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T. L. ATKINSON

3,080,577

BED RAIL

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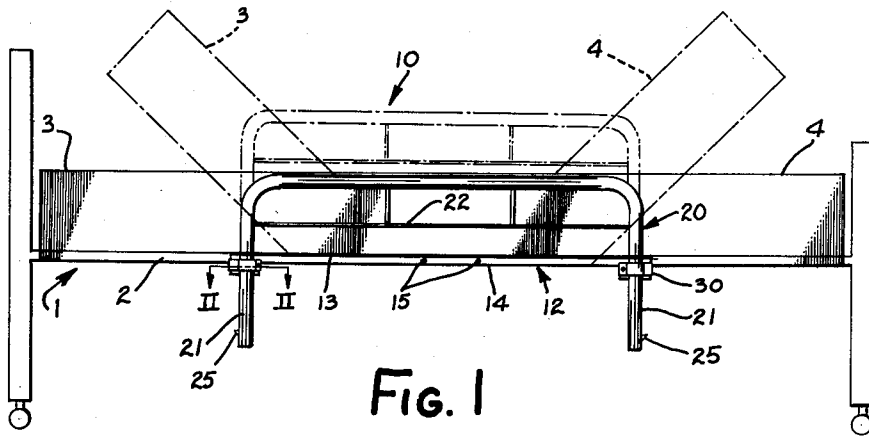


FIG. 1

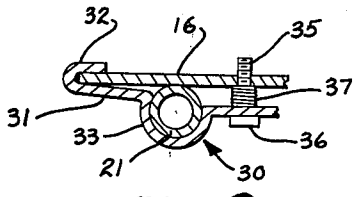


FIG. 2

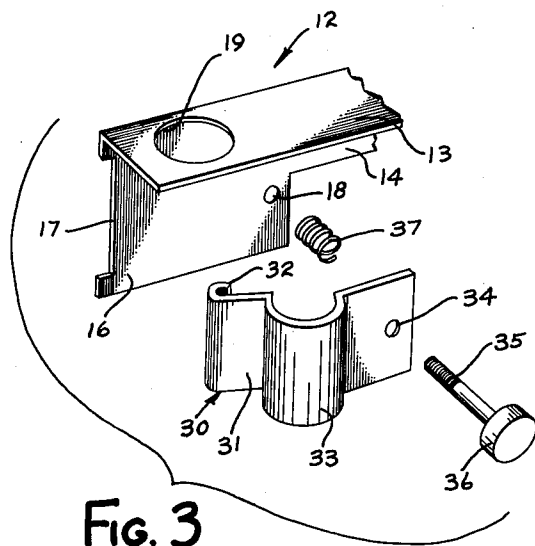


FIG. 3

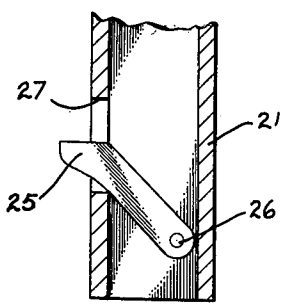


FIG. 4

INVENTOR  
TRUMAN L. ATKINSON

BY *Price and Heneveld*

ATTORNEYS

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BED RAIL

Truman L. Atkinson, Ludington, Mich., assignor to  
Truman L. Atkinson, Jr., Orwigsburg, Pa.  
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This invention relates to an adjustable bed rail for preventing a person from falling off the side of a bed. More particularly, this invention relates to a simplified bed rail construction particularly designed for institutional use such as hospitals, nursing homes, sanitariums, etc.

Bed rails presently in existence are cumbersome structures. They are complicated in operation and high in cost because of their complexity. They are difficult to mount on a bed and often interfere with the type of hospital bed in which the head and foot portions are both designed for angular adjustment. Because of the size and the number of parts utilized in these bed rails, they often interfere with the care of the patient. Further, if for some reason the bed rail must be removed from the bed, difficulty is experienced in the removal, the same difficulty being experienced when the bed rail is replaced on the bed.

It is therefore an object of this invention to provide a simplified bed rail which may be mounted on a bed quickly and simply.

