May 23, 1939. J. ERDOS 2,159,323

REMOVABLE BED SIDE

Filed June 11, 1937

Fig. 1.

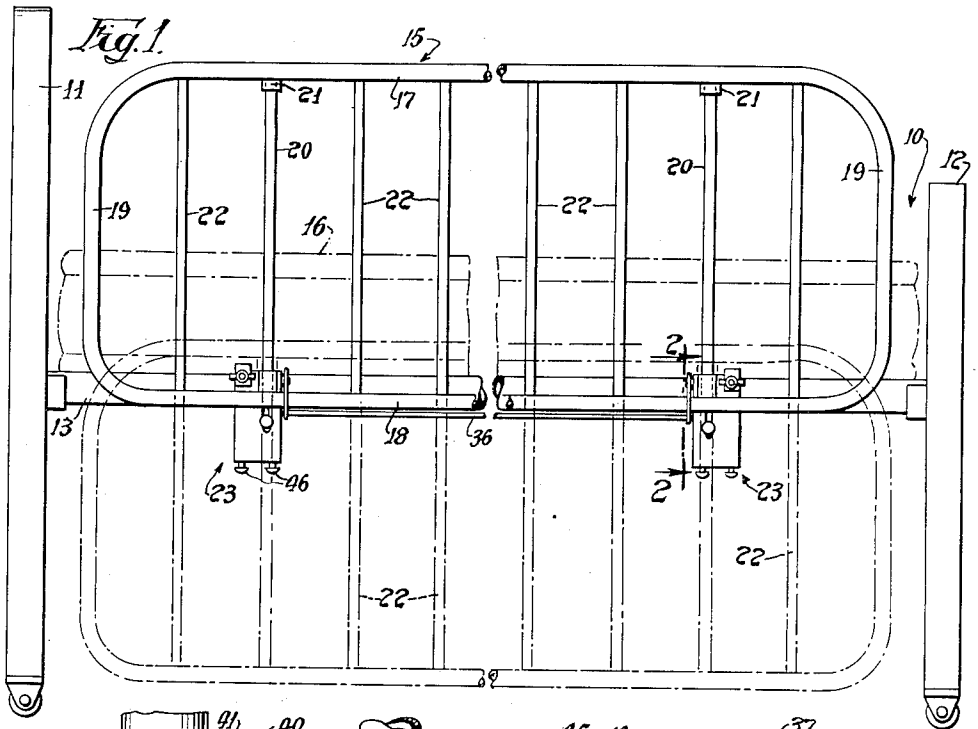


Fig. 3.

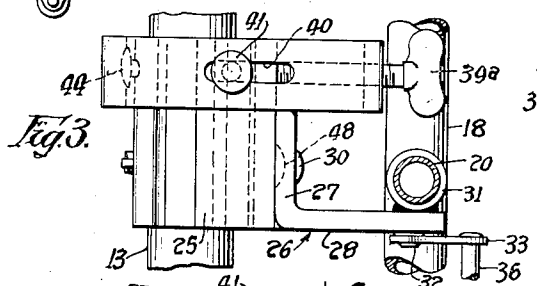


Fig. 2.

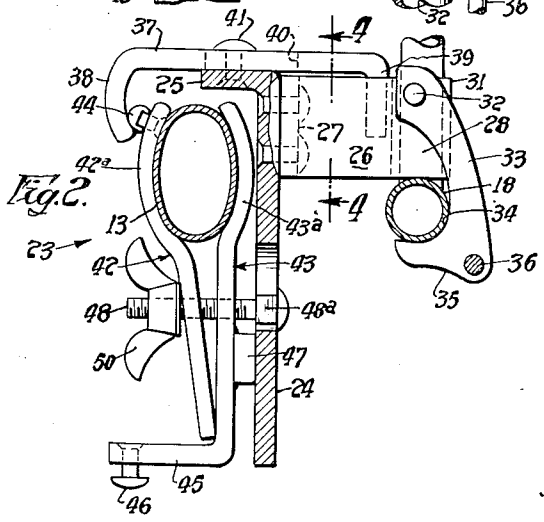


Fig. 5.

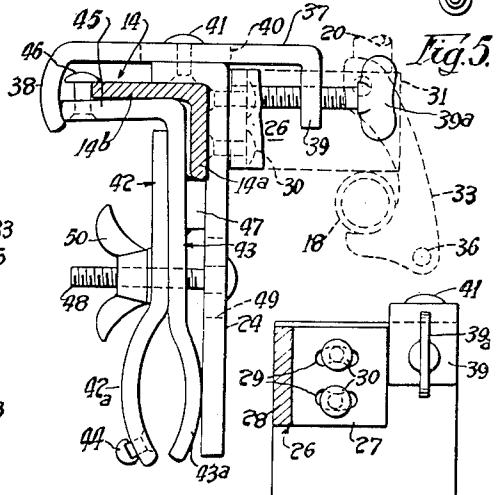
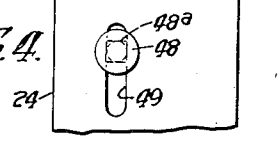


Fig. 4.



