Dec. 18, 1956 M. J. FLATLEY 2,774,079

AUXILIARY BED HOIST

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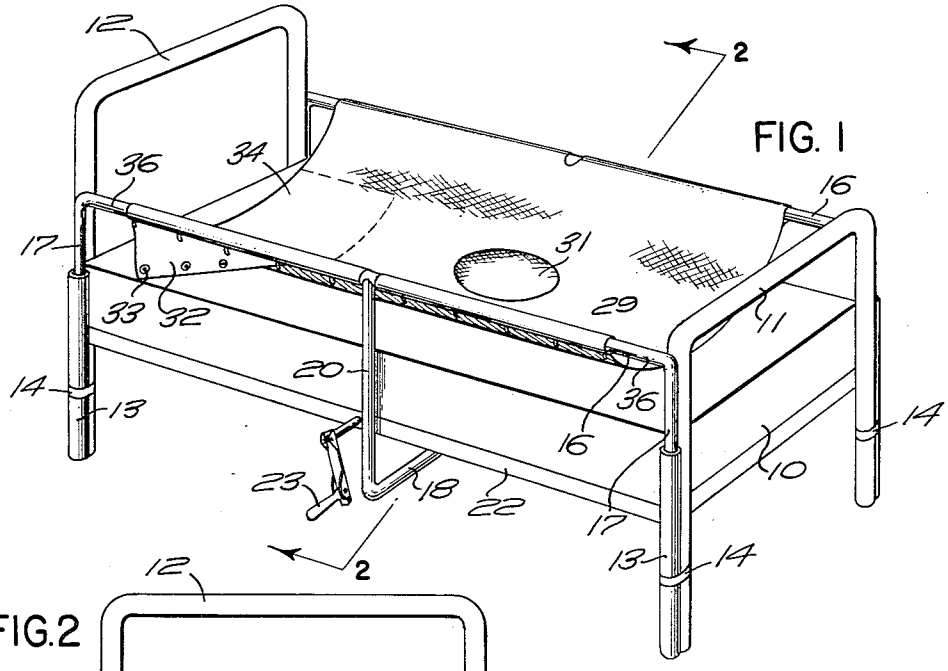


