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Blair

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[54] **PATIENT LIFT AND SUPPORT FOR HOSPITAL BED**

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[52] **U.S. Cl.** **5/85;** 5/81

[51] **Int. Cl.²** **A47B 83/04**

[58] **Field of Search** ..... 5/61, 63, 66, 81, 84, 85, 5/86, 317, 331, 332; 248/41, 223, 226 B, 229, 316 A

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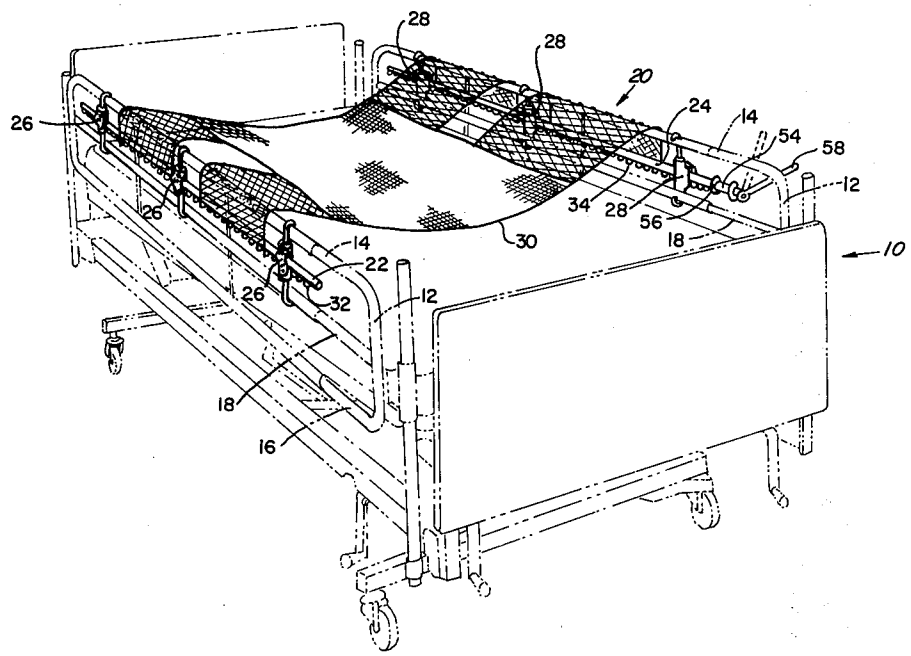
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Primary Examiner—Casmir A. Nunberg

[57] **ABSTRACT**

A patient lift and support for a hospital bed is disclosed in which a flexible netting is utilized to lift a patient above the hospital bed mattress and support the patient above the mattress for prolonged periods of time if necessary. The patient lift and support is designed to be attached to a standard hospital bed having side guard rails. The patient lift is lightweight, can be installed on a hospital bed in a matter of minutes, requires no modification to the hospital bed for installation or removal, and may be carried easily from place to place by one person.