Another object of this invention is to provide such a bed rail which may be raised and lowered on the bed with a minimum of difficulty.

Another object of this invention is to provide such a bed rail which does not interfere with angular adjustment of the head and foot portions of the bed.

A further object of this invention is to provide such a bed rail which does not interfere with the care of the patient at any time.

A still further object of this invention is to provide such a bed rail which is positive in function, yet is so simple in construction that cost is substantially reduced.

These and other objects of this invention will become obvious to those skilled in the art of bed rails upon reading the following specification in conjunction with the accompanying drawings, wherein:

FIG. 1 is a side view of the bed rail comprising this invention mounted on a bed, the bed rail in raised position being shown in phantom and the head and foot portions of the bed shown in phantom in raised position;

FIG. 2 is a cross sectional view taken along the plane II—II of FIG. 1;

FIG. 3 is a perspective, exploded view of the clamp means comprising a part of this invention; and

FIG. 4 is a cross sectional view showing the construction of the lower portions of the legs of the guard rail shown in FIG. 1.

Briefly, this invention relates to an adjustable bed rail for preventing a person from falling off the side of a bed, comprising a supporting member, a guard frame including a pair of depending legs and apertures in the supporting member for receiving the legs of the guard frame. Clamp members are provided for securing the legs of the guard frame to the supporting member, together with means for cinching the clamp members to the supporting member.

Referring more specifically to the drawings, the reference numeral 10 designates the bed rail comprising this invention, shown mounted on the bed 1 (FIG. 1). The bed rail 10 includes the guard frame 12, the supporting member 20 and a pair of clamp members 30.

The supporting member 12 is preferably of angle construction, including a horizontal portion 13 and a vertical portion 14 (FIGS. 1 and 3). The vertical portion 14 is attached by suitable means such as bolts 15 gener-

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ally near its center to the side rail 2 of the bed 1. The attachment bolts 15 comprise the only connection between the bed rail 10 and the bed 1. Thus, it will be noted that the bed rail 10 in no way interferes with angular adjustment of the head 3 of the foot 4 of the bed 1, this being shown clearly in FIG. 1. Depending from each end of the supporting member 12 is an ear 16, having a recess 17 in the outer end thereof. A threaded opening 18 is provided generally near the other edge of each depending ear 16 and openings 19 are provided near each end of the horizontal portion 13 of the supporting member 12. The purpose of these openings will be more fully explained hereinafter.

The guard frame 20 includes a pair of depending legs 21. Suitable latticework 22 may be provided to prevent the possibility of a person falling between the legs 21 of the guard frame. A pawl 25, pivotable about the pin 26, is secured within the lower end portion of each of the legs 21 of the guard frame 20 (FIG. 4). Each pawl 25 is overbalanced with respect to the pin 26 so that the force of gravity causes it to normally lie within the slot 27, protruding from the respective leg 21. It will be noted that the slot 27 is of a length such that the pawl 25 may be depressed within the leg 21. The purpose for this structure is to limit the upward movement of the guard frame 20 which will be more fully explained hereinafter.

Each clamp member 30 includes the plate 31 with a pivot flange 32 along one vertical edge thereof, a vertical boss 33 and an opening 34. A threaded stud 35 with a handle 36 on one end thereof is adapted to be inserted through the opening 34, with a coil spring 37 enveloping the threaded stud 35.

### Assembly and Operation

The bed rail 10 is assembled as follows. As has already been stated, the supporting member 12 is mounted on the side rail 2 of bed 1 by means of attachment bolts 15, these bolts extending through the vertical portion 13 of the supporting member generally near its center. The legs 21 of the guard frame 20 are inserted into the openings 19 in the horizontal portion 13 of the supporting member 12. When the legs 21 are thus inserted into the openings 19, the pawls 25 in the lower portions of the legs 21 will offer no resistance as they are biased within the tubular legs 21 as they pass through the openings 19. The pivot flange 32 on the side edge of the plate 31 of the clamp members 30 are positioned within the recesses 17 of the ears 16, the pivot flanges 32 enveloping the edge defined by these recesses. The plates 31 are placed against the legs 21 passing through the openings 19, a leg 21 fitting into each boss 33 of plate 31. The threaded stud 35 is then inserted through the opening 34 in plate 31, the spring 37 enveloping the threaded portion of the stud 35. This stud is then threaded into the threaded opening 18 in the ears 16 depending from the supporting members 12. It will be noted that upon rotation of the handle 36 of stud 35 the plate 31 of clamp member 30 moves either toward or away from its respective ear 16. With these simple steps, the bed rail 10 is both mounted on the bed 1 and completely ready for use.

