one end of said flexible element is a weight **36**. A U-shaped guide **38** is fixedly secured to and projects rearwardly from the base of the device, and rotatably mounted

in the guide 38 is a pulley 40 over which the flexible element is trained.

Connected to the other end of the flexible element is an eye 42 formed medially between the opposite ends of a connecting rod or cross bar 44 the ends of which are formed with hook-like or U-shaped extensions 46. A neck strap or harness generally designated at 48, which per se is of conventional form, has its ends attached to the extensions 46.

In use of the device, the same is clamped to the frame 14 at the outer end of the frame, in a plane normal to that of the frame and paralleling the pivot axis 50 of the frame. The flexible element is trained over a selected pulley 32, and is attached to the neck strap 48. The weight 36 is attached to the other end of the flexible element, after said element has been trained through the guide 38 about pulley 40. Guide 38, as will be understood, prevents the flexible element from jumping off the pulley 40 during vertical adjustment of the frame 14.

It will be understood that the purpose of the several pulleys 32 is to permit the flexible element to extend from the standards 26 to the neck strap at a selected angle relative to the plane of the frame 14. Said angle will be selected, of course, according to the particular lines along which the tractive force is to be exerted.

With the device operatively associated with the neck strap and frame in the manner shown in Figure 1, the above mentioned angle will not be changed regardless of the position to which the frame 14 is adjusted about its pivot axis 50. Thus, by comparing the full and dotted line showings of Figure 1, it will be seen that the angle remains unchanged in both of the two illustrated positions of the frame. In one of said positions the patient is fully prone, and in the other position the patient is in a semi-sitting position.

Swingable adjustment of the frame 14 upwardly from the dotted line position, to dispose the patient in a full sitting position, will still not have the effect of changing the angle in any way, and as will be understood, it is not necessary to reposition the weight or otherwise adjust the device under these circumstances. The only time when repositioning of the flexible element or weights is necessary will be that occurring when it is necessary to change the angle or line of force along which the traction is to be exerted, and this of course has nothing to do with the swingable adjustment of the frame 14.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended calims.

What is claimed is:

1. A cervical traction device comprising an upstanding support means; means on the lower end thereof attachable to a vertically swingable bed frame; a flexible element trained over said support means at a location spaced upwardly from said lower end; guide means projecting laterally outwardly from said lower end, said element being trained over the guide means and being spaced thereby laterally from said lower end; a weight carried by one end of said flexible element; and a neck strap connected to the other end of said element.

2. A cervical traction device for mounting upon a bed frame swingable about a horizontal axis for adjusting the position of a supported patient, comprising: a base adapted to extend in contact with said frame; means on the base for attaching the same fixedly to the frame for adjustment conjointly with the frame about the pivot axis of the frame; standards projecting upwardly from said base; at least one pulley carried by the standards; a flexible element trained about said pulley; guide means projecting laterally outwardly from the base, said element being trained about the guide means and being spaced thereby laterally from the base; a weight carried by said flexible element at one end thereof; and a neck strap carried by the flexible element at the other end thereof.

3. A cervical traction device for attachment to a bed frame swingable about a horizontal axis to adjust the position of a supported patient, comprising a horizontally extending base adapted to extend in contact with said bed frame; means on the base for removably and fixedly attaching said base to the bed frame for adjustment conjointly with the bed frame about said axis thereof; means extending upwardly from the base and defining a standard thereon; a plurality of pulleys spaced longitudinally of and rotatably mounted upon said standard; a flexible element adapted for being trained about a selected one of said pulleys; guide means projecting laterally outwardly from the base, said element being trained about the guide means and being spaced thereby laterally from the base; a weight carried by one end of the flexible element; and a neck strap connected to the other end of said flexible element.

4. A cervical traction device for attachment to a bed frame swingable about a horizontal axis to adjust the position of a supported patient, comprising a horizontally extending base adapted to extend in contact with said bed frame; means on the base for removably and fixedly attaching said base to the bed frame for adjustment conjointly with the bed frame about said axis thereof; means extending upwardly from the base and defining a standard thereon; a plurality of pulleys spaced longitudinally of and rotatably mounted upon said standard; a flexible element adapted for being trained about a selected one of said pulleys; guide means projecting laterally outwardly from the base, said element being trained about the guide means and being spaced thereby laterally from the base; a weight carried by one end of the flexible element; and means connected to the other end of the flexible element adapted for attachment to a neck strap.

5. For attachment to a planiform bed frame swingable about a horizontal axis to adjust the position of a supported patient, a cervical traction device including a support means adapted for projecting upwardly from said frame in a plane normal to the plane of the frame and paralleling the pivot axis of the frame; means on the support means for fixedly and removably connecting the same to the frame; a series of pulleys rotatably mounted upon said support means at locations spaced vertically along the support means, said pulleys rotatable about horizontal axes; a flexible element trained intermediate its ends about a selected one of said pulleys; means at one end of said element for connecting a neck strap thereto; weight means at the other end of said flexible element; and a guide pulley carried by the support means, said flexible element being trained about said guide pulley and said guide pulley being spaced outwardly from the series of pulleys so as to dispose the flexible element and weight means outwardly from the support means and frame in selected positions to which the frame is adjusted about the pivot axis thereof.

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