6 Claims, 3 Drawing Figures



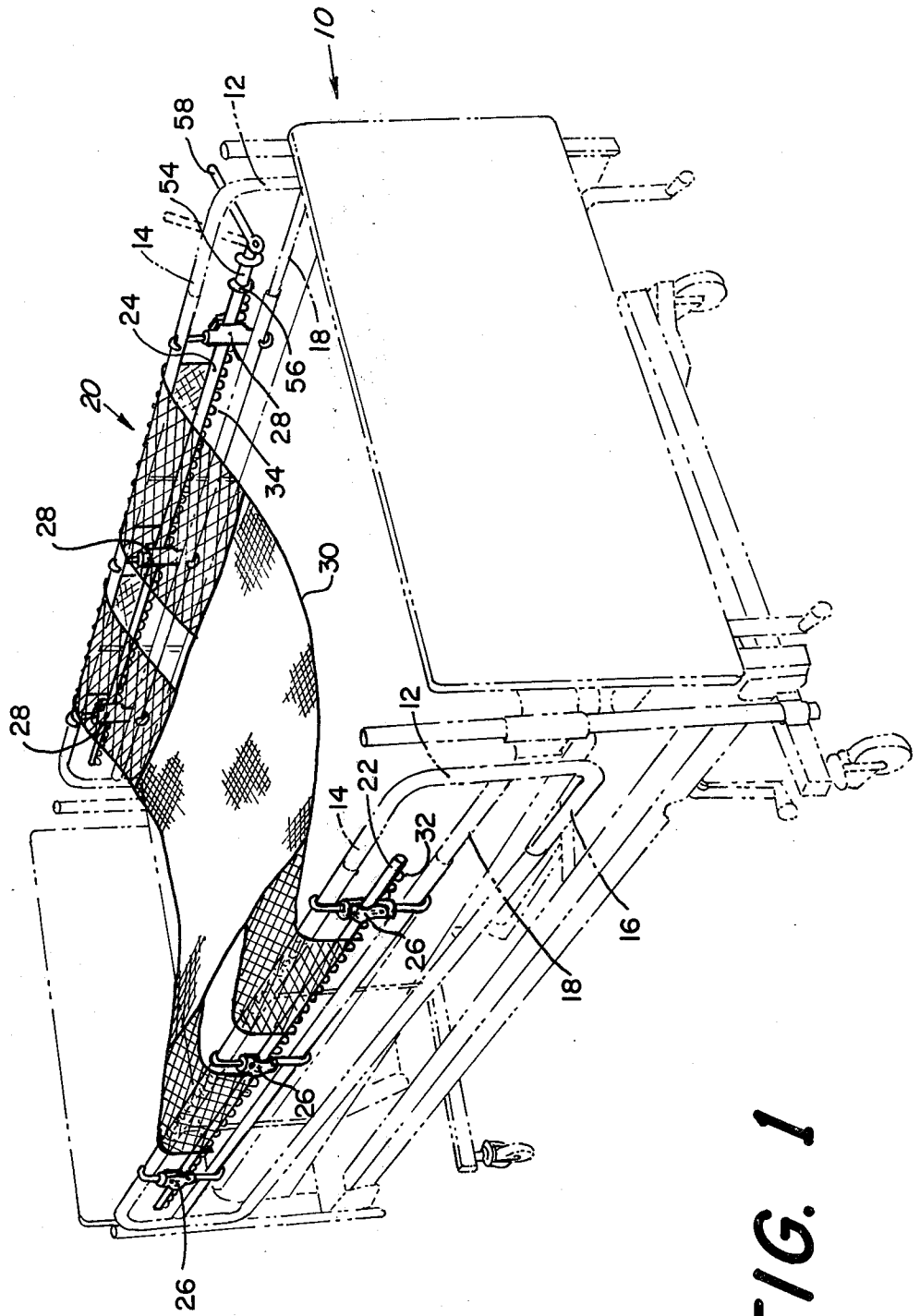