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REMOVABLE BED SIDE

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Application June 11, 1937, Serial No. 147,638

4 Claims. (Cl. 5—331)

This invention relates to improvements in removable bed sides and it consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In hospitals and sanitariums and similar institutions, certain bed patients require protection against falling out of bed. Bed sides for this purpose now in use are open to certain objections. One type of bed side is provided with means for detachably securing the same in position by engagement with the end parts of the bed. Such sides, however, must be completely removed from the bed by the nurse, before the patient can be properly attended. Such a side is relatively heavy for handling by the nurse and after removal must be placed out of the way and then replaced after the patient has been attended. Another type of side is hingedly connected to the bed and requires considerable space when swung from its "up" to its "down" position. In certain beds, for infants and like patients, and popularly known as "cribs", the sides are built into the same and not removable therefrom, but slide up and down into and out of the position of use.

One of the objects of the present invention is to provide a removable bed side which not only overcomes the objections inherent in sides as now made, but which may be applied to beds already in use and may be readily transferred from one bed to another.

Another object of the invention is to provide a bed side which when removably secured in place to a bed, may be slid in a guided upright path from an "up" to a "down" position to give complete access to the bed patient by the attending nurse without requiring the removal of the side from the bed for this purpose.

A further object of the invention is to provide a bed side which cannot bind in its movement from one operative position to another to prevent the intended operation thereof.

Again, it is an object of the invention to provide a side of this kind which may be produced as a unitary structure and to include means whereby it may be readily attached to and removed from a bed by inexperienced persons and without the use of tools.

Again, it is a further object of the invention to provide in a side of this kind, means whereby the side may be removably secured to the side rail of a bed whether the same be of a rectangular or a substantially round cross section.

The above mentioned objects of the invention, as well as others, together with the advantages thereof will more fully appear as the specification proceeds.

In the drawing:

Fig. 1 is a view in side elevation of two end portions of the frame of a bed to which my improved side has been applied.

Fig. 2 is a detail vertical sectional view on an enlarged scale as taken on the line 2—2 of Fig. 1.

Fig. 3 is a top plan view of the parts appearing in Fig. 2.

Fig. 4 is a detail vertical sectional view through parts appearing in Fig. 2 as taken on the line 4—4 of Fig. 2.

Fig. 5 is a view similar to Fig. 2 showing the parts of Fig. 2 in a changed position for use in removably securing the side to a bed having a side rail of a cross section different from that appearing in Fig. 2.

Referring now in detail to that embodiment of the invention illustrated in the accompanying drawing; 10 indicates as a whole the frame of a conventional bed to which one of the improved sides may be removably secured, it being understood that two of such sides are used for each bed. Said bed frame includes upright head and foot ends 11 and 12 respectively, connected together along both sides of the frame by longitudinal side frame members or rails 13 only one of which appears in Fig. 1. In some instances said rails are in the form of a tube of an oval cross section with its major axis arranged vertically, as best appears in Fig. 2. In other instances, said rails are in the form of an angle bar as indicated at 14 of Fig. 5 with the vertical flange 14*a* on the outside and facing downwardly and with the horizontal flange 14*b* at the top and facing inwardly.

The improved side for the bed is indicated as a whole as at 15. Said side includes a vertically arranged frame of a length approximating the distance between the side posts of the head and foot ends of the bed frame and of a height to extend a suitable distance above the bed mattress 16, when the side is in its "up" position as shown in full lines in Fig. 1. The frame for the side which is preferably made of metal tubing, includes top and bottom longitudinal members 17 and 18 and upright end members 19—19, the said members being joined at their ends to one another by rounded corners. The side also includes a pair of longitudinally spaced upright guide bars 20—20 also of metal tubing and which are secured at their ends to the top and bottom longitudinal members of the frame of the side. Surrounding the top end of each guide bar 20

adjacent the top frame member 17 is a yielding bumper 21, preferably made of rubber. The purpose of said bumpers will appear later.

Those portions of the frame 15 for the bed side, between the guide bars 20 and the end bars 19 of the frame and between the guide bars themselves are provided with a suitable filler of a generally open character. As shown herein, said filler is constituted by longitudinally spaced upright tubes 22 parallel with the guide bars 20 and secured at their ends to the top and bottom members 17 and 18 of the frame 15 for the side.

