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W. G. RICH

2,189,325

PATIENT-OPERABLE HOSPITAL BED

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2 Sheets-Sheet 1

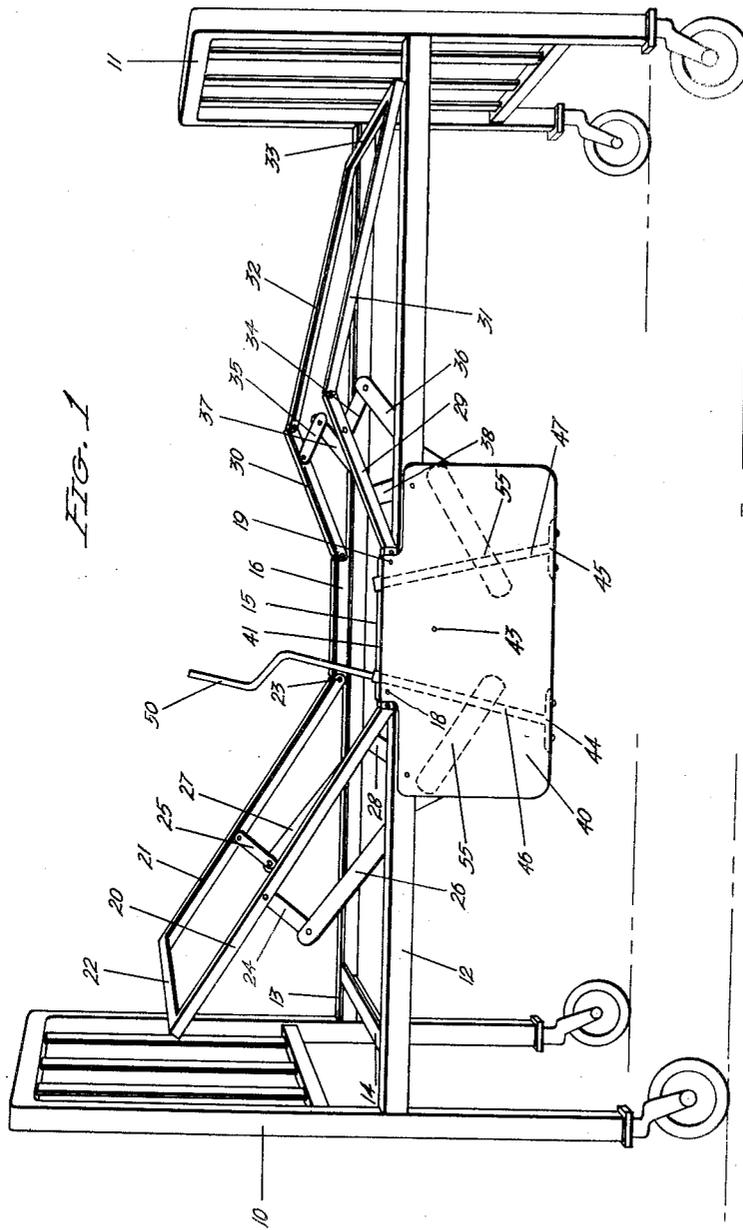


FIG. 1

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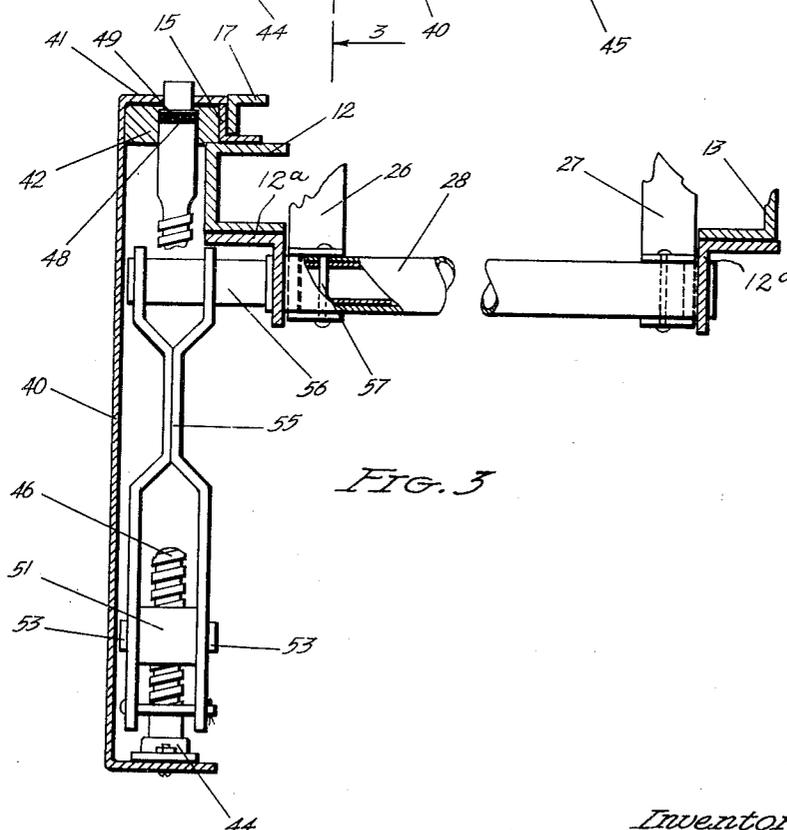
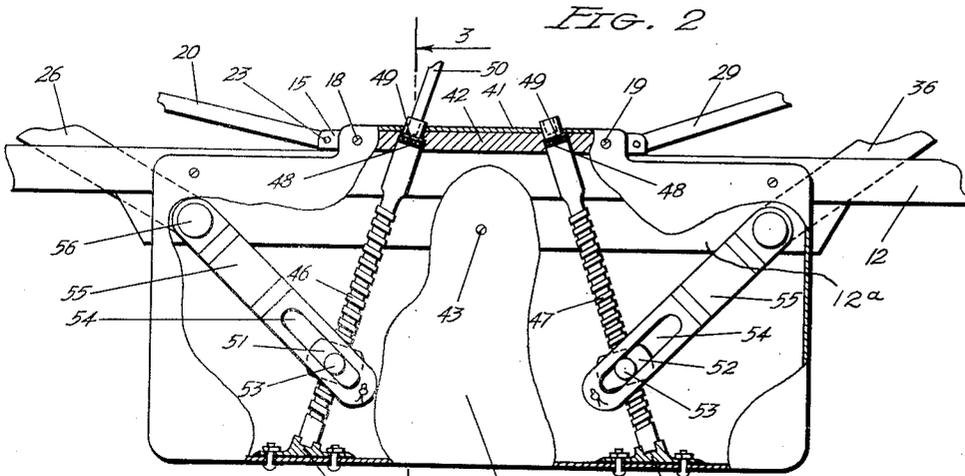
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UNITED STATES PATENT OFFICE

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PATIENT-OPERABLE HOSPITAL BED

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Application November 17, 1937, Serial No. 175,028

2 Claims. (Cl. 5-69)

This invention relates to improvements in hospital beds.

A conventional form of hospital bed now in general use is provided with spring sections which are hingedly or pivotally connected to the bed frame which spring sections can be raised or lowered so that the patient may be supported in a reclining position or in a prone position as desired. In the hospital beds that are now generally used the adjustment of the spring sections is operable usually from the foot of the bed with the result that the adjustment can only be accomplished by a nurse or some attendant.

It is an object of the present invention to provide an improved hospital bed wherein adjustment of the bed may be accomplished easily and quickly by the patient himself so that the patient may adjust the bed to suit his own desires.

It is another object of the invention to provide a hospital bed which is adjustable by the patient from the side of the bed and which is so constructed that where conditions are such that the patient should not undertake to adjust the bed he may be easily prevented from doing so.

Another object of the invention is to provide a construction which can be easily, readily, and quickly applied to hospital beds now in general use so as to convert them into a construction wherein adjustment may be accomplished by the patient himself from the side of the bed.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Figure 1 is a perspective view of the framework of a conventional hospital bed illustrating the invention as having been embodied thereon, the bed springs being shown as having been removed;