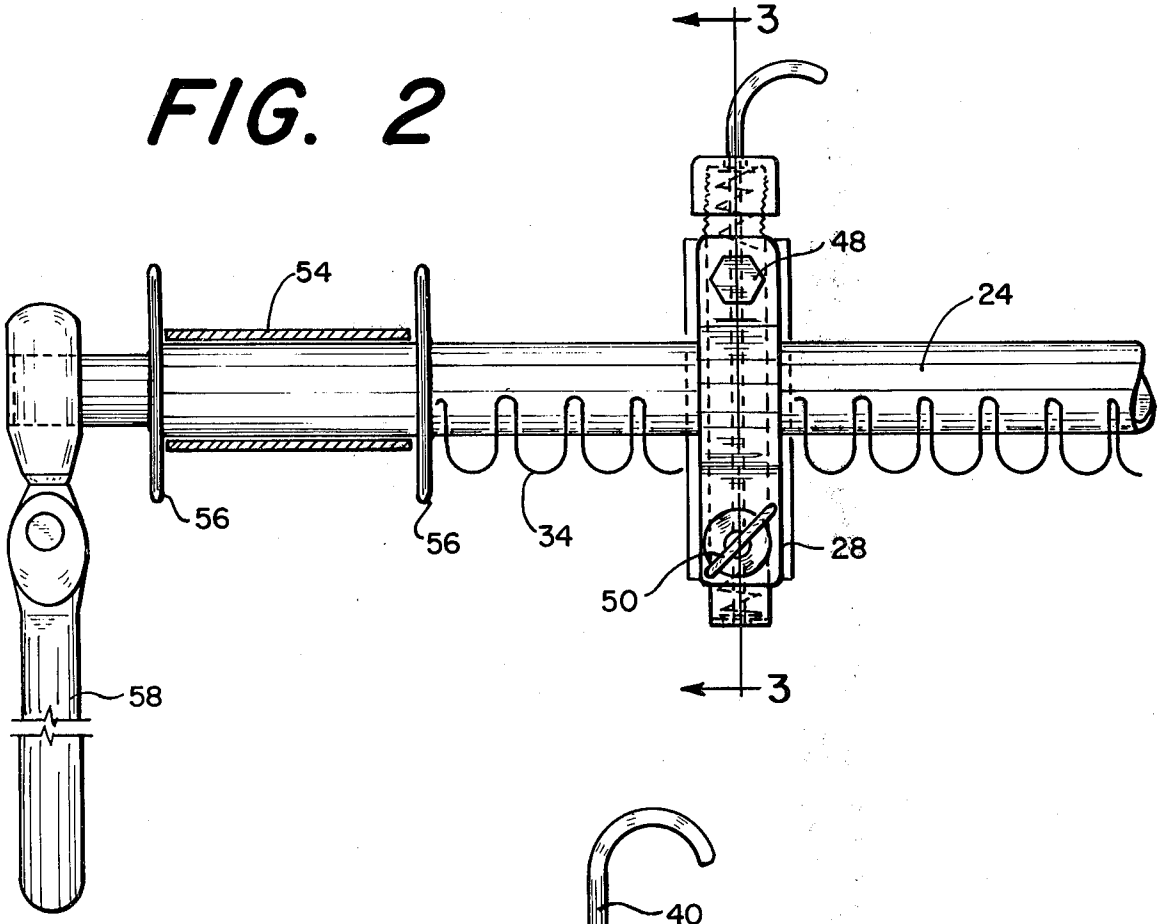


