Feb. 3, 1959 S. A. BALONICK 2,871,490

GUARD RAIL FOR BEDS

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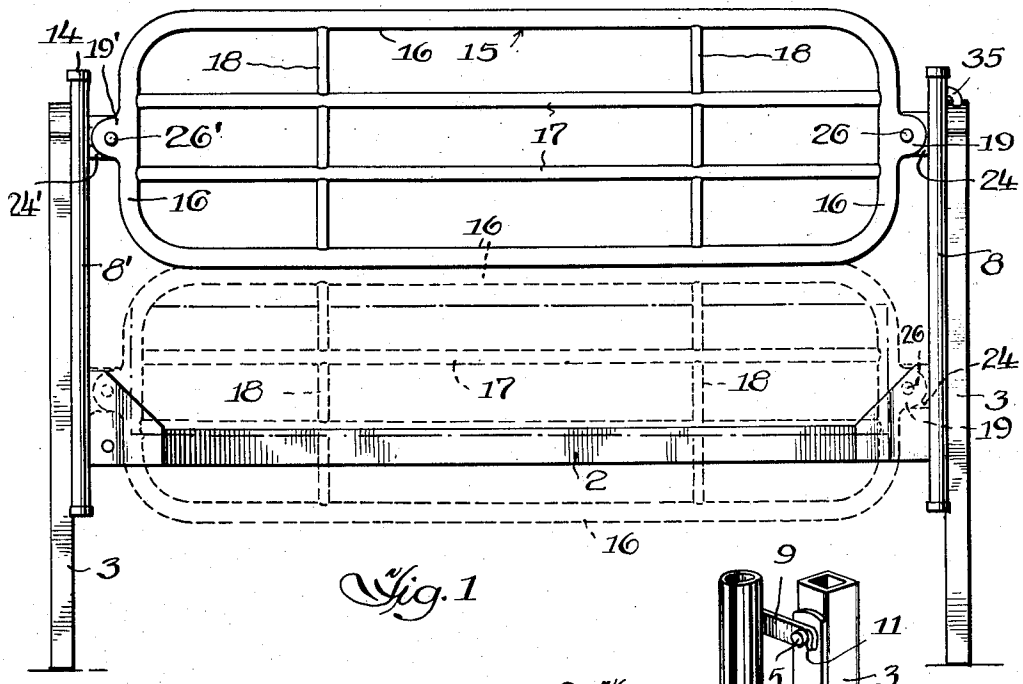