Fig. 2 is a partial view in side elevation, parts being broken away and shown in section illustrating details of construction; and

Fig. 3 is a partial transverse view illustrating the crank and the method of applying it to the conventional shafts on the conventional hospital bed.

Referring to the accompanying drawings wherein similar reference characters designate similar parts throughout, the conventional hospital bed now in use consists of a suitable head upright 10 and a foot upright 11. These are connected by longitudinally extending rails 12 and 13 which are usually formed of angle irons.

Transverse braces 14 connect the longitudinally extending rails 13. On top of the rails and at approximately the center thereof there is usually attached a short strap or bar such as those indicated at 15 and 16. The sides of these straps or bars are usually recessed or set back from the outer sides of rails 12 and 13 and angle irons 17 are fastened against their inner faces such as by rivets located at the positions of bolts or screws 18 and 19. These angle irons form stationary horizontal continuations of movable bed spring frame sections. The rails 12 and 13 also usually carry relatively short sections of angle irons indicated at 12^a. The head or back bed spring frame section consists of two rails 20 and 21 connected by a transverse bar 22 and which are pivotally or hingedly connected to the bars 15 and 16 as by rivets 23. This spring section has links 24 and 25 pivotally connected thereto which in turn, are pivotally connected to arms 26 and 27 which are rigidly mounted on a transverse tubular shaft 28. The forward or foot spring section is usually jointed, being made up of short inner rails 29 and 30 which are pivotally connected to longer outer rails 31 and 32, the forward ends of which are connected by a transverse bar 33. Links 34 and 35 pivotally connect the rails 29 and 30 with arms 36 and 37 which are likewise rigid with a transverse tubular shaft 38.