FIG. 1

FIG. 2



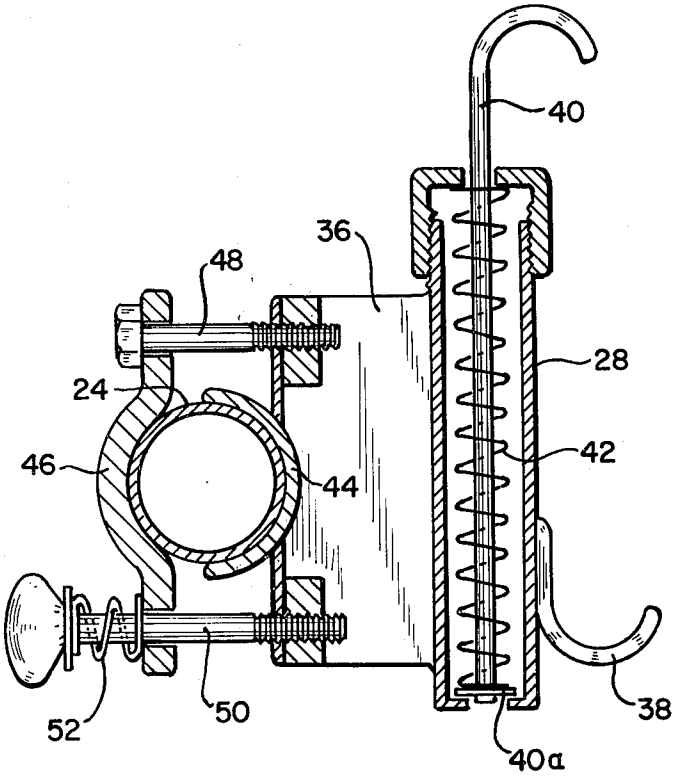


FIG. 3

PATIENT LIFT AND SUPPORT FOR HOSPITAL BED

BACKGROUND OF THE INVENTION

This invention relates to an auxiliary patient lift and support for a hospital bed which is readily attached to the side guard rails of a standard hospital bed. The present invention consists of two longitudinally extending frame members which are removably clamped to the side guard rails of the hospital bed. A flexible patient support consisting preferably of a relatively coarse mesh netting is utilized to be stretched between the two longitudinal frame members. When one of the frame members is rotated, the flexible patient support fabric is stretched tautly between the two longitudinal frame members to lift the patient above the mattress of the hospital bed.

Many patients require a netting-type support by which they may be lifted above the mattress of the hospital bed for prolonged periods of time. If a patient has severe bed sores, a netting support upon which he may lie permits air to circulate about him and thereby assists in the healing of the bed sores. Likewise, many burn victims must be supported so that air may circulate about their bodies as they heal.

Many times, a patient who is incapacitated to a high degree must be lifted above the mattress so that soiled linen and bed clothing may be changed. In order to accomplish these purposes, the device of the present invention has been supplied.

Many attempts have been made in the prior art to provide for a patient lift and support which may be utilized with hospital beds. Some examples of these prior art devices may be found in the patent to Bond, U.S. Pat. No. **3,701,170,** entitled "Apparatus Facilitating Care of a Bedfast Patient", and issued Oct. **31, 1972;** the patent to White, U.S. Pat. No. **3,562,824,** entitled "Hammock for Invalid Beds", and issued Feb. **16, 1971;** and the patent to Harris, U.S. Pat. No. **3,302,219,** entitled "Hospital Bed and Lifting and Turning Device", issued Feb. **7, 1967.** The present invention provides an improvement over all of these devices and all of the prior devices which have been suggested for the general purpose being considered.

Primarily, the present invention provides a device which may be readily attached to a standard hospital bed with side guard rails without any modification or change to the standard hospital beds. The present invention provides a frame in two pieces which may be clamped to the guard rails. The flexible, net-like patient supporting fabric is attached to the two frame members. By rotation of one of the frame members, the patient supporting fabric may be rolled onto the frame member in order to pull the fabric taut and thereby raise the patient above the bed.

In the earlier devices, extensive modification to the hospital bed was required. Further, the earlier devices could not be transported readily from bed to bed by one person without assistance.

The present invention provides a novel device for lifting patients and supporting them above the mattress of a hospital bed.

SUMMARY

The present invention is directed to an improved patient lift and support for a hospital bed having side guard rails that extend upwardly above the height of the mattress. The present invention provides a portable, lightweight frame which may be attached to a standard hospital bed without modification of the hospital bed. The frame may be removably attached so that it can be readily moved from bed to bed as necessary. The patient lift and support of the present invention is lightweight, may be carried by one person from place to place, and may be installed on a bed within minutes.

With the foregoing considerations in mind, it is an object of the present invention to provide an improved patient lift and support for a hospital bed.

Another object of the present invention is to provide a lightweight patient lift and support for a hospital bed which may be moved readily from place to place by one person and installed upon the hospital bed in a matter of minutes without modification of the hospital bed.

These and other objects of the present invention will become apparent as this description proceeds in conjunction with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the patient lift and support of the present invention installed upon a hospital bed with the hospital bed being shown in phantom lines.

FIG. **2** is a partial elevational view of one frame member of the patient lift and support of the present invention.