FIG. 1

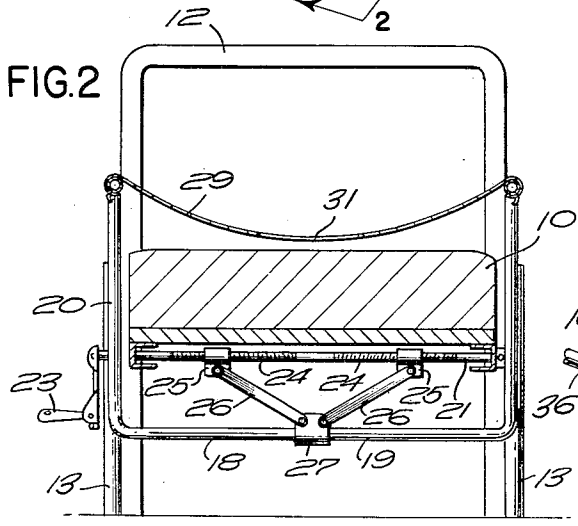


FIG. 2

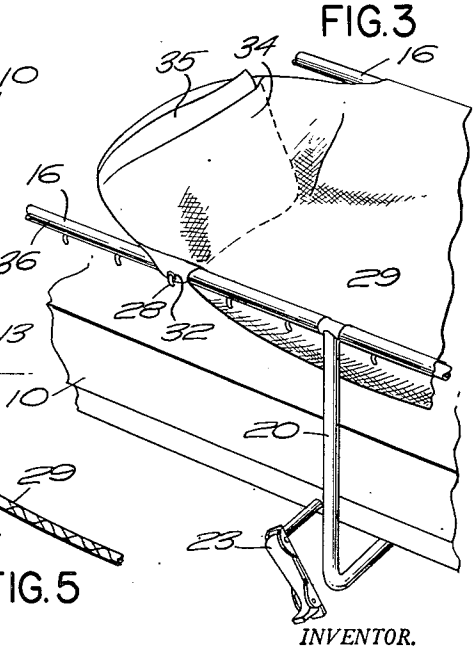


FIG. 3

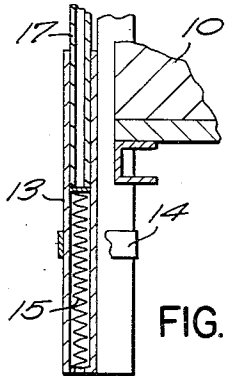


FIG. 4

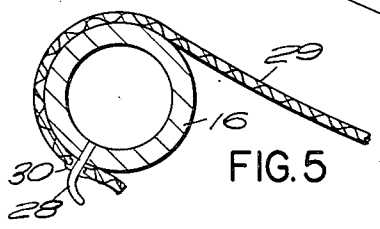


FIG. 5

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AUXILIARY BED HOIST

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2 Claims. (Cl. 5—84)

My present invention relates to a hospital or sick bed and more particularly to a novel hoist for raising the patient.

The principal object of the present invention is to provide a device which will permit the raising of a bedridden patient for the purpose of changing sheets, using the bed pan or for any other similar purpose.

A further object of the present invention is to provide a device of the character described which can readily be operated by one person without undue effort.

A further object of the present invention is to provide a device of the character described which is simple in construction and which can either be built directly into the bed or can be easily attached to an existing bed.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts more fully described in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claims.

In the drawings:

Fig. 1 is a perspective view of a bed equipped with a hoist embodying my invention.

Fig. 2 is a section taken on line 2—2 on Fig. 1.

Fig. 3 is a fragmentary perspective view showing the adjustment into sitting position.

Fig. 4 is a vertical section of one of the supporting posts.

Fig. 5 is a section showing the method of attaching the lifting sheet.

Hospital beds are normally equipped with devices which will raise the head or the feet of the patient by lifting the supporting structure of the bed itself. However, difficulty is encountered with patients who are bedridden and cannot help themselves. In such cases two or more nurses are required to handle the patient when a sheet is changed or when the patient must use the bed pan. The present invention is designed to provide an auxiliary hoist which will permit one person to easily lift the patient away from the bed without disturbing the bed.

Referring more in detail to the drawings embodying my invention, the conventional bed **10** is provided with the usual inverted U-shaped supports **11** and **12**. The auxiliary hoist is mounted on four vertical cylinders **13** each positioned at one of the legs of the bed. The cylinders **13** may be built into and made an integral part of the bed or may be separate elements as illustrated and clamped to the legs as at **14**. At the bottom of each cylinder **13**, I provide a coil spring **15**, see Fig. 4, of a stiffness capable of supporting 100 pounds. I now provide a horizontal side rail **16** on each side of the bed, the end of each rail being bent at right angles downwardly forming vertical legs **17** extending into the tubular supports **13** and resting on the springs **15**.

The side rails **16** will connect to each other by a U-shaped bar **18**, the horizontal leg **19** of which extends beneath the bed and the vertical legs **20** extend upwardly

at each side of the bed to connect with the side rails **16** at approximately their centers.

The side rails **16** are raised and lowered as shown in Fig. 2. A horizontal shaft **21** extends transversely beneath the bed and is journalled in the mattress supporting side rails **22**. The shaft **21** can be rotated by a crank **23** attached to the shaft at one side of the bed. The shaft **21** is provided with oppositely disposed threads **24** adjacent each end. A threaded collar **25** is adapted to ride on each of the threads **24** on the shaft **21**. The collars **25** are pivotally connected by link bars **26** to a fixed collar **27** on the horizontal leg **19** of the member **18**. With the parts thus assembled, turning movement of the crank **23** will cause rotation of the shaft **21**. In one direction the collars **25** will ride on the threads **24** towards each other and in the opposite direction they will ride away from each other. When the collars **25** move towards each other the links **26** will be swung toward a vertical position and will push the member **18** downwardly. This will pull the side bars **16** downwardly against the action of the springs **15**. When the collars **25** move away from each other the links **26** may be swung horizontally and this will pull the member **18** upwardly, the side bar moving upwardly assisted by the springs **15**.