Fig. 1

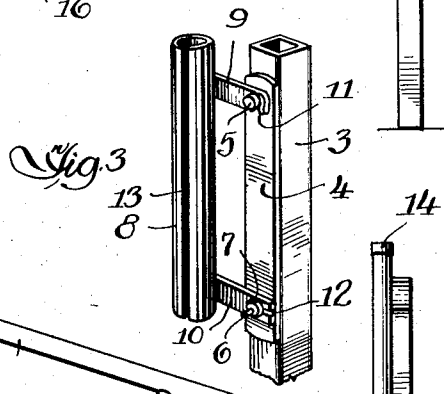


Fig. 3

Fig. 2

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Fig. 5

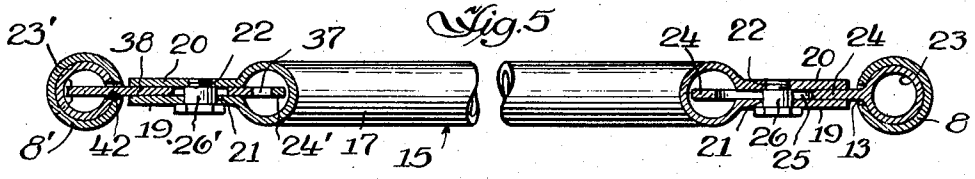


Fig. 4

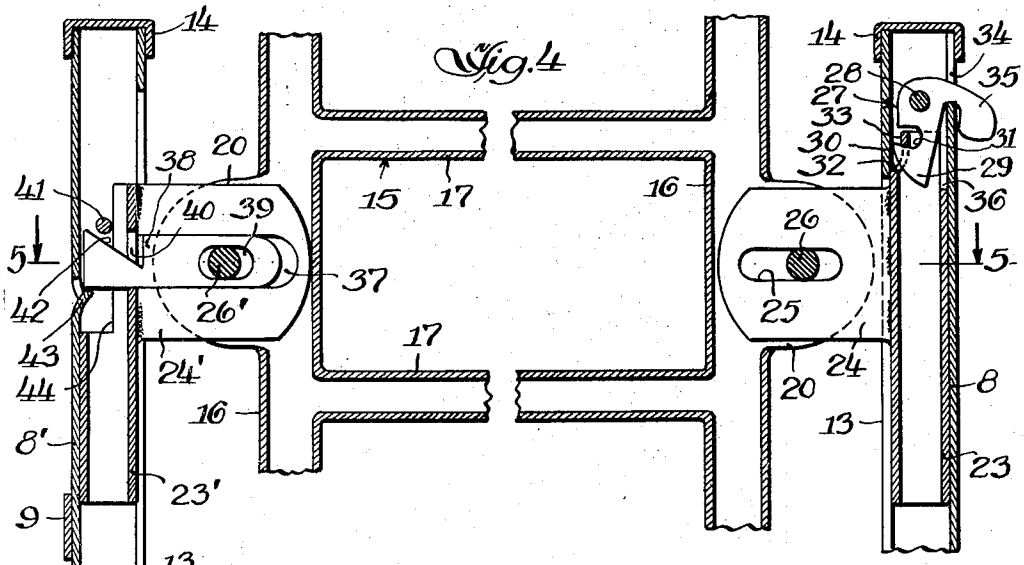


Fig. 6

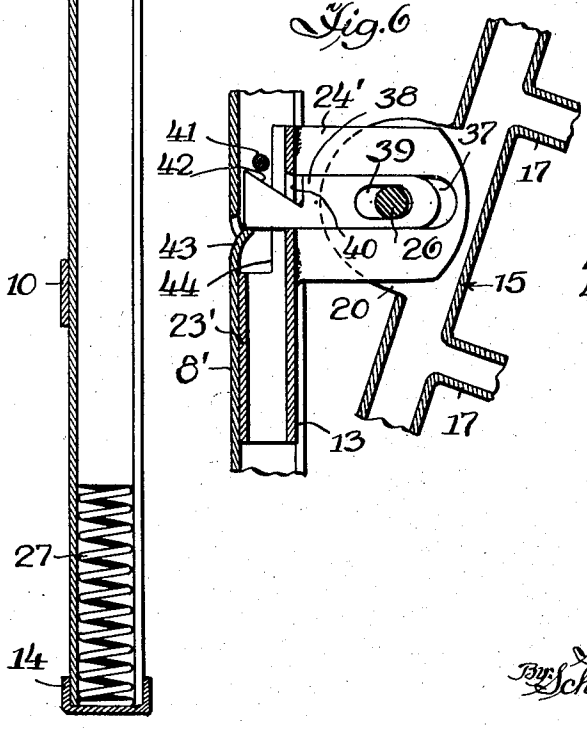
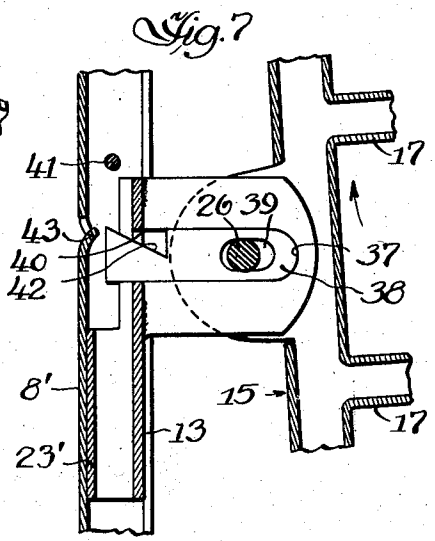


Fig. 7



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GUARD RAIL FOR BEDS

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9 Claims. (Cl. 5—331)

This invention relates to a guard rail for beds adapted to provide readily releasable means for restraining the body movements of hospital patients to prevent them from falling out of bed.

One of the important advantages of the guard rail of the present invention is that it may be manipulated with one hand, and yet cannot be lowered by patients of the type requiring the protection of a guard rail. The guard rail is provided with different latch means at its opposite ends, and one latch must be manually released before the other latch can be released. The releasable latch is preferably positioned adjacent the foot board of the bed, where it is safely out of reach of the patient. The latch means at each end of the bed is positive in its operation, and both latches cooperate to hold the guard rail securely against accidental displacement.