To detachably or removably secure the side in position with respect to the bed frame, so that it may be moved perpendicularly from its "up" to its "down" position and vice versa, a pair of clamping means 23—23 is provided. Said clamping means is of a peculiar character in that in one instance each may be clamped to a bed frame rail of oval cross section such as shown in Fig. 2 and each in another instance may be clamped to a bed frame rail of angle bar cross section, as shown in Fig. 5.

Each clamping means 23 includes an inverted L-shaped bracket and each bracket is made to provide a vertical guide supporting plate 24 having an inwardly extending flange 25 at the top end. Associated with the top end and on the outside of the plate is an angle bracket 26 consisting of a flange 27 engaged against the outer face of the plate 24 and a second and vertically disposed flange 28 extending at a right angle thereto. In the flange 27 are opposed arcuate slots 29 through which rivets 30 carried by the plate 24 extend. By this arrangement, the bracket 26 may have a limited rocking movement in the plane of the flange 27.

Secured to one face of the flange 28 is an upright guide sleeve 31 in which the associated guide bar 20 of the side has a sliding bearing. Pivoted at 32 to the outer face of the flange 28 is a latch 33 having a recess 34 in its inner edge and having a cam surface 35 below said recess. The purpose of said recess and cam surface will appear later. The latches associated with each clamping means 23 are connected together by a longitudinal bar 36 for simultaneous actuation.

On the top flange 25 of the plate and extending transversely thereof is an inverted U-shaped clevis that includes a top bar 37 and depending inner and outer end arms 38 and 39 respectively. A longitudinal slot 40 is formed in the central portion of the bar 37 and an upstanding rivet 41 carried by the plate flange 25 extends through said slot. Thus the said clevis is capable of a limited amount of movement transversely of the flange 25. The outer arm 39 carries a set screw 39a having a thumb nut head, the opposite end of the screw being adapted for engagement against the outer face of the plate 24. By manipulating the screw 39a, the clevis is moved transversely across the flange 25.

Associated with the inner face of the plate 24 is a pair of plate-like clamping members 42—43, respectively, which when disposed with one end up, are adapted to firmly clamp upon a rail 13 of oval cross section as shown in Fig. 2, and when disposed with the other end up are adapted to firmly clamp upon a rail 14 of angle bar cross section as shown in Fig. 5.

One end of the clamping member 42 is formed as a curved portion 42a to engage upon one side of the tubular rail 13 and said portion is provided with a shoulder or stud 44 which stands in the plane of the arm 38 of the inverted U-shape clevis before mentioned. The associated end of the clamping member 43 is also formed with a curved portion 43a to engage upon the other side of the rail 13. The other end of the clamping member 43 carries a right angled flange 45 that faces away from the plate member 42 and this flange carries a pair of studs 46 having heads spaced from one face of the flange. A spacer 47 is formed on one face of the flanged end of the clamping member 43 for engagement with the inner face of the supporting plate 24 for a purpose to appear later.

A bolt 48 passes through openings in the mid portion of the clamping members 42—43 and one end of said bolt near its head is squared as at 48a and engages in a vertical slot 49 in the plate member 24. A butterfly nut 50 is threaded upon the other end of the bolt to engage against the clamping member 42. It is apparent that tightening up on the nut draws the two members 42—43 of the clamp together.

In applying the side as a whole to a bed having a side rail 13 of tubular formation as shown in Fig. 2, the nut 50 is loosened and this permits separation of the portions 42a—43a of the clamping plates 42—43 to an amount whereby said portions may be disposed upon opposite sides of the rail 13. Thereafter the nut 50 is tightened up and this draws the two plate parts together so that their end portions securely clamp upon opposite sides of the rail. It is to be noted that the straight end portion of the plate 42a occupies an angled position with its extremity engaging the plate 43 near its flange extension 45. In the tightening up on the nut 50, the plate fulcrums about the extremity of its straight end portion and will yield slightly to have a spring action to function in the manner of a spring locknut to keep the nut tight.

The screw 39a of the clevis arm 39 is loosened so that the clevis may be shifted inwardly to dispose its arm 38 in engagement with one of the studs 44 of the clamping plate 42. Thereafter the screw 39a is tightened up to draw the clevis outwardly and cause its arm to have a good tight engagement with the stud 44 to act as a secondary lock for the clamp as a whole.