The above described construction is somewhat conventional. The improvement consists of a generally rectangular sheet metal shield 40 having inwardly bent top, bottom, and side edges. The top of the shield indicated at 41 incloses a longitudinally extending steel bar 42 which is positioned against the outer side of the strip or bar 15. The shield 40 and the bar 42 have holes drilled therein for the reception of bolts or screws at 18 and 19. In applying the construction to the conventional bed the rivets that attached the bars 15 and 16 to the horizontal angle iron sections are punched out and the bolts are inserted in the rivet holes and serve to rigidly attach the bar 42 and the shield 40 to the bed frame. An additional hole may be drilled in the longitudinal rail 12 in the angle iron part 12^a thereof for the reception of a third bolt or screw as indicated at 43.

On the bottom of the shield 40 there are secured two sockets 44 and 45 which receive the lower ends of jack-screws 46 and 47. The upper ends of these jack-screws are shouldered as at 48 and extend through bar 42 and through the returned top of shield 40. A pair of hardened

washers and a row of balls may be positioned between the shoulder 48 and the top of the socket formed therefor in bar 42 as indicated at 49. The upper end of each jack-screw is preferably socketed with a hexagonal socket for the reception of a suitable crank 50. Nuts 51 and 52 are threaded onto the jack-screws 46 and 47, respectively. Each nut carries trunnions 53 which extend into slots 54 of suitable cranks generally designated at 55. Each crank is preferably formed of two pieces of metal having spaced ends so that the lower end of each crank straddles its respective jack-screw within shield 40. The upper end of each crank is welded, brazed, or otherwise rigidly secured to a short section of shafting 56 which is of such size that it may be telescoped into the end of its respective transverse tubular shaft 28 or 38. This section of shaft to which the crank is connected is extended into the tubular shafting 28 or 38 as the case may be a sufficient distance so as to be capable of receiving the pin 57 that fastens the arms 26 or the arm 27 as the case may be to its shaft. The pin that conventionally attaches these rails to their respective shafts is punched out and the short section of shaft 56 on being inserted into the transverse shaft 28 or 38 as the case may be, has a new pin 57 driven there-through. The new pin serves to re-connect rail 20 or 29 with its respective transverse shaft 28 or 38, as the case may be, and to rigidly connect the transverse shaft to short shaft 56. In this way the cranks are rigidly connected to the transverse shafts 28 and 38, respectively.

The operation and advantages of the improved construction are as follows: When the patient wishes to adjust the bed he may apply the crank 50 to the top of either jack-screw 46 or 47 and upon rotating the crank the jack-screw will be rotated to feed the nut thereon either upwardly or downwardly. Movement of the nut produces a swinging movement of the crank and consequent rotation of the transverse shaft. Thus, if crank 50 is applied to jack-screw 46 and jack-screw 46 is rotated thereby shaft 28 will be rotated to raise or lower rails 20 and 21 into the desired position. Likewise, application of crank 50 to jack-screw 47 can produce raising or lowering of rails 29 and 30.

When occasion requires that the patient should not adjust himself from a certain selected position, the crank 50 may be removed and placed out of reach of the patient, thus preventing his rotating either jack-screw. In the majority of instances, however, where the patient is permitted to adjust the bed into various positions

it will be found that his ability to adjust the bed himself while reclining thereon is of material advantage.

It will be noted from the above-described construction that the improvement is so designed as to be readily applied to the conventional construction of hospital bed. In applying the shield 40 and the associated structure it is merely necessary to punch out the rivets for the screws or bolts at 18 and 19 and to drill a hole in rail 12 for the reception of bolt or screw at 43. The pin at 57 on the conventional bed is punched out and upon insertion of the shaft portion 56 a new pin is installed which not only re-connects the movable rail sections to the transverse shafts but connects the shaft portions 56 to their respective transverse shafts. In this way the conventional hospital bed may be readily, easily, and quickly converted into a construction wherein it is operable by the patient from the side of the bed by utilizing previously formed holes already formed in the structural parts of the bed and with a minimum amount of additional machine work.

Various changes may be made in the details of construction without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. A device for converting a hospital bed into a construction wherein the bed may be adjusted by the patient from the side of the bed comprising a shield adapted to be applied to the side of the bed frame, jack-screws rotatably mounted within the shield, nuts on the jack-screws, cranks connected to the nuts and shaft sections connected to the cranks adapted to be inserted into transverse tubular shafts on the hospital bed and to be connected thereto.

2. Means for converting a hospital bed into a bed adjustable by the patient operable from the side of the bed comprising a pair of jack screws, means for mounting the jack screws on the side of the bed adjacent the center thereof so as to extend downwardly therefrom, a crank applicable to the upper end of both jack screws by which either of the jack screws may be rotated, nuts threaded onto the jack screws, cranks, means connecting the nuts with the cranks whereby the cranks will be operated upon rotation of the jack screw, a shaft section rigidly connected to each crank, the shaft sections being adapted to be inserted in transverse tubular operating shafts rotatably mounted on the bed and to be operatively connected thereto.

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