The actual lifting movement is accomplished by providing the side rails **16** with spaced pins or hooks **28** extending angularly downwardly as shown in Fig. 5 so as to be out of contact from either side of the rail thus preventing snagging. A sheet of flexible material **29** is stretched between the side rails **16**. The material **29** should be strong yet soft and easily cleansed. Canvas can be used but "nylon" or glass cloth is preferable. The material is provided with spaced eyelets **30** which can be slipped over the hooks **28** as shown in Fig. 5. If desired, the material **29** can be removed and the side rails **16** be used as protective rails for protecting a patient from rolling off the bed. This can be accomplished by raising the rails to approximately the position shown in the drawings.

With the cloth **29** in position the patient can be raised readily by one nurse turning the crank **23** since the springs **15** assist in the upward movement. During the downward movement the weight of the patient will assist in over balancing the springs **15** to lower the device.

The cloth **29** may be provided with an opening **31** so that a bed pan can be placed under it after the patient has been raised. In addition the cloth **29** can also be provided with triangular flaps **32** adjacent the head end of the bed. The flaps **32** will be provided with additional eyelets **33**. When the first few eyelets on the cloth are unhooked the flap can be swung forwardly as shown in Fig. 3 and hooked separately on to the fourth or fifth eyelet pulling the head of the cloth vertically so that the patient is held in a sitting position. In addition the cloth **29** may be provided with a pocket **34** into which the pillow **35** may be slipped to help hold the patient in a sitting position. In this position the first **2** or **3** eyelets toward the foot of the bed may also be unhooked so that the patient's leg will swing downwardly towards the bed. The patient can thus be completely raised into a sitting position by one nurse without assistance.

This device is useful with patients with broken bones who must be lifted very carefully, with patients with heart conditions which require slow careful handling, and patients that have been paralyzed in any manner. If desired, a sheet can also be placed over the cloth **29**.

It is preferred that the side rails **16** be made of tubular material to give strength without weight. By telescoping the ends as at **36** the device can be made adjustable to different length beds. Also, since most iron hospital

beds are supported on tubular members the device can be built into a bed by using the bed legs instead of the cylinders **13** and positioning the springs **15** within the legs of the bed.

Changes in construction and other advantages of the present invention will be readily apparent to a person skilled in the art.

I claim:

1. An auxiliary bed hoist comprising a pair of spaced parallel rails extending along each side of a bed, means independent of the bed for supporting said rails at each end, means for simultaneously raising or lowering said rails, and a supporting fabric extending over said bed and releasably hooked to said rails, said raising means comprising a bar mounted transversely beneath said bed and having a crank at one end, said bar having oppositely disposed threads toward each end, a threaded collar riding on each set of threads, a U-shaped bar connected to said rails and extending beneath said threaded bar, a fixed collar in the center of said U-shaped bar, and a pair of pivoted links connecting said fixed collar to said threaded collars.

2. An auxiliary bed hoist comprising a pair of spaced parallel rails extending along each side of a bed, means independent of said bed for supporting said rails at each end, means for simultaneously raising or lowering said rails, and a supporting fabric extending over said bed and anchored to said rails, said rails having spaced pins and said fabric having spaced eyelets for hooking over said pins, said supporting means comprising a tubular member positioned on the floor at each leg of said bed, a spring in each tubular member, said rails having vertical portions at each end extending into said tubular members and resting on said springs.

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