When the side is to be applied to a bed having an angle bar side rail 14 as in Fig. 5, the clamping plates 42—43 are turned about the bolt 48, end for end, so that the flange 45 is at the top. The plates 42—43 and the bolt 48 and nut 50 as a unit are moved upwardly of the slot 49 to bring the flange 45 into engagement with the under side of the rail flange 14b and to bring the studs 46 on said flange into engagement with the edge of said flange 14b. The clevis screw 39a is then loosened so that the clevis is moved inwardly across its plate flange 25 so as to bring the clevis arm into engagement with the edge of the plate flange 45. The clevis screw is then tightened up and pulls the clevis outwardly so that the clevis arm tightly clamps against the edge of said flange 45. At this time, the spacer 47 is disposed just below the vertical flange 14a of the rail so that the flange end portion of the plate 43 is spaced slightly from the inner face of the flange 14a, to render the clamping action of the clevis more effective.

When the side is in its "down" position as shown in dotted lines in Fig. 1, the rubber bumpers 21 on the guide bars 20 engage the top of the sleeves 31 so that the top frame member 17 of the side is disposed but slightly above the rail 13 and considerably below the mattress 16

on the bed. This gives freedom of access so that the nurse may readily attend the patient. To return the side to its "up" position, it is only necessary to lift upwardly on the frame bar **17**, the guide bars **20** sliding through the sleeves **31**.

As the bottom frame bar **18** approaches the latches **33**, it engages the cam surface **35** thereof so that both latches swing outwardly to allow the bar **18** to pass. When said bar reaches the plane of the recesses **34** in said latches, they swing inwardly so that said bar **18** engages in said recesses to be releasably locked in its "up" position. To lower the side frame into the "down" position, the rod **36** is pulled outwardly with one hand, the other hand being engaged with about the middle of the top bar **17** of the side frame. When the said rod is thus pulled outwardly this takes the recesses **34** of the latches **33** out of engagement with the bottom bar **18** of the frame so that the frame slides downwardly in the sleeves **31** until stopped by the engagement of the bumpers **21** with the top end of the sleeves.

In raising or lowering the frame **15**, it is advisable that it be grasped at about the middle of the bar **17**. Should it be grasped at one side or the other of the middle, the longer or heavier end tends to move downwardly first so that the bars **20** may bind in the sleeves. Should this occur, it is only necessary to give the top bar **17** a slight tap with the hand in line with the bar on the higher end of the frame. This will cause the angle brackets **26** to rock about the pivot and slot connections **30** and **29** to straighten out and release the binding action so that the frame **15** descends with ease.

Should it be desired to transfer the sides to an unequipped bed, the screws **39***a* and the nuts **50** are loosened to release the clamping action on the bed rail **13** or **14** for removal. Thus, the entire side with its clamping means may be moved as a unit to another bed for application thereto as described in connection with the first-mentioned one.

While in describing the invention I have referred in detail to the form, arrangement and construction of the various parts involved, the same is to be considered only in its illustrative sense so that I do not wish to be limited thereto except as may be specifically pointed out in the appended claims.

I claim as my invention:

1. In a bed side construction of the kind described, means providing a guide member with which a part of the bed side has a sliding engagement, means providing a support for said guide member, means associated with said support for detachably securing it to a longitudinal rail of a bed, and means for mounting said last-mentioned means in said support so that it can be turned end for end about said mounting means as an axis into different positions to be detachably secured to bed rails of different cross sectional shape.

2. In a bed side construction of the kind described, means providing a guide member with which a part of the bed side has a sliding engagement, means providing a support for said guide member, means comprising a pair of coacting clamping members adapted for clamping engagement upon the side rail of a bed, and means connecting said clamping members to said support and operable to move said clamping members into clamping engagement upon said side rails, said clamping members being reversible end for end on said connecting means so as to be operable for use on side rails of different cross sectional shapes.

3. In a bed side construction of the kind described, means providing a guide member with which a part of the bed side has a sliding engagement, means providing a support for said guide member, means associated with said support for detachably securing said support to a longitudinal rail of a bed, means comprising clamping plates mounted on said support for movement into different positions and formed at the ends to engage different cross sectionally shaped side rails of a bed, and means connecting said clamping plates to said support and for drawing said clamping plates into clamping engagement with said side rail, said clamping plates being reversible end for end on said connecting means to bring the desired end up for engagement with a side rail according to its cross sectional shape.

4. In a bed side construction of the kind described, a supporting plate, clamping plates carried by said supporting plate for detachably securing the latter to the longitudinal rail of a bed, a guide member with which a part of the bed side has a sliding engagement, means connecting said guide member to said supporting plate for a limited rocking movement in a plane parallel with said rail, and means carried by said supporting plate and operable to lock said clamping plates in clamping engagement upon said rail, said clamping plates being reversible end-for-end on said supporting plate to bring the desired end of said clamping plate in the uppermost position.

JOHN ERDOS.