The structure by means of which the above and other advantages are attained will be described in detail in the following specification, taken in conjunction with the accompanying drawings, showing a preferred illustrative embodiment of the invention, in which:

Figure 1 is a side elevation of a bed provided with a guard rail embodying the invention, showing the guard rail in lowered position in dotted lines;

Fig. 2 is a side elevation showing the guard rail in the process of being lowered;

Fig. 3 is a fragmentary detail perspective view showing the means for attaching the guard rail to the bed;

Fig. 4 is a fragmentary cross sectional view of the guard rail latched in its upper position;

Fig. 5 is a fragmentary cross sectional view, taken along the line 5—5 of Fig. 4;

Fig. 6 is a fragmentary cross sectional view of latch at head end of the bed when opposite end of guard rail is down just before the release of the latch shown; and

Fig. 7 is a fragmentary cross sectional view of the latch at the head end of the bed just before it is latched in its upper position.

Referring to the drawings, particularly to Figs. 1 and 2, the reference numeral 2 indicates a bed having posts 3 at each side of its head board and foot board. Identical structure at opposite ends of the bed will be indicated by the same reference numerals. The bed is conventional except for plates 4 (Fig. 3) that are welded to each bed post 3.

Each plate 4 is preferably welded to the side of each post which faces the corresponding post at the opposite end of the bed, but may be welded to any side of the post. Each plate 4 is provided with two vertically spaced studs, 5 and 6, which project outwardly from the exposed face of the plate 4. Stud 6 is threaded to receive a nut 7.

A hollow tube 8 or 8' is secured to each plate 4 by means of a pair of arms 9 and 10 each of which is rigidly secured to the tube 8 or 8' in any suitable manner, as, for example, by welding. The tubes 8 and 8' are shown as cylindrical, but it will be obvious that they may be of any desired cross sectional shape. The tubes 8 are

preferably positioned adjacent the foot board of the bed, and tubes 8' are preferably positioned adjacent the head board, but this arrangement may be reversed.

The arms 9 and 10 are preferably tangential to the tubes 8 and 8'. Arm 9 has a notch 11 extending upwardly from its lower edge so that it may be dropped over the stud 5. The end of stud 5 may be enlarged to prevent accidental displacement of arm 9 from the stud. The free end of arm 10 is notched longitudinally, as indicated at 12, and the tube 8 or 8' is swung pivotally about the stud 5 to cause notch 12 to straddle stud 6. A nut 7 is then threaded on stud 6 to hold the tube 8 or 8' in vertical position parallel to post 4.

A longitudinally extending slot 13 extends through the wall of each tube 8 and 8'. The slot 13 faces the opposite end of the bed, and the slot in each tube 8 is aligned with the slot 13 in the tube 8' at the opposite end of the same side of the bed. The slot may extend the full length of the tube, but preferably stops short of each end, as shown in Fig. 4. A cap 14 closes each end of each tube 8 and 8'. The cap 14 may be removably secured to each end of tube 8 or 8', but preferably is rigidly secured thereto, as by welding, after certain latch structure is positioned within the tube, as hereinafter described.

The guard rail 15 may be of any desired shape, but is shown as comprising a tubular bar 16 bent into substantially rectangular shape, a pair of intermediate longitudinal tublar bars 17, and a plurality of intermediate tubular vertical bars 18. Although tubular bars are preferred, it will be obvious that the guard rail may be made of flat strips, if desired. The guard rail has a pair of parallel flat plates 19 and 20 (Fig. 5) extending outwardly from the foot end thereof. Plate 19 has an aperture 21 extending therethrough, and plate 20 has a threaded aperture 22 in registration with aperture 21. Preferably aperture 21 is slightly larger than aperture 22.

A tubular sleeve 23 slidably mounted in tube 8 has a flat plate 24 rigidly secured thereto in any suitable manner, as, for example, by welding. Plate 24 extends from sleeve 23 and projects through slot 13. The plate 24 fits between plates 19 and 20 and is provided with a slot 25 aligned with apertures 21 and 22. A stud 26 extending through aperture 21 and slot 25 is threaded into aperture 22 to hold plates 19 and 20 in proper relationship with plate 24 to permit a sliding pivotal movement therebetween. A coiled compression spring 27 is positioned in the bottom of each tube 8 to cushion the stop of tubular sleeve 23 when it moves downwardly to its lowermost position.

A trigger 27 constitutes a latch means for one end of the guard rail. The trigger normally prevents downward movement of sleeve 23. As shown in Fig. 4, the trigger is pivotally mounted in tube 8 by means of a pin 28 extending transversely of the tube and fixed thereto in any suitable manner. A lug 29 depending from the trigger has a pointed hook 30 separated from the body of the trigger by a notch 31 and projecting through an aperture 32 in sleeve 23. The upper edge of hook 30 engages a thin strip 33, offset inwardly at the top of sleeve 23 with which it is integral, to prevent downward movement of sleeve 23 and plate 24. The strip 33 is offset inwardly to permit hook 30 to pass beyond the outer edge of the strip when it engages the inner surface of tube 8.