FIG. **3** is a detailed sectional view of the clamp means provided to clamp the frame of the present invention to the hospital bed taken along line **3—3** of FIG. **2.**

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, there is shown a hospital bed **10** having side guard rails **12.** Each of the side guard rails **12** has a top horizontal rail **14,** a lower horizontal rail **16,** and a center horizontal rail **18.** The hospital bed **10** and the side guard rails **12** are shown in phantom lines in FIG. **1** since they are portions of a standard hospital bed and form no part of the present invention except as the present invention is attached to the standard hospital bed without modification of the bed.

An auxiliary patient lift and support is indicated generally at **20.** The auxiliary patient lift and support has a first horizontal frame member **22** and a second horizontal frame member **24.** The horizontal frame members **22** and **24** are preferably formed of tubular metal such as steel and extend longitudinally of the hospital bed **10** when the support **20** is installed on a hospital bed.

The first horizontal frame member **22** is secured to the hospital bed side rail **14** by means of spring-loaded clamps **26** which are fixed to the frame member **22.** The details of construction of the clamps **26** will be described subsequently in this specification.

Spring loaded clamps **28** rotatably receive the second horizontal frame member **24** and position it on the bed side guard rail **12.**

A flexible patient support fabric **30** is secured to each of the horizontal frame members **22** and **24** by hooks **32** that are formed on frame member **22** and hooks **34** that are formed on frame member **24.** The flexible patient support fabric is preferably formed of a net-like fabric formed from polymer fiber. The net preferably

has square openings with the mesh openings being larger than one-eighth inch on each side.

As is best shown in FIG. 3, the spring loaded clamps 28 which rotatably receive the second horizontal frame member 24 have a body portion 36 to which is fixed a hook 38. Also provided within the body portion 36 is a movable hook 40 which may move relative to the body portion 36 and reciprocate relative to fixed hook 38. A washer 40*a* fixed to the end of hook 40 restrains one end of a spring 42 that urges hook 40 toward hook 38 so that the two hooks, 40 and 38, tend to clamp toward each other so that spring-loaded clamp 28 will attach to the side guard rails 12 of the hospital bed.

The body portion 36 of the spring-loaded clamp 28 has a bearing 44 fixed thereto. A bearing cover, 46, is attached to the body portion 36 by means of a bolt 48 and an adjustable thumb screw 50. The thumb screw 50 is spring loaded by spring 52 so that is retained in position in order to adjust the force exerted on bearing cover 46 by thumb screw 50.

As may readily be seen, the second horizontal frame member 24 is restrained between the bearing 44 and the bearing cover 46 and the frictional restraint between the bearing portions 44 and 46 and the longitudinal frame member 24 is adjustable by means of the thumb screw 50 so that frame member 24 can be tightly retained within the bearing member or so that the tension may be released and frame member 24 may rotate more freely within the bearing portions 44 and 46.

The details of the spring clamps 26 on the first horizontal frame member 22 are generally similar to those shown in FIG. 3 except that the first frame member 22 does not rotate relative to the body portion 36 so that the first frame member 22 may be directly fixed to the body member 36 as by welding, or the like.

As best seen in FIG. 2, a sleeve 54 is rotatably journaled around the second horizontal frame member 24 to assist in rotating the frame member in a manner to be described. The sleeve 54 is restrained axially by washers 56 that are fixed to second horizontal frame member 24.

To facilitate rotation of the second frame member 24 within the bearing portions 44 and 46, a rachet handle 58 is removably secured to the frame member 24. Rachet handle 58 is of the reversible type so that the second frame member 24 may be rotated within the bearing means 44 and 46 in either direction as selected by the operator.