The bed rail 10 operates as follows. Since the attachment bolts 15 entirely support the bed rail 10, it will be noted from FIG. 1 that the structure of this bed rail in no way interferes with the angular adjustment of the head 3 or the foot 4 of the bed 1. This is shown clearly in FIG. 1 which shows the bed rail 10 in its "down" position. In this position, the bed rail in no way interferes with the use of the bed as it is preferably of a size such that the mattress extends above it in "down" position. FIG. 1 shows the bed rail 10 in "up" position in dotted

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lines; it being raised as follows. The handles 36 of studs 35 are rotated, moving the studs outwardly. The springs 37 force the plates 31 outwardly also, the legs 21 of the guard frame 20 being released. The recesses 17 provided in the depending ears 16 prevent the clamp members 30 from falling off when thus loosened. The guard frame 20 may then be raised to the desired height and the handles 36 rotated in the opposite direction, moving the studs 35 inwardly so that the legs 21 are again firmly gripped between the ears 16 and the plate 31. To lower this bed rail 10, the steps just described are repeated, the guard frame 20 being lowered when the clamp members 30 are loosened.

In the event it becomes necessary for the bed rail 10 to be removed from the bed 1, it will be noted that it would be very simple to remove the attachment bolts 15. However, even this will not be necessary since the guard frame 20 may be raised as described when the clamp members 30 are loosened, and the pawls 25 depressed within the tubular legs 21 whereby the entire guard frame may be removed from the bed. This leaves only the supporting member 12 attached to the bed which is so small that the entire apparatus is removed for all practical purposes. The guard frame 20 may be remounted on the bed 1 by merely inserting the legs 21 through the openings 19 in the supporting member and tightening the clamp members 30 as described hereinbefore. Thus, it is entirely practical to have a supporting member 12 mounted on every bed in the hospital, with a plurality of guard frames easily adapted to be quickly inserted thereon for use as a bed rail.

Thus, this invention has disclosed a bed rail which is greatly simplified in construction. It may be mounted on a bed quickly and simply and in no way interferes with angular adjustment of the head and foot of the bed to which it is mounted.

The guard frame may be raised or lowered quickly and simply. The guard frame may be removed from the bed rail quickly and simply which for all practical purposes removes the entire apparatus from the bed. This bed rail is positive in operation and function, the parts being so simple that cost is reduced and repairs necessary are minimal.

While only one embodiment of this invention has been

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shown and described, it may be possible to practice the invention through the use of certain other embodiments without departing from the spirit and scope thereof. These other embodiments are to be included within the spirit and scope of this invention unless the following claims expressly state otherwise.

I claim:

1. An adjustable bed rail for preventing a person from falling off the side of a bed, comprising: a supporting member including a horizontal portion and a vertical portion; said vertical portion of said supporting member secured generally near its center to the sides of a bed; a guard frame including a pair of depending legs; apertures in said horizontal portion of said supporting member for receiving said legs of said guard frame; means generally adjacent each of said apertures for receiving a clamp member; a pair of clamp members including a pivot flange for attachment to said receiving means and a boss for securing said legs of said guard frame to said supporting member; a movable pawl secured near the lower end of each of said legs, said pawls normally limiting upward movement of said legs; and means for adjusting said clamp members with respect to said supporting member whereby said legs of said guard frame may be moved within said bosses vertically between said supporting member and said clamp members and rigidly locked between them.

2. An adjustable bed rail as defined in claim 1, said means for adjusting said clamp members including a threaded stud extending through said clamp member and said supporting member and a coil spring positioned around said stud therebetween.

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