Preferably the upper edge portion of tube 8 is notched longitudinally, as indicated at 34, and trigger 27 is provided with a rearwardly extending finger 35 which projects through notch 34. The upper edge portion of sleeve 23 is slotted longitudinally, as indicated at 36, to provide clearance space for the hook 30 to clear strip 33 when lifting pressure is applied to finger 35. Upward

movement of finger 35 swings hook 30 rearwardly, and as soon as hook 30 clears the inner edge of strip 33, gravity causes the tube 23 and plate 24 to move downwardly.

As plate 24 moves downwardly, stud 26 causes the end of guard rail 15 adjacent the foot board to move pivotally downwardly, the stud 26 moving toward the left end of slot 25 as the downward movement of plate 24 increases the distance between it and a similar plate 24' projecting through the slot 13 in tube 8'.

Each tube 8' has a tubular sleeve 23' slidably mounted therein. A flat plate 24' welded to sleeve 23', or rigidly secured thereto in any other suitable manner, projects from the sleeve through slot 13 and fits between plates 19 and 20. The plate 24' is provided with a wide horizontal recess 37 into which a slide 38 fits. Slide 38 is provided with a longitudinal slot 39 which registers with apertures 21 and 22. Stud 26' extends through aperture 21 and slot 39 and is threaded into aperture 22.

One end of slide 38 extends through a slot 40 in sleeve 23' and into tube 8'. A pin 41 extending transversely through tube 8' is fixed thereto just above the upper edge of slide 38. The slide is provided with a notch 42 in its upper edge. The side of the notch closest to the adjacent end of the bed slopes downwardly to form a camming surface which engages pin 41, positioned directly above said surface, when the left end (as viewed in Fig. 4) of the guard rail is lifted, to move the slide 38 longitudinally towards the left. The latching means for the end of the guard rail adjacent the head board comprises the slide 38 and a lip 43 which is pressed out of the tube 8'.

The rear end of slide 38 rests upon lip 43 when the guard rail is in its uppermost or latched position. When the guard rail is in said latched position the slide 38 cannot be moved longitudinally away from lip 43 because there is not sufficient clearance at the opposite end of the bed to move the guard rail towards the right far enough for such disengagement. The upper portion of sleeve 23' is cut away at its rear, as indicated at 44, to provide clearance for pin 41 so that the sleeve 23' can be lifted far enough to cause the pin 41 to engage the camming surface of notch 42.

In describing the operation of the guard rail, the foot end of the bed will be considered as the right or forward end for convenience, and the head end will be considered as the left or rear end. When the right end of guard rail 15 has moved downwardly far enough to cause the stud 26 to abut the rear end of slot 25, continued downward movement of plate 24 pulls the guard rail 15 forwardly. Stud 26' is moved forwardly until it abuts the forward end of slot 39, and it then pulls slide 38 forwardly until the rear end of the slide moves off stop 43. Sleeve 23' then slides downwardly in tube 8' and carries the rear end of guard rail 15 with it. The lower edge of sleeve 23' engages spring 27 to cushion the stop of the sleeve at its lower limit of movement.

When the guard rail is lifted, the strip 33 of sleeve 23 engages hook 30 to move it to the right about pivot 28 and allow strip 33 to pass the hook. The strip 33 then strikes the portion of trigger 27 separated from hook 30 by notch 31, and moves it upwardly to bring the hook 30 into the aperture 32. The latching at the head end is slightly different since the slide 38 is forced towards the foot end of the bed as it is lifted over lip 43. The lifting movement of the guard rail causes the notch 42 to strike pin 41 which will force slide 38 longitudinally back over the lip 43 where it will be retained until the foot board end of the guard rail is lowered.

While I have described a preferred embodiment of my invention in considerable detail, it will be understood that the description is intended to be illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. Accordingly, I do not desire to be restricted to the exact details of construction described.

I claim:

1. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a member slidably mounted in each of said tubes, said guard rail having its opposite ends connected to said members, separate latch means connected to each of said tubes, one of said latch means comprising a trigger engageable with one of said members to hold it against sliding movement in one of said tubes, said trigger being movable pivotally for disengagement from said one member to allow the adjacent end of said guard rail to move downwardly, said other latch means including a projection in said second tube, and a slide seated on said projection, said slide being connected to the other end of said guard rail and movable therewith to unseat said slide from said projection and thereby release the second end of said guard rail, said projection being dimensioned to prevent unseating of said slide when said guard rail is in horizontal position, whereby said second latch means is releasable only when said first mentioned latch means is in released position.

2. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a member slidably mounted in each of said tubes, said guard rail having its opposite ends connected to said members, separate latch means connected to each of said tubes, one of said latch means comprising a trigger engageable with one of said members to hold it against sliding movement in one of said tubes, said trigger being movable pivotally for disengagement from said one member to allow the adjacent end of said guard rail to move downwardly, said other latch means including a projection in said second tube, and a slide seated on said projection, said slide being connected to the other end of said guard rail and movable relative to said projection as said one end of the guard rail moves downwardly, said projection being dimensioned to prevent disengagement from said slide until said one end of the guard rail reaches a predetermined point in its downward movement, said second mentioned latch means being releasable automatically when said one end of the guard rail reaches said predetermined point in its downward movement.

3. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a member slidably mounted in each of said tubes, said guard rail having its opposite ends connected to said members, releasable latch means in one of said tubes engageable with one of said members for holding one end of said guard rail in its uppermost position, a projection in said other tube, and a slide connected to the other end of said guard rail, said slide being adapted to seat on said projection to hold the second end of said guard rail in its uppermost position, said one end of the guard rail being adapted to move downwardly upon release of said latch means from engagement with said first mentioned member, said slide being movable with said one end of the guard rail relative to said projection as said one end of the guard rail moves downwardly and disengageable from said projection automatically to allow said second end of the guard rail to move downwardly when said one end of the guard rail reaches a predetermined point in its downward movement.

4. A device as set forth in claim 3 including cam means to move said slide into seating position on said projection when said last lowered end of said guard rail is lifted to its uppermost position.

5. A device as set forth in claim 3 including a pin secured to said second mentioned tube above said slide, and a notch in the upper edge of said slide, said notch having an inclined camming surface engageable with said pin to set said slide on said projection when said last lowered end of the guard rail is lifted to its uppermost position.

6. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a sleeve slidably mounted in each of said tubes, means interconnecting the ends of said guard rail with each of said sleeves,

separate latch means engageable with said sleeves, one of said latch means being releasable, said other latch means comprising a projection extending into one of said tubes and a slide seated on said projection when the adjacent end of said guard rail is in its uppermost position, said slide being movable relative to said projection to unseat the slide and thereby release said second mentioned latch to permit downward movement of the adjacent end of said guard rail, said projection and slide being dimensioned to prevent unseating movement of said slide when said first mentioned latch means is engaged with its sleeve.

7. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a sleeve slidably mounted in each of said tubes, means interconnecting the ends of said guard rail with each of said sleeves, a trigger mounted in one of said tubes, said trigger being engageable with the sleeve in said one tube and being operable to release one end of said guard rail, and latch means engageable with the opposite end of said guard rail, said latch means comprising a slide engageable with the sleeve in said other tube and a projection adapted to hold said slide in engagement with said last mentioned sleeve, said projection and slide being dimensioned to prevent disengagement of said slide from said projection to release the last mentioned end of said guard rail when the first mentioned end of said guard rail is in position to permit said trigger to engage the sleeve in said first mentioned tube.

8. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a sleeve slidably mounted in each of said tubes, means interconnecting the ends of said guard rail with each of said sleeves, a trigger pivotally mounted in one of said tubes, said trigger being engageable with the sleeve in said one tube to hold one end of said guard rail in its uppermost position, a finger projecting from said trigger through one wall of said one tube, said finger being operable to disengage said trigger from said first mentioned sleeve to release said one end of said guard rail from its uppermost position, and latch means engageable with the sleeve in the hollow tube adjacent the other end of said guard rail to hold said last mentioned end of the guard rail in its uppermost position, said latch means comprising a projection and a slide seated on said projection, said slide being movable to unseat it from projection when said first mentioned end of the guard rail is in a predetermined position, said projection and slide being dimensioned to prevent movement of said slide to unseat it from said projection when guard rail is in horizontal position.

9. In combination with a guard rail for beds, a hollow tube secured to each end of a bed, a sleeve slidably mounted in each of said tubes, means interconnecting the ends of said guard rail with each of said sleeves, a trigger mounted in one of said tubes, said trigger being engageable with the sleeve in said one tube and being operable to release one end of said guard rail, a slide operatively connected to the other end of said guard rail, and a lip projecting from the sleeve in said other tube, said slide being engageable with said lip to hold said last mentioned end of said guard rail in its uppermost position, said slide and lip being so dimensioned that said slide is disengageable from said lip only when said first mentioned end of the guard rail is out of its uppermost position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,048,955	Showalter	July 28, 1936
2,478,028	Travis	Aug. 2, 1949