As may readily be seen from the foregoing description, the horizontal frame members 22 and 24 may be positioned upon the side guard rails 12 of the hospital bed 10. The upper hooks 40 are clamped over the top horizontal rail 14 of the hospital bed guard rails. The frame members 22 and 24 are then forced downwardly so that the lower hooks 38 may be hooked beneath the center horizontal rail 18 of the side guard rails 12. The two frame members 22 and 24 are than in position on the respective side guard rails 12 and are below the top horizontal rails 14 of the side guard rails 12. The flexible patient support fabric 30 is hooked to each of the frame members 22 and 24 by hooking the mesh fabric over hooks 32 on frame member 22 and hooks 34 on frame member 24. The patient support fabric extends up over the top rails 14 of side guard rails 12.

The amount of frictional resistance exerted upon the horizontal frame member 24 is determined by the adjustment of the thumb screw 50 so that the bearing 44 and the bearing cover 46 are clamped at a predetermined tension on the second frame member 24. The amount of tension exerted by the thumb screw 50 is determined by the weight and size of the patient to be lifted and supported on the flexible patient support fabric 30. Obviously, a heavy patient will require a greater amount of friction between the bearings 44 and 46 and the side rail 24 than does a lighter weight patient.

With the flexible patient support fabric 30 under the patient and the patient lying on the mattress of the hospital bed, the rachet handle 58 may be rotated in a clockwise direction as viewed in FIG. 1 so that the patient support fabric 30 will be rolled upon the second horizontal frame member 24. In order to facilitate turning of the frame member 24, the person operating the device may hold the sleeve 54 with one hand while he turns the rachet handle 58 with the other hand.

It may be seen that the flexible patient support fabric 30 extends substantially the length of the bed so that it provides a comfortable patient support. The patient may be held upon the support while the bed linen is changed or he may be held upon the support for extended periods of time to help heal bed sores or to cure burns.

When it is desired to remove the auxiliary patient lift and support 20 of the present invention from the hospital bed 10, the spring-loaded clamps 26 and 28 need only be removed from the bed guard rails 12 and the entire device may be removed. It is obvious that no modification of the hospital bed whatsoever is required to install a device of the present invention. Further, the present invention consists of two lightweight frame members 22 and 24 and the flexible patient support fabric 30 so that it may be readily moved from place to place by one person.

According to the provisions of the Patent Statutes, I have explained the principle, preferred construction, and mode of operation of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

What is claimed is:

1. An auxiliary patient lift and support for a hospital bed having side guard rails extending upwardly above the height of the mattress comprising:

a. a first longitudinally extending frame member being non-rotatably and removably secured to a first one of said bed guard rails in a horizontal position by a first plurality of spring-loaded clamps fixed to said first frame member;

b. a second longitudinally extending frame member being rotatably and removably positioned upon a second one of said bed guard rails in a horizontal position by a second plurality of spring-loaded clamps rotatably receiving said second frame member and having a rotatable sleeve journaled thereon at one end to facilitate rotation of said second frame member within said clamps;

c. said first and second plurality of spring-loaded clamps each being formed with two hooks that are spring biased toward each other so that said clamps may be secured to said hospital bed guard rails by clamping horizontal members of said guard rails between said hooks;

d. a flexible patient support fabric fixed at opposite sides thereof to said first and second frame members;

e. rotating means to selectively rotate said second frame member relative to said bed guard rail to thereby stretch said patient support fabric taut between said first and second frame members and thereby lift a patient from the mattress of said hospital bed on said patient support fabric; said entire auxiliary patient lift and support being installable and removable from said hospital bed without any modification of said bed.

2. The auxiliary patient lift and support of claim **1** wherein said flexible patient support fabric is formed of a net having a mesh with square openings larger than one-eighth inch on a side.

3. The auxiliary patient lift and support of claim **1** wherein said flexible patient support fabric is fixed to said first and second frame members by hooks formed on said frame members.

4. The auxiliary patient lift and support of claim **1** wherein said rotating means is a rachet handle fixed to said second frame member.

5. The auxiliary patient lift and support of claim **1** wherein said first and second frame members are formed of tubular metal.

6. The auxiliary patient lift and support of claim **1** wherein said flexible patient support fabric is wound around said second frame member as said rotating means is rotated to lift a patient.

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